Linguistic and Philosophical Investigations
ISSN: 1841-2394, e-ISSN: 2471-0881
Vol 23 (1), 2024
pp.2800-2818

Unraveling digital banking transformation, innovation for the older generation.

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ABSTRACT

Objective: To determine the digital banking gap and whether it presents benefits and challenges for the generation of elderly customers. ***Methodology***: For the construct, the precepts of the positivist paradigm were used, with a quantitative data collection approach and explanatory-descriptive research. ***Results****:* Older adults in this group of modest users, being today usufructuaries of technologies, may feel uncomfortable with the advanced digitalization of the media, but they are also prone to experience the marked exclusion in front of the conjunctural and modern digital era, not only because of the novelty for them, but also because of the subjugation of the rest of society in new ages and even with some peers of the same age who are direct digital competitors. ***Conclusions:*** the study reveals the moderating role of digital literacy in the decision making of the older population ***Researchers' contributions*** This study contributes to the academic discourse by providing a comprehensive view of financial technology adoption by older generation consumers, highlighting the importance of understanding this demographic's unique preferences and interactions with the digital economy. It also highlights the potential for targeted strategies to improve the adoption of financial technology services among older adults and foster a more inclusive digital financial landscape.

Keywords: Digital banking, older generation, financial inclusion.

1. *Introduction*

With the development of digital technologies such as artificial intelligence, big data and blockchain, the world has gradually entered the era of digital economy (Zhou, 2022). Also, the advancement of science and technology has driven the innovation of traditional industries; Digital transformation has gradually become a trend (Su, et al. 2021). Therefore, today the world is immersed in constant changes, where the protagonist has been the development of new technologies, which directly and indirectly affect daily life and are revolutionizing each and every sector, from health, telephony, education, tourism, to the financial sector, and more specifically, banking; While it is true that all these changes that have been occurring due to the development of new technologies have brought benefits for everyone, improving the way we communicate, develop and develop, it also brings with it certain limitations and demands, not only for traditional sectors, but also for individuals.

In recent years, we have witnessed the evolution of technologies and the way in which financial services are provided, with greater accessibility, agility and convenience for all users (Brandl, Hornuf, 2020). In this sense, digitalization has given way to many opportunities for people and the banking sector, but it has also posed new challenges and risks that must be addressed in a timely manner. Likewise, for Vial (2019), digital transformation is identified as "the process that aims to improve a unit by introducing essential changes in its structure through the combination of information, information technology, communications and connectivity technology". According to Yip & Bocken (2018), digital transformation includes a broad concept of banking, namely: digitization of documents, electronic signature for transactions, e- learning, teleconferencing, online trading platforms, digital stores, e-statements, and mobile payments. Customers are increasingly using digital disruptions and new types of solutions are emerging in this sector. Therefore, new business models are essential in the banking industry to highlight all significant banking processes.

Likewise, artificial intelligence has also forced the banking industry to move towards digital banking. New machine and deep learning methods enable banking and financial organizations to achieve better results and improve their capabilities to design investment strategies in securities and profitable instruments. Notes Cho et al. (2023), connectivity, automation, Big Data and innovation are the directions in which digital banking will influence the way value is created in banking.

Understanding customer expectations forces banks to adapt their products and services. Interestingly, in Colombia, the key component to be addressed in the development of financial services is financial anxiety. For Ianole-Calin et al. (2021) unlike in European countries, financial education is not always a panacea; moreover, financial security is not always the most important objective for older generation consumers.

Thus, since the introduction and adoption of digital banking around the world, the concept has been used among the category of customers referred to as "seniors" in banking. Countries continue to make frantic efforts to go cashless by exploiting the numerous benefits associated with digital banking to improve their economies (von Solms & Langerman, 2021). Although, in a world of constant change where technology is part of many aspects of life, especially banking, where it has been evolving over the years, providing customers with new innovative ways to manage their finances in a faster, simpler and more efficient way, there are still people who do not adapt to these changes or prefer not to be part of them, especially very old or elderly people, who prefer to continue using conventional methods, such as going directly to the bank, standing in line, handling financial issues personally and if necessary moving with the money.

In this regard, Zeng (2021) points out that one of the most notable and significant changes that digitalization has brought to the banking sector is undoubtedly the growing popularity of online banking services and cell phones. In addition, banks in response to the technological evolution have developed a wide variety of digital tools, such as mobile applications and websites, which allow users to manage and handle their finances more effectively, quickly and easily, but where the elderly in peripheral urban areas are disconnected to this transformation, which has led to a very potential loss for banking and generating disconnection with digital banking life.

Along the lines outlined above, Allen et al. (2021), comment that improving customer convenience does not simply mean predicting an optimistic future in which offering a variety of technological options will increase customer loyalty and competitiveness and ultimately improve a bank's performance. Due to the development of finance and information technology (IT), people continue to be marginalized, which needs to be addressed. Since this is also a problem directly related not only to a bank's services, but also to its profits.

This theoretical construct, has its genesis in the review of available knowledge, which is largely supported by previous research related to digital banking, with special emphasis on the digital banking environment in Colombia. After the literature review section, we will articulate the hypotheses guiding this study. The methodology will outline the research design, covering elements such as data collection procedures, data preparation, and the methods and techniques implemented for data analysis in this study. The section on data analysis and results will clarify the research findings derived from the data collected.

In the following discussion segment, we will analyze the results in relation to the knowledge gained from the literature review. In the final section, we will summarize the findings of the study and provide relevant recommendations for the improvement of digitalization in the Colombian banking sector with emphasis on the elderly population.

2. *Review of available knowledge*

2.1. *Improving banking services through digitization*

Digitization involves transforming analog data into digital format and strategically integrating digital technologies into various areas such as business, social structures and everyday life (Rogers, 2016). Organizations, science and media use the word "digitization" as a move towards an integrated digital infrastructure (Gartner Glossary). According to Popa, & Luca, the rapid progression of technology has revolutionized not only the digital aspects of banking, but also reshaped overall business approaches and ways of engaging with customers.

Today, companies across a handful of different industries understand that making the shift to a digitized business model is a major challenge with a substantial impact on the ways they operate, plan, and forecast the future (Chanias et al. 2019). A study by Duan and Xiong (2015) supports their hypothesis that high-performing organizations are almost five times more likely to rely on hard data analysis rather than intuition compared to their lower-performing counterparts. This assigns great weight to the overall importance of data and digitization.

Previous literature on digital transformation has primarily addressed changes in consumer behavior, strategic responses, dynamic capabilities, value creation and the use of digital technologies (Kraus et al. 2023).

The main objective of an integrated digital transformation business strategy in the banking sector is to delight customers by adopting a customer-centric approach. This goal can be achieved by introducing cutting-edge digital products and services, as well as digitally enhancing current offerings (Chanias et al 2019). Second, the rapid advancement of digitization has offered the potential to reduce costs in data production and analysis and has enhanced the potential not only to streamline administrative processes, but also to improve transparency and accountability (Bain & Company, 2014).

However, the World Bank Organization (2021) recognizes that advances in digitization and data analytics offer a unique opportunity for parent-teacher organizations and individual stakeholders to interact more effectively with educational institutions, elevating their accountability and responsiveness (Bain & Company, 2014). Thus, organizations that promote digitization will enable revenue optimization through cost reduction, but also positively influence the quality of education within applied sectors. This level of feasibility of digital integration can also be assessed by banks, their internal organization or IT system.

The advent of digitalization is transforming the habits and preferences of banking customers. Highlights Ajupov et al (2019) increasingly, customers are accessing digital banking services through apps and machines without time or location constraints. There is no doubt that technology plays a key role in this context. The introduction of mobile banking not only simplifies the way customers interact with financial institutions, but also streamlines banks' operational processes. As a result, digital banking services are managed seamlessly through mobile technology.

To quote Balka (2021), digital banking, which includes e-banking and mobile banking, improves the efficiency and effectiveness of banking operations, in part by engaging customers in digital services. Customers can now conduct financial transactions on their own, using smartphones or personal digital devices, wherever and whenever they need to. A strategy focused on the digitization of banking services represents one of the most recent and innovative technological advances in the banking sector.

Advances in communication systems have been significant, from telegraphs and written letters to videoconferencing and conventional telephone calls. Each has been instrumental in the digital transformation of the banking industry. Since its inception, the banking industry has leveraged technology for transactions, initially through traditional multi-branch banking channels. Customers used call centers and ATMs, which were later complemented by Internet banking and mobile devices for transactions. These technological innovations have enabled the banking industry to transcend geographic limitations, improving capital distribution channels and ultimately contributing to greater efficiency and profitability for banks.

Consequently, advances in social networks and innovations in the latest socialization applications take the economics of digital banking to the next level (Ajupov et al. 2019). In that order, digital social networks are influencing the banking sector. Social networking applications and platforms such as Facebook, Twitter, YouTube, and LinkedIn have strengthened shared communication on the Internet and enabled banks to develop new business models by conducting customer surveys and using other demographic, qualitative, and quantitative data.

The transformation of digital technologies utilizes innovations such as cloud-based applications and big data. According to Obaid & Aldammagh (2021), the concept of big data is intriguing and takes banking business to the next level. In addition, the advancement of technologies also enables authorities to make changes in regulations and policies applied in the banking sector. Therefore, the importance of digitization and artificial intelligence cannot be underestimated in today's world. The manufacturing sector is moving towards the fourth- generation industry, also known as Industry 4.0 or Fourth Industrial Revolution, which is defined as a new level of organization and control over the entire value chain of a product's life cycle and focuses on meeting increasingly specific customer needs. Talking about big data, technology, cybersecurity, Internet of Things (IoT) and other topics is what Industry 4.0 is all about (Pereira et al. 2022).

While digital transformation presents many opportunities in the banking sector, several challenges also arise. Simple methods for conducting many financial transactions as part of the banking sector's digital transition include mobile banking and online banking. Customers as older generation some do not benefit from these services, but also face substantial challenges due to the threat and potential for cyber attacks. The digital revolution in the banking industry has created several major issues, including cyber attacks, financial fraud, hacking, phishing and security awareness. The understanding of customers and even seniors about cybersecurity can often be more ambiguous in several respects. When using banks' digital platforms, they need to be aware of secure technology practices. Bank customers are becoming increasingly digitally/cyber literate to deal with cyber attacks, phishing and hacking, a major hurdle for the banking sector (Johri & Kumar 2023).

Adding the above, the main driver for the digital transformation of Colombia's retail banking industry is to meet customer needs; therefore, in recent years, with the development of banking digitization consumer needs and behaviors have changed significantly, and most consumers now prefer to use digital services for banking transactions rather than traditional physical banking services (Brynjolfsson & McAfee, 2014). Consumers of all ages are increasingly using digital banking channels, and underserved consumers are also going digital, further reflecting the high demand and preference for digital banking among consumers (Valenti & Alderman, 2022).

In accordance with the above, the author cited in the above lines, systematizes the state of the art in Table 1.

Table 1. *Systematization of the state of the art*

Year and Author	***Research Name***	***Findings***	***Methodology***
Martínez, 2007.	Virtual banking is gaining ground.	Financial sector and the adoption of the Internet, virtual banking revolution, financial services from virtual banking.	Exploratory.
Fonseca , 2017.	The digital era as a service quality tool in the Colombian banking system and its influence on customer satisfaction.	The digital era as a tool for service quality, influence on customer satisfaction, telecommunications.	Exploratory qualitative research.
Castillo, Gabaldon, Ruiz and Sainz, 2010.	Towards multichannel banking: the transformation of the	Importance of technology adaptation, growing use of ICTs, agility in decision making.	Book.

	financial sector in the knowledge economy.		
Hernandez and Hernandez, 2014.	The use of tic in the elderly population.	New technologies and vision in the world, globalization, adults and communication technologies.	Exploratory.
Gonzales, 2015.	Evaluation of perceived service quality in banking institutions through the Servqual scale.	Evaluation of the quality of services, perception.	Quantitative, exploratory research.
Rubio, Rodríguez and Uribe, sf.	Analysis of the perception of customers regarding the quality of service received by the personnel that attends the large supermarkets in the city of Ibagué.	Perception through experiences, different forms of services.	Quantitative research, exploratory research, survey research.
Kularatne, 2023	The development of electronic banking in Spain. a comparative analysis between online and traditional institutions in Spain and the united States.	Older customers face physical and security challenges associated with digital transformation and lower acceptance of new technologies.	Documentary research.
Hakizimana, Muraguri-Makau Charity Wairimu, 2023	Digital banking transformation and performance: where do we stand?	The use of digital access, digital channels, digital value, and financial inclusion.	Exploratory

Source: Authors' construction (2025)

2.2. *Digital Transformation*

The rapid development of various digital technologies has enabled digital servitization, which in turn helped accelerate the growth of service industries through TD (Gebauer et al. 2021). Service organizations need to develop business models that can support operational innovations for digital servitization (Tronvoll et al. 2020). Digitalization contributes to the development and implementation of innovative business models (Hokkanen et al. 2021). IoT, cloud computing, and big data analytics, which are considered core technologies for digitization, provide service companies with capabilities to develop customer-oriented business models (Frank et al. 2019; Paiola and Gebauer 2020). Even manufacturing companies are shifting their primary focus from the products they offer to an ecosystem that integrates products with services to maximize customer value (Coreynen et al. 2020).

2.3 *Financial inclusion*

The concept of financial inclusion is the idea that individuals and companies have access to financial products and services that are safe, customer-oriented and provided in a rational and sustainable manner (Ciurlau & Florea, 2020). But financial inclusion is a much broader topic, which includes not only access to these services, but also issues related to financial education, quality of life, economic well-being and macroeconomic development of the economy.

Also, according to Sall & Burlea-Schiopoiu (2021), the need to re-evaluate educational frameworks to align them to the digital era is increasingly important, making investments in human capital more essential than ever. Financial inclusion is also promoted by leading institutions such as the World Bank and the International Monetary Fund as a development cooperation strategy (Sharma & Changkakati, 2022) and digital innovations are believed to promote higher levels of financial inclusion (Hasan et al. 2022). Additionally, it has encouraged all financial institutions to collaborate and communicate through digital platforms, redefining value added (Yıldırım & Erdil, 2023). Thus, the economic development of the country can also be assessed through the evaluation of digital services offered by banks, companies or state institutions (Hasan et al. 2022). Other authors believe that digital financial inclusion will lead to the development of the informal economy and also reduce poverty rates (Kelikume, 2021).

2.4 *Digital Wallet*

How is the digital wallet used as a strategy for financial inclusion in Colombian Mypes? One of these innovations is the use of electronic wallets, which allow carrying money and financial information digitally and securely on mobile devices. Although these wallets have advantages such as transaction security, ease of managing economic resources and simplicity of use, they also have disadvantages, such as dependence on mobile devices and the Internet. However, their use in business is constantly increasing, which increases their relevance (Gonzalo & Emanuel, 2023).

Digital banking largely uses as its backbone the existing regularizations of traditional banking, these rules are perfectly suited to processes and procedures eminently banking that then with the intervention of the digital part arises a complement that if regulated taking into account the needs of both the providers of this service, as well as users. (Colombia Fintech, 2021).

In this way, technology has been a great ally in human evolution, it has helped the adaptations of human beings gradually become less catastrophic, providing spaces and amenities that help to cope with the burden and facilitate the development of daily activities. Therefore, there are several regulations that are responsible for regulating the path of Colombian digital banking. According to the Financial Superintendency, in recent years various technological solutions have been implemented for the user to manage their products and use the services offered by these entities, so that they in turn are monitored and controlled in the same way that happens with traditional banking.

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Table 2. *Digital Banking Regulations*

Legal Basis	Article	Year
Political Constitution	Article 335 states that "the financial, stock market and insurance activity, to the extent that it involves the management, use and investment of funds, is an activity of public interest; for this reason, this type of activity may only be exercised with prior authorization from the State, in accordance with the conditions required by law".	1991

Political Constitution	Article 150 establishes that it is incumbent upon Congress to make laws, through which it exercises, among others, the function contained in paragraph d) of numeral 19: "To dictate the general norms, and to indicate in them the objectives and criteria to which the Government must be subject for the following purposes: 1. d) To regulate the financial, stock market, insurance and any other activity related to the management, use and investment of funds collected from the public".	1991
Law 1273	This legislation also involves the movements of the digital financial system in Colombia, as it covers digital banking, typifying computer crimes in Colombia, including infractions by and for electronic financial channels.	2009
Superfinanciera	External Circular 029, that the services to which the financial consumer accesses, using a mobile device, but through a web browser and without associating the service to the mobile line, are also considered by the circular as internet banking for all purposes.	2014
Law 1735	Specialized in electronic deposits and payments, this law promoted the inclusion of financial products such as steps, collections, drafts.	2014
Decree Number 1491 Superfinanciera	Promote financial inclusion through transactional financial products, such as transfers, payments, drafts and collections.	2015
Superfinanciera Circular 8	Which modifies in some aspects the provisions of the external circular 029 of 2014, such as the placement of encryption in transactions exceeding 2 SMMLV, and the need to have identification tools that provide security to users in conducting financial transactions.	2018

Source: Authors' construction (2025)

3. *Material and Method*

The present research was developed under a quantitative approach of an explanatory- descriptive type, whose purpose is to analyze andcharacterize andanalyze aphenomenonbased on the collection and analysis of numerical data. According to Hernández, Fernández and Baptista (2014), the quantitative approach is based on the objective measurement of variables, allowing the identification of patterns and relationships through statistical methods. In this sense, the study used structured techniques for the collection of information, ensuring the validity and reliability of the results obtained.

The techniques used to collect, prepare and analyze the data for this research are described below. Figure 1. Denote the process by means of a linear diagram.

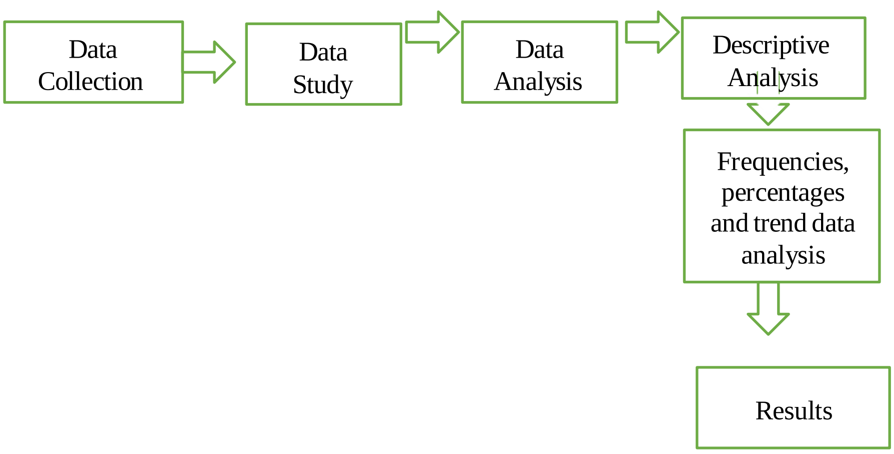

Figure 4. Outline of the research methodology.

Data collection.

Data were collected from various online resources that are publicly available and from some paid databases to ensure comprehensive reporting on digital and banking indicators. Online databases, the Google Doc website, were used as the base data sources of the older adult and other secondary data sources to meet our research objective, as they are reliable and up to date.

3.1 *Study of the data*.

After data collection, a careful review was performed to ensure accuracy and relevance to the research. Outliers or missing data were corrected for completeness. Data were organized in such a way that they could be used for further analysis.

3.2 *Data analysis*.

Microsoft Excel was used as the main tool for data analysis, along with the following method of analysis.

3.3 *Descriptive analysis*.

A descriptive statistics analysis was performed to describe and summarize the main characteristics and perspectives of the data collected.

To see historical patterns and trends in the data and changes over time, a trend analysis was performed using MS Excel 16.0. Different visualization techniques were used to present the trends in an efficient manner, which allowed identifying possible future developments and directions.

In addition to the situation, the list of relevant research variables in the transformation of digital banking focused on elderly customers was established in Table 3. These variables are organized.

Table 3. Variables

Variable	Characterization
Sociodemographics	*Age, Gender, Educational level, Area of residence.*

Technological	□ *Device access:* Availability of smartphones, tablets or computers. ✓ *Internet connectivity:* Internet quality and access in your region. ✓ *Digital literacy:* Level of basic technological skills. ✓ *Frequency of technology use:* How often they use digital devices.
Use of Banking Services	□ *Frequency of use of digital banking* ✓ *Types of services used* ✓ *Satisfaction with digital services* ✓ *Level of confidence in digital banking*
Barriers and Enabling Factors ✓ *Assistance received* ✓ *Training available*	□ *Perceived barriers*
Perceptions and Attitudes	□ Attitude towards technology ✓ Level of technological stress or anxiety ✓ Service expectations
Impact	□ Impact on financial inclusion ✓ Changes in financial habits ✓ Perception of independence

Source: Authors' construction (2025)

In this sense, the methodology used in the development of the research, as well as the techniques and instruments applied to the subjects within the context of the older generation that are part of the bank; regarding the paradigm that was taken into account in the study, it can be said that through the theoretical framework, a way of perception and understanding of electronic commerce in these businesses, these groups have a language, values, goals, norms and beliefs that are made from the quantitative approach that corresponds to the positivist scientific paradigm.

In accordance with the problem posed, and according to its objectives set out in this academic work, the authors consider that it fits the explanatory-descriptive typology alluded to by Hernández, Fernández and Baptista (2014) who argue the following:

Explanatory studies are normally carried out when the objective is to examine a topic where it is mandatory to establish research hypotheses that seek to determine the cause and effect elements of the phenomena of interest to the researcher. In this sense, digital banking plays a key role in the development of the Colombian economy, especially for elderly customers, since it helps to facilitate the circulation of money, allowing the articulation with the rest of the productive sector.

4. *Results and Discussion*

Next, in this section, we reveal the results of the construct, emphasizing the use of simple random sampling to identify and recruit participants, the adaptation to the face-to- face process to collect data and other necessary attributes, and the use of an approach that allowed the use of existing networks to engage the informant through Google docs. In that sense, we recruited a variety of older adults; these included those who were fully engaged in digital usage, but also found relevant findings of a nullity in the handling of technology. In this regard, digital banking encompasses a variety of banking tools and trends, but one thing is certain: digital banking is booming. The majority of account holders have used digital banking services in the last year, and more and more banks are offering new and innovative digital tools, from bill payment to commercial debt to new ways to purchase everyday items. Below are the results for each of the variables analyzed.

4.1 *Sociodemographic Variable*.

With respect to gender characterization, 52.5% were female and 47.5% were male; likewise, the socioeconomic level of low stratum was 73.3%, middle level 22.5% and high level 3.7%, as for the degree of primary schooling of thirty-three percent, high school of twenty-five point five percent, and twenty-seven point three percent professional degree, and three point seven percent illiterate; reasons for which, empirical studies have shown the presence of a digital divide not only in the demographic group of older people, but also in comparison with other age cohorts (Zhao et al., 2023). Research indicates that younger generations are often considered digital natives of the current era, possessing higher levels of digital literacy and the ability to quickly adopt and apply technological advances (Bongomin et al., 2024). In contrast, the process of interacting with digital technology by older people is often slower and more complex (Choudrie et al., 2018). While a segment of the older population actively adopts technology and readily uses information services, the majority, as digital immigrants, face challenges in adopting and using technology due to lack of broad exposure during their formative years (Wen et al., 2020).

On the other hand, traditional banks, those with a physical presence, remain the predominant financial institution where people maintain their primary bank accounts. However, their reach is decreasing Given the above, the age defined for the surveyed personnel was between 60 and 80, as Ehiedu et al, (2021) opine that age and education level significantly influence the adoption of electronic banking services by customers. Additionally, the socioeconomic level of the respondents were low and middle strata, this may influence the access and use that these older customers may have with digital banking. In addition to the above, their level of schooling, most of them primary and others secondary, and a few with technical level; which could influence not only the access but also the ease and understanding in the use of virtual banking.

In addition, in the consultation of the income level of these older adults, it was evidenced that 79% receive a current legal minimum wage (SMLV), 11% a salary and a half SMLV, 5% are earned 2 SMLV, and 5% 3.5 SMLV, it is worth noting that, Jami (2018) states that, it is often found that income is associated with sociodemographic factors such as gender, age, region, marital status, family size, education and occupation

4.2 *Variable use of banking services*.

The results of this variable show a clear preference for cooperatives over traditional banks. In particular, Crediservir Cooperative leads with 56.3% of users, followed by Bancolombia with 33.8%, which shows that customers find cooperatives a more attractive alternative, due to factors such as more competitive interest rates and trust in the cooperative model. However, a relevant fact is that 30% of those surveyed do not use any banking service, which shows a significant gap in the financial inclusion of the elderly. Regarding the frequency of use of banking facilities, the majority of users do not go regularly to physical branches, with 46% doing so occasionally and 19% rarely. Regarding financial products, 88.9% of users have a savings account, confirming that this is the most widespread banking service, while only 36.5% have a credit card. These results are key to analyzing the digital banking gap, as they show both the level of penetration of financial services and the habits and limitations of older customers in their access and use.

4.3 *Variable technologies*.

Access to and use of mobile technologies in the population analyzed is high, which represents a key factor in the transition to digital banking. Eighty-five percent of those surveyed say they have a smartphone or mobile device, suggesting that the technological infrastructure necessary for banking digitization is already present in the majority of customers of legal age. In addition, usage habits reflect a high frequency of interaction with these devices, as 72.6% of participants use them frequently, indicating that a significant portion of seniors have the necessary willingness and familiarity to interact with digital platforms. However, despite this accessibility and constant use, the perception on the total digitization of banking services is mixed. While 32.3% strongly agree and 19.4% agree with this transition, 30.6% remain undecided, evidencing some resistance or uncertainty regarding the elimination of physical branches and exclusive reliance on digital channels. This is mainly due to concerns about security, the ease of use of the platforms or the need for personalized assistance in certain banking procedures.

It was evident that the older generation is intent on starting and others on continuing to use digital banking platforms, where the transition from traditional to digital banking was inevitable: seniors wanted more convenience, easy access, 24/7 service and fewer trips to the bank. If this way as our population ages, there is great urgency to address the social disparities created by digital culture, stated Jones (2024) "A balanced system that combines physical banking services with efforts to improve digital inclusion could ensure that seniors are not left behind.

In this regard, the older generation considers that the services provided through digital platforms will be secure, which, the growth and development of technology in recent times and the increased use of digital platforms by companies have marked a new direction in the work and personal lives of workers and users (Fernández-Fernández et al.,2021). This digital turn has revolutionized consumer behavior and commercial exchanges, where e-commerce is at its peak. In this regard, the banking sector, it is worth noting how commercial banks and financial institutions have been implementing Internet e-banking services in the last decade.

However, digital banking does not involve direct contact with the older adult, so electronic banks must offer a higher quality of service in order to compete (Abreu et al., 2015). The aspirations and interests of banking customers in relation to service are expanding as technology advances and evolves (Shankar & Jebarajakirthy,2019). In this regard, security and speed of transactions, ease of use, trust and privacy issues are some of the main factors that older customers consider when choosing a bank (Hasandoust & Saravi, 2017). Therefore, e-privacy is understood as the degree of security of an electronic space and the protection of information provided to customers and more so to the older generation, ensuring that the data used is not shared or used for other purposes. In addition, ease of use is known as the degree to which understanding of the technology leads to adaptation of the innovative service/product by customers. Regarding trust, it can be defined as the belief that a party's word or promise is reliable and that a party will fulfill its obligations in an exchange relationship.

4.4 *Perceptions and attitudes variable*.

Regarding the perceptions of older adults about digital banking, 66.1% of those surveyed said that they use virtual banking, which indicates that a majority have integrated this service into their financial activities. However, the frequency of use varies significantly, since while 30.8% access virtual banking once a week and 26.9% once a month, 25% never use it, suggesting the existence of a digital divide within this group. Despite the fact that 80.7% consider virtual banking useful, only 35.66% fully agree with the convenience of avoiding traveling to a physical office, indicating that there is still a dependence on face-to-face service. As for the most used services, transfers lead with 71.2%, followed by payment of services with 34.6%, which shows that users prioritize basic and recurrent operations in the digital environment. However, the experience with digital banking is not without its difficulties. Some 30.8% of respondents report problems accessing banking applications, while 19.2% face difficulties in making transactions, which can generate frustration and affect trust in these services.

In this sense, older adults in this group of modest or non-users of technology may feel uncomfortable with the increasing digitization of society, as noted by Frydman et al. (2022), where they may also experience digital exclusion from tech-savvy people of all ages, including their digitally competent peers of the same age, but especially from younger people who are largely tech-savvy. Furthermore, according to Hargittai et al. (2019) this digital divide can be attributed to unequal technological access between populations and that older people often require more technological knowledge and resources to interact appropriately with technology. In that order, the gap increases the risk of precariousness in later life (Grenier et al., 2020), where there is greater uncertainty, insecurity, vulnerability, and risk among older adults (Colibaba, Skinner, & McCrillis, 2021).

4.5 *Variable Barriers and Enabling Factors*

Some 30.8% of those surveyed reported having problems accessing banking applications and another high percentage faced difficulties in carrying out transactions. This barrier is reflected in the need for support, as more than 70% stated that they need advice on how to use banking applications. Importantly, the majority of users (57.6%) prefer to receive help from family or close friends, while only 13.6% would opt for advice from bank staff, evidencing a trend towards learning in trusted circles. Among the main reasons for seeking help, general lack of knowledge about how digital banking works (62.7%) and lack of understanding of the applications' interface (40.7%) are the most relevant. These findings underscore the importance of developing educational and accompanying strategies to improve the experience of elderly customers, thus reducing the digital divide and encouraging greater autonomy in the use of virtual banking.

For older adults, unequal access to technology can create a sense of uncertainty and vulnerability regarding access to services (Frydman et al., 2022). For older adults, barriers such as lack of technology skills and limited desire to learn new skills can intensify the gap, especially when opportunities such as the use of digital technology as a means of social interaction can help bridge the generation gap.

Cognitive changes play an important role in the aging process (Yazdani-Darki et al. 2020). Physiologically, there is an age-related decline in fluid intelligence, which includes basic thought processes. Older people find it increasingly difficult to ignore irrelevant stimuli, cope with problems, or even comprehend complex issues (Seifert, 2022). Older people also need more time to process information and learn new things, especially when attention needs to be divided (Siebert and Schmidt, 2021). However, these fluid skills are necessary to solve complex tasks on a computer and to operate software applications (Seifert, 2022).

4.6 *Impact variable.*

The impact of digital banking on elderly customers reflects a mostly positive perception, although with certain nuances that show opportunities for improvement. Some 48.1% of those surveyed agree that the service provided by virtual platforms is adequate. This is due to aspects such as usability, availability of customer service or problem-solving capacity within the digital platforms. In terms of security, 66% of participants consider digital banking services to be secure, which indicates that trust in these channels has increased, but still leaves room for concerns about fraud, impersonation or technical difficulties. On the other hand, the use of mobile banking appears to be largely driven by necessity, with 19.2% of respondents indicating that they started using it due to specific requirements for a service or transaction. However, there is still a portion of the population that has not adopted these tools, indicating that the digital divide is still present. This suggests that, although banking digitalization has generated a positive impact in terms of accessibility and convenience, there are still challenges related to digital financial education and the adaptation of platforms to the needs of all users. To maximize the positive impact of digital banking, it would be essential to strengthen the user experience, ensure more accessible support and generate greater confidence in the security and functionality of these services.

With an increasingly aging population, the older generation has become essential to society. Improving the financial literacy of the elderly will help them to better manage their finances, increasing their sense of economic security and quality of life. At the same time, it is of great social importance to promote economic security, maintain social stability and optimize resource allocation. By analyzing the impact of financial literacy on consumption in elderly households, this study improves our understanding of the overall state of financial literacy among the current population. Thus, we provide information to predict trends in the development of social consumption in the context of population aging and offer theoretical references for applying the theory of financial education to consumption in the elderly.

The analysis of this research paper on the relationship between digitalization and banking indicators in the older generation reveals magnanimous information. The older generation has different relationships with digital technology. Some find themselves as frequent users of digital technology, interacting with online social and service opportunities for reasons such as value, usability, affordability, accessibility, support, independence, experience and trust. Others are thereby limited in technological use by factors such as lack of experience and knowledge, hesitancy to try new technologies, distrust of websites, and cognitive/physical impairment (Amber et al., 2023).

The present study's analysis of the older generation where they identified themselves as nonusers of digital technology (pre-pandemic) is a unique contribution to the literature, as most research on aging and digital literacy that began after the pandemic and post-pandemic began did not explicitly differentiate between participants who were always tech-savvy and those who became tech-savvy (or moved in that direction) during the post-pandemic.

In that order, the question of whether human needs can be satisfied through new media is no longer exclusive to the younger generations. And it is worth noting for trainers and future educators of digital and media competencies, this also applies increasingly to older people. The empirical section presents a number of examples, citing various e- services that can be integrated into non-formal education settings, such as universities for the elderly, senior clubs and non-governmental organizations. These initiatives aim to improve digital skills and ultimately improve quality of life.

In this regard, our research findings reveal that customer-centric efforts in the banking sector can improve overall customer satisfaction and trust by developing and strengthening the personal relationship with customers. In other words, understanding customers' needs and offering them personalized products builds trust in the bank and strengthens the bank-customer relationship. Trust in digital banking was found to be a function of perceived trust by older customers.

5. *Conclusions*

The study aimed to determine the digital banking gap and assess its benefits and challenges in attracting older customers. The findings provided insight into the mechanisms that older adults use to interact with banking, which are strongly influenced by social interaction. In this sense, word-of-mouth communication and peer-to-peer management among similar-aged peers were identified as key forms of social interaction that positively influence older adults' perceived usefulness of digital banking services. However, when these dynamics are not met, this group's participation in digital banking is directly affected. In addition, digital literacy was found to negatively moderate the positive effects of word-of-mouth and peer interaction on the perceived usefulness of mobile banking services. These results help explain how older adults with different levels of digital literacy interact with banking, especially mobile banking, under the influence of social interaction.

Likewise, the challenges faced by older adults in the adoption of digital banking related to the knowledge they may have of new technologies and this type of banking applications were identified, although there is a majority of older generation that use mobile devices and virtual banking, they stated that they needed help and advice to begin to know and manage this type of platforms, also ensuring that there are still doubts and distrust with the security that these platforms can provide them. Therefore, one of the strategies it provides is digital literacy as a mechanism for integration and inclusion of this population.

Thus, the study reveals the moderating role of digital literacy in the decision making of the older population. Significant digital literacy negatively moderates the positive correlation between social interaction and perceived usefulness of mobile banking services by older adults, as those with higher digital literacy have broader channels for obtaining information, stronger independent thinking, and more independent judgments about the usefulness of services.

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