



The Algerian public banks in the era of the digital transformation

 BOUACHERIA KEBIR ibtissem*	 SALHI Tarik
Bouacheriakebir.ibtissem@univ-oran2.dz	Salhi.tarik@gmail.com
University of Oran 2(Algeria)	University of Oran 2(Algeria)

Submitted:29/09/2022

Accepted:13/10/2022

Published:04/12/2022

Abstract:

Lately, new Information and Communication Technologies ICTs have hugely developed. Their impact on the banks, has been great. Thus, this paper takes a sample of the Algerian public banks in the city of Oran as case study using a questionnaire in order to show their level of engagement and maturity regarding the digital transformation and use of digital technologies. Findings that the Algerian public banks are interested in making up for their late joining of the digital world.

Key words: Digital transformation; Algerian public banks; ICTs;Algeria.

JEL Classification Codes : M31, M39.

* Corresponding Author

Introduction :

The vulgarization of internet and mobile devices starting from the 2000s has led to big changes in the economy which showed the importance of digitalization inside the business. Digitalization helps survive and improve the performance. Currently, the digital transformation is inevitable for the success of any institution because it helps in all the fields and saves efforts and costs through the automation of the complex tasks. Moreover, it helps and gives advance in the competition inside the market since not all businesses are equipped with technology.

In the same line, the banks face a new era thanks to technology and take a new shape with new dimensions to form what we call the digital bank, the electronic bank, or the distant bank. Studies prove that there is an effect between the use of the electronic marketing and the enhancement of the banking performance regarding the customers' satisfaction, costs, market share, and the image of the bank (Adala & Djellam, 2015).

General problematic and partial problematic

As for Algeria, the digital transformation of the banking sector witnessed a fast progress which merged the physical agencies with online services thanks to the various regulations internationally, the digitalization of the payment, and the initiatives supported by the Algerian banks. In the same context, the mastery of this new environment created a strategic challenge for the Algerian banking sector in order to keep up in pace with the fast-emerging technological developments. Based on what has been said, we find ourselves obliged to grapple with a paramount question that is: **To what extent do the Algerian banks adopt digitalization?**

In the attempt to answer this problematic, 03 sub-questions arise that are:

- To what extent are the Algerian banks digitally mature?
- What benefits may be gained from the digitalization of the public banks in Algeria?
- What are the obstacles faced by the public banks in adapting digitalization?

General hypothesis and partial hypothesis

To answer these questions, we hypothesize that:

- The Algerian banks have an advanced level of digitally maturity.
- Many benefits may be gained from the digitalization of the public banks in Algeria.
- There are many the obstacles faced by the public banks in adopting digitalization

Objectives and importance of the study

Through this study, we aim first at analyzing the reality of the engagement of the Algerian banks in the digital transformation and the benefits and obstacles of the process. To reach the aims of the study, we shall give a theoretical background about the digitalization in general, and in Algeria in particular. Then, we shall study the state of the places of digitalization in the sample banks trying to explain the benefits and obstacles of this process.

Methodology applied

Our study makes a field analysis through a questionnaire distributed to the Algerian public banks. Moreover, the questionnaire aims at answering 03 specific objectives that are:

- Identifying the technological platforms used by the Algerian banks.
- Evaluating the challenges of the digitalization in the banks.
- Evaluating the advantages of the digitalization for the banks in Algeria.

Presentation and validation of the questionnaire:

The used questionnaire includes descriptive questions in three sections. The 1st revolves around the personal information of the informants. The 2nd is about the identification of the technological tools used by the interrogated banks and their extent of use. The 3rd is about the evaluation of the challenges of digitalization.

Population of the study:

The banking arena in Algeria includes currently 19 banks and 08 financial institutions according to the list of the Bank of Algeria. In order to evaluate and analyze the reality of the digital transformation at the level of the banks in Algeria, we targeted only the public banks that are the exterior Bank of Algeria (BEA), the national Bank of Algeria (BNA), the popular loan of Algeria (CPA), the rural development bank (BDL), rural and agricultural development bank (BADR), and the national fund of savings and pension (Cnep bank).

For every bank, we targeted the three following directions:

- The computer direction.
- The direction devoted to the digital
- The direction of training and career management.

For each bank, a sample of 10 informants had been chosen to form a total of 60 informants. 06 banks had accepted to receive us. Hence, we collected 45 answers with an answer rate estimated at 75%.

Method and tools of the analysis:

The study interpreted the results of the questionnaire starting from the proofs presented in the collected data which we have analyzed with statistical tools such as Excel and SPSS 25. Moreover, they have been presented in the form of simple percentages that express the answers of the different banks.

I. Literature reviews:

1. Digitalization or digital transformation?

The term “digitalization” is generally more used than the expression “digital transformation” though the latter is older. The term “digitalization” applies to a clear perimeter such as a process or a job. As for digital transformation, it refers to the systematic organizations such as the businesses, states, or societies where the transformation is profound, and where we move towards a new paradigm, challenge the beliefs, the organization, and the practices (Digitall Conseil, 2022).

1.1 Digitalization:

It is the step that aims at transforming an object, a tool, a process, or a job into an informatics code to substitute it and make it more performing. The adjective “digital” comes from the Latin “digitus” which means “something that has a relation with the fingers”.

In the beginning, the term “electronic” was much more used to refer to the new services related to internet. We used to say the e-business to refer to the electronic business (e-agency, e-travel...). However, starting from 2007 with the appearance of the 1st iPhone, our daily life became digital. The web opened a new stage with the appearance of mobile applications.

Hence, digitalization is transforming as it changes the way businesses interact with their customers and their sources of incomes.

1.2. Digital transformation:

According to (Reimer & al, 2013), the digital transformation is the collection of the changes that result thanks to the new technologies that directly impact the sample business and the way of its interaction with the others. Moreover, (Djelfat, Ferhane, & Salah, 2017) see that the digital transformation plays a vital role in the notion of “the innovation with the complete transformation” hand in hand with the other types of innovations (with the product, with the procedures, and with the customer experience). The digital transformation is an important factor for the performance of the organization through developing the investments and use of ICTs (Deltour & Lethiais, 2014).

From another point of view, the transformation is the process that contains making a business with a traditional approach adopt new work and expenditure styles using the digital, social, mobile, and emerging technologies. Digital transformation implies a change in the leadership, a different reflection, the stimulation of the innovation, and new economic models with the accurate use of technology to improve the experience of the employees, the customers, the suppliers, the partners, and the shareholders of the business.

The notion of “digital transformation “or “digitalization” supposes a passage from a physical state into a virtual one. Unlike what some might think in the beginning, it is not always the question of a digital revolution as it would be more just in many cases to speak about the transition or evolution of the tasks (Gourvenec & al, 2016).

From these definitions, we can say that the digital transformation is a process that consists of completely substituting the inherited manual tasks with the latest digital alternatives. This type of reinvention covers all the activities of the business.

2. Reasons of digitalizing the banking sector:

The digital transformation of the banking sector did not happen at random as there are factors that led to the integration of the digital in the daily activity of the banks. These factors are social, economic, and technological.

2.1. The evolution of the expectations of the customers:

The generalization of the internet and the sophisticated mobile devices has strongly changed the habits of the consumers and today’s peoples (Eray, 2018). The customers became more connected and prefer the use of the distant banking services (online banks, mobile banking...). Thus, we notice that the customer became more difficult to satisfy as he wants everything to be done in a brief time and not to waste time (McKinsey, 2014). These new habits are the outcome of the lifestyles that evolved with the development of technology. The customers adored the facility and the fast of access to the goods and products with one click using the internet. Moreover, the recent health crisis known as Covid-19 has increased the customer’s choice of digitalization. This change in habits considerably impacted the banks and their customers. In the same vein, the bank copes with the new trend of the market because the digital revolution and the progress of the technologies put the consumer in an important position as communication became bilateral, interactive, and moved from the one direction of business towards customer into the mutual direction because the customer can answer, interact, and express his opinion. Today’s consumer is more informed thanks to the big number of the available information on the web (Amin, 2022) and wants, in the digital

era, to be served effectively and rapidly. Moreover, he wants his questions to be answered and to be treated in a personalized manner.

2.2. The online banks: new source of competition:

An online bank is a new banking actor that appeared within the market in the 2000s with the digital revolution. The online bank suggests the same services of a classical bank such as accounts opening, money transfer, withdrawal of money, credits...etc. These banks gained a big number of people as they have great advantages thanks to their attractive costs compared to the classical banks and the time saving. Access is possible anytime with a simple click which makes the customer feel easiness in his daily life. We understand that the virtual banks represent a threat to the traditional ones mainly that the online banks are more visited by the customers. Visiting the traditional banks 1 time per month was 40% in 2006, 28% in 2011, and 20% in 2015 while visiting the online ones one time per month increased from 28% in 2006 to 40% in 2012 (Lecigne, 2013).

2.3. The FinTech:

The term “FinTech” is an umbrella term made of “finance” and “technology”. It refers to the innovating startups that use the technology to rethink the financial and banking services. This phenomenon of the last 10 years witnesses a considerable increase and attracts more and more investors. According to the Financial Stability Board, the FinTech refers to the innovations in the financial services thanks to the technology which can create business models, applications, processes, or new products and strongly influence the markets, the financial institutions, and the ways of providing the financial services (Bechet, Coulomb, & Dauvergne, 2018).

We deduce that the FinTech dethroned the monopoly of the banks in many activities as it has many advantages which suggest services that perfectly respond to the customers of the digital era, decrease the barriers, provide a financial facility thanks to the risk capital, and has loose regulations towards the customers (Riemer, Halfermals, & Roosen, 2017). As the virtual banks, the FinTech represents an increasing form of competition.

3. The tools of the banking digitalization:

In the last years, the traditional banks had to rethink their styles of functioning and services to compete the online and mobile banks. They must face an unprecedented transformation of the financial sector with the advent of the FinTech.

3.1. The tools of the information management:

Among the tools of the banking digitalization, we find those of the information management that include the blockchain, the Big Data, and the Cloud which all offer many advantages about the stock and the management of the massive data for the bank.

3.1.1. The blockchain:

In its report published in December 2018, the mission of the common information of the National Assembly about the use of the blockchain and the other technologies of the certification of the register defines the blockchain as a register, a big database that is characterized with being simultaneously shared with all the users who are able to add data into it according to specific rules determined with a well secured informatics protocol thanks to the cryptography.

3.1.2. The Big Data :

The expression “Big Data” has been popularized by John Mashey who was a computer scientist for Silicon Graphics in the 1990s. He refers to the very big and complex databases to study them with traditional statistic methods. In addition, the expression refers to the new tools of the analysis of these data. This technology is a real revolution in the banking offers. Thanks to these tools, the offers became automated and personalized. This allows a new distant relation that is based on the intelligent automation which changes the market standards through changing the models of the traditional funding thanks to the exploitation and treatment of a big varied amount of the customers’ data in real time.

3.1.3. The Cloud Computing:

It is a collection of solutions that allow providing different services with an average internet. It represents the new trend to stock the data on the servers. Thanks to the Cloud, the banks can choose, instead of investing in the purchase of software, to rent one from the business that developed it and ensures its maintenance, updates, and hosting thanks to the conspicuous improvement in the internet flow and the evolution of the internet explorers like Firefox, Chrome, IE, etc.

3.2. The tools of the multi-channel distribution:

The banks multiply the contact points with their customers through a multi-channel strategy. The contact channels rely on a unidirectional communication (that mobilizes the big media) or an interactive communication (that relies on the classic channels of direct marketing: internet, consumer service, mailing...) (Helfer & Michel, 2019).

3.2.1. The banking automates:

The automatic teller machine (ATM) is an electronic tool located either inside or outside the bank, or in public spaces. It allows making basic banking operations such as money deposit, withdrawal, transfer, printing the account report or the bills (Boumediene & Renauld , 2021). ATMs are automatic devices that allow the customers to withdraw money at any time without the intervention of any staff. They just need a banking card and are found in big stores, post offices, banks...

3.2.2. PC Banking:

The banks through internet, Home Banking, or PC banking are different names that refer to the management of the banking accounts from a computer or a tablet that are connected to internet. Subscription to the services of the internet bank allows access to the account of the customer 24/24 and 7/7. These services allow making deposits at any time, balance inquiry, subscription to products, or making a loan.

3.2.3. Internet banking:

Internet is the basic element for the emergence or appearance of the distant bank. Indeed, internet allowed the banks to set a banking web without offices or direct banks. These banks have a lot of services all along the week with competitive prices. They provide the customers with the possibility of accessing their financial information via internet. Today, access to internet and the use of the web facilitate the daily tasks either for the banking transactions, selling services, or fining information on the social media...etc. The services via internet require a connected computer or a mobile phone which provide many advantages.

3.2.4. The digital tablets and smartphones:

The phone channel was, and will be, a privileged contact tool between the banks and the customers. Therefore, the banks have strongly invested in these phone platforms in order to develop and ensure a reliable and qualitative relation with the customer through the phone. Through relying on interactive vocal services (call centers), these low-cost organizations may manage more easily the calls of the customers. Vocal interactive service may be a physical server that has the form of a server installed on the site of the business. The banks use them in order to automate the management and the calls they receive. An interactive vocal server interacts with the callers to obtain information about them and the reason of their calls. However, lately, the smartphones and tablets have alarmingly widespread all along with the mobile applications.

3.2.5. The Email channel:

The Email has become indispensable because it allows the increase of the profitability and the performances. The elaborated software is strong and help the personalization of the bank-customer relation and monitoring the Emails. Email is an economic tool and the most productive application. In fact, an English study showed that the customers are more receptive and prefer the interaction via email than via TV spots. For the professionals, the email provides more advantages such as the personalized interaction with the customer, targeting the messages according to specific audience, and the management of the contacts.

3.2.6. Banking card:

It is a tool of payment proposed for the holders of banking accounts. It generally contains an integrated microprocessor of 8 bits (a digital chip) to read, protect, and modify the information; dead and living memories for data stocking; and an interface between the card and the computer that can read the personal data of the user. The microprocessor of the card with a chip represents a sort of security. The bank cards are provided to the customers by their banks. These cards may resolve many transactions. For instance, a person can make different purchases from an online shop and withdraw money from the ATM.

3.2.7 E-check:

The electronic check, or e-check, is a form of payment that makes all the transactions online thanks to an electronic signature via internet or another net of data that is designed for the same function of a paper check. Because this check is electronic, its use requires fewer steps. Moreover, it has more characteristics than those of the standard paper check mainly the authentication, the cryptography with a public key, the digital signatures, the encryption, etc.

4. Digitalization of the Algerian banking sector:

Digitalization in Algeria knew a big development lately due to the market of the mobile internet. More than 45.30 million have subscribed to the fixed internet (ADSL, FTTH, and 4G LTE/WiMAX) and the mobile one (3G and 4G) until the 3rd term of 2021 in Algeria according to the last report of the Authority of Regulation the Post and Electronic Communications (ARPEC). Today, Algeria is at the crossroads of its digital transformation project as the revolution of the new technologies and internet has deeply affected the Algerian banking sector and gave birth to a new form of banks that are smoother and close to the customer.

The banking digitalization in Algeria progressively develops as the banks are getting equipped with automatic materials such as the chip cards, ATMs...etc. In addition, they are specialized in providing different products and services online. The delegate minister in charge of startups, Yacine Oualid, declared in November 2021 the installation of the legislative card to launch the virtual banks and expressed the will of the Algerian government to inaugurate the era of 100% digital banks. His indications lead us to believe that the government works on new monetary law that aims at facilitating the entry of new providers of payment services to the market.

We witness, thus, an evolution and a will of adopting and integrating the digitalization in the sector of finance. In the same line, the Algerians have adopted the supports of the connection and the digitalization to their daily lives. The Algerian banks must cope with the new trends of the market through a digital transformation rather than being impressed by the more developed countries.

II. Analysis and interpretation of the results of the study:

After collecting the questionnaires, we tried to present the results through an analysis of the answers of the officials of the banks studied respecting the previously mentioned three sections of the questionnaire.

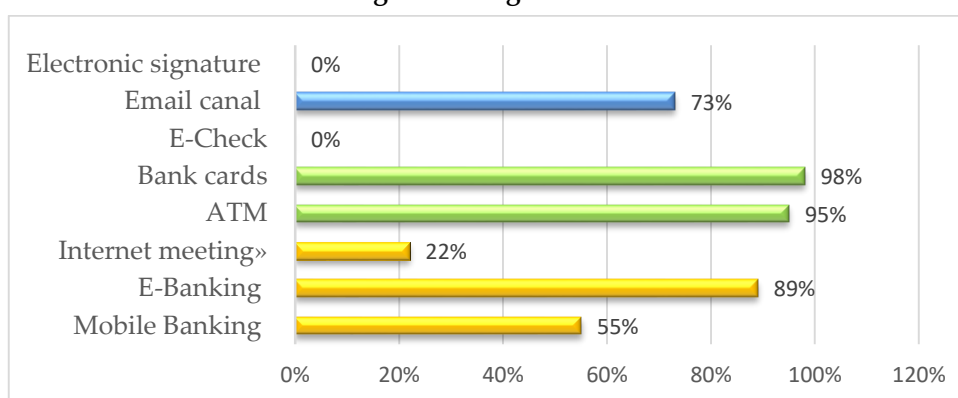
1. The state of the spaces of the digitalization at the level of the Algerian banks:

The state of the banks is analyzed regarding the digital tools available in the studied banks, their uses, and the level of the digital practices.

1.1. Digital tools and software used:

We chose analyzing the digital tool, nets, and services available in our sample in order to have a clear vision about the quality of the use of the digital practices in the banks.

Figure 01: Digital Tools

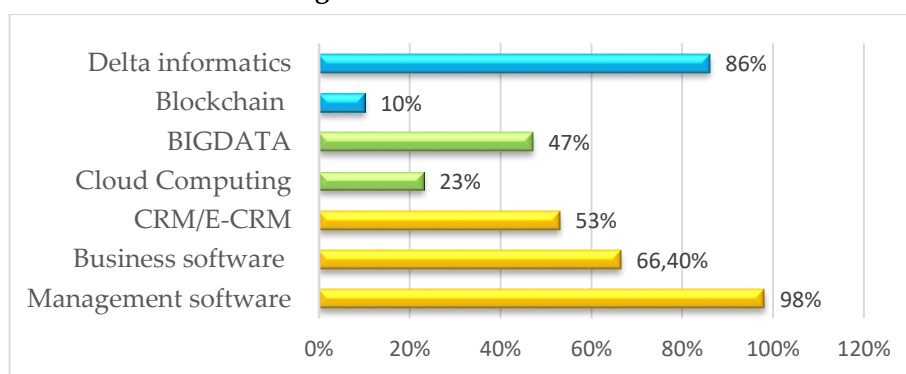


Source: Prepared by the researcher relying on the outcomes of SPSS

In the frame of their digital transformation, the public banks consolidated their distant banks and online banks services and launched their proper platforms. According to the results, all the banks which we visited indicated that they do already have these two services.

98% of the banks confirm the use of the bank cards which covers almost all the banks studied. As for the mobile applications, their use is limited to certain banks. As for ATM (automated teller machine), it is used by the majority. For the online meetings, only BEA can use this. For the E-check and the electronic signature, they are not yet available in the studied banks.

Figure 02: The used software



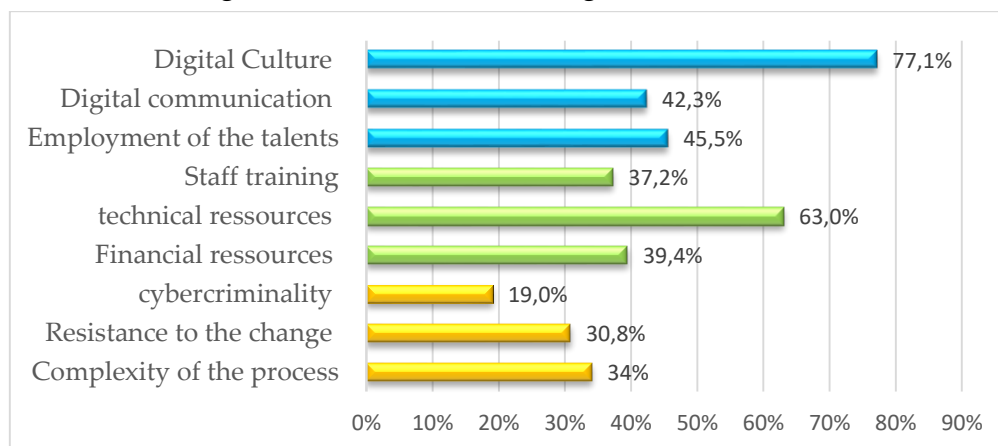
Source: Prepared by the researcher relying on the outcomes of SPSS

98% of the banks confirm using management software. As for the business software, their use is limited to a certain category of staff in 66.40% of the banks; 53% use CRM and e-CRM to manage the customers. For the Cloud computing, only BEA can use it. The presence of Big Data in only 18% of the banks is insufficient while the presence of the Blockchain is estimated at 10% (most are in the big banks), which is very weak because these software's are very necessary and important for an effective management. We notice that the Algerian public banks' use of the sophisticated digital tools is limited.

2.The obstacles of the digital transformation:

After identifying the different tools used in the Algerian public banks' digitalization, we shall pass to the evaluation of the obstacles of the digital transformation.

Figure 3. The obstacles of the digital transformation



Source: Prepared by the researcher relying on the outcomes of SPSS

Despite the privileges it offers, the digital transformation faces many obstacles that hinder it in Algeria. The 1st obstacle facing the digital transformation in the public banks is the lack of the digital culture as 77.1% of the informants confirmed that developing a digital culture and diffusing it to the collaborators is necessary for succeeding in overcoming the challenge of the digital transformation. The digital culture shall allow understanding and giving a meaning to all the changes that shall impact the bank's functioning. The 2nd obstacle is the lack of the technical resources such as good internet connection; it is found in 63% of our sample. Moreover, the lack of the talents in the digital hinders the transformation of 45.5% of our studied banks according to the managers who estimate that the lack of the qualified collaborators has a major to moderate impact on their activity. 39.4% of the studied banks face another obstacle that is the lack of the financial resources which hinder the investment in the digital transition that requires updating the materials used and an engagement to train the collaborators and prospect new competencies. Moreover, the complexity of the process of the transformation is the main obstacle for the managers. In fact, 34% of the interviewees confirm that digitalization is discouraged by the complexity of the process. Furthermore, 37.2% of the banks do not have enough internal resources to make the necessary change required by digitalization. This lack of competency is generally linked to a lack of training. Furthermore, 30.8% of the managers think that the resistance to internal change is the main obstacle facing the digital transformation of the bank.

In addition, the lack of a pertinent digital strategy is a source of discouragement for 28% of the informants though a good internal communication and the implication of the collaborators inside the process must help the businesses lower their, and their

collaborators', resistance to change. Besides, only 19% mentioned that cyber criminality is an obstacle to the process at hand.

Conclusion and recommendations:

After having got a clear idea about the reality of the digital transformation in Algeria, we launched an investigation in the Algerian public banks regarding the state of their spaces of the digital tool which are the starting point for the engagement in the process. We analyzed the evolution and the use of the digital tools. Then, we moved to analyzing the reality of the digital transformation regarding the operational practices and identified the obstacles facing the process in the studied banks.

The collected answers show that all the banks take advantage of the platforms of e-banking, e-payment, and ATMs. However, the mobile payment services, e-check, and e-signature are not used despite their big benefits. The officials of these banks see that the use of these platforms is average which shows that their use has not been well exploited. Concerning the Mobile Banking, it is not yet available in BADR bank and CNEP so far.

This transformation is accompanied with cultural challenges and obstacles resulting from the lack of inclusion in all the levels of the bank. Speaking of digitalization of a bank means understanding and anticipating the impact of the process on all the strategic, human, organizational, cultural, and technological dimensions of the bank.

Test Validity of hypotheses:

From this study, we managed to find answers to our hypotheses. First, the digital transformation of the Algerian public banks is basic. Despite its omnipresent evocation by the managers in their discourses, the majority of them did not succeed in integrating it in their investments. We noticed a significant lack of the management solutions due to the absence of a pertinent digital strategy and the technical resources. The website and the social media are integrated in a low manner and the exploitation of their diverse services is totally neglected. This proves a lack of the potentials of the development and growth offered by digitalization. Thus, our 1st sub-hypothesis is confirmed.

Second, the advantages of the digital transformation are various for the public banks mainly that they contribute to the establishment of a more solid and real relation with the customers, the ability of simplifying the work and improving the performances, the fluidity and speed of the communication, and the simplification, optimization, and automation of the process. Hence, our 2nd sub-hypothesis is confirmed.

Third, the weak engagement in executing a digital process is justified by the existence of obstacles which manifest in the lack of a digital culture mainly regarding the customers' and the collaborators' will to accept the digitalization, the lack of the technical

resources, the competencies, and a pertinent digital strategy. This confirms our 3rd sub-hypothesis.

To conclude, the digital transformation in the Algerian public banks is not limited to the installation of specific software or the acquisition of new digital tools. The success of the digital transformation does not only rely on the technologies as it needs the optimization of the internal and external processes and a clear and pertinent strategy. A digital process needs that the banks understand, develop, and use a strong digital culture to optimize the customer experience and continue being profitable. Thus, the digital revolution seems like a cultural evolution because the digital transformation is not related to the digital tools; rather, to a state of the spirit .

Referrals and references:

- Adala, A., & Djellam, A. (2015, 06 06). Le role du Marketing digital dans l'amelioration de la performance des banques commerciales Algerienne. *Finances et marchés*, pp. 26-44.
- Ait El Haloui, M. (2021, juillet). Aperçu de la litterature sur le business model . *Revue internationale des sciences de Gestion*, 4(3), pp. 824- 838.
- Amin, R. (2022). Le marketing face à l'évolution du comportement du consommateur. Retrieved 03 31, 2022, from journaldunet: <https://www.journaldunet.com/ebusiness/crm-marketing/1176493-le-marketing-face-a-l-evolution-du-comportement-du-consommateur/>
- Beaudmoulin , N., & al. (2018, Mars). Étude sur la révolution numérique. Retrieved 12 27, 2021, from ACPR banque france: https://acpr.banque-france.fr/sites/default/files/medias/documents/as_88_etude_revolution_numerique_secteur_bancaire_francais.pdf
- Bechet, A., Coulomb, E., & Dauvergne, G. (2018, Octobre 11). FinTech : un écosystème en construction. (R. Banque, Ed.) Retrieved 11 04, 2021, from *Revue-banque*: <https://www.revue-banque.fr/dossiers/fintech-un-ecosysteme-en-construction-CADRB00435>
- Boumediene, N., & Renauld , G. (2021, Juin 30). L'impact du digital sur la clientèle des services bancaires cas de la BEA d'Oran. *Revue Innovation*, 11(1), pp. 814-830.
- Deltour, F., & Lethiais, V. (2014). L'innovation en PME et son accompagnement par les TIC :Quels effets sur la performance ? . *Systeme d'information et management* , pp. 45-73.
- Digitall Conseil. (2022, 02 15). Définition de la digitalisation. (D. Conseil, Producer) Retrieved 04 30, 2022, from Digitall conseil: <https://www.digitall-conseil.fr/definition-digitalisation/>

- Djelfat, A., Ferhane, f., & Salah, E. (2017, decembre 30). Les capacites essentielles à la reussite de la transformation digitale des entreprises :une etude exploratoire sur 94 entreprises Algeriennes. *Revue des sciences economiques*, 13(15), pp. 40-70.
- Eray, P. (2018). *Le Middele Management a l'ere de la digitalisation*. Paris: L'harmattan.
- Forrester. (2021). *Expérience Client*. Retrieved 01 17, 2022, from Forrester: <https://www.forrester.com/blogs/category/fr/experience-client/>
- Gourvennec, Y., & al. (2016). *Inroduction à la transformation Digitale*. paris, france: Visionary Marketing.
- Helfer, J.-p., & Michel, G. (2019, Fevrier 26). La stratégie de contacts multicanal : opportunités, risques . *Décisions Marketing*(41), pp. 33-41.
- Lecigne, P. (2013). Les banques de détail le dos au mur. *L'Expansion Management Review*, 4(151), pp. 86-96.
- McKinsey. (2014). *Accélérer la mutation numerique des entreprises : Un gisement de croissance et de compétivité pour la France*. France: McKinsey France.
- Pizelle, P., & Roux, C. (2020, 05 14). Les nouveaux business models dans un univers numerique. Retrieved 02 17, 2022, from Ixiade: <https://www.ixiade.com/les-nouveaux-business-models-dans-un-univers-numerique/>
- Reimer , k., & al. (2013, 12 01). Australian digital commerce : A commentary on the retail sector. *The Australian digital transformation*, pp. 6-24.
- Riemer, K., Halfermals, E., & Roosen, A. (2017). *The Fintech Advantage*. Retrieved 12 23, 2020, from capgemini: https://www.capgemini.com/au-en/wp-content/uploads/sites/9/2017/08/the_fintech_advantage.pdf
- Sajić, M., Bundalo, D., & Bundalo, Z. (2018). Digital technologies in transformation of classical retail bank into digital bank. In T. F. (TELFOR) (Ed.), *Institute Electrical and Electronic Engineers*. Belgrade. Retrieved 11 17, 2021, from <https://ieeexplore.ieee.org/document/8249404>
- Verstraete, T., & Jouison, E. (2007, juin 06). *Trois théories pour conceptualiser la notion de Business*. Retrieved 12 13, 2020, from Verstraete: <http://thierry-verstraete.com/pdf/AIMS%202007%20verstraete%20jouison.pdf>
- Visiativ. (2018, 06 26). *Automatisation et digitalisation des processus métiers : une priorité pour une transformation digitale réussie*. Retrieved 10 10, 2021, from Visiativ: <https://www.visiativ.com/actualites/actualites/automatisation-et-digitalisation-des-processus-metiers-une-priorite-pour-une-transformation-digitale-reussie/>
- Weil, P., & Woernor, S. (2015, Mars 01). *Optimizing your digital business model*. *IEEE Engineering Management Review*, pp. 123-131.