



## Online Banking and Information Technology During the Covid-19 Pandemic: Between the Need and the Ability

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# Online Banking and Information Technology during the Covid-19 Pandemic: Between the Need and the Ability

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**Abstract** The COVID-19 global 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 companies in all industries, including the banking sector. 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 looks at the context, practice and lessons learned from the banks-service-to-customers' point of view during the COVID-19 pandemic. The research finds that many people in the EU don't have internet access nor digital skills to be able to do online banking. More has to be done to prepare customers to use new innovative technologies when dealing with their banks.

**Keywords:** digital skills, online banking, COVID-19 pandemic

## 1 Introduction

Technology is changing the way businesses operate and deliver products and services to consumers in many sectors, including banks [1]. With internet access we can shop online, make and receive payments and pay utility bills. Digitalization has benefitted customers by facilitating cashless transactions at any place and time and from the comfort of home. There are considerable advantages of electronic banking [2] 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 [3] and it has been a fact [4] that the global COVID-19 pandemic has accelerated the use of digital technology even more. That was not just because of those who had to work from home or because of a surge in e-government and e-commerce, there has also been a surge in online banking in traditional banks. The year 2020 was not easy for banks. Not only that banks' revenue fell due to the economic standstill, banks had to quickly adapt their operations and information technology solutions so as to act in line with the pandemic-related measures. Banks had to expand the range of self-service options available to customers online

while ensuring robust security controls so that new customer functionalities were not jeopardized. The last, but not least, banks needed their customers to be able to adapt to all these changes. Technology solutions as a response to the COVID-19 outbreak and more internet banking means, from the consumer's perspective, that they have access to internet. Access to internet is a prerequisite for adoption of internet banking [5]. New solutions in banks, based on ever-evolving new innovative technologies, also imply that consumers should have the skills to be able to use them.

In addition, in 2020 banks had to prepare for the implementation of provisions 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 [6] (PSD2), 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 explores if people in the EU have the means and are equipped for the new 'digital era' so that they can use new technology solutions in their interactions with the banks under such exceptional circumstances as the COVID-19 pandemic. The finding is that there is still a significant gap across the EU in that respect.

## 2 Data and Research

Data from EU institutions about online banking is rather limited in regard to the customers' behavior during the COVID-19 pandemic. There hasn't been any relevant survey from the EU, European Central Bank (ECB) nor from the European Banking Authority (EBA) as of 31 December 2020. However, some surveys about customers' approach to banking during the pandemic have been carried out by the financial industry. Some of them aimed to explore the attitude of customers in relation to their experience with banks during the pandemic. This analysis looks at surveys from PWC [7], KPMG [8], Bain & company[9], Deloitte[10] and Bank Director[11]. The aim of analyzing these surveys is to explore what customers worldwide could do and what they expected during the pandemic in terms of banking services, besides banks' flexibility about customers' loans and other finance-related expectations.

Since it is not only customers' attitude that determines their approach to banks and online banking, but their capability to use banks' services online 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.[12] 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)”

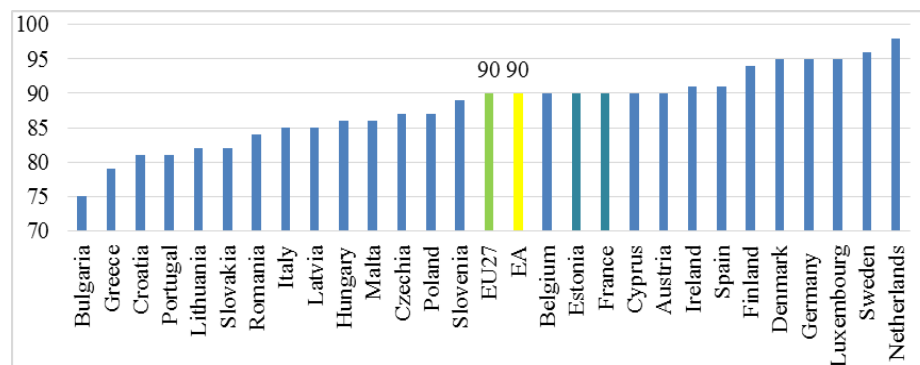
This research is not about online banking [13] in virtual-only-online banks; this research looks at traditional banks that have online services available to their customers. In other words, the research looks at traditional retail banks where people go to deposit cash, ask for a loan and inquire about mortgage, because they prefer an in-person experience. However, these banks also provide online services to customers as an integral part of banking. Online services were available to customers before the pandemic but the pandemic has accelerated the use of online banking and has also changed customers’ expectations of banking[14] to some extent.

The research methodology is mixed and is based on literature review, online research of banks’ websites, research of the surveys by financial industry and EU institutions and analysis of data available at the European statistical body, the Eurostat. The statistical analysis of data looks at online banking through the lenses of customers’ needs due to the COVID-19 outbreak, and on the other hand, it looks at data through the window of availability of access to internet and ability of people and their digital skills to use technology solutions in their interactions with banks.

### 3 Problems

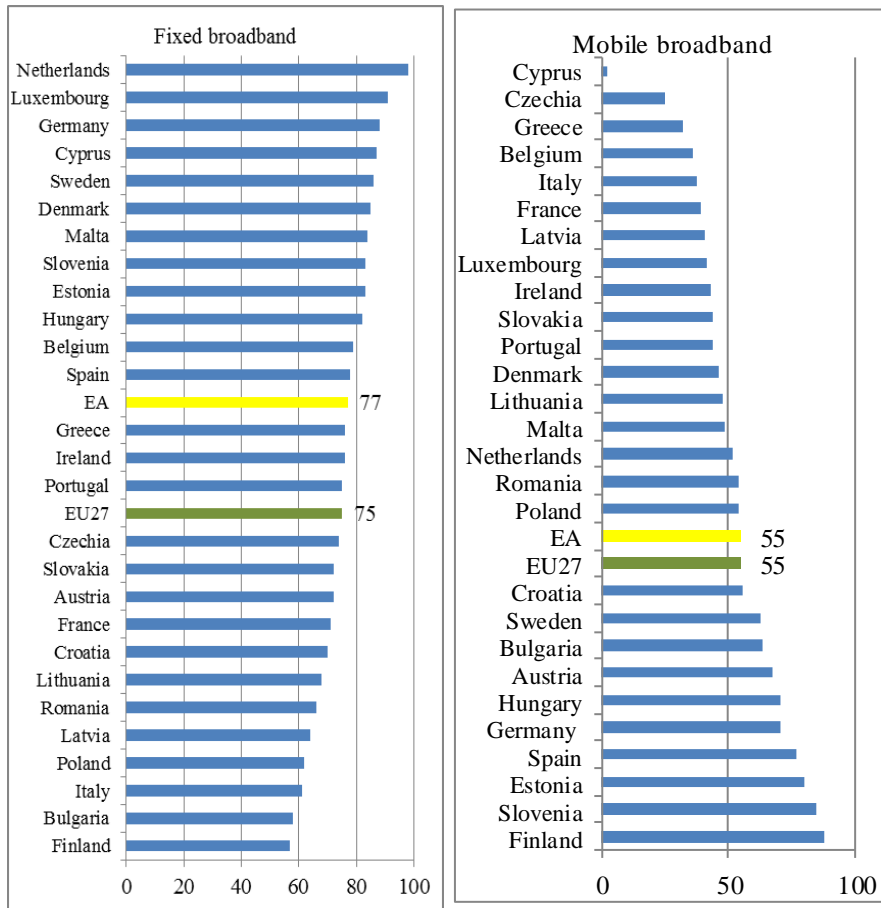
#### 3.1 Banks

Countries most affected by the COVID-19 pandemic have a significant drop in economic activity, a rise in unemployment and falling consumer spending. A drop in economic activity has been challenging for all economic sectors and companies, not just for the management of banks. A long-term shutdown of large parts of the economy is always risky for banks, because people are suddenly facing difficulties dealing with the bank and repaying their loans due to the economic contraction and the overall rise in unemployment.



**Fig.1:** Percentage (%) of households with access to internet at home [15] in the EU in 2019, by any device [16]. Data source: Eurostat, 2020

The second issue for banks is, as surveys from PWC, American Bankers Association and KPMG show, that for some customers who avoided online banking before, the pandemic changed that. As in-branch banking payments became difficult, the option to make payments online appeared more appealing. As a result, the interest in online banking services grew considerably. The increasing interest in online services put strains on banks' operational resilience.[17] However, to be able to go online, consumers have to have access to internet. However, not all in the EU have internet access at home as data from Eurostat show (Figure 1) and there is a difference in the uptake of fixed vs mobile broadband (Figure 2a, b). The EU average in terms of access to internet in 2019 was 90%, but more than half of countries had less than EU average (Figure 1). The Eurostat's data on internet access is based on the Eurostat's survey [18] on usage of ICT in households and by individuals.[19]



**Fig. 2a and Fig.2b:** Percentage (%) of households with access to internet at home [20] in the EU in 2019, by any device. Fixed broadband left (a), mobile broadband right (b). Data source: Eurostat

Another issue for banks is related to the operational systems of banks as more customers turned to internet, that is e-banking. A sudden surge in customers' inquiries and a rise in demands to do online banking, strained the banks' support infrastructure. Further, due to lockdowns, banks also had to expand the range of service options available to customers online. 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[21] 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. Banks don't typically process loans quickly. Before the COVID-19 pandemic, bank systems had not been designed to process loan requests on an expedited basis.

In the past, a good customer service team was vital for any retail bank. The bank typically had trained staff in order to be able to provide assistance to people. The 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. The automatic teller machine (ATM), telephone banking and internet banking are examples of how the banking service industry evolved. Banking has seen huge innovations in recent years due to the technology adoption.[22] The major change comes from digital disruption of the sector and standards of service that new competitors can provide while customers have new service expectations in terms of user-friendliness of the interface and transparency. [23] Since there is a growing internet and smart device coverage, more and more customers are accessible in the online 'world'. Even before the pandemic, the internet use of bank services was already rising with more than half of European population using online banking.[24] Before the pandemic the barriers that negatively affected the adoption or use of online banking[25] 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 [26].

According to the PWC report[27] of June 2020, COVID-19 has lead consumers to be more interested in digital channels as 27% of those surveyed said the pandemic had made them more likely to use their bank's services online. Similarly, a survey from Deloitte [28] 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. The banks, such as Erste Bank, said that they have "advantaged the electronic banking and made it possible for clients to apply and active relevant services from the safety of their homes"[29] The COVID-19 has accelerated that process because customers decided to skip on services if they required physical visits to the bank[30]. Banks had to quickly come up with improved and/or new information technology solutions.

In addition to the surge of all sorts of customers-to-banks new needs and inquiries, banks in the EU had to prepare for the implementation of 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 [31] 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 that directive 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 [32]. 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[33]. Criminal cyber activity, including fraud and phishing attacks, have increased [34] as more employees work remotely.

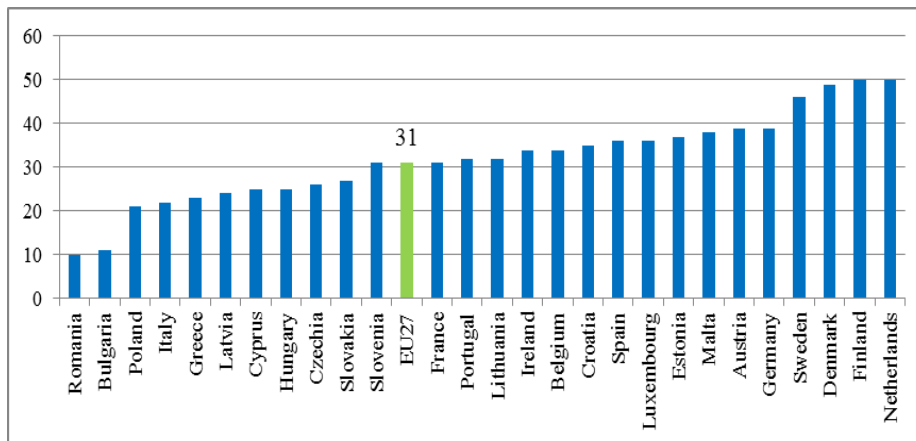
There have been also other concerns for banks. With many economies experiencing a potentially extended recessionary period, banks may need to explore ways to enhance customer wellness assessments. Banks may turn to intelligent automation to support these processes as they have a difficult task of balancing 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 such as COVID-19.

### **3.2 Customers**

The EBA published its Consumer Trends Report [35] in 2019. The report sees 2017 as an important milestone because in 2017 more than half of EU inhabitants were already using online banking. According to EBA that figure was only 25% in 2007. Online payment is particularly popular among 25- to 34-year-olds as 68% of this age group frequently uses this facility. EBA also found that paper-based transactions continued to decrease, whereas payments with electronic money was growing consistently each year. According to the EBA, the main relevant issues related to this trend are security requirements associated with new payment services and solutions and transparency of fees and charges[36].

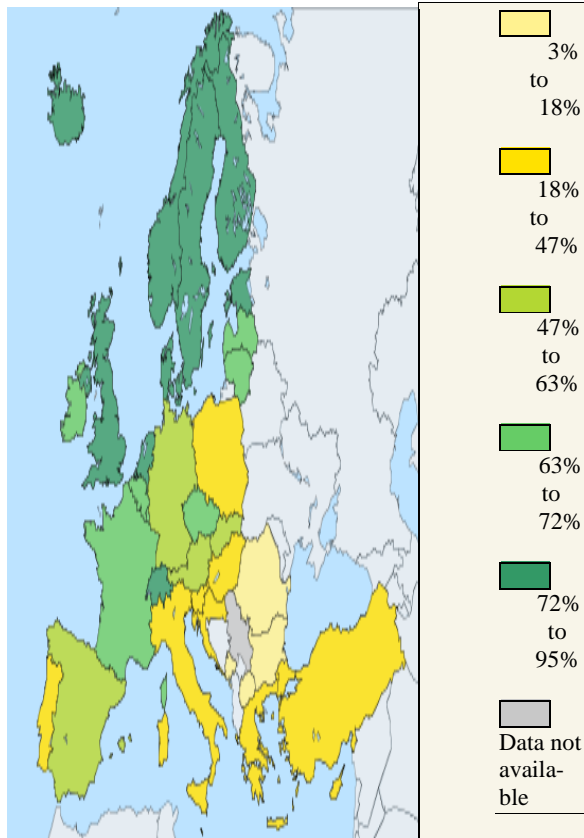
Regardless of how many bank customers were using online banking before and whether they were using it just for some services or whether they were unconvinced about the need for online banking, the COVID-19 pandemic has certainly changed their attitude about online banking [37], however the most relevant 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. The adoption of internet banking by consumers typically depends on a number of factors such as cost, awareness, demographic characteristics and accessibility of internet.[38] 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 more attractive. However, not all people in the EU have internet access at home (Fig. 1) and not all people use internet (Fig. 8), 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 that respect was 31% in 2019 (Fig. 3). 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.[39] Data from Eurostat show that people in Southern Europe are not only less connected to internet at home and have a higher share of below basic digital skills, they also do less internet banking. Internet banking in this survey by the Eurostat (Fig. 4 and Fig. 5) means electronic transactions with a bank to make payments and similar or for looking up account information[40].



**Fig. 3** Percentage (%) of individuals with above basic digital skills in the EU in 2019. Data source: Eurostat, 2020





**Fig. 4** Percentage (%) of individuals with above basic digital skills in the EU in 2019. Data source: Eurostat, 2020

Fig.4 and Fig.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 (Fig. 1 and Fig. 2a and Fig. 2b) and with figures on digital skills (Fig. 3), showing that internet banking before the COVID-19 was prevalent in the northern Europe compared to east and south Europe (Fig. 4 and Fig. 5). 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 countries Sweden, Finland, Estonia and Denmark (Fig.6).

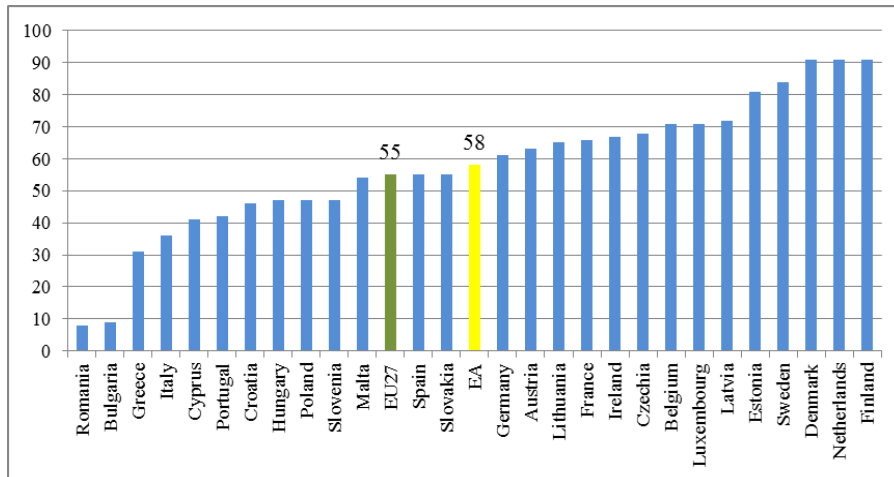


Fig. 5: Percentage (%) of individuals using internet for internet banking in 2019 in EU[41]

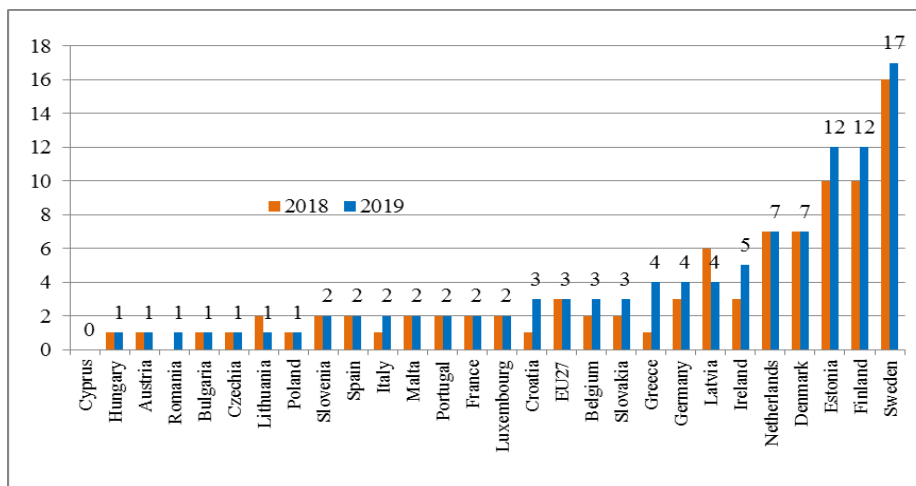


Fig. 6: Percentage (%) of individuals who took a loan or arranged credit from banks or other financial providers over the internet (2018 and 2019)[42] Data source: Eurostat, 2020

## 4 Solutions

### 4.1 Banks

Typically banks-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. In bank branches customers can solve their questions with the help of branch employees and can use payment devices to pay for

bills. In the context of COVID-19 pandemic, customers in distress can be also served if banks enhance support to customers, including the use of digital tools and new products and services.[43] Traditional retail banks have made online services available to customers because online banking was a part of retail banking before the pandemic. 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[44].

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. According to the previously mentioned surveys, the pandemic showed that customers still needed some services such as loans, something they would typically do in-branch. To apply for loans 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, if the elderly person cannot do e-banking. 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.

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, chat-bots 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.

The solution for banks is to invest more in information technology. The pandemic has already pushed banks to accelerate digitalization and to improve security.[45] 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 the operational risk, banks might further focus on implementing a technology infrastructure that can facilitate interoperability, ensure security, integrity and availability of data and support the management. On the other side, 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. Further, banks can play a more dynamic role in helping their

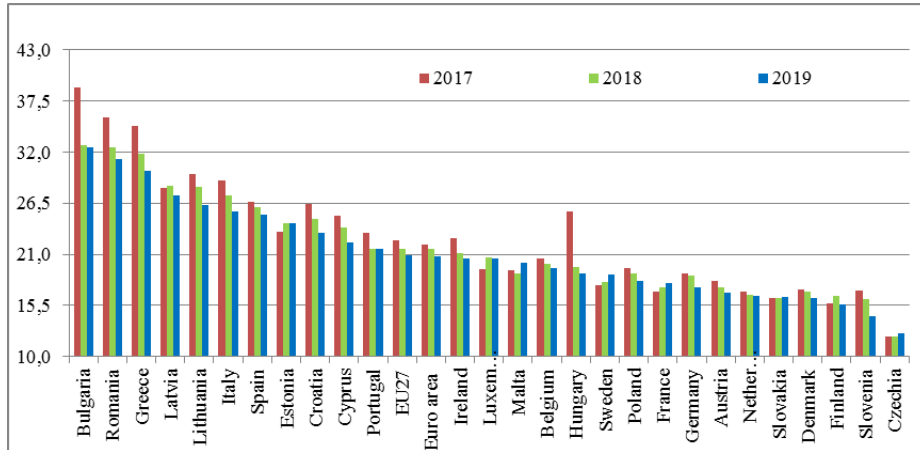
clients achieve financial wellbeing by receiving personalized advice on their financial situation online.

## 4.2 Customers

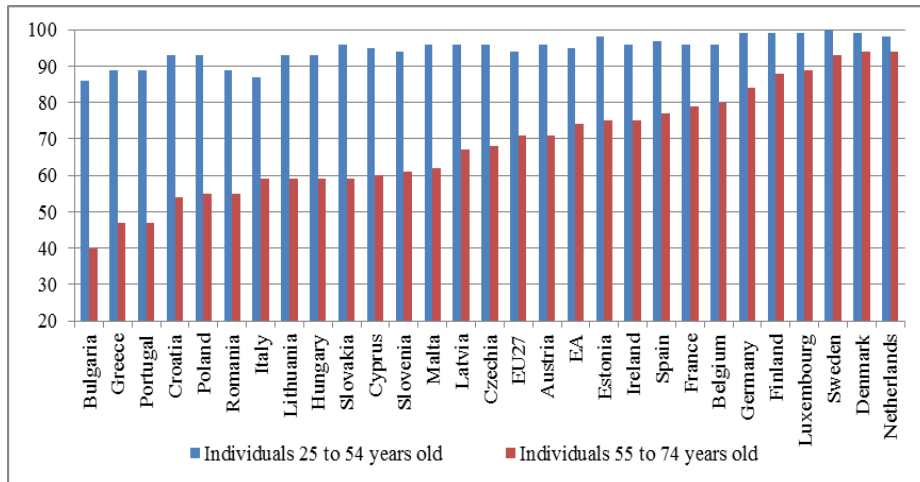
According to Deloitte's survey[46], men and women (between 30 and 50), living in an urban area and considerably better educated than average, are equally likely to be unconvinced by online banking and would prefer to use in-branch service and more personal advice. The findings [47] in relation to payment transactions are that online payments, which are frequent and simple transactions, will likely increase further. However, there are some specific forms of payments that are more complex, so bank branches are likely to remain relevant to some customers, especially older people. According to this survey, two-thirds of first-time users of digital payment solutions indicated that they plan to continue to use them, at least for some time. There is an understanding [48] about the need to improve digital and financial education of people because of the increasingly complex financial choices that citizens must make. The more digitally and financially literate people are, the more likely it is that they would use internet banking. [49] 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. Also customers are not sufficiently equipped with the minimum knowledge they need to have in order to take informed financial decisions, especially the elderly.

Keeping up with advancements of digital technologies is an issue for some customers, especially elderly people [50]. With local banks closing down or downsizing due to cost cutting incentives, online banking can become the only option for various financial needs of an ageing population. According to EBA, 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 programmes 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 over 55 are much less likely to use internet (Fig. 8) than people in other age groups.



**Fig.7:** Percentage (%) of people at risk of poverty or social exclusion in the EU (2017-2019). Data source: Eurostat, 2020



**Fig. 8:** Percentage (%) of people in two age groups using internet in the EU in 2019. Data source: Eurostat, 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 25-54 years, while only 70% on average use internet in the age group 55-74 years of age. In that age group less than 50% use internet in Bulgaria, Greece and Portugal (Fig. 8).

Some scholars[51] 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 (Fig.7), 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 that 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.

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 those presented by the COVID-19 outbreak.

## 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 enhance services available to their customers online. 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 traditional banking services and adopting the new online technology at the same time.

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