ISSN: 2658-8455
Volume 6, Issue 11 (2025), pp. 459-492.

Technology Acceptance Model (TAM): Literature Review

Modèle d'Acceptation de la Technologie (TAM) : Revue de littérature

Atmane BADDA, *(PhD. in Management)*
Laboratory for Studies and Research in Economic and Management Sciences
National School of Commerce and Management El Jadida
Chouaib Doukkali University, Morocco

Correspondence address :	National School of Commerce and Management El Jadida ENCG-J, Corner of Ahmed Chaouki Avenue and Fez Street Chouaib Doukkali University Morocco (El Jadida) B.P 122- 24000 05 23 39 44 35
Disclosure Statement :	The authors declare that they have not received any financial support that could have influenced the objectivity of this study. They take full responsibility for any potential plagiarism, the use of artificial intelligence in the writing process, as well as for the results presented in this article.
Conflict of Interest :	The authors report no conflicts of interest.
Cite this article :	BADDA, A. (2025). Technology Acceptance Model (TAM): Literature Review. *International Journal of Accounting, Finance, Auditing, Management and Economics*, *6*(11), 459–492. https://doi.org/10.5281/zenodo.17450768
License	**This is an open access article under the CC BY-NC-ND license**

Received: 16/07/2025 *Accepted: 25/10/2025*

Technology Acceptance Model (TAM): Literature Review

Abstract

In a context of widespread digital transformation, understanding the determinants of user acceptance of technologies remains a central issue in management science and information systems. Since its initial formulation by Davis (1989), the Technology Acceptance Model (TAM) has established itself as one of the most widely used theoretical frameworks for analyzing information and communication technology (ICT) adoption intentions. However, the growing diversity of technological contexts and user profiles has led to a series of extensions of the model aimed at enriching its explanatory scope. This article provides an integrative review of the main extensions of the TAM, including TAM 2, TAM 3, as well as several sector-specific models (SMEs, motivational, compatibility, …). Based on a critical, structured and in-depth theoretical analysis, the study highlights the gradual evolution of explanatory variables, notably the integration of social (subjective norm, image), cognitive (self-efficacy, perceived complexity), affective (anxiety, pleasure), and contextual (organizational support, facilitating conditions) factors. The results of this synthesis show that TAM, although initially based on simple cognitive dimensions, has gradually been enriched to offer a more nuanced analytical framework capable of adapting to the complex dynamics of contemporary technology use. Finally, the article suggests avenues for future research aimed at fostering theoretical and methodological hybridization to better understand ICT appropriation processes in constantly evolving environments.

Keywords: Technology Acceptance Model (TAM), Information Systems (IS), Information and Communication Technologies (ICT), Digital Transformation.
JEL Classification: O32, O33
Paper type: Theoretical article

Résumé

Dans un contexte de transformation numérique généralisée, la compréhension des déterminants de l'acceptation des technologies par les utilisateurs demeure un enjeu central en sciences de gestion et en systèmes d'information. Depuis sa formulation initiale par Davis (1989), le Modèle d'Acceptation de la Technologie (TAM) s'est imposé comme l'un des cadres théoriques les plus mobilisés pour analyser l'intention d'adoption des technologies de l'information et de la communication (TIC). Néanmoins, la diversité croissante des contextes technologiques et des profils d'utilisateurs a conduit à une série d'extensions du modèle visant à enrichir sa portée explicative. Cet article propose une revue intégrative des principales extensions du TAM, incluant notamment TAM 2, TAM 3, ainsi que plusieurs modèles sectoriels (PME, motivationnel, compatibilité, ...). À partir d'une analyse théorique critique, structurée et approfondie, l'étude met en évidence l'évolution progressive des variables explicatives, notamment l'intégration de facteurs sociaux (norme subjective, image), cognitifs (auto-efficacité, complexité perçue), affectifs (anxiété, plaisir) et contextuels (soutien organisationnel, conditions de facilitation). Les résultats de cette synthèse montrent que le TAM, bien qu'initialement fondé sur des dimensions cognitives simples, s'est progressivement enrichi pour offrir un cadre d'analyse plus nuancé, capable de s'adapter aux dynamiques complexes de l'usage technologique contemporain. L'article propose enfin des pistes de recherche futures visant à favoriser une hybridation théorique et méthodologique pour mieux saisir les processus d'appropriation des TIC dans des environnements en constante évolution.

Mots clés : Modèle d'Acceptation de la Technologie (TAM), Systèmes d'Information (SI), Technologies d'Information et de Communication (TIC), Transformation Numérique.
Classification JEL: O32, O33
Type de l'article : Article théorique

ISSN: 2658-8455
Volume 6, Issue 11 (2025), pp. 459-492.

IJAFAME
International Journal of Accounting, Finance, Auditing, Management & Economics

Introduction

The continued rise of information and communication technologies (ICT) is profoundly transforming contemporary economic, social, and organizational dynamics. The rapid diffusion of digital technologies, from artificial intelligence (AI) to business intelligence (BI) systems, is generating growing interest in understanding the factors that determine their adoption and appropriation by individuals and organizations (Venkatesh et al., 2022; Marangunić & Granić, 2015). Acceptance of a technology depends not only on its technical characteristics, but also on the subjective perception of its usefulness, ease of use, and compatibility with users' values and practices (Davis, 1989; Lai, 2017). Understanding these mechanisms is a major scientific challenge, particularly to ensure the success of technological innovations in work environments and within digital transformation processes (Abubakar et al., 2022; Alam et al., 2023).

In this context, the Technology Acceptance Model (TAM), proposed by Davis (1989), has emerged as the dominant theoretical framework for analyzing technology acceptance and use. Its success stems from its simplicity, empirical robustness, and its ability to predict user behavior based on two fundamental variables: perceived usefulness (PU) and perceived ease of use (PEU). Since its formulation, the TAM has been widely validated, adapted, and extended to a wide variety of technological contexts: ERP systems, e-learning, e-commerce, mobile applications, artificial intelligence, and emerging technologies such as augmented reality and intelligent automation tools (Venkatesh & Davis, 2000; King & He, 2006; Wu & Chen, 2017; Dwivedi et al., 2023).

However, despite its theoretical importance, the TAM model has several conceptual and methodological limitations. Many studies have highlighted that its approach remains deterministic and focused on the intention of use to the detriment of post-acceptance dynamics such as appropriation, satisfaction or transformation of practices (Bagozzi, 2007; Benbasat & Barki, 2007; Chuttur, 2009). Furthermore, the model gives limited space to social, emotional and organizational factors, which play a central role in the diffusion of technologies in a professional context (Gefen & Straub, 1997; Venkatesh et al., 2012). Finally, the proliferation of extensions of TAM, such as TAM 2 (Venkatesh & Davis, 2000), TAM 3 (Venkatesh & Bala, 2008), the microcomputer usage model (Igbaria et al., 1995), and motivational and acceptance models in SMEs, has enriched our understanding of the phenomenon but also contributed to a theoretical fragmentation of the field (Dwivedi et al., 2019; Lee et al., 2021).

Given this complexity, recent literature calls for a critical and integrative re-evaluation of TAM and its extensions. Several authors emphasize the need to develop more holistic and contextual models capable of articulating the cognitive, affective, social, organizational, and technological dimensions of technology acceptance and appropriation (Venkatesh et al., 2022; Legris et al., 2020; Al-Emran et al., 2021). These studies suggest that traditional acceptance models, centered on rational beliefs, struggle to explain actual usage behaviors in complex digital environments characterized by information overload, digital fatigue, and the rapid transformation of professional practices (Tarafdar et al., 2019; Fischer et al., 2022).

This article therefore adopts this approach of theoretical integration and enrichment. It offers an integrative and critical review of the foundations of the TAM model and its main extensions, with the aim of identifying their contributions, limitations, and areas of conceptual incompleteness. Based on this analysis, the article aims to formulate an Integrative Technology Acceptance and Appropriation Model (ITAAM), designed to address the gaps identified in existing models. This model proposes a multi-level approach (individual, organizational, and technological) and introduces new structural and emotional determinants.

The article is organized as follows: the first section presents the theoretical foundations of the TAM model. The second explains its fundamental variables (PU) and (PEU). The third highlights the different technological contexts where the TAM model has been empirically

validated. The fourth traces the main extensions arising from its conceptual logic. Finally, the fifth section develops a critical comparative analysis of the contributions and limitations of these models, as well as proposing an integrative ITAAM model, which merges the most robust variables and introduces new explanatory dimensions for a renewed understanding of the process of technological acceptance and appropriation.

1. Theoretical Foundation of the TAM Model

The Technology Acceptance Model (TAM), formulated by Davis (1989), stands out as one of the most prominent and widely used theoretical frameworks in research on the adoption and acceptance of information and communication technologies (ICT). This model is part of a broader scientific movement seeking to understand, anticipate, and explain user behaviors in the face of technological innovations, whether deployed in organizational or individual contexts. Initially inspired by the Theory of Reasoned Action (TRA) developed by Ajzen and Fishbein (1975), the TAM is based on the premise that an individual's propensity to use a technology stem from two fundamental beliefs: perceived usefulness (PU) and perceived ease of use (PEU). These two dimensions structure the user's attitude toward the technology, which directly influences their behavioral intention to use it, and then their actual adoption and use behavior.

According to Atarodi et al. (2019), the primary purpose of TAM is to describe and anticipate user behavior toward information technologies in diverse contexts and populations. This model thus aims to predict the degree of acceptance of a technology based on essentially subjective explanatory variables, associated with the perception of its usefulness and ease of use. Its theoretical and methodological appeal has led to the model's widespread adoption in information systems (IS) and management science research, both for its predictive qualities and its ability to adapt to diverse technological environments (Scherer et al., 2019). Indeed, its universal nature allows it to be applied to fields as diverse as computer systems, mobile applications, online learning platforms, and emerging artificial intelligence technologies.

The evolution of TAM beyond its initial formulation has helped strengthen its scientific credibility. The work of Davis et al. (1989) enriched the model with a series of empirical tests aimed at validating the strength of its causal relationships and confirming its theoretical robustness. Subsequently, several researchers, including Hsiao and Yang (2011), demonstrated that TAM has established itself as an essential reference in the study of the determinants of technology acceptance. More broadly, the literature emphasizes that acceptance represents a critical stage in the overall innovation adoption process, an intermediate phase between the initial perception of the technology and its actual use in daily activities. This distinction is particularly important because it allows us to isolate the psychological and cognitive mechanisms that precede the actual appropriation phase.

The explanatory approach of TAM thus emphasizes how users' subjective perceptions shape their relationship with technology. Individuals' attitudes, behavioral intentions, and cognitive evaluations play a decisive role in understanding the acceptance or rejection of a technological innovation (Atarodi et al., 2019). With this in mind, the model engages in in-depth reflection on the influence of psychological, cognitive, and contextual factors in the adoption dynamics. Studying acceptance therefore involves not only measuring the perceived quality and functional relevance of a system, but also assessing its ability to generate sustainable use, in line with the user's needs, motivations, and constraints.

In the literature, two major trends can be distinguished for assessing the success of a technology: research focused on acceptance on the one hand, and that focusing on user satisfaction on the other. These two axes have long evolved in parallel, without a strong conceptual articulation. However, the TAM model, in its recent evolutions, allows us to bring these two perspectives together. Indeed, it distinguishes between beliefs and attitudes related to the use of technology

ISSN: 2658-8455
Volume 6, Issue 11 (2025), pp. 459-492.

IJAFAME
International Journal of Accounting, Finance, Auditing, Management & Economics

(known as behavioral attitudes) and those related to the technology itself (known as object-based attitudes) (Tarafdar, 2005; Hassan et al., 2019). This articulation paves the way for a more detailed understanding of acceptance mechanisms, linking them to both system design and user perceptions.

It is from this perspective that Wixom and Todd (2005) proposed an integrated version of the model, empirically tested, which explicitly links technological design and implementation choices to usage intention. Their model highlights the central role of behavioral beliefs and attitudes in the process of technological appropriation. It suggests that the effectiveness of an information system is based as much on its technical characteristics as on how these characteristics are perceived, interpreted and valued by end users (Mantello et al., 2023).

Thus, the Technology Acceptance Model (TAM) has gradually established itself as a central reference framework in the field of information systems, offering a conceptual approach that is clear, structured, and easily operationalized for analyzing the conditions of technology acceptance. Its widespread use in empirical research, covering fields as diverse as digital education, healthcare, banking, and enterprise resource planning (ERP) systems, attests to its external validity, flexibility of application, and adaptability to diverse organizational contexts (Tehrani et al., 2018). The model remains, even today, an essential reference for analyzing technology adoption dynamics, particularly in the initial phases of appropriation preceding the transformation of professional and organizational practices.

Since its initial formulation, the TAM has undergone ongoing theoretical enrichment and empirical validation, consolidating its position as one of the most robust and influential explanatory models in the field of technology acceptance. Chang et al. (2017) and King et al. (2019) agree that this model remains one of the most relevant conceptual frameworks for examining the links between human behavior and the success or failure of technology adoption. This consensus is based on the TAM's ability to accurately identify the cognitive, perceptual, and psychological variables that condition an individual's decision to accept or reject the use of a technological system (Wang et al., 2018; Cheng, 2019). Thus, its scientific appeal lies in the combination of its analytical rigor and its flexibility of application to various technological environments.

Originally designed to understand individuals' reactions to the introduction of computers in work environments, the TAM is based on the foundations of the Theory of Reasoned Action. It posits the existence of causal relationships between cognitive variables such as perceived usefulness (PU) and perceived ease of use (PEU), and attitudinal variables such as attitude toward use, behavioral intention, and actual use. According to this logic, the actual use of a technology stems from a prior behavioral intention, itself influenced by the user's positive or negative attitude toward the technology in question. The model thus offers a sequential and explanatory view of the acceptance process, in which initial beliefs about the technology shape attitudes and then guide observable behaviors.

Unlike TRA, which groups individual beliefs under a single subjective norm (Viot et al., 2018), TAM introduces a fundamental distinction between two independent but complementary cognitive dimensions. Perceived usefulness (PU) is defined as the degree to which an individual believes that using a particular system will improve their job performance, while perceived ease of use (PEU) corresponds to the extent to which a person believes that using a system will be effortless (Davis, 1989). By isolating these two concepts, TAM has clarified the differentiated role of instrumental beliefs in shaping attitudes and behavioral intentions, paving the way for multiple subsequent theoretical developments and empirical applications. This analytical separation allows for a better understanding of the mechanisms by which the technical or organizational characteristics of a technology influence individual perceptions, usage intentions, and, consequently, system acceptance or rejection.

TAM thus follows a structural logic, in which variables are causally linked within a hierarchical model, ranging from external elements (nature of the technology, user skills, organizational environment) to individual beliefs, then to attitudes and intentions, all the way to actual use. By clarifying this causal chain, the model not only helps explain usage behaviors but also design more effective technology implementation strategies. External elements are integrated into the model as moderating or mediating variables likely to directly influence fundamental beliefs (PU and PEU), which gives TAM an analytical flexibility appreciated by researchers and practitioners (Venkatesh and Davis, 2000).

The two central beliefs of TAM (perceived usefulness and perceived ease of use) are also echoed in the diffusion of innovation theory (Rogers, 1995), particularly through the concepts of relative advantage and complexity. Azizah et al. (2022) emphasize that perceived usefulness is conceptually close to relative advantage, defined as the perceived benefit associated with using the innovation compared to the existing system, while perceived ease of use corresponds to perceived complexity, the anticipated difficulty of use. These similarities reinforce the theoretical validity of TAM and its ability to integrate contributions from complementary frameworks.

Furthermore, numerous studies have shown that technological (user interface, ergonomics), organizational (managerial support, training), or individual (experience, technology anxiety) factors significantly influence PU and PEU, thus determining the intention to adopt a technology (Azizah et al., 2022; Tehrani et al., 2018). TAM therefore makes it possible to model the direct and indirect effects of these factors on acceptance processes, in various contexts (education, health, e-commerce, public administration, ...).

In short, the TAM model provides a coherent and proven theoretical foundation for understanding how individual perceptions of a technology's usefulness and ease of use influence users' attitudes and, ultimately, their actual usage behavior. By linking these variables to external determinants, it provides a solid foundation for designing, implementing, and evaluating technologies in organizations. Its simple yet powerful structure makes it one of the most widely used models in information systems research.

2. Perceived Usefulness and Perceived Ease of Use

Over the past forty years, the assessment of the success of information and communication technologies has gradually shifted from a behavioral perspective, favoring the study of the psychological and cognitive mechanisms that influence technological uses. This orientation has led to the emergence of explanatory models with predictive scope, seeking to establish empirically verifiable links between users' perceptions and their adoption or rejection behaviors. In this context, so-called deterministic approaches have become dominant, postulating the existence of stable causal relationships between individual beliefs and observed attitudes towards digital technologies (Venkatesh & Davis, 2000). Among these models, the Technology Acceptance Model (TAM) occupies a central place. The latter has profoundly shaped research in management science and information systems by identifying two essential psychological determinants of technological acceptance: perceived usefulness (PU) and perceived ease of use (PEU) (Marchal et al., 2018). These two concepts constitute the explanatory pillars of the propensity of individuals to adopt a technology and continue to structure a large part of contemporary work on the acceptance and appropriation of digital innovations.

2.1. Perceived Usefulness as a driver of perceived performance

Perceived usefulness is defined as "the degree to which an individual believes that using a particular system would improve their job performance" (Davis, 1989). From an organizational perspective, this variable refers to the effectiveness the user anticipates through the use of

ISSN: 2658-8455
Volume 6, Issue 11 (2025), pp. 459-492.

IJAFAME
International Journal of Accounting, Finance, Auditing, Management & Economics

technology, linked to incentives such as promotion prospects, financial rewards, or psychological gratification (Iyer et al., 2020; Moats, 2015; Pfeiffer et al., 2016). Thus, perceived usefulness crystallizes the belief that technology is a lever for improving performance, productivity, and the quality of work provided (Marchal et al., 2018).

The behavioral intention to use a technology is therefore largely a function of this subjective assessment of the expected contribution to performance. The individual estimates the potential benefits of using the technology, and this estimate directly influences their propensity to adopt it. TAM here proposes a rational reading of behavior, based on cost-benefit logic. This perspective is consistent with the theory of the diffusion of innovation, according to which relative advantage (or the perceived benefit compared to alternative solutions) is a central factor in adoption (Azizah et al., 2022).

2.2. Perceived Ease of Use as reduction of cognitive effort

Perceived ease of use is defined as "the degree to which a person believes that using a particular system will be effortless" (Davis, 1989). It is therefore a cognitive assessment of the effort an individual believes it will take to use the technology effectively. This perception plays a decisive role in shaping behavioral intentions, as technology deemed difficult to use is likely to discourage adoption, regardless of its perceived usefulness.

The factors influencing PUE are numerous and can be grouped into three categories: individual factors (technological experience, level of training, ICT anxiety), organizational factors (quality of technical support, managerial guidance, interface ergonomics), and technological factors (design, user-friendliness, intuitiveness) (Wedlock and Trahan, 2019). Thus, a well-designed technology, accompanied by adequate organizational support, can significantly improve the perception of ease of use and, by extension, the intention to adopt.

2.3. Link between PEU and PU: an integrated causal dynamic

The concepts of perceived usefulness and ease of use have been extensively explored in the literature and are part of an interdisciplinary theoretical foundation that draws on several behavioral approaches. Karahanna and Straub (1999), Agarwal and Prasad (1999), Venkatesh and Morris (2000), and more recently Atarodi et al. (2019), have explored how these two variables manifest themselves in different technological contexts, while highlighting their dependence on social, cultural, and cognitive determinants.

Among the key theoretical contributions, the Theory of Interpersonal Behavior (ICT) proposed by Triandis (1977) enriched classical models of behavior by introducing the notion of force of habit as a major explanatory factor. This theory is a continuation and expansion of the founding works of the Theory of Reasoned Action (Ajzen & Fishbein, 1975) and the Theory of Planned Behavior (Ajzen, 1991). Triandis (1977) makes a fundamental distinction between affective attitudes, linked to the emotions and feelings associated with the use of a technology, and cognitive attitudes, which refer to a rational evaluation of the expected consequences of its use. According to this approach, the perception of the consequences of behavior constitutes an essential driver of the decision to adopt or not an innovation (Juaneda-Ayensa et al., 2016). This analytical framework thus provides a better understanding of how perceptions of usefulness are structured around individual expectations, by linking emotional and cognitive dimensions in the formation of technological judgment.

At the same time, the cost-benefit paradigm, derived from research on decision-making processes (Tsekouras & Benbasat, 2018), supports the idea that technology acceptance is based on a cognitive trade-off between the effort required to use it (anticipated cost) and the perceived benefits it provides (expected value in use). This perspective consolidates the conceptual correspondence between perceived usefulness (PU) and the relative advantage of a technology, on the one hand, and between perceived ease of use (PEU) and perceived complexity or

expected cognitive effort, on the other (Otieno, 2015). In other words, users rationally determine the relevance of a technology based on the ratio between its added value and the mental effort required to master it, which directly influences their adoption intention.

Furthermore, a broad scientific consensus highlights the existence of a strong causal relationship between perceived ease of use and perceived usefulness. In other words, the simpler and more intuitive a technology is deemed, the more likely it is to improve performance or productivity (Lai, 2017; Tehrani et al., 2018). This relationship was formalized in the early work of Davis (1989), who developed standardized measurement scales to assess each of these dimensions through six distinct elements. Recognizing this interdependence between perceived effort and anticipated functional value has significantly strengthened the explanatory power of the TAM model, demonstrating that perceived ease of use influences not only attitudes toward the technology, but also the perceived value of its usefulness.

Thus, the Technology Acceptance Model (TAM) presents itself as a coherent and integrated theoretical framework, allowing to systematically model the process by which individuals develop their attitudes and intentions of use from cognitive judgments relating to the perceived value and ease of use of digital technologies. Through its ability to articulate psychological, cognitive and behavioral dimensions, the TAM remains today an essential analytical tool for understanding the dynamics of acceptance in increasingly complex technological environments, marked by the multiplicity of expectations, the need for rapid adaptation and the sustained pace of innovation.

Table 1: Items of perceived usefulness and perceived ease of use (Davis, 1989)

Items of Perceived Ease of Use	***Items of Perceived Usefulness***
- I would find the system easy to use; - I would find the interaction with the system flexible; - I would find the system convenient; - I would find it simple to learn how to use the technology; - I would be able to use the system easily; - My interaction with the system would be clear and understandable.	Using the system in my work would allow me to: - Increase my productivity; - Improve my work performance; - Improve my efficiency; - Complete my tasks quickly; - Perform my work easily; - Find it useful for my work.

Source: Davis, 1989

The set of items developed by Davis (1989) to measure perceived usefulness and perceived ease of use has undergone numerous empirical verifications and reliability analyses over the decades. These scales, each comprising six items, have been adopted, adapted, and refined in a wide variety of technological contexts, ranging from organizational environments to individual uses. Multiple validations have confirmed their psychometric soundness as well as their predictive relevance in explaining behavioral intentions and actual usage practices (Zhang & Venkatesh, 2018). These empirical results highlight that subjective perceptions of the functional value and simplicity of a technology constitute reliable and consistent indicators of user attitudes and behaviors toward information and communication technologies (ICT).

Based on these empirical confirmations, the Technology Acceptance Model has gradually established itself as a benchmark theoretical framework in the field of information systems. The robustness of its two central variables (PU) and (PEU) has been consolidated by the convergence of results from studies conducted in a wide variety of application contexts, such as ERPs, e-learning platforms, mobile applications, and health technologies (Legris et al., 2003). According to the conceptual logic of TAM, understanding and predicting acceptance behaviors rely primarily on these two determinants, considered universal and highly generalizable. Thus, the combined assessment of perceived usefulness and perceived ease of use now makes it possible to reliably predict the adoption or rejection of a given technology.

This theoretical foundation represents one of the major contributions of the TAM model, as it offers a rigorous and standardized operationalization of the concept of technology acceptance.

ISSN: 2658-8455
Volume 6, Issue 11 (2025), pp. 459-492.

IJAFAME
International Journal of Accounting, Finance, Auditing, Management & Economics

Thanks to statistically validated measurement instruments that are easily adaptable to a plurality of cultures, fields of activity and types of technologies, the model considerably improves the explanatory capacity and predictive value of empirical research on usage behaviors. This robust methodological framework has thus made it possible to harmonize work on technology acceptance, while promoting the comparison of results across different study contexts.

3. Validation of the TAM model

Since its initial development, the TAM has undergone numerous empirical validations, confirming the soundness of its conceptual structure and the robustness of its explanatory power in the analysis of technology acceptance behavior. Compared to other leading models such as the Theory of Reasoned Action (Ajzen & Fishbein, 1975) or the Theory of Planned Behavior (Ajzen, 1991), the TAM stands out for its conceptual simplicity, internal consistency, and strong predictive potential, while remaining highly adaptable to a variety of technological, cultural, and organizational contexts (Atarodi et al., 2019). This methodological versatility largely explains its widespread adoption in research on information and communication technologies, e-learning, digital health, and integrated management systems.

At the heart of the model, the fundamental causal relationships between perceived usefulness, perceived ease of use, behavioral intention, and actual use have been tested and confirmed in numerous empirical studies. Among these relationships, one of the model's central hypotheses—that perceived usefulness exerts a direct and significant influence on behavioral intention—has proven particularly robust in the literature (Venkatesh & Davis, 2000; Chau & Hu, 2002; Migiro & Ocholla, 2005; Tehrani et al., 2018). This relationship is generally more pronounced among novice or inexperienced users, for whom the perception of a tangible functional benefit is a determining factor in the technology adoption decision. In other words, the more individuals perceive a technology as useful for improving their performance, the more likely they are to express a favorable intention to use it.

However, the place and role of attitude toward technology in the acceptance dynamics have sparked lively theoretical debates. Initially integrated into the model as a mediating variable between perceived usefulness and behavioral intention, this attitudinal dimension has shown contrasting empirical results. Some research has highlighted that, although influenced by perceived usefulness, attitude is not always a direct and significant predictor of usage intention, thus suggesting an indirect or marginal mediated effect (Darsono, 2005). However, other studies have nuanced this interpretation by showing that the relationship between attitude and intention remains statistically significant in most contexts, regardless of the level of experience of users, whether beginners, intermediate, or experienced (Chau & Hu, 2002; Zhang & Venkatesh, 2018). These empirical divergences highlight the need to better contextualize the role of attitude, particularly according to the nature of the technology studied, the organizational culture and the socio-cognitive characteristics of the users.

Regarding the relationship between behavioral intention and actual usage, TAM posits that actual usage behavior is driven by intention, a finding confirmed by numerous studies. Significant correlations have been observed between intention and usage, particularly among experienced users, for whom intention is a more reliable predictor of actual usage (Venkatesh et al., 2003; Migiro & Ocholla, 2005; Blackwell et al., 2018). This observation reinforces the idea that behavioral intention is a key link in the transition from cognitive judgment to concrete action.

Empirical validation of the TAM has not been limited to verifying the model's internal relationships; it has also highlighted the importance of external factors in belief formation. These factors, although sometimes treated as contextual variables, play a decisive role in the acceptance dynamic. They directly influence perceived usefulness and indirectly influence

perceived ease of use by shaping perceptions of the effort required or expected benefits. Studies have shown that factors such as managerial support, system quality, training, as well as the level of perceived complexity and user competence, significantly impact perceived usefulness (Cazan et al., 2016; Lou & Li, 2017; Patil et al., 2020).

Similarly, the work of Wang & Song (2017) and Lee (2018) has highlighted that user experience, the technical quality of the system, training received, and organizational support directly influence perceived ease of use. These results were corroborated by Chiu and Churchill (2016), who established statistically significant links between system characteristics (such as intuitiveness or navigation speed) and users' beliefs about ease of use. The contributions of Blackwell et al. (2018) also confirm that individual motivation, cognitive preferences, and inter-individual differences must be taken into account as variables directly influencing perceived usefulness.

The relevance of the Technology Acceptance Model rests largely on its ability to be successfully applied in a variety of empirical contexts, beyond the initial professional framework in which it was designed. The numerous empirical studies conducted since its inception attest to its theoretical robustness, methodological flexibility, and ability to reliably predict behavioral intentions and actual use of technologies.

In the context of digital banking services, Munoz-Leiva et al. (2017) tested the TAM to analyze the determinants of acceptance of mobile banking applications in Spain. The study, based on an online survey, reveals that attitude represents the most significant explanatory factor of usage intention, while perceived usefulness, contrary to expectations, does not show a statistically significant influence in this specific case. This exception highlights the importance of the technological and cultural context in structuring the relationships between variables in the model.

Other studies, however, have confirmed the general robustness of the TAM in more traditional contexts. For example, Lou & Li (2017), by applying the model to different office technologies (emails, spreadsheets, graphics, financial software), confirm that the TAM remains a relevant predictor of acceptance intention, a conclusion also shared by Weerasinghe and Hindagolla (2017).

In a longitudinal study conducted in China on the acceptance of MOOCs (massive open online courses), Wu & Chen (2017) used the TAM to identify variables influencing the intention to continue using the platform. The study revealed several significant results:

- Perceived usefulness positively influences intention to use;
- Open-mindedness affects perceived ease of use but not perceived usefulness;
- Attitude and perceived usefulness are significant predictors of intention;
- Perceived usefulness acts as a mediating variable between perceived ease of use and social influence.

Taking an in-depth analytical approach, Abdullah & Ward (2016) conducted a comprehensive meta-analysis of 107 studies on the application of the Technology Acceptance Model (TAM) in the field of e-learning. Their work highlights the conceptual and integrative robustness of Davis's (1989) initial model in explaining ICT acceptance and usage behaviors. The authors identify five major determinants influencing perceived ease of use: self-efficacy, perceived enjoyment, prior experience, computer anxiety, and subjective norm. Regarding perceived usefulness, the main predictors, ranked in order of influence, are enjoyment, subjective norm, self-efficacy, and user experience. These findings confirm that behavioral beliefs are not formed autonomously, but result from a complex interaction between psychological, social, and contextual factors, thus highlighting the multidimensional nature of the technology acceptance process.

The work of Lu et al. (2003) and Yoon (2018) support this perspective by demonstrating that perceived usefulness has a direct influence on the actual use of technologies, while also

ISSN: 2658-8455
Volume 6, Issue 11 (2025), pp. 459-492.

IJAFAME
International Journal of Accounting, Finance, Auditing, Management & Economics

indirectly influencing user attitudes. These authors identify three essential determinants of the acceptance process: perceived usefulness, perceived ease of use, and perceived self-efficacy. Similarly, Sinniah et al. (2019) confirm the central role of perceived usefulness in predicting behavioral intentions related to ICT use, thus reaffirming the validity of the TAM in various digital environments.

Research conducted by Kim et al. (2017) and Lai (2017) extends this analysis by demonstrating that, although perceived ease of use remains an important explanatory variable, it is perceived usefulness that represents the most determining factor in behavioral intention. These results suggest that the motivation to adopt a technology depends primarily on the functional and instrumental value that users attribute to it, rather than on its ease of use.

At the same time, several studies have highlighted the importance of individual differences, particularly those associated with gender, in the dynamics of technology acceptance. Gefen & Straub (1997) showed that men tend to place greater importance on perceived usefulness, while women place greater value on perceived ease of use in their decision-making process. These observations were corroborated by Wang and Goh (2017), who confirmed that sociodemographic variables act as significant moderators of the relationships proposed in the TAM, highlighting the relevance of integrating individual factors into explanatory models of acceptance.

Methodologically, Nunkoo et al. (2016) applied structural equation analysis to test the validity of the TAM in the context of e-tourism in Mauritius, focusing on online purchases of tourism services. The empirical results demonstrate that perceived risks, trust, and perceived usefulness significantly influence attitude and purchase intention, thus confirming the relevance and explanatory capacity of the model in a transaction-intensive digital environment. These findings highlight the flexibility and transferability of the TAM, which remains a reliable theoretical tool for understanding technological behaviors in various contexts, whether educational, organizational, or commercial.

Other research has integrated TAM into innovative cultural and technological frameworks. Ghanem et al. (2017), using Hofstede's (2011) theory of national culture, show that reluctance to change and fear of uncertainty strongly influence perceived usefulness and perceived ease of use. In a different vein, Go et al. (2020) tested TAM in the field of intelligent robotics in the United States. Their study reveals that the classic determinants of TAM retain their explanatory power, while highlighting the importance of integrating emerging variables such as perceived interactivity in the case of advanced technologies. These results converge on three major findings:

- TAM remains a robust model for identifying and predicting technology acceptance across all categories.
- It is based on strong causal relationships between key variables: perceived ease of use, perceived usefulness, attitude, behavioral intention, and actual usage.
- Perceived usefulness appears to be the most decisive variable in usage intention, although perceived ease of use still plays an important role, particularly in the initial phases of interaction with technology.

Thus, the TAM model stands out not only for its ability to model internal relationships between cognitive and behavioral variables, but also for its openness to the integration of exogenous variables, allowing the analysis to be adapted to specific contextual circumstances. This adaptability has contributed to its widespread use in fields as diverse as health, education, finance, e-commerce, and public administration, and continues to make the TAM an essential reference in the study of technology acceptance. Despite its relevance, however, some researchers have highlighted the limitations of the original model, notably the absence of subjective norms in Davis's initial framework (Marchal et al., 2018). These critiques have paved

the way for several extensions of TAM, incorporating more social, cultural, and technological variables to better reflect the complexity of contemporary acceptance contexts.

4. Extensions of the TAM Model

Although the TAM has demonstrated remarkable empirical effectiveness in predicting technology acceptance, the inherent limitations of its original framework quickly prompted proposals for theoretical enrichment. It therefore appears relevant to explore the main avenues of evolution of the model, resulting from the progressive in-depth developments conducted by academic research (Tehrani et al., 2018). Indeed, despite the predictive robustness of the two founding variables, perceived ease of use and perceived usefulness, in explaining behavioral intention, several researchers have emphasized that these cognitive dimensions alone do not capture all the determinants involved in the technology adoption decision-making process (Lu et al., 2003; Zhang and Venkatesh, 2018).

Thus, since the late 1990s, studies have proposed expanding the initial TAM framework to strengthen its external and predictive validity, notably by integrating contextual, social, individual, and organizational variables likely to exert a direct or indirect influence on the model's core beliefs. Agarwal and Prasad (1999) were among the first to demonstrate that the reliability of the TAM could be improved by introducing new explanatory dimensions, going beyond strictly functional perceptions. Their approach paved the way for the formulation of extended TAM models, designed to better reflect the complexity of contemporary technological environments.

The evolution of the TAM model is therefore not limited to a simple technical revision of its constituent variables, but is part of a dynamic of theoretical adaptation aimed at integrating the diversity of usage behaviors, capturing inter-individual differences, and taking into account the growing influence of social norms, organizational culture, and the intrinsic characteristics of technologies.

4.1. Microcomputer usage Model

One of the first major extensions of the Technology Acceptance Model (TAM) is the microcomputer usage model, proposed by Igbaria et al. (1995). This extension represents a structured attempt to strengthen the explanatory and predictive power of the TAM by focusing on the actual use of personal computing technologies, particularly microcomputers, in a professional environment. Designed as an integrated model, it retains the conceptual foundations of the TAM while broadening its scope of analysis to include contextual, individual, organizational, and technological variables. Thus, Igbaria and his colleagues seek to move beyond the strictly cognitive view of the TAM by proposing a more holistic approach to technology acceptance and use, integrating psychological, social, and structural determinants.

This model seeks to explore several key dimensions of technological behavior by asking fundamental questions about the dynamics of acceptance. The authors examine in particular the influence of perceived ease of use (PEU) on perceived usefulness (PU), the impact of external factors, whether organizational, technological, or individual, on the actual use of microcomputers, and the mediating role that beliefs about usefulness and ease may play in the link between external characteristics and acceptance intention. In other words, the model developed by Igbaria et al. (1995) aims to determine the extent to which environmental conditions and system characteristics influence usage behavior through users' cognitive perceptions.

To answer these questions, the authors combined the principles of the Technology Acceptance Model (TAM) and those of the Theory of Planned Behavior (TPB), creating an enriched conceptual framework capable of accounting for both individual beliefs and contextual

ISSN: 2658-8455
Volume 6, Issue 11 (2025), pp. 459-492.

IJAFAME
International Journal of Accounting, Finance, Auditing, Management & Economics

constraints related to technology use. This model also integrates new explanatory variables from various professional contexts, allowing for a more refined understanding of the technology adoption process. Its relevance has been confirmed by multiple empirical validations carried out in different environments (Weerasinghe and Hindagolla, 2017; Wang and Song, 2017; Alkebsi and Aziz, 2017; Abd Hamid and Isa, 2018), which have demonstrated its ability to explain in a more detailed manner the variability of usage behaviors according to the characteristics of individuals and organizations.

- ***Integration of external variables into the model***

With this in mind, the model by Igbaria et al. (1995) enriched the initial structure of the TAM by incorporating external variables grouped into three broad categories:
Individual factors: experience with technology, level of training, personal attitudes toward ICT;
Organizational factors: level of managerial support, availability of resources, existence of training programs;
System characteristics: hardware performance, interface ergonomics, technical reliability, perceived functionalities.
These elements play an indirect role in acceptance through their influence on the PEU and the PU. Thus, these two beliefs become mediating variables, central to the acceptance dynamic.

- ***Two sets of hypotheses tested***

Data analysis led the authors to formulate two distinct sets of hypotheses, which structure the relationship between the beliefs of the TAM model and the external variables:
First set (centered on beliefs):
- Perceived ease of use has a positive effect on perceived usefulness;
- The PEU directly influences the intention to accept the use of microcomputers;
- The PU exerts a significant influence on the actual use of technologies.

Second set (focused on contextual variables):
- Technological characteristics (quality, usability) influence acceptance via beliefs (PU and PEU);
- Managerial support directly affects beliefs, and therefore indirectly, acceptance;
- Training acts indirectly through its impact on users' beliefs;
- Technological experience influences acceptance through prior personal use.

- ***Empirical results and theoretical contributions***

The empirical results obtained by Igbaria and colleagues confirm several major hypotheses of the model. In particular, the significant influence of perceived ease of use on perceived usefulness is reaffirmed, consolidating the hierarchical structure of the TAM. Furthermore, the mediation of beliefs between contextual variables and acceptance suggests that the effectiveness of technology implementation policies (training, ergonomics, support) depends closely on their ability to positively modify users' cognitive perceptions.
Thus, Tom Dieck and Jung (2018) confirmed the positive and significant influence of organizational, individual, and technological factors on PEU and PU, in contexts such as the adoption of immersive technologies (augmented reality, virtual reality). These empirical confirmations reinforce the validity of the microcomputer usage model as a robust extension of the TAM in constantly changing technological environments.
The microcomputer usage model represents a relevant extension of the TAM in that it offers a more contextualized understanding of technology acceptance. By integrating environmental and individual determinants, it addresses one of the main criticisms of the initial model: its relative weakness in taking into account the complexity of implementation contexts. It also offers a useful analytical framework for practitioners wishing to design more effective

technology deployment strategies, focused on cognitive levers influenced by organizational conditions.

4.2.Computer usage Model

Following the research of Igbaria et al. (1995) on the use of microcomputers, Igbaria & Livari (1995) proposed a new extension of the Technology Acceptance Model (TAM) intended to deepen the understanding of the mechanisms underlying the acceptance and use of technologies. This model of computer use adopts an integrative and multidimensional approach, seeking to overcome the limitations of the initial model of Davis (1989) by incorporating explanatory variables from other major theoretical frameworks. It draws on the Theory of Reasoned Action (Ajzen and Fishbein, 1975), the Theory of Planned Behavior (Ajzen, 1991), and Socio-cognitive Theory (Bandura, 1986), with the aim of broadening the scope of analysis of technological behavior and taking into account the individual, social, and contextual determinants that shape intentions and actual uses of technologies.

One of the fundamental contributions of this extension lies in the integration of new psychological and contextual variables that complement the traditional determinants of TAM, namely perceived usefulness and perceived ease of use. In particular, the authors introduce the concepts of self-efficacy and technological anxiety, two dimensions drawn from cognitive and motivational psychology. Self-efficacy refers to an individual's confidence in their own ability to use a technology effectively, while technology anxiety refers to the apprehensions or fears felt when using a computer system. By integrating these variables, the model offers a more comprehensive view of the acceptance process, recognizing that adoption behaviors are not based solely on rational evaluations, but also on emotional reactions and personal perceptions of competence.

Thus, this expanded version of the TAM aims to better explain the diversity of acceptance behaviors observed among users, taking into account the affective, cognitive, and environmental dimensions that influence their decisions to adopt or not adopt a technology. By articulating the complementary contributions of several behavioral theories, Igbaria & Livari's (1995) model stands out as a major contribution to understanding technology adoption processes, particularly in organizational contexts where individual differences, performance constraints, and emotions play a decisive role in the success of digital transformation.

- ***Self-efficacy as a fundamental cognitive lever***

Self-efficacy refers to an individual's belief in their ability to accomplish a specific task in a given environment (Bandura, 1986). In the context of technology, it refers to perceived confidence in the ability to use a computer or technological system without external assistance. In Igbaria and Livari's (1995) model, this variable is conceptualized as a direct antecedent of perceived ease of use, and indirectly, of perceived usefulness.

The empirical work of Lin and Chen (2017), Guest et al. (2018) and Manis and Choi (2019) confirmed the validity of this assumption by showing that prior user experience has a significant effect on self-efficacy and PEU, thus strengthening individuals' confidence in their ability to adopt a new technology. Consequently, the more competent a user feels, the more they perceive the technology as easy to use, which increases their likelihood of adoption.

- ***Technology Anxiety and the Role of Organizational Support***

In addition to the concept of self-efficacy, Igbaria & Livari's (1995) model introduces the variable of technology anxiety, described as a negative emotional reaction to the use of IT tools. This affective dimension plays a crucial role in the technology acceptance process, as it acts as a psychological barrier that can limit individuals' willingness to interact with a given technology. While anxiety does not directly influence intention to use, it acts indirectly by reducing the perception of usefulness and weakening positive beliefs associated with the

ISSN: 2658-8455
Volume 6, Issue 11 (2025), pp. 459-492.

IJAFAME
International Journal of Accounting, Finance, Auditing, Management & Economics

technology. Thus, high anxiety about technology tends to reduce users' confidence in the benefits they can derive from it, which hinders their commitment and favorable attitude toward its adoption.

The model also places a prominent role on organizational support, encompassing all the resources, training, and technical assistance made available to users. This support constitutes an essential facilitating condition for strengthening self-efficacy and reducing anxiety related to technology use. By providing a favorable learning environment and adequate guidance, organizations can improve users' perceptions of competence, their sense of control, and their confidence in using technology. This process helps mitigate negative emotions and promotes the construction of positive beliefs about usefulness and ease of use, two fundamental pillars of the acceptance model.

Empirical research by Lin & Chen (2017), Guest et al. (2018), and Manis & Choi (2019) confirms the relevance of this conceptual framework. They demonstrate that organizational support and technology anxiety influence acceptance primarily through their impact on perceived usefulness, while attitude plays a mediating role between self-efficacy, perceived ease of use, and behavioral intention. Furthermore, self-efficacy exerts a direct effect on perceived ease of use, but an indirect effect on perceived usefulness, acting as a cognitive lever that reinforces the perception of simplicity of use. Finally, perceived ease of use influences acceptance mainly through perceived usefulness, confirming the hierarchical structure of the enriched TAM model, in which basic beliefs continue to play a central role, but mediated by more complex psychological and contextual variables.

- ***Theoretical and Managerial Implications***

This model makes an important contribution to the literature on technology acceptance by integrating affective (anxiety), cognitive (self-efficacy), and organizational (support) variables. It highlights the need to move beyond a strictly instrumental view of acceptance by integrating the psychological dimensions that condition the formation of fundamental beliefs. From a managerial perspective, these results suggest that the successful implementation of a computer system depends as much on the quality of the interface as on the organizational climate and the confidence users develop in their own abilities.

Ultimately, Igbaria and Livari's (1995) computer usage model represents a significant extension of the TAM, linking the classic determinants of technology acceptance to more contextual and psychological variables. It provides a useful theoretical framework for analyzing adoption behaviors in contexts where disparities in experience, competence, and organizational support play a decisive role.

4.3.Augmented TAM Model

The augmented TAM model represents a structured evolution of the technology acceptance model initially developed by Davis et al. (1989). Building on this founding framework, it retains its essential conceptual principles—perceived usefulness and perceived ease of use—while incorporating new dimensions from complementary theoretical frameworks, particularly the theory of planned behavior proposed by Ajzen (1991). This expanded version of the model aims to deepen our understanding of technology acceptance mechanisms by taking into account the diversity of user profiles, whether experienced, novice, or occasional. By integrating additional social and behavioral variables, the augmented TAM seeks to overcome the explanatory limitations of the initial model, sometimes considered too focused on individual cognitive perceptions, to offer a more holistic view of technology adoption.

One of the most important contributions of this extension lies in the introduction of two new determining variables: perceived behavioral control and subjective norms. Perceived behavioral control refers to an individual's perception of their ability to use a technology effectively, i.e.,

their sense of competence, mastery, and the existence of facilitating conditions. This variable accounts for inter-individual differences in confidence, available resources, or environmental constraints that can influence intention to use. Subjective norms, on the other hand, reflect the social pressure perceived by the user, whether explicit (supervisory expectations, professional norms) or implicit (peer influence, technological fads).
By integrating these two dimensions from Ajzen's (1991) model, the augmented TAM significantly expands the scope of Davis's (1989) original model. It is no longer limited to a purely individual analysis of acceptance, but also incorporates the social and contextual dimension of technology adoption. Thus, this model offers a more detailed understanding of the factors that condition intention and usage behavior, by articulating personal beliefs, external influences and perceptions of control in a coherent and empirical explanatory framework.

- ***Empirical Validation and Theoretical Contributions***

Numerous empirical studies have confirmed the theoretical soundness and predictive validity of the augmented TAM, demonstrating its ability to consistently explain technology acceptance behaviors in diverse usage contexts. The work of Vijayasarathy (2004), Weerasinghe & Hindagolla (2017), and Tom Dieck & Jung (2018) has notably tested this model in diverse environments such as e-commerce, digital education, and connected tourism. These comparative studies evaluated the model's performance with two categories of users, experienced and novice, in order to measure its ability to adapt to different levels of technological familiarity. Overall, their results support the model's relevance while highlighting some important nuances regarding the strength and direction of the relationships between the model's variables.
The cumulative results of this research confirm the structural validity of the augmented TAM, showing that the majority of the causal relationships proposed in Davis's (1989) initial model remain statistically significant. However, the relationship between attitude and behavioral intention proved more unstable depending on the contexts studied, suggesting that attitude does not always exert a direct effect on usage intention, but can be modulated by other contextual or social variables. Despite this variability, the augmented TAM emerges as a robust and adaptable model, capable of effectively predicting technology adoption intentions among both experienced and novice users. This generalizability represents a substantial improvement over the original model, which did not explicitly distinguish these differences in experience.
Furthermore, the model's validation work highlights that perceived behavioral control plays a crucial role in shaping actual usage behavior. While it exerts a moderate influence on behavioral intention, it does, however, have a direct and significant effect on actual usage behavior, thus confirming the central postulates of the theory of planned behavior (Ajzen, 1991). This result highlights the role of this variable as a facilitating or inhibiting factor, determining the concrete capacity of individuals to translate their intentions into actions, according to the resources and skills at their disposal. Finally, perceived usefulness remains the main determinant of adoption intention, particularly among novice users, for whom the decision to use a technology is based more on anticipated functional benefits than on the usage experience itself. These conclusions reinforce the foundations of classic TAM while demonstrating the relevance of augmented TAM as a completer and more nuanced explanatory framework for technology acceptance.
Contrary to theoretical expectations from the theory of planned behavior, subjective norms have no significant effect on perceived usefulness or perceived ease of use, suggesting that perceived social pressure is less decisive in certain technological environments, particularly when it comes to technologies for individual or non-prescribed use.
Attitude continues to play a key role in the model, as a mediating variable between core beliefs (PU and PEU) and technology acceptance. Although its direct influence on intention is

ISSN: 2658-8455
Volume 6, Issue 11 (2025), pp. 459-492.

IJAFAME
International Journal of Accounting, Finance, Auditing, Management & Economics

sometimes marginal, it constitutes a vector for translating cognitive perceptions into dispositions favorable to adoption.

- ***Conceptual Implications of the Augmented TAM***

The augmented TAM strengthens the predictive power of the original model by introducing a more integrated view of acceptance behavior, taking into account perceptions of control, social influence, and cognitive beliefs. This model proves particularly relevant in contexts where the conditions of actual use (resources, skills, organizational environment) are likely to modulate the transition from intention to action.
Conceptually, the integration of perceived behavioral control addresses one of the initial limitations of the TAM, which neglected the perceived feasibility dimension of adoption. This improvement provides a more detailed explanation of why some users, despite a favorable attitude and strong intention, do not adopt the technology due to a lack of favorable conditions (lack of time, resources, training, ...).
In summary, the results of empirical studies converge towards a solid conclusion: augmented TAM constitutes a significant theoretical advance allowing a better understanding of the complexity of acceptance behaviors, taking into account not only individual perceptions (usefulness, ease), but also implementation contexts, differences in experience, and perceived control mechanisms.

4.4.Motivational Model

In an effort to enrich the explanatory foundations of TAM, Igbaria et al. (1996) proposed a motivational model inspired by both the Theory of Reasoned Action (Ajzen and Fishbein, 1975) and Davis's original model (1989). This extension aims to overcome the limitations of the initial model by more explicitly integrating the human, organizational, and technological dimensions that influence the acceptance and use of ICTs. By placing intrinsic (such as pleasure and personal satisfaction) and extrinsic (such as perceived usefulness and social recognition) motivations at the heart of the analysis, this model highlights that the adoption of a technology is not based solely on cognitive beliefs, but also on affective and social factors linked to the perception of the meaning and value of its use.
One of the major contributions of this model lies in its multilevel structure, which articulates three interdependent dimensions to explain technology acceptance behaviors. At the individual level, it highlights variables such as perceived competence, enjoyment of use, and perceived usefulness, considered key determinants of motivation to use a technology. At the organizational level, the model introduces factors such as managerial support, training, and a culture of innovation, which shape attitudes and strengthen users' confidence in technological change. Finally, at the technological level, it takes into account perceived complexity and system characteristics (ergonomics, accessibility, reliability), which can either facilitate or hinder technology adoption.
Thus, the motivational model of Igbaria et al. (1996) broadens the scope of TAM analysis by going beyond the purely cognitive dimension to include a more holistic and contextual approach to the acceptance process. By simultaneously integrating psychological, social and structural factors, it offers a more complete reading of technological behavior, where adherence to an innovation does not stem solely from a rational evaluation of its benefits, but also from an affective and social experience shaped by the work environment and organizational dynamics.

- ***Three key motivational attributes***

Within this motivational approach, three fundamental attributes determine the intention to adopt and the actual use of technologies. The first is perceived usefulness, which remains the cornerstone of the model. It refers to an individual's belief that a particular technology can

improve their performance, increase their efficiency, or facilitate their daily tasks. This dimension reflects a rational assessment of the relationship between the effort invested and the functional benefits obtained, thus consolidating its central role in the technology acceptance decision.

The second attribute, social influence, also known as perceived social pressure, stems directly from the principles of the theory of planned behavior (Ajzen, 1991). It reflects an individual's perception of the expectations and judgments of those around them regarding the adoption of a given technology, whether colleagues, superiors, or peers. This variable reflects the normative dimension of acceptance behavior, according to which the individual seeks to conform to the standards and practices perceived as legitimate in their social or professional environment.

The third attribute, perceived enjoyment, introduces a hedonic dimension into the analysis of technological behavior. It refers to the emotional satisfaction, pleasure, or intrinsic interest felt when using a technology. This variable highlight that the adoption of an innovation is not based solely on utilitarian criteria, but also on affective and experiential motivations. Thus, a technology perceived as pleasant, stimulating, or engaging is more likely to be accepted and used sustainably, even if its functional utility is perceived as limited.

Recent empirical studies have consolidated this three-dimensional understanding of technological motivation. Abd Hamid & Isa (2018) and Manis & Choi (2019) have confirmed that these three factors, perceived usefulness, social influence, and perceived enjoyment, constitute strong and universal predictors of technology acceptance, regardless of the application context, whether in education, business, or digital services. These results validate the relevance of the motivational model by demonstrating that the decision to adopt a technology is at the same time rational, social and emotional, reflecting the complexity of human behavior in the face of innovation.

- ***Perceived complexity, competence, and the role of organizational support***

The motivational model is distinguished by the integration of perceived complexity as a key mediating variable between contextual conditions (organizational and individual) and motivational beliefs related to technological acceptance. This approach highlights that the adoption of a technology depends not only on its technical performance, but also on users' cognitive and emotional perceptions of it. In this sense, perceived complexity acts as a psychological filter directly influencing how individuals evaluate the usefulness, enjoyment, and social legitimacy of a technological innovation.

An in-depth meta-analysis conducted by Atarodi et al. (2019), covering twelve literature reviews related to TAM and its extensions, provides strong empirical insight into these mechanisms. The results show that perceived complexity constitutes a genuine cognitive barrier: the more difficult a technology is deemed to understand or use, the more it tends to reduce not only its perceived usefulness, but also its enjoyment of use and the positive social pressure that encourages its adoption. In other words, a system perceived as complex hinders both the user's intrinsic and extrinsic motivation, thus limiting their intention to use it.

Conversely, users' perceived competence acts as a reverse lever. Individuals who feel comfortable with the technology, mastering its features and usage logic, tend to perceive it as less complex and more accessible. This sense of competence, often reinforced by experience and training, fuels positive beliefs about its ease of use and therefore strengthens the willingness to adopt the technology.

Furthermore, organizational support emerges as a key enabling condition. It is not limited to the provision of material resources, but also includes technical assistance, ongoing training, and managerial recognition. This support helps reduce perceived complexity by guiding users through the learning and adoption process, while also boosting self-confidence (self-efficacy) and user enjoyment. By creating an environment conducive to experimentation and autonomy,

ISSN: 2658-8455
Volume 6, Issue 11 (2025), pp. 459-492.

IJAFAME
International Journal of Accounting, Finance, Auditing, Management & Economics

organizations reinforce the perceived value of technologies and encourage their sustainable integration into professional practices.

These results confirm that the motivational value of a technology goes far beyond its simple functional performance. It depends primarily on how it is subjectively experienced, institutionally supported, and socially valued. The motivational model therefore highlights a multidimensional dynamic in which the perception of complexity, perceived competence, and contextual support interact to shape beliefs, attitudes, and, ultimately, technology acceptance behaviors.

- ***Contributions of the Motivational Model to Understanding Acceptance***

The motivational model represents a major theoretical advance in understanding technology acceptance, making several fundamental contributions to the literature on the subject. First, it expands the cognitive framework of the Technology Acceptance Model (TAM) by integrating previously underexplored dimensions, including affective, social, and contextual factors. In this sense, it introduces variables such as perceived enjoyment (emotional and hedonic dimension), normative pressure (social and cultural influence), and organizational support (contextual factor), while recognizing the role of perceived complexity and competence in shaping attitudes and behavioral intentions. This integration gives the model a broader explanatory scope, capable of accounting for the diversity of user experiences with technologies.

One of the model's most important contributions lies in its revaluation of the mediating role of perceived complexity, often neglected in traditional frameworks such as the TAM or the Theory of Planned Behavior. By highlighting this variable, the model of Igbaria et al. (1996) emphasizes that perceived complexity acts as a cognitive and emotional tipping point between the intention to adopt a technology and its actual use. In other words, a technology perceived as too complex can inhibit the transition from intention to action, even when perceived usefulness or social pressure is high. This perspective introduces a more realistic understanding of the adoption process, recognizing the psychological and cognitive obstacles that sometimes hinder the implementation of a favorable intention.

Furthermore, the motivational model offers a particularly relevant analytical framework in organizational contexts marked by high user heterogeneity, where technophile profiles, inclined to quickly adopt new tools, coexist with technophobic profiles, reluctant or anxious about innovation. This analytical flexibility allows for a detailed understanding of disparities in attitudes, motivations, and behaviors within the same organization. By taking into account the plurality of individual and contextual dynamics, the model establishes itself as an analytical tool applicable to a wide variety of technological environments, whether educational, professional, or digital.

In short, the motivational model of Igbaria et al. (1996) represents a significant extension of the TAM, offering a more nuanced and holistic view of technology adoption behavior. It broadens the understanding of technology acceptance by integrating cognitive, affective, and social factors, while maintaining the structural rigor of previous models. This framework opens new research perspectives focused on the experiential, emotional, and contextual dimensions of human-technology interaction, thus contributing to a renewal of approaches to the adoption and appropriation of digital systems.

4.5.Acceptance Model in small firms

In line with contextual adaptations of the Technology Acceptance Model, Igbaria et al. (1997) proposed a model of acceptance specific to small businesses, taking into account the structural, managerial, and environmental characteristics of these organizations. Based on the observation that acceptance dynamics in small firms differ significantly from those observed in large companies, notably due to limited resources, proximity to decision-making, and the central role

of the CEO, the authors conducted an experimental study to test the effect of intra- and extra-organizational factors on computer use. The model of acceptance in small firms builds on the foundations of TAM while enriching them with specific structural dimensions, integrating:

- Intra-organizational factors: managerial support, internal training, and internal technical assistance;
- Extra-organizational factors: external training, external support (service providers, suppliers, consultants).

This extension represents a methodological and theoretical shift in the literature on technology acceptance, emphasizing the interdependence between organizational context and the cognitive determinants of acceptance.

- ***Model Validation: Multi-Contextual Empirical Convergence***

The model under study has undergone several empirical validations in various sectoral and geographical contexts. Hochscheid & Halin (2018) tested it with French architectural firms by integrating technological innovations into design practices. Hidoussi et al. (2016) applied it to analyze the adoption of enterprise resource planning (ERP) software in industrial SMEs, while Chen et al. (2017) explored its applicability in the field of sustainable energy technologies for small American businesses. The cumulative results of these studies highlight consistent relationships between the model's key variables.

Thus, perceived ease of use has a direct effect on the acceptance of information and communication technologies, an impact that is particularly pronounced in environments characterized by low technical sophistication or limited user autonomy. Perceived usefulness and perceived ease of use jointly and significantly influence the adoption decision, highlighting the simultaneous importance of perceived benefit and ease of use. Furthermore, internal training appears to be a key lever, directly strengthening perceived usefulness by improving users' ability to functionally benefit from the technology. External support, provided by specialized consultants or trainers, positively influences both perceived resource use (PEU) and actual use (PU), as well as overall acceptance, illustrating the dependence of small organizations on external expertise.

The role of managerial support is also decisive: encouragement, prioritization, and resource allocation positively impact resource use (PEU and PU) as well as technology acceptance. External training, for its part, directly impacts perceived resource use (PEU), but its effect on actual use (PU) is indirect and mediated by the perception of simplicity. In this context, perceived resource utilization (PEU) plays a central role, establishing the link between organizational factors and adoption intention or behavior. Contrary to traditional models, PEU appears to be more decisive than PU for actual use, suggesting that, in small organizations, perceived effort takes precedence over perceived benefit due to time, resource, or training constraints.

Conversely, no significant relationship was observed between internal support (colleagues or technicians) and core beliefs in PU and PEU, which calls into question the effectiveness of internal support in small, less specialized organizations. These results thus confirm the relevance of a model adapted to the realities of SMEs, where technology adoption relies less on institutional pressure than on the balance between external support, appropriate training, and managerial leadership.

- ***Conceptual Enrichments: Towards a Contextual Perspective of Acceptance***

Ahmimid's (2018) research on the acceptance of electronic tax filing in Morocco enriches this perspective. The author identifies a set of contextual and psychological drivers, including expected effort, social influence, trust in digital governance, facilitating conditions, and expected performance, which align with the TAM variables while adapting them to specific

ISSN: 2658-8455
Volume 6, Issue 11 (2025), pp. 459-492.

IJAFAME
International Journal of Accounting, Finance, Auditing, Management & Economics

uses in institutional environments. These results suggest that the dimensions of trust and risk perception can also be integrated into future versions of the model to capture resistance or accelerators specific to certain sectors (taxation, e-administration, public services).
Thus, the acceptance model in small firms represents a significant contribution to research in information systems and management sciences. It strengthens the explanatory potential of TAM by anchoring it in the socio-organizational realities of SMEs, and by recognizing the strategic role of external actors in supporting technological adoption.

4.6.Revised TAM Model

Following the multiple developments of the Technology Acceptance Model, Hubona and Geitz (1997) proposed a revised model, enriched by the introduction of new individual, professional, and behavioral variables, with the aim of better predicting the acceptance and actual use of information technologies. This model retains the foundations of the classic TAM, while integrating variables such as user experience, attitude, job category, usage volume, and frequency of use, allowing for a more detailed understanding of the dynamics of technology appropriation.
The addition of these variables aims to overcome the limitations of the initial TAM, which focused on intention to use without sufficiently explaining the contextual or behavioral factors that determine the actual frequency and intensity of technology use. Thus, the revised TAM emphasizes actual usage behavior as the culmination of a cognitive, emotional, and organizational process.

- ***Empirical Validation of the Revised TAM***

In a longitudinal study conducted in Korea, Jun et al. (2016) tested the revised model in the context of mobile sales app acceptance. Using data collected over multiple time waves, the authors were able to confirm a set of causal relationships predicted by the model. Perceived ease of use exerts a direct effect on perceived usefulness, thus validating the hierarchical link between these two fundamental beliefs. Perceived usefulness, in turn, directly influences attitude toward the technology as well as its actual use, while intention to use is primarily determined by attitude, highlighting the central role of this mediating variable, often debated in previous versions of the model. Furthermore, PEU also affects attitude independently of PU, reinforcing its explanatory value. These empirical results confirm the relevance of the revised model for anticipating technology use in dynamic, highly personalized, and mobile contexts.
From a different methodological perspective, Tom Dieck & Jung (2018) explored the validity of the model in the field of augmented reality mobile applications. Their qualitative research, based on the analysis of five focus groups composed of young users, was conducted using content analysis techniques. This study not only confirmed the predictive power of the revised TAM, but also highlighted a set of complementary variables that could improve understanding of acceptance in emerging technological contexts. These include the quality of the information provided by the application, usage costs (financial, cognitive, or temporal), subjective norms (social pressure and peer influence), personal innovativeness, perceived risk (reliability, security, and confidentiality), and facilitating conditions such as technical support or compatibility with the user environment.
These dimensions, although not integrated in the initial version of the revised model, open up promising perspectives for future integration into hybrid versions of the TAM, particularly in complex or immersive technological environments, where understanding the determinants of adoption requires a broader and more contextual approach.

- ***Contributions of the revised TAM to usage behavior modeling***

The revised TAM differs from previous versions of the model in its desire to reconcile

intentions with actual behaviors, taking into account not only cognitive perceptions but also users' personal and professional characteristics. It offers a more operational view of technology acceptance, suitable for organizations wishing to monitor, measure, and anticipate usage levels of their information systems. Theoretically, the model allows:

- To link perceived beliefs (PU, PEU) to behavioral variables (quantity and frequency of use);
- To analyze the effect of job characteristics and experience level on intentions and attitudes;
- To assess the stability of causal relationships over time, thanks to its compatibility with longitudinal studies.

In short, the revised TAM model helps address some of the shortcomings of the initial model by expanding the determinants studied, strengthening the empirical anchoring of the link between attitude and intention, and taking into account real-world usage constraints. It provides a relevant framework for studying technologies in context, particularly in mobile, immersive, or high-frequency interaction environments.

4.7.Agarwal and Karahanna Acceptance Model

In their effort to expand the explanatory framework of the Technology Acceptance Model (TAM), Agarwal & Karahanna (2000) proposed a conceptual model centered on the notion of compatibility, drawing on the pioneering work of Rogers (1995) within the framework of the Diffusion of Innovation Theory. This extension is part of an approach aimed at better understanding the factors influencing the acceptance of emerging technologies, particularly in digital environments such as the Web.

Through a thorough conceptualization, the authors identify four dimensions of perceived compatibility as determining factors in the adoption process. These are, first, compatibility with the user's personal values and core beliefs, and second, compatibility with the preferred professional style, including autonomy, flexibility, and work pace. Compatibility with current professional practices, including organizational procedures, tools, and routines, is also a key factor. Finally, compatibility with the user's prior technological experience, reflecting their level of familiarity and usage history, completes this framework.

This approach goes beyond traditional TAM determinants by introducing a factor of alignment between the user and the technology. It allows us to consider acceptance not only as a rational act, but also as a contextual, subjective, and experiential phenomenon, thus providing a more detailed understanding of the adoption process in contemporary technological environments (Midha, 2016; Malaquias et al., 2018; Purani et al., 2019).

- ***Empirical Validation and Mediating Effects***

The work of Purani et al. (2019) validated Agarwal & Karahanna's model in an experimental study conducted in India on the acceptance of an online loyalty program. This research highlights the central role of perceived compatibility in contemporary digital environments, where technologies are closely aligned with users' individual preferences, habits, and expectations. The results show that compatibility exerts a significant and indirect influence on acceptance intention, mediated by perceived usefulness (PU) and perceived ease of use (PEU): the more a technology is perceived to be compatible with personal practices and values, the more useful and easier it is deemed to be. Attitudes toward the technology also play a central role in transforming these perceptions into usage intentions, giving this variable strategic mediation power.

These results are corroborated by the work of Wang et al. (2018), who applied the same model to analyze the acceptance of technological innovations in various usage contexts. Their analyses confirm that perceived compatibility directly influences PEU and PU, and indirectly influences

ISSN: 2658-8455
Volume 6, Issue 11 (2025), pp. 459-492.

IJAFAME
International Journal of Accounting, Finance, Auditing, Management & Economics

intention to use via attitude. In turn, attitude turns out to be a powerful predictor of acceptance, mediating the effect of initial beliefs on adoption intention.

- ***Conceptual Contributions of the Model***

The integration of compatibility into the TAM model represents a major advancement, as it contextualizes technology acceptance by anchoring it in the personal and professional realities of users. It also enriches our understanding of perceived usefulness, no longer considered an intrinsic property of the technology, but rather a relational judgment dependent on the user's environment, objectives, and professional identity. Furthermore, this approach strengthens the predictive value of the TAM model, particularly in contexts of disruptive innovation where individuals must reconcile new practices with existing habits.
In this context, the model proposed by Agarwal & Karahanna (2000) constitutes a strategic extension of the TAM, adapted to technologies for which user experience, personal values, and professional practices strongly influence acceptance dynamics. It thus establishes itself as a relevant framework for analyzing adoption behaviors in changing environments, such as digital transformation, hybrid work, or the integration of web and mobile technologies.

4.8.Kwon and Chidambaram Model

Building on research on the acceptance of personal technologies, Kwon and Chidambaram (2000) proposed an original conceptual model based on the TAM, specifically applied to cell phone use in Hawaii. Their model, structured around the logic of the initial TAM, nevertheless incorporates new dimensions, particularly motivational factors (enjoyment, perceived usefulness) and individual user characteristics, with the aim of better understanding acceptance logics in mobile technology contexts. Drawing on contributions from motivation theory and socio-cognitive models, the authors propose that the acceptance of a mobile technology is jointly influenced by perceived ease of use, social pressure, user pleasure, personal characteristics (age, gender, professional status), and extrinsic motivation (particularly through perceived usefulness).
Kwon and Chidambaram's (2000) model is thus based on a central hypothesis: the integration of motivational and individual dimensions strengthens the predictability of adoption behavior in personal technology contexts, such as mobile phones or connected applications. This approach has been adopted and expanded upon in several subsequent studies, such as Mushi (2018) and Chidambaram et al. (2023), who confirmed the importance of affective variables such as perceived pleasure, which usefully complement the classic predictors (PU and PEU) of TAM in unconstrained environments, where freedom of technological choice is greater.
Furthermore, a study conducted by Seuwou et al. (2017) on the acceptance of technologies for the protection of personal and professional data sheds additional light on this model. The results of their survey reveal that individual characteristics such as gender, age, or socio-professional status do not systematically have a direct effect on the perception of mobile technologies. Only the age variable appears to moderate certain relationships, particularly sensitivity to social pressure. However, perceived ease of use remains a key factor, having a direct effect on motivation to use technology. This perceived motivation, conceived as an intention reinforced by pleasure or perceived value, itself acts as a robust antecedent of acceptance. These results suggest a coherent causal chain in which PEU influences motivation, which then conditions adoption, in a logic of behavioral mediation (Seuwou et al., 2017).
Kwon and Chidambaram's (2000) model thus usefully complicates the TAM framework, taking into account the hedonic and subjective nature of mobile technologies. It shows that adoption cannot be reduced to a functional or utilitarian evaluation, but results from a process in which affective and social factors play a decisive role. In this sense, this extension of TAM finds

particular relevance in mobile, ubiquitous or connected contexts, where interactions with technology are based on both instrumental and experiential logic.

4.9.Extended Technology Acceptance Model TAM 2

To overcome some of the conceptual limitations of the original Technology Acceptance Model (TAM), Venkatesh and Davis (2000) proposed a major extension, known as TAM 2, aimed at improving the prediction of behavioral intention to adopt technologies, particularly among inexperienced or low-experience users. This model retains the foundations of Davis's (1989) TAM, while incorporating new antecedents of perceived usefulness from social and cognitive psychology.

TAM 2 thus introduces two main sets of determinants. The first is a process of social influence, including subjective norms corresponding to the perceived pressure to adopt the technology; social image, reflecting the perception that adoption enhances status; and the willingness to adhere to the group's opinions or implicit rules. The second corresponds to an instrumental cognitive mechanism, centered on the demonstrability of results, i.e., the ability to observe concrete benefits, the quality of the results produced, and the importance of the task, which measures the degree of centrality of the technology in the expected performance.

These additional variables allow us to more precisely explain the determinants of perceived usefulness, taking into account the social context, the visibility of the benefits, and the cognitive engagement associated with the use of the technology (Lai, 2017; Venkatesh & Davis, 2000). They thus strengthen the model's ability to anticipate technology adoption, particularly in environments where users lack experience or are influenced by their professional environment.

- ***Empirical Validation and Contributions of TAM 2***

Several empirical studies have confirmed the validity of the TAM 2 model in various environments. Lai (2017), Maruping et al. (2017), Oumlil and Juiz (2018), and Domecq et al. (2020) agree that the demonstrability of results, the quality of the content produced, and the importance of the task significantly influence perceived usefulness, and by extension, intention to use. More specifically:

- Subjective norms exert a direct and significant effect on intention to use, especially among inexperienced users, where social pressure plays a role in triggering adoption.
- Perceived ease of use (PEU), although integrated into the model, retains a moderate but significant effect on perceived usefulness and intention. Direct social influence on intention gradually becomes less important as the user gains experience, in favor of instrumental judgments based on system and task characteristics.

In the specific field of e-entrepreneurship, Oumlil and Juiz (2018) used TAM 2 to analyze the adoption of digital technologies by future entrepreneurs. Their results reveal that social compliance and PEU positively influence adoption intention. However, attitude and PEU do not have a significant effect under certain conditions, suggesting that other mediating or contextual variables (such as perceived risk, available resources, or entrepreneurial culture) may modulate the influence of traditional TAM beliefs.

- ***Theoretical Scope and Contributions of TAM 2***

The TAM 2 model makes several major contributions to literature on technology acceptance. It offers a more comprehensive framework of perceived usefulness, integrating cognitive mechanisms related to tasks, outcomes, and the visibility of actions, as well as social forces such as social image, norms, and normative influence. This approach thus provides a better understanding of how perceptions of usefulness are shaped not only by the objective characteristics of technology, but also by the social and organizational context.

Furthermore, the TAM 2 model facilitates the differentiation between user profiles, notably by distinguishing between novice and experienced users. This distinction is essential for adapting

ISSN: 2658-8455
Volume 6, Issue 11 (2025), pp. 459-492.

IJAFAME
International Journal of Accounting, Finance, Auditing, Management & Economics

adoption strategies: novice users are more sensitive to social norms and collective representations, while experienced users rely more on instrumental criteria and their direct experience.
Finally, the model strengthens the explicability of the TAM in organizational contexts where technology adoption is often imposed or regulated by hierarchical structures. By integrating the conformity dimension, it allows for a better understanding of the influence of organizational pressures on acceptance decisions. In summary, TAM 2 constitutes a significant theoretical advance, enriching the initial paradigm by articulating the social dimension, instrumental effectiveness and cognitive complexity, while retaining the interpretative structure and fundamental principles of the original model.

4.10. Extended Technology Acceptance Model TAM 3

Following the development of TAM 2, Venkatesh and Bala (2008) introduced a new extension of the Technology Acceptance Model, designated TAM 3, with the aim of providing a unified view of the determinants of technology acceptance, articulating cognitive, social, affective, and contextual factors. This version of the model is distinguished by its ambition to simultaneously model the fundamental beliefs of the TAM (perceived usefulness, perceived ease of use), as well as the variables that shape these beliefs based on user experience and organizational conditions.
TAM 3 is thus designed to capture the entire process leading to technology acceptance, from belief formation to actual use, including attitudes, intentions, and contextual influences. It is aimed at both novice and experienced users and offers a systemic approach, combining the contributions of the initial TAM, TAM 2, and complementary models (self-efficacy theory, expectancy theory, and perceived control theory).

- ***Theoretical structure of TAM 3: a dual model of beliefs***

TAM 3 introduces a clear analytical distinction between the determinants of perceived usefulness (PU) and those of perceived ease of use (PEU), recognizing that each belief is influenced by a specific set of variables. The determinants of perceived usefulness include both instrumental and social factors. These include subjective norms, reflecting the influence of others, and social image, linked to the recognition generated by the use of the technology. These factors also include the quality of the results produced, the demonstration of these results, the importance of the task at hand, and the willingness to comply with social pressure. These variables highlight that perceived usefulness depends as much on the functional effectiveness of the technology as on the expectations and social interactions in which the user is involved.
At the same time, perceived ease of use is determined by affective, cognitive, and experiential factors. This takes into account the feeling of computer self-efficacy and anxiety related to computer use, which influence the perception of mastery of the technology. Perceived facilitating conditions, such as technical support and infrastructure, also play a central role. In addition, previous experience with similar technologies, perceived compatibility with usage habits, as well as observed and experienced learning, contribute to shaping the perception of ease of use.

- ***Empirical Validation and Explanatory Scope***

The model has been subjected to rigorous empirical testing by its authors in several organizational contexts, particularly during the introduction of new information systems. Venkatesh and Bala (2008) conducted a longitudinal study on the implementation of ERP systems in companies, confirming the statistical validity of the model and its predictive superiority over previous versions. The main empirical results of TAM 3 highlight that:

- The antecedents of PEU (notably self-efficacy, experience, compatibility) significantly influence PEU, which itself has an indirect impact on PU;
- Social variables (subjective norm, image, willingness to adhere) primarily influence PU and, to a lesser extent, behavioral intention;
- PEU has a direct influence on attitude and intention, especially during the initial phases of contact with the technology;
- Experience moderates several relationships: for example, the effect of anxiety is greater among novices, while it becomes negligible among advanced users.

One of the fundamental contributions of TAM 3 lies in its recognition of the central role of user experience, which moderates several relationships within the model. In particular, the effects of subjective norms or anxiety on PEU and PU are significantly attenuated among experienced users, but critical for beginners.

Several recent studies confirm the validity of TAM 3 in various application contexts. Al Shamsi et al. (2022) validated its explanatory power in the field of educational technologies, highlighting the critical role of perceived compatibility and self-efficacy in the acceptance of digital learning tools. Similarly, Moghavvemi et al. (2020), in the context of the adoption of mobile banking services, showed that the demonstrability of results and social image reinforce the perception of usefulness, particularly among novice users.

From a methodological perspective, TAM 3 also makes it possible to model the moderating effect of experience on several key relationships in the model: thus, among experienced users, the impact of subjective norms, anxiety, or perceived support tends to diminish, in favor of more rational mechanisms linked to usefulness and perceived performance. Han and Sa. (2022) and Rad et al. (2022) confirmed that antecedents of PEU, including self-efficacy, facilitating conditions, and experiential learning, significantly influence attitude, which in turn strengthens intention to use.

- ***Conceptual Contributions of TAM 3***

TAM 3 represents a major step in the evolution of technology acceptance models. It proposes a theoretically integrative framework, combining the contributions of previous models with those of social psychology, expectancy theory, and the sociology of use. This approach allows for a comprehensive understanding of the factors influencing technology adoption, taking into account individual beliefs, social interactions, and contexts of use.

Methodologically, TAM 3 stands out for its robustness, offering the ability to simultaneously measure users' beliefs, attitudes, intentions, and actual behaviors. It thus provides a solid empirical tool for analyzing acceptance dynamics and understanding how initial perceptions translate into actual behaviors.

From an operational perspective, the model identifies distinct intervention levers based on user profiles, whether in terms of training, support, anxiety reduction, or adaptation of technological tools. This practical dimension makes it possible to design targeted strategies to facilitate adoption, while taking into account inter-individual variations and specific contexts of use. Thanks to its theoretical richness and empirical validity, TAM 3 has established itself today as one of the most comprehensive frameworks for the analysis of technological behaviors in complex environments and constitutes an essential reference for researchers studying the appropriation of ICT in professional, educational or institutional settings.

5. Discussion

The longitudinal analysis of the Technology Acceptance Model (TAM) and its numerous extensions reveals the extent of the work of theoretical consolidation and adaptation carried out since the initial proposal by Davis (1989). The TAM quickly acquired a central place in the literature in management sciences and information systems, in particular because of its capacity

ISSN: 2658-8455
Volume 6, Issue 11 (2025), pp. 459-492.

IJAFAME
International Journal of Accounting, Finance, Auditing, Management & Economics

to explain the intention to use technologies based on two main variables: perceived usefulness (PU) and perceived ease of use (PEU). These two fundamental beliefs have been the subject of extensive empirical validation in a variety of technological and professional contexts (education, healthcare, finance, administration, ...), and they remain essential pivots in the analysis of usage intentions today. However, while this structural simplicity has encouraged the adoption of TAM in the scientific community, it has also proven insufficient to capture the growing complexity of technological uses, particularly with the emergence of intelligent, interconnected, and ubiquitous digital environments.

Extensions of the TAM, such as TAM2 (Venkatesh & Davis, 2000), TAM3 (Venkatesh & Bala, 2008), as well as more specialized contextual models (Igbaria et al., 1995; Agarwal & Karahanna, 2000), have enriched the initial framework by integrating additional variables: social factors (subjective norm, social image), cognitive factors (self-efficacy, technological compatibility), affective factors (user enjoyment, anxiety), as well as organizational determinants (managerial support, training conditions, innovation culture). These contributions have undeniably strengthened the model's external validity while broadening its predictive scope. However, this theoretical diversification has not fully resolved several structural weaknesses, widely shared by all the models examined.

First, TAM models and their derivatives adopt a predominantly static perspective on technology acceptance, focused on a specific moment in a technology's life cycle, generally upstream or during the launch phase. Few studies focus on analyzing how perceptions evolve over time, in relation to user experience, the routinization of uses, or contextual adaptations. However, several studies like Guo and Zhang (2024), Viet et al. (2024) and Zhang (2024) highlight the importance of a dynamic approach to acceptance, integrating processes of appropriation, disengagement, and even rejection over time. Appropriation is a dynamic and evolving process, which requires going beyond the initial intention to include dimensions of continuity, adjustment, and even rejection or disengagement. Very few models can model this behavioral evolution or account for the feedback between use and perception.

Second, expanded TAM models maintain an essentially individual-centric interpretation of acceptance. The user is conceptualized as an autonomous agent, rationally evaluating the benefits of a technology, without explicitly considering the structures within which they operate. This minimalist vision of the environment omits essential factors such as organizational frameworks, cultural norms, or institutional regulations, which directly or indirectly influence adoption decisions and actual practices. In this sense, the models fail to satisfactorily articulate the micro (individual) and macro (society, culture, organization, market) levels, limiting their analytical scope in increasingly interconnected and stratified digital environments.

Third, despite the integration of certain emotional or social variables, TAM models remain predominantly techno-centric and rationalist. They rarely take into account dimensions such as trust in technology, the ethical perception of algorithms, the transparency of automated systems, or the mental burden associated with the continuous use of digital tools. Yet, these elements prove crucial in the adoption of emerging technologies, such as artificial intelligence, algorithmic platforms, or surveillance systems. Rising concerns about explainability, data protection, and algorithmic justice require a reexamination of current models in light of these socio-technical issues. Also, the role of emotions (pleasure, stress, anxiety) is sometimes incorporated but often remains marginalized in analyses.

Fourth, the proliferation of TAM extensions has generated significant theoretical fragmentation. Each model proposes specific additions based on particular contexts (education, health, SMEs, e-commerce, ...), which has led to a dispersion of variables and a difficulty in comparing between studies. This lack of convergence makes it difficult to establish a cumulative and systematized framework for technology acceptance. Moreover, the majority of

models are tested through cross-sectional quantitative studies, which do not allow for capturing the interpretative subtleties of users or for capturing the diversity of situated uses. This methodological trend reinforces the risk of behavioral reductionism and leaves aside the mechanisms of meaning, engagement, or negotiation that characterize real usage trajectories.
Fifth, the methodologies used remain predominantly quantitative, focused on the statistical prediction of intention or usage. Few qualitative or longitudinal approaches allow us to understand the processes of appropriation, transformation of uses, or the emergence of new practices, elements that are fundamental to understanding the true impact of technologies in professional and personal contexts.
It is in response to all of these limitations that the proposal for an Integrative Technology Acceptance and Appropriation Model (ITAAM) is made. This aims to go beyond existing frameworks by combining the most robust variables from previous models (PU, PEU, subjective norm, self-efficacy) with new determinants centered on trust, perceived justice, resistance to change, digital fatigue, and identity alignment. The ITAAM adopts a systemic stance, articulating three levels of analysis: individual, organizational, and technological. It also takes a broader temporality, integrating appropriation dynamics (adaptation, transformation, diversion, rejection) as essential components of the usage cycle. In this sense, the ITAAM is not limited to predicting the intention to use, but aims to understand the concrete conditions for the sustainable anchoring of technologies in practices. It proposes an evolving, situated, and multi-level interpretation of acceptance, thus providing a renewed conceptual framework for studying digital behaviors in a constantly changing technological world.
This critical synthesis shows that the future of research on technology acceptance lies in the convergence between traditional predictive approaches and interpretive frameworks capable of integrating the diversity of uses, contexts, and temporalities. It thus paves the way for new hybrid models, sensitive to practices, social representations, and the dynamics of technological appropriation.

6. Conclusion

Cette An in-depth analysis of the foundations and main extensions of the Technology Acceptance Model (TAM) highlights the ongoing evolution of a theoretical framework that, although initially centered on two fundamental beliefs: perceived usefulness and perceived ease of use, has successfully adapted to the growing complexity of technological and organizational environments. From TAM 2 to TAM 3, including motivational, contextual, and sectoral models (SMEs, education, healthcare), scientific work has gradually expanded the model's explanatory scope by integrating social (subjective norms, image), psychological (self-efficacy, anxiety), experiential (compatibility, past experience), and structural (organizational support, facilitating conditions) variables.
These theoretical developments reflect a constant desire to capture the multiple individual, collective, and contextual dimensions that shape intentions and behaviors related to information technology use. They also confirm that acceptance cannot be reduced to a purely cognitive process, but rather involves a complex socio-technical dynamic involving cultural, emotional, and organizational factors. Recent models, such as TAM 3 or contextualized approaches like the Small Firm Acceptance Model, thus significantly improve the predictability of usage intention and actual adoption, while providing practitioners with more targeted levers for action.
Nevertheless, this diversity of extensions also raises several challenges. On the one hand, the fragmentation of approaches can hinder the comparability of empirical results and the cumulative consolidation of knowledge. On the other hand, certain critical dimensions, such as resistance to change, long-term appropriation logics, or cultural asymmetries, remain poorly integrated into dominant models. Furthermore, the majority of studies rely on quantitative methodologies with predictive aims, to the detriment of qualitative or mixed approaches that

ISSN: 2658-8455
Volume 6, Issue 11 (2025), pp. 459-492.

IJAFAME
International Journal of Accounting, Finance, Auditing, Management & Economics

would provide a better understanding of the processes of technology interpretation, misuse, or rejection.

Thus, this review highlights the value of further theoretical and methodological hybridization, combining the explanatory strengths of TAM with other frameworks such as appropriation theory, socio-constructivist approaches, or models derived from intervention research. Future research would also benefit from further exploring emerging contexts (artificial intelligence, algorithmic systems, immersive technologies), crossing scales of analysis (individual, team, organization), and integrating the long timescales of technology use. In this respect, TAM, in its various forms, remains a solid but evolving conceptual foundation, requiring continuous enrichment in light of technological changes and contemporary social practices.

References :

(1). Abd Hamid, M., & Isa, S. M. (2018). The Influence of adopting sustainable tourism practices towards sustainable performance among Malaysian tour operators. *Proceedings Book*, 169.

(2). Abdullah, F., & Ward, R. (2016). Developing a General Extended Technology Acceptance Model for E-Learning (GETAMEL) by analysing commonly used external factors. *Computers in human behavior*, 56, 238-256.

(3). Agarwal, R., & Prasad, J. (1999). Are individual differences germane to the acceptance of new information technologies?. *Decision sciences*, 30(2), 361-391.

(4). Agarwal, R., & Karahanna, E. (2000). Time flies when you're having fun: Cognitive absorption and beliefs about information technology usage. *MIS quarterly*, 665-694.

(5). Ahmimid, A. (2018). Proposition d'un modèle d'analyse des déterminants de l'acceptation de l'usage des dispositifs de télédéclaration fiscale au Maroc (Doctoral dissertation, Nantes).

(6). Ajzen, I. (1991). The theory of planned behavior. *Organizational behavior and human decision processes*, 50(2), 179-211.

(7). Ajzen, I., & Fishbein, M. (1975). A Bayesian analysis of attribution processes. *Psychological bulletin*, 82(2), 261.

(8). Alkebsi, M., & Aziz, K. A. (2017). Information technology usage, top management support and internal audit effectiveness. *Asian Journal of Accounting and Governance*, 8(1), 123-132.

(9). Al-Qaysi, N., Mohamad-Nordin, N., & Al-Emran, M. (2020). A systematic review of social media acceptance from the perspective of educational and information systems theories and models. *Journal of Educational Computing Research*, 57(8), 2085-2109.

(10). Al Shamsi, J. H., Al-Emran, M., & Shaalan, K. (2022). Understanding key drivers affecting students' use of artificial intelligence-based voice assistants. *Education and Information Technologies*, 27(6), 8071-8091.

(11). Atarodi, S., Berardi, A. M., & Toniolo, A. M. (2019). Le modèle d'acceptation des technologies depuis 1986: 30 ans de développement. *Psychologie du travail et des organisations*, 25(3), 191-207.

(12). Azizah, F. D., Nur, A. N., & Putra, A. H. P. K. (2022). Impulsive buying behavior: Implementation of IT on technology acceptance model on E-Commerce purchase decisions. *Golden Ratio of Marketing and Applied Psychology of Business*, 2(1), 58-72.

(13). Bagozzi, R. P. (2007). The legacy of the technology acceptance model and a proposal for a paradigm shift. *Journal of the association for information systems*, 8(4), 3.

(14). Bandura, A. (1986). Social foundations of thought and action. *Englewood Cliffs*, NJ, 1986(23-28).

(15). Blackwell, G., Gordon, B., Peña-López, I., Scott, R., Baker, A., Cooper, J., ... & Bal, R. (2018). A systematic review of the technology acceptance model in health informatics. *Applied clinical informatics*, 9(03), 604-634.
(16). Cazan, A. M., Cocoradă, E., & Maican, C. I. (2016). Computer anxiety and attitudes towards the computer and the internet with Romanian high-school and university students. *Computers in Human Behavior*, 55, 258-267.
(17). Chang, C. T., Hajiyev, J., & Su, C. R. (2017). Examining the students' behavioral intention to use e-learning in Azerbaijan? The general extended technology acceptance model for e-learning approach. *Computers & Education*, 111, 128-143.
(18). Chau, P. Y., & Hu, P. J. (2002). Examining a model of information technology acceptance by individual professionals: An exploratory study. *Journal of management information systems*, 18(4), 191-229.
(19). Chen, C. F., Xu, X., & Arpan, L. (2017). Between the technology acceptance model and sustainable energy technology acceptance model: Investigating smart meter acceptance in the United States. *Energy research & social science*, 25, 93-104.
(20). Cheng, E. W. (2019). Choosing between the theory of planned behavior (TPB) and the technology acceptance model (TAM). *Educational Technology Research and Development*, 67, 21-37.
(21). Chidambaram, V., Rana, N. P., & Parayitam, S. (2023). Antecedents of consumers' online apparel purchase intention through Virtual Try On technology: A moderated moderated-mediation model. *Journal of Consumer Behaviour*.
(22). Chiu, T. K., & Churchill, D. (2016). Adoption of mobile devices in teaching: Changes in teacher beliefs, attitudes and anxiety. *Interactive Learning Environments*, 24(2), 317-327.
(23). Darsono, L. I. (2005). Examining information technology acceptance by individual professionals. *Gadjah Mada International Journal of Business*, 7(2), 155-178.
(24). Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly*, 319-340.
(25). Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management science*, 35(8), 982-1003.
(26). Domecq, C. F., Williams, A. M., de Jong, A., & Alonso, A. (2020). Technology is a woman's best friend: Entrepreneurship and Management in Tourism. *E-review of Tourism Research*, 17(5).
(27). Gefen, D., & Straub, D. W. (1997). Gender differences in the perception and use of e-mail: An extension to the technology acceptance model. *MIS quarterly*, 389-400.
(28). Ghanem, M. M., Mansour, S. O., & Adel, H. (2017). The impact of national culture on the adoption of e-tourism in Egyptian tourism companies. *Tourism: An International Interdisciplinary Journal*, 65(2), 234-246.
(29). Go, H., Kang, M., & Suh, S. C. (2020). Machine learning of robots in tourism and hospitality: interactive technology acceptance model (iTAM)–cutting edge. *Tourism review*, 75(4), 625-636.
(30). Guest, W., Wild, F., Vovk, A., Lefrere, P., Klemke, R., Fominykh, M., & Kuula, T. (2018). A technology acceptance model for augmented reality and wearable technologies. *Journal of Universal Computer Science*, 24(2), 192-219.
(31). Guo, C., & Zhang, X. (2024). The impact of AR online shopping experience on customer purchase intention: An empirical study based on the TAM model. *PloS one*, 19(8), e0309468.

ISSN: 2658-8455
Volume 6, Issue 11 (2025), pp. 459-492.

(32). Han, J. H., & Sa, H. J. (2022). Acceptance of and satisfaction with online educational classes through the technology acceptance model (TAM): The COVID-19 situation in Korea. *Asia Pacific Education Review*, 23(3), 403-415.
(33). Hassan, M., Kazmi, S. S. A. S., & Padlee, S. F. (2019). Technology acceptance model (TAM) and dynamics of online purchase adaptability. *International Journal of Recent Technology and Engineering*, 8(1), 390-402.
(34). Hidoussi, K. D., Dubois, M., Gandit, M., & El Methni, J. (2016). L'effet du contrôle comportemental, l'auto-efficacité et la charge subjective de travail sur l'intention d'usage d'un progiciel de gestion intégré. *Psychologie du travail et des organisations*, 22(1), 22-38.
(35). Hochscheid, É., & Halin, G. (2018). L'adoption du BIM dans les agences d'architecture en France. In SHS Web of Conferences (Vol. 47, p. 01009). EDP Sciences.
(36). Hofstede, G. (2011). Dimensionalizing cultures: The Hofstede model in context. *Online readings in psychology and culture*, 2(1), 8.
(37). Hsiao, C. H., & Yang, C. (2011). The intellectual development of the technology acceptance model: A co-citation analysis. *International Journal of Information Management*, 31(2), 128-136.
(38). Hubona, G. S., & Geitz, S. (1997, January). External variables, beliefs, attitudes and information technology usage behavior. In *Proceedings of the thirtieth Hawaii international conference on system sciences* (Vol. 3, pp. 21-28). IEEE.
(39). Igbaria, M., Guimaraes, T., & Davis, G. B. (1995). Testing the determinants of microcomputer usage via a structural equation model. *Journal of management information systems*, 11(4), 87-114
(40). Igbaria, M., & Iivari, J. (1995). The effects of self-efficacy on computer usage. *Omega*, 23(6), 587-605.
(41). Igbaria, M., Parasuraman, S., & Baroudi, J. J. (1996). A motivational model of microcomputer usage. *Journal of management information systems*, 13(1), 127-143.
(42). Igbaria, M., Zinatelli, N., Cragg, P., & Cavaye, A. L. (1997). Personal computing acceptance factors in small firms: a structural equation model. *MIS quarterly*, 279-305.
(43). Iyer, S., Pani, A. K., & Gurunathan, L. (2020). User adoption of eHRM-An empirical investigation of individual adoption factors using technology acceptance model. In *Re-imagining Diffusion and Adoption of Information Technology and Systems: A Continuing Conversation: IFIP WG 8.6 International Conference on Transfer and Diffusion of IT, TDIT 2020*, Tiruchirappalli, India, December 18–19, 2020, Proceedings, Part I (pp. 231-248). Springer International Publishing.
(44). Juaneda-Ayensa, E., Mosquera, A., & Sierra Murillo, Y. (2016). Omnichannel customer behavior: key drivers of technology acceptance and use and their effects on purchase intention. *Frontiers in psychology*, 7, 1117.
(45). Jun, J., Lee, K. J., & Kim, B. G. (2016). Factors affecting user acceptance of mobile commerce services. *Asia pacific journal of information systems*, 26(4), 489-508.
(46). Karahanna, E., & Straub, D. W. (1999). The psychological origins of perceived usefulness and ease-of-use. *Information & management*, 35(4), 237-250.
(47). Kim, H. Y., Lee, J. Y., Mun, J. M., & Johnson, K. K. (2017). Consumer adoption of smart in-store technology: assessing the predictive value of attitude versus beliefs in the technology acceptance model. *International Journal of Fashion Design, Technology and Education*, 10(1), 26-36.
(48). King, D. L., Delfabbro, P. H., Gainsbury, S. M., Dreier, M., Greer, N., & Billieux, J. (2019). Unfair play? Video games as exploitative monetized services: An examination of game patents from a consumer protection perspective. *Computers in Human Behavior*, 101, 131-143.

(49). Kwon, H. S., & Chidambaram, L. (2000, January). A test of the technology acceptance model: The case of cellular telephone adoption. In *Proceedings of the 33rd Annual Hawaii International Conference on System Sciences* (pp. 7-pp). IEEE.
(50). Lai, P. C. (2017). The literature review of technology adoption models and theories for the novelty technology. *JISTEM-Journal of Information Systems and Technology Management*, 14, 21-38.
(51). Lee, K. F. (2018). AI superpowers: China, Silicon Valley, and the new world order. *Houghton Mifflin*.
(52). Legris, P., Ingham, J., & Collerette, P. (2003). Why do people use information technology? A critical review of the technology acceptance model. *Information & management*, 40(3), 191-204.
(53). Lin, H. F., & Chen, C. H. (2017). Combining the technology acceptance model and uses and gratifications theory to examine the usage behavior of an augmented reality tour-sharing application. *Symmetry*, 9(7), 113
(54). Lou, A. T., & Li, E. Y. (2017). Integrating innovation diffusion theory and the technology acceptance model: The adoption of blockchain technology from business managers' perspective.
(55). Lu, J., Yu, C. S., Liu, C., & Yao, J. E. (2003). Technology acceptance model for wireless Internet. *Internet research*, 13(3), 206-222.
(56). Malaquias, R. F., Malaquias, F. F., & Hwang, Y. (2018). Understanding technology acceptance features in learning through a serious game. *Computers in Human Behavior*, 87, 395-402.
(57). Manis, K. T., & Choi, D. (2019). The virtual reality hardware acceptance model (VR-HAM): Extending and individuating the technology acceptance model (TAM) for virtual reality hardware. *Journal of Business Research*, 100, 503-513.
(58). Mantello, P., Ho, M. T., Nguyen, M. H., & Vuong, Q. H. (2023). Machines that feel: behavioral determinants of attitude towards affect recognition technology—upgrading technology acceptance theory with the mindsponge model. *Humanities and Social Sciences Communications*, 10(1), 1-16.
(59). Marchal, S., Dardenne, B., & Etienne, A. M. (2018). Utilisation de la réalité virtuelle comme outil thérapeutique: quels sont les facteurs influençant son acceptation auprès des cliniciens?. *Revue Francophone de Clinique Comportementale et Cognitive*, 22(3).
(60). Maruping, L. M., Bala, H., Venkatesh, V., & Brown, S. A. (2017). Going beyond intention: Integrating behavioral expectation into the unified theory of acceptance and use of technology. *Journal of the Association for Information Science and Technology*, 68(3), 623-637.
(61). Midha, V. (2016). Cognitive absorption an empirical examination of 3-D immersive virtual world users. *AIS Transactions on Replication Research*, 2(1), 1.
(62). Migiro, S. O., & Ocholla, D. N. (2005). Information and communication technologies in small and medium scale tourism enterprises in Durban, South Africa. *Information development*, 21(4), 283-294.
(63). Moats, J. (2015). Influences on the acceptance of innovative technologies used in learning opportunities: A theoretical perspective. In *Handbook of research on innovative technology integration in higher education* (pp. 262-281). IGI Global.
(64). Moghavvemi, S., Mei, T. X., Phoong, S. W., & Phoong, S. Y. (2021). Drivers and barriers of mobile payment adoption: Malaysian merchants' perspective. *Journal of Retailing and Consumer Services*, 59, 102364.
(65). Munoz-Leiva, F., Climent-Climent, S., & Liébana-Cabanillas, F. (2017). Determinants of intention to use the mobile banking apps: An extension of the classic TAM model. *Spanish journal of marketing-ESIC*, 21(1), 25-38.

ISSN: 2658-8455
Volume 6, Issue 11 (2025), pp. 459-492.

IJAFAME
International Journal of Accounting, Finance, Auditing, Management & Economics

(66). Mushi, R. M. (2018). The impact of personal privacy on the acceptance of mobile phone technology: A case of Tanzanian SMEs. *Journal of International Technology and Information Management*, 27(1), 129-144.
(67). Nunkoo, R., Ramkissoon, H., & Juwaheer, T. D. (2016). Travelers' intent to purchase tourism products and services online.
(68). Otieno, A. P. (2015). Factors influencing ICT adoption and usage by small and medium sized enterprises: the case of Nairobi based SMEs (Doctoral dissertation, Doctoral dissertation, United States International University-Africa).
(69). Oumlil, R., & Juiz, C. (2018). Acceptance of tourism e-entrepreneurship: Application to educational Balearic Islands Context. *Journal of Entrepreneurship Education*, 21(1), 1-16.
(70). Patil, P., Tamilmani, K., Rana, N. P., & Raghavan, V. (2020). Understanding consumer adoption of mobile payment in India: Extending Meta-UTAUT model with personal innovativeness, anxiety, trust, and grievance redressal. *International Journal of Information Management*, 54, 102144.
(71). Pfeiffer, J., von Entress-Fuersteneck, M., Urbach, N., & Buchwald, A. (2016). Quantify-me: Consumer acceptance of wearable self-tracking devices.
(72). Purani, K., Kumar, D. S., & Sahadev, S. (2019). e-Loyalty among millennials: Personal characteristics and social influences. *Journal of Retailing and Consumer Services*, 48, 215-223.
(73). Rad, D., Egerau, A., Roman, A., Dughi, T., Balas, E., Maier, R., ... & Rad, G. (2022). A preliminary investigation of the technology acceptance model (TAM) in early childhood education and care. BRAIN. *Broad Research in Artificial Intelligence and Neuroscience*, 13(1).
(74). Rogers, E. M. (1995). Diffusion of Innovations: modifications of a model for telecommunications. *Die diffusion von innovationen in der telekommunikation*, 25-38.
(75). Scherer, R., Siddiq, F., & Tondeur, J. (2019). The technology acceptance model (TAM): A meta-analytic structural equation modeling approach to explaining teachers' adoption of digital technology in education. *Computers & Education*, 128, 13-35.
(76). Seuwou, P., Banissi, E., & Ubakanma, G. (2016). User acceptance of information technology: A critical review of technology acceptance models and the decision to invest in Information Security. In *Global Security, Safety and Sustainability-The Security Challenges of the Connected World: 11th International Conference*, ICGS3 2017, London, UK, January 18-20, 2017, Proceedings 11 (pp. 230-251). Springer International Publishing.
(77). Sinniah, S., Makhbul, Z. K. M., Subramaniam, M., Perumal, G., Kumar, R., & Mohamed, M. H. (2019). Intention to use fingerprint system in electronics industry. *Humanities & Social Sciences Reviews*, 7(5), 536-544.
(78). Tarafdar, M. (2005). Analyzing the influence of web site design parameters on web site usability. *Information Resources Management Journal (IRMJ)*, 18(4), 62-80.
(79). Tehrani, Y. H., Fazel, Z., & Atarodi, S. M. (2018). A survey of two dominant low power and long range communication technologies. *Journal of Information Systems and Telecommunication*, 6(2), 60-66.
(80). Tom Dieck, M. C., & Jung, T. (2018). A theoretical model of mobile augmented reality acceptance in urban heritage tourism. *Current Issues in Tourism*, 21(2), 154-174.
(81). Triandis, H. C. (1977). Cross-cultural social and personality psychology. *Personality and Social Psychology Bulletin*, 3(2), 143-158.
(82). Tsekouras, D., Li, T., & Benbasat, I. (2018). Scratch My Back and I'll Scratch Yours: The Impact of the Interaction Between User Effort and Recommendation Agent Effort on Perceived Recommendation Agent Quality. Available at SSRN 3258053.

(83). Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. *Decision sciences*, 39(2), 273-315.
(84). Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management science*, 46(2), 186-204.
(85). Venkatesh, V., & Morris, M. G. (2000). Why don't men ever stop to ask for directions? Gender, social influence, and their role in technology acceptance and usage behavior. *MIS quarterly*, 115-139.
(86). Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS quarterly*, 425-478.
(87). Viet Tam, T., Tien, N. H., & Banka, M. (2024). Identifying gamification factors for digital banking service users in Vietnam: Extending TAM model with gamification and perceived value. *Cogent Business & Management*, 11(1), 2398730.
(88). Vijayasarathy, L. R. (2004). Predicting consumer intentions to use on-line shopping: the case for an augmented technology acceptance model. *Information & management*, 41(6), 747-762.
(89). Viot, C., Lancini, A., & Bayart, C. (2018, September). La passion des gadgets et les normes subjectives: deux déterminants de l'intention d'adopter des objets connectés chez les 18-25 ans. In *17ème Colloque sur le Marketing Digital*.
(90). Wang, C., Zhang, J., Yu, P., & Hu, H. (2018). The theory of planned behavior as a model for understanding tourists' responsible environmental behaviors: The moderating role of environmental interpretations. *Journal of Cleaner Production*, 194, 425-434.
(91). Wang, G., & Song, J. (2017). The relation of perceived benefits and organizational supports to user satisfaction with building information model (BIM). *Computers in Human Behavior*, 68, 493-500.
(92). Wang, X., & Goh, D. H. L. (2017). Video game acceptance: A meta-analysis of the extended technology acceptance model. *Cyberpsychology, Behavior, and Social Networking*, 20(11), 662-671.
(93). Wedlock, B. C., & Trahan, M. P. (2019). Revisiting the Unified Theory of Acceptance and the Use of Technology (UTAUT) Model and Scale: An Empirical Evolution of Educational Technology. *Research Issues in Contemporary Education*, 4(1), 6-20.
(94). Weerasinghe, S., & Hindagolla, M. (2017). Technology acceptance model in the domains of LIS and education: A review of selected literature. *Library Philosophy and Practice*, 1-27.
(95). Wixom, B. H., & Todd, P. A. (2005). A theoretical integration of user satisfaction and technology acceptance. *Information systems research*, 16(1), 85-102.
(96). Wu, B., & Chen, X. (2017). Continuance intention to use MOOCs: Integrating the technology acceptance model (TAM) and task technology fit (TTF) model. *Computers in human behavior*, 67, 221-232.
(97). Yoon, C. (2018). Extending the TAM for Green IT: A normative perspective. *Computers in Human Behavior*, 83, 129-139.
(98). Zhang, Y. (2024). Impact of perceived privacy and security in the TAM model: The perceived trust as the mediated factors. *International Journal of Information Management Data Insights*, 4(2), 100270.
(99). Zhang, X., & Venkatesh, V. (2018). From design principles to impacts: A theoretical framework and research agenda. *AIS Transactions on Human-Computer Interaction*, 10(2), 105-128.