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A Theoretical Model of Customer Acceptance and Use of Electronic Banking as a Distribution Channel for Banking Products and Services

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Abstract:

Purpose: *The main objective of this article is to present a theoretical model of bank customers' acceptance and use of electronic banking.*
Design/Methodology/Approach: *The research methods include a retrospective traditional review of the extant literature on the topic and its comparative analysis, evaluation and synthesis. The study focuses on conceptual and empirical knowledge about e-banking consumers' attitudes and experiences.*
Findings: *The scientific literature suggests multiple motivators and inhibitors for consumer acceptance and use of electronic banking. Amongst them, the usability and ease of use of e-banking seem to have the most significant positive impact on its acceptance and usage by bank customers. On the contrary, the high perceived risk of using a-banking negatively influences its adoption.*
Practical Implications: *The article identifies the determinants that significantly influence the acceptance and use of electronic banking. Bank managers can use the research results in their e-banking strategies to retain and attract new customers. It also provides the foundation for empirical scientific research on e-banking customers.*
Originality/Value: *The developed theoretical model of electronic banking acceptance and use contributes to banking theory and behavioural finance. It is a comprehensive approach recognising the most important determinants of acceptance and use of electronic banking.*

Keywords: *Electronic banking, bank customers, theoretical model, information technology, banks.*

JEL Classification: *G21, O33, M31.*

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1. Introduction

The enormous technological progress has increased the quantity, variety, and quality of goods and services and intensified market competition. Implementing modern banking technologies, supported by information and communication technologies, represents a pivotal undertaking for banks seeking to enhance their competitiveness.

One of the outcomes of this new challenge has been an application of electronic delivery channels for the provision of banking products and services by financial institutions, leading to the emergence and development of a new form of banking known as electronic banking or e-banking (Cronin, 1997; Ślązak and Borowski, 2007; Raysman and Brown, 2001; Świecka, 2007; Gospodarowicz, 2018).

E-banking is an electronic distribution channel for banking products and services that customers can use remotely via electronic devices, including computers, telephones, smartphones, tablets, etc. Its advent has precipitated a profound transformation in the traditional banking sector, effectively supplanting the brick-and-mortar model with a digital one.

This transition has rendered it unnecessary for customers to physically visit a bank branch to conduct their financial transactions, as they can do so electronically. E-banking has become an indispensable component of the global economic exchange network. It provides persons with access to banking services regardless of geographical place, enabling them to conduct transactions across international borders.

The recent history of e-banking can be traced back to the 1960s when automated teller machine (ATM) networks were created and banks began using computers. The second phase began in the late 1970s and was called “office automation” as the desktop computer exploded onto the scene. The use of telecommunication services was also widespread during this period.

The third phase of e-banking happened in the 1980s and 1990s when home financial management software programs were marketed, banks introduced their proprietary home banking software, and customers were linked to their accounts (Kegler, 1998). The next phase, since the end of the 1990s, was the digitalisation process in the banking sector, which was handled in five stages, from digital banking 1.0 to digital banking 5.0 (Nicoletti, 2021).

A literature review reveals that e-banking, a distribution channel for banking products and services, is critical for a bank's competitiveness and financial market position. It offers numerous advantages for banks, customers, and the national economy. The bank’s benefits from utilising e-banking encompass enhanced relations with clients, more wide-ranging of offered banking products and services and their speedy delivery, augmented sales value, improved operational efficiency,

reduced transaction costs, an expanded customer base, expanded operational scope, reduced entry barriers, greater access to customer information, faster processing of information within the bank, the potential for a reduction in the number of physical bank outlets (lower employee headcount and associated staffing costs), keeping less cash holdings in the bank (rise in non-cash transactions) and enhanced accessibility for customer promotional and advertising campaigns (Tan and Teo, 2000; Simpson, 2002; Kolodinsky *et* al., 2004; Boateng and Molla, 2006; Santomero, 2004; Fredrick, 2012; Josefowicz and Novarica, 2011; Onay and Ozsoz, 2012; Fredrick, 2012; Ojokuku and Sajuyigbe, 2012; Gautam, 2012; Harasis and Rasli, 2016; Chaimaa *et al*., 2021; Siudek, 2022; Alnemer, 2022).

The e-banking benefits for customers include remote, time-saving access to banking products and services, lower transaction costs, improved quality of banking products and services and their lower prices, better monitoring of the history of bank transactions and funds in bank accounts, more accessible and faster access to information about banking products and services. E-banking provides customers with a convenient and accessible way to manage their finances.

Unlike traditional banking, e-banking eliminates customers' need to physically visit bank branches, which can be time-consuming and inconvenient. It also provides easy access to capital and insurance markets, gives access to cash 24 hours a day from ATMs and cash deposit machines, enables one to self-make money transfers, use cards to make purchases, engage in currency exchange at online trading platforms and much more (Meuter *et al.,* 2000; Mols, 2000; Amedu, 2005; Afolabi, 2009; Yunus and Akingbadei, 2011; Rahi *et al.,* 2019; Chaimaa *et al*., 2012; Gasser *et al.*, 2018; Li *et al.,* 2021; Alnemer, 2022).

While e-banking benefits consumers in many ways, as shown above, it also raises concerns and threats and can expose bank accounts to various risks. It has increased susceptibility to illegal activities such as spamming, phishing and credit card fraud (Dermine, 2016; Cele and Kwenda, 2024). Due to uncertainty and security concerns, a large group of customers still is reluctant to adopt such services. The biggest challenge facing electronic banking today is ensuring security, including protecting systems from cyber threats.

Additionally, e-banking development and the subsequent financial inclusion have a favourable impact on the whole economy. It facilitates capital flow and foreign trade, reduces payment backlogs between contractors, and gives economic entities better access to foreign capital.

Furthermore, e-banking expedites the development of the money, capital, and insurance markets, stimulates economic growth and contributes to poverty reduction (Amedu, 2005; Afolabi, 2009; Vong *et al*., 2016; Rahi *et al*., 2019; Sahay *et al*., 2020; Li *et al*., 2021; Eichengreen *et al*., 2023; Amaliah *et al.,* 2024; Mohd Daud *et al*., 2024).

In a competitive financial market landscape, consumers' familiarity and comfort with electronic interactions drive the rise of e-banking, and their experience is paramount, so this study focuses on e-banking customers. The paper is theoretically descriptive and is based on an extensive review of the related literature. The study aims to develop an original theoretical model that explains bank customers' adoption and use of e-banking by identifying principal factors influencing customers' acceptance or rejection of e-banking products and services.

The theoretical model offered in this paper contributes to the advancement of banking theory. Practically, banks can use it to develop and disseminate e-banking systems. On the other hand, bank customers may utilise it to gain insight into the advantages, threats and risks associated with e-banking. Additionally, the model can support legislators in establishing, amending, or supplementing regulations suited to e-banking challenges.

The following research questions were identified as critical areas of investigation in the paper:

Q1: What is the importance of electronic banking for banks, their customers and the economy?
Q2: What theoretical frameworks and models can be used to explain why some bank customers accept electronic banking while others reject it?
Q3: Which determinants significantly impact bank customers' acceptance or rejection of electronic banking?

This paper consists of four parts. The first part explains the importance of e-banking for banks, their customers and the overall economy; the second outlines the fundamental tenets of e-banking and the factors that influence its adoption; the third presents the theories and models of acceptance-rejection of e-banking while the fourth offers an original theoretical model explaining its acceptance and use by customers. The paper closes with a summary and presentation of the conclusions reached.

2. Literature Review

a. Electronic Banking Concepts

In the academic literature, researchers in the academic literature define e-banking in various ways. Table 1 presents the selected conceptualisations. The definitions presented here were mainly formulated at the beginning of the 21st century when e-banking was not widely adopted.

At that time, it was not yet evident how customers would respond to this novel mode of banking, nor was it clear what impact it would have on the operations of banking institutions. For this reason, the definitions are general and quite similar.

From a perspective spanning over two decades, one can argue that the definitions of e-banking as a novel service that has markedly transformed retail and corporate banking, the operational approach of banks, and their standing in the financial market, contributing to the emergence of new products and services and exerting a considerable influence on the evolution of the network economy, are more aligned with empirical evidence.

Table 1. *Selected definitions of electronic banking*

Authors	**Definitions of electronic banking**
Chmielarz (1999)	A contemporary method of providing banking services, permitting their utilisation from any location worldwide, obviating the necessity for physical presence at a bank.
Daniel (1999)	Automated delivery of new and traditional banking products and services directly to customers via electronic interactive communication channels.
Szpringer (2000)	A modern way of providing banking services without customers needing to visit the bank. It involves using IT systems and related equipment to streamline the cash cycle.
Janc (2001)	A concept involving information and communication systems to improve and accelerate the circulation of cashless money.
Dziuba (2002)	A contactless form of implementing banking products and services, allowing customers to utilise them without visiting bank branches.
Gospodarowicz (2002)	A system designed primarily for financial institutions' use, enabling customers to perform specific financial operations remotely using telephones, faxes or computers.
Pilawski (2002)	Conducting banking transactions remotely, without the direct involvement of bank staff, with limited opportunity for the customer to receive advice.
Simson (2002)	A novel electronic way enabling customers of banks and other financial institutions to access their accounts, settle their bills, manage their money and utilise various additional services.
Chojecki and Matysek (2003)	A form of banking service provision that allows the customer to access their account via a computer or other electronic device and a telecommunications link.
Pikkarainen *et al.* (2004)	An online portal through which customers can access various banking services, from paying bills to making investments.
Ślązak and Borowski (2007)	The application of ICT to serve customers, improve a bank's operational activities, and interbank exchange information and data.
Lee (2009)	Online banking is the most effective banking transaction method as it offers many advantages that offline banking channels cannot offer.
Keivani *et al.* (2010)	A process whereby customers can perform banking activities electronically without visiting the bank's premises.
Jaworski and Zawadzka (2011)	The provision of banking services at a distance that allows customers to use the service in their own offices or homes.

Karimzadeh and Alam (2012)	Delivering banking products and services directly to customers through electronic interactive communication channels.
Polasik (2012)	Banking activity that involves the remote provision of banking services to customers via electronic interactive communication channels, often as a separate offering.
Bouyon (2018)	Digital banking is a technology used to provide the most up-to-date services to consumers and companies. Digitalisation means banks embrace all the latest technologies for efficient and responsive banking operations.

Source: *Authors' elaboration based on literature review.*

b. Determinants of customers' use of e-banking as a distribution channel for banking products and services

Customer acceptance is a prerequisite for their engagement with e-banking. E-banking technologies enable them to use banking products and services remotely. For banks, the conditions under which customers accept and use e-banking transaction systems determine the sale of products and services, significantly impacting banks' financial performance. Understanding the determinants of customers' use of e-banking is essential because it allows banks to influence consumers' effective demand for e-banking products and services and thus shape their competitive position in the market.

The determinants of the acceptance/rejection of e-banking can be divided into the following categories or dimensions (Table 2):

- customer benefits and costs of e-banking,
- e-banking system technologies,
- access to computers, mobile devices, software and the Internet,
- customers' IT knowledge (literacy) and skills,
- social pressure (family, friends and acquaintances),
- risks of using electronic banking,
- education on the use of e-banking systems.

Empirical research reported in the literature suggests that the socio-demographic characteristics of bank customers also significantly affect their use of e-banking. These personal attributes include:

- age (young people are more frequent e-banking users than older people),
- gender (men are more active users than women),
- education level (people with tertiary education are more likely to use e-banking than those with primary or secondary education),
- income (more affluent people are more likely to use e-banking than those with low income),
- attitudes (people with positive attitudes and awareness of e-banking benefits are more likely to accept it than those who perceive only threats),

– pro-innovativeness (people who are open to technological innovation use e-banking more often than conservative ones).

Table 2. *Determinants of electronic banking usage: a review of empirical studies*

Authors	**Study conclusions**
Davidow (1986)	Risk perceived by customers significantly inhibits the use of e-banking products and services.
Sathye (1999)	Cash security and privacy threats are notable barriers to customer adoption of e-banking.
Sathye (1999) Polatoglu and Ekin (2001) Liao and Cheung (2002)	Customers' decision to use e-banking services is significantly influenced by Internet access costs and fees levied for using e-banking products and services. With fees increasing, the utilisation of e-banking services declines, and vice versa. Customers' knowledge and IT skills are pivotal in determining the extent of their engagement with e-banking services. The reliability of e-banking services can potentially expand the bank's customer base.
Black *et al.* (2001)	The ability to test e-banking technology accelerates customer adoption and usage.
Karjaluoto *et al.* (2002)	E-banking is used more by younger generations than by older people, by men than by women, by the educated at a tertiary level than others, and by persons with higher incomes than those less affluent. The wide range of high-quality products and services attracts customers to e-banking systems.
Devlin and Yeung (2003)	The demographic profile of consumers who more commonly use online banking includes a younger age, higher educational attainment, higher social class and personal income.
Gerrard and Cunningham (2003)	Innovative customers use e-banking far more frequently than others. E-banking customers value the speed of transactions and easy account access.
Anguelov *et al.* (2004)	Cybercrime and identity theft are the main concerns that deter customers from using electronic banking.
Jun *et al.* (2004)	Electronic security, privacy and trust significantly impact the use of e-banking.
Lee *et al.* (2005)	The willingness to adopt new technologies is influenced by previous technology experience. Users of telephone banking, terminal banking, and the Internet adopt online banking more easily and rapidly.
Luarn and Lin (2005)	Skills, hardware, software, human assistance and time significantly impact the adoption and use of mobile banking.
Cheng *et al.* (2006)	Customers' intention to use e-banking is positively affected by perceived ease of use, perceived web security, perceived usefulness, and attitude.
Gan *et al.* (2006)	Product and service quality and trust positively affect the use of e-banking, which is the opposite of the negative effect of risk. Lower-income customers are less likely to use e-banking than higher-income and rural customers are less likely to use e-banking than urban customers. Gender has no statistically significant effect on the use of e-banking.

Kamel and Hassan (2006)	The most critical factors driving customers to use e-banking are trust, usefulness, and ease of use. Computer and internet access and the ability to use them are also essential factors.
McKechnie *et al.* (2006)	Computer courses, training, and e-learning on e-banking usage increase customers' willingness to accept and use e-banking.
Shih and Fang (2006)	Web quality attributes such as security, ease of use, speed of transactions and quality of information significantly impact the adoption and use of online banking.
Kuisma *et al.* (2007)	A significant barrier for customers using e-banking systems is the lack of direct contact between customers and bank staff.
Yiu *et al.* (2007) Lee (2009)	Performance risk, understood as the possibility of incurring losses resulting from website/interface malfunctions, system server failures or Internet disconnections, reduces customers' willingness to use online banking systems.
Casaló *et al.* (2008)	The design of a bank's website and its content significantly impact the use of online banking.
Gounaris and Koritos (2008)	Social and psychological factors are predictors of potential Internet banking adopters. The demographic profile of future users differs significantly from that of current users.
Laukkanen *et al.* (2008)	The content, design, and complexity of a bank's website significantly impact the use of online banking.
Laukkanen and Kiviniemi (2010)	The risk of transaction errors, Internet connection failures and concerns about the security of funds and personal data are significant barriers to using e-banking systems.
Yousafzai *et al.* (2010)	Acceptance or rejection of online banking is determined by customers' personal/individual factors as well as social, psychological, utilitarian and behavioural factors, which are constantly interacting.
Lee (2009)	Factors negatively affecting e-banking use include security risks (threat of third parties accessing private customer data and stealing money from bank accounts), financial risk (fear of errors in transaction processing - incorrect entry of account number or transaction amount), operational risk (server failures leading to inability to access customer accounts and errors in the recording of financial transaction data), social risk (customers' fear of loss of reputation among relatives in the event of financial losses incurred using online banking services). Customer gains (time savings, a wide range of products and services, higher deposit rates, lower lending rates and fees) encourage the adoption of e-banking.
Yuen *et al.* (2010) Zhou *et al.* (2010)	The acceptance and utilisation of online and mobile banking significantly depend on social pressure and an individual's skills, abilities, knowledge and access to infrastructure.
Khrais (2012)	E-banking's ease of use and usability, as well as its features and functionalities, significantly impact its adoption by consumers.
Yousafzai (2012)	The use of online banking is shaped by functional, utilitarian and technological factors, as well as users' social, psychological and economic characteristics.
Al-Ajam and Nor (2013)	People's positive attitudes towards e-banking depend on how easy and trusted it is.

Al-Rfou (2013)	Usability, user-friendliness and user attitude directly impact the use of e-banking.
El-Qirem1 (2013)	The intention to use e-banking services is contingent upon the fees and commissions and customers' socio-demographic characteristics such as gender, age, income and education.
Lim (2013)	The simplicity of technological usage has a favourable effect on customers' motivation to utilise e-banking services.
Shanmugam *et al.* (2014)	The main attributes influencing customers' intention to use mobile banking are perceived benefits, reliability and ease of use.
Tsai *et al.* (2014)	Users' motivation to continue with e-banking is determined by its usability, compatibility and satisfaction level.
Ayo *et al.* (2016)	The quality of electronic services has a positive impact on customer attitudes towards the application of e-banking.
Ling *et al.* (2016)	The main determinants of using e-banking are the service quality, the website design and content, security, privacy, and the convenience and speed of the transaction systems.
Li *et al.* (2021)	The security and quality of e-banking services and the provision of customer e-learning to facilitate e-banking use significantly impact customer usage. Other essential factors include the ease of use, availability, user-friendly technology, e-banking usability, the efficiency and speed of e-banking transaction systems, and the technical support banks provide for users of information and communication technologies.
Alnemer (2022)	Demographic variables such as gender, age, education level, occupation and income are significantly associated with digital banking adoption. Perceived ease of use, perceived usefulness, and trust significantly marginalise the adoption of digital banking.
Cele and Kwenda (2024)	Identity theft, malware attacks, phishing and vishing are significant cybersecurity threats that hinder the adoption of digital banking.

Source: *Authors' elaboration based on literature review.*

Cultural and situational factors, beliefs, intentions and traditions can also affect customers' acceptance and use of e-banking. The feedback and recommendations from others (family, friends, etc.) about the e-banking experience are also very important. The primary obstacle to using e-banking is threat exposure, including security, financial, operational, and social risks.

Cybercrime, identity theft and forgery represent global concern that often deter customers from using e-banking. The lack of direct interaction between customers and bank staff also significantly restricts customers from using e-banking systems.

Performance risk, defined as the possibility of incurring losses due to website/interface malfunctions, system server failures or Internet disconnections, reduces customers' willingness to use online banking systems. The risk of making transaction mistakes or errors and concerns about the security of funds and personal data are significant factors inhibiting e-banking systems' use.

It is of the utmost importance to provide customers with the requisite training to ensure the increased acceptance and usage of e-banking. The factors that can encourage this include providing widespread digital, financial and business education and conducting bank training and educational activities to enhance customers' literacy and skills in e-banking systems.

Family and friends can also play a significant role in helping individuals (especially older people) learn how to use e-banking transaction systems. Adopting a friendly and courteous approach by bank employees also contributes to the spread of e-banking, as it creates a positive image of the bank and influences customer behaviour and attitudes.

The literature's analysis indicates that older people are wary about using e-banking platforms are less confident in e-banking services and less willing to adopt them (Arenas-Gaitan *et al*., 2015; Choudrie *et al*., 2018; Jena, 2023). Regarding ICT use, older adults differ from young people in two main ways. First, they are relatively unfamiliar with information and communication technology. Second, the physical, sensory and cognitive abilities that decline with age create significant barriers to technology use (Choudrie *et al*., 2018).

Furthermore, their reduced mobility, an integral aspect of offline social interactions, is constrained by the effects of ageing. Consequently, online banking services can be particularly advantageous for this demographic group.

In conclusion, implementing and popularising e-banking systems is an ongoing process of great importance for banks and customers. The competitive landscape and rapid technological progress in the banking industry compel banks to frequently introduce novel e-banking technologies, influencing their distinctive competitive positioning within the market.

Consequently, banks should continuously endeavour to persuade, enlighten and instruct their clientele to accept and utilise e-banking technologies. Furthermore, customers must also try to acquire the requisite knowledge and skills to utilise this modern channel to distribute products and services.

3. Theories and Models Explaining Bank Customers' Acceptance/Rejection of E-Banking

The question of customer acceptance or refusal of e-banking has been the subject of investigation since the 1990s, attracting the attention of numerous researchers and practitioners. A literature review reveals that customer acceptance or rejection of e-banking can be explained by several holistic and quantitative models and theories that identify the characteristics or variables that exert the most significant influence on customer behaviour. The principal models and theories that elucidate customers' proclivity to utilise e-banking systems are delineated in Table 3.

Table 3. *Theories and models explaining bank customers' acceptance/rejection of e-banking*

Theory/model	Authors	The essence of the theory/model
Innovation Diffusion Theory (IDT)	Rogers (1962)	The theory identifies five innovation attributes impacting its adoption: relative advantage (RA), compatibility (CO), complexity (CP), trialability (TR) and observability (OB). Relative advantage means that e-banking is perceived as better than traditional banking. Compatibility is the fit between e-banking and potential adopters' values, past experiences, and needs. Complexity is the degree of difficulty in understanding and utilising e-banking. Trialability refers to a customer's experiments with e-banking before its wider use. Observability is the degree to which someone's e-banking is visible to other users. The RA, CO and TR positively influence users' adoption of e-banking, while CP negatively (Koenig-Lewis *et al*., 2010). The OB does not affect adoption (Tan and Teo, 2000; Koenig-Lewis *et al*., 2010). This theory, however, does not consider social and individual factors and perceived risk in explaining e-banking diffusion.
Theory of Reasoned Action (TRA)	Fishbein and Ajzen (1975)	The theory postulates that individuals are rational beings who contemplate the implications of their actions before making decisions. According to TRA, an individual's conscious behaviour is a function of the attitudes of the surrounding environment, including family, friends, and colleagues. Regarding e-banking, a positive attitude towards it and tremendous environmental pressure on its use are significant predictors of acceptance and use. The TRA failed to account for situational factors that may influence attitudes toward accepting or rejecting e-banking (Yousafzai *et al.*, 2010).
Theory of Planned Behaviour (TPB)	Ajzen (1985)	The TPB model expands the TRA framework by incorporating perceived behavioural control (PBC) as a further determinant of individuals' intentions and behaviours. PBC is defined as an individual's resources and available capabilities that facilitate adopting a specific behaviour. In the e-banking case, this means that a person who has access to digital devices (computer, smartphone, tablet, software) and IT infrastructure (Internet) will be more likely to accept and use the e-banking system (Chong *et al*., 2010).
Decomposed Theory of Planned Behaviour (DTPB)	Taylor and Todd (1995)	Similarly to the TPB and TAM, the DTPB assumes that behavioural intention is the most crucial determinant of e-banking usage behaviour, affecting its usage. The DTPB decomposes attitudinal, normative, and control beliefs into multi-dimensional belief constructs. By focusing on specific beliefs, the DTBP provides a more managerially relevant perspective, identifying numerous factors influencing the adoption and use of e-banking. Some

		authors (Shih and Fang, 2006) posit that the DTBP is a superior explanatory model to the TRA and TPB in understanding individual behaviour regarding the acceptance or rejection of e-banking.
Theory of Innovation Resistance (TIR)	Ram and Sheth (1989)	The TIR identifies determinants that resist innovation adoption. Barriers to e-banking use include functional factors (usage, value, and risk) and psychological ones (tradition and image). The key to successful innovation is not to acquiesce to consumer resistance but to identify the underlying causes and develop a targeted marketing strategy to address them.
Theory of Perceived Risk (TPR)	Bauer (1960)	The TPR postulates that consumers behaviour frequently involves risk meaning that any their action generates consequences that can only be predicted with approximate certainty, some of which may be pleasant and some not. Risk has been identified as a significant barrier to the innovation diffusion. In e-banking, various risks are inherent, including security, privacy, financial, social and performance risks. Perceived risks are a barrier to customer use of e-banking (Kuisma *et al.*, 2007; Yiu *et al.*, 2007; Lee, 2009).
Technology Continuance Theory (TCT)	Liao *et al.* (2009)	The TCT integrates two constructs, attitude and satisfaction, and three first-level antecedents: confirmation, perceived usefulness, and perceived ease of use into a continuation intention model. It can be applied to e-banking users at various stages of the adoption lifecycle, i.e., initial, short-term and long-term users. In the ECM model, the behavioural intention of initial adopters unfamiliar with the e-service is affected by the e-service's perceived usefulness, attitude and general satisfaction. For short-term users, satisfaction or dissatisfaction with the e-system is a crucial determinant of intention to continue use. Following extensive utilisation, the e-service system performance and usefulness are endorsed by both initial and long-term users; the perceived usefulness is no longer a primary driver of continued usage. Subsequently, an individual's psychological judgement, such as attitude, determines continued usage. In summary, initial adopters' intentions to continue are mainly influenced by satisfaction, attitude and perceived usefulness. Short-term and long-term users' behavioural intentions are influenced by satisfaction and attitude.
Technology Acceptance Model (TAM)	Davis (1989) Davis *et al.* (1989)	The TAM model is based on the theory of reasoned action. It hypothesises that the technology use is directly determined by internal psychological variables, such as users' behavioural intention to use (BI), which, in turn, is influenced by users' attitudes towards use (A). Attitude is "the degree of a person's positive or negative feelings

		about performing the target behaviour". The main determinants of technology acceptance/use are perceived usefulness (PU) and perceived ease of use (PEOU), which motivate BI and A. The model's shortcoming is its failure to incorporate social fsctors (Gounaris and Koritos, 2008). Subsequently, the TAM was extended to TAM2 (Venkatesh and Davis, 2000) and TAM3 (Venkatesh and Bala, 2008), encompassing social factors and the individual's technology experience.
Cognitive Model of Satisfaction Decisions (COG)	Oliver (1980)	The model expresses consumer satisfaction as a function of expectation level and expectancy disconfirmation (discrepancy between outcomes and expectations). It further postulates that satisfaction, in turn, drives attitude change and purchase intention. The model suggests customer satisfaction and attitudes towards e-banking significantly impact its continued use. A product or service's long-term viability and final success depend on several stages of usage rather than initial acceptance alone.
Expectation Confirmation Model (ECM)	Bhattacherjee (2001)	Expectation–confirmation theory assumes three factors influencing consumers' decision to continue using e-commerce services: satisfaction, perceived usefulness, and loyalty incentives. ECM posits that satisfaction with a product or service is the primary motivation for its continuance. Satisfaction is an ex-post evaluation of the consumer's initial (trial) experience with the service, which can be captured as a positive feeling (satisfaction), indifference, or a negative feeling. The model suggests that satisfied customers continue using e-banking while dissatisfied users discontinue it and/or switch to alternative services.
Uses and Gratifications Model (UGM)	Weiser (2001)	The theoretical model comprises three key elements: functions of technology (Internet) use, social integration dimensions (e.g. social support strength), and psychological well-being (e.g. life satisfaction). The model assumes that the social and psychological effects of technology (Internet) use depend primarily on the user's reasons and goals for using the technology. These reasons are within two dimensions or functions: socio-affective regulation (social or affiliative orientation of Internet use) and goods and information acquisition (utilitarian or practical orientation of Internet use). In their study, Alhassan *et al*. (2020) identified integrative, ease of use and usefulness gratifications as key factors influencing attitudes towards mobile payment services, while user attitude played a significant role in determining the intention to continue using such services.

Source: *Authors' elaboration based on literature review.*

The overviewed theories and models of the determinants of user acceptance have potential practical value for evaluating e-banking systems. They can also serve as a guide for management interventions aimed at reducing possible customer reluctance to use e-banking products and services. An examination of these theories and models reveals their advantages and disadvantages. Some of them are extensions or combinations of earlier ones.

The most significant insight from their investigation is that the usability and ease of use of e-banking are primary factors in its adoption or rejection by customers. Among other factors, one of the most intriguing is the psychological gratification of using innovative technologies. For e-banking customers, it can be gratification based on the content of the bank's website or social media profiles (content gratification) and gratification based on the experience of using e-banking (process gratification).

Furthermore, the researchers offer theoretical frameworks that elucidate the reasons behind customers' continued or discontinued use of e-banking. Their analysis indicates that the continued utilisation of e-banking is contingent upon two key factors: usability and ease of use. Customer satisfaction based on experiences with e-banking is also a significant determinant.

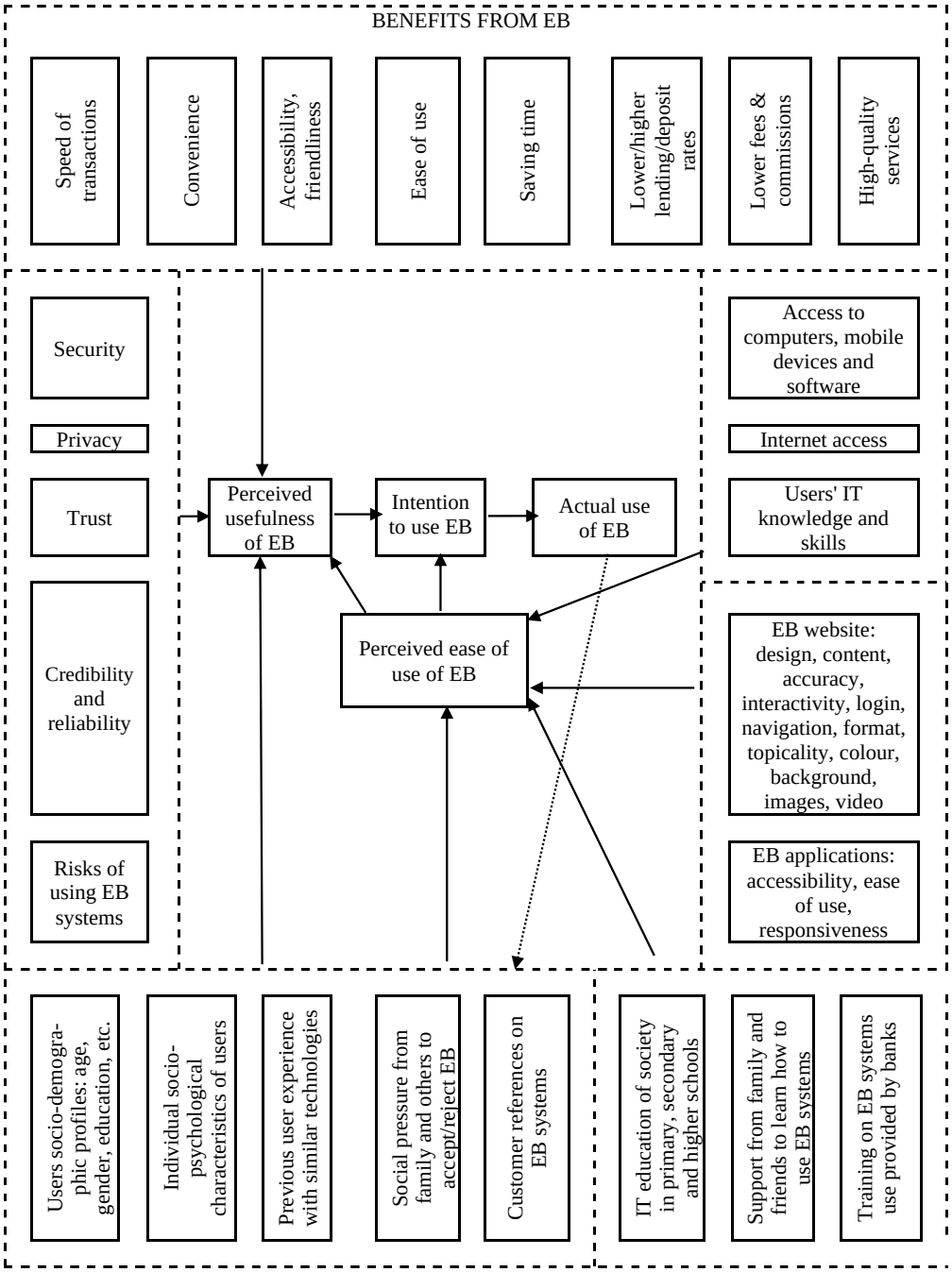
4. A Theoretical Model of Customer Acceptance and Use of E-Banking

Based on a review of the theories, models, and relevant literature, the current authors have developed a comprehensive model to illustrate the factors affecting customer acceptance and usage of electronic banking (see Figure 1). The model demonstrates that the actual use of e-banking is directly impacted by the intention to use, which, in turn, is influenced by perceived usefulness and ease of use.

The influence of specific aggregates of variables/elements on the latter two constructs is a notable phenomenon. E-banking usability (usefulness) is directly shaped by two key aggregates: the first reflects the benefits of e-banking (shown at the top of the figure), while the second aggregate encompasses security, privacy, trust, credibility with reliability and risk. Further, the perceived usefulness of e-banking is contingent upon potential users' demographic, social, and psychological characteristics, their experience with similar technologies, the social pressure exerted by family, friends or close associates to adopt or reject e-banking and other customers' feedback (low-left part of the figure).

The second key construct, perceived ease of use of e-banking, is directly influenced by three aggregates connected with IT technology, namely (1) society's IT literacy in using e-banking systems; (2) the technological infrastructure (having a computer, mobile devices, software and Internet access); and (3) website and mobile application features. It should also be emphasised that the perceived ease of use of e-banking directly impacts its perceived usefulness.

Figure 1. *Theoretical model of acceptance and use of electronic banking (EB) by potential users*



Source: *Authors' elaboration based on the literature review.*

It is important to stress the importance of feedback from actual e-banking users for new potential users. Potential customers can gain valuable insights from customer references, which provide information about the benefits and possible risks of e-banking based on the direct experiences of other customers.

The proposed theoretical model elucidates the comprehensive process through which multidimensional factors, dependent and independent of providers of e-banking products and services, culminate in bank customers' acceptance and utilisation of e-banking. On the one hand, this model can help banks to develop their operational strategies. Given the rapid advances in technology, the range of factors determining the use of e-banking will change and expand. Users constantly need to learn new technologies to use e-banking products and services.

Customer education and marketing campaigns by banks to attract new customers and retain existing ones will be of considerable importance On the other hand, this model can increase awareness among banks and other institutions about the threats to e-banking users resulting from the latest advances in information technology.

These technologies drive the development and implementation of digital banking products and services. At the same time, they are associated with perceived risks to the security and privacy of financial transactions, which deter some people from using them. Effective risk management requires the active involvement of different stakeholders, including banks, governments, financial regulators, and supervisors.

In summary, attracting and keeping e-banking customers is crucial because the more customers utilise e-banking services, the more competitive banks will be in the financial market and vice versa. In empirical research on e-banking, three main dimensions warrant consideration: the quality of banking products and services, online customer service, and the efficiency of online IT systems. It is also essential to consider that several fundamental factors, including the government, the market and the banks' potential, affect the competitiveness of banks.

The government sets up the rules and principles of competition by setting and implementing regulations. The conditions of the financial market, especially the number of participants, play a significant role in shaping the strength of competition. At the same time, the bank's potential (its assets and processes) determines its competitive position.

5. Conclusions

1. Electronic banking offers customers, banks and the broader national economy several advantages. The principal customer benefits of using e-banking encompass reduced transaction costs, remote access to banking products and services, convenience, lower prices for products and services, real-time monitoring of the banking transactions history and easier access to information

about banking products and services. For banks, e-banking means lower operating costs, a boost in customer count, higher sales revenue from banking products and services, quicker and easier access to customers to promote and advertise their products and services, and greater access to customer information. From the whole economy perspective, e-banking brings faster capital flows, reduced payment bottlenecks between counterparties, easier business access to foreign capital, and higher economic prosperity.

2. Besides benefits, e-banking gives rise to negative phenomena at both the micro and macro levels. At the micro level, these include numerous cybercrimes, predominantly involving misappropriating funds from bank customers' accounts. At the macro level, e-banking fosters the proliferation of speculative activities, frequently precipitating financial market turbulence and destabilising numerous national economies. This often leads to financial and economic crises around the world.

3. The primary customer motivators for using e-banking are convenience, time-saving, ease of use of online banking systems, robust security measures, and financial benefits, including the potential for more favourable interest rates on loans and deposits and lower commissions. Conversely, the deterrents are the lack of trust in e-banking, the inherent risk associated with e-banking and the limited IT proficiency and skills of bank customers.

4. Information technology underpins e-banking. The banking sector anticipates further technological advances, particularly in biometrics, mobile technologies, cloud computing, artificial intelligence, blockchain technology and the Internet of Things. These developments are expected to enhance the efficiency and operational capabilities of banks. Nevertheless, to enhance customers' adoption of e-banking, it is imperative that the State and the banks collectively facilitate comprehensive economic and IT education. Primary, secondary and tertiary school students should be instructed in financial and IT education. The same recommendation can be extended to the older population, who may benefit from structured training and other education forms to acquire new skills or enhance existing abilities. Banks should help customers learn about e-banking by explaining the basic features of products and services and the rules governing the transaction systems used. Educating customers on the safe application of banking services via computers and mobile devices is crucial.

5. For those in managerial roles within banking institutions, this study and its conclusions provide insight into formulating effective commercial strategies that enable the comprehensive satisfaction of customer demands referring to e-banking products and services. In formulating e-banking development strategies, banks should adopt a tripartite approach, considering three principal elements: employees, IT, and customers. The most critical is that of the employees on whom technological upgrading, product and service offerings, and customer

service depend. Banks must integrate their personnel advancement through training, promotion and remuneration into their strategies to cultivate a stable and proficient workforce. It is crucial to continually develop the IT staff as they are vital for the functioning and security of e-banking systems. The second essential component of the strategic plan is the technological potential, which serves as the foundation for e-banking. Banks should allocate dedicated research and development funds to remain technologically competitive. The third key element of the strategy is the customer base, which needs to be educated in the use of e-banking systems to increase their conviction in the necessity, ease of use, convenience and usefulness of e-banking.

6. The COVID-19 pandemic environment provided banks with invaluable insight into the operational aspects of crisis management, offering a unique opportunity to enhance their preparedness for future crises. During this period, there has been a notable acceleration in banking digitalisation, giving rise to novel e-banking solutions. Contact channels enabling remote communication, such as video, chat, and other forms of instant messaging, have become popular methods of interaction among people. Providing multiple remote contact channels has become a standard practice in the banking industry. Under the current circumstances, banks will likely need to rely mainly on digital solutions to ensure business continuity and resilience during exceptional emergencies. In order to maintain competitiveness in the market, banks must adopt innovative approaches, embrace emerging trends and implement new e-banking solutions. A significant challenge for banks is the development of a novel doctrine and operational philosophy for the future. This entails adapting the service model and business practices to align with the reality of the post-pandemic era.

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