



e -Banking during the Covid-19 Pandemic:
Between the Need and the Ability of Banks and
Customers

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Abstract. *The COVID-19 pandemic has disrupted ways in which businesses and individuals communicate and function in the European Union (EU). Mobility restrictions and lockdowns produced new challenges for people and companies in all industries, including the banking sector. Suddenly accessing a bank from a distance has become a problem as not all customers are used to digital banking. Retail banks had to build suitable digital paths for customers in order to expand the range of self-service options available online, while not risking their operational resilience. Although technology can make it easier to reach customers, there are still obstacles to empower them to use digital tools in their interaction with banks. In addition, banks had to ensure strong security controls and also had to prepare for new customer authentication requirements stipulated by the revised EU Directive on payment services entering into force in January 2021. This research is guided by the ideals of an open society and looks at the technology which is used to serve the interests of people and address human needs. The research looks at the context, practice and implications learned from the banks' service-to-customers context during the COVID-19 pandemic. The research finds not only that many people in the EU don't have internet access at home and that they also don't have necessary digital skills to be able to do online banking but also that the commercial interests of banks may not always complement the needs of their customers.*

Keywords: *Digital Skills, Banking, Customers, Technology, Social Context, COVID-19 Pandemic*

1. Introduction

Technology is changing the way businesses operate and deliver products and services to consumers in many sectors (Hernandez-Murillo *et al*, 2008). With internet access people can shop online, make and receive payments and pay utility bills. It has been acknowledged that technology should be analyzed within the social context and its impact on people's way of life, their community, their culture, economic and health effects, as well as the gender and age-related implications (Russel, Vanclay and Aslin, 2012). Digitalization has helped customers by facilitating cashless transactions at any place and time and from the comfort of home. There are considerable advantages of electronic banking (OECD, 2020) because digital channels make it possible to have communication with customers without the need to visit the bank. The adoption of new digital technologies in banking in recent years grew considerably (Saeidipour *et al*, 2013). The global COVID-19 pandemic has accelerated the use of digital technology even more (McKinsey and Company, 2020). However, not all customers want to use e-banking and they are reluctant to adopt mobile banking for a number of reasons, including cultural and social reasons (Merhi, Hone and Tarhini, 2019). The needs of technological development in social context and the ability to use technology during the epidemic of COVID-19 show that the year 2020 was not easy for banks and neither for their customers. From a consumer's perspective technology solutions as a response to the COVID-19 and internet banking implies having access to internet. Access to internet is a prerequisite for the adoption of internet banking (Kerum, 2003). In addition to internet access, new technology in banks, based on ever-evolving innovative technologies, also means that consumers should have the necessary skills to be able to use them (Georgieva, 2019).

In addition to the pandemic-related requirements in 2020, banks also had to act and prepare for the implementation of the EU's revised Directive on Payment Services that came into force as of January of 2021. That directive aims at enhancing consumer protection when shopping online, improving the security of payment services within the EU. In line with this - so-called- second Payment Services Directive (Directive (EU) 2015/2366, informally called "PSD2" Directive), all online payments by credit card need to have an additional layer of

security implying stronger customer authentication. This new layer of security in online payments aims to protect the rights of consumers and to limit liability in the event of fraudulent use of cards.

This research focuses on issues of online banking based on the methodology that builds on existing economic sociology approaches that aim to explain the role of other sciences in society (Edelman and Stryker, 2005). The research investigates the technological and social context with a focus on the need for digital banking services and, on the other hand, the customer's ability to use them during the COVID-19 pandemic. In line with this framework, the emphasis is on those who are less likely to use internet, are more at risk if visiting a bank branch and therefore are more likely to be excluded from digital banking. The COVID-19 pandemic put an additional layer between the banks and their customers, the layer of physical distance. This has had an impact on the need and the ability of customers that had to access banking services from a distance, online. This research looks at data in this respect and finds that there is still a significant gap across the EU. The research sheds new light on the availability of access to internet throughout the EU and the ability of people, considering their digital skills, to use technology, to interact with banks via internet in these exceptional times.

2. Data and Research Methodology

2.1 Data

This research was carried out in the end of 2020 and beginning of 2021. Data from EU institutions about online banking has been rather limited, especially in regard to the attitudes of the customers during the COVID-19 pandemic. There was no relevant survey from the European Commission, European Central Bank (ECB) nor from the European Banking Authority (EBA) as of 31 December 2020. However, some surveys about the approach to banking from a consumer viewpoint that were carried out by the financial and consulting industry, the PWC, KPMG, Bain & Company, Deloitte, Bank Director and others were used in this research. Similarly, information from other sources were analyzed, such as Age UK (UK) ANBO (Netherlands) and iCT4Elderly (Malta). In March 2021, the EBA published its Report with the latest information on the banking industry in the EU. The Report contains a section on COVID-19 that identifies the issues that have arisen as a result of the pandemic. They were analyzed in this research.

Since it is not only customers' attitude that determines their approach to banks and online banking, but their capability to do e-banking as well, this research looks at the data about internet access and digital skills of people in the EU. These data are available in the Eurostat's database based on the survey on information and communication technologies (ICT) use in households and by individuals (Eurostat's Community Survey) The Eurostat's survey for 2019 had – in regard to internet connectivity – two questions. The first one was:

“A1. Do you or anyone in your household have access to the internet at home?
(by any device)”

The second question in module A of the ICT survey was

“A2. What types of internet connections are used at home? (*tick all that apply*)

Broadband connections

- a) Fixed broadband connections, e.g. DSL, ADSL, VDSL, cable, optical fibre, satellite, public Wi-Fi connections
- b) Mobile broadband connections (via mobile phone network, at least 3G, e.g. UMTS, using (SIM) card or USB key, mobile phone or smart phone as modem)”

2.2 Research Methodology

This research is not about online¹ banking in virtual-only-online banks; this research looks at traditional retail banks where people go to deposit cash, ask for a loan and ask about mortgage, because they prefer an in-person experience. However, these banks also provide online services, called e-banking, as an integral part of banking. According to the Bank for International Settlements (BIS), e-banking is an extension of traditional banking, where banks' products and services are delivered to customers via the internet that is used as an electronic delivery channel (BIS, 2003). Have banks been prepared for a COVID-19 pandemic and such challenging times in terms of their functionalities available to customers? And are banks' customers equipped for the new "digital era" so that they can use new technology solutions in their interactions with the banks? Do customers have internet access at all?

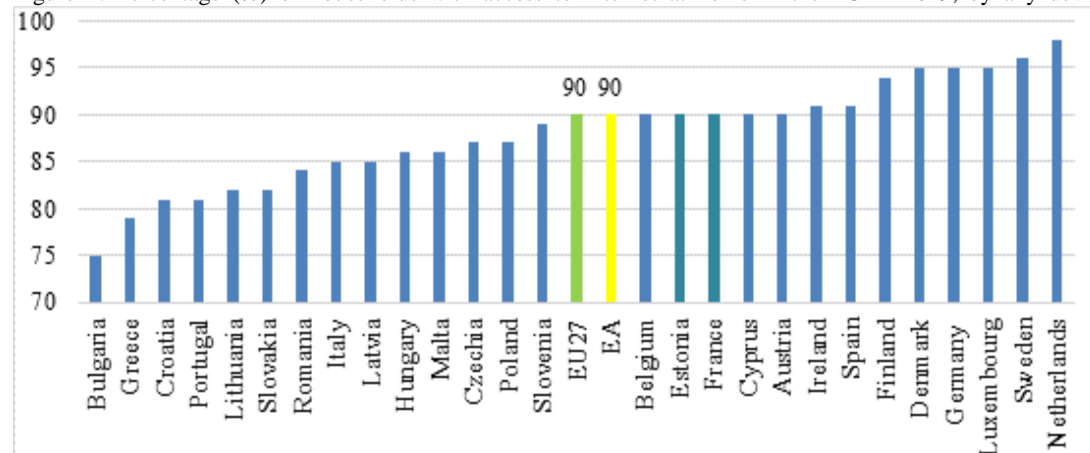
To answer these questions this research employs quantitative research methodology. It consists of online research of banks and their websites, analysis of surveys by the financial and tech industry, consumer watchdogs and data analysis based on database at the European statistical office, Eurostat. All Eurostat data used in this research are as of 1st January 2021, last updated on 14th October 2020. In addition, the research also looks at an example of a bank in an EU country. This example relates to the accessibility issues during the epidemic as the research looks at new customers' authentication requirements in line with the specific provisions of the EU Directive on Payment Services that entered into force in January 2021. The example of an EU bank focuses on how to approach banking services in order to apply authentication requirements during the physical accessibility restrictions due to the COVID-19 pandemic.

3. Problems

3.1 Banks

In recent years, banking has become increasingly digital. In the context of COVID-19 pandemic, the digital grew even more as banks had to make necessary changes because of the restrictions to in-branch banking services to customers. Many banking services were moved online (EBA, 2021). However, to be able to go online, consumers have to have access to internet and the problem is that not all in the EU have internet access at home (Figure 1).

Figure 1: Percentage (%) of households with access to internet at home in the EU in 2019, by any device²



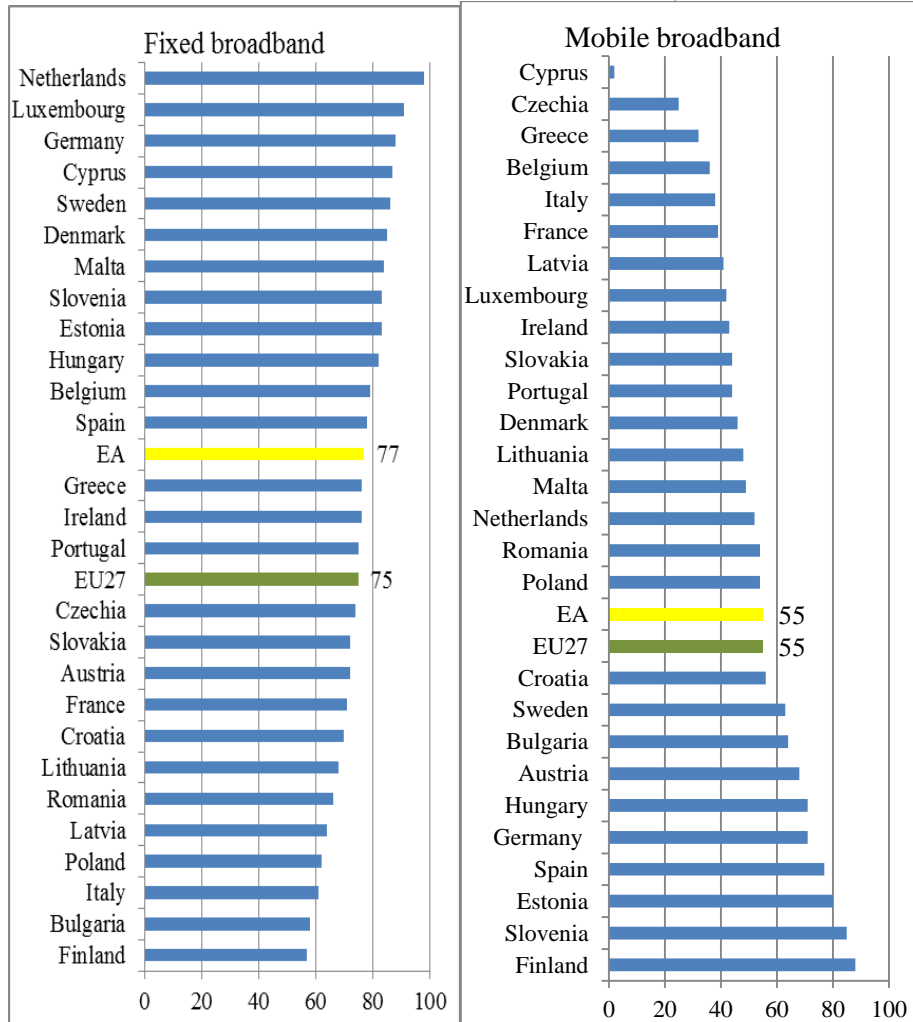
Source: Author's compilation of data from the Eurostat, 2020

¹ "Online banking", "digital banking", "internet banking", "electronic banking" and "e-banking" are used interchangeably in this paper. Online banking is an integrated part of banking services available online (through the internet) by retail banks.

² The term "by any device" includes a desktop computer, laptop, telephone, tablet, mobile smartphone etc.

There is also a difference in the uptake of fixed vs mobile broadband at home (Figure 2) across the EU. In terms of digital banking services, there has been an increase of contactless payments and the pandemic has accelerated the “digitalization” of many other financial services in the banking sector (EBA, 2021).

Figure 2: Percentage (%) of households with access to internet at home in the EU in 2019, by any device. Fixed broadband left, mobile broadband right.



Data source: Authors’s compilation of data from the Eurostat’s database, 2020

The interest in online banking services as a result of COVID-19 grew considerably (EBA, 2021) which put strains on banks’ operational resilience (McKinsey and Company, 2020). The Bank for International Settlements (BIS) defines operational resilience “as the ability of a bank to deliver critical operations through disruption. This ability enables a bank to identify and protect itself from threats and potential failures, respond and adapt to, as well as recover and learn from disruptive events in order to minimize their impact on the delivery of critical operations through disruption” (BIS, 2021, p.7).

Information systems, personnel and facilities were affected by pandemic-related disruptions as more customers turned to internet and e-banking which strained the banks’ support infrastructure. Since both, banks and consumers shifted their attitudes to a more digital approach, banks had to expand the range of service options available to customers online (EBA, 2021). Banks had to adapt their operations and information technology solutions so as to act in line with the pandemic-related measures (BIS, 2021), and in addition that they had to expand the range of self-service options available to customers online, they had to ensure robust security controls so that new customer functionalities were not jeopardized (EBA, 2021). The application of technology to financial services has been

beneficial to banks and their customers, although the increased use of technology presents new risks (BIS, 2021). In regard to restrictions due to COVID-19, banks had to also prepare for robust security controls to account for new customer functionalities as there has been a significant increase in online applications (Deloitte, 2020; EBA, 2021) for consumer loans, many applying online for the first time. Consumer loans are typically less complex than mortgages, and the amount of the average loan is lower, and so these services are easier to process digitally. However, banks don't typically process loans quickly, although it depends on a type of a loan and other specifics. Before the COVID-19 pandemic, bank systems had not been designed to process loan requests on an expedited basis (Deloitte, 2020)

A good customer service team has always been vital for any retail bank and a bank typically has trained staff in order to be able to provide assistance to people (Chang, 2003). Banks have responded to constant market changes by adopting different types of delivery channel strategies. These have been influenced by customer banking tastes and preferences, increasing competition from non-bank financial institutions, shifting demographic and social trends, government (de)regulation of financial services and technological innovation and development (EBA, 2020). The automatic teller machine (ATM), telephone banking and internet banking are examples of how the banking service industry evolved in the last decades. Banking has seen huge innovations in recent years due to the technology adoption (Chang, 2003). The major change comes from digital disruption of the sector and standards of service that new competitors can provide. Customers have new service expectations in terms of user-friendliness of the interface and transparency (OECD, 2020). Since there is a growing internet and smart device coverage, more and more customers are accessible in an online world.

In addition to a surge of all sorts of customers-to-banks new needs and inquiries, banks in the EU had also to prepare for the provisions of the PSD2 directive that were to enter into force on 1st January 2021. In accordance with Article 95 (3) of Directive (EU) 2015/2366 on payment services in the internal market (PSD2), the European Banking Authority (EBA) issued (EBA, 2020) Guidelines for the purpose of the managing operational and security risks. The aim of these guidelines has been to ensure that payment service providers have in place appropriate security measures such as an effective operational and security risk management framework, processes that detect, prevent and monitor potential security breaches and threats, risk assessment procedures and processes to raise awareness to payment service users on security risks and risk-mitigating actions. For a customer this means an additional layer of security when purchasing goods or services online as PSD2 Directive requires payment service providers to apply strong customer authentication for electronic payment transactions. Consumers are better protected against fraud and other abuses and payment incidents.

In comparison to traditional in-branch banking, digitalization of financial services brings new risks and threats, including the risk of misuse of personal financial data and cyber-crime (ECB,2020). Cyber-attacks may result in loss of availability of financial services for consumer, and loss of consumer data, leading to harmful outcomes. In this respect, during the lockdowns in the pandemic, there has been reported an increased volume of cyber-attacks (ECB, 2020). Criminal cyber activity, including fraud and phishing attacks, have increased (ECB, 2020) as more employees work remotely.

There have also been other concerns for banks. With many economies experiencing a potentially extended sluggish economic growth, banks may need to explore ways to enhance customer wellness assessments (EBA, 2020). Some banks are turning to intelligent automation to support these processes as they have a difficult task of balancing the traditional approach to risk management with the need to respond quickly to a crisis that has created massive changes to their operating environment. With the shift of services to the digital space, retail banks' traditional business models are under significant pressure. The most significant factor is managing the balance between technology and manual intervention, and how this changes the industry for both businesses and consumers under exceptional circumstances (EBA, 2021).

3.2 Customers

There has been a rapid digitalisation in online banking in the last decade. The EBA published its Consumer Trends Report in 2020 that sees 2017 as an important milestone because in 2017 more than half of EU inhabitants were already using online banking (EBA, 2020a). In 2007 that figure was 25%. EBA also found that paper-based transactions continued to decrease, whereas payments with electronic money was growing consistently each year. Online payment is particularly used by 25- to 34-year-olds as 68% of this age group frequently use this facility. According to EBA Report, the main relevant issues related to this trend are security requirements associated with new payment services and solutions and transparency of fees and charges (EBA, 2020a).

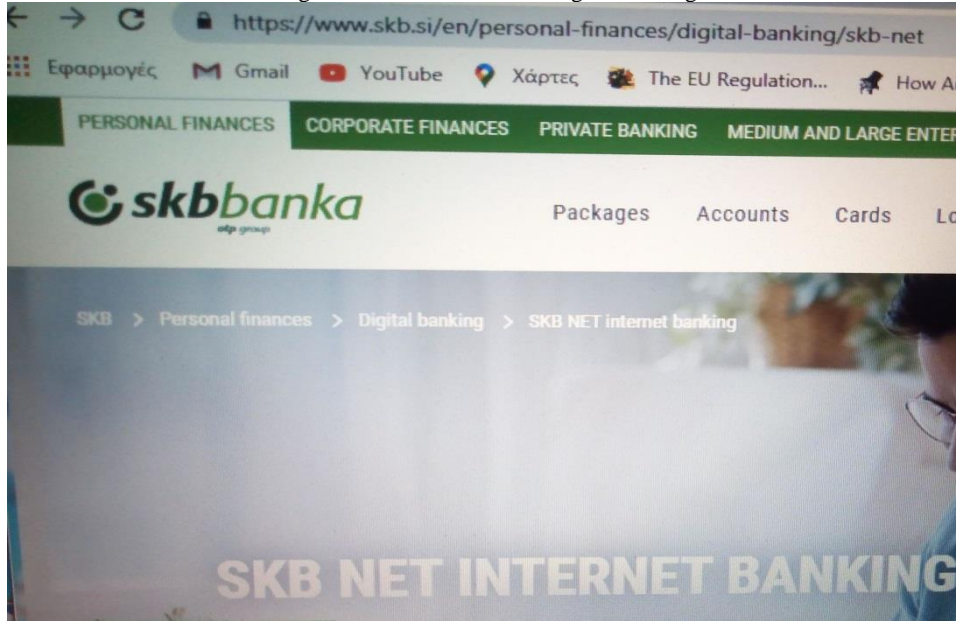
Even before the pandemic, the internet use of bank services was already rising (Eurostat, 2020). Before the pandemic the barriers that negatively affected the adoption or use of online banking (Lichtenstein and Williamson, 2006) were the perceived risk/confidentiality and perceptions of its complexity. On the other hand, customers satisfied with online banking were more likely to continue to use online services and to recommend the service to others. Younger consumers are generally more open to new technologies (Lichtenstein and Williamson, 2006).

According to the PWC report (2020), COVID-19 has lead consumers to be more interested in digital channels because 27% of those surveyed said the pandemic had made them more likely to use their bank's services online. Similarly, a survey from Deloitte (2020) found that turning from in-branch to online services was high, particularly in regard to obtaining information about banking products. First online applications for consumer loans also increased, although some customers said that they would return to in-branch solutions once the crisis was over.

Regardless of how many bank customers were using online banking before and whether they were using it just for some services or whether they were unconvinced about the need for online banking, the COVID-19 pandemic has certainly changed their attitude about online banking (Deloitte, 2020), although the most relevant topics for customers stayed the same. Those topics are transparency, the disclosure of pre-contractual information and changes to contractual terms and conditions; commissions and fees; indebtedness; poor creditworthiness assessment; financial education; cybersecurity; and the cross-border selling of products and services (EBA, 2020).

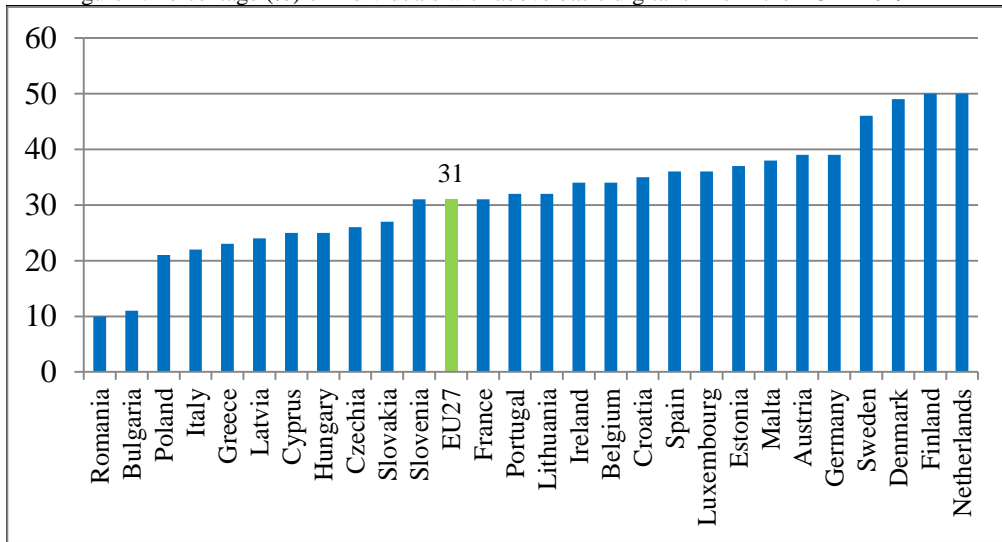
The adoption of internet banking by consumers typically depends on a number of factors such as cost, awareness, demographic characteristics and accessibility of internet (Saeidipour *et al*, 2013) The main problem for customers who avoided online banking before is that the pandemic made in-branch payments difficult, so the option to make payments online became necessary. However, not all people in the EU have internet access at home and not all people use internet, with elderly people using internet to a much smaller extent than younger population. In addition, there is a small share of those who have above basic digital skills. The EU average in this respect was 31% in 2019 (Figure 4). More than one third of EU countries were below the EU average in 2019 in terms of digital skills. In regard to this, it has been established that the more digitally and financially literate people are, the more like it is that they would use internet banking (Andreou and Anyfantaki, 2019) which has been available at most retail banks, including at the bank explored as an example in this research (Figure 3).

Figure 3. Personal finances: digital banking



Source: Author's screenshot of SKB website

Figure 4. Percentage (%) of individuals with above basic digital skills in the EU in 2019

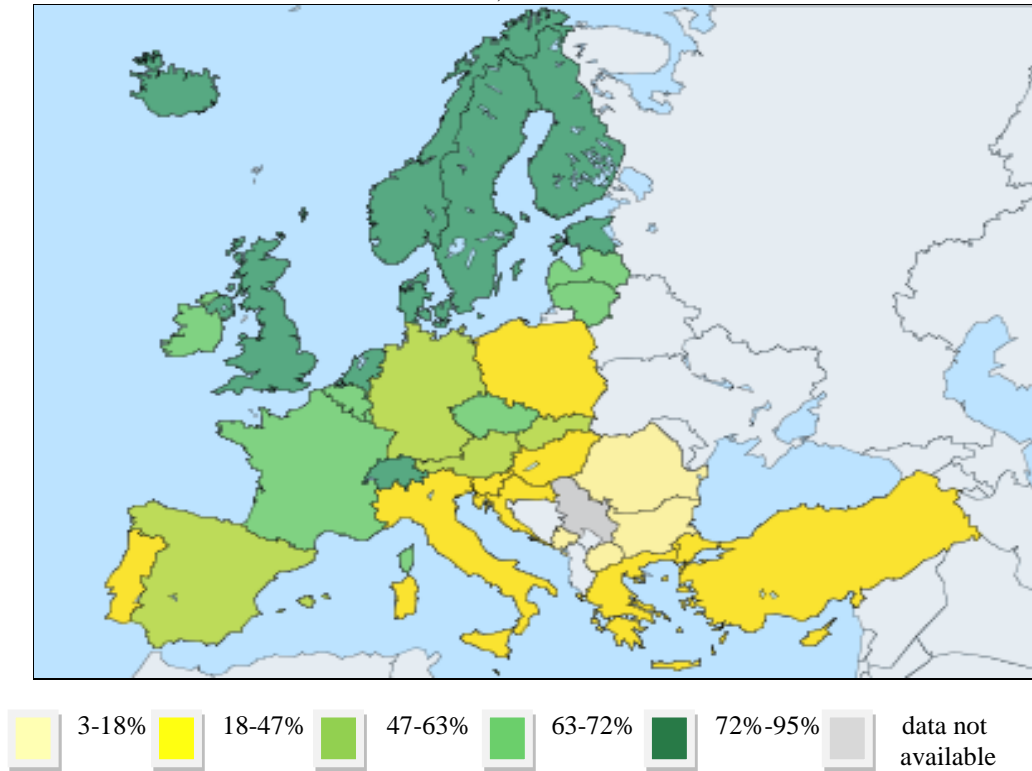


Source: Author's data compilation of data from the Eurostat's databases, 2020

Figure 4 and 5 show the level of internet banking across countries in 2019 in the last 3 months before the survey. The level of internet banking is consistent with figures on access to internet (Figure 1 and Figure 2) and with figures on digital skills (Figure 4), showing that internet banking before the COVID-19 was prevalent in the northern Europe compared to east and south Europe (Figure 5 and Figure 6).

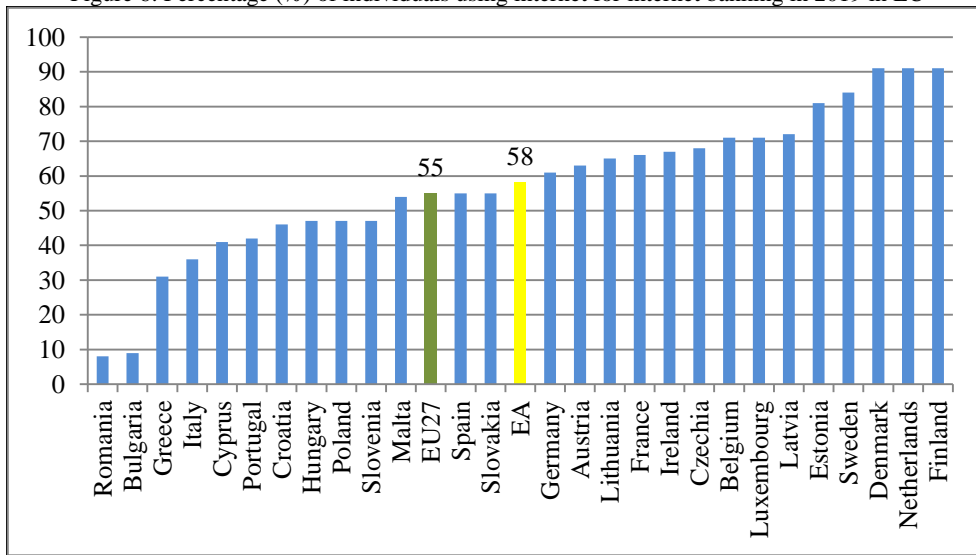
Similarly, the percentage of individuals who took a loan or arranged credit from banks or other financial providers over the internet in 2018 and 2019 was higher in northern European countries Sweden, Finland, Estonia and Denmark (Figure 7).

Figure 5: Map of Europe with percentage of individuals using internet for internet banking in 2019 in EU, EEA and candidate countries



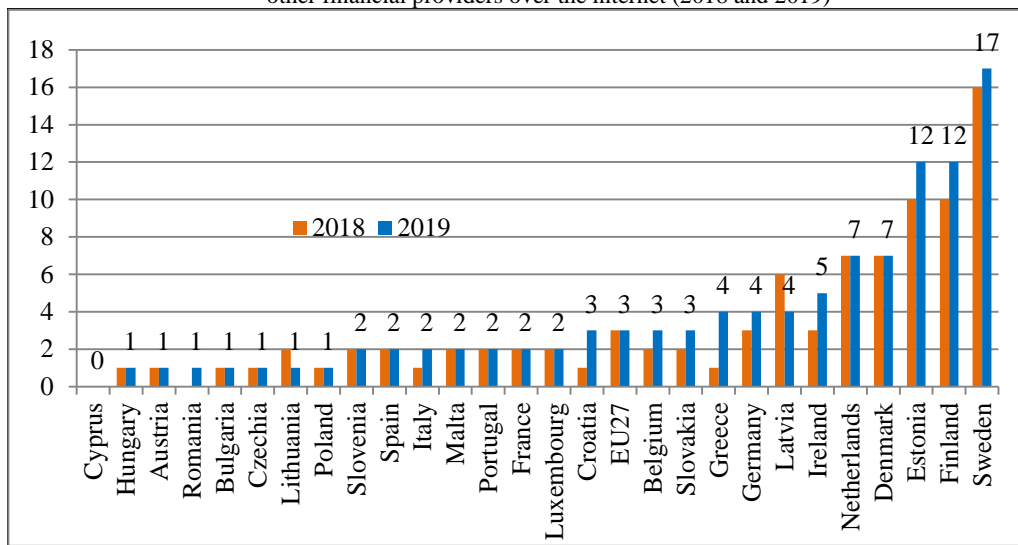
Source: Scanned image from Eurostat's report on its website as of end of 2020

Figure 6: Percentage (%) of individuals using internet for internet banking in 2019 in EU



Source: Author's compilation of data from the Eurostat, 2020

Figure 7: Percentage (%) of individuals who took a loan or arranged credit from banks or other financial providers over the internet (2018 and 2019)



Source: Author's compilation of data from the Eurostat, 2020

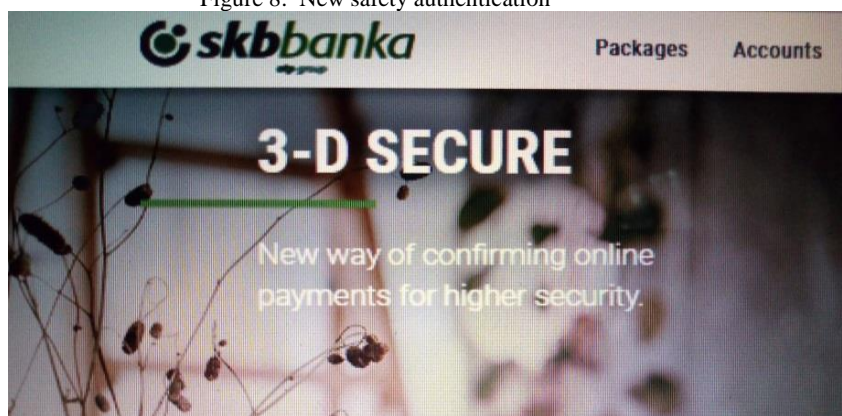
4. Solutions

4.1 Banks

Banks have a responsibility to ensure everyone, regardless of their age or ability can manage at least their basic finances themselves. This is about designing websites so that vulnerable and older people can use them with ease. A bank-to-customer service is about making customers satisfied with banks' services so that they become more loyal, use products more, and cost less to serve. In-person services are still valued by many people, especially those who don't like or are reluctant to use online banking (Age UK, 2021). In the context of COVID-19 pandemic, customers in distress can be additionally served by banks by enhancing support in the use of digital tools and new products and services (Deloitte, 2020). Traditional retail banks have made online services available to customers as a part of retail banking before the pandemic. In bank branches customers can solve their questions with the help of branch employees and can use payment devices to pay for bills. The pandemic has given the retail banks an opportunity to develop their online services, reduce costs and improve the customer experience. Banks that had already invested time and resources in online services before the COVID-19 crisis have been able to acquire valuable experience in online interactions with customers over recent months. That has enabled them to turn that experience into improving existing products, developing new products, more choice and an improved user-experience (Deloitte, 2020).

The main solution for retail banks in the unexpected situations like the COVID-19 pandemic is to reconfigure their operation system and focus on digitalization of the banks-to-customers processes. Customers still needed some services such as loans, something they would typically do in-branch. To apply for a loan electronically, customers would need access to internet at home and they would need more than just basic digital skills to do some things online, while banks would have to approve those loans online. Further, if the customer is an elderly person, banks should provide priority hours in a local branch when it is less crowded. In addition, banks should ensure dedicated phone lines to assist elderly and vulnerable customers. To meet customer expectations in exceptional circumstances like the pandemic, banks not only need to be available at a time and provide a place that is convenient for customers, but also to provide consistency and continuity across the different channels their customers value and want to use (Figure 8).

Figure 8: New safety authentication



Source: Author's screenshot of SKB website

The solution for banks is to invest more in information technology. The pandemic has already pushed banks to accelerate digitalization and to improve security (Ernst and Young, 2020). The COVID-19 crisis has forced banks to further rethink digital tools and processes in order to compensate for branch and office closures and reduced open-hours. Because of the reliance on technology for e-banking, operational risk is one of the more significant risks. To limit it, banks might further focus on implementing a technology infrastructure that can facilitate interoperability, ensure security, integrity and availability of data and support the management (BIS, 2021). It's also about education. Banks offer these new online services, but they also have to have a strategy about how do to make these new online services understandable and accessible to vulnerable, especially older clients. Banks have to consider how to communicate this to older and other vulnerable clients so that they can do their online banking themselves and don't rely on friends and family to do that for them. Banks have to think about customers and how to help them to use digital tools more and, whenever it is possible, to teach them about financial and digital implications when they make relevant decisions.

4.2 Customers

There is an understanding (EBA, 2020a) about the need to improve digital and financial education of people because of the increasingly complex financial choices that citizens must make. Another issue is that digital services may incur lower fees to customers than in-person customer services.

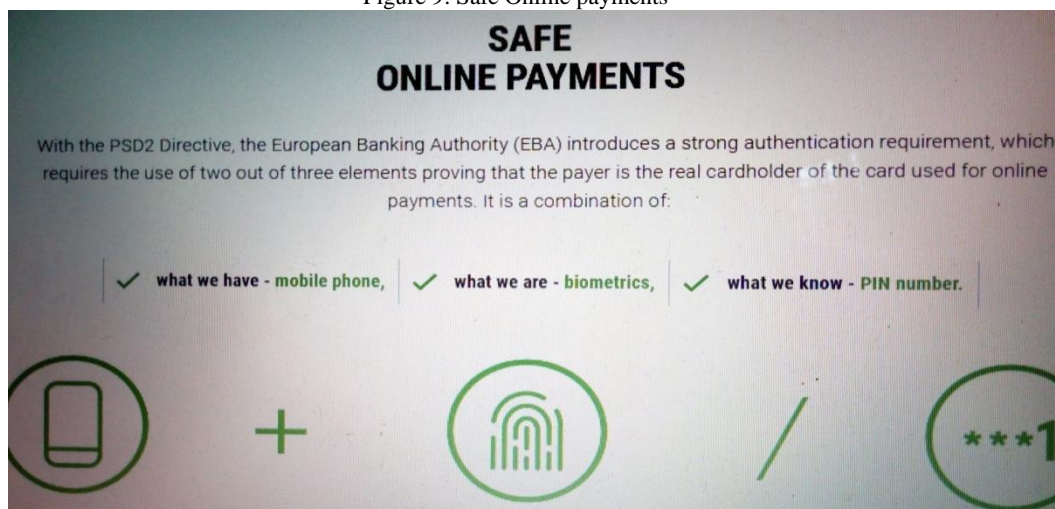
The more digitally and financially literate people are, the more likely it is that they would use internet banking (Andreou and Anyfantaki, 2019). According to the European Banking Authority (EBA)'s report in 2019, the most relevant issues in regard to customers were low level of financial education, as well as the need for targeted education in relation to the new providers and complex services and tools used in the financial market. EBA found that financial institutions should provide consumers with appropriate information that is adjusted to their needs and financial situation. Regarding financial literacy and education, the most relevant issue is a specific need for "digital financial education". Concerning the low level of financial and economic knowledge among the general population, there is inadequate financial literacy and difficulty in comprehending how certain financial products work. The report finds that customers are not sufficiently equipped with the minimum knowledge they need to have in order to take informed financial decisions, especially the elderly.

However, an awareness about that has been growing in some countries of the EU. For instance, in Malta, iCT4Elderly (2021) will be running one of the first digital skills online workshops for the elderly. A part of the workshop is focusing on online banking.

An example explored in this research is the SKB banka in Slovenia, the EU. Before the PSD2 Directive was enforced as of January 2021 it was easy to buy goods and services

online. The customer of a bank did not have to use e-banking and could buy goods and services online without any specific application. All that a customer needed to purchase goods and services online was a bank card. When buying online the customer entered the bank card's information into the required fields of the trader's or goods and services provider's website. That was all that was required. But the new Directive that supposedly brought higher security (Figure 9) changed that and brought new requirements.

Figure 9: Safe Online payments



Source: Author's screenshot of SKB website on safe online payments

Although the SKB bank states that for "Safe online payments" one of the requirements is that you have a mobile phone, it is not just a simple mobile phone that is needed, it is a smart mobile phone with access to internet that is needed. However, the question is if a customer with basic digital skills who has not been using e-banking until the COVID-19 pandemic and was used to in-branch visits only, would be able to activate this new requirements online (Figure 8) on SKB Banka's website without any assistance. This type of activation online would typically require more than basic digital skills. If a customer does not have sufficient digital skills to do this online, the only solution is a visit to the bank, where bank staff can help with that. However, if a customer was held abroad at the end of 2020 –due to the COVID-19 pandemic travel restrictions- and could not travel to Slovenia and could therefore not visit the SKB banka's branch in person, the customer was advised by the bank that from 1st of February 2021 it would be possible to do this "registration" and "authentication" online. Therefore, for a bank's customer who was not physically present in Slovenia and could not go to the bank's branch to ask for assistance with these new authentication requirements, it was not possible to do any online purchase from 31 December 2020 to 1 February 2021.

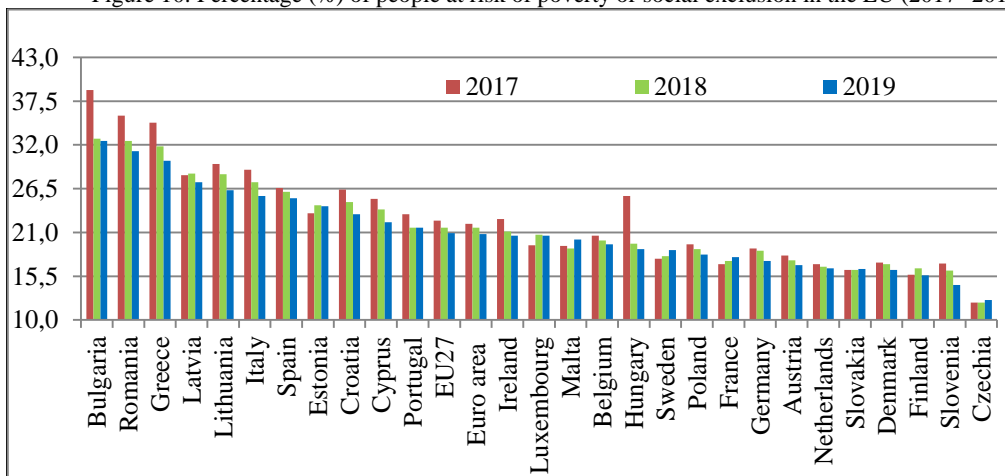
Keeping up with advancements of digital technologies is an issue for many people, especially the elderly (Georgieva, 2019). People who are poorer, elderly, pensioners on low incomes or those who live in rural areas cannot always afford smartphones or computers to switch to online banking. As bank branches close and ATM machines become scarce, these people might be left behind. That shouldn't be underestimated because older population who are currently using internet banking, will probably stop it when they reach a certain age and start having trouble processing information while their eyesight and other basic skills deteriorate. That is a process of aging and it is not just a matter of using and understanding new technology.

Banks can make an effort to know their customers better and care about the information they have already shared, especially now when they are going digital. It is even better if the bank provides an easy-to-use mobile application to customers who are expecting more advice and help from their bank. For banks to remain customers' trusted advisor, they should focus on continuous excellent customer service and investing in digital offering and exploring services beyond traditional banking. Many customers value personal contact and this gives

retail banks an opportunity to stand out, particularly among customers who remain unconvinced by online banking. Alternatively, chatbots can become more prevalent when interact with customers. The conversion from in-branch to online services can be stronger when it comes to obtaining information about banking products. Customers can do that online by browsing the banks' website and access additional information online while accessing their account.

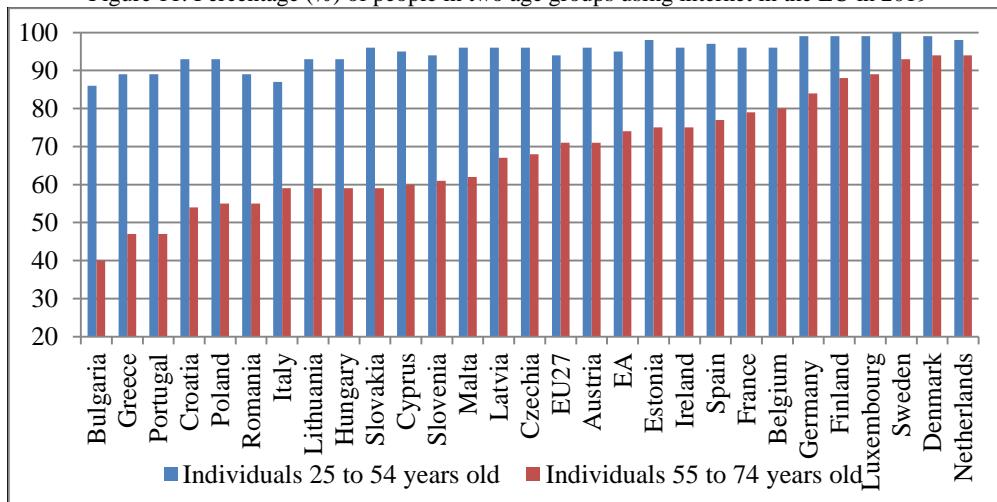
They may lack financial literacy and have a poor understanding of terms and conditions in the contracts entered into by consumers. Customers need not only to access the information but also to be able to understand it. Customers need to be able to understand the offers they get and how new innovative financial products and services work so that contracts regarding financial services that are being subscribed in an increasingly complex digital environment, can be understood. Therefore specific form of education should be considered, with a focus on the new digital environment. Limited understanding of new business models, including unclear contracts and unclear data use can be resolved by financial literacy and education, especially for vulnerable customers. The most vulnerable customers who may need the most help, attention and specific targeted programs are the elderly as they have also been the most-at risk in the COVID-19 pandemic. For the elderly people the lockdown rules and various distance requirements were typically even more strict compared to the rest of the population. Therefore for the elderly the issue of going to the bank has become a serious problem. Data from the Eurostat show that people of 55 years and over are much less likely to use internet than people in other age groups (Figure 11).

Figure 10: Percentage (%) of people at risk of poverty or social exclusion in the EU (2017- 2019)



Source: Author's compilation of data from Eurostat's database, 2020

Figure 11: Percentage (%) of people in two age groups using internet in the EU in 2019



Source: Author's compilation of data from Eurostat's database, 2020

According to the Eurostat data, there is a considerable variation across the EU, but on average more than 90% of people used internet in 2019 in the age group of 25-54 years, while only 70% on average use internet in the age group 55-74 years of age. In this group less than 50% use internet in Bulgaria, Greece and Portugal (Figure 11). Some scholars (Georgieva, 2019) have found that not having the right experience with the use of online banking was a significant factor for older people not to favour online banking as they identified online banking as confusing and complicated.

In addition to the digital divide in terms of access to internet and digital skills, affecting some groups of the population more, there are many people at risk of poverty or social exclusion (Figure 10), which makes it difficult for them to become digitally and financially literate. About one fifth of population in the EU on average were at risk of poverty or social exclusion in 2019, and this share has likely increased in 2020 due to the pandemic. Even if banks develop websites or specific portals that provide information to consumers on financial products and services and the related innovations, as well as recommendations and tips for personal finance, that is not helpful for those who do not have access to internet at home or who do not have adequate digital skills to do online banking by themselves.

According to ANBO, an organization for the elderly, one in 10 seniors in the Netherlands do not use online banking services because they think it's unsafe (Tellerreport News, 2019). Some of those who don't use online banking would not be persuaded to start even if help was offered. Almost all respondents said they think the possibility to pay cash should always be an option.

The solution could be to have specific educational programmes targeting vulnerable customers to teach them about the functioning of the banking system, and specifically about online banking. Consumers are obviously not prepared for new solutions based on innovative technologies and so there is a need for financial education with a digital focus. The development of digital skills is an important part of building resilience to economic and social shocks like the COVID-19 outbreak.

It is not just about education, it is also about making people feel at ease. Older people like bank branches because for them the personal contact is crucial because if they have a problem, they want to talk it through with an expert. As branches close more because of digitalization and other reasons, banks should increase its number of financial coaches to help the vulnerable, especially their elderly customers.

5. Conclusion

Technology has played a significant role in the development of the banking sector. Banks are likely to invest more in information technology to improve the digitalization and make more and better digital services available to their customers. However, banks cannot be responsible if customers do not have access to internet. It is the responsibility of governments to make internet cheaper, faster and more available in rural and mountainous regions. Banks are also not responsible for digital skills of the population in the EU as that is a wider policy issue. Nevertheless, banks can provide adequate explanations of the products and services offered to customers to enable them to assess whether these products and services are appropriate for their needs and financial situation and how to do relevant online banking.

Digital operational resilience in the banking sector has held up good under the exceptional conditions created by the COVID-19 pandemic. One of the reasons is that digital transformation processes in banks required to keep up with societal changes have already been underway before the pandemic. However, the question is if all customers are capable to follow the latest technology tools used in the ever-changing banking sector. This analysis finds that many in the EU do not have access to internet and that there is a significant gap between digital skills and online banking in southern Europe compared to northern Europe. Further, those who are most vulnerable in the COVID-19 pandemic are also those who are less likely to use internet and have more concerns to use online banking and be at higher risk

of poverty and social exclusion. Banks can do more to reach out to older customers and reassure them about the use of banking services and make it easier for them to use new online technology.

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