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## THE IMPACT OF DIGITALIZATION ON WORKING AND JOB ROLES IN THE BANKING SECTOR

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### Abstract

The financial services sector is one of the most digitally mature industries. Not only can the transition to digital operation satisfy customers' needs at a higher level, it also brings along a series of additional advantages to banks and their employees. The introduction of artificial intelligence-based applications, which are a milestone in banking digitalization, not only facilitates the work done by people but can now fully replace certain jobs. Using a qualitative research method, including the in-depth interview method we explored the human resources side of digitalization in Slovak banks. In total, we assessed the responses of 14 employees of 6 different banks, who have several decades' experience in banking. According to our primary and secondary findings, banking jobs in Slovakia are not in danger in the short term; however, a complete transformation of the labor market is expected globally in the long run.

*Keywords: banking digitalization, digitalization, jobs, Slovakia, banking sector*

**JEL Classification: F29, J24, L84**

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### Introduction and theoretical background

Today, digital technologies have reached such a high level of maturity that they can be used in a wide range of economic sectors, from manufacturing to services. Some industries (so-called digitally mature sectors) have advanced to a particularly high level in digitalization over the last 15-20 years. The most mature industry is the ICT (info-communication technology) sector, which produces a significant proportion of technical innovations (Zhang-Chen, 2019, Mura et al., 2017, Šimo-Mura, 2021). One of the largest customer sectors of ICT is the financial service sector, including the banking sector. It is itself one of the drivers (customers) and intermediaries (through

its digital products and services) of technological innovations (Straková et al., 2021). The digitalization of the banking sector is a complex and dynamic process that began in the mid-1990s and has continued ever since (Gupta-Yadav, 2017).

The introduction of digital banking services has revolutionized the banking sector and has greatly contributed to the fact that digitalization makes people's everyday lives significantly easier (Seay-Melican, 2021). Over the past 15 years, electronic, digital and online banking services have been organically integrated into our everyday lives (our shopping, travel, money holding, investment and other habits have been radically transformed thanks to them). It has become natural that we don't need to go to the bank branch in person to manage our small and large financial affairs, or even make a phone call. We can carry out transactions from anywhere, any time, ranging from cash withdrawals, transfers, online shopping, and electronic payments to even opening a bank account or taking a loan.

Not only does the digitalization of banking services make life easier for customers, it has increased the efficiency of banking work and freed up working hours as well. Thanks to digital applications and tools, the number of operations related to banking transactions has decreased enormously (Meena-Parimalarani, 2020).

This study examines the human resources side of the digitalization of the banking sector. It is designed to explore the impact of digitalization on bank jobs and everyday work in Slovakia. In our study, we present research results concerning the indicated topic which were published in scientific journals. Next, we document the results of our primary research conducted using our own qualitative method. Using the in-depth interview method, we collected the opinions of 14 bank employees with several decades of experience. The respondents are employees of 6 different foreign or domestic banks with branches in Slovakia. We intend to use the results and statements as bases for our quantitative (primary) research. Our study focuses on the specific quantitative and qualitative effects of digitalization in the banking sector, with particular regard to labor issues.

## Literature review

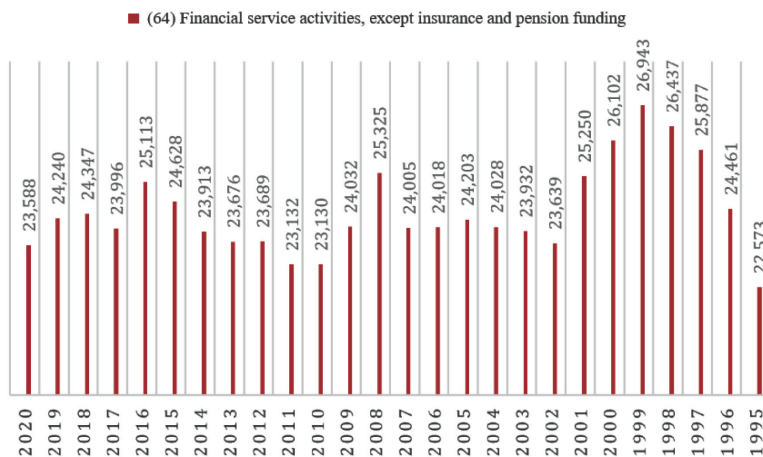
In the last 15-20 years, a significant number of publications have appeared on the digitalization of the banking sector but there are relatively few exploratory studies in the literature on its possible effects on jobs, work and the workforce.

A significant part of the research shares the finding that digitalization causes the replacement of workforce, which seriously affects the banking sector. Pandit (2017) claims that technological advance will cause about 30% of banking jobs to disappear in the short term, as artificial intelligence reduces the need for staff in routine or less demanding jobs (Mäkälä, 2021). Meena and Parimalarani (2020) have come to a similar conclusion. According to their finding, 70% of front office jobs in the banking sector will be replaced by artificial intelligence (chatbots, voice assistants and automated authentication and biometric technology). According to their conclusions, 30-40% of bank employees will be affected by the termination of their positions. Mali (2018) highlights the most important advantages of artificial intelligence in the banking sector, such as better customer service, improved banking services, fraud detection, and advanced data analysis but, at the same time, draws attention to the issue of machines replacing labor which, according to him, leads to widespread unemployment. Based on Reuters data, the total number of banks in the STOXX Europe 600 Bank Index was 2.02 million at the end of 2019, a 13.5% decrease compared to 2007's 2.34 million. However, this does not mean that digitalization is the only reason for the decrease in staff.

The first necessary condition for understanding the “disturbance” caused by digitalization affecting banking jobs is to try not to view the phenomenon in a vacuum but as part of a complex phenomenon, as it coincides with other factors and external challenges affecting all sales channels (Christ, 2014, Frenzel et al., 2021). In addition to the digitalization pressure, there are, for example, new challenges arising from competition, an increased regulatory environment, and long-term demographic changes, all of which are putting enormous pressure on the industry. The future of banking jobs is closely linked to these transformations and each of these factors has a unique impact on the industry (Shcherbatykh et al., 2021).

Europe’s economy is strongly affected by negative demographic trends (population aging and migration) and by the rapid transformation of the labor market. Certain industries and geographic regions are experiencing labor shortages, while unemployment is a problem in others. In Slovakia, for example, we cannot talk about a drastic reduction in the number of bank employees. According to data of the Statistical Office of the Slovak Republic, the number of bank employees in Slovakia has stagnated over the past 25 years. As figures clearly illustrate, the sharpest decrease occurred between 1999 and 2002, when the number of employees in banks decreased by 9% in 3 years.

Fig. 1. Development of the number of employees in the banking sector in Slovakia (1995-2020)



Source: authors’ own compilation, data from the Slovak Statistical Office

A different situation has developed in other European countries. In Finland, for example, both the number of bank branches and the number of employees have fallen radically over the past 20-30 years. At the beginning of 1990, approximately 50,000 employees were employed, by 2019 this number had decreased to 20,000 which is by 60 % in 30 years (Hazarika, 2020). In Spain, the number of bank employees per capita decreased by 34% between 2010 and 2019. In contrast, in Germany and France, the number of people employed in the banking sector per capita fell by barely 15% and

7%, respectively, in the same period. The average of the EU-28 and the Eurozone shows a decrease of 17% and 16% (Eurostat, online).

The jobs that will be eliminated due to the displacement effect of digitalization and the working hours that will be freed up due to more efficient work definitely lead to the conclusion that more and more bank employees will lose their jobs in the future. However, observations in other industries prove the opposite - despite the increased use of technology numbers of jobs actually keep increasing. This paradox is explained by the study published by Deloitte (2021) with two different economic effects of automation (substitution and complementary effects). The substitution effect refers to the fact that some human activities are replaced by technology (Švec-Madleňák, 2016). Increased efficiency resulting from digitalization leads to an increase in productivity and wages. The result is a stronger purchasing power (due to falling prices and rising wages) and a consequent increase in overall demand for products and services which ultimately creates new jobs. So this is the essence of the complementary effect. Since the beginning of digitalization, it has been observed that the additional effects outweigh the substitution effects, so more jobs were created than were displaced (Busetto et al., 2020). Some academic authors and practitioners are of the opinion that digitalization alone will not drastically reduce the number of bank employees. According to Chris Ward, senior consultant at Informa Financial Intelligence, their sheer size allows the largest US banks to invest in the latest technology as they expand their branch networks to reach even more consumers.

According to Julien Courbe, senior partner in PwC's financial services, "Big banks grow faster than community banks, and as they grow, they hire more employees" (Reis et al., 2020). In addition to this, it is important to emphasize that while certain jobs will disappear, many new jobs will be created as a result of digitalization. Digitalization creates new job opportunities in all sectors (Faibishenko-Núñez Galleo, 2021, Hagberg et al., 2016). While there will be no need for human labor in the performance of substitutable tasks, many new jobs will require new skills and competencies, which will lead to a complex transformation of the workforce in the longer term. According to a 2017 report by PwC, 32 percent of jobs in the banking sector could become obsolete due to the development of automation and artificial intelligence. At the same time, new jobs are emerging in the banking sector, such as cyber security expert, credit analyst, bot programmer, blockchain architect and process modeling expert and others. Mandl (2021) states that digitalization offers many new opportunities for highly qualified professionals. This includes specialists from traditional engineering fields; specialists in new fields (e.g. industrial data scientists, big data statisticians, data security analysts); employees with multidisciplinary skills (e.g. managers with data analysis/statistical competences); and employees with advanced management skills and soft skills. On the other hand, it predicts a narrowing of job opportunities for the low-skilled workforce in both manufacturing and services. They will need further training in order to be able to fill the new jobs created in the meantime, the supply of which is currently increasing on the labor market. Two noteworthy examples show how different solutions banks use to replace missing skills. JP Morgan Chase has spent \$350 million on workforce retraining, launching a program called "Skills Passport" to help their employees adapt their skills to banking jobs so they can take advantage of the new opportunities offered by the bank. As opposed to this strategy, Lloyds cut 6,000 jobs and announced 8,000 new jobs (Christ, 2014).

## Material and methods

Since our present research is exploratory, we a qualitative research method was applied to investigate the phenomenon.

According to the generally accepted definition, qualitative research means “studying the nature of phenomena”. This includes their quality, various manifestations, context of emergence or perspectives from which they can be understood but excluding their scope, frequency and place in an objectively defined cause-and-effect chain (Baker-Edwards, 2017). This formal definition can be supplemented by a more pragmatic rule: qualitative research usually contains data in words, not numbers (Pandit, 2017).

One of the advantages of qualitative methods in exploratory research is that open-ended questions and probing give participants the opportunity to answer in their own words (Christ 2014, Baker-Edwards 2017). The quantitative research method, on the other hand, forces them to choose from pre-formulated and fixed answers. Open-ended questions can elicit rich explanatory answers, and respondents can possibly point out questions in the researched area that the interviewer would not even think of (Brassel, 2020).

Another advantage of qualitative methods is that they allow the researcher the flexibility to examine the participants’ initial responses - that is, they can ask why or how (Fitzgerald et al. 2014). The researcher must listen carefully to what the participants have to say, engage with them according to their individual personality and style, and use ‘probes’ to encourage them to develop their responses (Baker-Edwards, 2017).

Qualitative research has all the characteristics of scientific research, namely:

- looking for an answer to a question
- systematically uses predetermined procedures to answer the question
- gathers evidence
- provides findings that have not been determined in advance
- makes findings that can be applied beyond the immediate limits of investigation.

In addition, it tries to understand a specific research problem or topic from the perspective of the stakeholders (Fitzgerald et al. 2014, Moser- Korstjens, 2018).

The strength of qualitative research lies in the fact that it can provide a complex textual description of how people experience a specific research question. It provides information about the “human” side of an issue - that is, the often conflicting behaviors, beliefs, opinions, emotions and relationships of individuals (Baker-Edwards, 2017).

Among the qualitative research methods, in-depth interviews were chosen, as we found this method to be the most suitable in terms of the target group and the area to be researched. In-depth interviews are optimal for collecting data related to individuals’ personal histories, perspectives, and experiences, especially when investigating a sensitive topic (Reis et al., 2020).

## Results and discussion

Before explaining the answers to the interview questions, we clarify the most important basic terms as an introduction and outline of the current situation in banking digitalization within Slovakia.

According to the Oxford Dictionary, the meaning of digitalization is: “the process of making a physical quantity processable by a computer in some way” (Oxford Dictionary, online). But digitalization does not simply mean that we use

digital tools, it is much more complex and there is also a change in the way of thinking behind it.

Several interpretations can be found in the literature, all of which point to the important features of digitalization. Let's look at four formulations that are generally accepted and widely used in literature to define digitalization (Gupta-Yadav et al., 2017, Punch 2013).

1. Conversion of sound, image and other information found in analog systems into digital formats.
2. It means the integration of digital technologies into everyday life through digitalization of everything that can be digitized.
3. It is the use of digital technologies to change a business model and provide new revenue and value creation opportunities; this is the process of transitioning to a digital business.
4. The process of converting something from analog to digital.

### **Bank digitalization**

The Slovak National Bank currently counts 25 banks in Slovakia, including 14 foreign banks with branches in Slovakia and 3 Housing Savings Banks.

Today, almost all of us perceive banking digitalization and its impact, if nothing else, at least as a customer. During our interviews, however, we were able to gain insight not only into the digitized technologies available to customers at some banks but also into the digital development of internal system and its effect on bank employees. Although 80% of bank customers use internet banking/mobile banking services, more than half of customers probably still prefer a bank branch among banking channels. This is precisely why it is important to observe what help digitalization provides for bank clerks and those performing central back-office work. Is the gradual digitalization of processes an advantage or a disadvantage to them in terms of their position?

We conducted our qualitative research at 6 banks, based on interviews with clerks with experienced as well as central support and back-office staff.

### **Forms of digitalization in the banking sector**

All surveyed banks declared that a significant degree of digitalization reached them in the early 2010s. While in the 1990s bank clerks could still have trouble with multiple systems in which it was necessary to process a customer's request, a change in this field could already be observed in the 2000s, as banks started standardizing the systems they used. Switching from manual processing of transfers to digital processing is considered a big step but the majority of our interviewees identified digital signatures and digital archiving as real breakthroughs in most cases. Replacing paper-based documents with electronic ones not only saves a lot of banks' time and money but also allows them to operate in a more environmentally conscious manner.

### **Transfer**

In the past, the transfer orders submitted by the customer at branches were manually typed into the banking system by a clerk and then the presence of another colleague was required to check and approve the operation. The electronic processing of these orders reduced work duration for bank branches by a fifth and the workforce

by a half. The next step in this field was when people became familiar with the use of internet banking and started making transfers from the comfort of their homes. We deliberately did not use the terminology of the introduction of internet banking, because although it was naturally used by some customers from the beginning, in this field people usually need more time before they really trust the new systems. When it comes to their finances, they are even more cautious.

### **Archiving, signing contracts**

If we think back to a few years ago, we have the image of us approaching a clerk in a branch office who, after presenting our identity card got up from the chair and retrieved our documentation from the filing cabinet, returned with it and continued processing our application. Thanks to digital archiving, this is a thing of the past. By loading personal data into the system, the clerk immediately sees the customer's "cardboard" on a computer screen. Furthermore, in the world of digital signatures and online contracts, the number of physically existing documents has actually shrunk to their fraction. Some banks already use options today, thanks to which it is not necessary, for example, to print out and sign contracts with the customer when opening an account, but the documents are signed digitally, the system checks the customer's data and identity, matches the signature with the existing sample, and then sends the contracts by e-mail to the customer. This new method also saves the clerk's time considerably, usually reducing the processing time by a third.

### **Time management, education**

In terms of the central support departments, among other things, the digitalization of time management processing and the option of introducing online education show significant progress. As a new employee in the bank you immediately become a part of continuous education. Most banks use different banking systems, and training is their own responsibility. In the past, these training sessions required the newcomer to move to the bank's training center for several weeks. Nowadays, almost every bank conducts most of its training online. This saves the employee's time due to less travel and it is also cost-effective. The training time has been reduced by a fifth thanks to the more efficient training of digitized processes. Workers can attend training sessions from the comfort of their home or at work. This is always followed by training with more experienced colleagues during the performance of daily tasks, the time of which is also reduced to a certain extent. The processes require less manual intervention, so their management is easier to learn.

### **Computer skills in recruitment**

Nowadays, banks place much more emphasis on communication skills than on technical knowledge in the case of applicants, which is why the expectations regarding technical knowledge and computer skills have not changed in the last 10-15 years. Every bank has an IT support department, which also facilitates the work of employees.

## Processing credit applications

With regard to the processing and assessment of credit applications, the processing time has been cut in half everywhere as a result of digitalization, even if the given bank does not yet use the method of signing contracts electronically. Depending on whether a customer applies for a personal loan or a mortgage, the processing and evaluation time is different. While for a personal loan only the application had to be uploaded into the given system, with a mortgage the application itself is more complex, and it was also necessary to search for and upload the title deed of the property, the owners' data, and also upload the documentation of the valuation. All this, of course, was done manually and the assessment itself was a similarly lengthy process. Currently, the majority of the surveyed banks use more digitized and automated systems to process these operations. Thus, saving time can ensure that loans are processed and assessed more quickly. Reducing the number of staff in the given department is therefore not a necessary consequence, as there is no workforce to be freed up, because the time is used to evaluate a larger number of applications more quickly.

## Evaluating the impact of digitalization

It was good to hear during the interviews that, despite the negative aspects of digitalization, everyone in general evaluated its effects positively. In addition to the above-mentioned reductions in processing time and the elimination of paper-based documentation, a number of advantages can be listed.

The human error factor has been eliminated in certain processes, the systems and processes have become easy to manage and employees can hardly make any mistakes. Thanks to this, reliable, fast and comfortable administration can be ensured for both the client and the administrator in this regard.

Corporate trips, whether for training, meetings or inspections, have been significantly reduced thanks to digital opportunities. In addition to education, it is also possible to hold certain meetings online, as well as to conduct inspections and audits on online platforms, with the help of the digitized system. The COVID pandemic had an extremely positive effect on digitalization and on the use of online meeting platforms. We can say that digitalization is the real beneficiary of the coronavirus, because the first and most important step in dealing with crisis situations is a quick reaction. The closure of countries and the introduction of certain restrictive measures in the field of group occupations also moved the banks towards alternative solutions, instead of corporate trips they easily found a solution for holding meetings, training and inspections. Although it is not an option for clerks working in branches, most of the staff working in the headquarters can use the option of working from home for at least 50% of their working time.

## Negative effects of digitalization

In some cases, the negative impacts related to digitalization could also be observed, mainly in the form of technical problems. Of course, these can sometimes be remedied in a few minutes, sometimes the problem persists for a long time. Presumably, however, with the development of the systems, the occurrence of these cases will decrease.

Employees complain that the convenience given by the automatic performance of certain tasks by digital systems results in the fact that they no longer need



to keep certain information in mind, therefore, they lose a part of their expertise as a result becomes more incomplete.

Digitalization, which results in platforms and applications available to customers, has had a significant impact on branch visits. Several respondents mentioned the lack of personal contact with customers as a negative effect. Customers can manage their current affairs from the comfort of their homes (updating data, transfers, checking balances and account movements; thanks to recycling ATMs, they can handle cash deposits and withdrawals 24 hours a day, every day of the week), thus they visit branches in person less frequently. The time savings provided by digitalization have greatly changed job roles and workloads. Nowadays, banks place much greater emphasis on sales, as the general administration of the customer itself is handled by digitized and automated processes. This is also why communication skills are a more important requirement for recruitment than the level of computer knowledge. Since a significant part of the workload is sales (considering the clerks working at the bank branch), and it is known that bank employees meet specific targets on a quarterly, or even monthly/daily basis, so the decreased number of daily customers is perceived as a negative effect.

The most significant effect of digitalization, apart from the ones mentioned above, is certainly the issue of the number of employees. Directly or indirectly, layoffs and branch closures have occurred at certain banks, but I think it is important to mention that in most cases it is in the bank's interest to retain existing employees (those whose work they are satisfied with, of course). Employees who have become "redundant" are offered other jobs to replace the employees who quit. In all cases, new positions were also created, to the greatest extent naturally in the IT department. Entire development groups were sometimes needed but new positions were also created in the branch networks, such as the position of a virtual banker.

## Conclusion

To sum up, it can be concluded that the impact of digitalization is extremely positively evaluated by employees in the banking sector. They experience it as an aid to their work, seeing and discovering its positive aspects. As a result of digitalization, workloads have changed and some have been supplemented and most of the jobs have been modified. Although digitalization is meant to gradually replace human workforce, and although positions and jobs are constantly being eliminated and bank branches are being closed, the results of this process are not yet perceptible today, because the banking sector is no longer among the most attractive employers nowadays.

Employee turnover is also high, as a result of which, despite the number of employees in certain departments and bank branches gradually being reduced, there are still positions to be filled. However, it is the banks' concern to retain good employees so they try to fill vacant and newly opened positions with their "own people". Thus they educate and retrain their redundant workforce to do other jobs, they transfer their skills and replace departing employees with them.

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