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Acceptance of electronic payment systems: A critical review forward a parsimonious model including vertical and horizontal cultural orientations

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ABSTRACT

The opportunities for prosperity and sustainable development offered by Electronic Payment Systems (EPS) are of great interest to both authorities and various stakeholders, especially in developing countries. Needless to say, UTAUT2 explains only 40 % of the actual use's variance. This model lacks certain salient constructs that have proven to be relevant. Based on 41 reviewed articles, this current paper aims to provide an innovative model built on robust theoretical foundations, including two new concepts Contextual Acquaintance that encompasses experience, familiarity, and situational normality, and Overall Reliability which gathers consistency of the technology itself and stakeholders' reliability. This led us to uncover new endogenous mechanisms without burdening the model with multiple variables. Furthermore, this model incorporates for the first time horizontal and vertical dimensions of collectivism and individualism in the context of EPS adoption, providing a more profound understanding of behaviors in multicultural societies. Finally, this paper provides a research framework for scholars to reduce the redundancies observed in this context.

1. Introduction

Spreading the use of EPS yields dual benefits. Firstly, at the individual level, they offer personalization, flexibility, and simplicity of delivery at a reduced cost, which ultimately boosts productivity, profitability, and financial inclusion [1]. Secondly, at the national level, promoting e-payments has increased transparency, leading to a reduction in the shadow economy and transaction costs [2]. It also discourages tax evasion and crime, increases economic efficiency, and enables governments and central banks to handle economic crises more effectively [3]. Moreover, EPS have become an essential pillar for a sustainable economy [4]. Previous studies indicate that the environmental footprint of a cash payment is 1.5 times higher compared to that of a debit card payment ([5], p. 24). Further, E-payment can be an effective mechanism to promote financial inclusion and provide new economic opportunities, especially for developing countries' residents, where a significant proportion of the population resides in rural and remote regions. For instance, in Morocco, the rural regions cover 90 % of the total land area and represent 40 % of the national population [6].

However, despite authorities' efforts to promote these payment methods, a significant paradox persists, especially in developing countries: cash remains the most popular payment method, notwithstanding the remarkable expansion of e-commerce. For instance, four African countries were leading the world's top 20 countries reliant on cash in 2022 (i.e., Morocco, Egypt, Kenya, and Nigeria) [7–9]. Although, in Morocco and Egypt, 84 % and 72 % of the population, respectively have internet access [9]. This suggests that the preference for cash payment methods cannot be attributed to internet connectivity issues.

The extensive literature review underscores two significant gaps in prior research. On one hand, none of the prior studies provided a critical discussion perspective on various drivers: redundancies and similarities. This resulted in numerous studies that may differ in form but repeat similar constructs in substance, as they introduce new terms for the same constructs or employ different terminology for constructs that essentially convey the same ideas. This can create significant confusion among both scholars and practitioners. On the other hand, none of the past studies have integrated 'trust in technology' emphasized by Mcknight et al. [10] into their frameworks.

Therefore, this research aims to address these research gaps by conducting a critical review to suggest a new conceptual framework based on UTAUT2 and Trust in technology (Mcknight et al. [10] while highlighting new mechanisms that can enhance our understanding of EPS adoption.

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Hence, the remainder of the paper is organized as follows: Section 2 delves into the theoretical backgrounds by conducting a critical literature review highlighting the research gap. Section 3 discusses the research model and hypotheses. Afterwards, Section 4 explores both theoretical and managerial contributions. Finally, Section 5 presents limitations and suggests future research directions.

2. Theoretical backgrounds and literature review

2.1. Unified theory of acceptance and use of technology 2: UTAUT2

Taylor and Todd [11] state that there are many levels of assessing technology's adoption or rejection, one of them is individual-level information technology (IT) adoption such as the technology acceptance model (TAM) [12], the diffusion of innovations (DOI) [13], the model of personal computer utilization (MPCU) [14] or UTAUT2 [15]. These kinds of research provide more practical interventions leading to greater acceptance and real utilization of IT [16].

UTAUT captured an initial set of 32 variables [17] within four key factors of intention behavior along with four moderators (i.e., gender, age, experience, and voluntariness of use). Performance expectancy and effort expectancy represent technology attributes, while social influence and facilitating conditions are contextual factors influencing the individual's behavior [18].

Almost ten years later, Venkatesh et al. [15] adapted the main UTAUT constructs to the consumer technology acceptance context (Table 1) and called it UTAUT2 (Fig. 1). Venkatesh et al. [15] conducted a longitudinal study of 1512 mobile Internet users in Hong Kong. Results underpin the model's reliability in the consumer context: UTAUT2 explained 74 % of intention behavior's variance, whereas the basic UTAUT explained only 56 %. This model expands the overall nomological network related to technology use [15] by adding three new constructs (i.e., habit, hedonic motivation, and price value).

In the EPS adoption context, several studies (Table 2) undertook different research strategies for a twofold reason; the first one is to uncover new endogenous mechanisms that were not found in the original UTAUT2 model and the second one is to seek more powerful and explanatory model of intention and use.

Indeed, some scholars merge specific theories along with UTAUT2 to explain the intention and the actual use of EPS. For instance, Migliore et al. [36] suggest merging UTAUT2 with innovation resistance theory (IRT) to combine drivers and barriers in the same theoretical framework. Singh et al. [29] integrated TAM along with UTAUT2 by substituting performance expectancy and effort expectancy with the main constructs of TAM (i.g. perceived usefulness and perceived ease of use). Additionally, Singu et Chakraborty [49] merge UTAUT and ISS models along with trust and perceived security. Further, Lin et al. [27] investigated the factors influencing the behavior intention to adopt mobile payment by merging UTAUT2 and DOI.

Table 1
Key constructs of UTAUT2 model [15].

Construits	Definitions
Performance expectancy	The degree to which using a technology will provide benefits to consumers in performing certain activities ([15], p. 159).
Effort expectancy	The degree of ease associated with consumers' use of technology ([15], p. 159).
Social influence	The extent to which consumers perceive that important others (e.g., family and friends) believe they should use a particular technology ([15], p. 159).
Facilitating conditions	Refer to consumers' perceptions of the resources and support available to perform a behavior (e.g., [17,19]).
Hedonic motivation	Defined as the fun or pleasure derived from using a technology ([15], p. 161).
Price value	Consumers' cognitive tradeoff between the perceived benefits of the applications and the monetary cost for using them [20].
Habit	The extent to which people tend to perform behaviors automatically because of learning [21].

Other scholars assess the impact of new potential exogenous variables on the explanatory power of the original model. Among the most frequently employed factors are perceived risk [23,26,31,35,38,41,43], personal innovativeness [37,40], and perceived security [25,39,41,45]. Some studies may gather up to six new constructs. For example, Bouteraa et al. [40] added awareness, personal innovativeness, privacy-security, system quality, government support, and firm reputation to the original UTAUT. Nevertheless, the explanatory power of behavioral intention in the new model was 72.2 %, slightly lower than that of the original UTAUT.

Another group of scholars broadened the model by integrating new endogenous variables. For example, attitude [18,28], and satisfaction [29]. We also observed a trend in exploring new dependent variables beyond behavioral intention such as continuous use [44], continuous use intention [33,48], and recommendation to use [29].

After conducting a state-of-the-art review of UTAUT and UTAUT2 replications in the context of EPS adoption, we have identified inconsistencies. Indeed, some scholars create redundancy by introducing new constructs that capture one or more aspects of existing original UTAUT2 concepts (Table 3).

For example, Cao and Niu [23] explored ubiquity as a predictor of the use of Alipay in China along with UTAUT. However, according to the authors' definition, ubiquity refers to "that user can select a mobile terminal at any time and any place to get the service or information", which is precisely an aspect of the convenience of EPS, and represents a key aspect that belongs to performance expectancy dimension. Exploring ubiquity could be done as a predictor of performance expectancy to gain a deeper understanding of this general construct.

Another similarity was observed related to the consumer awareness concept. Indeed, Both Al-Okaily et al. [25] and Bouteraa et al. [40] added awareness along with UTAUT2 and UTAUT, as predictors of the behavioral intention to use Mobile payment (JoMoPay) and Fintech services, respectively. However, awareness, as defined by the authors, describes the extent to which an individual knows about the existence of the e-payment system and has enough information about it. According to this, Venkatesh et al. [15] have already introduced facilitating conditions, which are essentially the support, training, and all the necessary information needed for an individual to correctly use the innovation. Here again, we can use this aspect as a predictor of facilitating conditions instead of repeating the same concept with a different name.

In sum, enhancing the model to improve its relevance and explanatory power is a good practice [50]. However, it sometimes leads to an abundance of divergent constructs, This could create confusion for both researchers and practitioners seeking clear and concise models.

2.2. Trust in a specific technology [10]

Currently, electronic transactions are widely accepted. Whereas making payments for goods and services in an electronic environment without cash or checks remains risky, users are in a relatively vulnerable position during the payment stage [33]. Consequently, trust helps reduce the social complexity that a consumer faces in e-commerce [51]. Thus, trust was applied to explore various technology adoption types, such as m-banking adoption [52], healthcare technology service acceptance [53], e-commerce [54,55], and e-government use [56].

However, the question of whether trust in technology is possible remains. In the information systems (IS) research context, there were some extreme positions against trusting in technology [57]. McKnight et al. [10] argue that "if one can rely or depend on a technology's attributes, then trust in technology is a viable concept". They pointed out that individuals' trust in technology may shape their IT-related beliefs and behavior, as they rely on technology's positive characteristics to accomplish tasks. For instance, if online customers decide to use their credit card for payment when making an online purchase, they trust this

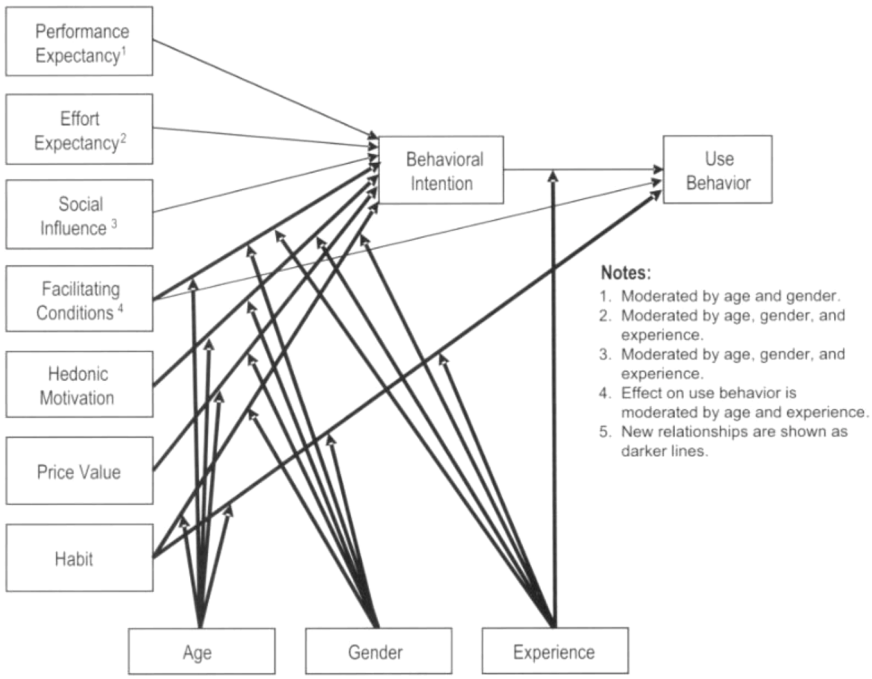

Fig. 1. UTAUT2 model [15]
Note. From Consumer Acceptance and Use of Information Technology: Extending the Unified Theory of Acceptance and Use of Technology, by Venkatesh at al. (2012).

technology because of favorable EPS attributes (i.e., security, and ubiquity). Moreover, trust has to do with making oneself vulnerable to another person or object regardless of the will or moral agency of the object of trust [10]. For instance, to protect our property and loved ones, we make ourselves vulnerable by relying on a high-tech security system at home.

Based on this definition, we can infer that trust needs twofold irreplaceable conditions to rise: interdependence and risk [58]. First, interdependence is defined as "the interests of one party cannot be achieved without reliance upon another" [58]. For instance, interdependence in EPS means that both the online customer and the payment gateway are important in making an online transaction succeed. Online customers need a payment gateway to handle their payments securely and protect their financial details. Simultaneously, the payment gateway relies on him to provide accurate payment information to lead to the transaction's approval.

The second condition to create trust is risk. This construct reflects the negative consequences that the trustor incurs if the trustee fails to prove worthy of the trust extended [10]. This risk arises from uncertainty about trustee intentions [58]. In the same vein, Lewis and Weigert [59] argue that there can be no reason to trust in two cases: 1) if one were omniscient, actions could be undertaken with complete certainty, and no trust is needed, and 2) in the case of absolute ignorance, we can gamble but we cannot trust.

However, it's worth noting that some scholars use both perceived risk and trust as independent variables in predicting intention behavior [26,31,38]. However, overlooking the theoretical link between risk and trust constructs can introduce bias into the results. For instance, Arora et al. [38] investigated e-wallet adoption in India by mobilizing perceived risk and trust along with the UTAUT2 model. A sample of 358 respondents was analyzed. Results showed that perceived risk and hedonic motivations had no significant influence on behavioral intention to use e-wallets, but surprisingly, perceived trust had a significant impact on it. Al-Saedi et al. [26] obtained similar findings regarding perceived risk and trust in the context of m-payment adoption in Oman. These results suggest that risk does not impact behavioral intention, while trust does. How can this finding be considered logical knowing that risk is typically a fundamental condition for establishing trust? Since trust influences behavioral intention, the construct of risk is implicitly present and significant.

This leads us to the question of how scholars conceptualized trust formation. We have observed that scholars have adopted two different approaches to explore trust in the context of EPS adoption (Tables 2, 4). The first group considers trust as unitary concept, trust is viewed as an independent variable included within other well-established models such as UTAUT [26,28,30,34,43,47], UTAUT2 [24,31,38,41,44,46,48], TRA and TAM [60,61]. All of those studies corroborate the positive and significant impact of trust on EPS adoption, except for De Blanes Sebastián et al.'s [41] study conducted in Spain regarding the adoption of Bizum (a local mobile payment app).

Other scholars adopt a more complex approach, considering trust as a set of specific constructs (Table 4). This second approach is the one most strongly supported in the literature and gives more practical insights. McKnight et al. [73] state that the distinction between trusting beliefs and trusting intentions follows the Fishbein and Ajzen [74] typology separating constructs into beliefs, attitudes, intentions, and behaviors. Likewise, this decomposition tradition approach makes the model more managerially relevant. Accordantly, in the interest of parsimony, we will follow the same stream and focus on the impact of trust cognitive aspects on actual behavior.

As shown in Fig. 2, trusting intentions are influenced by trusting beliefs and by institution-based trust in technology as well [10].

It is crucial to mention that the focus of this research is on trust in technology, particularly in EPS, and not in individuals or even organizations (i.e., firms, e-vendors). Thus, we will explore specific technology's trusting beliefs rather than those inherent to people.

In this regard, McKnight et al. [10] have identified three key trusting beliefs in a specific technology: helpfulness, functionality (capability), and reliability (see Table 5).

In the EPS adoption context, we found a profusion of trust subconstructs predicting perceived trust (Table 4). We gathered all subdimensions examined in 12 studies through conceptual clustering. Three categories emerged from the analysis: helpfulness, capability, and reliability beliefs (Table 6).

Table 2
Comparaison of existing UTAUT and UTAUT2 extensions' findings in EPS context.

Author(s) & Year	Country	Context of the study	Theory utilized	Size sample	Control variables	Dependent variables	Accepted hypotheses	Not supported hypotheses	R2
Nuriska et al. [22]	Indonesia	E-money (Go-pay)	UTAUT2	202 users	Age, gender, revenu	BI	H4: FC -> BI H6: PV -> BI H7: HB -> BI EE -> BI and FC -> BI are moderated by age	H1: PE -> BI H2: EE -> BI H3: SI -> BI H5: HM -> BI	BI = 73.6 %
Cao and Niu [23]	China	Mobile payment (Alipay)	UTAUT, C, UB, PR	614 users	PR, EE, PE, SI	A, U	H1: C -> *U* H2: UB -> *U* H3a: C -> *U* mediated by PE H3b: UB -> *U* mediated by PE H4a: C -> *U* mediated by EE	H4b: UB -> *U* mediated by EE H5a: C -> *U* mediated by SI H5b: UB -> *U* mediated by SI H6a: C -> *U* mediated by PR H6b: UB -> *U* mediated by PR	NA
Merhi et al. [24]	Lebanon - England	Mobile banking	UTAUT2, PP, PS, TR	901 users	NA	BI, U	Lebanon: H1: PE -> BI H6: HB -> BI H7: TR -> BI H8: PP -> BI H9: PS -> BI England: H2: EE -> BI H5: PV -> BI H6: HB -> BI H7: TR -> BI H8: PP -> BI H9: PS -> BI	Lebanon: H2: EE -> BI H3: SI -> BI H4: HM -> BI H5: PV -> BI England: H1: PE -> BI H3: SI -> BI H4: HM -> BI	Lebanon: BI = 78 % England: BI = 83 %
Al-Okaily et al. [25]	Jordany	Mobile payment (JoMoPay)	UTAUT2, AW, PS, PP, uncertainty avoidance	270 Jordanian public sector employees	Culture: uncertainty avoidance	BI	H1: PE -> BI H3: SI -> BI H5: PV -> BI H7: PS -> BI H8: PP -> BI	H2: EE -> BI H4: FC -> BI H6: AW -> BI H9: SI -> BI moderated by uncertainty avoidance	BI = 61.2 %
Al-Saedi et al. [26]	Oman	Mobile payment	UTAUT, PR, TR, PC, SE	436 users	NA	BI	H2: TR -> BI H3: PC -> BI H4: SE -> BI H5: PE -> BI H6: EE -> BI H7: SI -> BI	H1: PR -> BI	BI = 72 %
Lin et al. [27]	Taiwan	Mobile payment	UTAUT2, DOI	342 users	Age, gender,	BI	H3: SI -> BI H4: FC -> BI H5: HM -> BI H6:PV -> BI H7a: CB -> PE H7b: CB -> EE H7c: CB -> BI H8a: INN -> PE H8b: INN -> EE H8c: INN -> BI H9: RA -> BI H11: OB -> BI	H1: PE -> BI H2: EE -> BI H10: CX -> BI	NA
Patil et al. [28]	India	Mobile payment	Meta-UTAUT, PINN, AX, TR, GR	491 surveys	NA	A, U	H1: PE -> *A* H2: PE -> *U* H3: EE -> *A* H4: SI -> BI H5: FC -> BI H6: FC -> EE H7: PINN -> *A* H8: AX -> *A* H9: TR -> *A* H10: GR -> *U*	NA	BI= 66 % *U* = 50 %

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Table 2 (*continued*)

Author(s) & Year	Country	Context of the study	Theory utilized	Size sample	Control variables	Dependent variables	Accepted hypotheses	Not supported hypotheses	R2
							H11: A -> BI H12: BI -> *U*		
Singh et al. [29]	India	Mobile wallet	TAM, UTAUT2	206 responses from an online and manual survey	Innovativeness, stress to use and social influence	BI, SAT, RU	H1: PEU -> BI H2: PU -> BI H4: A -> BI H5: BI -> SAT H6: SAT -> RU H8: BI -> SAT moderated by stress H9: SAT -> RU moderated by SI	H3: PR -> BI H7: BI -> SAT moderated by innovativeness	BI = 88 % SAT = 15.8 % RU =21.5 %
Musyaffi et al. [30]	Indonesia	Digital Payment (QR Code)	UTAUT, TR, PS	205 respondents	NA	BI	H2: EE -> PE H3: PS -> BI H4: PS -> TR H5: PE -> BI H6: TR -> BI H7: TR -> PE	H1: EE -> BI	NA
Al-Sabaawi et al. [31]	Irak	E-payment systems	UTAUT2, TS, TR, IR, PEM, PR	339 users	NA	BI, U	H1: PE -> BI H2: EE -> BI H3: SI -> BI H4: FC -> BI H6:PO -> BI H7: HB -> BI H8: TS -> BI H9: TR ->*U* H11: PR -> BI H12: PEM -> BI	H5: HM -> BI H10: IR -> BI	NA
Fatima et al. [32].	Pakistan	M-Payment	UTAUT2, PVa	228 respondents	NA	BI, PVa	H1a: PE -> BI H1b: PE -> PVa H2a: EE -> BI H2b: EE -> PVa H3a: SI -> BI H3b: SI -> PVa H4a: FC -> BI H4b: FC -> PVa H5a: HM -> BI H5b: HM -> PVa H6a: PR -> BI H7a: HB -> BI H7b: HB -> PVa H8: PV -> BI	H6b: PR -> PVa	NA
Lian and Li [33]	Taiwan	Mobile payment	UTAUT2, OT	683 users	NA	OT, CUI	H1: PE -> CU H2: EE -> CU H4: FC -> CU H5: HM -> CU H6: HB -> CU H7: PVa -> CU H8: MSP -> OT H9: MD -> OT H11: TM -> OT H12: OT -> PE H13: OT -> EE H14: OT -> CU	H3: SI -> CU H10: MNS -> OT	OT = 75 % CUI = 85 % PE = 68 % EE = 58 %

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Table 2 (*continued*)

Author(s) & Year	Country	Context of the study	Theory utilized	Size sample	Control variables	Dependent variables	Accepted hypotheses	Not supported hypotheses	R2
Nur and Panggabean [34]	Indonesia	Mobile Payment Method	UTAUT, TR, PEN	100 respondents of Generation Z	NA	BI	H1: PE -> BI H2: EE -> BI H3: SI -> BI H4: FC -> BI H5: TR -> BI H6: PEN -> BI	NA	NA
Malarvizhi et al. [35]	Malaysia	Near Field Communication Mobile Payment	UTAUT2, PR	370 Malaysian youth aged from 18 to 40 years old	NA	BI, U	H1: PE -> BI H3: HM -> BI H5: SI -> BI H6: FC -> BI H7: BI -> *U*	H2: EE -> BI H4: PR -> BI	BI= 74.9 % *U* = 52.6 %
Migliore et al. [36]	Italy - China	Mobile payment	UTAUT2, innovation resistance theory (IRT)	505 respondents	Hofstede's cultural dimensions: power distance, individualism versus collectivism, masculinity versus femininity, uncertainty avoidance, long-term orientation	BI	Italy - China: H1: PE -> BI Italy: H2: SI -> BI H9: TB -> BI H2a: SI -> BI is stronger in cultures with a higher level of uncertainty avoidance than in those with a lower value. China: H4: HM -> BI H5: PV -> BI	Italy - China: H6: EE -> BI H7: VB -> BI H8: RB -> BI H10: IB -> BI H1a: PE -> BI is stronger in individualistic national cultures than in collectivistic ones. H1b: PE -> BI is stronger in societies with a long-term orientation than in societies with a short-term orientation. H3a: FC-> BI is stronger in cultures with a high level of distance to power than in those with a low distance to power. H6a: PE -> BI is stronger in users in long-term oriented cultures than in users in short-term oriented cultures. Italy: H4: HM -> BI H5: PV -> BI China: H2: SI -> BI H9: TB -> BI H2a: SI ->BI is stronger in cultures with a higher level of uncertainty avoidance than in those with a lower value.	Italy: BI = 67.3 % China: BI = 63 %
Suo et al. [37]	Malaysia	The QR-Code Payment	UTAUT2, PINN	453 users	NA	BI	H1: PE -> BI H3: SI -> BI H6:HM -> BI H7: PV -> BI H8: PINN -> BI	H2: EE -> BI H4: FC -> BI H5: HB -> BI	NA
Arora et al. [38]	India	E-wallet	UTAUT2, PR, TR, CVD	358 respondents	NA	BI	H1: EE -> BI H2: PE -> BI H3: SI -> BI H4: FC -> BI H6: PV -> BI H7: HB -> BI	H5: HM -> BI H8: PR -> BI	BI = 77,6 %

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Table 2 (*continued*)

Author(s) & Year	Country	Context of the study	Theory utilized	Size sample	Control variables	Dependent variables	Accepted hypotheses	Not supported hypotheses	R2
							H9: TR -> BI H10: CVD -> BI		
Azman Ong et al. [39]	Malaysia	Digital payment	UTAUT2, PS, EV	402 rural residents	Gender, education, revenu	BI, U	H1: PE -> BI H2: EE -> BI H3: SI -> BI H4: FC -> BI H5: HB -> BI H6: PS -> BI H7: EV -> BI H8: BI ->*U*	No moderation.	BI = 79.7 % *U* = 68.7 %
Bouteraa et al. [40]	UAE	FinTech Services	UTAUT, AW, PINN, SP, SQ, GOVS, FR	332 bank customers.	NA	BI	H1: PE -> BI H4: FC -> BI H5: AW -> BI H6: PINN -> BI H8: SQ-> BI H9: GOVS -> BI	H2: EE -> BI H3: SI -> BI H7: SP-> BI H10: FR -> BI	BI = 72.2 %
De Blanes Sebastián et al. [41]	Spain	Mobile payment (Bizum)	UTAUT2, TR, PR, PS	334 users	NA	BI	H3: SI -> BI H6: HB -> BI	H1: PE -> BI H2: EE -> BI H4: FC -> BI H5: PV -> BI H7: HM -> BI H8: TR -> BI H9: PS -> BI H10: PR -> BI	BI = 82.5 %
Hammouri et al. [42]	Jordany	E-wallet	UTAUT2, TR	181 users	NA	BI	H1: PV -> BI H2: HM -> BI H3: SI -> BI H5: PE -> BI H7:TR -> BI	H4: FC -> BI H6: EE -> BI	BI = 51.2 %
Jena [43]	India	E-Banking Post	UTAUT, TR, SE, PR, AX	456 senior citizens users	NA	BI	H1: PE -> BI H2: EE -> BI H3: SI -> BI H4: TR -> BI H5: SE -> BI H6: PR -> BI H7: AX -> BI	NA	BI = 63 %
Mohd Thas Thaker et al. [44]	Malaysia	E-wallet	UTAUT2, TR, PS	171 users	NA	BI, CU	H1: PE -> BI H2: SI -> BI H3: HM -> BI H4: TR -> BI H6: FC -> BI H7: FC -> CU H8: HB -> BI H9: HB -> CU H10: BI -> CU	H5: PS -> BI	BI = 74 % CU = 63 %
Sharma and Vaid [45]	India	Mobile payment	UTAUT2, PCR (i.e., safety and security)	163 millénians consumers	NA	BI, U	H4: FC -> BI H8: PCR -> BI H11: BI -> *U*	H1: PE -> BI H2: EE -> BI H3: SI -> BI H5: HM -> BI H6: PV -> BI H7:HB -> BI H9: FC -> *U* H10: HB -> *U*	BI = 82.1 %
Sudirjo et al. [46]	Indonesia	E-money	UTAUT2, TR, PR, PS	228 USERS /SEM-PLS	NA	BI, U	H1: PE -> BI H2: EE -> BI H4: PS -> BI H5: TR -> BI H7: FC -> *U* H8: HM -> BI H9: PV -> BI H10: HB -> BI H11: HB -> *U* H12: BI -> *U*	H3: SI -> BI H6: FC -> BI	NA
Tomić et al. [47]	Serbia	Electronic payment systems	UTAUT, PS, TR, PP, CV, FNC	457 respondents	NA	BI, U	H1: PE -> BI H3: PS -> BI H4: TR -> BI H5: SI -> BI H7: CV -> *U*	H2: EE -> BI H6: PP -> *U*	BI= 66 % *U* = 61 %

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Table 2 (*continued*)

Author(s) & Year	Country	Context of the study	Theory utilized	Size sample	Control variables	Dependent variables	Accepted hypotheses	Not supported hypotheses	R2
Zaid Kilani et al. [48]	Jordany	E-wallet	UTAUT2, TR	314 users	NA	CU,CUI	H8: FNC -> *U* H9: BI -> *U* H1: PE -> CUI H2: EE -> CUI H3: EE -> PE H7: HB -> CUI H8: HB -> CU H9: PV -> CUI H10: TR -> CUI H11: TR -> PE H12: CUI -> CU	H4: FC -> CUI H5: FC -> CU H6: HM -> CUI	CUI = 65.3 % CU = 32.5 %

Note. Actual Use = *U*, Anxiety = AX, Attitude = *A*, Awareness = AW, Behavioral intention = BI, Context = C, Continuous usage = CU, Continuous usage intention = CUI, Convertibility = CV, Compatibility = CB, Complexity = CX, Effort Expectancy = EE, Epistemic value = EV, Facilitating conditions = FC, Firm reputation =FR, Financial costs = FNC, Governmental Support = GOVS, Grievance redressal = GR, Habit = HB, Hedonic Motivation = HM, Image barrier = IB, Innovation = INN, Innovation resistance = IR, Observability = OB, Overall trust = OT, Perceived cost = PC, Perceived COVID threat = CVD, Perceived credibility = PCR, Perceived Ease of use = PEU, Perceived enjoyment = PEN, Perceived privacy = PP, Perceived risk = PR, Perceived satisfaction = SAT, Perceived security = PS, Perceived security and privacy = SP, Perceived usefulness = PU, Perceived value = PVa, Performance expectancy = PE, Personal innovativeness = PINN, Price saving orientation = PO, Price value = PV, Psychological empowerment = PEM, Recommendation to use = RU, Relative advantage = RA, Risk barrier = RB, Self-efficacy = SE, Social influence = SI, System quality = SQ, Technology security = TS, Tradition barrier= TB, Trust = TR, Trust in merchants = TM, Trust in mobile devices = MD, Trust in mobile network service providers = MNS, Trust in mobile payment service providers = MSP, Ubiquity = UB, Value barrier = VB.

Many scholars attempted to incorporate additional specific trusting beliefs (others mentioned in Table 6) to gain more comprehension of EPS adoption. For example, promotions and cost reductions as incentives to use EPS were explored many times but obtained mixed results. For instance, Stewart and Jürjens [70] and Zhang et al. [72] integrate fintech promotion as an antecedent to fintech adoption's trust. Results showed that it had no significant effect on trust or on intention to use fintech. However, in other studies, these incentives have demonstrated a strong influence on trust formation [68]. In the same vein, Lisana and Handarkho [66] underscored the significant impact of the network externalities concept on m-payment's trust, which is closely related to cost reduction, defined as the advantages and values that users receive as more people use a particular service ([77], as cited in [66]). Another type of incentive was explored as well by scholars, especially cognitive-based incentives. For instance, Chakraborty et al. [62] disclose a significant effect of epistemic value described as the urge to acquire unique experiences and fulfill the consumer's cognitive development on trust formation. Additionally, Kapoor et al. [78] argued that Promotional Benefits were found pivotal moderators between perceived values and intention to use M-wallet.

Table 3
Similarities of various concepts including within UTAUT/UTAUT2.

UTAUT2 Construits	Similar dimensions
Performance expectancy	Ubiquity [23], relative advantage [27], system quality [40].
Effort expectancy	Complexity [27].
Facilitating conditions	Context awareness [23], awareness [25], Grievance redressal [28], tradition barrier [36], consumer awareness [40], compatibility [27].
Hedonic motivation	Epistemic value (Azman [39]).
Price value	value barrier [36]; perceived cost [26].
Social influence	Image barrier [36].

Note. Those similarities are observed within studies that use simultaneously the UTAUT2 construct (first column) and an other similar concept (second column) . For example, Lin et al. [27] used relative advantage with performance expectancy as independant variables in the same research model.

We conclude that none of the studies considered simultaneously the three salient trusting beliefs in a specific technology (i.e., helpfulness, functionality, and reliability), and institution-based trust (i.e., structural assurance, and situational normality). However, these trust aspects are inseparable and complementary. Indeed, Lewis and Weigert ([59], p. 972) argued that "to exclude one or the other from the analysis of trust leads only to misconceptions that conflate trust with faith or prediction". Moreover, even when certain studies incorporate benevolence, integrity, and competence, they were often associated with stakeholders rather than the technology itself.

2.3. Horizontal and vertical individualism-collectivism

Culture is defined as "the collective programming of the mind which distinguishes the members of one human group from another" ([79], p.25). Since the 1980s, culture has been considered an integral part of the individual psychological process [80]. However, in the EPS adoption context, the limited number of studies that consider culture often rely on Hofstede's cultural model [25,36,81]. This model is widely used and predominantly focuses on national culture.

Nevertheless, given that our examination concerns individual usage, it becomes highly relevant to introduce cultural variables at the individual level as well. Indeed, Lenartowicz and Roth [[82], p. 150] explained that individual cultural orientations are a more accurate predictor of users' behavior compared to national culture. Furthermore, Blut et al. [83] argued in their meta-analysis that it is increasingly common for users to belong to a specific culture and be influenced by more than one culture (multiculturalism). Indeed, due to globalization, individuals may possess a culture that differs from that of their geographic location or their mother country. For instance, Today, even if individuals can live or belong to a collectivist culture that promotes ideas of solidarity and sharing, they can develop a personal individualistic culture and have a pronounced social distance between themselves and others, even nucleus family.

The most important dimensions suggesting a deeper understanding of various individual-level cultural patterns are individualism and

Table 4
Conceptualizations of trust.

Author(s) & Year	Country	Context of the study	Theory utilized	Name of trust dimension	Sub-constructs	Main results	R2
Chakraborty et al. [62]	India	Mobile payment apps (MPAs)	TCV, ITR	ITR	Functional values Conditional values Social values Epistemic values Emotional values	All factors had a significant effect on ITR, ITR had a significant effect on use.	ITR = 60 % *U* = 40 %
Franque et al. [63]	Mozambique	Mobile payment	TTF, ECM, OT	OT	Benevolence Integrity Competence	All factors had a significant effect on OT OT had a significant effect on CI and U	TR = 47.5 % *U* = 29,5 % CI = 47.8 %
Gupta et al. [64]	India	Mobile Wallets for Digital Payments	TAM, TR	TR	Perceived value Compatibility Perceived enjoyment Social influence	All factors had a significant effect on TR TR had a significant effect on behavior intention	NA
Lian and Li [33]	Taiwan	Mobile payment	UTAUT2, OT	OT	Service providers Mobile device providers Mobile network service providers Merchants providing mobile payment service	All factors had a significant effect on OT except mobile network service providers OT has a significant effect on PE, EE, and CU as well.	OT = 75 % CU = 85 % PE = 68 % EE = 58 %
Lin et al. [65]	Taiwan	Digital currency acceptance	UTAUT2, ITM	ITR	Structural assurances Personal propensity to trust Firm reputation	All factors had a significant effect on ITR, ITR had a significant effect on SAT and BI.	ITR = 71,3 % SAT = 78,6 % BI = 70,8 %
Lisana and Handarkho [66]	Indonesia	Mobile payment	TAM, ISS, TTT	TR	Perceived usefulness Uncertainty avoidance Perceived security Network externalities Subjective norms	All factors had a significant effect on TR except uncertainty avoidance and subjective norms.	TR = 70.5 %
Mehrab Ashrafi et al. [67]	Bangladesh	Fintech based applications	ISS, TR	TR	System quality Information quality Service quality	All factors had a significant effect on TR, TR had a significant effect on PR and CI.	TR = 39,8 % PR = 34,2 % CI = 63,8 %
Nangin et al. [68]	Indonesia	Fintech Adoption	TAM, TR	TR	Perceived ease of use Security Promotion	Only perceived ease of use and promotion had a significant effect on TR.	TR = 28,8 % *U* = 26,8 %
Shao et al. [69]	China	Mobile payment platforms	DOI, TR	TR	Mobility Customization Security Reputation	All factors had a significant effect on TR except customization, TR had a significant effect on CI	TR = 71,2 % CI = 54,2 % PR = 39.6 %
Stewart and Jürjens [70]	Germany	FinTech	TAM, TR	TR	Data security Value added User design interface Fintech promotion	Only data security and user design interface had a significant effect on TR, TR had a significant effect on U.	NA
Talwar et al. [71]	INDIA	Mobile payment	ISS, TCE, ITR	ITR	- First-order factors: perceived benevolence, integrity, and ability - Second-order factor: Information quality Service quality Perceived uncertainty Perceived asset specificity	All had a significant effect on ITR except perceived uncertainty and perceived asset specificity, ITR had a significant effect on perceived usefulness and confirmation	ITR= 54,5 %
Zhang et al. [72]	Pakistan	Fintech services	TAM, TR	TR	Data security Perceived usefulness Perceived ease of use Fintech promotion	All factors had a significant effect on TR, TR had a significant effect on the adoption intention of Fintech Services.	NA

Note. Continuance intention = CI, Continuance use = CU, Behavior intention = BI, Effort expectancy = EE, Expectation confirmation model = ECM, Initial trust model = ITM, Initial trust = ITR, Information systems success model = ISS, Overall trust = OT, Perceived trust = TR, Perceived risk = PR, Performance Expectancy = PE, Satisfaction = SAT, Transaction cost economics theory = TCE, Theory of consumption values = TCV, Task technology fit model = TTF, Trust Transfer Theory = TTT, Use = *U*.

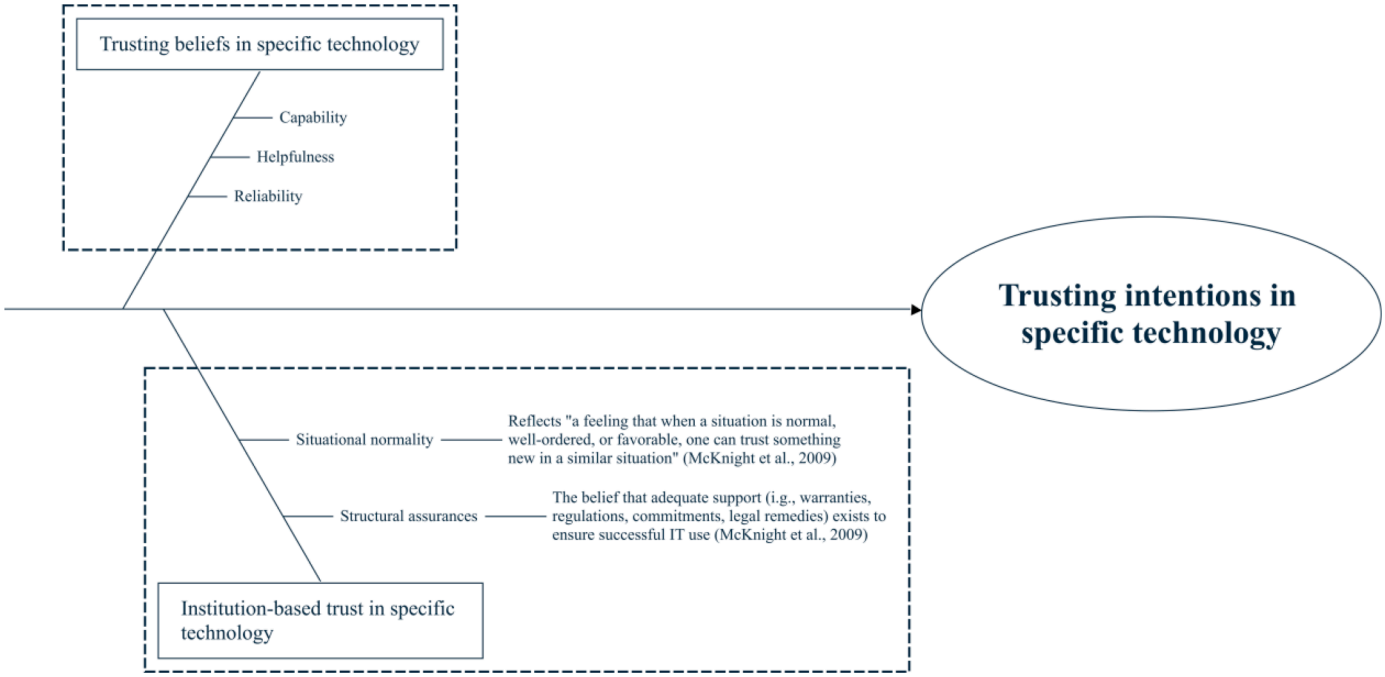

Fig. 2. Trustings intentions (McKnight et al., 2009)
Note. From Trust in Technology: Development of a Set of Constructs and Measures, by McKnight et al., [10].

Table 5
Trusting beliefs in a specific technology [10].

Trusting beliefs-specific technology	Définition	Examples
Helpfulness	The belief that the specific technology provides adequate and responsive help for users. [10]	An online banking application demonstrates helpfulness by offering a comprehensive help menu and chat support, and providing immediate assistance through the internet.
Functionality (capability)	The belief that the specific technology has the capability, functionality, or features to do for one what one needs to be done. [10]	A smartphone is considered competent or possesses functionality when it can effectively make and receive calls, send text messages, access the internet, and run various applications without glitches.
Reliability	The belief that the technology will operate properly. [10]	When an autopilot operates continuously in the manner it was designed to, following a predetermined set of instructions and sensor inputs to maintain the aircraft's course, altitude, and speed, the pilot will develop the belief that this technology is consistent and reliable.

collectivism ([80], p. 90) (Table 7). These constructs were first pinpointed by Hofstede [79], refined by Triandis [84], and operationalized by Triandis and Gelfand [85].

Triandis and Gelfand [85] contend that the major factors impinging individualism and collectivism are the relative emphases on two social relationship patterns: 1) first, horizontal patterns that stress equality (i.e., an individual is less or more equal than the other). 2) second, vertical patterns that stress hierarchy (i.e., individuals hold different positions and status in the hierarchy). Consequently, they differentiate across four combinations: 1) horizontal individualism (HI), 2) vertical individualism (VI), 3) horizontal collectivism HC, and 4) vertical collectivism VC (Table 8).

3. Research model and hypotheses

Based on this critical literature review we will discuss in this section the research model and hypotheses (Fig. 3).

3.1. Performance expectancy (PE)

PE has been considered the strongest predictor of intention to use in the original UTAUT2 ([17], 2012). Using EPS "will enable the individual to perform his duties better than if using the traditional payment of funds" ([31], p. 8). In other words, using EPS will lead online consumers to attain their objectives ([45], p. 43), improve their payment efficiency ([75], p. 1544), and performance in daily online transactions with convenience [89,90], speed, ubiquity [23], and the avoidance of cash, which can be a source of theft and the transmission of diseases like COVID-19.

Nevertheless, in the EPS context, we observe mixed results. On one hand, some scholars argue that PE is an insignificant factor in predicting behavioral intention [22,27,41,45]. These inconsistent results with Venkatesh et al. [15] results were also observed by Blut et al. [83] in their meta-analysis related to UTAUT2. They assert that this can be attributed to very small sample sizes or the non-adoption of all UTAUT2 constructs.

On the other hand, many scholars's studies revealed that PE continues to play a central role in EPS acceptance and usage [25,32,33,36,38,42,44,48].

Consequently, the higher the benefits associated with EPS, the stronger the intention to adopt this technology. This leads us to the first hypothesis:

H1: Performance expectancy positively influences the intention to use EPS.

Assuming that PE reflects advantages gained by online customers when using EPS, it implies that this specific technology possesses all the

Table 6
Clustering categories of trusting beliefs.

	Reliability			Capability				Helpfulness		Institution-based trust in technology	
Authors and dates	Firm reputation	M-payement Service Providers	System quality	Usefulness *	Customization	Ease of use, User design interface	Mobility, ubiquity	Service quality	Compatibility	Structural assurance	Data security
Lian and Li [33]	X	X									
Lin et al. [65]	X									X	
Mehrab Ashrafi et al. [67]			X	X				X			
Talwar et al. [71]		X		X				X			
Chakraborty et al. [62]				X							
Zhang et al. [72]				X		X					X
Gupta et al. [64]				X					X		
Shao et al. [69]	X				X		X				X
Nangin et al. [68]						X					X
Stewart et al. (2018)				X		X					X
Franque et al. [63]		X									
Lisana and Handarkho [66]				X							X
Wu et al., [75]	X									X	
Zhou [76]				X							X

Note. Usefulness encompasses: information quality, usefulness, conditional value, functional value, perceived value, and Value added constructs.

Table 7
Individualism and Collectivism [85].

	Collectivism	Indvidualism
Focus object	Focus on context (i.g., in communication: tone of voice, gestures…).	Focus on content.
Perceptions of people and environment	Individuals are relatively mutable, while the environment is relatively immutable.	Individuals are stable entities, regardless of the environment.
Behavior drivers	External factors such as norms and roles.	Internal factors, such as attitudes and personality.
Concept of self and distance	Interdependent concept of self, the self changes depending on the ingroup : social distance between themselves and their in-groups is small.	Independent and stable concept of self: pronounced social distance between themselves and others.
Norms and attitudes	Norms are more significant than attitudes.	Attitudes are more significant than norms
Personal goals	Priority to ingroup goals rather than to personal goals.	Priority to personal goals.
Relationships	More stable.	Emphasize rationality in evaluating and choosing their social relationships.

Note. In-group: members of family (i.e., parents, spouse, siblings, children), friends, neighbors, people from the workplace (i.e., supervisor, subordinate).

features to do what consumers need to be done [10]. Which exactly corresponds to the concept of capability trusting belief in a specific technology. Thus, we assume that the higher the perceived PE of EPS, the greater the willingness to trust in them. This leads us to the second hypothesis:

H2: Performance expectancy positively influences trusting intentions in EPS.

Table 8
Characteristics of horizontal and vertical individualism and collectivism [85].

	Collectivism (C)	Indvidualism (I)
Vertical (V)	VC People are submissive; if in-group authorities want them to act in ways that benefit the in-group but are extremely distasteful to them (Low freedom), they are willing to sacrifice their personal goals for the sake of in-group objectives, accept inequality, and support competitions between their in-group and out-groups. [85–87].	VI: "I want to be the best" People strive to become distinguished, the best and acquire special status, they do this in individual competitions with others, they prioritize their personal goals over collective ones, and accept hierarchy/inequality. [85–87].
Horizontal (H)	HC: People are interdependent, sharing common goals with others, they prioritize the group's benefits, goals, and interests over their own, merge themselves with their in-group, they demonstrate cooperation, responsibility, and sociability, they see themselves as being equal to others but do not submit easily to authority, low freedom. [85,86,88].	HI: "I want to do my own things" Individuals strive to be distinct and unique without seeking high status; they are highly self-reliant and independent, with a strong emphasis on equality, self same as others, high freedom. [85,87].

Note. In-group: members of family (i.e., parents, spouse, siblings, children), friends, neighbors, people from the workplace (i.e., supervisor, subordinate).

3.2. *Effort expectancy (EE)*

In the EPS adoption context, EE represents the ease of accessing the payment page, the clarity and comprehensibility of the process steps, and the quick mastery of payment systems mechanisms [75].

However, mixed results were observed. Indeed, in some studies, EE

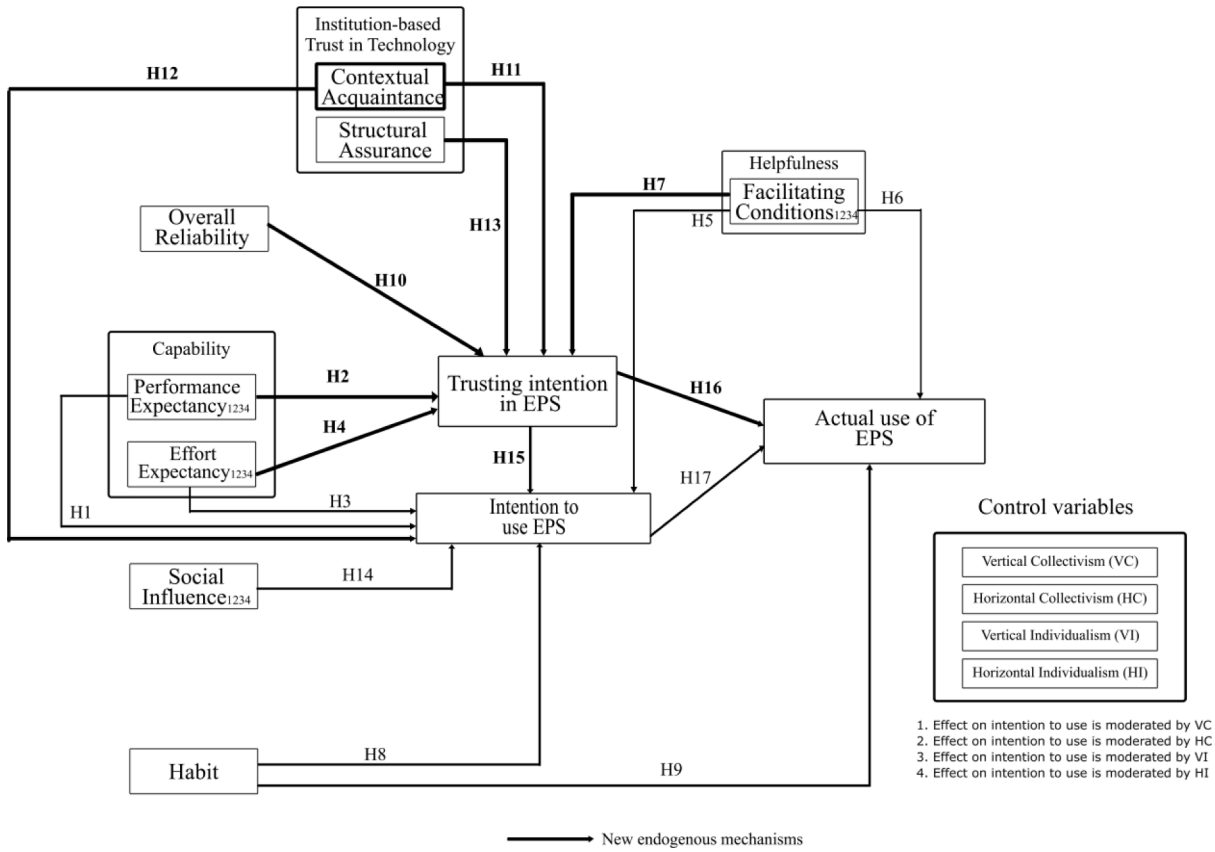

Fig. 3. Research model.

did not affect EPS adoption. For instance, Migliore et al. [36] conducted a cross-cultural study on mobile payment adoption and found that in both China and Italy EE is insignificant regarding m-payment intention to use. Similar results were obtained by Musyaffi et al. [30], Nuriska et al. [22], Sharma and Vaid [45], Suo et al. [37], and Tomić et al. [47]. Surprisingly, within the same country, results were contradictory. For example, in Oman, EE was found to have an insignificant impact on behavior intention to use e-payment [25,42], while Zaid Kilani et al. [48] reported it as significant.

Nonetheless, many scholars have strongly highlighted its importance as a predictor of the acceptance of EPS [28,31,33,34,38,39,46,48].

Therefore, if EPS are user-friendly and straightforward to use, it will promote the intention to use it. Conversely, a complex system can impede it. In this study and along with Venkatesh et al.'s [15] results, we assume that:

H3: Effort expectancy positively influences the intention to use EPS.

The capability of a specific technology greatly relies on how easy it is to use. In the context of EPS adoption, the degree of ease of use permits good functionality. For instance, if customers find the process very complex, EPS will be useless. Subsequently, we assume that EE also captures, like PE, the belief in the capability of a specific technology. Thus, EE may play a role in building trust. This leads us to formulate the hypothesis below:

H4: Effort expectancy positively influences trusting intentions in EPS.

3.3. Facilitating conditions (FC)

Behavior can only occur if favorable objective conditions exist in the environment (i.e., requiring training, licensing, and support). Sometimes, even if the intention is strong, the behavior may not occur if the environment does not support it. Indeed, various technical issues can arise when using EPS for online purchases. These issues include 3D secure code unreceived, page errors, and transaction failures. Consequently, online consumers require quick and readily available support from different involved stakeholders.

Many scholars have demonstrated its importance in the EPS acceptance context [31,32,34,37,39,44]. Sharma and Vaid [45] found that FC is the strongest predictor of intention to use m-payments among millennials in India.

In the same vein, Blut et al. [83] highlighted in their meta-analysis the strong effect of FC in the consumer context on intention to use. FC will act more like perceived behavioral control in the theory of planned behavior (TPB) and influence both intention and behavior (Triandis, 1980; [15]). Therefore, having a variety of available and efficient support options will not only make online consumers more inclined to use them but will also encourage them to adopt them for daily transactions. Thus, we hypothesize:

H5: Facilitating conditions will positively influence the intention to use EPS.
H6: Facilitating conditions positively influence the actual use of EPS.

It's worth noting that since FC represent help and support, they capture the specific technology helpfulness concept, which contributes to building trust [10]. Thus, in this study, we assume that when FC are readily available to consumers, they will foster trust in EPS as well. This brings us to the following hypothesis:

H7: Facilitating conditions positively influence trusting intentions in EPS.

3.4. Habit (HB)

When Triandis [91] introduced the fundamental concept of "habit strength", it marked a shift in the understanding of behavior prediction. Indeed, in most technology acceptance models (i.e., TRA, TPB, TAM), behavioral intention is traditionally regarded as the only predictor of behavior. However, this latter perspective may not fully account for automated behaviors that occur without conscious intent, such as driving a car, walking, waking up at a certain time, or fastening a seatbelt before driving.

Hence, Triandis [92] argues that behavior is determined by what we intend to do (behavioral intention), what we typically do (habit), and whether facilitating or hindering conditions for its adoption are available [14].

In the EPS adoption context, this theoretical background was corroborated by many studies. For instance, in a cross-cultural study, Merhi et al. [24] found that habit is the strongest predictor of intention to use mobile banking among Lebanese and English consumers, De Blanes Sebastián et al. [41] found that only social influence and habit significantly affect intention behavior regarding mobile payment. Moreover, Zaid Kilani et al. [48] underscored that habit is a predictor of both continuous use intention and continuous use. Sudirjo et al. [46] corroborate Triandis' theory and demonstrate that habit impinges directly usage of e-money and indirectly through behavior intention. Along with these findings, we hypothesize that:

H8: Habit positively influences the intention to use EPS.
H9: Habit positively influences the actual use of EPS.

3.5. Overall reliability (RL)

All things being equal, when an EPS consistently operates in the same manner with each use—obtaining authorizations from the bank, maintaining credit limits, and consistently meeting payment due dates—it instills in the user a sense of reliability and consistency. This latter is due to the reliability of various stakeholders as well. thus we include in this construct not only the consistency of the technology but also the stakeholders' reliability.

The limited number of studies that have explored this concept focused solely on the reliability of stakeholders, overlooking aspects related to the technology itself. Hence we hypothesize:

H10: Overall Reliability positively influences trusting intentions in EPS.

3.6. Contextual acquaintance (CA)

Situational normality-specific technology (SN) reflects "a feeling that when a situation is normal, well-ordered, or favorable, one can trust something new in a similar situation" [10]. Gefen et al. [51] argue that people tend to extend greater trust when the nature of the interaction is in accordance with what they consider to be typical and, thus, anticipate.

On the other hand, familiarity is a very close construct but differs from SN in the fact that it measures the degree to how well a consumer possesses knowledge about the actual vendor (Gefen, 2000; Kim et al., 2008) or in our context the specific type of EPS.

However, looking closer at the EPS adoption context, we find that there are no boundaries between SN and familiarity. Indeed, in e-commerce, a clear distinction can be made between feeling good and comfortable about how things go when a consumer makes a purchase or engages in other activities on the Internet (SN) and having good knowledge about a specific e-vendor (familiarity). This is because websites do not function the same way; they can differ from one site to another in terms of design, functionalities, etc.

However, in the EPS context, we are not referring to a specific website but rather to the various means of electronic payments. Thus, being comfortable with how things go when a consumer uses EPS means that they are already familiar with the process since it works the same way across all merchants, the usage is universal, and the process is standardized.

Thereby, we suggest merging those two concepts (i.e., familiarity, and situational normality) into the contextual acquaintance construct (CA). This latter measures the extent to which consumers are comfortable with using EPS because they can recognize a perceived normal situation built through familiarity and experience in navigating EPS processes. Thus, the notion of a consumer being comfortable and recognizing a perceived normal situation reflects the combined aspects of familiarity and situational normality.

It's worth noting that this construct differs from the consumer awareness concept which refers to general knowledge about the technology in the initial stage as described by Rogers [13]. However, CA refers to an advanced stage where the consumer has already tested and used technology.

Consequently, we assume that the higher the CA of EPS, the stronger the intention to use and the willingness to rely on this technology. Thus, we assume that:

H11: Contextual acquaintance positively influences trusting intentions in EPS.
H12: Contextual acquaintance positively influences the intention to use EPS.

3.7. Structural assurance (SA)

SA is the second component of institution-based trust in technology. It refers to the belief that adequate support (i.e., infrastructure-supporting technology) exists to ensure successful IT use [10]. This construct operates on two levels: legal (i.e., contractual guarantees) and physical (i.e., Refund in case of dissatisfaction or a defective product). Accordantly, structural assurance is related to whether various mechanisms, such as warranties, regulations, commitments, and legal remedies exist or not to facilitate, ensure success, and protect users.

The existence of the SA allows consumers to recognize various cues ensuring their online transactions, such as national and international stakeholders' payment platforms, national or international certifications and labels, or approvals from consumer associations.

In the context of EPS adoption, Lin et al. [65] and Wu et al. [75] emphasized the pivotal role of structural assurance in shaping trust. Other scholars employ similar concepts, such as data security or perceived security (Table 6). Indeed, Zhou [76] characterized it as the customers' perception of the safety and reliability of institutional structures (i.e., guarantees, and regulations). Along with those results, we assume that:

H13: Structural assurance positively influences trust intentions in EPS.

3.8. Social influence (SI)

The role of social influence in technology acceptance decisions is complex [17]. Indeed, this concept is used in the literature with various similar concepts: peer expectations, expected social conformity, and norms (see meta-analysis of [83]). This similarity was already highlighted by Venkatesh et al. [[17], p. 27], they equate social influence with social norms because they reflect both "the explicit or implicit notion that the individual's behavior is influenced by how they believe others will view them as a result of having used the technology" [17]. In the original version of the UTAUT model, this construct loses its

significance in the voluntary context. Social influence's impact on intention is contingent and becomes significant only with the inclusion of moderators ([17], p. 43). This result is consistent with some scholars' studies in the EPS acceptance context. Lian and Li [33], Sharma and Vaid [45], and Sudirjo et al. [46] found no significant impact of SI on behavioral intention. Likewise, Merhi et al.'s [24] cross-cultural study corroborates those findings for both Lebanese and English mobile banking consumers. Whereas, even if consumer technology acceptance is inherently voluntary, many scholars underscored its strong effect on the intention to use EPS [25,31,36–39,41,44]. Furthermore, Chakraborty et al. [93] demonstrated that SI has a significant impact on openness to change which is related to the willingness to accept new information [94]. Along with these results, and given its central role in technology acceptance models we will follow the same theoretical stream and hypothesize that:

H14: Social influence positively influences the intention to use EPS.

3.9. Trusting intentions - Intention to use - Actual use

As discussed above, using EPS is a risky choice. Consumers will intend to adopt it if they accept to take a risk. Taking a risk means that consumers have enough trust to make the leap and adopt EPS. Thus, trust in this specific technology would lower the perceived risk, and then positively affect behavioral intention [24]. Contradictory, lack of trust may increase online consumers' doubts [34], and they may choose other safer traditional payment modes like cash.

Additionally, several studies have demonstrated a strong impact of trust on intention to use [34,38,42–44,46,47,65], on actual use [31,62], on continuous use [33,48], and continuous intention [67,69].

Hence, we hypothesize that:

H15: Trusting intentions in EPS positively influence the intention to use EPS.
H16: Trusting intentions in EPS positively influence the actual use of EPS.

Since Fishbein and Ajzen's [74] theory, behavior intention has consistently proven its relevance in predicting actual behavior. In EPS adoption, all studies collected demonstrate this strong connection between intentions and behavior. Thus we assume that:

H17: Intention to use EPS positively influences the actual use of EPS.

3.10. Culture

In their meta-analysis, Blut et al. [83] observed that using cultural moderators is shaping most endogenous relationships' strength across contexts and cultures. They emphasize the need to always consider moderators when applying UTAUT as well. Furthermore, specific predictors of UTAUT are especially sensitive to individualism and collectivism dimensions [83,95].

Since VC, HC, VI, and HI have not been investigated in the context of EPS acceptance, assuming the strength of their impact on various endogenous mechanisms would be speculations. For example, in their meta-analysis, Blut et al. [83] assumed that SI's impact on intention behavior would be strong within collectivist cultures. This statement is based on the idea that for such individuals, the opinions of those with high status concerning their behavior hold significance. On the other hand, in such cultures characterized by high levels of submission, the opinion of these significant individuals will unavoidably influence their behavioral intentions. However, among collectivist individuals, Triandis distinguishes HC individuals who perceive themselves as equal to others, and even if they have limited freedom, they do not readily submit to authority. Consequently, the impact of SI may remain strong among VC individuals but less for HC, as well as for HI and VI, where people are independent and self-reliant. Consequently, given the absence of e-payment adoption studies mobilizing the horizontal and vertical individualism-collectivism orientations, and in response to the call of Blut et al. [83] for further studies using individual cultural orientations of users, we hypothesize that:

H18: VC, HC, VI, and HI will moderate relationships between PE, EE, FC, SI, and intention to use EPS.

4. Theoretical and managerial contributions

This present study yielded several theoretical and practical contributions in the EPS adoption context.

4.1. Theoretical implications

This present paper contributed to the existing literature through several main implications.

First, we highlighted the various dimensions that scholars have employed to operationalize the multidimensionality of perceived trust in previous studies within this context, while critically examining these different operationalizations, we observed that the multidimensional approach in prior studies was incomplete, as it often considered only one or two aspects of trust. Additionally, this construct was often analyzed from the stakeholders' perspective, overlooking the characteristics of the technology itself. Many constructs were added, albeit far removed from the notions of risk and trust, such as Fintech promotion, simply to statistically enhance the variance of trust explained. However, this could create a real issue of concretization for practitioners. Consequently, this paper suggests comprehensive, and clear drivers of trust (i.e., capability, helpfulness, and reliability) linked to the technology itself. Thus, through this model, we addressed the question of 'In what specific areas and through what mechanisms do users place their trust in EPS?'. incorporate additional beliefs capable of explaining core trusting beliefs. This approach will yield effective managerial implications.

Secondly, this research model emphasizes the importance of institution-based trust in technology through two constructs: 1) contextual acquaintance, which, for the first time, establishes a connection between two concepts, namely familiarity and situational normality in EPS adoption context. This enables a comprehensive understanding of the double indirect impact of this construct on actual use through trusting and behavior intentions. Thirdly, this paper underscores novel endogenous mechanisms, providing a significant contribution to the understanding of the EPS adoption context and paving the way for new discussions in this research domain. For instance, we established a robust theoretical foundation linking facilitating conditions (as an indicator of technology helpfulness) to trust.

4.2. Managerial implications

Financial institutions and EPS providers may gain valuable insights from this study regarding the key determinants of EPS adoption, especially in developing countries where EPS faces various challenges. Indeed, the distinction among the three components of trust in technology will enable practitioners to precisely understand which dimension has a greater influence on usage. This, in turn, allows for targeted adjustments and corrections. Unlike in previous research, these elements were interwoven, lacking a clear vision of necessary changes, additions, or improvements.

Furthermore, investigating the potential impact of Triandis' horizontal and vertical collectivism and individualism cultural orientations on EPS adoption can guide the development of more targeted and tailored campaigns. Applying this model could provide valuable insights into adapting communication strategies by customizing the marketing message to suit different cultural patterns' values and priorities.

Understanding and incorporating these individual cultural nuances can significantly contribute to enhancing EPS adoption rate.

Finally, through institution-based trust, authorities in these countries can provide additional assurances to enhance trust in EPS technologies. This underscores the crucial role of laws and swift consumer protection procedures in instilling confidence and addressing concerns related to EPS. Recognizing and incorporating these measures could significantly contribute to fostering a secure and trusted environment for the adoption of EPS.

5. Future research direction and limitations

In this present study, we have discussed each of the adopted variables and their relevance in the EPS acceptance context. Thus, we suggest applying the original model (i.e., UTAUT2) in its entirety and then comparing it to the current model in this context. Furthermore, it is recommended to decompose each concept into sub-constructs for a deeper understanding of the primary predictors. This approach has proven successful in previous research, as shown by Venkatesh and Davis [96] and Venkatesh [97] in their studies on the antecedents of perceived usefulness and perceived ease of use, respectively. Likewise, it's worth noting the importance of adding new variables to the model from exploratory qualitative studies that can enhance our understanding of individuals' motivations toward EPS.

However, we excluded from our analysis the propensity to trust general technology which is a predictor of trusting intention [10]. This choice was motivated by the fact that EPS are relatively old technologies but struggling in some developing countries. Thereby, if the context refers to a new technology this concept could be added especially to explore initial trust [10,51,98]. Moreover, Additional moderators can be incorporated, such as individual traits (i.e., age, gender, revenue, education) to assess their impact on the model's endogenous mechanisms.

6. Conclusion

This study has explored various relevant predictors in the context of EPS acceptance. The critical analysis reveals that UTAUT2 has been widely employed within this domain. Nevertheless, it has emphasized that it was enriched with numerous concepts, leading to its complexity. This paper underscores the theoretical rationale for restructuring UTAUT2, emphasizing pertinent constructs and introducing new endogenous mechanisms, rather than perpetually expanding it without a solid theoretical foundation. Besides, the study establishes clear boundaries for each predictor to avoid confusion and guides policymakers toward more targeted actions.

CRediT authorship contribution statement

Hassana Hilale: Formal analysis, Writing – review & editing, Writing – original draft, Methodology, Validation, Investigation, Conceptualization. **Abdellatif Chakor:** Methodology, Validation, Supervision.

Declaration of competing interest

None

Data availability

No data was used for the research described in the article.

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