

## *Original Paper*

# The Impact of Digital Transformation on Banking Professions.

## The Case of Moroccan Banks

El qabbab Hassan<sup>1</sup>, Abdelhalim Lakrarsi<sup>2</sup> & Otmane Erguigue<sup>3\*</sup>

<sup>1,2,3</sup> Mohamed V University –Morocco, Faculty of Law, Economic and Social Sciences, Rabat, Morocco

\* Correspondence, E-mail: erguigue.otmane12@gmail.com

### **Abstract**

*This paper aims to study the effect of the digital transformation on the business banking based on an empirical study with some banks in Morocco, the results from this study clearly shows that digitalisation in the financial services sector is unavoidable, it significantly transforms the banker's profession and the bank client relationship.*

### **Keywords**

*Digital transformation, banking business, consumer behavior, FinTech*

### **Introduction**

Banking is the sector par excellence where digitalization is set to take off. the importance of this digital transformation as an accelerator of growth and productivity. In order to accelerate growth and productivity, banks will have to adapt their business model to the business model to the changes brought about by the internationalization of markets, the advent of the advent of digital distribution channels and an ever changing consumer behavior in order to survive and remain competitive.

Bank customers now have the means to obtain information quickly and to compare the prices and quality of the financial services on offer, enabling them to be increasingly demanding, and as a result their visits to the of branches has fallen, as access to banks has become totally mobile, The acceleration of technological innovation in the financial sector has opened up opportunities for the rapid emergence of new, disruptive entrants to the financial system, threatening the banking system with the emergence of a myriad of highly varied players offering a particularly attractive and ultra-competitive range of products and services, even free of charge. This digital rivalry is prompting banks to undertake an in-depth transformation of their models in order to compete with these newcomers and meet the expectations of a constantly connected clientele.

The aim of this article is to study the effect of digital transformation on both traditional and participative banking professions, through an empirical study of a number of banks in Morocco. To this

end, we propose a few lines of thought on the challenges to be met in the era of this digital revolution. This leads us to ask the following question: **What is the impact of digital transformation on the banking professions?** To this end, we will first present the definitions of the notion of digital transformation of banks, then highlight the scope of banking professions on the basis of an exploratory study.

Secondly, we will outline our research methodology, and finally discuss the main findings of this study.

## **1. The Theoretical Framework for the Digital Transformation of Banks**

Business transformation, digitization of practices, digitization of processes, digitization of customer relations - these are all challenges that are having a profound impact on our modern economies. All players are concerned, and these genuine revolutions are profoundly overturning the way in which banking professions are approached (Nicolas DENIS, 2019). Consumers have been offered a new choice and have profoundly altered their approach and expectations. Products alone are no longer enough, and this will pave the way for the emergence of a new form of “intelligent service” (Allmendinger & Lombreglia, 2005; Wuenderlich et al., 2015). In short, digital, to put it simply, has led banks to enrich their value propositions. To this end, banks must transform themselves better to satisfy customer desires (Sajić et al., 2018).

According to (Ettien, Peron, 2018) “Transformation implies a journey that serves to identify, mobilize and organize resources to move from one point to another”, it is also seen as “the adoption of readily available technological skills that transforms the organization's responsiveness to market changes” (Bos, 2018).

For David F. (2018), “Digital-related transformations are, in the first instance of three kinds: automation, for the mechanical reproduction of a sequence of actions with the help of a program, dematerialization for the replacement of material supports by computer files, and disintermediation, the elimination of intermediaries made possible by digital technology”.

According to these definitions above, we can agree that “Digital transformation can be defined as a revolution in practices, the automation and simplification of processes: towards an acceleration and optimization of internal exchange flows, and those between the bank and its customers or partners, digitalization constitutes a vector for the creation of value and commercial opportunities”.

## **2. New Field of Experimentation**

### *2.1 The Technological Challenge of Conventional Banking*

The risks weighing on the traditional banking model are so great, that some economists don't hesitate to talk about the disappearance of banks. In his book “la fin des banques”, French economist Phillippe Herlin (2015) argues that the technological upheavals underway pose a threat to banks, which could become the steel industry of the next decade.

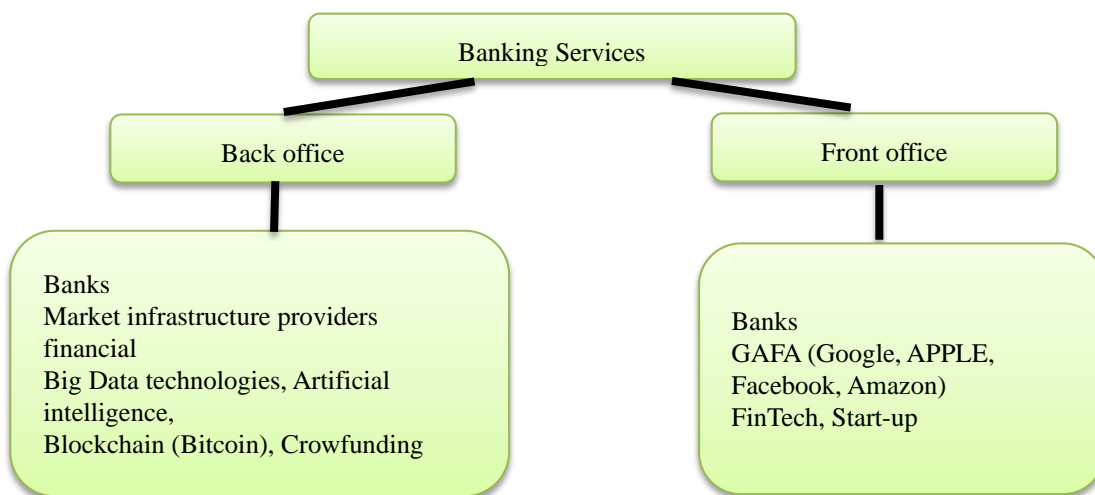
The introduction of new technologies is transforming the rules of competition in the banking industry.

On the one hand, the effects of digital technology are intensifying competition in the banking market, while on the other, they offer new opportunities to diversify the range of services available to customers (Berdi & Sebbar, 2018; Daley, 2003). Many banks, which could be described as historical and very firmly anchored in their markets, have come under attack from new non-banking players seeking to develop internet banking services, and who, by placing digital technology at the heart of their business model, are proposing new offers and new services. to manage their Wallets” (Nicolas Denis, 2019). Examples include FinTech, the broker revolution, participatory finance, the era of Big Data, the threat of GAFA the emergence of blockchain and many others. Another area invested by new technological players is that of Crowdfunding “participatory financing”, and it is here too, that innovation is brought to the fore.

In this respect, individuals and companies are able to obtain financing without having to go through traditional banks (Peer to Peer), all the steps are taken online via dedicated platforms that serve as a basis for fund-raising. Crowdfunding is the best-known of these, and is enjoying a boom in many countries. We could say that crowdfunding is a practice that enables investors to have their projects financed by the public via platforms.

In Morocco, this practice is virtually non-existent, but the government has already made known its willingness to encourage it. This reflection has led to the drafting of a bill governing this activity in its various forms: loans, capital investment and donations.

To illustrate the impact of digitalization on banking activities, Figure 1 summarizes the changes to banking services brought about by the application of technological innovations and the entry of new players.



**Figure 1. New Players In Banking Services**

*Source:* David Fayon (2018)

Figure 1 illustrates the transformation of the banking services through new technologies, it highlights the division between back office operations, managed using big Data, Artificial intelligence, and

blockchain and front-office services which are increasingly dominated alongside the banks by new players such as Fintech and startups.

### *2.2 Big Data and Artificial Intelligence*

Big Data is important for financial institutions, and its integration into the banking system's information system has been completed thanks to digital technology and the exponential development of real-time processing and storage capacities. customer data, such as “positive files (Note 3)”, enabling banks to develop their offers and and propose new services and non-banking activities in line with their customers' behavior and aspirations.

In addition, Big Data technology enables us to target the most appropriate channel to anticipate customer's future actions, and serve him with the aim of facilitating real-time access to the goods and services they need, while enhancing the closeness and permanence between the bank and its customers (Alain B., 2018).

This technological bonanza is nothing without human skills and intelligence, and will lead to the employment of hitherto unused skills profiles (mathematicians, statisticians, psychologists and the like statisticians, psychologists and the like). In fact, Big Data technology has yet to demonstrate its full potential, and is the subject of innovative approaches on the part of banks who are looking for and developing concrete applications to develop their business and their control and risk functions.

## **3. The Challenges of Digital Banking Transformation**

### *3.1 Reinventing the Customer Experience*

Banks can create sustainable competitive advantage and customer loyalty through the implementation of a digital strategy focused on the customer experience and their functional, relational and emotional needs (WIDED BATAT, 2018). To this end, a new distribution channel aimed at bringing the bank closer to its customers, by offering them information and guidance services, outside the traditional sales, with network, longer opening hours than bank branches. Have been built. This innovative vision serves to create a low-cost distribution model based on technological developments.

The customer experience is lived as a continuum between the physical and digital contexts, creating a phygital environment. In fact, this experience is seen as a major challenge for banks in the years to come, involving winning back customers' trust and being as close as possible to their mobile expectations in order to create a unique customer experience. In this respect, the phygital environment needs to integrate gateways and physical (offline) and digital (online) channels between the two real and digital universes (Medioni S., al, 2018), the aim being to offer an interactive and personalized customer experience.

### *3.2 Reinventing Service*

The banking market has been profoundly impacted by the arrival of new players. Faced with this new situation, the banking sector has found itself faced with the need to reinvent its service offering, to facilitate digital uses in the service of the customer, to widen the scope of intervention and to offer agile

support for services and extremely competitive rates, even free for certain services. Let's take the example of a classic transaction: a simple bank transfer. Twenty years ago, this involved making an appointment, going to a branch, and possibly waiting for an advisor to be available. Today, this is no longer necessarily the case; it involves a click made from a smartphone, tablet or computer (Nicolas Denis, 2019). For example, in France, an offering that had not been developed by the incumbent players (Estelle B., 2016) has arrived to manage Wallets.

In Morocco, the 2014 banking law introduced the status of payment institution, which will enable FinTechs to enter the banking market. According to central bank regulations, FinTechs will be authorized to provide their customers with basic payment services: opening an account, issuing a credit card and a RIB, with flexible opening conditions that vary according to the account category: the 200 dirham account, the 5.000 dirham account, and the 20.000 dirham account (Note 4).

### *3.3 Revisiting the Banking Profession*

Numerous research studies have shown that “the introduction of new technologies leads to the emergence of new banking professions, a new definition of these professions, their dimensions and their tasks” (Boyer & Scouarnec, 2006; Davoine et al., 2011; Enlart & Charbonnier, 2013; Barabel et al., 2014; Deloitte, 2014; BCG, 2015; Audrin & Davoine, 2017).

Against this innovative backdrop, the banker's job has changed in terms of how he responds to customers. As a result, the very profile of the banker is undergoing a revolution, whether in terms of career path or continuing education, the modern banker must above all be agile, while at the same time reassuring the customer (customer centric). They must excel in human relations, while keeping abreast of new digital trends, He must also know how to manage day-to-day operations, and at the same time be an expert on specific issues. This is what customers expect and customers are looking for, and what we need to offer them is a genuine offer combining expertise, genuine multidisciplinary teams and, at the same time, pools of top-level skills.

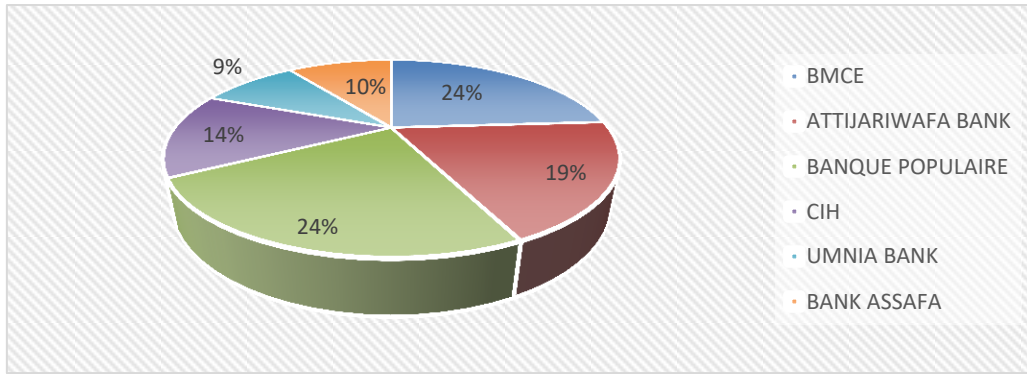
## **4. Research Methodology**

Our methodology for data collection and analysis is based on an empirical study. We carried out a quantitative survey by distributing a questionnaire to a number of Moroccan bank branches (BMCE, BP, AWB, CIH, UMNIA BANK, BANK ASSAFA). In order to deepen our study, we conducted a qualitative study, characterized by the semi-directive interview method with branch managers and account managers.

### *4.1 Analysis of Results*

#### *4.1.1 Selection of our Sample*

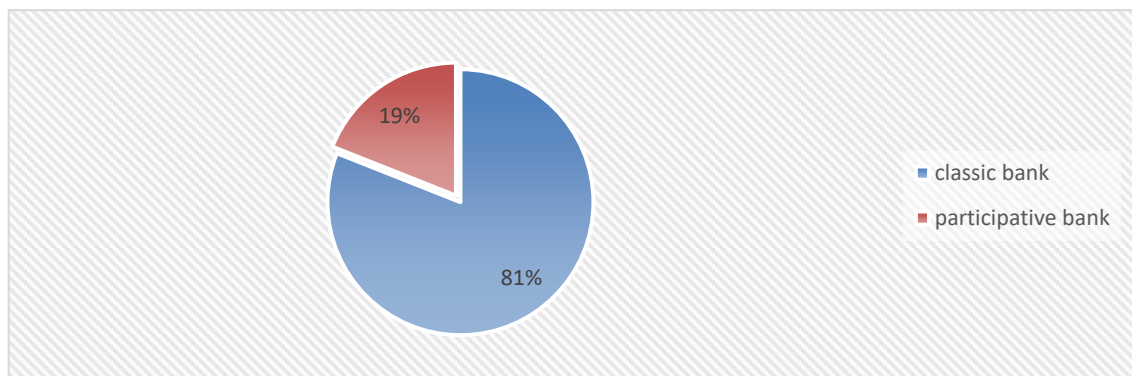
Our study sample was made up of 20 different bank branches. With the inclusion of two participative banks. The banks surveyed are located in Rabat, Fès, Meknès, Marrakech, El Hajeb, Er-Rachidia and Tangier.



**Figure 2. Bank Distribution**

*Source:* Authors

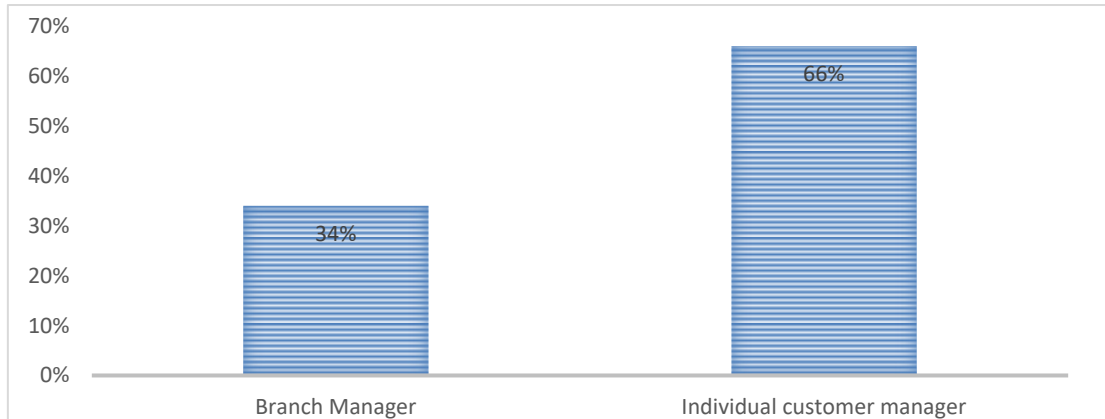
The distribution of banks in Figure 2 shows that the majority of responses -around 81% of responses in total – were collected from traditional banks such as BMCE, Attijariwafa Bank and Banque Populaire and also CIH, which are considered as the big players of the Moroccan market, while the participatory banks like Umnia Bank and Assafa account to 10% and 9% of the collected responses.



**Figure 3. Bank Typology**

*Source:* Authors

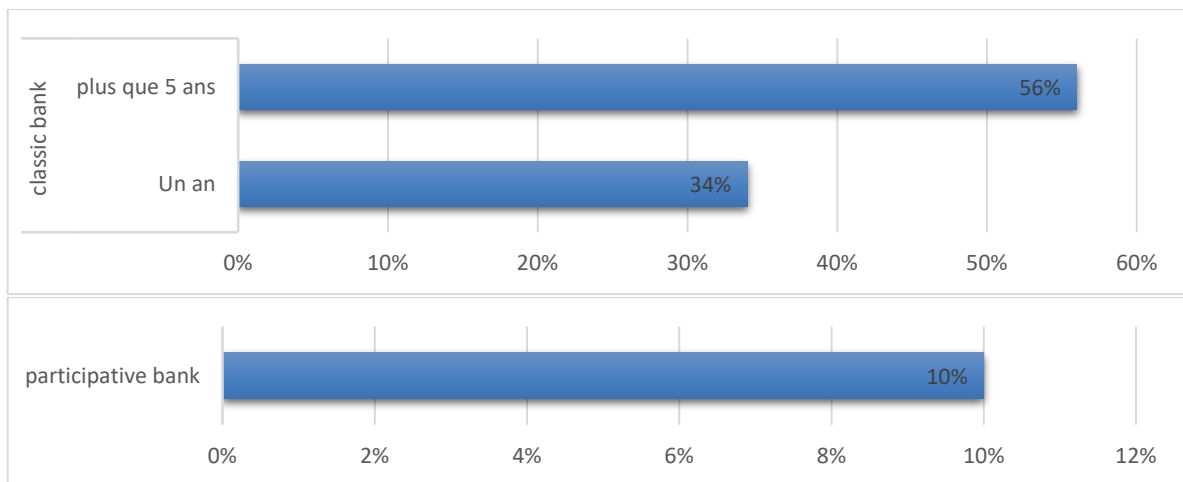
The Typology of banks as shown in Figure 3 highlights that the Moroccan banking sector is mainly dominated by traditional banks which accounted to 81% of the responses collected, while the participatory banks account to only 19% of the responses, indicating their limited but growing presence in the sector.



**Figure 4. Distribution of our Interviewees by Position Occupied**

Source: Authors

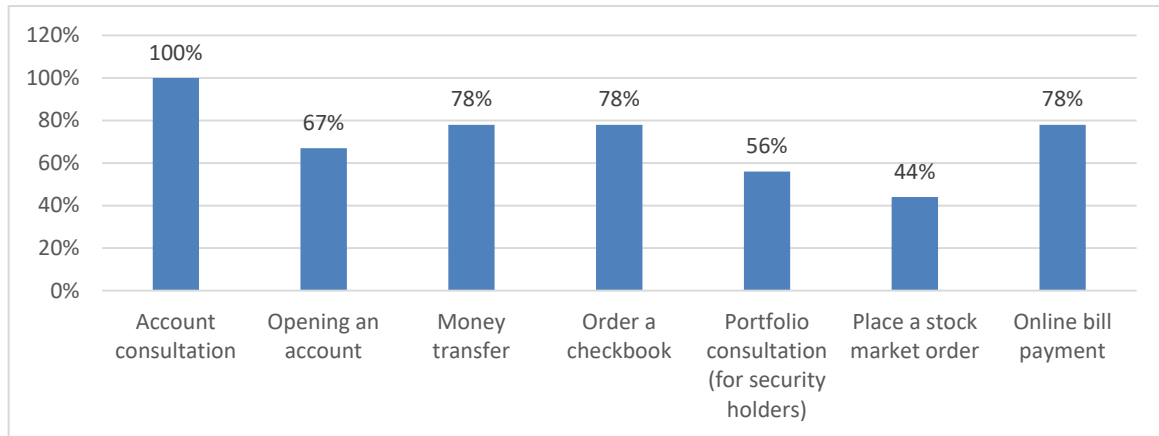
Almost 66% of responses were collected from account managers and 34% from branch managers. branch managers, the choice of account managers in the elaboration of our survey was is justified by the inclusion of several banking digitization practices in the front office banking professions, and mainly in the tasks of account managers.



**Figure 5. Launch Period for the Bank's Digital Services**

Source: Authors

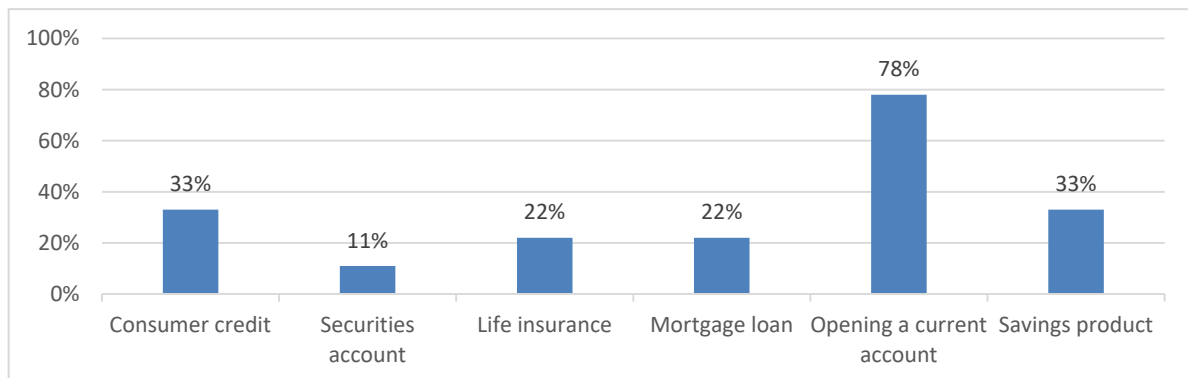
The digital transformation of banking services started more than five years ago for 56% of the sample, and one year for the rest. Among the banks that have only recently integrated digitalization channels, we find the participative banks that have been on the market for less than two years. The fact of having a strategic watch within the bank helps to facilitate the implementation of digital transformation and to adapt quickly to the requirements of this transformation.



**Figure 6. Online Banking Services Offered to Customers**

*Source:* Authors

The survey shows that basic online services are gradually being developed by the banks in our sample, as part of a multi-channel or omnichannel approach. Thus, we can see that it is account consultation that service offered by all the banks, followed by checkbook orders, bill payment followed by checkbook ordering, online bill payment and, finally, money transfers.



**Figure 7. Products Purchased Online**

*Source:* Authors

Online product subscription is becoming more widespread, and is becoming commonplace for opening a current account with all its associated services, as well as for savings products and consumer credit. For investment products such as life insurance or mortgages, which are growing products, are increasing significantly as the and simplified.

#### 4.1.2 Discussion of Results

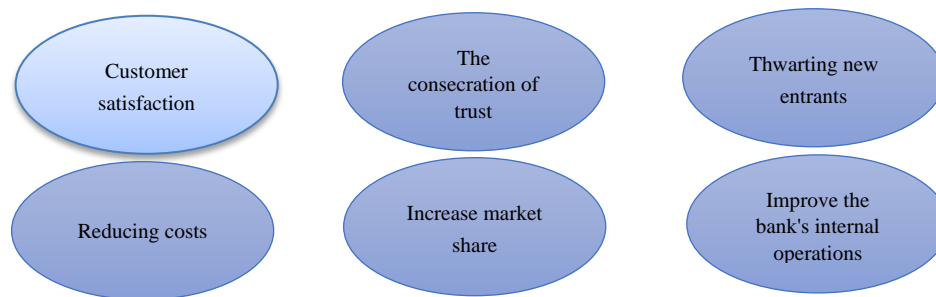
- **Digital transformation as seen by our interviewees**

The implementation of digital transformation has come in response to an imperative for change made necessary by customers who have become more demanding, and who want to benefit from a pleasant,



personalized and fluid customer experience. Today, the bank's business model is being transformed to place the customer at the heart of its “customer-centric” organization, processes and culture (participative products, crowdfunding, online services, etc.). From now on, the adoption of digital technology is no longer a choice, but rather a necessity to guarantee a sustainable competitive advantage within the bank.

- **The main factors behind digital transformation**



**Figure 8. Factors Explaining Digital Transformation**

*Source:* Authors

Our interviewees' answers show that the factor that most explains digital transformation within the bank is customer satisfaction. Indeed, the change observed in customer behavior, which has become constantly connected, justifies the facilitation of the implementation of “One to One” strategies, the second explanatory factor involves the improvement of the bank's internal functioning in terms of staffing levels and tasks performed. This brings us back to the idea put forward by (Audrin and Davoine, (2017), the majority of bankers surveyed see digital as an opportunity to seize (saving time, making work more comfortable, focusing on core businesses, and productivity gains), the third explanatory factor is the need to increase market share to secure a sustainable competitive advantage.

- **Digital transformation seen as a tool for winning new customers and for interaction between customer and bank**

Our interviewees agree that digital banking transformation is helping to win over new customers, as a veritable generation of Internet users has emerged in recent years. To this end, the bank needs to speak the language of modernity and be present on social networks in order to target under-banked customers. Other niches could be used to build inclusive financial systems for the benefit of a wide population by offering diversified financial services. These include Low Income Banking (LIB) and participatory products. Many unbanked people are reluctant to contract financial services, due to their distance of the banking network, so the introduction of new technologies in the banking sphere such as mobile telephony and the Internet can help to offset the inadequacy of the banking and make financial services more accessible at a distance (Gosling, 2000).

To make this vision a reality, banks are being encouraged to offer a range of basic services free of charge, and to multiply their promotional offers in order to attract more and more customers and win

significant market share. This new practice reflects the fact that consumers are favoring e-banking as a new distribution channel for commercially and technically integrated products. In fact, fewer and fewer customers consider the branch to be the indispensable place for handling general day-to-day operations, but this is not the end of the story: not all contact channels are suitable for all simulations. In fact, customers will spontaneously develop a multi-channel arbitration choice, and the more complex the operation, the more important the physical role of the branch.

Interviewees were unanimous in their view that the digital transformation process enables them to weave a better interaction between customer and bank through a new and a more interactive, agile customer experience.

- **The impact of digital on the banking business**

One of the main challenges of the banks' digital transformation is that of transforming their human resources. The key lies in the development and repositioning of skills; behind the branch closures lies the transformation of customer relations with new, refocused and diversified professions. This involves accelerated automation of processes and the development of advisory skills to serve a more specialized and informed clientele. All branch networks are stepping up their insurance distribution capacity, while others are considering distribution partnerships, notably with local producers, or sharing office space with start-ups.

- **New non-bank competitors a real threat to the Moroccan banking system? And why?**

Our interviewees report that, for the time being, FinTechs, despite their technological firepower, are unable to seriously shake up Moroccan banks due to their undercapitalization. Indeed, most of them prefer partnership to confrontation, in the form of offer partnerships, capital alliances, acquisitions, etc. This opportunistic cooperation is only a first step.

This opportunistic cooperation is simply a means of accelerating digital transformation and connecting with new market trends, all the more so as incumbent banks project that this path of cooperation is an undeniable lever for attracting new skills adapted to the new professions demanded by technological innovation.

To achieve this, it is advisable to establish a dialogue and communicate on a common project, to take advantage of the freshness of one and the experience of the other and capitalize on the synergies that may arise, so these two key players are complementary who can continue to grow together (Dominique Chesneau, 2019).

## **5. Managerial Implications of Digital Transformation on the Banking Professions**

Digital transformation is driving changes within the banking organization both in terms of work organization and the very nature of the work itself (new job content), new needs for skilled personnel capable of adapting to the new technological environment. Our results corroborate the work of Bos, (2018), who considers that the technological skills required relate more to “knowing how to be”, (welcoming qualities, responsiveness, potential to learn potential for learning IT tools, etc.).

## 6. Conclusion

At the end of our research, we can say that the advent of digital and its integration of this dimension into the value chain is no longer a luxury, but a necessity. digital transformation only makes sense if it is perceived as a win-win situation between customers, new players and the bank.

The implementation of a clear strategic vision, the mobilization and commitment of all often new and diversified skills, and managing change are the main challenges to be met. The absence of these levers to the success of such a project. This may lead to a review of the banks' business model, as banks are called upon to enter a frantic and legal race to survive the disruption imposed by new entrants.

We can deduce from our survey that the Moroccan banks of tomorrow are on the move, constantly evolving their organizational and operational models to improve efficiency and responsiveness, all with a view to offering a wider range of quality products and services, and build customer loyalty.

From a managerial point of view, our research shows that digital transformation has a significant impact on banking professions. Indeed, the wide variety of technologies and their possible uses means that jobs need to be redeployed to meet new consumer needs and increase value creation within the bank.

## References

- Abdelkhalek, T., & Solhi, S. (2009). Efficiency and Productivity of Moroccan Commercial Banks: A Non-Parametric Approach. Economic Research Forum ERF, Working Paper n°466. *European Scientific Journal*, 13(13).
- Abobakr, M. G. (2018). Bank specific, industry concentration, and macroeconomic determinants of Egyptian banks' profitability. *International Journal of Accounting and Financial Reporting*, 8(1), 380-397. <https://doi.org/10.5296/ijaf.v8i1.12882>
- Adam, M. (2014). Evaluating the financial performance of banks using financial ratios a case study of Erbil Bank for Investment and Finance. *European Journal of Accounting, Auditing and Finance Research*, 2(6), 162-177.
- Al-Tamimi, H.A.H. (2010). Factors influencing performance of the UAE Islamic and Conventional National Banks. *Global Journal of Business Research*, 4(2).
- Aral, S., & Weill, P. (2007). IT assets, organizational capabilities, and firm performance: How resource allocations and organizational differences explain performance variation. *Organization science*, 18(5), 763-780. <https://doi.org/10.1287/orsc.1070.0306>
- Athanasoglou, P. P., Brissimis, S. N., & Delis, M. D. (2008). Bankspecific, industry specific and macroeconomic determinants of bank profitability. *Journal of international financial Markets, Institutions and Money*, 18(2), 121-136. <https://doi.org/10.1016/j.intfin.2006.07.001>
- Bashir, A. H. M. Determinants of Profitability in Islamic Banks: Some Evidence from the Middle East. *Islamic Economics Studies*, 11(1), 31-57.
- Berger, & DeYoung. (1997). Problem Loans and Cost Efficiency in Commercial Banks. *Journal of*

- Banking and Finance*, 21. [https://doi.org/10.1016/S0378-4266\(97\)00003-4](https://doi.org/10.1016/S0378-4266(97)00003-4)
- Berger, A. N., King, K. K., & O'Brien, S. M. (1991). The limitations of market value accounting and a more realistic alternative. *Journal of Banking and Finance*, 15, 753-783. [https://doi.org/10.1016/0378-4266\(91\)90099-8](https://doi.org/10.1016/0378-4266(91)90099-8)
- Berger, A., Hanweck, G., Humphrey, D.B., (1987). Competitive viability in banking: Scale, scope and product mix economies. *Journal of Monetary Economics*, 20(3), 501-520. [https://doi.org/10.1016/0304-3932\(87\)90039-0](https://doi.org/10.1016/0304-3932(87)90039-0)
- B éziade, C. & Assayag, S. (2014). The impact of digital technology on banking professions. In *The trades observatory*.
- Bordeleau, E., & Graham, C. (2010). *The Impact of Liquidity on Bank Profitability*. Bank of Canada Working Paper 2010-38.
- Bourke, P. (1989). Concentration and other determinants of bank profitability in Europe, North America and Australia. *Journal of Banking & Finance*, 13(1), 65-79. [https://doi.org/10.1016/0378-4266\(89\)90020-4](https://doi.org/10.1016/0378-4266(89)90020-4)
- Chesneau, D. (2019). Fintechs and banks: cooperation and coopetition, 45-50. <https://doi.org/10.3917/rindu1.191.0045>
- Choong, Y., Thim, C., & Kyzy, B. (2012). Performance of Islamic Commercial Banks in Malaysia: An Empirical Study. *Journal of Islamic Economics, Banking and Finance*, 68(2).
- Daoui, M., & AIT BIHI, A. (2023). Banking in the age of digital transformation. *International Journal of Strategic Management and Economic Studies (IJSMES)*, 2(3), 1040-1049.
- Degryse, C. (2016). *Social impacts of the digitization of the economy*. Working paper. Brussels, European Social Institute.
- Demirg üç-Kunt, A., & Huizinga, H. (1999). Determinants of commercial bank interest margins and profitability: Some international evidence. *The World Bank Economic Review*, 13(2), 379-408. <https://doi.org/10.1093/wber/13.2.379>
- Demirg üç-Kunt, Asl4, & Harry Huizinga. (1997). *Taxation of banking: International Evidence*. mimeo, World Bank, 1997.
- Denis, N. (2019). Banking, in full transformation - Industrial realities, 33-35. <https://doi.org/10.3917/rindu1.191.0033>
- Dietricha, A., & Wanzenried, G. (2009). What Determines the Profitability of Commercial Banks? New Evidence from Switzerland. *12th Conference of the Swiss Society for Financial Market Research, Gen ève, Suisse*.
- Easterly, W. (1993). How Much Do Distortions Affect Growth? *Journal of Monetary Economics*, 32(4), 187-212. [https://doi.org/10.1016/0304-3932\(93\)90002-W](https://doi.org/10.1016/0304-3932(93)90002-W)
- Fayon, D., & Tartar, M. (2014). *Digital transformation*.
- Fiordelisi, Marques-Ibanez, & Molyneux. (2011). Efficiency and risk in European banking. *Journal of Banking and Finance*, 35(5), 1315-1326. <https://doi.org/10.1016/j.jbankfin.2010.10.005>

- Flamini, C., Valentina C., McDonald, G., Liliana, S. The Determinants of Commercial Bank Profitability in Sub-Saharan Africa. IMF Working Paper.
- Goddard, J., Molyneux, P., & Wilson, J. O. S. (2004). The profitability of european banks: a cross-sectional and dynamic panel analysis. *The Manchester School*, 72(3), 363-381. <https://doi.org/10.1111/j.1467-9957.2004.00397.x>
- Haron, S. (2004). Determinants of Islamic bank profitability. *Global Journal of Finance and Economics*, 1(1), 1-22.
- Hassan, M. K., & Bashir, A. H. M. (2003). Determinants of Islamic Banking Profitability. In *10th ERF Annual Conference, Morocco* (pp. 16-18).
- Heffernan, S., & Fu, X. (2010). Determinants of financial performance in Chinese banking. *Applied Financial Economics*, 20(20), 1585-1600. <https://doi.org/10.1080/09603107.2010.505553>
- Jepsen, M., & Drahokoupil, J. (2017). The digital economy and its implications for work. The impact of digitalization on the job market. *Transfer: European Review of Labour and Research*, 23(3), 253-257. <https://doi.org/10.1177/1024258917714659>
- Kasman, A., Tunc, G., Vardar, G., & Okan, B. (2010). Consolidation and Commercial bank net interest margins: evidence from the old and new European union members and candidate countries. *Economic Modeling*, 27(3), 648-655. <https://doi.org/10.1016/j.econmod.2010.01.004>
- King, R. G., & R. Levine (1993). Finance and Growth: Schumpeter Might Be Right. *Quarterly Journal of Economics*, 108, 717-737. <https://doi.org/10.2307/2118406>
- Klein, O. (2015). Banking and new technologies: the new deal, *120*(4), 17-22.
- Klein, O. (2019). Retail banking strategies for the technological revolution, *135*(3), 193-206.
- Lama Tarek Al-Kayed Sharifah Raihan Syed Mohd Zain Jarita Duasa. (2014). The relationship between capital structure and performance of Islamic banks. *Journal of Islamic Accounting and Business Research*, 5(2), 158-181. <https://doi.org/10.1108/JIABR-04-2012-0024>
- Levine, R. (1996). Foreign banks, financial development, and economic. *International financial markets: Harmonization versus competition*, 224.
- Levine, R. (1997). Financial Development and Economic Growth: Views and Agenda. *Journal of Economic Literature*, 35, 688-726.
- Levine, R. (2004). *Finance and Growth: Theory and Evidence*. NBER Working Paper Series n°10766, Cambridge, MA. <https://doi.org/10.3386/w10766>
- Liu, H., & Wilson, J. O. (2010). The profitability of banks in Japan. *Applied Financial Economics*, 20(24), 1851-186. <https://doi.org/10.1080/09603107.2010.526577>
- Llorca, M. (2017). Banks grappling with fintech, *75*(3), 43-58. <https://doi.org/10.3917/leco.075.0043>
- Mairesse, J., Cette, G., & Kocoglu, Y. (2000). Information and communication technologies in France: diffusion and contribution to growth. *Economy and Statistics*, 339(1), 117-146. <https://doi.org/10.3406/estat.2000.7482>
- Merton, R. C. (1992). Financial innovation and economic performance. *Journal of applied corporate*

- finance*, 4(4), 12-22. <https://doi.org/10.1111/j.1745-6622.1992.tb00214.x>
- Michel Serres, Hesam universit é [Hesam Universit é]. (2013). *Innovation and digital technology by Michel Serres*.
- Miller, S. M., & Noulas, A. G. (1997). Portfolio mix and large-bank profitability in the USA. *Applied economics*, 29(4), 505-512. <https://doi.org/10.1080/000368497326994>
- Millon Cornett, M., McNutt, J. J., & Tehranian, H. (2010). *The financial crisis, internal corporate governance, and the performance of publicly-traded U.S. bank holding companies*. SSRN, Working Paper Series. <https://doi.org/10.2139/ssrn.1476969>
- Mohamed, H., Jebbari, A., & El Haddad, S. (2021). Impact of digitalization on the financing performance of Moroccan companies. *International Journal of Economic Studies and Management (IJESM)*, 1(3), 338-353. <https://doi.org/10.52502/ijesm.v1i3.202>
- Molyneux, P., & Thornton, J. (1992). Determinants of European bank profitability: A note. *Journal of banking & Finance*, 16(6), 1173-1178. [https://doi.org/10.1016/0378-4266\(92\)90065-8](https://doi.org/10.1016/0378-4266(92)90065-8)
- Muda, M., Shaharuddin, A., & Embaya, A. (2013). Comparative Analysis of Profitability Determinants of Domestic and Foreign Islamic Banks in Malaysia. *International Journal of Economics and Financial Issues*, 3(3), 559-569.
- Ntchabet, A. Y. M., Menyeng, C. B., & Youmto, E. (2020). Determinants of the financial performance of commercial banks in Cameroon: a panel study, 3(3).
- Olson, Dennis, & Zoubi, Taisier A. (2008). Using accounting ratios to distinguish between Islamic and conventional banks in the GCC region. *The International Journal of Accounting*, Elsevier, 43(1), 45-65. <https://doi.org/10.1016/j.intacc.2008.01.003>
- Omerani, D., Cha mâa, H. K., & Atitaou, A. (2022). Digital transformation and financial performance: the case of listed Moroccan commercial banks, 3(10).
- Prastiyaningtyas, F. (2010). Faktor-faktor yang mempengaruhi profitabilitas perbankan: Studi pada bank umum go public yang listed di bursa efek Indonesia tahun. 2005-2008. Disertasi Master, Fakultas Ekonomi Universitas Diponegoro, Semarang, 2010.
- Reinhart, C., & Rogoff, K. (2009). *The aftermath of financial crises*. NBER Working Paper, n 14656, Cambridge, MA. <https://doi.org/10.3386/w14656>
- Rosly Saiful Azhar, & Mohd Afandi Abu Bakar. (2003). Performance of Islamic and mainstream banks in Malaysia. *International Journal of Social Economics*, 30(11/12), ABI/INFORM Global pg. 1249. <https://doi.org/10.1108/03068290310500652>
- Rowley, A. (1982). *France's economic development from the mid-19th century to 1914*.
- Samad, Abdus, & Kabir Hassan. (2000). The Performance of Malaysian Islamic Bank During 1984-1997: An Exploratory Study. *Thoughts on Economics*, 10(1 & 2).
- Short, B. (1979). The relation between commercial bank profit rates and banking concentration in Canada, Western Europe and Japan. *Journal of Banking and Finance*, 3(3), 209-219. [https://doi.org/10.1016/0378-4266\(79\)90016-5](https://doi.org/10.1016/0378-4266(79)90016-5)

Suria Rismawati Sanwari, & Roza Hazli Zakaria. (2013). The Performance of Islamic Banks and Macroeconomic Conditions. *ISRA International Journal of Islamic Finance*, 5(2). <https://doi.org/10.12816/0002770>

### Notes

Note 1. These are the Internet giants, telecom operators and startups in contraction with finance and technology. These are innovative, usually young, companies using digital technologies to deliver financial services more efficiently and more cheaply. The term first appeared in English-speaking countries in the 1990s, and spread to the rest of the world after the 2008 financial crisis. According to figures from KPMG, \$45 billion was invested in fintech in 2015.

Note 2. This term refers to “web giants” or “digital giants” who wield considerable economic and financial power, including Google, Amazon, Apple and others.

Note 3. On appelle « fichier positif » un fichier recensant les crédits décaus par des clients dans tous les établissements. Ce fichier est en place dans la plupart des pays européens. Par exemple en France, seuls les incidents de paiement sont recensés, dans un « fichier négatif ».

Note 4. Challenge magazine, n 635, February 2 to 8, 2018.