

E-Banking Trend and its Adoption by Senior Citizens

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ABSTRACT: Electronic banking is expected to remain a fundamental component of the modern banking system. It significantly reduces banks' operating costs, enables financial institutions to serve a large number of customers simultaneously. Despite these advantages, there is a relatively low adoption rate of electronic banking among older adults, particularly those aged 60 and above. We try to identify the key factors influencing e-banking adoption among senior citizens, understanding their habits and perceptions, fears and perceived risks, so policymakers and banks can do a better job of including this segment in the available financial services. As traditional banking activities are conducted online via e-banking platforms, physical bank branches are becoming obsolete and therefore reduced. Consequently, the need for tellers has been decreased, leaving part of the population, especially older adults dependent on technology they may not use. For senior citizens, electronic banking represents an opportunity to manage their finances independently and they constitute an important customer segment for the banking industry, with a stable income. For older adults to better engage in electronic banking, financial institutions should offer tailored products and services for this segment. Elderly are more vulnerable to being excluded, making them a critical group for research and policy attention, due to limited digital literacy and lack of internet usage. Strategies that improve accessibility to this segment include age-friendly design principles, tailored support systems, more tutorials and instructional videos and offering personalized user experience.

KEYWORDS: electronic banking adoption, senior citizens, digital banking services

I. INTRODUCTION

Digitalization has increasingly become a strategic priority for banks, enabling them to offer their products and services anytime and anywhere. The current economic environment includes development of the IT and telecommunication industry at a fast pace which ensures lower transactional costs per additional output and allows for financial services that are more available for the public, yet profitable for banks and other financial institutions. Additionally, the development of the electronic services, the investments in payments' infrastructure, digital platforms, accounts for easier access to online-enabled innovative products and services. Electronic banking as a fundamental concept of modern banking, leads to an increase in the quality of bank services, accounts for the differential advantage of the bank and improves its niche position in comparison to its competitors. Banks with electronic services on the other side, are faced with more e-banking processes that are contractual with external service providers, which should be elected with caution and controlled along the way, as banks can purchase a service or process, yet remain responsible to the client to ensure integrity. The e-banking app security depends on the risks and phishing attacks that could happen to clients, and banks should use their assets to teach and empower clients to use their electronic platforms, as technology progress leaves part of users vulnerable to attacks and unauthorized use of their data. Traditional and electronic banking keep on coexisting, as banks try to stimulate clients to use their electronic services. Changes in information technology indicate potential risk increase and the need for new control measures that evolve continuously, so banks have to obtain adequate systems for handling risks which should be continuously reviewed and modified in accordance with ongoing technological advancement. The current passage from traditional to electronic banking leaves behind the most vulnerable category of citizens, pensioners and the citizens with low confidence in the online environment, data processing and who has access to their data. Electronic banking, as a product of modern technological advancements, can be considered as mass-market service with a broad consumer base. The benefits it provides include time savings and greater convenience while enabling different types of payments, financial transfers between different accounts and even tax payments. The future of electronic banking is driving a transition toward cashless and contactless banking, which is reflected in payment behaviors of European citizens and increasing adoption of digital payment methods. In line with emerging economic trends, the banking sector is adapting its strategies and transitioning toward a hybrid business model that combines physical presence with online services, while adopting a multi-channel approach. On the other hand, alongside the innovations driven by digitalization and

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introduction of new products and services, the banking sector faces increasing demands for investments in cybersecurity, personal data protection, anti-money laundering measures and the prevention of tax evasion. The transformation brought by digitalization in banking has created an ecosystem in which traditional banking activities are conducted online via electronic applications such as e-banking for managing current and checking accounts as well as applying for and managing loans, and cash withdrawals are conducted via the ATM. As a result, physical bank branches are being faced with losing their traditional roles and being transformed into centers for financial advisory services or being reduced and closed. Consequently, the need for direct assistance from bank personnel in carrying out routine transactions has been significantly reduced. Nevertheless, among certain age groups, a strong demand for personal banking tellers exists, as well as for digital platforms that are simple and easily accessible to older customers. Therefore, banks have to adapt their solutions to overcome user barriers and ensure banking services remain user-friendly and accessible to individuals of all ages. Electronic banking represents a transformation in customers' financial behavior, gradually replacing traditional banking practices. The time-saving benefit stems from eliminating the need to visit a physical bank branch, while service availability is independent of business hours and can be accessed at any time through an internet-connected device with basic technical requirements. Transaction fees are generally lower than those charged over-the-counter services. Furthermore, customers maintain continuous control over their accounts, with the ability to monitor balances and transactions at any time, while also benefiting from mostly 24-hour support services. Security is ensured through encryption technologies and advanced protection mechanisms that guarantee a high level of safety for electronic transactions. For users who remain sceptical of electronic banking or are concerned of potential cyberattacks, some banking applications offer payment functionalities that do not require users to log in with their credentials or undergo full authentication procedures, which reduces exposure to cybercrime involving malware, ransomware and banking Trojans. Such threats affect all internet and digital device users, including both individuals and businesses, particularly in an environment characterized by increasing cyber risks. The adoption and frequent use of electronic banking depends on numerous factors, including accelerated post-COVID digitalization trend, age, educational attainment, digital literacy, convenience, cost reduction, changing customer preferences, improved user experience, enhanced security, and the competitive advantages offered by digital banking services. Despite all the favorable side of e-banking, its adoption by the senior citizens is lagging behind and therefore poses the question what actions shall banks and policymakers undertake to include the citizens over 60 in electronic banking.

II. LITERATURE REVIEW

Grigorescu et al. (2023) indicates that education, gender, place of residence and labor market may serve as significant predictors of the adoption and use of electronic banking services. Individuals with limited digital literacy require targeted support and policies to facilitate access to these essential financial services. Arenas-Gaitan et al. (2015) find out that the acceptance of internet banking was impacted by habit, performance expectancy, price value and effort expectancy. Villarejo-Ramos et al. (2019) concludes heterogeneity among older people regarding internet services. Jena (2023) describes the consumer behavior changes post COVID-19 pandemic has on seniors on adopting new channels and technologies to reduce financial isolation. Lips et al. (2020) analyzed that internet usage was reduced for older adults and by aging of the population denotes the trend of lower digital literacy and internet usage, as well as devices connected to it. Omotayo (2020) states convenience as a major reason for electronic banking usage, and non-users mentioned unawareness and security concerns for their exclusion. Jin et al. (2021) show that older adults conduct banking transactions frequently, however, few do so via digital platforms, and as main concerns indicate security and usability. Erceg et al (2022) identified social impact as an incentive for elders to start exercising online banking services. Eghebi (2019) reveals important barriers to e-banking use including memory-related concerns connected with managing pin and password complexity, as well as lengthy and complicated authentication procedures, usability challenges and misconceptions regarding online security. Amouzadeh et al. (2026) stress the misalignment between app design and cognitive, sensory and ergonomic needs of elderly users. Georgieva (2018) believed that tools such as chatbot-based communication specifically designed for older adults could promote inclusion in electronic banking by providing accessible and user-friendly support.

III. THEORETICAL FRAMEWORK METHODOLOGY

The demographic transformation of the global population with developed nations witnessing a growing proportion of elderly citizens, a trend which represents challenges such as financial inclusion and technological innovation. The digital divide refers to the gap between individuals and businesses at different socio-economic levels regarding their ability to access information and communication technologies (ICT), as well as their capacity to use the internet for various purposes. Improvements in healthcare, wealth accumulation and living standards have contributed to increased life expectancy and a growing proportion of individuals aged 60 and above. Hence, the global population is undergoing substantial demographic changes particularly in developed countries where population aging is becoming increasingly pronounced. The aging trend created challenges and opportunities across various sectors, including financial inclusion and technological innovation.

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Within the financial sector, the rapid growth of financial technology (fintech) has transformed the payments ecosystem by providing innovative digital payment solutions and banking services. Simultaneously, rapid technological advancement places older adults in a position where adapting to these changes becomes increasingly necessary. The widespread adoption of smartphones, coupled with the deployment of high-speed wireless networks such as 4G and 5G, has significantly expanded access to digital financial services and accelerated the digital transformation of banking and payment systems.

A key period that accelerated the adoption of the new technological trends, was the post-COVID era, which compelled older adults to embrace electronic services. The COVID-19 pandemic created unprecedented circumstances, including social distancing measures which forced institutions and adults to adapt to a new way of life, as banks started closing their branches. These changes significantly affected payment habits and accelerated the adoption of digital solutions such as electronic banking services. The adoption of new technologies, online services and acquisition of digital skills are essential for ensuring that all citizens remain connected to modern society and not left behind in the ongoing digital transformation with e-banking and mobile applications being accessible and usable across all generations. Elderly are more vulnerable to challenges of banking digitalization, making them a critical group for research and policy attention, as they are at risk of being excluded from banking services due to limited digital literacy and lack of internet usage. Compared to the rest of the populations, older adults generally exhibit lower levels of technology adoption, including lower rates of internet usage and mobile phone ownerships. Older individuals represent a highly heterogeneous group, characterized by diverse needs, lifestyles and consumption patterns. Heterogeneous online behaviors refer to usage differences based on motivation and internet usage from embracing digital technologies for practical and social purposes to motivation from convenience or requiring additional support to engage online.

The digital inclusion of the elderly population can have a positive impact on the socio-economic development of this demographic segment and contribute significantly to improving their quality of life and fostering active aging. By enhancing access to digital technologies and financial services, older adults can benefit from greater social participation, increased financial independence and improved access to information. Factors that hinder adoption of electronic banking services among older adults include complex user interfaces, limited technical knowledge and concerns regarding security and privacy. Moreover, older individuals are more vulnerable to online fraud and manipulation, which discourages them from using electronic banking services, however older users of electronic banking report convenience and flexibility. Ownership of digital devices such as computers and laptops has been found to increase adoption rates, although the trend is increasingly being replaced by the widespread use of smartphones. For senior citizens, electronic banking represents an opportunity for greater financial independence, enabling them to manage their finances without relying on others to check account balances, pay bills, or perform transactions on their behalf. Seniors constitute an important customer segment for the banking industry as their average income levels remain relatively stable. By making banking services more accessible, banks can better penetrate this market segment, offering tailored products and services designed specifically to meet the needs of older adults.

Previous research examining the adoption of electronic banking among older adults consistently found lower usage rates compared to younger population as many older adults prefer the known face-to-face interactions i.e. the traditional banking methods and are less likely to use electronic banking services, exhibit lack of trust, fear of technology and technology related anxiety. At the same time, new digital financial services including mobile payment platforms and virtual banks have become increasingly popular. Therefore, there should be special understanding dedicated to how older people interact with the emerging technologies, their frequency of use, and to compare them to traditional banking options. Comprehensive examination of older adults' experiences across physical and digital banking platforms can help identify barriers to adoption and guide the design to more accessible and inclusive banking services. Yet, the challenges of senior adults being a heterogeneous group in terms of their habits may pose different difficulties to understanding and measuring how older people use electronic banking services.

The challenges seniors face when using electronic banking services range from physical limitations such as impaired vision and reduced dexterity, to difficulties navigating digital applications due to small font sizes, complex interfaces and cumbersome onboarding procedures such as managing a small smartphone screen or interacting with a mobile banking application containing numerous options can be difficult for older users to learn and navigate effectively.

Mobile banking, which is increasingly the dominant form of electronic banking due to its reliance on smartphones and tablets, presents additional challenges. These include complicated instructions for using mobile devices and absence of direct human assistance to explain key functionalities and processes. Fear and uncertainty are significant barriers to adoption among older adults, for activities ranging from operating a smartphone or tablet effectively, logging into an application or navigating its features successfully. Age-related cognitive decline further complicates the process of learning and adapting to new digital tools. Older adults generally require more time than younger users to understand instructions and become familiar with online banking platforms. Continuous learning is often necessary to keep pace with technological developments, which can be demanding and overwhelming for senior users.

These challenges highlight the need for age-friendly technology specifically designed for older adults. Banking interfaces should incorporate simplified navigation, clear instructions, larger text sizes and user-centric design principles tailored to the needs of

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senior citizens. Ease of use can be improved by bridging the gap between intuitive interface design and guided onboarding experiences. In addition, banks and financial institutions should continue implementing robust authentication mechanisms, such as biometric verification, while simultaneously prioritizing educational and support programs targeted at older customers. The adoption of electronic banking among senior citizens can be significantly increased through the development of interfaces featuring intuitive navigation, larger fonts, simplified transaction processes and enhanced accessibility features. Achieving the objective of greater financial inclusion for older adults requires a collaborative effort involving the banking sector, technology providers, policymakers and advocacy groups representing the interests of senior citizens.

The most significant predictor of whether older adults will use or continue using electronic banking is the influence of close friends and family. Social environment and interpersonal recommendations play a crucial role in shaping behavioural intentions toward digital financial services. Educational attainment and the level of digital skills significantly increase the likelihood of adoption. Individuals with higher education and moderate to advanced digital literacy are more likely to accept and actively use electronic banking services. Self-efficacy plays a significant role in shaping behavioural intention toward electronic banking. Users with higher confidence in their digital abilities are more likely to adopt and continuously use online banking services. In contrast, older adults often experience reduced self-efficacy, which contributes to hesitation and avoidance of digital platforms. Additional challenges faced by older adults include the use of mobile banking applications available through Google Play Store and Apple App Store. Age-related conditions such as impaired vision and arthritis can make typing and scrolling on digital devices more difficult, significantly affecting their ability to access and use online banking services. Many seniors also experience difficulties with one-time verification codes sent during authentication procedures for online transactions. Older adults are frequent targets of phishing attacks and online scams, which contributes to a lower level of trust in the security of electronic banking applications. Individuals who frequently use the Internet and have a high level of trust in electronic services are more likely to adopt digital banking solutions. However, several factors continue to hinder technology adoption among older adults, including accessibility issues, compatibility with declining motor skills, limited technical knowledge, resistance to change and a strong reliance on established habits and experiences.

Elderly are characterized as more resistant to change, learning new skills and have a more negative attitude toward electronic banking as they prefer face-to-face communication. An additional constraint of using electronic banking was low income which correlates with lack of awareness of the advantages.

This highlights the importance of strengthening users' knowledge base and providing structured support systems to enhance digital literacy and confidence. The interaction between electronic banking and older clients reveals persistent inequalities in access and usage. These disparities are driven by technological unfamiliarity, privacy concerns and fear of online fraud. On the other hand, reasons why seniors choose not to use electronic banking include perceived risk and concerns about financial loss, theft of personal information or the inability to successfully complete transactions.

IV. DISCUSSION

To address these challenges, developers of banking applications should focus on increasing engagement among older customers and improving communication strategies that effectively address their concerns to foster positive user attitudes and generate future intention of electronic banking adoption. Promotion of awareness and benefits of e-banking is needed, as well as education to encourage adoption among hesitant users. Particular attention should be given to the sense of security that many older adults experience when interacting with a familiar bank employee rather than sharing personal information through unfamiliar digital systems. Another important consideration is that electronic banking may reduce opportunities for social interaction. Physical bank branches often serve as social gathering points for older individuals, providing opportunities for personal communication and community engagement. The transition from traditional to electronic banking requires structured guidance, with banks playing a central role in educating older customers about safe online practices and types of information that should and should not be shared digitally. Additional measures may include in-branch training sessions, step-by-step instruction materials and a consistent customer support approach aimed at building confidence in digital financial services. Further strategies to improve accessibility include incorporating visual aids such as tutorials and instructional videos, providing simple, step-by-step navigation, and offering personalized user experience. Additional research is needed to better understand how older adults cognitively approach technology, the impact of limited internet access, privacy concerns associated with voice-assisted banking and the influence of cultural and linguistic barriers. The main concern that restricts elderly from using e-banking were the perceived risks, less tech-savvy generation, age-related declines.

Creating an inclusive banking environment requires collaborative efforts among financial institutions, software developers and regulatory authorities. By integrating age-friendly design principles, tailored support systems, simplified authentication methods, targeted educational support and continuous research initiatives, electronic banking can become a truly inclusive tool that serves users of all ages. Potential users of electronic banking within the older population segment can be further developed if enabling conditions are provided to attract them as customers.

V. CONCLUSIONS

Despite existing barriers, electronic banking presents significant untapped potential among older adults. Ensuring electronic banking inclusiveness requires understanding senior citizens' experiences, needs and barriers for future improvements which should focus on age-friendly design, enhanced accessibility, user education and support mechanisms to improve banking experience for the aging populations. With appropriate policy support, user-centred design, financial education, and improved accessibility, digital banking can promote financial independence and inclusion for senior citizens. Banks should strengthen efforts in raising awareness about electronic banking and clearly communicate its benefits, especially to the elderly. Recommendations for developing age-inclusive banking platforms include: building of systems that provide robust security and privacy protections, designing of informational campaigns that emphasize the security and reliability of the internet as a communication and transactional channel, increasing customers' knowledge of online activities through promotional and educational campaigns using clear and understandable language, developing website and mobile applications that are easy-to-use, particularly for older adults, through simplified interfaces, intuitive navigation and accessible design features. These efforts are essential to ensure inclusion of this age group from the ongoing digital transformation in the financial sector.

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