Digitalization of Banking Processes and Adaptation for Elderly People

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***Abstract**. Digital banking can be used as a convenient way to work with finances, but elderly users often face barriers due to limited digital literacy, cognitive challenges, and unfamiliarity with technology. This paper explores how elderly individuals in Croatia engage with digital banking and how banks address their needs. Primary research includes two surveys: one targeting elderly users and the second one focused on banking professionals. Results show that while banks are aware of the challenges elderly customers face, such as password management, fraud concerns, and app navigation, few provide tailored services or educational support.*
Most elderly respondents actively use digital banking for tasks like checking balances and making payments, but many still rely on family support and lack confidence. The findings also highlight a demand for clearer instructions, simplified interfaces, and better assistance.
Secondary research reinforces the need for accessible design and targeted education. Global examples, such as Barclays' Digital Eagles and Bank of America's fraud education, show effective strategies for supporting elderly users.
This study concludes that improving digital banking access for the elderly is essential for financial inclusion and customer retention. Banks must invest in user-friendly design, personalized education, and dedicated support to bridge the digital divide.

Keywords. digital banking, elderly users, digital literacy, banking support services, digital divide, mobile banking, customer education, inclusive banking

1 Introduction

As digitalization continues to transform the banking industry, it offers users faster, more convenient, and cost-effective ways to manage their finances. However, not all demographic groups benefit equally from these advancements. Elderly individuals, in particular, often find themselves excluded or underserved in the digital banking landscape. In Croatia, as in many parts of the world, this group faces distinct challenges when interacting with online and mobile banking platforms. These challenges stem from a combination of limited digital literacy, cognitive and physical limitations, and a lack of familiarity or confidence with new technologies.

While digital banking has become the norm for younger generations, many older adults struggle with basic tasks such as navigating mobile apps, remembering complex passwords, or identifying fraudulent content. Even though they may be willing to engage with these services, they frequently require assistance from family members or caregivers, leading to a loss of financial independence. Moreover, the lack of tailored support and user-friendly design exacerbates these difficulties, making the experience frustrating or even inaccessible.

This study aims to shed light on the current digital banking experience of elderly users in Croatia and to examine how well banks recognize and respond to their needs. Through both primary and secondary research, the paper investigates the specific barriers faced by this demographic and identifies potential strategies to enhance their digital banking experience.

The paper is composed as follows. The second chapter provides an overview of the relevant literature. The third chapter describes the methodology, including both secondary and primary research. In the fourth chapter, the results of the primary research are presented. The final chapter explores directions for future work and provides the conclusion.

2 Literature Review

Mobile banking enables customers to access their banking information and perform different services like making payments, checking their balance, or checking stock exchange transactions (Tam & Oliveira, 2017).

While mobile banking provides many advantages and an easy-to-use approach, one segment that struggles with the complexity of the Internet and digital features is the elderly. They often do not see the benefits of mobile banking services and are not eager to use them. Additionally, because of their age, the elderly's ability to process and learn new skills is lower

than capable of it. The elderly are still motivated to learn new skills to be able to handle mobile banking, but there is a lack of resources available for them (Castillo-Villar & Castillo-Villar, 2023).

The research conducted by Pejic Bach et al. (2023) confirmed that to help the elderly adapt to Internet services, it is necessary to provide workshops and sessions where the elderly can enhance their digital skills. Moreover, the research suggests that the opinions of family members and close friends impact the elderly's use of the Internet and motivation to learn more about it (Pejić Bach et al., 2023).

Another factor to consider is the time the elderly need to acquire skills related to Internet services. The research suggests that the elderly are better off with practical knowledge that enables them to learn from mistakes. Asking questions also helps the elderly to learn, so being patient is important when showing them new features (Mubarak & Suomi, 2022).

One study showed that the elderly are more likely to use mobile devices and computers if they have a higher education or live with a partner (Petr Balog et al., 2022). Furthermore, when comparing Croatian citizens with American citizens, it was found that American citizens are using digital technologies significantly more than Croatians (Petr Balog et al., 2022).

3 Methodology

The research uses both research methods, combining primary and secondary data. Primary data was collected through two surveys: one targeting bank professionals in Croatia to assess how they address the digital needs of elderly customers, and another directed at elderly individuals to understand their experiences with digital banking. The surveys included both quantitative and qualitative questions to gather insights on challenges, confidence levels, support systems, and usage patterns. Secondary data was gathered through a review of academic literature, industry reports, and case studies, focusing on digital inclusion, accessibility, and best practices in elderly-friendly banking services. This approach provided a comprehensive view of both user experiences and institutional responses.

3.1 Secondary Research

The term that best describes the gap between the elderly's usage of digital banking services is the digital divide. Because of their possibilities access to information and communication technologies, they are less able to access digital banking services. When looking at age as a demographic factor, together with constantly developing digital banking services, there is a gap that is not taken into consideration. Many elderly people have difficulties with eyesight and do not have the skills that enable them to navigate these complex processes. The fact that banks are having fewer physical branches and more online services does not benefit the elderly (Georgieva, 2018).

It is essential to improve current digital banking processes and make the elderly more inclusive in the area of digital banking. One reason for this is to provide the elderly with financial independence. Many elderly people have health difficulties or live in areas that are not close to the physical banks. Additionally, improving the services and educating the elderly can also be beneficial for banks, as the elderly are a significant customer segment. Some important factors to consider include retirement fund management, medical expenses, and money transfers. There are several challenges for the elderly when using digital banking services. The obvious ones include eyesight, interface difficulties such as small text size, multiple steps to execute an order, and complex navigation. Another challenge for the elderly is the security concerns. These include phishing scams and online fraud (Khurshid, 2025).

Research by Gatsou, Politis, and Zevgolis (2017) discovered that the key problems for the elderly are small fonts, small abstract icons, symbols, the need for excessive scrolling, small buttons, difficulties in finding one's location on the site, and cluttered interfaces.

To overcome these challenges, the same research suggests inserting more space between sections, employing larger fonts for headers, reducing the usage of scrolling menus, highlighting clickable and non-clickable features, and providing feedback (Gatsou et al., 2017).

Traditional banks are closing their physical branches more and more, which is especially seen in rural areas. The Bank of Spain revealed that out of 43,000 banks in 2010, just 18,556 were left in 2022. Besides that, the number of employees is lowering, as many services can be done online. Banks need to adjust their processes to fit the different segments they serve, as otherwise, they can become less efficient, profitable, and effective (GDS Link, 2023).

The elderly should try to learn the basics of online banking, choose a user-friendly bank, learn continuously, utilize customer support, and stay updated with features and trends.

One of the top NGOs in India, NIIT Foundation, provides digital training for the elderly, and some topics that are covered include basic computer skills, internet usage, online safety, and usage of digital tools and applications (NIIT Foundation, 2024). Having programs offered to the elderly, such as the one provided by the NIIT Foundation, is essential to make the elderly an inclusive part of the digital banking society.

Bank of America provides resources for the elderly to assist them in navigating digital financial services. Their focus is especially set to provide the elderly with knowledge on recognizing scams, frauds, and setting

up the right security system. They can name a trusted contact or set up a joint account to help them better handle the digital banking services (Bank of America, n.d.).

Another bank that educates the elderly about digital financial services is Barclays through its Digital Eagles program. The elderly are provided with informal conversations while learning digital skills and free modules focused on internet basics and digital safety (Barclays, 2020).

3.2 Primary Research

The primary research consists of two surveys that were conducted among respondents regarding Technology Usage in Banking for the Elderly, and Banking Support for Elderly Customers in Digital Technology.

The survey that was conducted, "Banking Support for Elderly Customers in Digital Technology," studies the approach of international banks in Croatia to the digital banking needs of elderly customers. The findings revealed a gap between the implemented practices aimed at the elderly and awareness of digital services. The data show some measures targeted toward the elderly population, but there is still room for improvement.

4 Results of Primary Research

A strong majority (62.5%) stated that their banks are "very aware" of the difficulties elderly users face when using digital banking tools.

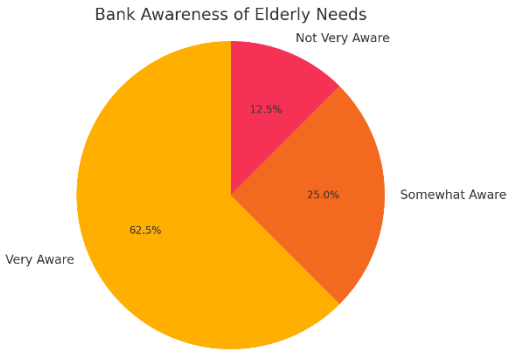

Figure 1. Percentage of bank professionals reporting awareness levels of elderly users' digital banking challenges.

These challenges include remembering passwords (62.5%), concerns about fraud or scams (75%), and navigating apps or websites (50%).

Moreover, only 25% of respondents indicated that their banks consider elderly customers a distinct category in the structure of digital banking services. 37.5% admitted that while the bank does not currently make such considerations for different categories, they plan to change their approach. Another 37.5% reported that their banks do not consider elderly customers separately at all. This disconnection between awareness and segmentation suggests that elderly users are not fully integrated into the digital banking services structure.

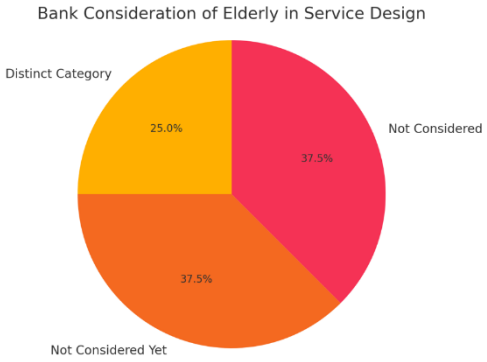

Figure 2. Extent to which banks incorporate elderly users as a distinct group in the design of digital banking services.

Regarding tailored solutions for elderly customers, only 12.5% of respondents stated that their bank has developed digital banking services targeted at elderly customers. On the other side, 25% indicated that only minor adjustments have been made to improve the usage, and 37.5% stated that their institutions treat all users the same regardless of age. Educational programs follow a similar pattern: 50% of respondents noted that their banks do not offer any educational programs specifically for elderly customers, while only 12.5% confirmed regular educational programs.

In terms of support offerings, the most commonly provided support is printed user guides tailored for elderly users, available in 85.7% of cases. Other types of support, such as in-branch workshops, online tutorials, and dedicated customer service hotlines, are less common. Additionally, most banks (75%) address security concerns generally rather than with tailored solutions for elderly customers, potentially leaving this group inadequately protected.

Feedback collection practices are also lacking. Only 12.5% of banks have regular surveys or feedback channels where the elderly population could express their opinions. Most institutions either collect feedback generally or do not collect it. This indicates the inability of elderly users to respond based on their needs and wants.

Planned improvements over the next year include an increased in-branch support for digital banking (62.5%) and digital literacy programs (37.5%), showing some forward improvement. However, the importance of improving elderly digital access is mixed: only 37.5% of respondents consider it a "very important" goal, while an equal percentage reported that it is "not a priority."

The second analysis surveys responses from elderly participants in Croatia, examining their engagement and usage with digital banking services. The data reveals that many elderly individuals are actively using digital banking tools, but barriers related to design, accessibility, and confidence exist.

Demographics show that the majority of respondents are aged between 56–60 (43.9%), followed by 66–70 (14.6%), and 76+ (17.1%). There were 43 participants in the survey. A large proportion of participants reside in urban centers, with 41.5% from Zagreb. The question was designed to ask participants where they live, in terms of country or city, to gather information on whether our participants reside more in urban or rural areas.

In terms of education, respondents are diverse: 28.6% completed elementary school, 23.8% higher education (faculty level), and 16.7% hold master's degrees. This spread reflects a range of digital literacy levels, which directly impacts comfort and ability with online banking.

Regarding device usage, 70% use smartphones to access digital banking services, followed by 20% on tablets and 10% on computers. However, several respondents stated they do not use digital devices at all, instead relying on in-person banking. This indicates a clear digital divide, where a portion of the elderly population remains excluded from online financial services.

Most users (87.5%) use digital banking to check account balances, and 82.5% make payments or transfers. This shows active usage among those who are digitally engaged. However, 30% report needing help, which is usually from family members, to perform banking tasks, while 60% do not require assistance. This reliance on informal support from close members shows a lack of support and education from banks.

In terms of confidence, 51.2% feel "very confident," but nearly 42% report partial or no confidence. Moreover, 51.2% also encounter problems "occasionally" or "very often," especially with app navigation, remembering PINs, and concerns about security.

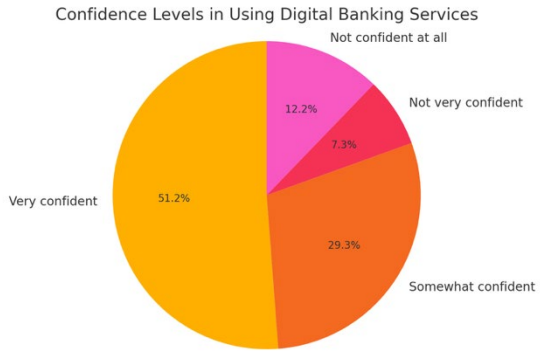

Figure 3. Percentage of elderly users reporting their confidence levels when using digital banking services.

A majority (53.7%) feel that digital banking services are only "somewhat" designed with elderly users in mind, and 29.2% believe they are "not really" or "not at all" elderly-friendly. This shapes the perception that current digital banking platforms lack inclusive design features.

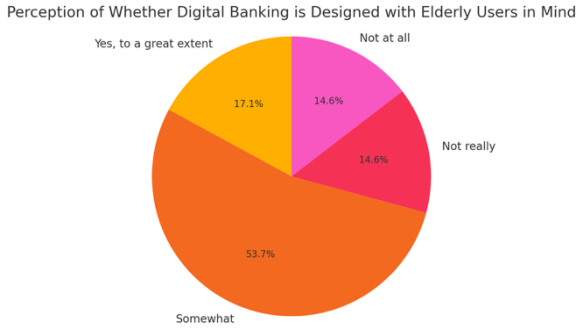

Figure 4. Percentage of elderly users who believe digital banking services are designed with their needs in mind.

When asked about desired improvements, respondents suggested clearer language, virtual assistants, fewer security steps, and simplified tutorials. Additionally, 80.6% said they would be "very likely" to use digital banking more often if it were easier to navigate, demonstrating strong potential for increased adoption if appropriate accessibility measures are implemented.

Finally, when asked about preferred forms of support, the most popular options were phone support (36.8%) and printed guides (31.6%), rather than online tutorials.

5 Limitations and Future Research

This research lacks respondents from the banking sector, as many banks that were asked to participate in the survey declined to do so. The reasons for non-participation differ, but the most common ones include not having the right to fill in or not wanting to reveal the practices of the bank. This impacted the research process as a lack of participants from the bank prevented an adequate amount of data for the analysis. On the other side, this also reflects the current banks' perception and attitudes towards sharing the data regarding the practices they have directed towards the elderly in digital banking services. The future research could reflect more participants from banks or interviews with banks to get more specific data and analysis in the field of banking support for elderly customers in digital technology.

6 Conclusions

In conclusion, this paper reveals that elderly users face barriers when using digital banking services because of limited skills, security concerns, and a lack of inclusivity in the design of these services. Some of the challenges the elderly also face include navigating difficulties on the interfaces, remembering passwords, and general rules not intended for the elderly. While some banks are aware of the challenges that the elderly face, not all implement adequate measures and provide resources. Many banks provide general feedback collection and educational materials that do not benefit the elderly population. The elderly also mostly rely on the help of their family members or close friends, which should also change to make them more confident when using digital banking services. The elderly mostly use digital banking services for checking account balances, making payments, and money transfers. Therefore, it is essential to provide elderly users with adequate education and support because banks will also benefit from having an additional category of customers.

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