

Developments and Perspectives Regarding the Impact of Digital Transformation on the Banking System in Romania

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Abstract

To understand the impact of digital technologies on the banking system, it is necessary to know the defining features and functioning of the banking system, as well as the particularities of banking services and products. This article intends to clarify these issues and identify the changes that have occurred over time in the banking system. Digital transformation is a priority for every bank. Investments in technology and innovation are objectives to be achieved for any bank and that's because the competitive environment is growing, and the mentality of consumers is changing. Digitalization is no longer a choice, but a necessity for both, society, and banks equally.

Key words: banking system, digital banking, banking, customers, transactions, services

J.E.L. classification: G21, M30

1. Introduction

The banking system is developing intensively in the digital economy because every day there is information about new banking services, types of electronic money, new technologies and applications with which customers can perform their own operations remotely.

In the current context, the pandemic has accelerated the adoption of technology in all areas of activity, impacting our lives, particularly, in banking system. The COVID-19 pandemic has had a negative impact on financial performance across different financial performance indicators (Elnahass et al., 2021). Digitalization is changing consumer behavior and the way they interact with the banking environment and advances in banking technology continue to influence the future of financial services around the world. Banks are planning strategies to accelerate digitalization and migration to Alternative Channels to respond to these behavioral changes of consumers. Most banks triggered their business continuity plans and faced the immediate impact of the pandemic and new ways of working (Bryan et al., 2020).

To maintain strong relationships and at the same time, satisfy customer needs, banks create easy communication channels and focus on informing each consumer through different marketing methods and techniques, to offer them complex products and services. Technology is rapidly changing the financial industry, and banks are experiencing a shift from traditional forms of services to digital financial services. These digital technologies are increasingly becoming today's standard in banking, challenging traditional business models, and providing opportunities for banks to capitalize on them. (Niemand, 2021)

Today, the banking industry has adapted to new digitalization trends, but banks still need to invest in technologies that can help them transform sustainably. While some banks have long focused their attention on return on investment, they have now begun to move to the next phase of transformation, looking at operational resilience based on technology adoption to facilitate an improved digital experience for banking consumers, others have modernized and invested in creating affiliated banks that operate exclusively in the digital space.

Kelly (2014) highlights that not all banks will be able to move at the pace demanded by the market, as a result, we may see larger gaps emerge between those banks that have the capacity to provide large-scale directive and undertake a digital transformation (in the space of relatively a few years), and some banks that are lagging.

This paper aims to clarify aspects regarding the changes that have taken place over time in the Romanian banking system and to highlight the impact that digital technologies have on the banking system. The paper is structured as follows: the first part focuses on literature review to point out the main theoretical aspects of the digitalization process in the banking sector, its functionalities, but also its current stage. It also focuses on describing innovations in the banking industry and provides information on the different technologies used. The second part of the article focuses on the quantitative analysis of relevant product and service categories describing the progress made by the top three commercial banks in Romania in terms of digitalization, information taken from the "Digital Banking Scorecard 2022" report. Within the research, statistical tools were used in the critical analysis of the indicators of evolution of the banking system during the period 2017-2021, according to the banks' annual reports to the Financial Supervisory Authority (FSA) in Romania.

2. Theoretical background

In the literature, Flacon (2019, p.118) describes digital transformation as a process in which digital technologies can activate imbalances that lead to the development of strategic plans through which organizations try to modify their norms and processes, to transform their way of creating value, while managing the process of change at structural level and organizational barriers that affect the positive and negative results of this process.

As a basic notion, *digitalization* is the process of change induced by technological leaps that have occurred within these industries or at the level of organizations (Khan, 2017). Therefore, digitalization is not only the use of multiple IT processes to reap the benefits of data and technology, but also means a comprehensive approach to changes in society and business, respectively in the development of organizations.

Digital transformation is the total effect, including at social level, of digitalization. Digitalization has led to significant opportunities to transform and change existing business models, socio-economic structures, legal measures and policies, organizational models, cultural barriers, etc.

Broeders and Khanna (2015) appreciate that digital transformation is at an inflection point. Banks have only a few years to adapt. Digital will change every aspect of the bank's operations, from product and service development to risk management and human resource management. Banks successful strategies must be based on prioritizing technology investments and a clear understanding of how digital adds value to consumer behavior.

Sardana and Singhanian (2018) believes that banks around the world are investing in new banking technologies at a time when bank customers are progressively switching to digital in multiple dimensions of their economic and social interactions. In their research, they want to demonstrate that banks' IT investments largely devoted to digital technologies affect the digitalization of banks' customers. The results show that banks' IT investments have a positive impact on customers' adoption of financial digitalization and increase the probability that they will carry out their financial transactions through digital channels rather than in the physical branch.

Berger's research (2003) examines technological progress and its effects in the banking industry and suggests a significant impact of digital technology in terms of overall productivity improving the quality and variety of banking products and services. In addition, research indicates that technological progress has likely helped facilitate industry consolidation. The research suggests improvements in cost and lending capacity due to improvements in back-office technologies, as well as consumer benefits from improved front-office technologies.

In the process of digitalization of a bank, according to Cuesta et al. (2015), have been identified three successive stages: the first stage is the one in which new electronic channels, banking products and services are developed; the second stage involves adapting the infrastructure of technological systems and the last stage is the one that involves major changes in the organization, in order to obtain a strategic positioning in the digital environment.

Sajić et al. (2017) through their research, propose an organizational model of the digital bank and a way to use digital technologies to efficiently transform traditional bank into digital data bank. The proposed way for the digital bank transformation process is using two phases or periods. The first phase should be a hybrid period and the second phase should be the digital bank establishment period.

All activities of a digital bank should be carried out using electronic technologies: mobile electronic systems, modern computers, information systems, computer networks, internet, wired and wireless, communication technologies and fast data storage, mobile devices, data bases, cloud technologies. The speed of transformation of a digital bank by introducing the mentioned activities and technologies will largely depend on the speed of adopting their necessary legal procedures.

At the level of the Romanian banking system, there have always been concerns for the development of their banking products and services. An important step in the beginning of digitalization was the emergence of internet banking. The first internet banking service in Romania was launched in 1999 by Turkish-Romanian Bank, representing the beginning of a period in which Romanian banks implemented advanced financial instruments to contribute to increasing the overall efficiency of Romanian banks (Stoica et al.,2015).

Anghel (2015) developed a study that analyzes the evolution of Internet Banking services in Romania, from the perspective of the number of users, the number and value of transactions.

The contribution of this research is to initiate the discussion of impact of digital transformation on the banking system in Romania by providing a concise definition, examples, and enablers. This addresses an existing research gap regarding the evolution of the digitalization of the first 3 commercial banks in Romania.

The involvement of banks in the digitalization process has led to an increase in the level of operational expenses due to the increasing investments in the IT area, necessary to face competition coming not only from the traditional banking environment, but also from the area of innovative financial institutions - *fin-techs*, which use business models based on advanced digital technologies, with a much better organized cost structure and a very high customer orientation. Banks with a developed digital component will have a significant competitive advantage over traditional ones. The traditional banking experience, based on the territorial network, will play an important role in the coming years, especially in countries where the use of digital tools remains low (as is the case in Romania). From the literature review, it is found that innovation and digitalization in the banking industry are major concerns of researchers in terms of the effects and impact they have on consumers and on the economy in general.

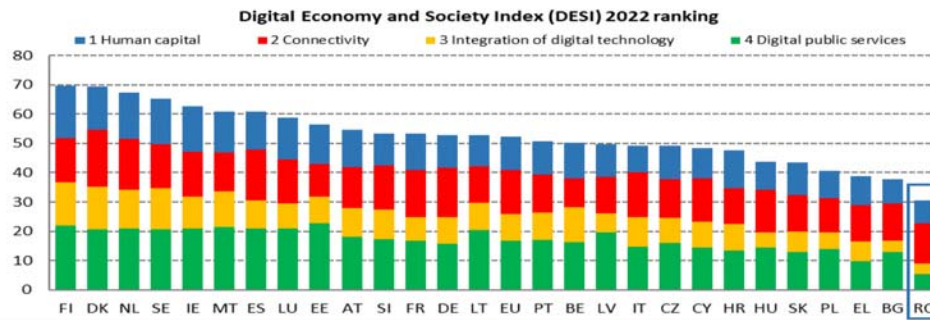
3. Research methodology

The research of the evolution of the banking system from the perspective of digitalization is based on the analysis and synthesis of literature review of authors both national and foreign. To achieve it, the following methods were applied: analysis, synthesis, induction and deduction, comparative analysis, method of graphical representations using various databases: National Bank of Romania, European Central Bank, Transilvania Bank, Romanian Commercial Bank and CEC Bank.

4. Findings

Romania's banking industry has developed strongly over the past two decades, playing an essential role in the country's development. However, according to the annual report published by the European Commission, which monitors the progress made in the digital field by Member States, in the 2022 edition, Romania ranks 27th out of the 27 Member States of the European Union. The country's performance in integrating digital technologies is poor compared to that of other EU Member States.

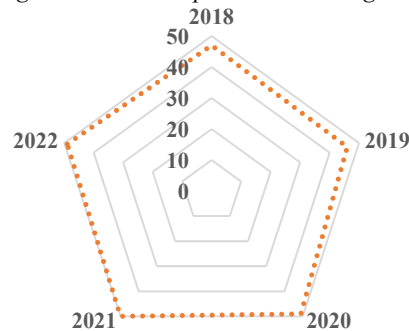
Figure no. 1. Digital Economy and Society Index (DESI) 2022



Source: European Commission, *Digital Economy and Society Index (DESI) 2022*

The digitalization of Romanian banks is necessary because a series of indicators show us a large gap with the European banking system. However, in the Digital Competitiveness Assessment of recent years, changes in Romania's position indicate an increase towards making appropriate conditions for the development of the digital economy.

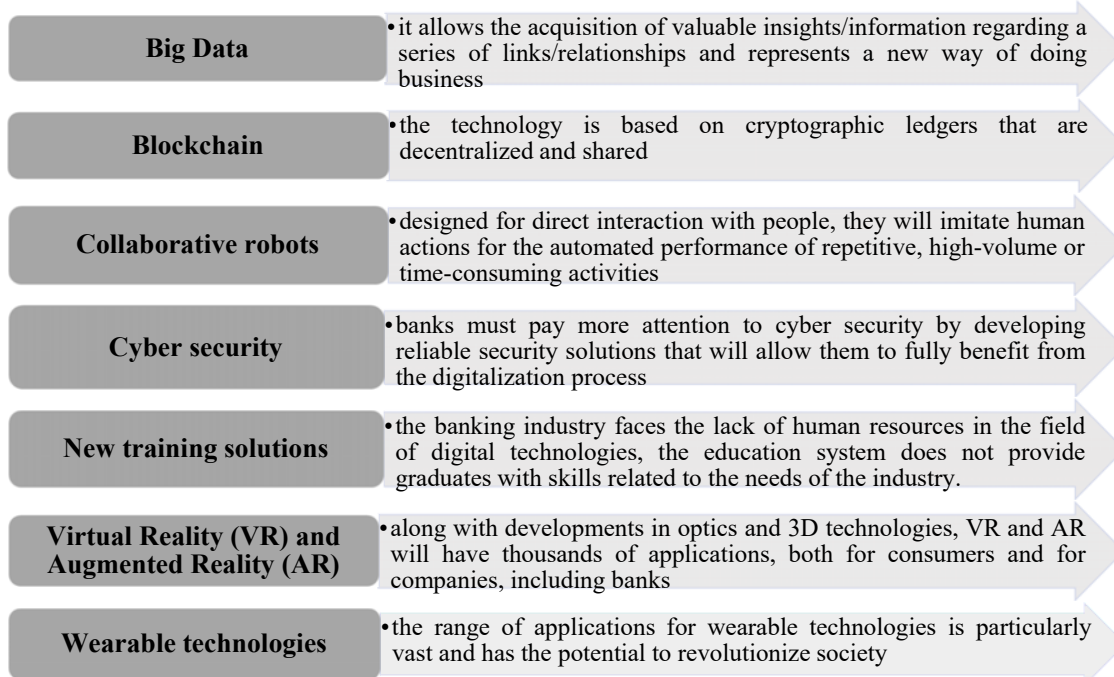
Figure no. 2. Changes in Romania's position in the digital competitiveness assessment for 2018-2022



Source: elaborated by the author based on the source - International Institute for Management Development <https://worldcompetitiveness.imd.org/countryprofile/RO/digital>

Due to the rapid spread of innovation, institutions in Romania's banking sector are gradually expanding the limits of the digitalization of their activities. The impact of new technologies on the banking system is that they help banks collect customer data from multiple sources, to form a complete portrait of the customer and understand his needs. Financial services are increasingly using analytics, data, and machine learning to facilitate a superior digital experience, including anticipating customer interactions. Therefore, are seven digital technologies that have impacted the banking industry and will continue to surprise us soon: big data, blockchain, collaborative robots, cybersecurity, new training solutions, virtual reality and augmented reality and wearable technology.

Figure no. 3. Digital technologies with impact in the banking industry



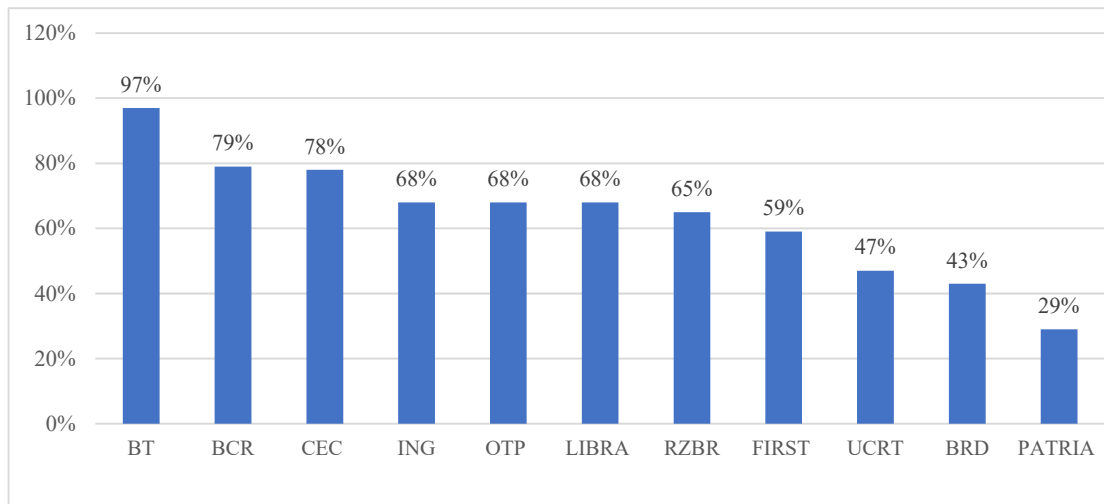
Source: elaborated by the author based on the source: European Commission, *A Digital Compass for Decision Makers*

Digital Banking means digitalizing all traditional banking activities and programs that were normally available to customers only when they physically arrived at bank branches.

According to the website of the Romanian National Bank, in 2021 the Romanian banking sector contained 34 credit institutions, eight of which represent branches of foreign banks.

In Romania, the study "Digitalization of the banking system in the perception of Romanians" showed in December 2020 by the Romanian Institute for Evaluation and Strategy (RIES) reveals the increase in the degree of digitalization compared to previous years, this trend being accelerated by the health protection measures adopted during the pandemic. The degree of financial inclusion reached 68% in Romania in mid-2022, according to the research, the increase being 10% above the level reported in 2017. In the „Digital Banking Scorecard 2022" report, Transilvania Bank has a score of 97%, ticking all the important categories that characterize a digitized bank, followed by BCR Bank and CEC Bank.

Figure no. 4. Top banks by degree of digitalization



Source: *The Digital Banking Scorecard Report* (<https://futurebanking.ro/raport/digital-banking-scorecard-2022>)

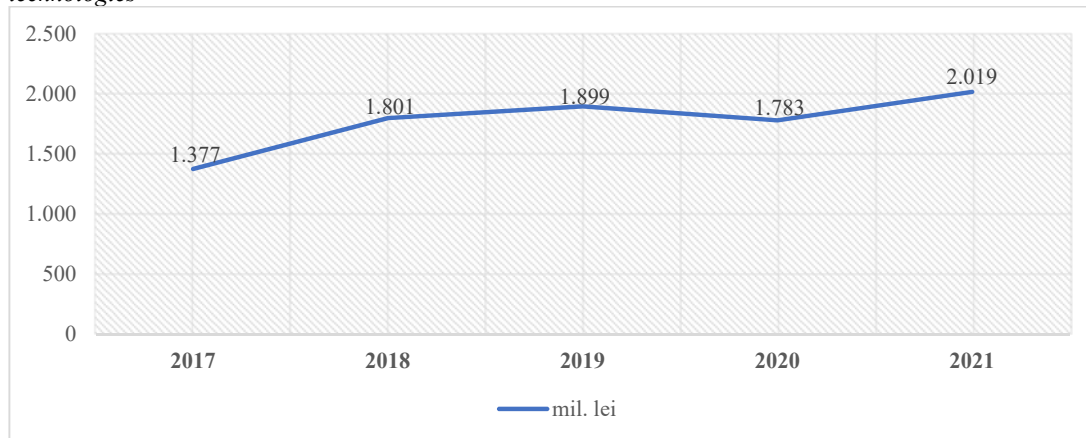
In this study, activities specific to a digital bank were considered, such as: deposits, withdrawals, and cash transfers; bill payments; account management and services; application for financial products; credit management; portfolio management; investment in financial services. For example, digital proposition (remote account opening, digital personal loan), card offerings (remote acquisition of debit and credit cards, contactless cards, virtual cards, cardless ATM withdrawal), user experience (biometric login, budgeting planification, automated saving tools, chatbots, pay the bill), payments (digital wallet, apple pay, google pay, Fitbit pay, Garmin pay, instant payments, direct debit), security options (freeze/block cards, push notifications, deactivated contactless payments/online transaction/ POS /ATM Withdrawal) and opportunities related to open banking were included in the research.

In this research, we followed the evolution of the digitalization of the first 3 commercial banks in Romania during 2017-2021: Transilvania Bank (BT), Romanian Commercial Bank (BCR) and CEC Bank.

Transilvania Bank (BT) was founded in 1993 in Cluj Napoca by a group of local businessmen, with 79% Romanian and 21% foreign capital. Its activity is organized on four main business lines, namely: Corporate, SME, Retail, and Division for doctors.

From a digitalization perspective, BT aims to increase investments in technology, digitalization, innovation, and simplification of banking processes. To achieve this objective year after year, BT registers an increase in operational expenses occurred both due to the efforts of digitalization and optimization of banking processes, as well as due to the analysis of acquisition projects, increasing from RON 1,377.15 million in 2017 to RON 2,019 million in 2021 (BT, FSA Annual Reports, 2021).

Figure no. 5. Evolution of operational expenses impacted by expenses with the development of digital technologies



Source: Elaborated by the author based on FSA Annual Reports (<https://www.bancatransilvania.ro/>)

Starting from the evolution of investments in technology, digitalization, and innovation, we can trace the emergence of banking services and products that led to the digitalization of the bank. In 2017, electronic and automation solutions were launched with effect in streamlining the relationship of companies with banks and business partners: BT Ultra Web, BT Online Debit Tools Release, digital technology. At the end of 2018, there were over one million Internet Banking customers, about 14% more than in 2017 (BT, FSA Annual Reports, 2018). At the same time, the number of Mobile Banking customers is 560,000, 34% more than the previous year (BT, FSA Annual Reports, 2018). The product of 2018 is BT Pay, the first wallet in Romania that allows contactless payments, based on smart payment technology Visa Token Service and MasterCard Digital Enablement Service, and offers 6 alternative payment alternatives: with the physical or digital card from the BT Pay application or BT Pay collection accessories (watch, bracelet, sticker - all contactless), including Garmin and Fitbit smartwatches. In 2019, BT launches Visual Help, a virtual call center for access to account and transaction information, as well as digital card management. In 2020, new digital products appear in the bank's portfolio: Google Pay; Livia and Raul chatbot, access via What's App, Facebook Messenger, or Skype and Chatbot Ino which can be accessed on BT's website in the dialog window. In 2021, BT continued to expand its ATM network reaching a network of 1,775 of which 567 are multifunctional (BT, FSA Annual Reports, 2021). In 2021, both personal needs loans could be granted and implemented 100% online, as well as the credit card granted online through BT Pay. One of the indicators that BT constantly tracks, reflecting the degree of digitalization of the bank, is the number of customers who use at least one of BT Pay's digital solutions, Internet Banking or Mobile Banking.

For 2022, the bank's objectives are focused on the digital area by continuing to develop fully digitized customer interaction flows, continue to develop intelligent operating systems, innovation, and process simplification and customer connection as the omnichannel experience.

In 2022, Transilvania Bank acquires Idea Bank, which will become a digital banking hub, going beyond traditional banks and continuing BT's efforts to digitize the services and products offered. The positive impact on the economy and society of the acquisition of Idea Bank is the contribution to strengthening the banking industry and repositioning the bank as a digital platform, with an ESG (online, social, governance) agenda.

Romanian Commercial Bank (BCR), member of Erste Group, is one of the most important financial groups in Romania, including universal bank operations (retail, corporate and investment banking, treasury, and capital markets), as well as specialized companies on the leasing market, private pensions, and housing banks. In 1990, BCR was established by taking over the commercial activities of the National Bank of Romania, and in 2006, Austrian bank Erste Bank completed the acquisition of Romanian Commercial Bank. In 2017, BCR managed to improve customer satisfaction because of its continuous efforts to streamline processes, implement new service models and develop its product offer and distribution on multiple channels. The products and services offered by BCR

could be accessed through multiple channels: branch network, BCR 24 Banking, Alo 24 Banking, mobile phone applications. According to the information found on the bank's website, in 2017 BCR was the No. 1 bank in Romania on the market of bank transactions, having at its disposal the largest national ATM network - over 2,500 ATMs and POS - 17,800 terminals for card payment at merchants (BCR, FSA Annual Reports, 2017).

In 2017 the bank had in perspective the development of new products and services such as the launch of the new digital platform George; implementation of Mobile Wallet; expansion of the concept of cashless branch and dynamic consulting. In September 2018, BCR launched the intelligent banking platform George, which reached 300,000 users at the end of 2018. The introduction of the George app was one of the growth engines of digital transactions in retail, which increased by 36% (BCR, FSA Annual Reports, 2018).

In 2019, BCR accelerated the processes of digitalization and simplification of operations. The intelligent banking platform George has reached 660,000 users, both for individuals and micro-enterprises. Over 25% of BCR's new customers prefer to open a bank account 100% online (BCR, FSA Annual Reports, 2019). BCR launched George Credit, the first fully digital personal loan. In terms of open banking services, BCR was the first bank to open its application programming interfaces (APIs) to third-party providers, reaching 50 providers that have already tested the platform. In 2019, BCR offers its customers, Apple Pay, a solution that transforms mobile payments into an easy, secure, and confidential experience, available to anyone.

In 2020 it launches the first 100% online credit card, which can be accessed directly from the George application, on your phone, tablet or computer and George Moneyback, a program that offers money back, as a discount, to BCR customers who will use card payment. One of the important goals of 2021 continues to be accelerated sanitation and transformation of customer interactions. The first online loans were granted, 56% of personal loans in 2021 were granted 100% digitally (BCR, FSA Annual Reports, 2021). In 2022, George enjoys the best rating among banking apps in Romania in Google Play and AppStore.

CEC Bank was a state-owned banking institution in Romania, founded in 1864. In December 2021, CEC Bank was the sixth bank in the system with a market share of 7.9%, assets of 50.6 billion lei and had the most extensive national network (CEC Bank Report of the Board of Administration, 2021). In its almost 160 years of history, the bank has reinvented itself and kept pace with technology, currently becoming the third bank in Romania in terms of digitalization, according to the "Digital Banking Scorecard 2022" study.

The main desideratum of the bank is to position in the first positions in the top in the domestic banking system, and for this purpose the objectives pursued are to implement an efficient "core-banking" information system based on best practices, as well as to change the organizational culture. Therefore, one of CEC Bank's main general strategic objectives is to invest in modern digitally facilitated services and processes, to provide customers with accessibility and convenience. Technological innovation and new capabilities have changed the way the banking service reaches the bank's customers, so that in 2017 through the Internet Banking and Mobile Banking application there were substantial increases in electronic and digital operations. In addition, the bank provides customers with the Phone Banking service through which they can trade based on voice and provides support to customers through the online chat channel.

In 2018, a new service was launched available through Self Pay payment stations in the bank's units, which allows real-time cash deposit in the bank's customer accounts. In line with the text of the digitalization process, in 2019 the bank adds new facilities to the CEOnline application: changing card transaction limits, account openings in other currencies, operationalizing instant payments.

At the beginning of 2020, the bank launched theCard2Card application, a digital wallet. Also, during 2022, CEC Pay, Apple Pay and Google Pay were launched, mobile applications dedicated to holders of cards issued by CEC Bank. Contactless payments through smartwatch that integrate the Pay option (Garmin Pay and Fitbit Pay) are also available. Also in 2020, CEC Bank launched the 100% online enrollment flow for individual customers and started the Online Product Origination project, creating a virtual store on the bank's website through which customers can request products and services through a completely digital path, without physical presence in the bank's headquarters. In the context in which mobility and digital solutions are gaining more and more ground among

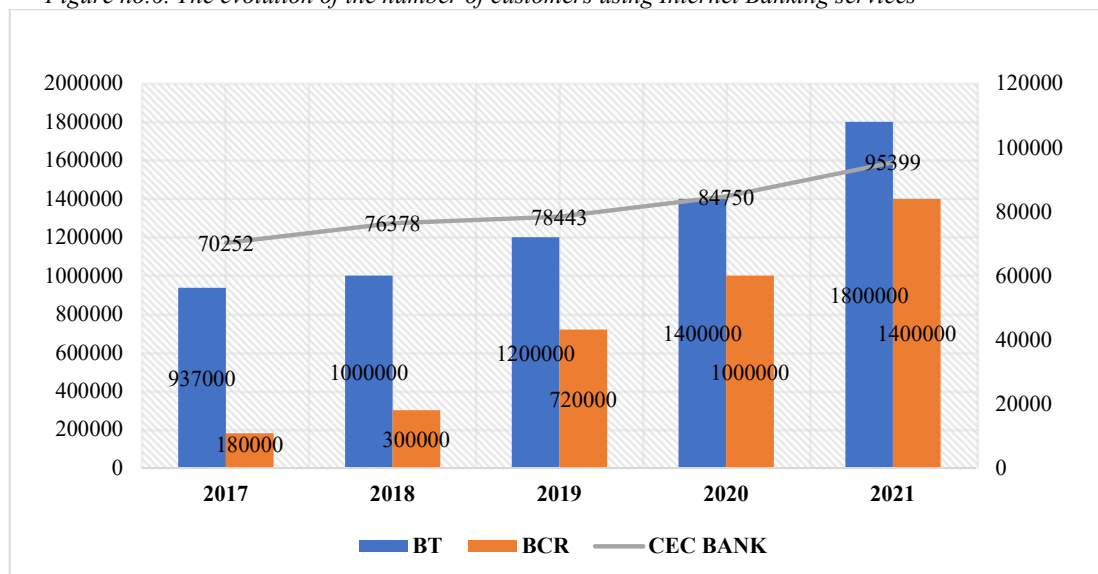
consumers and entrepreneurs, the SmartPhone POS application, which transforms any Android device (phone or tablet) into a contactless payment terminal, was launched in December 2020. In 2021, investments in technology and digitalization continued and new facilities were added to the internet banking application such as open banking. The bank has made available a new application, namely CEOnline Multi Business (MultiCash Transfer AutoClient) which is installed by the supplier Omikron on the client's workstation, facilitating the transmission of files directly from the accounting application used. The Onboarding digital platform has been upgraded to a higher version, and the related infrastructure has been migrated to the Microsoft Azure cloud. Starting with February 2021, the Virtual Store was launched on the bank's website and the first lending product through the 100% online flow for individual customers - the personal needs loan dedicated to individuals, followed by credit card and overdraft.

Within the 3 analyzed banks, a series of digital transformation projects were initiated aimed at streamlining some activities carried out at the level of the territorial network by organizing trainings for employees.

In the entire banking system, where the digital transition affects the way many employees work, an important issue that bank management must manage, is the systematic approach and preparation of a structured action plan within the organization to train employees to adopt the digital system. At national level in 2021, according to the Financial Stability Report June 2022 Year VII (XVII), no. 12 (22) of the NBR, the increase in banking activity and digital activity continued, so that the number of banking units and employees decreased during 2021 (-4.1% and -1.9%, respectively) and in the first three months of this year (-2.9%, and -1.3%, respectively). The annual increase in operating expenses (+5.8%, December 2021) broadly reflects increased investment in digital transformation. In comparison, at the beginning of 2017, banks in Europe closed 9,100 branches and laid off more than 40,000 employees, due to changes in the way customers carry out transactions (European Banking Federation, 2017), and in 2019 the shoulder of people working for credit institutions in the EU fell to its lowest level since The European Central Bank begin measuring this in 1997 (European Banking Federation, 2021).

Is it possible that in the coming years, Romania will experience the same cycle, when most customers start using e-banking applications? An assessment of the number of customers using Internet Banking services shows that every year the number of active users of banking services increases, due to the rapid growth of digitalization in the banking industry.

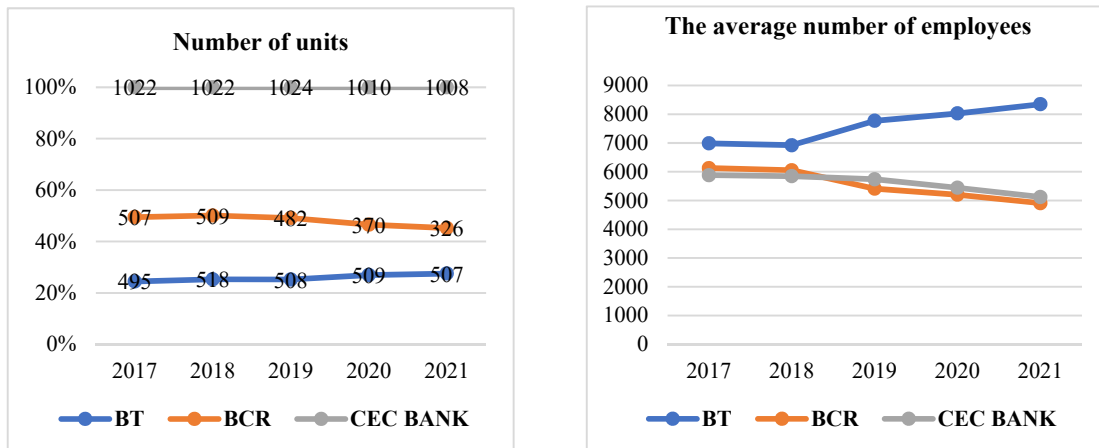
Figure no.6. The evolution of the number of customers using Internet Banking services



Source: elaborated by the author based on FSA Annual Reports

From the data reported by the 3 banks to Financial Supervisory Authority (FSA), we can follow the evolution of the number of active units and the average number of employees.

Figure no.7. Evolution of the number of active units and average number of employees



Source: elaborated by the author based on FSA Annual Reports

The graphical representation reflects the fact that BCR has drastically reduced the number of active agencies and, implicitly, the number of employees. The same reduction in staff and number of units can be found at CEC Bank. At BT there is an increase in the number of units, respectively in the number of employees. Because we do not have statistical data reported by banks, it cannot be assessed whether the downward trend practiced by BCR and CEC Bank is due to the digitalization process of banks.

5. Conclusions

Summing up, I believe that the Romanian banking system has constantly evolved since its established until now, banks have supported Romania's economy and population through financing, and digitalization makes banks use data and information obtained through new technologies, to personalize products and services to achieve a balance in maximizing sales and attracting and retaining customers.

Technology will play a key role in increasing the stability of the banking industry and will allow banks to regain pre-pandemic stability and cope with the consequences of the transformations that will follow in the years to come. In 2022, the banking system in Romania has made progress from the perspective of digitalization, which was also accelerated by the Covid-19 pandemic, bank customers also the power of technology and the multitude of benefits that come with using technology correctly. The implementation of new technologies allows banks to get to know customers better and develop long-distance relationships. New digital customers want more, and banks are aware of this, because they will be their main customers in the coming years.

Banking products and services must not lag, but explore and capitalize on the online environment, given that the impact of digital transformation will be a major one. Technology has changed all our lives and will continue to do so, and soon Human Intelligence will coexist with Artificial Intelligence.

6. References

- Anghel, M.G., 2015. Model of Analysis of Electronical Instruments Services in Romania. *Theoretical and Applied Economics*, XXII (4) (605), Winter, p.113-120. [online] Available at: <http://www.ectap.ro/model-of-analysis-of-electronical-instruments-servicesin-romania-madalina-gabriela-anghel/a1136/> [Accessed 20 May 2023].
- Anghelache, C., 2017. *Starea economică la un deceniu de la aderare [Economic status a decade after accession]*. Bucharest: Economic Publishing House.
- Berger, A.N., 2003. The Economic Effects of Technological Progress: Evidence from the Banking Industry. *Journal of Money, Credit, and Banking*, <https://doi.org/10.2139/ssrn.332900>.
- Broeders, H. and Khanna, S., 2015. *Strategic choices for banks in the digital age*. McKinsey & Company. [online]. Available at: <https://www.mckinsey.com/industries/financial-services/our-insights/strategic-choices-for-banks-in-the-digital-age#/> [Accessed 22 May 2023].

- CEC Bank, *Financial situations*. [online]. Available at: <https://www.cec.ro/situatii-financiare-si-rapoarte-de-transparenta> [Accessed April 2023].
- Computer Economics, 2019. *IT Expenses and Staffing Benchmarks 2018/2019* [online]. Available at: <https://www.computereconomics.com/it-spending-and-staffing-benchmarks/> [Accessed April 2023].
- Cuesta, Carmen & Ruesta, Macarena & Tuesta, David & Urbiola, Pablo., 2015. The digital transformation of the banking industry. *BBVA Research Digital Watch*. [online]. Available at: https://www.researchgate.net/publication/291357544_The_digital_transformation_of_the_banking_industry [Accessed 10 May 2023]
- Digital Economy and Society Index (DESI) 2022 [online]. Available at: https://romania.representation.ec.europa.eu/news/indicele-economiei-si-societatii-digitale-desi-2021-raportul-pentru-romania-2021-11-12_ro [Accessed May 2023].
- Digital Agenda Scoreboard Key Indicators [online]. Available at: https://digital-agenda-data.eu/datasets/digital_agenda_scoreboard_key_indicators [Accessed April 2023].
- Digital Banking Scorecard Report [online]. Available at: <https://futurebanking.ro/raport/digital-banking-scorecard-2022> [Accessed April 2023].
- European Commission, 2016. *A digital compass for decision makers: toolkit on disruptive technologies, impact, and areas for action*. Strategic Policy Forum on Digital Entrepreneurship. [online]. Available at: <https://ec.europa.eu/newsroom/growth/items/48892/en> [Accessed May 2023].
- Khan S., 2016. *Leadership in the digital age: A study on the effects of digitalization on top management leadership* (Dissertation). [online] Available at: <https://urn.kb.se/resolve?urn=urn:nbn:se:su:diva-133809> [12 May 2023].
- Elnahass M., Vu Quang Trinh, Teng Li, 2021. Global banking stability in the shadow of Covid-19 outbreak, *Journal of International Financial Markets, Institutions and Money*, Volume 72, 2021, 101322, <https://doi.org/10.1016/j.intfin.2021.101322> .
- Kelly, G., 2014. *The digital revolution in banking*. Washington, DC, USA: Group of Thirty.
- Kitsios, F., Giatsidis, I., Kamariotou, M., 2021. Digital Transformation and Strategy in the Banking Sector: Evaluating the Acceptance Rate of E-Services, *Journal of Open Innovation: Technology, Market, and Complexity*, Volume 7, Issue 3, 2021, p. 204, ISSN 2199-8531, <https://doi.org/10.3390/joitmc7030204> .
- Korzeb, Z. and Niedziółka, P., 2020. Resistance of commercial banks to the crisis caused by the COVID-19 pandemic: the case of Poland”. *Equilibrium. Quarterly Journal of Economics and Economic Policy*, 15(2), pp. 205–234. <https://doi.org/10.24136/eq.2020.010>
- Niemand, T., Coen Rigtering, J.P., Kallmünzer, A., Kraus, S., Maalaoui, A., 2021. Digitalization in the financial industry: An emergency approach of entrepreneurial orientation and strategic vision on digitalization. *European Journal of Management* 39.3, pp. 317-326, <https://doi.org/10.1016/j.emj.2020.04.008>
- Romanian Commercial Bank, *Financial reports*. [online]. Available at: <https://www.bcr.ro/ro/investitori/rapoarte-financiare> [Accessed April 2023].
- Rotaru, C., 2000. *Sistemul bancar românesc și integrarea europeană [The Romanian Banking System and European Integration]*. Bucharest: Expert Publishing House.
- Sardana, V., & Singhania, S., 2018. Digital technology in the realm of banking: A review of literature. *International Journal of Research in Finance and Management*, 1(2), pp. 28-32, <https://doi.org/10.33545/26175754.2018.v1.i2a.12>
- Sajić, M., Bundalo, D., Bundalo, Z., & Pašalić, D., 2017. Digital technologies in transformation of classical retail bank into digital bank. In 2017 25th telecommunication forum (Telfor) (pp. 1-4), <https://doi.org/10.1109/TELFOR.2017.8249404>
- Stoica O., Mehdian S., Sargu A., 2015. The Impact of Internet Banking on the Performance of Romanian Banks: DEA and PCA Approach, *Procedia Economics and Finance*, Volume 20, pp. 610-622, [https://doi.org/10.1016/S2212-5671\(15\)00115-X](https://doi.org/10.1016/S2212-5671(15)00115-X)
- Susan V. Scott, John V.R., Zachariadis M., 2017. The long-term effect of digital innovation on bank performance: An empirical study of SWIFT adoption in financial services, *Research Policy*, Volume 46, Issue 5, pp. 84-1004, <https://doi.org/10.1016/j.respol.2017.03.010>
- The European Banking Federation [online]. Available at: <https://www.ebf.eu/regulation-supervision/banking-in-europe-ebf-publishes-2017-facts-figures/> [Accessed April 2023].
- Transilvania Bank, *Financial*. [online]. Available at: <https://www.bancatransilvania.ro/relatii-investitori/rezultate-financiare> [Accessed April 2023].
- Vial, G., 2019. Understanding Digital Transformation: A Review and Research Agenda. *J. Strategist. Inf. Syst.*, <https://doi.org/10.1016/j.jsis.2019.01.003>