

ECOLE DES HAUTES ETUDES COMMERCIALES



A Thesis Submitted in Partial Fulfillment of the Requirements for Master's Degree in Business Science

Specialty: Marketing

Title:

**The improvement of the customer experience through the
optimal development of mobile banking applications**

Submitted by:

KAHOUL Naila Meriem.

Supervised by:

Pr. ALLIOUCHE LARADI
Bahia, Teacher at EHEC.

11th Promotion June 2024

Abstract

Abstract

We aimed through this study to explore the key areas for improving the customer experience through the optimal development of mobile banking applications. To achieve this, we closely examined banking sector customers to understand their motivations, expectations, perceptions, and usage behaviors of the APPLI SGA. The survey conducted allowed us to determine the key aspects of the optimized design of mobile banking applications. According to SGA customers, the usefulness of features and the ergonomics of the interface are important elements of the customer experience and will help increase their satisfaction. We conducted a qualitative study and a quantitative study to achieve this objective.

Keywords: Customer Experience, Mobile Banking Applications, Design, Motivations, Expectations.

Résumé

Nous visons à travers cette étude d'explorer les axes d'amélioration de l'expérience client à travers le développement optimal des applications mobiles bancaires. Pour ce faire, nous explorons de près les clients du secteur bancaire afin de comprendre leurs motivations, leurs attentes, leurs perceptions ainsi que leurs comportements d'utilisation de l'APPLI SGA. L'enquête menée nous a permis de déterminer les aspects clés de la conception optimisée des applications mobiles bancaires. Selon les clients de la SGA, l'utilité des fonctionnalités et l'ergonomie de l'interface sont des éléments importants de l'expérience client et aideront à augmenter leur satisfaction. Nous avons mené une étude qualitative et une étude quantitative pour atteindre cet objectif.

Mots clés : Expérience client, Applications mobiles bancaires, Conception, Motivations, Attentes.

ملخص

نهدف من خلال هذه الدراسة إلى استكشاف محاور تحسين تجربة العملاء من خلال التطوير الأمثل لتطبيقات الهواتف المحمولة المصرفية. لتحقيق ذلك، نستكشف عن كثر عملاء القطاع المصرفي لفهم دوافعهم وتوقعاتهم وإدراكهم وسلوكياتهم في استخدام تطبيق SGA. لقد مكنتنا الاستطلاع الذي أجريناه من تحديد الجوانب الرئيسية لتصميم تطبيقات الهواتف المحمولة المصرفية بشكل محسن. وفقاً لعملاء SGA، فإن فائدة الميزات وسهولة استخدام الواجهة هما عنصران مهمان في تجربة العملاء وسيساعدان في زيادة رضاهم. قمنا بإجراء دراسة نوعية ودراسة كمية لتحقيق هذا الهدف.

Abstract

الكلمات المفتاحية: تجربة العملاء، تطبيقات الهواتف المحمولة المصرفية، التصميم، الدوافع، التوقعات.

Acknowledgments

Dedications :

I dedicate this work to my small family, my brother Rafik, for being a loving and protecting brother, and to my mother, who fought and sacrificed her life to see this day come. Without her support and unconditional love, I would not have been able to make my way this far.

I dedicate this work to my large family, to my aunts and uncles, all equally loving, with whom I grew up in the best possible way, who were there in the good and the bad times, to share tears and laughter, but above all to offer love and affection. I want to mention my dear cousins, whom I consider the sisters I never had.

I dedicate this work to my best friend Sarah, who has seen my evolution, who supported me in all situations, who listens to and advises me, my unpaid therapist with whom I started this journey to evolve every single day and become the best person I can.

To the members of my choir NAGHAM FAMILY, who, amid all the stress and anxiety I went through, were there without realizing it, making me live unique experiences and moments. A special thank to Islam BELACEL, our beloved president who makes remarkable efforts to make of the NAGHAM choir a warm and comfortable place to be, and where we feel at ease.

I dedicate this work to all my friends, who have always supported, listened, guided, and wished me the best, I am delighted to have you in my life, and I thank each one of you for the positive influence you had on my person.

Acknowledgments

Acknowledgments:

First and foremost, I would like to express my gratitude to Allah for the strength, courage, motivation, and patience that allowed me to go through the hard times and complete this work.

I wish to express my gratitude to my supervisor, Mrs. ALLIOUCHE LARADI Bahia, for her support and guidance during this crucial phase of my life. Her kindness and sincerity in helping and guiding her students are invaluable.

I am deeply grateful to Mr. ISSAAD Yahia for his remarkable support that contributed to the successful completion of my project, as well as for his advice, guidance, and the growth opportunities he offered me through this internship.

I would like to thank Mrs. Amina BOUDIAF, my supervisor at SGA, for her kindness and gentleness. She helped me overcome obstacles and was committed to ensure the smooth progress of my experience.

I particularly thank Mr. Smail AMMADJ for his guidance, availability, sharing of knowledge, and helpfulness. His contribution to the completion of my research work has been significant.

I also express my gratitude to Mrs. Kenza BOUADI, who allowed me to undertake a quality internship in a renowned company, an experience that allowed me to grow both personally and professionally.

I particularly thank the project team of the retail market division, especially YUCEF-KHODJA Hind, HADRI Omar, BENOHALIMA Nour El Houda, AMRAOUI Fethi, BENDJABALLAH Dounia, and BOUDERBALI Reda, for their guidance, immersion, support and shared moments of laughter.

Acknowledgments

My thanks also go to many members of the SGA team. This list might be long, but it reflects the supportive environment I was emerged in. I thank Mrs. Naila CHATER, Mrs. Souad CHAABI, and the marketing team consisting of Mrs. Imene Zebboudj, Mrs. Khadidja OUCHENE, Mr. Nassim AGGAD, Mr. Nassim ARKOUB, Mrs. Manel BELKHODJA, Mr. Yanis AIT-ABDELLAH, Mr. Hamza DIF, and Mrs. Samiha KHENAKA for all their support, help, and guidance during my internship.

I would like to express my gratitude to my family and friends for their encouragement, support, and listening during this period of transition, you have been such a great shoulder to lean on.

I am grateful to my teachers at EHEC, as well as the administrative staff for these years of learning, memories, and valuable Interactions.

Finally, I would like to thank everyone who has contributed, directly or indirectly, to making this experience a success, for all that I have experienced and learned thanks to their contribution.

Acknowledgments

List of figures

List of figures:

Number	Title of the figure	Page
1	Banks as Financial Intermediaries.	10
2	M-banking Model	16
3	The 6 pillars of the customer experience	65
4	Organization chart of SGA	82
5	Retail market division's chart	84
6	Pie chart of the distribution of the sample by gender type	97
7	Bar chart of the distribution of the age	98
8	Pie chart of the distribution of the population by region	100
9	Pie chart of the customer seniority of the population	101
10	3D bar chart of the year of download of the APPLI SGA	102
11	Bar chart of the use frequency of the APPLI SGA	103
12	Bar chart of the motivations to use the APPLI SGA	104
13	Bar chart representing the agreement of the respondents with the satisfaction of their needs by the APPLI SGA	106
14	3D bar chart representing the agreement of the respondents about the security they feel towards the APPLI SGA	107
15	3D bar chart representing the agreement of the respondents with the ease of use of the APPLI SGA	108
16	3D bar chart of the most important aspects the customers are looking for	109
17	Pie chart of the customers' expectations	110
18	Bar chart representing the crossing between the opinion about the utility and use frequency	112
19	Bar chart of the crossing between the utility and the use frequency	113
20	Bar chart representing the crossing between the age and the use frequency	115
21	Bar chart representing the crossing between important aspects for customers and the use frequency	116

List of tables

List of tables:

Number	Title of the table	Page
1	Main services offered through mobile banking	17
2	Table of the genders repartition	96
3	Table representing the age range	97
4	Table of the important aspects of the customers regarding the APPLI SGA	109
5	Table of the crossing between the utility and the frequency of use	111
6	Table representing the crossing between the age and the use frequency	114
7	Table of the crossing between the most important aspects for the customers and the use frequency	116

List of abbreviations

List of abbreviations:

- **APP** – Application
- **SGA** - Société Générale Algérie
- **UX** - User Experience
- **UI** - User Interface
- **API** - Application Programming Interface
- **ICT** - Information and Communication Technology
- **RPA** - Robotic Process Automation
- **ATM** - Automated Teller Machine
- **AI** - Artificial Intelligence
- **SMS** - Short Message Service
- **NFC** - Near Field Communication
- **IoT** - Internet of Things
- **KYC** - Know Your Customer
- **AML** - Anti-Money Laundering
- **PSD2** - Payment Services Directive 2
- **GDPR** - General Data Protection Regulation
- **PIN** - Personal Identification Number
- **OTP** - One-Time Password
- **VPN** - Virtual Private Network
- **SSL** - Secure Sockets Layer
- **P2P** - Peer-to-Peer
- **SLA** - Service Level Agreement
- **BYOD** - Bring Your Own Device
- **CTO** - Chief Technology Officer
- **DBMS** - Database Management System
- **ERP** - Enterprise Resource Planning
- **PaaS** - Platform as a Service
- **IaaS** - Infrastructure as a Service
- **CSR** - Corporate Social Responsibility
- **AR** - Augmented Reality
- **AI** - Artificial Intelligence
- **ML** - Machine Learning
- **VUI** - Voice User Interface
- **CX**: Customer Experience
- **RPA**: Robotic Process Automation
- **ATM**: Automated Teller Machine
- **RBS**: Remote Banking Services
- **E-banking**: Electronic Banking
- **m-Banking**: Mobile Banking

Summary

Summary

		Pages
Acknowledgment		
Decidations		
List of figures		
List of tables		
General Introduction		1
<u>Chapter 01</u>	Mobile Banking Applications	6
Introduction to chapter 01		6
<u>Section1</u>	Banks and the digitalization of banking services	6
<u>Section2</u>	Mobile banking applications developpement	23
Conclusion of chapter 01		42
<u>Chapter 02</u>	The Customer Experience	43
Introduction to chapter 02		43
<u>Section 1</u>	The customer Experience and the Digital CX	43
<u>Section 2</u>	The Customer Experience Optimization	57
Conclusion du chapitre 2		71
<u>Chapter 03</u>	Société Générale Algérie Case Study	72
Introduction to chapter 03		72
<u>Section 1</u>	Presentation of the Host Organization	72
<u>Section 2</u>	Presentation of The Research Methodology	83
<u>Section 3</u>	Study Results Analysis and discussion	93
Conclusion of chapter 03		119
General Conclusion		120
Bibliography		124
Appendixes		130
Table of contents		139

General Introduction

General Introduction:

We live in a world where technologies are evolving at a rapid pace, bringing a new dimension to our daily lives. These technologies are no longer futuristic concepts, today, they shape how we interact with our environment in general and our banking institutions in particular, redefining their business strategies.

This influence is seen in a profound transformation of services, making financial transactions faster and more accessible for customers. Faced with this constantly evolving technological environment, banks must embrace digital transformation to remain competitive and ensure their longevity.

This enables them to modernize their infrastructure, innovate in banking service offerings, increase efficiency by streamlining internal processes and meet growing customer expectations with a seamless and personalized customer experience.

Mobile banking applications are among the most significant innovations in the banking sector due to their impact on transforming the customer-bank relationship. They offer proximity, convenience, and accessibility anytime, anywhere, thereby redefining the banking experience. Thanks to this technological revolution, customers benefit from a smooth and intuitive banking experience, reinforcing their satisfaction and loyalty.

In this context, we have chosen to address the following topic: "**The improvement of the customer experience through the optimal development of mobile banking applications.**"

This study aims to examine the enhancement of the customer experience through the optimal development of mobile banking applications.

To achieve this, we will attempt to answer the following question: "**To what extent can the optimized development of mobile banking applications be a lever for improving the customer experience?**"

General Introduction

To address this question, we will attempt to answer the following inquiries:

- Can the usefulness of the APPLI SGA features contribute to customer satisfaction?
- Do the ergonomics of the APPLI SGA lead to its adoption?
- Have Société Générale Algérie customers adopted the APPLI SGA?

To answer this battery of questions, we will attempt to verify the hypotheses formulated as follows:

Hypothesis 01: The usefulness of the APPLI SGA features can contribute to customer satisfaction.

Hypothesis 02: The ergonomics of the APPLI SGA favorably lead to its adoption.

Hypothesis 03: Customers of Société Générale Algérie have favorably adopted the APPLI SGA.

The reasons for choosing this topic are explained by the following elements:

The effective use of technological advancements, such as the emergence of digitalization, is a major concern for all institutions, both in the short and long term. Exploring this innovative topic closely has sparked our interest. Therefore, the study of this theme is notably relevant. During our immersion period, and as part of the "APPLI SGA" squad responsible for the application's development, we actively participated in this research work. We observed that studying the improvement of customer experience through optimal development of mobile banking applications could add significant value to the bank. Indeed, this survey is the first to gather feedback from users of the "APPLI SGA" mobile banking application in order to optimize its development and design to better meet customer needs and expectations.

As marketing students, consumers have always captured our interest. We have learned to place them at the center of our concerns. We see this experience as an opportunity to explore them more closely, and to understand their motivations, needs, and expectations regarding the "APPLI SGA" digital banking solution. This will allow us to effectively participate within the

General Introduction

"APPLI SGA" squad by proposing improvement strategies based on the results of our field survey.

Regarding the methodological approach adopted in this study, we relied on a dual synthetic and analytical approach.

Firstly, we conducted a literature review, consulting books, articles, scientific papers and websites. Simultaneously, we observed our environment within SGA bank, consisting of experts in mobile banking development who shared their knowledge, enabling us to position ourselves in this subject and guide our choice and study.

To deepen our understanding of the topic, we opted for a qualitative study based on an interview with the "APPLI SGA" expert within the squad. This interview allowed us to gain insight into the bank's vision regarding the development of "APPLI SGA" and to formulate the correct hypotheses to test during the study.

Secondly, after having presented the questionnaire for a period of 20 days we have the return of 222 respondents constituting our target, which represents the customers of Société Générale Algérie users of "APPLI SGA"

On the other hand, we conducted a semi-structured interview with the former project manager and current Agile Master of "APPLI SGA."

These surveys aimed to focus on several key areas related to the SGA mobile banking application. First, we aimed to understand the motivations behind the use of the SGA mobile banking application. This involves identifying factors that encourage customers to adopt and regularly use the application. Secondly, we will examine the impact of the appropriate development of mobile banking applications on ensuring a good customer experience. In doing so, we will demonstrate how robust and user-friendly applications can significantly improve customer satisfaction. Furthermore, we will explore specific aspects of mobile banking applications that ensure a good customer experience for bank customers, such as ease of use, security and utility.

In addition, our analysis will include an evaluation of customer satisfaction with the APPLI SGA mobile banking application. This will help us understand the current level of satisfaction

General Introduction

and identify any gaps. We will also seek to identify the expectations of mobile banking application users to better understand their needs and find ways to effectively satisfy them.

Finally, we aim to identify areas for improvement in the APPLI SGA mobile banking application. By identifying these areas, we can propose targeted improvements that will further enhance application performance and user satisfaction.

This research is structured into three chapters. The first chapter introduces the concept of mobile banking applications, addressing digitization and digitalization within banks and their impact on banking activities and models. This chapter also discusses financial services offered by mobile banking applications, their importance for banks, and the optimized design of these applications in terms of performance, useful features, and interface fluidity.

The second chapter explains the concept of customer experience, detailing the various concepts that constitute it, its importance for the bank, and the key elements ensuring its smooth operation. This chapter also covers best practices to ensure compliance with customer experience, digital customer experience, the profile of the digital customer, and technologies that can be used to optimize this experience. In addition, we will address the improvement of customer experience, its importance, key aspects of this practice, as well as innovation and continuous improvement in this field.

Finally, the third chapter focuses on a practical case, namely a field survey consisting of a qualitative study and a quantitative study. The qualitative study aims to explain the concept of the development of the "APPLI SGA" mobile banking application, analyze the bank's vision regarding its launch, and understand the strategic orientation of this digital solution. This interview will serve as a basis for developing and confirming research hypotheses, ensuring alignment between the objectives of this research and the vision of Société Générale Algérie.

The quantitative study, meanwhile, will allow us to approach application users, understand their experience with the use of "APPLI SGA," understand their motivations and expectations regarding this digital solution.

Finally, we will propose recommendations and suggestions to enable Société Générale Algérie to guide the application development project along several axes. First, by respecting the

General Introduction

standards of user-friendly banking application development, choosing the right features and an appropriate interface to ensure optimal user experience, thereby contributing to the overall improvement of customer experience through appropriate technological advances. Secondly, based on real data collected during our field study, the analysis of statistics will provide SGA with an overview of its customers, thereby better understanding and satisfying them.

Chapter 01: Mobile Banking Applications

This chapter, divided into two sections, will delve into Mobile Banking Applications. The first section will explore the evolution of banks towards digitalization. The second section will focus on the conception and development of mobile banking applications, including the selection of functionalities and interface design.

Section 1: Banks and digitalization of banking services

In this section, we aim to comprehensively define traditional banking by exploring the concept of a bank, the services provided, and its economic role. We'll also discuss the digital transformation of banks and the associated challenges. In the second part, we'll delve into digital banking, covering definitions, digital services, transformation strategies, the importance of digitalization, and the distribution' channels of a bank.

1. Overview of banks:

In order to understand the participation of banks in the business and economic framework of an ecosystem we need to delve into the overarching principles governing these entities.

1.1. Definition of the banking concept:

To understand the banking concept some definitions have to be introduced first.

1.1.2. The definition of a bank:

According to the Cambridge Dictionary, the meaning of bank is *“an organization where people and businesses can invest or borrow money, change it to foreign money, etc., or a building where these services are offered”*¹.

As stated by Jean-Pierre PATAT, *“Banks are organizations that manage their customers' accounts as liabilities, accounts that can be used by cheque or transfer, within the limits of the*

¹ <https://dictionary.cambridge.org/dictionary/english/bank>, visited 14 may 2024 at 12:37

available provision, given that these accounts constitute the most widely used form of money in circulation (scriptural money). When they grant loans, banks, taken as a whole, are therefore guaranteed to simultaneously create most of the resources needed to finance these operators"².

The concept of a bank can be multifaceted, thus requiring both economic and legal definitions for clarity.

1.1.2.1. The Legal definition of a bank:

The legal description of banks as per the law of 12 January 1988 reads as follows: "The bank is a commercial legal entity with capital, subject as such to the principle of financial autonomy and balanced accounts". Banking Law of 12 January 1988, article 2.

- Article 114 of Algerian law no. 90-10 of 14 April 1990 relating to money and credit defines banks as: "Legal entities that carry out the operations described in articles 110 to 113 of this law on a regular and principal basis.
- Article 110: "Banking operations include receiving funds from the public, credit transactions and providing customers with means of payment and managing them".
- Article 111: "Funds received from third parties, in particular in the form of deposits, shall be deemed to be funds received from the public, with the right to dispose of them on one's own account, but with the obligation to return them. However, funds received or left in an account by shareholders holding at least five percent (05%) of the capital, directors and managers are not considered to be funds received from the public within the meaning of this law. As well as funds from participative loans.
- Article 112: "For the purposes of this law, a credit transaction is any transaction for consideration by which a person makes funds available or promises to make funds available to another person or enters into a signed commitment in the latter's interest, such as an endorsement, surety or guarantee.

² PATAT. J. P : « Monnaie, institution financière et politique monétaire. », *Economica*, Paris, 1993, P.33

CHAPTER 01 : Mobile Banking Applications

- Article 113: "All instruments that enable any person to transfer funds, regardless of the medium or technical process used, shall be deemed to be means of payment"³⁴.

We can thus say that a bank is defined as a financial institution that manages cash flows, credits, and other financial transactions. Banks lend money to people in need, accept deposits, and act as intermediaries between lenders and borrowers. Additionally, they do not merely handle money but also play a role in its creation⁵.

1.1.2.2. The economic definition of a bank :

Economists typically define a bank based on its economic functions. According to this functional definition, a bank serves as an intermediary between capital providers and capital seekers through two primary processes.

The first process, known as banking intermediation, involves the bank interposing its balance sheet between capital providers and capital seekers.

The second process, known as disintermediation, involves the bank facilitating direct contact between capital providers and capital seekers through various markets, such as financial and monetary markets⁶.

1.2. The activity of the bank:

A service for a bank is any activity, which the bank performs for the customer (e.g. current account management, granting a loan, money transfer, credit card payment execution). To

³SMAILI, S : *Le mode de fonctionnement des banques publiques algériennes dans un contexte de crise*. Revue d'économie et de statistique appliquée, (2017).

⁴ Garsuault Philippe, 1995, Priami Stéphane : « *la banque : fonctionnement et stratégie* », édition Economica, Paris, p.8.

⁵ international Journal of Scientific & Engineering Research Volume 9, Issue 8, Augsut-2018

⁶ GARSIAULT Philippe, PRIAMI Stéphane : « *la banque : fonctionnement et stratégie* », édition ECONOMICA, Paris, 1995, p.8.

provide a structured explanation of the various groups of banking services, we can categorize them as follows:

- **Credit Services :**

A credit operation refers to the act whereby an authorized financial institution disburses funds to an individual or legal entity, with an agreement for repayment over a specified period. It also includes actions that facilitate obtaining credit, such as providing a signature or offering guarantees, securities, pledges, or endorsements. Essentially, a credit transaction involves providing funds or making commitments that enable financial activities ⁷.

- **Deposits from the public :**

The process of receiving funds from the public entails a third party, whether an individual or a legal entity, depositing money with an authorized entity. This activity is primarily conducted by credit institutions, which may offer interest on deposits and use the funds for their own investments. These institutions are obligated to return deposited sums promptly upon request⁸.

- **Provision and Management of Payment Services:**

Managing payment instruments constitutes a core function within retail banking. It empowers retail customers to utilize the funds available in their bank accounts for transactions such as issuing cheques, making transfers, withdrawals, using cards, and more.

- **Other Services :**

Additional services may include technological services like ATMs, prepaid cards, 24/7 call centers, online account access, credit simulations, and electronic wallets.

⁷ <https://www.boursedescredits.com/lexique-definition-credit-operation-credit-1307.php>, accessed on 16/05/2024 at 10:00.

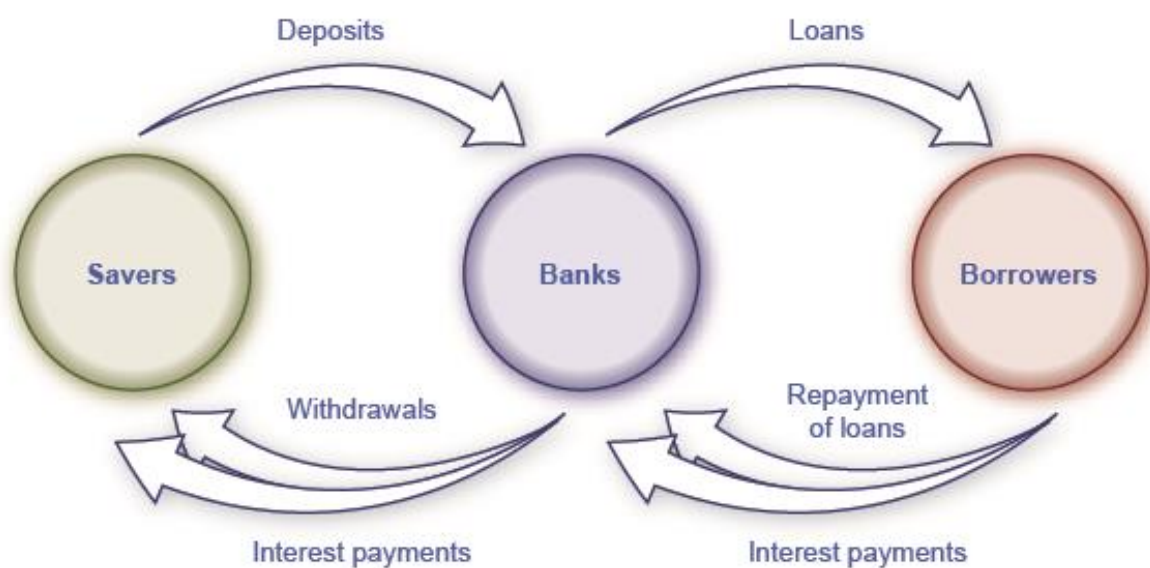
⁸ <https://www.mataf.net/fr/edu/glossaire/reception-de-fonds-du-public>, accessed on 16/05/2024 at 10:32

1.3. The role of the bank in the economy :

An "intermediary" acts as a mediator between two parties. Banks function as financial intermediaries, operating between savers who deposit money and borrowers who receive loans. It accepts deposits and lends these funds out. Deposited funds are pooled together and subsequently loaned out. Deposits flow into the bank and loans flow out. Banks prioritize directing financial capital towards healthy businesses with promising prospects for loan repayment, rather than firms experiencing losses and potential repayment difficulties⁹.

The figure below explains the role of the bank as an intermediaries :

Figure 1 : Banks as Financial Intermediaries.



Source: <https://pressbooks-dev.oer.hawaii.edu/principlesofeconomics/chapter/27-3-the-role-of-banks/> visited 17 may 2024 at 17:55

⁹ <https://pressbooks-dev.oer.hawaii.edu/principlesofeconomics/chapter/27-3-the-role-of-banks/> visited 17 may 2024 at 17:55

1.4. The digital transition of the bank:

To grasp the transition of banks to the digital era, it's crucial to first understand some key concepts.

1.4.1. Digital Transformation:

According to Gerald C. Kane “*Digital transformation is about adopting business processes and practices that position organizations to compete effectively in an increasingly digital world*”¹⁰.

Digital transformation in banking involves incorporating digital technologies across all facets of banking operations. This encompasses a network of digital channels, platforms, and tools designed to enhance the banking experience for customers, making it more seamless and efficient¹¹.

In today's banking environment, digital transformation represents the forefront of a technological revolution. It's marked by rapid deployment and innovation of digital services, an important pace of change, and significant innovations that reshape traditional banking practices¹².

1.4.2. Digitization:

Also, Brennen and Kreiss define digitization as the material process of converting individual analog streams of information into digital bits¹³.

¹⁰ J.ELIA : The leadership of digital transformation, collection Business Science Institute, ems, 2023, p29

¹¹ <https://www.newmetrics.net/insights/digital-transformation-in-banks-impact-and-roadmap/> visited 20 may 2024 at 20:24

¹² Jurnal Administrare : A Systematic Review on Banking Digital Transformation, Jurnal Pemikiran Ilmiah dan Pendidikan Administrasi Perkantoran, Volume 9, Issue 2, July-December 2022, Pages 543-552.

¹³ J. Scott Brennen, Daniel Kreiss : Digitalization , 2016

CHAPTER 01 : Mobile Banking Applications

The digitization of processes involves converting traditional, manual, or paper-based workflows into digital or automated systems using technology. This includes digitizing data, automating tasks, and integrating digital systems to streamline operations, boost efficiency, and enhance decision-making. It also enhances current business processes without fundamentally altering or transforming them. Essentially, it shifts processes from being human-driven to being driven by software¹⁴.

1.4.3. Digitalization:

The word "digital" originally referred to fingers, derived from the Latin word "digitus," meaning "finger". Initially, the term "electronic" was commonly used to describe new services associated with the Internet. However, everything changed in 2007 with the launch of the first iPhone. Our daily routines became increasingly "digital," marking a new era for the web, especially with the introduction of mobile applications. This shift allowed people to connect anytime, anywhere, using any device¹⁵.

1.4.4. The difference between digitalization, digitization and digital transformation:

Digitization, digitalization, and digital transformation are interconnected yet distinct concepts essential to modern business practices. Digitization involves converting analog information into digital formats, which makes data more accessible and easier to analyze. This is a foundational step that enables organizations to manage vast amounts of data efficiently. Building on this, digitalization leverages digital technologies to enhance and optimize business processes, leading to improved performance and productivity. Digital transformation, however, goes beyond simple optimization. It entails a fundamental rethinking of business models and strategies, driven by digital technologies¹⁶.

¹⁴ <https://www.arcweb.com/blog/what-digitization-digitalization-digital-transformation> , accessed on 10-05-2024 at 15:04.

¹⁵ Fabrice Lamirault & Collectif : *Livre blanc L'évolution du modèle bancaire à l'ère du digital*, 1ère édition, Mars 2017, p08

¹⁶ <https://www.channelinsider.com/business-management/digitization-vs-digitalization/#:~:text=While%20all%20three%20processes%20leverage,for%20a%20total%20organizational%20overhaul.> Visited 21 may 2024 at 21:21

1.5. The transformation of the traditional bank:

The transformation of the financial industry started with the emergence of alternative financial solutions like centralized and decentralized crypto exchanges, NFT marketplaces, and others. Traditional financial institutions recognized the significant potential and strong demand for these new technologies, prompting them to adopt and integrate them to maintain competitiveness. This digital transformation is propelling the financial industry into a technological revolution and prompting even the most conservative players to evolve¹⁷.

Banks are compelled to go digital due to post-2008 crisis regulations and the need to rebuild trust. Mandates like "Mifid 2" and "Basel 3" drive investment in digital infrastructure for compliance. Negative interest rates push banks to adopt digital solutions for profitability. Evolving customer expectations for online services and personalized experiences further drive digital innovation. Competition from fintechs and tech giants intensifies, prompting banks to use digitalization strategically for differentiation and resilience. Overall, these factors underline digital transformation as essential for banks' growth and competitiveness¹⁸.

2. The digitalization of the banking sector:

.1. Definition of digital banking:

Digital banking is the incorporation of new and developing technologies throughout a financial services entity, in concert with associated changes in internal and external corporate and personnel relationships, to provide enhanced customer services and experiences effectively and efficiently¹⁹.

¹⁷ <https://maddevs.io/blog/digital-transformation-in-banking-and-financial-services/> visited 18 mai 2024 at 21:34

¹⁸ <https://www.mbdconsulting.ch/publications/montee-du-digital-necessaire-secteur-bancaire> visited 19 May 2024 at 15:26

¹⁹ Anni DASHO1, Elvin MEKA2, Genci SHARKO3, Indrit BAHOLLI4 : Digital Banking the Wave of the Future, International Conference Proceedings, 2016

CHAPTER 01 : Mobile Banking Applications

It offers services that are not only more affordable and convenient but also less likely to make errors. The cost advantage gained through digitalization translates into a superior customer experience, offering products that are easier to use, more economical and only beneficial for customers²⁰.

.2. Definition of a digital bank:

Such as Brett King defines it, a digital bank is a financial institution that operates primarily online, providing services such as account opening, transactions, and customer support through digital channels like mobile apps and websites

Moreover, a digital bank is a licensed bank that offers banking services to its customers entirely online. These banks allow their customers to access their funds, make transfers, and perform many other standard banking activities online rather than at a physical bank location²¹.

.3. Definition of the Neobank:

According to Forbes, neobanks are defined as follows : “ Neobanks, sometimes referred to as “challenger banks,” are fintech firms that offer apps, software and other technologies to streamline mobile and online banking. These fintechs generally specialize in particular financial products, like checking and savings accounts. They also tend to be more nimble and transparent than their megabank counterparts, even though many of them partner with such institutions to insure their financial products”²².

So we can say that the neo-bank is a financial technology company. It provides digital and mobile solutions for managing payments, money transfers, and financial analysis... It is a digital-only financial institution, often offering 100% mobile access.

²⁰ Balkan, B, Impacts of digitalization on banks and banking. The Impact of Artificial Intelligence on Governance, Economics and Finance, Volume I, 2021, P33-50.

²¹ <https://botr.bank/news/what-is-a-digital-bank-everything-you-need-to-know/> visited 24 may 2024 at 11:40

²² <https://www.forbes.com/advisor/banking/what-is-a-neobank/> visited 27 may 2024 at 11:27

.4. The phyigital bank:

Banking has transformed significantly, as people now seek the flexibility of digital services combined with personalized human interaction at key moments, therefore, the phyigital bank emerged.

.4.1. The definition of the phyigital bank:

We can define phyigital banks as banks that operate the phyigital banking being the notion of bridging the digital and physical worlds via banking technology in order to provide consumers with exceptional interactive banking experience. Phyigital refers to being inherently digital across all channels (physical and digital), activities, and the methods by which bank's businesses are structured and managed. The 'Phyigital' bank communicates with its customers digitally through both physical and online means²³.

.5. Digital Banking Services:

.5.1. Online Banking (E-banking):

E-banking, often known as Net Banking, Web Banking, or "Internet Banking," is the term used to describe how a bank uses the Internet to provide its customers with a variety of banking services, from a basic business showcase to remote financial transaction administration.

Customers can conduct a variety of financial activities from a distance with the help of this virtual financial platform. It acts as a gateway, enabling users to access their accounts via a safe website. Features include keeping an eye on balances, sending money, paying bills, applying for loans, and handling investments. The ability to perform transactions conveniently from any location and do away with the need to physically visit a bank makes for an appealing offer.

²³ukman Adebayo Oke Abdulrauf, Emmanuel Semilore, Yusuf Olamilekan & Fatai Akosile : MALETE JOURNAL OF ACCOUNTING AND FINANCE, A Publication of the Department of Accounting and Finance, Kwara State University, Malete, BANKING SERVICE INNOVATIONS AND CUSTOMER SATISFACTION IN ILORIN METROPOLIS OF NIGERIA Vol. 3 No. 1, June, 2022

CHAPTER 01 : Mobile Banking Applications

It provides the following services:

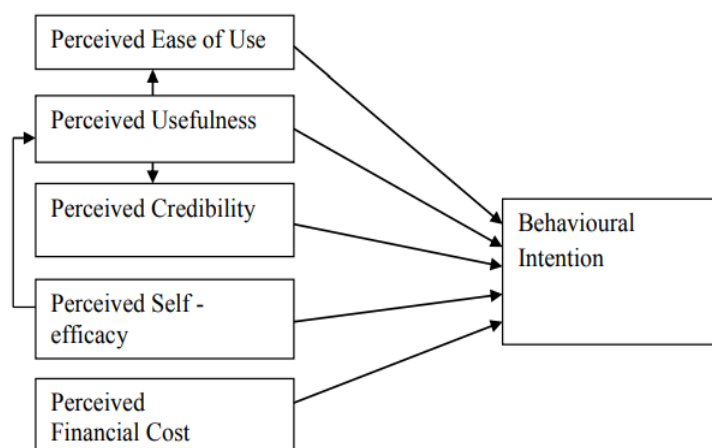
- Helps with account statement consultation;
- Following the download of specific documents, like the notice of direct debit or unpaid notice, gives the possibility to see information regarding the transfers;
- The commencement of salary payments via transfer for the purpose of paying bills and/or its suppliers;
- Enable the receivables collection process;
- for the best possible treasury management, with transfers used for any necessary rebalancing.

.5.2. Mobile Banking (m-Banking):

Using a mobile phone to conduct financial transactions is known as mobile banking. The following forms of operations are most common:

- Financial transactions: are represented by transfers, payments, deposits, withdrawals, or other financial transactions.
- Financial information exchanges: these include exchanges started by the financial institution (loan maturity alert, commercial offers, transaction confirmations, etc.) or by the beneficiary (balance consultation, statement request, etc.). "Remote banking" operations are connected to mobile banking. More broadly, a collection of dematerialized and distant financial services that make use of modern technologies—specifically, mobile phones—are referred to as mobile banking.

Figure 2 : M-banking Model



Source: Luarn & Lin, 2005

As identified in the table below, M-banking provides a large range of digitalized services for customers, from financial services to non-financial services.

Table 1 : Main services offered through mobile banking

Financial services	Non-financial services
Bill payments	Balance enquiry
Peer-to-peer payments	PIN change
Fund transfers	Checkbook request
Remittance	Due alerts for payments
Shopping and donations	Locate ATM's
Mobile balance recharge	

Source : Shaikh & Karjaluoto, Mobile banking adoption: A literature review, 2015

.6. The strategies of banks digitalization:

To ensure a successful digital transition and build a digital ecosystem, banks must develop a robust and comprehensive strategy that keeps them competitive, effective and increase market

share and control costs, in order to make this possible, banks must take in consideration the following points in their strategies:

.6.1. Implementing robotic process automation :

Robotic Process Automation (RPA) has become a significant innovation in digital banking, using AI to automate repetitive and rule-based tasks. This streamlines processes, saving costs and enhancing efficiency. By adopting RPA, banks can automate tasks like customer onboarding, account maintenance, transaction processing, and data validation, freeing up human resources for complex tasks like fraud detection and risk management. RPA also improves accuracy and reliability by eliminating human error, thus enhancing customer experience and regulatory compliance.

.6.2. Enhancing biometric authentication:

With the rise of digital banking, securing customer identities is paramount. Biometric authentication, which uses unique physical traits like fingerprints and facial recognition, offers a robust security solution. This method is more secure than traditional passwords and PINs, reducing the risk of fraud. It also provides a seamless user experience, allowing quick and easy account access. By implementing biometric authentication, banks can build customer trust and protect their systems from unauthorized access.

.6.3. Partnering with fintech startups:

Banks can partner with fintech startups to foster innovation and leverage the latest technological advancements.

.6.4. Integrating chatbots and virtual assistants:

Customer engagement is crucial in digital banking. AI-powered chatbots and virtual assistants provide instant responses, personalized assistance, and seamless interactions, enhancing customer satisfaction and operational efficiency. By implementing these tools, financial institutions can streamline communication channels and improve customer experiences.

.6.5. Implementing blockchain technology :

Blockchain technology enhances the security and transparency of digital banking. This decentralized ledger system ensures transaction integrity, making data tampering nearly impossible. Smart contracts on blockchain automate agreement verification and enforcement, reducing fraud and operational costs. By integrating blockchain, banks can create a secure, transparent, and efficient financial ecosystem.

.6.6. Choosing the right niche :

In the competitive digital banking landscape, focusing on a specific niche is essential for success. Tailoring services to a particular market segment or demographic, such as millennials or small businesses, allows banks to differentiate themselves and meet unique customer needs. This approach fosters customer loyalty by delivering personalized and relevant services.

.6.7. Using data :

Data analysis provides valuable insights into customer behavior and preferences. By leveraging big data analytics, banks can personalize services, optimize operations, and make informed decisions. Understanding customer behavior helps banks identify improvement opportunities and predict future trends. Implementing a comprehensive data management strategy, including governance, security, and privacy policies, is crucial for building a data-driven culture²⁴.

.6.8. Embracing agile methodologies:

Agile methodologies enable banks to swiftly adapt to evolving market demands, Banks Will Focus on Competition with Fintechs In order to compete with Fintechs, therefor they should develop a more agile organizational structure and more flexible decision-making models²⁵.

²⁴ <https://startups.epam.com/blog/digital-banking-strategy> visited 24 may 2024 at 20:13.

²⁵ Balkan, B, Op.cit. P33

.6.9. Prioritizing cybersecurity :

Cybersecurity is a process designed to defend computers, servers, networks, and digital data from unauthorized access and destruction or attack in cyberspace. It is critical in all industries and even more so in the financial world due to regulatory development. With the digital transformation of finance due to FinTech and RegTech, the financial world is more vulnerable to attack by hackers. Since digital data continues to evolve in the financial world, cybercriminal activity will continue to increase the risk of attack from hackers. As digital banking grows, so does the threat of cyber-attacks. Banks must prioritize cybersecurity to safeguard their customers' data²⁶.

.6.10. Enhancing customer experience :

Focusing on enhancing customer experience is crucial for banks to attract and retain customers. By making digital banking smoother and more user-friendly, banks can keep their customers happy, build trust, and stay ahead in the game. It's all about giving people what they want when they want it and in today's world, that's often through a screen²⁷.

.7. Banks' distribution channels:

After developing various products and services, the bank aims to distribute them through multiple channels. These distribution channels can be categorized into two main types: physical branches and electronic banking.

²⁶ Callen-Naviglia, J., & James, J : FINTECH, REGTECH AND THE IMPORTANCE OF CYBERSECURITY. Issues in Information Systems, 2018.

²⁷ <https://www.glance.cx/blog/enhancing-digital-banking-experiences-strategies-for-customer-engagement> visited 24 May 2024 at 20:53.

2.7.1. Physical channels:

Physical branches are the physical locations where customers can visit to interact with bank representatives and access various financial services. These branches serve as important distribution channels due to their direct and personalized nature²⁸.

2.7.2. Digital channels:

Digital distribution refers to the process of delivering financial products and services through digital channels such as websites, mobile applications, and online platforms. In the fintech industry, digital distribution has become indispensable, enabling financial institutions and startups to reach a wider audience, enhance the customer experience, and streamline operations²⁹.

We can identify the following digital channels, which allow customers to access their financial services and perform transactions remotely, without visiting the branch network:

- **ATMs:** deposits, withdrawals, transfers, account statement printing, account inquiries...
- **Mobile applications (on phones or tablets):** remote banking services (RBS) with access to the bank's site through smartphone apps, SMS alerts, money transfers...
- **Websites:** secure access to accounts and remote banking services from the bank's portal (transfers, stock market orders), messaging, online statements, quotes, digital safe boxes, newsletters, video conferences...

Banking services are accessible through multiple distribution channels, forming a flexible matrix relationship. This matrix evolves over time as both the range of services and distribution

²⁸ <https://blog.exactbuyer.com/post/distribution-channels-for-financial-services> visited 26 may 2024 at 21:24

²⁹ <https://www.truitt.com/blog/a-complete-guide-to-digital-distribution#:~:text=Digital%20distribution%20refers%20to%20the,mobile%20applications%2C%20and%20online%20platforms>. Visited visited 26 may 2024 at 21:33

CHAPTER 01 : Mobile Banking Applications

channels expand. Banks continuously strive to broaden the availability of services across various channels to meet customer needs effectively³⁰.

This section provided an overview of the meaning of banks, their emergence, and their role in the economy. It then delved into the specifics of digital banking and the digital transformations of banks, emphasizing the importance of this transition to ensure the competitiveness of these financial entities.

³⁰ <https://blog.exactbuyer.com/post/distribution-channels-for-financial-services> visited 26 may 2024 at 21:24

Section 2: Mobile bank conception

The following section will discuss the development of mobile banking applications, the components that make them up, their importance in financial resource management, the resources needed for their implementation, and the latest trends in mobile banking development.

1. Fundamentals about mobile banking applications:

With the integration of digitalization in the banking sector, mobile banking quickly emerged. This revolutionary service channel has significantly contributed to the evolution of digital banking. We are starting with the concept definition to understand it better.

1.1. Mobile banking Definition:

According to Malik Mustapha, “Mobile banking is a service provided by a bank or other financial institution that allows its customers to conduct financial transactions remotely using a mobile device such as a smartphone or tablet. Unlike the related internet banking it uses software, usually called an app, provided by the financial institution for the purpose”³¹.

1.2. Mobile Banking Applications definition:

According to their research study, Shaikh Aijaz and Karjaluo Heikki define mobile banking applications as products and services offered by banks that enable customers to conduct financial and non-financial transactions using mobile devices such as mobile phones, smartphones, or tablets. These applications allow users to access bank accounts to perform activities like checking account status, transferring money, making payments, or selling stocks.³².

³¹ Malik Mustapha : Mobile Banking App Development and Implementation, International Journal for Modern Trends in Science and Technology, Faculty of Computing Sciences, Gulf College, Muscat-Oman, 2021

³² Shaikh, A. A., & Karjaluo, H. : Mobile banking adoption: A literature review. *Telematics and informatics*, 2015, 129-142. P5

CHAPTER 01 : Mobile Banking Applications

In another words, mobile banking application is essential for mobile banking as it is the primary tool for these operations. This downloadable app for smartphones or tablets allows users to access their bank accounts, perform online transactions, and conduct various banking activities without needing to visit a physical branch.

1.3. Characteristics of mobile banking applications:

A good mobile application development process involves several key characteristics to ensure success. These include:

1. **Understanding User Needs:** Conduct surveys or focus groups to identify desired features and functionalities.
2. **Thorough Analysis:** Analyze the target audience, market dynamics, and competitors to align the app with user needs and stay relevant.
3. **Clear Requirements:** Define detailed requirements to guide the development process and ensure the app meets its goals.
4. **Essential Features:** Include core functionalities like account management, fund transfers, bill payments, secure transactions, and push notifications.
5. **Security and Compliance:** Implement robust security measures and ensure regulatory compliance to build trust and protect sensitive information.
6. **User-Centric Design:** Focus on creating a user-friendly interface with intuitive navigation for a seamless user experience.
7. **Innovative Features:** Add unique features such as spending trackers, cashback services, personalized offers, smartwatch compatibility, and other innovative services to enhance user engagement.
8. **Future-Proofing:** Integrate future technologies like AI, blockchain, and IoT to keep the app relevant and competitive.

1.4. The impact of mobile banking applications:

Mobile banking revolutionizes customer experience and banking operations by automating transactions, saving time, reducing errors, and enabling efficient management of banking needs from anywhere. This convenience frees up staff for strategic tasks, boosts efficiency, and ensures better compliance and service delivery amidst evolving financial landscapes.

- **Its impact on customers:**

They would be able to save their time and resources through the mobile banking as they don't need to go the bank for the matters which would be now automated. This mechanism would also eliminate the probability of the mistakes that usually happen because of the human error. They will find it effective and efficient way to do routine transactions. Furthermore, they have the ease of doing their daily and common banking work from any place which gives them the ease and efficacy of use.

- **Its impact on the banking Sector:**

The staff and the different divisions in the Bank can now work and focus on important aspects of doing the business instead of being caught up in the routine transaction work. Moreover, the bank will be now able to compete in the banking sectors with the other banks. They will be able to comply in a better manner as there a level of automation that is available now³³.

1.5. The importance of mobile banking applications for the banks:

Users value banking apps for their convenience, security, and extensive features, enabling seamless access to personal accounts anytime, anywhere. For banks, mobile apps reduce staff and operational expenses, promote paperless operations, and support environmental

³³ Malik Mustapha, Op.cit.

CHAPTER 01 : Mobile Banking Applications

sustainability. Mobile banking is indispensable in the financial sector, as the following points indicate :

- **Cost Savings:**

The banking industry stands to save over a billion dollars in costs by adopting mobile banking. Processing mobile deposits is significantly cheaper for banks compared to in-branch deposits. Major banks like Wells Fargo have experienced a decline in non-interest income categories, such as net servicing fees, likely due to the growth of mobile banking.³⁴

- **Broader Technological Focus:**

Mobile banking has broadened the focus of banking industry leaders beyond traditional financial elements. It has necessitated attention to cutting-edge technologies such as data transmission, broadband, and mobile device advancements. These technologies evolve much faster in consumer acceptance compared to traditional financial instruments like interest rates, government bonds, and stock trends, which typically rely on historical data for future predictions.

In another hand, security is a critical concern in this new environment. Traditional methods, such as security guards and armored trucks, are no longer sufficient. Banks have had to shift or expand their resources to include personnel with new skill sets, ensuring they can effectively compete and maintain consumer security³⁵.

- **Balancing Traditional and Mobile Channels:**

As we know, banks that can reduce the traditional costs of brick-and-mortar branches while keeping them viable, and at the same time, expand their mobile banking services to attract and retain customers, will come out ahead. This shift will push them to be more innovative and agile in implementing necessary changes in their services and security measures. Because for

³⁴ Courtney Elizabeth Cleveland, "A Study on How Mobile Banking Has Affected the Banking Industry: Has Mobile Banking Improved Bank Performance?", University of Mississippi. Sally McDonnell Barksdale Honors College, 2016, P34

³⁵ Courtney Elizabeth Cleveland, Op.cit, P34.

banks, to effectively lower brick-and-mortar costs, mobile banking will need to become the primary or most frequently used channel³⁶.

- **Competitive Advantage**

To stay competitive, banks must offer appealing mobile banking products as customer expectations and adoption grow. This is critical as millennials, who prioritize adaptable features, drive demand. For example, even retirement plans are becoming more mobile to cater to their job changes and brand preferences³⁷.

1.6. Challenges faced by banks while the implementation of mobile banking applications in the market:

Implementing mobile banking applications comes with numerous challenges. Here are the main points, drawn from Cadle and Yeates (2001), Tiwari and Buse (2007), DFID report (2006), and Laudon and Laudon (2005):

- **Lack of management support:** Essential for the success of implementing a mobile banking system, because it is crucial to decisions making and resources employment³⁸.
- **Lack of user involvement:** User engagement is crucial for acceptance and usability of the new system, in order to assure that it meets their expectations³⁹.
- **Resistance to change:** Anxiety and uncertainty can lead to rejection of new systems, this due to the anxiety and uncertainty or other personal reasons

³⁶ Ibid, P35.

³⁷ Courtney Elizabeth Cleveland, Op.cit, P35.

³⁸ BOAJUMA Otieno, CHALLENGES IN THE IMPLEMENTATION OF MOBILE BANKING INFORMATION SYSTEMS IN COMMERCIAL BANKS IN KENYA, UNIVERSITY OF NAIROBI, 2008, P2

³⁹ Ibid, P3.

- **Lack of change management program:** Effective change management prepares users and customers for new systems in order to avoid people rejecting them.
- **Skills and technological challenges:** New skills are required for implementation, which may not be readily available, not training of the employees can be more costing on the long term than training them at the moment
- **Communication barriers:** Ineffective communication channels can hinder the flow of necessary information, it is a crucial step because if the stakeholders are not informed they're not going to consider switching to the new system.
- **Security concerns and problems:** Unauthorized access, fraud, and sabotage pose significant risks, especially in the financial sector where people become more demanding with the security of their transactions and information.
- **Interoperability issues:** Lack of common technology standards and diverse mobile devices make it challenging to offer a universal mobile banking solution.⁴⁰
- **Scalability and reliability:** Mobile banking infrastructure must handle growth and ensure 24/7 availability, if it's not carried out the system risks failing⁴¹.
- **Customer adoption uncertainties:** This is due to the fact that predicting the speed and nature of customer adoption is difficult, especially in early market phases. In addition, the market is still developing and may not yet be profitable or sustainable for large players⁴².
- **Usability for illiterate or older generations:** Language barriers and technophobia among these demographics can slow the adoption of these mobile applications⁴³.

⁴⁰ BOAJUMA Otieno, Op.cit, P3

⁴¹ Ibid, P4.

⁴² Idem.

⁴³ Ibid, P12.

- **Cost issues:** The cost of technology implementation needs to be competitive with traditional banking services⁴⁴.
- **Hardware limitations:** Small keyboards and screens, slow data transfer speeds on 2G networks, limited memory, and power supplies of mobile devices hinder user experience⁴⁵.

2.The development of Mobile banking applications:

2.1. The definition of mobile banking application development:

The development of mobile banking applications is one of the fundamental steps that make mobile banking possible, it creates a tool that is useful for the client and the bank at the same time, we can define it as the action of deploying means and knowledge, to build a small digital bank in the pocket of the client, that contains the necessary features to perform his financial operation, all this through a well-developed interface that makes the experience agreeable and effective.

2.2. Elements for an effective mobile banking development:

2.2.1. Technological tools:

- **Front-end Technologies:**

The front end of an app, or client-side, is the component where end users have direct engagement, making it essential to choose the appropriate technologies for a smooth and

⁴⁴ BOAJUMA Otieno, Op.cit, P19.

⁴⁵ Idem.

CHAPTER 01 : Mobile Banking Applications

intuitive user experience. Typically, front-end developers often utilize a combination of HTML, CSS, and JavaScript for web app development⁴⁶.

- **Back-end Technologies:**

The back end, also known as the server side of your app, handles the operational logic, data storage, and processing. Within the fintech sphere, Python, Java, and Kotlin stand out as some of the widely used technologies for back-end development⁴⁷.

2.2.2. Skilled mobile application developers :

Mobile application developers must master specific skills to create high-quality mobile apps. These key competencies enable them to implement best practices and ensure excellence in mobile app development. Here are the essential skills every mobile application developer should possess :

2.2.2.1. Programming Proficiency in Mobile Development :

Mobile application developers, in order to be efficient, need to master specific programming languages according to the platform. Some of the programming languages are the following: Java and Kotlin for Android devices, Swift and Objective-C for iOS⁴⁸.

2.2.2.3. UI/UX Design Principles for Mobile Apps :

At the end of the development, the mobile application is destined for a user, thus, the UI and UX design are primordial. By mastering the design of the application, we can assure an appealing and user-friendly interface that creates a positive first impression and helps to retain the user as long as possible⁴⁹.

⁴⁶ <https://blog.kms-solutions.asia/best-tech-stack-for-banking-app-development#:~:text=For%20mobile%20app%20development%2C%20some.develop%20different%20types%20of%20apps> visited 30 may 2024 at 1:45

⁴⁷ Idem.

⁴⁸ <https://distantjob.com/blog/mobile-developer-skills/> visited 30 may at 02:13

⁴⁹ Idem.

2.2.2.4. Security measures and practices:

The importance of security in a mobile application, especially mobile banking applications, is paramount. To protect the user and the data uploaded through the mobile application, developers need to master fundamental security features such as encryption, biometric authentication, secure download sources, etc.

“For each of the transaction that is to be done there will a step authentication process that is to be deployed in the context of the application. Secondly login credentials will be of complex details which are not going to be based on the traditional log in mechanism. On top of this it will be supported by the biometric feature without which none of the transactions can be executed”⁵⁰.

2.2.2.5. Essential softskills:

While technical skills are crucial, mastering key soft skills such as communication, teamwork, problem-solving, time management, creativity, empathy, agility, and customer orientation is even more important for achieving greater efficiency

2.2.4. Database and KYC:

In the world of financial services, where precision and dependability of data are crucial, selecting the right database technology is paramount. As the number of users increases, the database must effortlessly expand to handle growing data volumes and user interactions.

The database technology should provide horizontal scalability to handle higher loads without compromising performance.

⁵⁰ Malik Mustapha, Op.cit.

2.3. Mobile banking applications functionalities:

2.3.1. Essential features and functionalities in mobile banking applications:

A mobile banking app should be designed explicitly for users. Adding the right features to the app will enhance its adoption and acceptance among users. Let's understand what features a mobile app must have

2.3.1.1. Core Features :

1. User Identity:

User Profile Management lets users update personal details, while Secure Authentication provides methods like biometric authentication and unique username-password combinations for secure access and transactions.

2. Balance and Transactions:

Real-time access allows users to check balances, make transactions, and manage bills. Transaction History offers a detailed record of payments, withdrawals, deposits, loan payments, purchases, and money transfers.

3. Deposits and Withdrawals:

Remote Transactions enable users to handle deposits and withdrawals via the app, avoiding bank visits. Secure Withdrawals ensure safe and smooth withdrawal processes.

4. Loan Management:

The app's Knowledge Base provides loan information, approval status, repayment schedules, interest rates, and reminders. Users can apply for, manage, and repay loans directly through the app.

5. Bio Authentication:

Biometric Authentication adds face ID and touch ID for logins and transactions. Enhanced Security includes multi-factor authentication for added protection.

6. Expense Tracking:

The Dashboard tracks and manages expenses, while Visual Representation provides an easy-to-understand visual summary of costs.

7. Customer Support:

24/7 Support is available via chat, calls, and emails. A Comprehensive Knowledge Base offers FAQs and essential information for users.

8. Digital Wallets:

Digital Wallets store boarding passes, tickets, and documents digitally, and integrate with payment solutions like Google Pay and Paytm for contactless payments.

9. Advanced Security:

Security Measures include encryption, fraud detection, and real-time monitoring. Suspicious Activity Alerts notify users of unusual activity and enable two-way authentication for significant transactions.⁵¹

2.3.1.2. Advanced Features:

1. Cardless ATM Access:

Allows users to withdraw cash using QR codes or one-time authenticators, reducing fraud and enabling mobile app transactions at ATMs.

2. Integration with Modern Technologies like AI/ML:

AI offers personalized financial advice, and ML monitors transactions for security. AI-Enabled Chatbots provide 24/7 support and assist with credit analysis and loan suggestions.

3. Notifications:

Custom Alerts inform users of low balances, international transactions, and refund statuses. Dashboard Customization lets users select what information to display.

⁵¹ <https://successive.tech/blog/mobile-banking-app-development-guide/#6> visited 31 may 2024 at 13:45.

4. Investing:

The Knowledge Base lets users research investments and track assets. Investment Management enables users to buy and sell investments via the app.

5. Geolocation:

Helps users locate branches and ATMs, provides location-based offers, and adds a security layer by verifying the user's location during transactions.⁵²

2.3.2. Selecting the features to develop according to the user needs:

The prioritization of functionalities should align with user needs. Therefore, it's crucial to assess the most significant functionalities from the customer's perspective. Pousttchi, Key, and Schurig (2004) conducted research to identify the primary, concrete needs of users in this regard.

They introduced the most important 4 use cases, as it follows :

Use case 1: Request of account balance.

The user is in a mobile situation (e.g. in a department store) and intends to know his account balance, e.g. to verify his account before realizing a spontaneous purchase.

Resulting need: Quick obtainment of account balance.

Use case 2: Control of account movements.

The user is waiting for an important cash receipt on his account. He intends to have the exact details of the cash receipt.

Resulting need: Continuous control over movements on the account.

Use case 3: Instant payment.

The user is in a mobile situation and intends to make a payment by bank transfer from his account.

Resulting need: Instant execution of a bank transfer.

⁵² <https://successive.tech/blog/mobile-banking-app-development-guide/#6> Op.cit.

Use case 4: Administration of the account.

The user intends to use spare time (e.g. using a train or waiting on the airport) to administrate his account. Resulting need:

Quick and easy-to-use execution of transactions and administration is possible”⁵³.

The study identified four types of requirements based on its findings :

1. Technical Requirements:

- Must work on all types of mobile devices.
- Should adapt to the device's features automatically.
- Should be usable for customers of any mobile network operator.
- Minimize data transmission to reduce costs and waiting time.

2. Usability Requirements:

- Ability to work offline due to expensive data transmission and potential disruptions.
- Simplified data input method for easier usage, especially for tasks like instant payments.
- Ability to resume usage seamlessly after disruptions.
- Quick access to important information with minimal clicks.

3. Design Requirements:

- Personalization options for viewing data based on user preferences.
- Easy switching between different functions.
- Push notifications for important events.
- Comprehensive functionality similar to electronic banking.

⁵³ Pousttchi, Key and Schurig, Martin, Assessment of Today’s Mobile Banking Applications from the View of Customer Requirements, Munich Personal RePEc Archive, University of Augsburg, 2004.

4. Security Requirements:

- Data transmission must be encrypted to protect sensitive information.
- Access to data must be authorized before usage.
- The authorization process should be fast and simple, especially for quick access to data.

Based on the insights gleaned from this study, it is evident that selecting and developing the appropriate functionalities requires empathizing with the customer and discerning the essential requirements to meet their needs satisfactorily⁵⁴.

2.4. The user interface of a mobile banking application development:

2.4.1. Definition of the user interface:

“A general definition of interface was the interaction between two systems” (America Heritage Dictionary). The user interface provides (the) means of Input, allowing the users to control the system; (and) Output, allowing the system to inform the users (feedback). User interface, by this definition, involves both users and "things. The interaction involves both inputs and outputs”⁵⁵.

In another words the user interface (UI) serves as the primary point of interaction and communication between a human and a device.

⁵⁴ Pousttchi, Key and Schurig, Martin, Op.cit.

⁵⁵ Adream Blair-Early and Mike Zender, User Interface Design Principles for Interaction Design, Massachusetts Institute of Technology Design Issues: Volume 24, Number 1 Winter 2008, p8

2.4.2. Definition of the user interface design:

The overall activity should be referred to as user-interface development, akin to software development. The design aspect primarily concentrates on the synthesis stages⁵⁶.

By this we mean, and in a simpler way that, UI design is how designers make interfaces for software or devices, focusing on appearance. They want to make interfaces that users find easy and enjoyable to use. UI design covers graphical interfaces and other types, like voice-controlled ones.

2.4.3. The user interface design key elements of a mobile banking application:

To design an adequate user interface, it is essential to master and know the key elements that can ensure a great friendly experience for the user, we find:

- **Interaction design:** Focuses on creating user-friendly interfaces by considering users' needs, preferences, and cultural backgrounds.
- **User interface design:** This aims to bridge the gap between users and the application, ensuring easy access to desired actions with minimal frustration.
- **Consistency and standards:** Ensures uniformity in design elements and terminology, making the interface familiar and easy to navigate for users.
- **Flexibility and efficiency of use:** Offers shortcuts and customization options to cater to both novice and expert users, enhancing efficiency.
- **Help and documentation:** Provides easily accessible help resources to guide users through complex tasks or unfamiliar features.
- **Responsiveness:** Ensures that the interface adapts smoothly to different screen sizes and orientations, maximizing usability on mobile devices.

⁵⁶ Marcus, A : Dare we define user-interface design?. interactions, (2002), P19-24.

- **Simplicity and finger-friendly design:** Prioritizes simplicity and intuitive gestures to enhance the user experience, minimizing user effort and frustration.

2.4.4. Best UI practices :

In the digital banking world, the interface of a banking app can significantly impact user experience. With the right UI practices, a banking app can evolve from a basic transactional platform into an engaging, secure, and intuitive tool that users appreciate. Here are the top best UI practices for banking apps to ensure your app stands out.

1. Heuristics and trendy aesthetics:

This is where design principles and current aesthetics come in. These principles ensure the UI is intuitive and user-friendly, with clear labels, seamless navigation, and a layout that feels both familiar and innovative.

2. Cards instead of lists:

In a banking app UI, a flood of text can overwhelm users. Cards offer a visually pleasing alternative to lists, organizing transactions, account balances, and other information in a neat, structured manner.

3. Landing pages with statistics:

Within your banking app UI, landing pages are powerful tools for displaying vital financial information. Imagine a dedicated page showing account balances, upcoming bills, and spending trends in a visually compelling manner, providing users with instant insights into their financial status.

4. Gamification and rewards:

While managing finances may not always be stimulating, integrating gamification into a banking app UI can make it more engaging. Imagine users earning badges for achieving savings goals or receiving rewards for consistent budget management.

5. Useful notifications:

CHAPTER 01 : Mobile Banking Applications

Timely notifications from the banking app UI are invaluable. Relevant notifications keep users informed and proactive in managing their finances.

6. Microinteractions:

Enhancing user interaction in a banking app UI involves subtle animations and feedback mechanisms. These details, significantly elevate the user experience.

7. Biometric authentication:

Security is paramount in banking. Biometric authentication, like fingerprint scanning or facial recognition, provides a secure and convenient means for users to access their accounts swiftly. Integrating such features ensures secure logins.

8. Progressive disclosure:

Prioritizing clarity through progressive disclosure is key in banking app UI design. This entails revealing information gradually, hiding features within menus until users actively seek them out, thus streamlining the user experience.

9. Accessibility features:

Ensuring inclusivity in app UI design is essential. Incorporating features catering to users with visual impairments, hearing difficulties, or motor limitations is imperative.

10. Data visualization:

Presenting complex financial data understandably is crucial in banking app UI design. Utilizing charts, graphs, and infographics transforms intricate data into visually appealing and comprehensible formats.⁵⁷

⁵⁷ <https://procreator.design/blog/banking-app-ui-top-best-practices/#:~:text=The%20UI%20of%20a%20banking%20app%20reflects%20the%20bank's%20brand,the%20bank's%20overall%20customer%20service>. Visited 2 june 2024 at 21:34

2.5. Latest technologies in the service of mobile banking application development:

The development landscape for mobile banking applications is continuously evolving due to emerging technologies and industry trends. By staying current with these advancements, developers can create efficient, reliable, and secure applications, ensuring they maintain a competitive edge.

1. Personalization for enhanced user engagement:

Personalization has become crucial in mobile banking app development. Tailoring the user experience to individual preferences and behaviors boosts engagement and fosters a stronger connection with the app. Advanced personalization algorithms analyze user data to provide individualized financial insights, spending patterns, and relevant product suggestions.

2. Gesture-based navigation:

Gesture-based navigation is increasingly popular in mobile banking apps as a user experience and interface trend. With the removal of physical buttons in modern smartphones, gestures offer a more natural and user-friendly way to navigate the app. Features like pinch-to-zoom, swipe motions, and tap-and-hold capabilities create a smoother, more immersive user experience. Gesture-based navigation not only aligns the app with contemporary design standards but also enhances usability by simplifying navigation and transaction processes.

3. Biometric authentication for security and convenience:

In the financial sector, security is paramount, and biometric authentication has become a game-changer for mobile banking. Fingerprint, facial, and voice recognition systems provide secure and convenient alternatives to traditional password-based authentication. These technologies enhance security while streamlining the user authentication process, allowing for quick and easy access while ensuring the highest levels of data protection.

4. Dark mode for improved visual comfort:

Dark mode has gained popularity in user experience and interface design across various apps, including mobile banking. This feature reduces eye strain, conserves battery life on OLED screens, and offers a visually pleasing aesthetic. Users appreciate the ability to switch between light and dark modes based on personal preference and ambient lighting conditions. Implementing dark mode not only enhances visual comfort but also shows the app's commitment to staying current with design trends.

5. Voice user interface (VUI) for hands-free interaction:

The incorporation of a voice user interface (VUI) is revolutionizing user interactions with mobile banking apps. Through voice-activated commands, users can check balances, transfer funds, and perform various tasks without navigating menus. VUI improves accessibility and offers a hands-free option, catering to users who prefer a more intuitive and straightforward way to interact with their financial apps. This integration aligns mobile banking apps with the growing popularity of virtual assistants.

6. Augmented reality (AR) for immersive banking experiences:

Augmented Reality (AR) is making its way into mobile banking apps to provide immersive and engaging experiences. AR allows users to visualize financial data in real-world contexts using their device's camera. This could include overlaying spending patterns on their surroundings or locating nearby ATMs through the camera's lens. By leveraging AR, mobile banking apps can enhance user engagement and offer innovative ways for users to interact with their financial information.

7. Microinteractions for delightful user experiences:

Microinteractions are subtle animations or feedback loops designed to enhance user satisfaction. These small, engaging elements, like a confirmation animation after a successful transaction or a gentle vibration when a button is tapped, create a more enjoyable and responsive user experience. Through microinteractions, mobile banking apps can inject a sense of fun and establish a positive emotional connection with their users.

The future of mobile banking apps holds exciting possibilities with emerging technologies poised to revolutionize user experiences. Artificial Intelligence (AI) and Machine Learning

CHAPTER 01 : Mobile Banking Applications

(ML) promise to shift paradigms, enabling apps to proactively anticipate user needs and offer tailored financial insights. Quantum computing could enhance security infrastructure, ensuring unprecedented data protection levels. Integrating Blockchain technology might redefine transactional trust, offering a decentralized and transparent approach.

At the end of this section, we can conclude that mobile banking applications are essential tools for financial institutions. Ensuring their optimal development is crucial, requiring the right resources, such as new technologies, to achieve this both in terms of selecting and developing functionalities, and in designing the visual interface.

Conclusion of chapter 01:

In the this chapter, we explained the concept of banking and the emergence of its digitalization due to technological advances. This enabled us to understand how mobile banking has emerged. Furthermore, we delved deeper into the effective development of mobile banking applications in terms of functionality and user interface.

Chapter 2: The Customer Experience

This chapter is divided into two sections. The first aims to explain customer experience, its key elements and aspects of its improvement, to clarify the concept of customer experience. The second section delves deeper into how to optimize customer experience to maximize profitability for the company. This part also discusses the strategies that companies should follow to meet their customers' expectations.

Section 1: the customer experience and the digital CX

Customer experience is the element that determines customer loyalty and retention. In this section, we will explain this concept, its main components, the main strategies for its optimization, and the practices to ensure its success.

1. Generalities on the customer experience

Over the last 20 years, the “digital revolution” has radically transformed the customer experience. To characterize digital technologies and their advantages, Nicholas Negroponte (1995), in his book *Being Digital*, described this transformation as a shift from “atoms” to “bits”⁵⁸.

1.1. The definition of the customer experience concept:

“According to the Harvard Business Review, the concept of “customer experience” was born at the end of the 1990s with the work of Joseph B. Pine and James H. Gilmore, “The Experience Economy.” They affirmed that it is no longer a question of offering products or services to customers, but experiences allowing distinguish a brand from its competitors and thus create a stronger commitment. the sending sources (marketing experts, relationship customers experts, advertising agencies, consulting firms, etc.). Customer experience is the result of

⁵⁸ Hoyer, W. D., Kroschke, M., Schmitt, B., Kraume, K., & Shankar, V. : Transforming the customer experience through new technologies. *Journal of interactive marketing*, 2020, 57-71. P4

CHAPTER 02 : The Customer Experience

emotions and feelings felt by the client during their interactions with the brand. The customer experience is successful when the desired experience delivered by the brand corresponds to the reality of the experience experienced by the customer. This experience is said to be successful when the experience delivered by the brand exceeds the experience expected by the customer. Conversely, this experience is unsatisfactory if there is a gap between customer expectations and their actual experience”⁵⁹.

The new marketing focuses on the customer and puts him in the center of all their communications, the way people react to these communications is different from one to another, depending not only on their cultures and expectations, but also on their past experience. As humans, past life experiences are valuable for making complex decisions and that can't be any different when it comes to making a purchase decision. That's why building a compelling and seamless customer experience is considered a great strategic asset for companies and brands.

“What people really desire are not products but satisfying experiences”⁶⁰.

In another definition the “Customer experience is a multi-dimensional construct focusing on a customer's cognitive, emotional, behavioral, sensorial, and social responses to a firm's offerings during the customer's entire purchase journey”⁶¹.

Customer experience (CX) refers to the overall impression customers form based on their interactions with a brand or company across various channels. These interactions encompass every stage of the customer journey, including awareness, discovery, cultivation, advocacy, and purchase, whether they occur through a phone call, exposure to an advertisement, or even if they don't result in a purchase. Each interaction contributes to the thoughts and feelings customers associate with the brand, shaping their satisfaction or disappointment as they continue their journey with the company.

⁵⁹ (Dabi-Schwebel, Gabriel • Vax, Valérie , Op.cit. p15

⁶⁰ Abbott, Lawrence (1955), *Quality and Competition*. New York: Columbia University Press.

⁶¹ Katherine N. Lemon, Peter C. Verhoef : *Understanding Customer Experience throughout the Customer Journey*, *Journal of marketing, JM-MSI Special Issue*, 2016, p7

CHAPTER 02 : The Customer Experience

A customer experience is shaped by the emotions, smells, sounds, and insights the brand conjures when they think about it. So, it's the way customers feel themselves while interacting with the brand.

Nowadays, companies propose almost indistinguishable products, with similar features, the thing that pushes the customers to choose based on the price and the convenience of these products. Very often customers make decisions based on how they feel, or based on the emotions they recall from their last experience. Customers with good experiences tend to buy more, be more forgiving in case of mistakes, they're also a marketing channel for the company through word of mouth. That's why companies should focus and invest in crafting experiences that leave a memorable good impression.

Competing within the service category is no longer sufficient. It's not just about selling a product or service. The true competition is for creating lasting memories and capturing both the minds and hearts of the audience. In a world where many brands appear indifferent, gaining attention amidst numerous distractions is essential. Standing out requires being distinctive and evoking emotions that resonate with people's desires⁶².

Investing in designing customer experience will increase the revenue through increasing loyalty, and attract new customers through word of mouth from delighted customers. Customers nowadays are more connected and confident, with a growing choosing power, and they will reserve loyalty to the brands that genuinely care about them. In a market flooded with different brands that seek the same goal, every undesigned interaction risks losing these customers to rivals that know how to propose a good experience. That means that if one person's experience doesn't live up to their expectations it can drastically damage the brand reputation, this is the power the Web 2.0 holds, finding an alternative is one Google search away.

“Pine and Gilmore conceptualized the idea of “experiences” as distinct from goods and services, noting that a consumer purchases an experience to “spend time enjoying a

⁶² Chantle BOTHA (2020), Customer Journey Mapping, p 17.

CHAPTER 02 : The Customer Experience

series of memorable events that a company stages ... to engage him in an inherently personal way”⁶³.

Every interaction a brand has with a customer will leave some sort of emotion, whether it’s good, bad, happy or sad; this experience feeling will be associated to the brand. Basing on this emotion, a customer will ask himself: to buy or not to buy? To love or not to love? ; A good experience makes it easier for the customers to repeat their transaction with the brand. To achieve that, the company departments should work together to create a seamless and consistent experience, by setting a realistic expectation about the product or service through the marketing, creating an easy to access self-help resources, proactive messaging round issues...etc. on the contrary, a bad experience will result to a bad word-of-mouth, zero customer retention and loss of sales.

According to a study conducted on nearly 400 decision-makers in companies, such as Amazon, Google and KPMG; by Accenture in cooperation with Forrester Consulting². The survey concluded that “improving the customer experience” topped the list of business priorities companies have for the next 12 months (21 percent), followed by “growing revenues” (17 percent) and “improving differentiation” (16 percent). It’s vital for a business to minimize the space between the experience they offer and the customer’s changing expectations, not only that, but to make these expectations a reality. To achieve that, a brand has to adopt a new mindset and become a business of experience.

1.2. Key elements of great CX:

These elements are crucial as they enhance customer satisfaction, foster loyalty, and differentiate a brand in a competitive market. In the following points treat the essential elements of customer experience that businesses must include in their CX strategy.

⁶³ Katherine N. Lemon, Peter C. Verhoef, Op.cit, p5.

- 1. Reliability:** Reliability plays a crucial role in shaping the customer experience, influencing brand perception and fostering positive word of mouth. It entails offering support for both critical and non-critical business issues, ensuring system and network reliability, and swiftly resolving issues. Reliable integration across communication channels is essential for maintaining consistent, high-quality interactions with customers, thereby ensuring an exceptional and reliable customer experience.
- 2. Availability:** In today's fast-paced world, customers expect to be able to contact a company whenever and however they want. They interact with companies on their terms via email, chat, voice calls, messaging, or social media. But, they also expect to have all inquiries answered quickly (if not immediately). They especially do not want to spend or waste their time waiting for answers or repeating their questions. And that's precisely why availability is among the essential elements of a good customer experience.
- 3. Convenience:** Customers, in addition to availability, expect convenience. They do not want to waste their precious time waiting in phone queues or repeating their questions to different representatives. The ability to reduce customers' non-monetary costs, such as time, energy, and effort when purchasing or using services or products, significantly impacts CX.
- 4. Personalized Communication:** Receiving personalized messages from a company, whether related to previous interaction with the company, offers linked to purchase history, or simply an interactive voice response (IVR) message personalized with a first name, provides the customer with a feeling of being valued. As a result, personalized communication is one of the most important aspects of a customer's experience and expectations.
- 5. Simplicity:** Customers expect all business interactions to be simple and seamless at every step of the customer journey. They anticipate being heard while also having their interactions simplified. This means a company should keep the number of jumps from one touchpoint or stage to another at a minimum. Providing and implementing a one-step resolution or access to information through all available channels would be the ideal approach. But even that is insufficient. Besides simplifying the process, businesses must

CHAPTER 02 : The Customer Experience

ensure that as much data as possible is collected and stored at each step so that customers do not have to share the same information repeatedly. All of this will make customers' lives easier at each stage of their customer journey, enhancing their experience significantly.

- 6. Adaptability:** Because the digital world is rapidly changing, customers (particularly younger generations) are likelier to experiment with newer technologies and commit to newer engagement channels. This simply means that companies must consider the changing consumer environment and be ready to adapt and change quickly and smoothly. Adaptability in a technological environment is critical for a company to provide exceptional customer services in speed, data security, data accuracy, and so on. Because each customer is unique, a company's solutions should be adaptable, scalable, and tailored to the customer's specific needs.
- 7. Anticipation:** Anticipation is also closely related to the rapidly changing technological environment. To be able to adapt quickly and smoothly, companies must be able to anticipate changes before they occur to stay ahead of both their customers and the competition. To provide an exceptional customer experience, every company must be a digital innovator in their respective fields and industries.
- 8. Feedback:** Allowing customers to provide feedback is another essential aspect of providing a good customer experience. Customer feedback can be advantageous to both parties, customers will appreciate it because it demonstrates that the company cares about what they think and it shows the company which aspects of their business are most valuable to customers and which could benefit from improvement.
- 9. Responsiveness:** Responding to customer complaints or inquiries consistently and promptly is crucial to providing excellent customer experience. A responsive CX team can contribute to success by assisting as many customers as possible and finding solutions quickly.
10. When customers provide positive feedback, responsiveness is also critical. Customers will be satisfied with their experience if their suggestions prompt change.

11. Transparency: Customers appreciate it when brands and companies they purchase from are transparent, open, and honest. Transparency is demonstrated through honesty. Even in cases when employees do not have all the necessary information or all the required answers, customers will appreciate a transparent and honest response rather than a generic one.

12. Exceeding expectations: Exceeding expectations simply means going above and beyond for your customers. This is another essential aspect of the customer experience because it increases customer satisfaction and contributes to credibility. Going the extra mile will undoubtedly result in long-term, positive customer relationships. It will also encourage customers to return, renew, or re-subscribe. Return customers are more likely to recommend the brand to their peers, which leads to acquiring new customers. As a result, a company must not pass up any opportunity to go above and beyond to engage and delight existing customers.

1.3.The importance of great CX for the bank:

The growth of the company requires an optimal customer experience, but the customer satisfied with the service or the product will become a loyal customer and will positively recommend the brand to those around them. In addition, the customer will not hesitate to recommend the brand on social networks, which will increase the notoriety of the company, attract customers, and therefore increase income.

It may sometimes be assumed that “customer experience” is predominantly concerned with “entertainment” type organizations. This study has demonstrated that customer experience, and its improvements, were being taken seriously by a range of organizations, none of which were entertainment organizations. This supports the view in the literature that all customers, whatever the type of organization or indeed sector, will have an experience, good, bad, or indifferent. Furthermore, managers of all types of organizations need to consider the design of not only the service they deliver but also the experiences they provide.

The literature underscores the critical importance of delivering a superior customer experience, highlighting its role in enhancing customer satisfaction, fostering loyalty, and building trust. Emotional connections with customers are seen as pivotal in gaining a competitive advantage, benefiting both customer retention and organizational performance. Moreover, the concept of the "triple bottom line" emerges, emphasizing benefits to customers, staff, and the organization alike. Staff members derive satisfaction and commitment from a better grasp of customer expectations and their impact on the customer experience, which, in turn, boosts their morale and productivity. For organizations, apart from customer-centric gains, such as enhanced loyalty and competitive edge, there are also operational benefits like cost efficiencies. These factors collectively underscore why investing in a good customer experience is crucial for sustained success in today's competitive landscape⁶⁴.

1.4. The best practices to create a great CX:

Mastering the best practices for delivering a positive customer experience can lead to improved overall performance. Therefore, organizations must prioritize implementing the best practices. Some of these key practices include:

- **Orchestrating the marketing ecosystem :**

Companies today need to actively manage their role within a marketing ecosystem to influence the customer journey. By co-evolving with partners, sharing resources, and leveraging digital technology, companies can create a compelling customer experience.

- **Aligning company and customer needs:**

⁶⁴ Johnston, R., & Kong, X. The customer experience: a road-map for improvement. *Managing Service Quality: An International Journal*, 2011, 5-24. P18

CHAPTER 02 : The Customer Experience

To create a compelling customer experience, companies must align their offerings with customer needs and perceptions. Managers often misjudge customer expectations and satisfaction, leading to a disconnect. Ensuring that employees understand customers' views on the company's products and services is crucial for better alignment.

- **Delivering great customer convenience :**

Customers expect to buy products conveniently, anytime, and anywhere. Companies that can provide a strategic mix of speed, quality, cost, and flexibility will better meet these demands and enhance the customer experience.

- **Reinforcing digital marketing :**

Online customers prioritize purchase value and are more sensitive to satisfaction when making repurchase decisions. Companies can use social media to align with customer needs and enhance satisfaction, but the most impactful posts are those initiated by customers themselves.

Adjusting customer incentives :

- With growing concerns about sustainability, companies need to balance costs with customer sensitivity to price increases. Offering a mix of sustainable options and allowing customers to choose can increase satisfaction and avoid negative perceptions.

- **Cultivating customer evangelists :**

Building long-term relationships with customers and leveraging their satisfaction can turn them into brand evangelists. Companies should focus on creating positive interactions at every touchpoint to encourage repeat business and advocacy.

- **Handling customer complaints :**

Effectively handling complaints can lead to stronger customer loyalty. Companies should aim for near-perfect complaint resolution to convert dissatisfied customers into repeat

buyers. Encouraging complaints and addressing them well is better than having silent, dissatisfied customers leave.⁶⁵

1.5. Difference between UX and CX:

User Experience (UX) and Customer Experience (CX) are both critical in the highly competitive consumer market. UX focuses on the conditions of an experience, emphasizing elements such as usability, affect, and value, and includes cognitive and emotional aspects like aesthetics and hedonism.

On the other hand, CX is seen as the process of experience, becoming a key differentiator in marketing due to the standardization of service and product quality. The experience economy, coined by Pine and Gilmore, defines CX as the interaction between a staged event and an individual's state of mind, classifying experiences into entertainment, educational, escapist, and aesthetic categories. Schmitt's experiential marketing model further breaks down experiences into sensory, emotional, cognitive, behavioral, and relational elements, emphasizing aesthetic pleasure, emotional influence, cognitive engagement, direct experience, and broader social connections.⁶⁶

2. Fundamentals of the digital customer experience:

2.1. The fundamental definitions:

2.1.1. Definition of the digital customer experience:

“DCX encompasses all interactions an individual is likely to have with a brand/company and across all brand channels, including a specific product such as an app. DCX refers to the way users use the technological tools made available to them by the company and the way they

⁶⁵ <https://hbr.org/2023/03/8-best-practices-for-creating-a-compelling-customer-experience> Visited 5 June 2023 at 01:35

⁶⁶ Lee, H. J., Lee, K. H., & Choi, J : A structural model for unity of experience: Connecting user experience, customer experience, and brand experience. Journal of Usability Studies. 2018

perceive elements and services linked to the company such as: customer service, advertising, reputation of the company. brand, sales process, price, delivery, etc.”⁶⁷

2.2. Definition of the digital customer:

Internet access is now almost universal in developed countries. In Australia, recent Sensis Social Media Reports have found that all but 1 percent or less of households are connected to the internet. The average consumer in 2018 owned 3.5 internet-enabled devices, and 60 percent used the internet at least five times a day.

Devices are also becoming lighter and more portable. Ownership of smartphones outstripped laptop computers for the first time in 2016 and has continued to rise since then. The number of internet-enabled TVs has also risen markedly, and 2018 saw a sharp surge in the ownership of wearable devices such as Apple Watches and Fitbits, which had now reached more than 20 percent of the population. Meanwhile, the ownership of laptops and desktop computers remained pretty constant.

Customers vary widely, but with today's technology, there is an increasing number of digital-only customers. These are customers that a company engages with exclusively through non-physical channels. As a result, digital customers require their own set of best practices for effective company engagement⁶⁸.

With numerous technological platforms available for companies to engage with their customers, businesses with digital clientele must consider their diverse needs and how they consume digital products. To effectively address these needs, companies must understand the different types of digital customers and tailor their approaches accordingly.

Though digital customers can arrive through many channels, they also engage with the business through a variety of channels. Keeping the concept of individuality of every customer and their journey, it should also put into consideration how individuals in a demographic utilize the mode

⁶⁷ Batat Wided : Le Triangle de l'Expérience Digitale pour réussir la transformation digitale - Le Blue Sunflower Marketing pour innover efficacement - L'approche Physical 2030 pour performer, Eyrolles, édition 1, 2018

⁶⁸ <https://www.snaplogic.com/glossary/what-digital-customer> visited 4 June 2024 at 21:15

CHAPTER 02 : The Customer Experience

of company contact (mobile, web-based) and what problems are most experienced. Ensuring that any future data integration strategies not only incorporate the latest technology for the user experience that is also vital to ensure that it can be used in a digital customer-friendly manner.⁶⁹

2.3.The difference between CX and the digital CX:

Customer experience is a broad umbrella that encompasses CX through all kinds of channels, whether that be traditional customer service channels or newer digital interfaces. Digital customer experience (DCX), on the other hand, only focuses on digital interfaces, including both front-end services and back-office process optimization, which ultimately helps improve the overall customer experience.

Digital customer experience plays a pivotal role in influencing customer experience as customers are constantly interacting with brands through digital channels. Businesses in today's environment can't remain competitive without offering excellent customer experience at every step of the customer journey, and at every channel- whether that be online, in-app, or in-store⁷⁰.

Digital customer experience (DCX) is integral to the broader customer experience (CX), which encompasses in-store and other physical interactions. While CX focuses on empathy, trust, and human connection, DCX represents these efforts in the digital realm. Customers don't typically differentiate between various stages of their journey as marketers do; they expect consistency across all channels, whether physical or virtual, offline or online. For customers, it's all one seamless experience with the brand. Therefore, it is crucial to have both the people skills and technical expertise to execute digital campaigns effectively, ensuring a smooth transition between these interconnected worlds.⁷¹

⁶⁹ Dan Michaeli and Rick DeLisi : “Digital Customer Service: Transforming Customer Experience for an On-Screen World”, 2021, P12.

⁷⁰ <https://www.voxco.com/blog/digital-customer-experience-vs-customer-experience/> visited 4 June 2024 at 21:22

⁷¹ <https://www.sitecore.com/knowledge-center/digital-marketing-resources/what-is-digital-customer-experience> visited 4 june at 21:30

2.4. Optimization of the CX through digital technologies:

- **Internet of things (IoT):**

IoT embeds smart computing systems into devices, generating data on consumer usage and offering smart services. However, privacy concerns remain a significant issue.

- **AR/VR/MR:**

These technologies add informational and experiential layers to real-life experiences. AR enhances real-world environments with computer-generated displays, VR creates immersive virtual environments, and MR combines real and virtual worlds for interactive experiences.

- **AI and robotics:**

Virtual assistants, chatbots, and robots, powered by AI, perform tasks ranging from simple queries to complex interactions. These technologies are transforming customer service and interactions across various domains.

2.5. Impact of these digital technologies on Customer Experience:

These advancements are poised to revolutionize customer experiences by providing seamless, interactive, and enriched interactions. They enable improved omnichannel experiences and enhance product trials, usage imagination, and overall consumption experiences. However, balancing technological benefits with privacy and usability concerns remains crucial.

To illustrate the impact of digital technologies on the customer experience, it is worthwhile considering its major technological inventions. The worldwide web has enabled new

CHAPTER 02 : The Customer Experience

communications, interactions, and transactions via an entirely new medium and platform. E-commerce has provided a new sales channel and marketplace that allows consumers to receive products outside stores. Mobile platforms have integrated information on one device that can be used for multiple commercial applications. Social media and its tools for sharing text, images, and video have created social networks among consumers and user-generated content.⁷²

⁷² Hoyer, W. D., Kroschke, M., Schmitt, B., Kraume, K., & Shankar, V, Op.cit

Section 2: The Customer Experience Optimization:

The concept of customer experience is not new, it encompasses various marketing disciplines, including customer satisfaction, service quality, customer relationships, and customer equity. This section aims to delve into the definition of the concept by presenting its main components, emphasizing its importance, and highlighting the benefits of its adoption for companies.

1. The concept of the customer experience optimization :

According to the latest customer experience statistics, it takes a commendable 12 positive customer experiences to counteract the impact of a single negative encounter. Even more daunting is the fact that a staggering 95% of dissatisfied customers openly share their unfavorable experiences with others. The looming threat of declining retention rates becomes undeniable unless customer experience optimization claims a central role in your business strategy.⁷³

Furthermore, the customer experience is considered a crucial strategy for companies and businesses. Positive customer experiences are their path to differentiation and long-lasting relationships with customers.

The goal of customer experience optimization is to strengthen the bond between a company and its customers. It's an excellent tool for any company wanting to grow. The important thing is that they must use personalization to enhance the experiences of their customers.⁷⁴

In another words, Customer experience optimization is a critical strategy for businesses aiming to differentiate themselves and build long-lasting relationships with customers. It involves creating positive interactions to counteract negative ones, as it takes 12 positive experiences to offset a single negative encounter. With 95% of dissatisfied customers likely to share their unfavorable experiences, prioritizing customer experience is essential to maintaining retention

⁷³ <https://www.sprinklr.com/blog/customer-experience-optimization/#toc-2> visited 7 June 2024 at 01:23

⁷⁴ Fan, B., Gu, Y., Ma, H., Cui, J., Wang, Y., & Han, S. (2023, March). A Study on Personal Customer Experience Optimisation. In *2022 3rd International Conference on Big Data Economy and Information Management (BDEIM 2022)* (pp. 449-454). Atlantis Press.

rates. By leveraging personalization to enhance customer interactions, businesses can strengthen their bond with customers and drive growth.

1.1.The definition of the customer experience optimization concept :

According to Jayadeep Subhashis and Bhavya Aggarwal Customer experience optimization is the meticulous process of consistently delivering quality interactions across all customer touchpoints, focusing on traditional and digital channels. It ensures that each interaction is finely tuned to meet and exceed customer expectations.⁷⁵

Customer experience optimization aims to enhance customer satisfaction, loyalty, and advocacy. Achieving this requires businesses to understand their customers' desires and needs, then tailor their products, services, and processes to meet those expectations.

Since customer needs are always evolving, CXO must be an ongoing effort rather than a one-time project. Continuous collection and analysis of customer feedback are essential for making ongoing improvements and keeping this optimization moving forward.

2. The importance of the customer experience concept :

Surveys indicate that while 86% of buyers are willing to pay more for an enhanced experience, merely 1% believe vendors consistently meet their expectations. This significant gap highlights the urgency to move from just recommending customer experience optimization to making it an absolute must.

Today's online visitors are exceptionally well-informed and technologically adept. Armed with a plethora of tools, they demand instant gratification and personalized solutions. Hence, they value brands that streamline their digital journey. The goal of digital experience optimization is to ensure experiences are seamless, immediate, and tailored.

⁷⁵ <https://www.sprinklr.com/blog/customer-experience-optimization/#toc-0> visited 7 june 2024 at 01:32

CHAPTER 02 : The Customer Experience

Consistently delivering outstanding experiences is crucial as it influences how potential customers perceive a brand. Satisfied customers are inclined to share their positive experiences, significantly boosting brand visibility and growth.

According to Deloitte, customers with positive experiences tend to spend 140% more than those with negative ones, underscoring the financial impact of good customer service.

Furthermore, a positive customer experience enhances engagement among existing customers. Intuitive products and excellent customer support encourage repeated use, fostering loyalty and satisfaction.⁷⁶

Furthermore, contemporary online visitors demand value at every touchpoint, from content exploration to purchase decisions. They expect the same immediacy, personalization, and convenience found in retail environments. To meet these expectations, businesses must realign their objectives with visitor demands, comprehending their interactions and reshaping communication platforms to prioritize the customer experience.

Additionally, cultivating enduring customer relationships extends beyond initial engagements. Businesses should actively foster ongoing interaction through personalized approaches and loyalty incentives. Research indicates that customers favor brands that prioritize their needs and nurture loyalty through meaningful engagement, rather than purely transactional interactions. By mapping out the visitor's journey and leveraging sophisticated analytics tools, businesses can effectively meet these expectations, empower frontline teams, and craft customer-centric experiences that convert visitors into loyal advocates⁷⁷.

Popular management books (e.g., Pine and Gilmore 1999) have emphasized that it is important for firms to focus on customer experience, claiming that differentiation strategies based on service and price are no longer sufficient. However, direct empirical evidence supporting these claims is scarce. Marketing strategy research has shown that firms with a revenue emphasis,

⁷⁶ <https://missiveapp.com/blog/customer-experience-optimization#why-customer-experience-optimization-is-important> visited 7 june 2024 01:44

⁷⁷ <https://vwo.com/customer-experience-optimization/> Visited 7 June 2024 at 01:32

CHAPTER 02 : The Customer Experience

focusing solely on customer satisfaction and customer loyalty, have the best performance (Rust, Moorman, and Dickson 2002) ⁷⁸.

Customer experience profoundly impacts the customer loyalty and absence of great customer experience alienates the consumer from the brand.⁷⁹

3. Benefits of the customer experience optimization :

Customer experience optimization is crucial because it benefits the business in numerous ways, including:

3. Competitive edge:

In a market saturated with similar offerings, providing exceptional customer service becomes a powerful competitive differentiator. Businesses that deliver memorable customer experiences gain a distinct edge over their competitors, influencing purchasing decisions and fostering long-term relationships.

4. Increased customer lifetime value:

Three out of four consumers have spent more with a business due to a history of good customer service, and we found this while compiling customer experience statistics. Satisfied and loyal customers tend to engage more with your business over time, increasing customer lifetime value. By consistently optimizing their experience, you secure their ongoing business and also open avenues for upselling and cross-selling opportunities.

⁷⁸ Verhoef, P. C., Lemon, K. N., Parasuraman, A., Roggeveen, A., Tsiros, M., & Schlesinger, L. A. : Customer experience creation: Determinants, dynamics and management strategies. *Journal of retailing*, 2009, 31-41.

⁷⁹ Khan, S., & Iqbal, M. (2020, June). AI-Powered Customer Service: Does it optimize customer experience?. 8th International Conference on Reliability, Infocom Technologies and Optimization (Trends and Future Directions)(ICRITO), 2020 , (pp. 590-594). IEEE.

5. Positive brand image:

Customer experience is intricately linked with brand perception. A positive experience at every touchpoint contributes to your brand reputation management efforts. Conversely, negative experiences can tarnish your reputation, affecting customer trust and detracting potential customers.

6. Reduced customer churn:

Customer churn rate can be mitigated through effective customer experience optimization. Understanding and addressing pain points in the customer journey can significantly reduce churn, preserving your customer base.

7. Adaptation to evolving customer expectations:

Customer expectations are dynamic, evolving with technological advancements and market trends. An optimized customer experience strategy allows your business to adapt swiftly to these changes, ensuring relevance and resonance with your target audience.

8. Reduced operational costs:

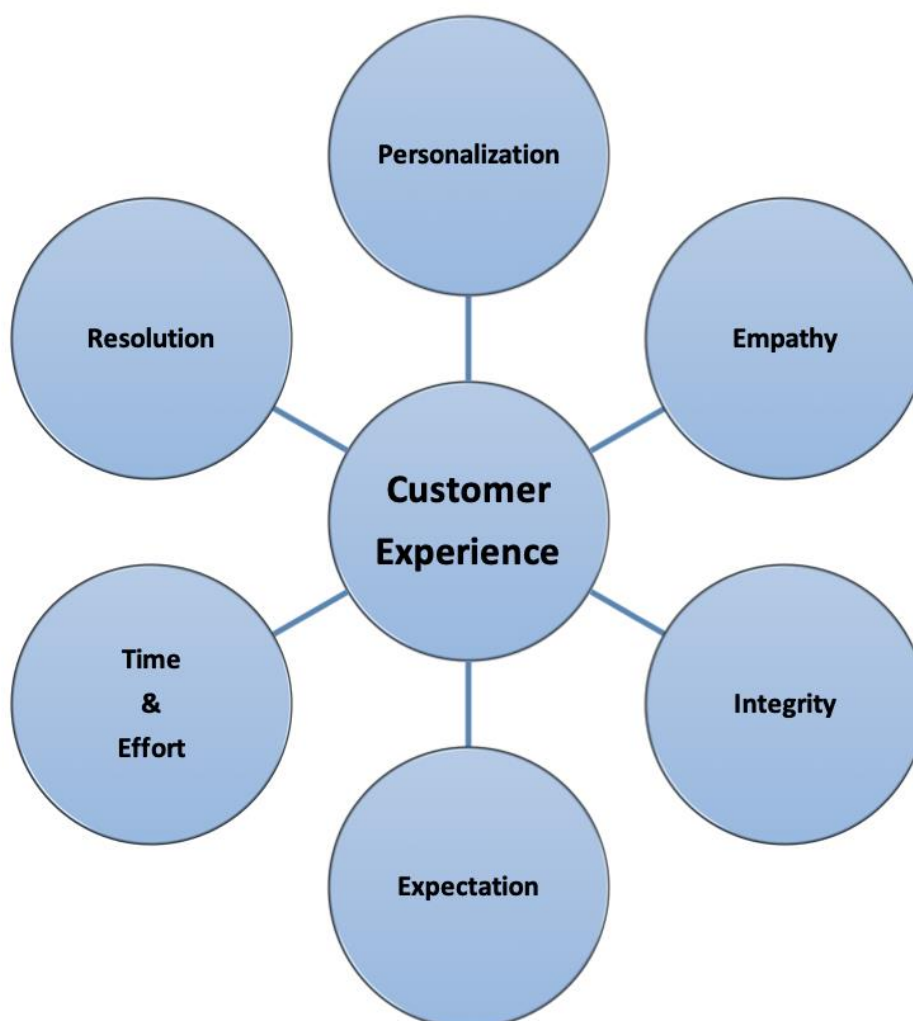
Customer self-service enables people to find answers round-the-clock through the knowledge base, virtual agents and chatbots. This seamless assistance enables efficient handling of routine queries beyond regular business hours, enhancing the overall customer experience and journey. With these tools operational 24/7 globally, businesses can eliminate the need for an additional workforce, resulting in substantial cost savings.⁸⁰

⁸⁰ <https://www.sprinklr.com/blog/customer-experience-optimization/#toc-0> Visited 7 June 02:33

4. Pillars of the customer experience optimization :

To gauge the excellence level of the customer experience, KPMG in one of the surveys utilized Nunwood's Six Pillars framework encompassing key elements that drive customer experience namely personalization, empathy, integrity, time and effort, resolution and expectation. These factors are considered critical for delivering ^[1] world class customer experience⁸¹.

Figure 3 : The 6 pillars of the customer experience



Source: <https://www.nejlepsi.cx/en/pillars> Visited 7 June 2024 at 20:15

⁸¹ Khan, S., & Iqbal, M. (2020, June). AI-Powered Customer Service: Does it optimize customer experience?. In *2020 8th International Conference on Reliability, Infocom Technologies and Optimization (Trends and Future Directions)(ICRITO)* (pp. 590-594). IEEE. Opcit

1- Personalization:

According to Adobe, 67% of customers desire a personalized experience. The one-size-fits-all approach is outdated. Customers come from diverse backgrounds with unique problems and high expectations. Personalization is essential for competitiveness, building trust, and increasing customer engagement and loyalty. Understanding who your customers are and what they need is crucial for creating experiences that resonate with them.

Personalization has been with us ever since the good old “customer is always right” saying was first uttered. A personalized approach is indeed essential in building customer loyalty – because it makes each of them feel seen. Suddenly they aren’t just one of many in a faceless crowd. Instead, they feel like a valued partner, respected by the company. And these days, you can do better than just addressing them by name or sending a birthday gift voucher. Advanced data analytics are capable of recognizing individuals based on their behaviour, understanding their needs, and providing tailored services, offers, or solutions⁸².

2- Resulotion:

When something does go wrong, every business should strive to find the most efficient solution and turn the customer’s negative experience into one that ultimately leaves them satisfied. Technology can help identify weak points and potential issues before they even happen. Imagine a bank’s website, with a customer lingering on the same screen or page for a while. This might be a good time to nudge them towards what they are probably looking for or refer them to your customer service chat before a problem does occur.

Detection of scams aimed at clearing out customer bank accounts is another great example. Advanced online channels like chatbots and virtual assistants are available 24/7, able to resolve a large proportion of customer requests and turn a negative experience into a positive one thanks to their ability to respond immediately⁸³.

⁸² <https://www.nejlepsi.cx/en/pillars> Visited 7 june 2024 at 20:15

⁸³ Idem.

3- Integrity:

Integrity means that you should practice what you preach. Keeping promises and sticking to your values are key in building customers' trust, and in the digital world full of risks, this applies even more. A trustworthy brand will protect the privacy and security of their customers, always using their personal data in accordance with legislation and ethical standards; and to personalize their experience and save them some time and effort too, of course⁸⁴.

Web pages and resources should be up-to-date and aligned with the company's brand. Consistency across all touchpoints builds customer confidence and trust.

4- Empathy:

Humanity and understanding are what make us more than just cells in a vast network. A brand that can empathize with customers' needs, show understanding, and remind them that it's still people behind the scenes will build lasting relationships. Technology knows all about us these days. It can talk to us and even react appropriately. But it cannot replace human warmth and sincere understanding. Finding that perfect balance between technology and human approach is a guaranteed path to an empathic, trusting relationship between a business and its customers⁸⁵.

5- Time and effort:

As technology advances, consumer expectations for quick responses increase. A Forrester study found that 77% of consumers value having their time respected as the most critical aspect of a great online customer experience. Companies need the right resources and technology to be responsive, which may include offering 24/7 support or implementing AI-powered chatbots for common inquiries. Tracking response times and other customer service KPIs can help improve responsiveness over time. Especially that According to the Aspect Consumer

⁸⁴ Idem.

⁸⁵ <https://www.nejlepsi.cx/en/pillars> Visited 7 june 2024 at 20:15

CHAPTER 02 : The Customer Experience

Experience Index (2016), approximately 70 per cent of the respondents preferred using chatbots interface with the companies for reasonable transactions and interactions⁸⁶.

Moreover, customers seek an effortless experience when using products and finding help. A seamless user experience and omnichannel support are essential. Reducing friction in the customer experience increases satisfaction. Simple steps like making support contact information easy to find and embedding help guides within products can enhance accessibility and make the company appear more approachable.

6- Expectations

Marketing, reputation, previous experience with competing brands – all these aspects affect customer expectations. As a brand, you should aim for more than simply fulfilling those expectations and preventing disappointment. You should focus on setting the bar higher, and that's where it gets tricky. Because promising something you can't deliver is never good. On the other hand, however, if you manage to exceed customer expectations, chances are that they will remember this and recommend the brand to others.⁸⁷

To deliver a world-class customer experience, it is essential to focus on these key pillars identified by KPMG's utilization of Nunwood's Six Pillars framework: personalization, empathy, integrity, time and effort, resolution, and managing expectations. Personalization, driven by advanced data analytics, tailors experiences to individual customer needs, building trust and loyalty. Efficient resolution of issues through technology, such as chatbots and virtual assistants, can transform negative experiences into positive ones. Integrity builds trust by keeping promises, adhering to values, and protecting customer privacy. Empathy involves understanding and responding to customer needs with a human touch, fostering lasting relationships. Respecting customers' time and minimizing their effort through quick responses and a seamless user experience is crucial, supported by 24/7 technology-enabled support. Finally, managing and exceeding customer expectations by setting realistic goals and delivering on promises enhances customer satisfaction and encourages positive word-of-mouth.

⁸⁶ Khan, S., & Iqbal, M. Opcit

⁸⁷ <https://www.nejlepsi.cx/en/pillars> Visited 7 june 2024 at 20:15

5. Strategies of the digital customer experience optimization

A Customer Experience strategy involves gathering the right visitor insights, coming up with a data-backed hypothesis, continuous optimization, and measuring the impact of their program⁸⁸.

1- Using technological tools (AI):

It can be inferred from the discussion that while AI application ensures automated and efficient service delivery, great customer experience calls for human interface to maximize empathy and individualization of the the services rendered. Hence, it is imperative for the service providers to use the key factors of customer experience as the bedrock for designing the innovative approach and digital pathways.

The digital essentials or the basic functional benefits of AI must include the trustworthiness, resolution, its ability to meet the customer expectations and higher efficiency levels. However, for optimizing customer experience, it is critical that organizations make strategic use of human intervention for better personalization and empathetic interaction. Hence, harnessing the best of both AI and human capabilities should be the pivotal axis of digitalization ⁸⁹.

2- Creating a customer journey map:

The customer journey in digital marketing defines several touch points, where interested users can directly interact with an e-business platform. In order to convert a user into a buyer, persona-based a priori adaptations of the user interface can be combined with dynamic adaptations at runtime with the goal to optimize individual customer experience and guide task accomplishment⁹⁰.

⁸⁸ <https://vwo.com/customer-experience-optimization/> Op.cit.

⁸⁹ Khan, S., & Iqbal, M. Op.cit

⁹⁰ Märtin, C., Herdin, C., & Bissinger, B. Modeling User Interface Adaptation for Customer-Experience Optimization. In *FMT*, 2018, (pp. 68-72).

In order to create a customer journey map it is essential to start with understanding the customer himself, for this we create the customer journey map, that represents in a visual way the interaction between the company and the customer. the purpose of this action is to determine the customer touchpoints in order to have a view on each point and optimize it individually.

3- Leveraging quantitative and qualitative data:

Utilize both quantitative data (like purchase history and geographical insights) and qualitative data (such as customer feedback and support interactions) to deeply understand customer behavior and preferences. Segment customers based on these insights to tailor experiences effectively.

4- Personalizing the customer experience:

Enhance engagement by personalizing interactions—use customer names, review past interactions, and act on feedback promptly. Implement personalized notifications and anticipate customer needs to provide timely and relevant information consistently.

5- Streamlining processes and enhance efficiency:

Identify and eliminate inefficiencies in both internal operations and customer-facing processes. Standardize procedures and automate repetitive tasks to streamline interactions, making them more intuitive and efficient for customers.

6- Implementing continuous improvement mechanisms:

Establish robust feedback mechanisms through surveys, reviews, and social media monitoring. Use direct customer support channels to gather insights and prioritize improvements that enhance satisfaction and retention.

7- Proactive communication:

Use data analytics to predict customer needs and proactively address them. Offer support and information before issues arise to build trust and improve overall satisfaction with your brand.

8- Utilizing advanced tools and technologies:

Implement a robust Customer Relationship Management (CRM) system to centralize data and streamline customer interactions. Leverage AI and automation tools to manage communication channels effectively and support personalized customer interactions.

9- Consistent delivery and monitoring:

Regularly monitor customer experience metrics like Net Promoter Score (NPS), customer retention rates, and satisfaction levels. Use these insights to make data-driven adjustments and improvements to your customer experience initiatives.

The literature also identified a range of tools that could be used to improve the customer experience including; focus groups, emotion mapping, process mapping, service transaction analysis, customer experience analysis, walk-through audits, journey mapping etc. It was clear that all of these tools were applied (in some form) by all of the organizations with emotion mapping being particularly powerful⁹¹.

6. Continuous improvement of the customer experience optimization

Continuous Improvement is a process of Customer Experience. It's what the team does, in a structure way, but flexible and scalable to fit almost any question, opportunity, market, customer type, outcome, or even output. It guides the team in their operations. Running fast,

⁹¹ Johnston, R., & Kong, X. The customer experience: a road-map for improvement. *Managing Service Quality: An International Journal*, 2011. 5-24.

CHAPTER 02 : The Customer Experience

starting small, identifying and killing bad ideas quickly before they run a cost, scaling confirmed successes and learning all the time⁹²

“That said, the customer experience currently seems to be undergoing a series of major developments while transforming consumer behavior and the value they seek (Pine and Gilmore, 2002)”⁹³.

Tools and activities that encouraged staff to see the process from the customer’s point of view played a key role here. Customers were used not just indirectly to provide information but more actively in developing and testing ideas in customer forums and in one case as members of the Experience Team. Secondly it has highlighted the importance of involving customers in the change programmes, not simply as providers of information but through active engagement in forums and panels and in one case direct involvement as part of the Experience Teams, indeed sometimes leading the teams⁹⁴.

⁹² <https://medium.com/everything-new-is-dangerous/customer-experience-through-continuous-improvement-f4f27c55cec1> visited 8 June 2024 at 02:57

⁹³ Maghraoui, S., & Belghith, E : L’expérience-client: quels apports des technologies de l’Intelligence Artificielle. *International Journal of Economics & Strategic Management of Business Process (ESMB)*, 2019), P2

⁹⁴ Johnston, R., & Kong, X. Op.cit.

- **Insight gathering:**

It may sound obvious, but customers are the best source of information on what can be improved across the experience they receive. Therefore companies need to put in place ways of gathering their feedback, from focus groups to surveys. It is also important not to neglect the information that they give in moments of interactions. Valuable information can be gathered through channels such as email, web self-service, and social media.

- **Identifying opportunities:**

As well as improving existing processes, companies need to look at areas where they could innovate, radically changing how they operate to add value and benefit customers. For existing customers, this could include prioritizing the changes that will have the highest impact on loyalty and focusing on these. To target new customers, companies should look at new ways of reaching their target audiences, potentially through new channels or by simplifying the customer journey to remove roadblocks that stop people from buying.

- **Planning:**

Once an opportunity is identified, it requires rigorous planning to ensure that the project will deliver the right results. Normally the customer journey spans multiple departments, it is important to ensure that everyone is involved and bought into the project.

- **Monitoring**

Few projects deliver all of their benefits from day one. Therefore, companies need to put in place measurement and monitoring to capture before and after improvements on an ongoing basis.

- **Improvement**

As well as introducing new innovation, companies need to continually improve existing experiences. This involves listening to both customers and frontline employees to identify pain points within the journey and assessing how they can be

CHAPTER 02 : The Customer Experience

overcome. It could be something as simple as changing the text on a website page to make it clearer or finding quicker ways of answering emails. All of these corrective actions may be small on their own but can make the difference between losing and retaining a customer.

- **Delivery**

Even the best-designed customer experience improvements will fail if they are not delivered well. It is important to monitor how the delivery of a new project impacts relevant parts of the business and be flexible enough to make changes to address any concerns that arise.

Conclusion of chapter 02:

This chapter allowed us to understand the customer experience deeper. The first aims to explain customer experience, its key elements and aspects of its improvement, to understand the concept of CX and the DCX. In the second section, the topic is explored more deeply to present how it can be optimized to be most profitable for the company. The section also outlines the strategies that companies should follow to satisfy their customers.

Chapter 3 : Société Générale Algérie Case study

With the aim of shedding light on the key notions of our investigation, we illustrated our theoretical study with a practical case within Société Générale Algérie.

This chapter is divided into 3 sections, in which we will begin with an overview of SGA to provide context about the company's current situation. Next, we will outline the research methodology chosen for conducting our study. Subsequently, we will present the findings obtained along with their analysis, and conclude with recommendations and suggestions.

Section 01: Presentation of the Host Organization

The first section of this chapter will be devoted to the presentation of the host establishment SGA and the Animation of Individual Markets department, where we will highlight creation and evolution of this bank which is one of the first private commercial banks in Algeria.

1. Presentation of the bank Société Générale Algérie

Société Générale Algérie (SGA) is a 100% owned subsidiary of the Société Générale Group, one of the largest and oldest banks in France, founded in 1864. As a trailblazer, SGA is one of the first private multinational commercial banks of French origin to establish a presence in Algeria.

Headquartered at Residence El Kerma Bir Khadem, Algiers, and governed by the laws of the Bank of Algeria, SGA was created on April 25, 1999, and began operations in March 2000 with the opening of its first branch in El Biar-Alger. The bank is a joint-stock company with a capital of 20 billion Algerian dinars. SGA's expanding network consists of 104 branches across 33 wilayas, including 12 business centers dedicated to corporate customers, 91 retail branches serving individual and professional customers, and one large corporate branch. The bank employs over 1500 people.

SGA offers a diverse and innovative range of banking services to its 287,000 individual, professional, and business customers. It plays a significant role in strengthening economic activity in Algeria by leveraging its recognized expertise to assist customers with complex operations. Committed to developing financial skills, the bank's primary mission is to develop

retail banking activities under the direction of its Chairman of the Management Board, Mr. Julien Sterenzy.

The classifications of SGA's operating agencies :

9. Retail Agency (PRI-PRO): Responsible for individual customers, professional customers (PRO-LIB) and commercial customers whose turnover is less than 200,000,000.00 DA
Example: Employees, Pharmacists, Doctors, Lawyers, VSEs with a turnover of less than 2,000,000 KDZD.

- **Business Center or Business Center (BC):** Responsible for SME customers also called CORPORATE and whose turnover is greater than 200,000,000.00 DA with customers such as: Group IFRI, Générale Emballage SPA, RAMDY, etc.
- **Department of Large Enterprises (DGE):** Responsible for large national companies such as the CEVITAL group, MECHELIN Algeria, DIAMAL SPA, DANONE DJURDJURA Algeria, etc.

2. Identity of Société Générale Algérie:

2.1. The slogans of Société Générale Algeria:

Société Générale Algérie went from the old Slogan: “Team spirit” to the current slogan: “You are the future”, this signature marks the bank's ambitions for sustainable growth in the service of customers, the economy, and society.⁹⁵

2.2. Logos:

The logo is essential for the notoriety, image, and commercial strategy of a company. Société Générale is easily identified by the initials “SG” because it has used these two letters for too long to communicate.

⁹⁵ <https://www.societegenerale.com/fr/actualites/newsroom/cest-vous-lavenir-la-nouvelle-plateforme-de-marque>
visited 15 june 2024 at 05:52

In 1969, the bank adopted a spiral-shaped logo called the Pasquier logo in reference to its creator.

Finally, the bank adopts a red and black logo in the shape of a square to represent the solidity and rigor of a group which is internationalizing.

This logo will then be cleaned without the name of the bank “Société Générale” which slides onto the right side of the form, a trick that allows the bank to harmonize its visual identity internationally.

2.3. Company values and vision :

It is considered a key element in any organization, and human resources within SGA are at the heart of its strategy and development, which is based in particular on the values shared within the SGA group, namely:

- **Commitment** to customer satisfaction.
- **Social responsibility**, showing solidarity and support for the various members of the community.
- **Team spirit**, which enables the team to stick together and overcome the most difficult difficult times.
- **Innovation**, by implementing an approach to better meet customers' needs and a Quality Management system to ensure continuous improvement.

It is focused on a strategy of sustainable growth, with the human resources department developing an approach based on selective recruitment, support for integration, monitoring, and career management backed up by training programs that combine effectiveness and expertise.

3. Evolution of Société Générale Algérie :

In this title, we're going to present the evolution of this private multinational bank, and explain how it emerged through the steps of its enlargement.

- 1987: Opening of a representative office
- 1998/1999: Obtained banking license and set up subsidiary Societe Generale Algérie
- 2000: 1st branch opened in El Biar
- 2004: Societe Generale Algérie becomes a 100% subsidiary of the Societe Generale Group, following the buyout of minority shareholders.
- 2007: Creation of the Large International Companies Department
- 2008/2009: Creation of the Large Domestic Corporates Division and the Corporate and Investment Banking (CIB) activity
- 2010: Creation of four (4) Business Centres (Chéraga-Dar El Beida-Rouiba-Constantine)
- 2011: Creation of the ACP Patrimoniale branch
- 2012: Opening of fifteen (15) new branches across the country
- 2013: Opening of the Trading Room and creation of the Globales Trade Banking subsidiary
- 2015: Celebration of the bank's 15th anniversary and visit to Algeria by Group CEO Frédéric Oudéa
- 2016/2017: Opening of the Annaba Business Centre and four (4) new branches (M'sila-Tiaret-El Kseur-Blida)

- 2018: Creation of Algeria's first Solar Banking Agency in Ghardaïa and organization of the Pan African Valley Community
- 2019: Creation of the Sidi Bel Abbes Business Centre, merger of the two (2) Kouba branches, and organization of the Africa Mediterranean Basin and Overseas Corporate Seminar.
- 2020/2021: Opening of the Baraki and Reghaia branches, 100% solar and digital installation at the Hassi Messaoud branch and creation of the Specialized Financing Department.
- 2022: Opening of four (4) branches in Mila, Tizi Ouzou, Zeralda and Oum El Bouaghi.
- 2023: Opening of Tipaza branch and opening of five(5) branches at weekends (Cheraga, Sétif,Bab Ezzouar,Tizi Ouzou 1 ,Constantine Ali Mendjil and Oran Soummam).

4. Organization of the general management :

To optimize its commercial efficiency and better meet the expectations of its customers, Société Générale Algérie has reorganized itself around 3 divisions and 7 functional departments:

- **The 4 areas of activity are :**
 - Commercial Retail and marketing department.
 - Operations Support Center.
 - Corporate Sales Department.
 - Specialized financing department.

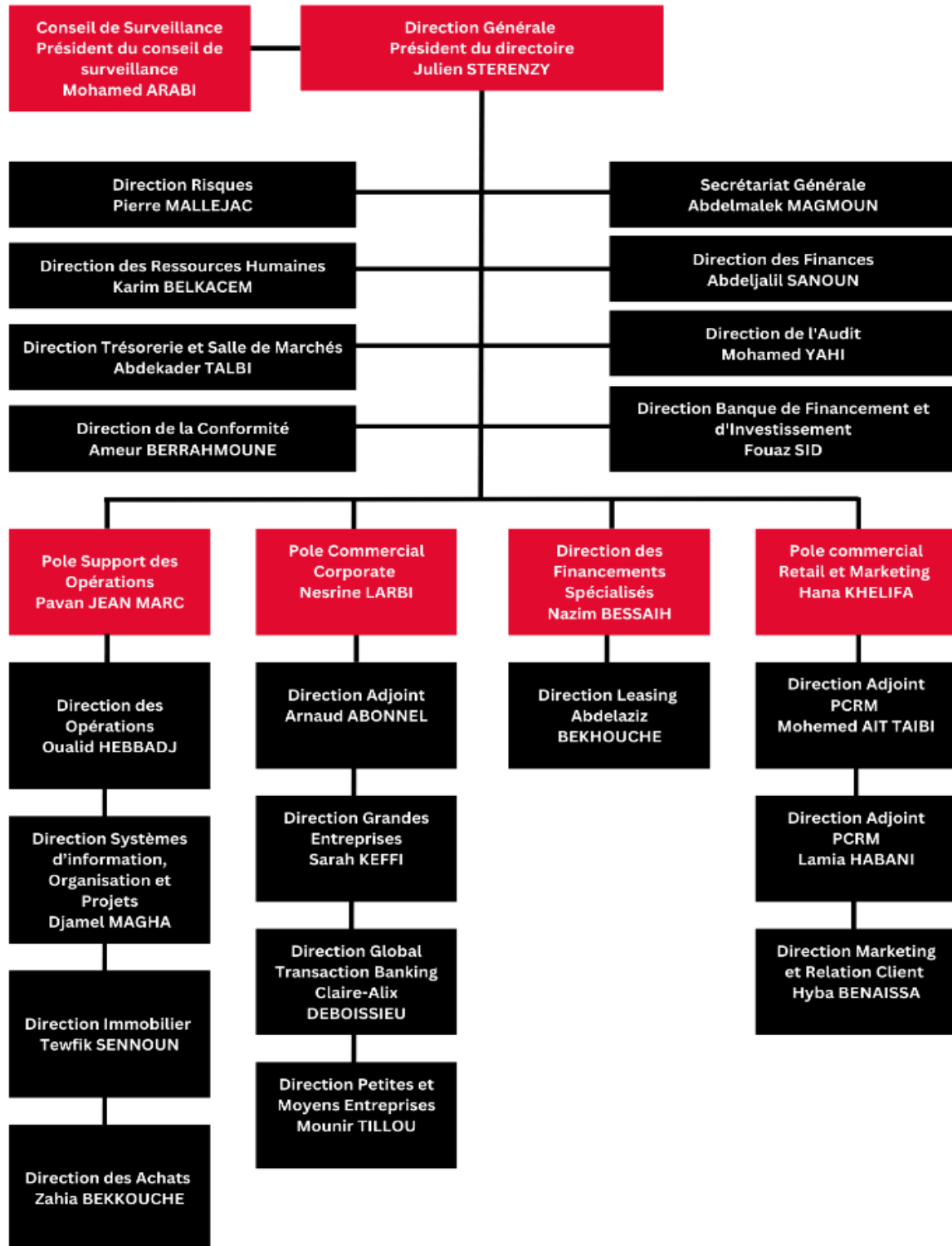
- **The eight Functional Departments :**

- The General Secretariat.
- The Finance Department.
- The Audit Department.
- The Financing and Investment Department.
- The Risk Department.
- Human Resources Management.
- The Treasury and Trading Room Department.
- The Compliance Department.

As follows the organization chart of the SGA :

CHAPTER 03 : Société Générale Algérie' Case Study

Figure 4: Organization chart of SGA



Source : Internal documents, 2024.

5. The services of SGA :

Société Générale Algérie is dedicated to expanding its services across two primary customer segments: businesses and individuals. The bank provides a comprehensive suite of offerings to cater to their diverse needs:

- **Business Solutions:** SGA offers a range of services to support business operations, including:
 - Investment project financing
 - Consumer credit (vehicle loans, etc.)
 - Investment products (passbook accounts, term deposits, cash vouchers)
 - Foreign trade transactions (documentary credit, documentary remittance, incoming and outgoing transfers, direct debits)
 - Instant money transfer with Western Union

- **Personal Banking:** For individual customers, SGA provides a variety of services to manage their daily financial needs, including:
 - Day-to-day account management
 - Cash transactions
 - Withdrawal cards
 - Operational financing

6. Presentation of the Retail Sales and Marketing Division :

The Retail Sales and Marketing Division (PCRM) at Société Générale Algérie is responsible for managing two distinct customer segments: particular (PRI) and professional (PRO) markets.

A PRI customer refers to a private individual acting independently without any legal obligations, while a PRO customer represents a very small company or small business. Larger corporate customers, such as SMEs and beyond, are managed separately by the Corporate division.

CHAPTER 03 : Société Générale Algérie' Case Study

The PCRMs primary aim is to provide comprehensive management, guidance, supervision, and commercial assistance across all matters related to its designated market segments, driving the development of SGA's retail banking activities within the PRI and PRO markets, defining, monitoring, and achieving targeted objectives, leading sales efforts, and providing technical and sales support assistance to the bank's frontline teams.

Bellow the division's organization chart:

Figure 5: Retail market division's chart



Source: Internal documents, 2024

6.1. The mission of the division :

The division's mission is to drive business to growth and excellence. We can cite the key responsibilities include:

- Identifying untapped markets and customer segments to boost revenue;
- Streamlining branch operations to enhance customer experience;
- Tracking market trends to inform product and service development;
- Uncovering growth opportunities through data analysis and adjusting marketing strategies accordingly;
- Fostering strong relationships with the media, business partners, and external stakeholders.

7. The Retail Market Direction :

7.1. Presentation of retail market direction :

The retail market direction is an important part of the commercial, retail and marketing division. Its mission is to develop banking products in order to develop market shares and increase sales. It offers a diverse array of products and services tailored for retail customers, including current accounts, savings accounts, personal loans, credit cards, and online banking. Serving individuals, families, and small businesses, it provides financial solutions designed to meet their unique needs.

Operating through a vast network of branches and service points across several wilayas, the division also leverages digital channels such as online banking and mobile apps to deliver a comprehensive multi-channel banking experience. By investing in technology and digitalization, it aims to enhance customer experience and boost operational efficiency, ensuring modern and accessible banking solutions.

The Société Générale Algérie mobile application is among the bank's most important solutions and resources. It represents a step forward towards the digitalization of banking services, offering customers a tool allowing them to be in constant contact with their bank 2.0. This makes their lives easier with a more ecological approach than the traditional approach.

CHAPTER 03 : Société Générale Algérie' Case Study

The APPLI SGA offers a very diverse range of features available to customers to improve their experience with the bank. Among the services available through the SGA APP, we can cite:

- Viewing account balance ;
- Operations Consultation ;
- Downloading the RIB of the bank account ;
- Card management ;
- Transfer transactions ;
- Carrying out credit simulations ;
- End-to-end credit application.

This demonstrates the wide range of services offered to customers through the application. It includes essential features that enable customers to access and manage their finances autonomously.

Section 02: Research Methodology

This section is dedicated to explaining the research methodology employed, which enabled us to conduct this study and achieve the results that we will present at the end of the chapter. We will explain the reasoning behind choosing this research topic, as well as our conducted studies: the first being qualitative and the second quantitative.

1. Choice of the research topic :

The research subject was chosen according to well-defined criteria, criteria which meet the needs of this end-of-master cycle project but also which meet the needs of Société Générale Algérie.

The first criterion is the trend of the subject, we find this aspect in the digitalization side of the banking experience with the APPLI SGA digital solution.

The second selection criterion was personal interest in the subject, being marketing students, we always made sure to scrutinize the customers and their needs, and the idea of doing a study that allows us to get closer to them and know them more and more closely sparked my interest.

The third criterion is based on the added value of our study within the SGA. Indeed, this study was designed to improve the APPLI SGA mobile banking application and the customer experience of users. we made sure to leave a positive and above all, useful trace during this experience within the establishment. This criterion allowed us to stay aligned with the company's objectives and to come back with valuable insights and an added value for SGA.

In addition, and within the framework of project management with the agile method, we had the chance during this end-of-master cycle internship to be part of the APPLI SGA squad which aims to continuously develop the mobile banking application. we found ourselves in a favorable environment to address our subject which concerns the improvement of the customer experience through mobile banking applications, and to carry out a study that aims to better understand customer preferences in terms of mobile banking application use, and that will have a considerable impact on the outcome of the project, its direction, and its development.

This subject brought together the most important aspects, at a specific time and in a very specific environment, which allowed us to stay involved, and to benefit from the guidance of our colleagues regarding the mobile banking application.

2. Choice of the research methodology:

After presenting the theoretical framework of this research, and the criteria for choosing this subject relating to the improvement of the customer experience through mobile banking applications, we undertook a methodological approach aimed at obtaining a better understanding of our study' object.

We started with an observation within the SGA. We observed the experts in the profession in order to build a solid base allowing us to clearly understand the subjects, to know the needs of the SGA team on a first hand, in terms of knowledge of the client user of APPLI SGA and on another hand in terms of the development of the digital solution, and finally to benefit from their expertise which was a favorable asset for the realization of our study. Then we opted for a qualitative study conducted through an interview and a quantitative study, carried out using a questionnaire. In this section, we will present in detail the interview and the questionnaire, as well as the methodology adopted for the analysis and interpretation of the results. I will also discuss the population studied, representative of this area of research.

2.1. Methodology and the objective of the research :

In order to answer the question : **"To what extent can the optimized development of mobile banking applications be a lever for improving the customer experience?"**

We opted for a qualitative study based on an interview and a quantitative study based on a questionnaire.

The objectives of this survey are as follows:

- Study the aspects of mobile banking applications that guarantee a good customer experience for a bank's customers;
- Analyze customer satisfaction with the APPLI SGA mobile banking application;
- Study the motivations for using the SGA mobile banking application;

CHAPTER 03 : Société Générale Algérie' Case Study

- Identify the expectations of customer users of the mobile banking application in order to identify their needs and satisfy them;
- Identify areas for improvement of the APPLI SGA mobile banking application;
- Study the impact of the proper development of mobile banking applications on guaranteeing a good customer experience;

By aligning our research objectives, we aim to confirm or refute the following hypotheses formulated in this study:

Hypothesis 01: The usefulness of the APPLI SGA features can contribute to customer satisfaction.

Hypothesis 02: The ergonomics of the APPLI SGA favorably lead to its adoption.

Hypothesis 03: Customers of Société Générale Algérie have favorably adopted the APPLI SGA.

We will through this qualitative study and a quantitative study confirm or refute the above hypotheses.

2.2. Qualitative study :

In this part, we will discuss our methodological approach based on a qualitative interview. We developed an interview guide including ten 10 specific questions that were asked to the Agile Master of the APPLI SGA. This method allowed us to gain in-depth information and direct perspectives regarding our study topic, as well as a basis for defining the hypotheses of our study and remaining aligned with the objectives and vision of Société Générale Algérie and digging into the right avenues to which the interviewee directed us (see **Appendix 01**).

As part of our qualitative study, we used the semi-structured interview method. This approach consists of asking precise, but sufficiently open, questions in order to obtain direct and specific answers. By using this method, we ensure we have an accurate representation, which facilitates in-depth analysis and a rigorous understanding of the data collected (See **Appendix 01**).

2.2.1. Analysis of the results of the qualitative survey :

Our qualitative study aims to understand the dynamics of the “APPLI SGA” squad. The objective behind its creation, the vision of its launch on the market, the measurement of its effectiveness and use as well as the axes of its development and continuous improvement.

Through this study, we will attempt to define the concerns of the SGA regarding the development of the APPLI SGA to identify avenues of research and to understand the strategy chosen to optimize the banking solution. And also, to present a banking product that meets the requirements and expectations of customers using the application.

We had to put ourselves in the shoes of the SGA team to get the best out of this experience and provide the right answers. In addition, the qualitative study will feed into the general study and will provide greater certainty and clarity in favor of the development of the hypotheses on which we will base the development of the quantitative study and collect the right data.

Therefore, here is the analysis of the qualitative survey:

2.2.1.1. The profile of the interviewee:

We opted for this person because of the mastery he has in the IT development but also the marketing side of the APPLI SGA, as well as for his seniority in the management of this project. He has seen the APPLI SGA develop, so we judged this person to be best placed to provide us with the necessary answers to our questions:

Smail AMMADJ : Senior project manager at the SGA and Agile Master of the “APPLI SGA” squad. He has 07 years of experience in the field of IT as well as his knowledge in the field of the agile method.

Project manager of the APPLI SGA since November 2020 and Agile Master since June 2021, with the transformation carried out in the bank Société Générale Algérie and the integration of the Scrum/Agile method in the management of the bank's projects.

2.2.1.2. Context and objectives of the “APPLI SGA” project:

The APPLI SGA has existed in the Algerian banking market since November 2018. By launching it, the bank Société Générale Algérie had a vision and objectives to achieve.

With a banking 2.0 vision, the SGA has ensured the development of a mobile banking application for its retail customers to ensure a step forward towards the digitalization of banking services. It is also aligned with its CSR⁹⁶ policy, while allowing customers to have an easier way to access their banking services, by having the possibility of managing their finances without having to go to a branch. This saves time and energy for the customer.

We find elements of social responsibility in functionalities such as credit loan via the APPLI SGA. This helps minimize travel, often made by carbon-emitting means of transport. Additionally, the ability to directly scan documents and review files online eliminates the need for photocopies and contributes to a more environmentally friendly approach.

2.2.1.3. The development strategy of the "APPLI SGA":

The development strategy of the APPLI SGA is determined by the general management of the bank, the sponsor of the APPLI SGA. The sponsor possesses genuine decision-making authority and can support their dedication with tangible resources. Typically, this role is filled by an executive championing the initiative, accountable for its strategic consequences.

The sponsor shares the development strategy with the Product Owner, who according to Roman Pichler⁹⁷, a product owner should own the product on behalf of the company.

The PO transforms the sponsor's vision into User Stories, therefore features aimed at meeting user needs, which are at the center of this strategy.

We find in this strategy two essential aspects: the utilitarian aspect, which manifests itself in the diversity of the functionalities of the APPLI SGA, and which are the User Stories translated by the PO according to the vision of the sponsor, and after the determination of the most recurring reasons pushing customers to go to an agency.

The ergonomic aspect of the APPLI SGA, its fluidity and ease of use, obviously the bank aims to make the application an easy and non-frustrating tool for users, which will maximize their

⁹⁶ Corporate Social Responsibility

⁹⁷ Pichler, Roman, *Agile product management with Scrum: Creating products that customers love*. Boston: Addison-Wesley. Pichler, Roman, 2010.

chances of achieving effectively carry out operations on their APPLI SGA, without traveling to an agency, as well as ensuring their retention on the latter.

To achieve these objectives in terms of ergonomics, the development takes into consideration the graphic charter of the Société Générale Algérie Group. Developers and other members of the squad from several departments will have to work together to propose models that will be validated by the entire squad, taking into account user feedback.

2.2.1.4. Performance measurement:

The performance of the mobile application is assessed through specific KPIs. Among these KPIs, the most commonly used include:

- Connection rate compared to the number of subscriptions sold: frequent user logins indicate that they find the application effective in meeting their needs.
- Dematerialization rate, which involves replacing paper documents with digital files, and calculating the number of operations that could have avoided a visit to the branch. These KPIs gauge the effectiveness of this digital solution and its reception by customers. They also enable SGA to evaluate their dashboard and make strategic decisions accordingly.

2.2.1.5. Challenges and improvement areas for the "APPLI SGA":

The main difficulties encountered are mainly of commercial and human nature. From a business perspective, one of the main challenges was integrating the APPLI SGA into customers' consumption habits, particularly at the start of the launch. Customers were reluctant to adopt new technology to manage their finances, which required significant communication and awareness efforts.

From a human resources perspective, another major challenge was the departure of team members. This phenomenon mainly affected developers who were part of the Squad, leading to continual turnover. This instability within the team complicated the continuity of the project and required constant efforts to recruit and train new collaborators.

Regarding the areas of continuous improvement, it is at the end of each sprint that they are identified, during a ceremony called the retrospective.

One of the most frequently discussed aspects is the optimization of the delivery process to improve the testing and production phases. The completion of these 2 processes aims to upgrade the version of the APPLI SGA mobile application, the more the solution is continuously improved, the more the customer is stimulated by new features in terms of usefulness and fluidity.

This ceremony also allows team members, whether they are Squad developers or marketing specialists, to propose technical improvements for the application, as well as interface adjustments and new features in response to the needs of the walk.

In summary, this study allowed us to familiarize ourselves with the perspectives of the SGA team, to better understand the crucial importance of an optimal design of the application both on a technical and ergonomic level and to acquire an overview of their perceptions regarding challenges and future opportunities for improvement.

2.3 Quantitative study:

This part will focus on the quantitative study conducted as part of this research. We followed a quantitative research methodology based on a survey carried out on a representative sample of our study population which we will present next. we will define the data collection tools as well as an analysis and interpretation of its data.

In order to set up this study, we developed and launched a questionnaire using a poster (**See appendix 03**) which allows the customers and users of the APPLI SGA to scan the QR code in order to access the questionnaire. In addition, we asked a micro-content creator, also an SGA employee, to share it on her account to maximize data collection. (**See appendix 04**)

2.2.1. The sample:

The survey was conducted over a period of 20 days, allowing us to collect 222 responses. Two sampling methods were chosen, convenience sampling and voluntary sampling, which both represent non-probability sampling methods.

- **Convenience sampling:**

Convenience sampling refers to a sample chosen during a study for practical reasons rather than for reasons of methodology and representativeness. The poster hung at the branch level is intended for all bank customers who have the application and who are available and ready to answer the questionnaire.

- **Voluntary sampling:**

We first use voluntary sampling, which is defined as a type of sample composed of participants who volunteer to take part in different research studies to share their opinions on topics that interest them, and that concern them.

We therefore prepared a poster (**See appendix 03**) which we hung at the SGA branches with a message inviting only customers who own the APPLI SGA mobile banking application and who are concerned by this study to respond to the questionnaire.

2.2.2. The elaboration of the questionnaire :

we elaborated the questionnaire according to very specific axes, our objective was to understand the perception of customers using the APPLI SGA application, to know their motivations, and to identify their expectations. Each question in the questionnaire aims to extract very specific information.

We therefore opted for the following types of questions:

- **Multiple choice questions:** Multiple choice questions are the most common. They invite participants to select one or more options from a list of previously defined responses.

- **Likert scale questions:** Likert scale questions offer a range of response options, for example, from “Strongly disagree” to “Strongly agree”. This scale makes it possible to assess participants’ opinions on a variable.

- **Matrix-type questions:** A Matrix-type question is a closed-ended question that asks participants to evaluate one or more row items using the same set of column choices.
- **Drop-down list questions:** Drop-down list questions make it easy to display a long list of multiple-choice answers without overwhelming participants.
- **Open questions:** Open questions invite participants to enter their answer in a comments box. They do not provide any predefined response options. The responses are then processed individually or using text analysis tools.
- **Demographic questions:** This type of survey question is the choice to learn more about the target population.

2.2.3. The questionnaire treatment method :

For processing the results, two software programs were chosen, the “Ms EXCEL” software and the “SPSS” software.

- **Microsoft Excel**

Excel is software from Microsoft's Office suite, it allows the creation of tables, automated calculations, schedules, graphs, and databases. This type of software is called a “spreadsheet”. It is widely used in many professional fields to effectively manage and analyze digital information.

- **SPSS software**

The SPSS software, whose acronym stands for “Statistical Package for Social Sciences”, makes it possible to process data in several fields, notably in economics, health science, marketing, etc. It is one of the pioneering software in terms of statistical data analysis processing.⁹⁸

⁹⁸ Sansan Honkounne KAMBOU : Manuel d’initiation au traitement de données sous SPSS, 2021, P4

CHAPTER 03 : Société Générale Algérie' Case Study

We carefully selected the appropriate methodology to successfully conduct our research. Choosing the right methodology is a key element in ensuring the completeness and success of our study.

Section 03: Study Results Analysis

In this section, we have reached the stage where the research results will be presented through tables and graphs, followed by analysis and discussion. We will attempt to draw conclusions to confirm or refute our hypotheses established at the beginning of the research.

1. Analysis of the results :

Once the data was collected (222 persons), it was time to analyze it. The EXCEL software and the SPSS software were used to obtain the diagrams and insights.

As following the analysis of the data collected :

2.1. Analysis by flat sorting :

Flat sorting involves analyzing each variable independently, looking at the answers for each question. This allows results to be presented in tables or graphs, highlighting distributions and proportions.

- **Demographic aspects**
- **Gender**

Question number 01: Are you?

By answering the previous question, we obtained the following results that we aimed to analyze:

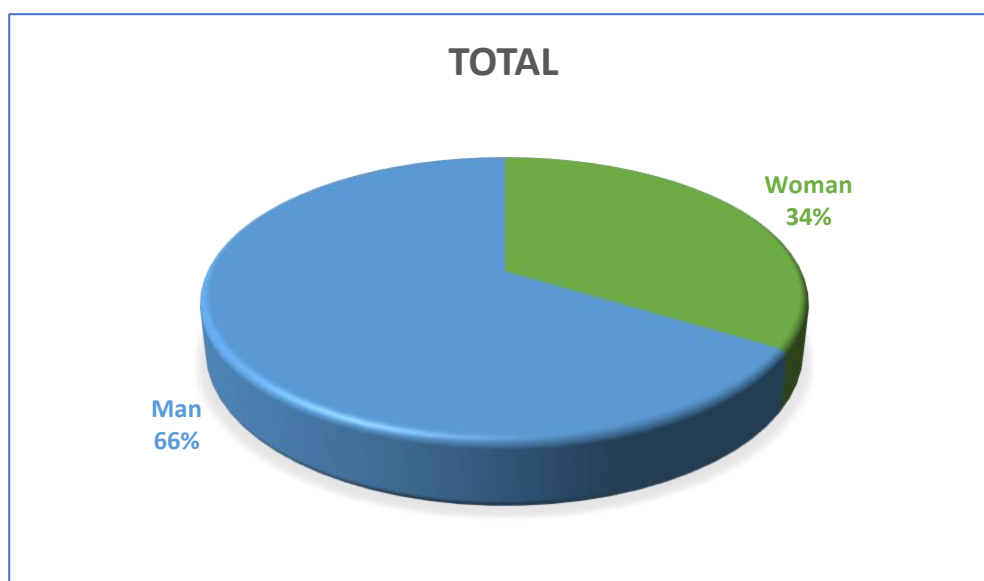
Table 2 : Table of the genders' repartition

	Gender (%)	Gender (n)
Woman	33,78%	75
Man	66,22%	147
Total	100,00%	222

Source : Made by the author using MS EXCEL

We attempted to present the table results through the pie chart below :

Figure 6 : Pie chart of the distribution of the sample by gender type



Source : Made by the author using MS EXCEL

we observe that out of 222 respondents, the proportion of men (66%) is more than the proportion of women (34%), with 147 men and 75 women.

- **Age**

Question number 02: What is your age range?

The answer to this question enabled us to know the age range of the respondents :

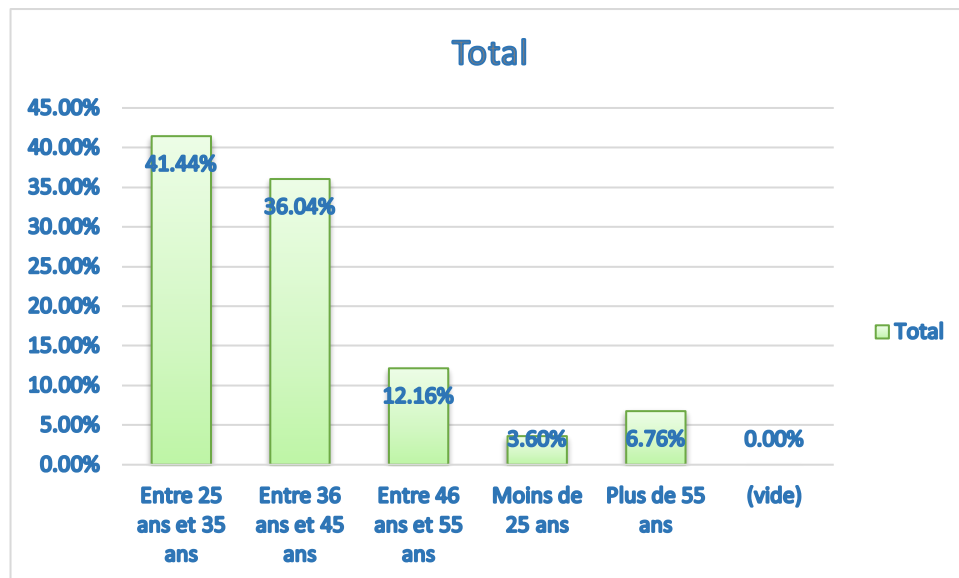
Table 3 : Table representing the age range

	Age range (n)	Age range (%)
Between 25 and 35 yo	92	41,44%
Between 36 and 45 yo	80	36,04%
Between 46 and 55 yo	27	12,16%
Less than 25 yo	8	3,60%
More than 55 yo	15	6,76%
Total	222	100,00%

Source : Made by the author using MS EXCEL

We attempted to present the table results through the bar chart below :

Figure 7 : Bar chart of the distribution of the age



Source : Made by the author using MS EXCEL

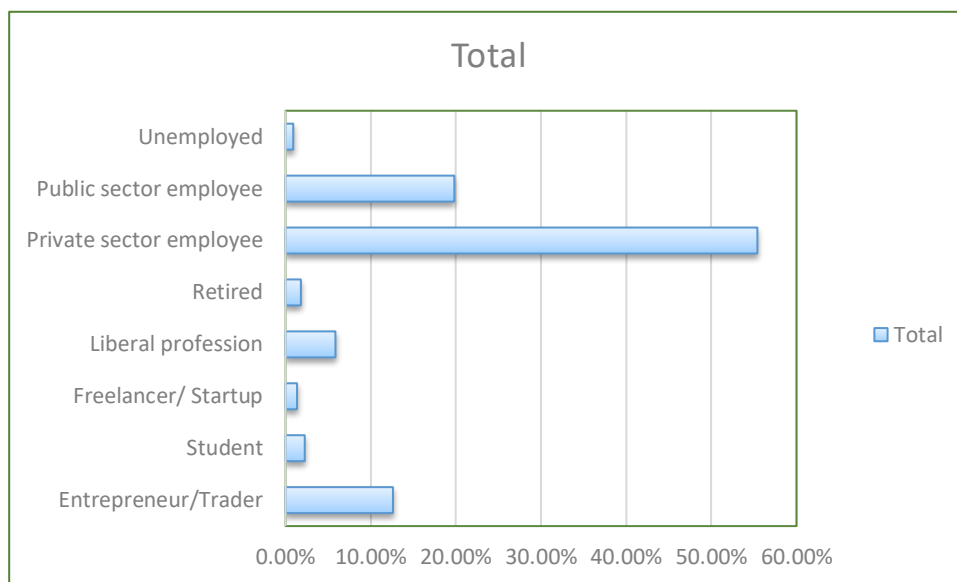
41,44% of the population is aged between 25 years old and 35 years old, directly followed by 36,04% of the population who is aged between 36 years old and 45 years old, 12,16% of the population is aged between 46 years old and 55 years old, and 6,76% is more than 55 years old, only 3,6% of the population are less than 25 years old.

- **Professional background**

Question number 03: What is your socio-professional status?

This result shows us the socio-professional status of the respondents

Figure 8 : Bar chart representing the socio-professional status of the population



Source : Made by the author using MS EXCEL

Looking at the result on the chart, we can identify that 55,41% of the population are private sector employees and that 19,82% of the population are public sector employees, next in the list we have entrepreneurs, who represent 12,61% of the population, 5,86% of the population have the liberal profession social-status, while 2,25% are students, 1,8% of the population are retired respondents, and only 0,9% are unemployed.

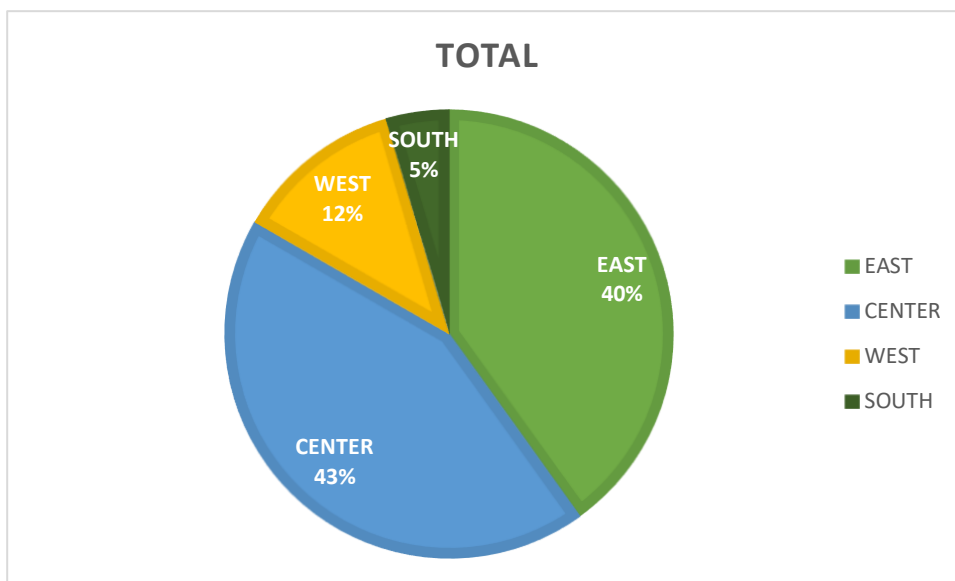
This result shows the variation in the population but not only, it also shows the variation in the portfolio customers of Société Générale Algérie.

- **Habitation**

Question number 04 : Which wilaya are you from ?

This pie chart helps us identify the concentration of the respondents according to their habilitation

Figure 9 : Pie chart of the distribution of the population by region



Source : Made by the author using MS EXCEL

The results visualized on the pie chart indicate that the majority of the population is from the center region of Algeria, directly followed, by 40,09% from the east region, 12,16% of our population is from the west region, and 4,5% from the south region.

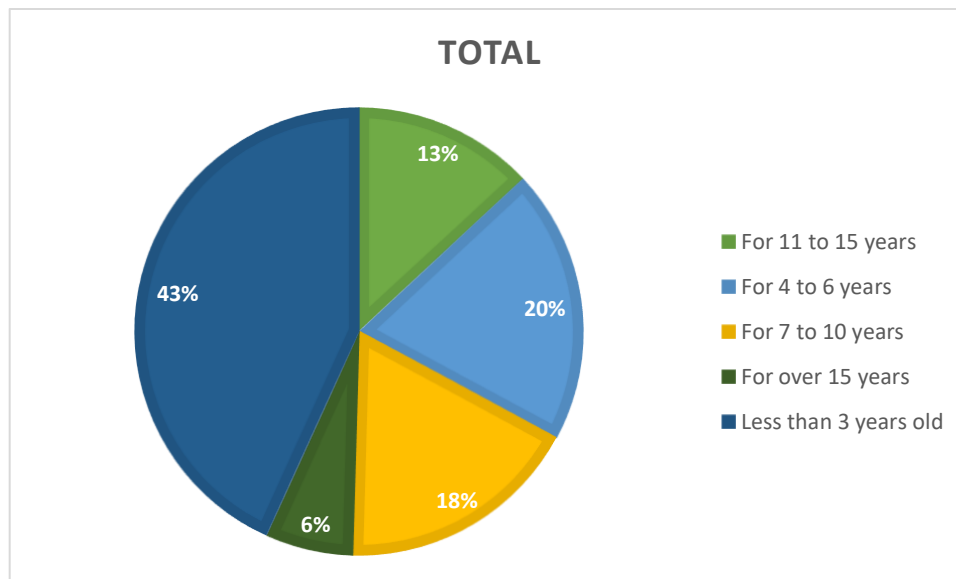
The result shows that the concentration of the population is in the center region of Algeria.

- **Being SGA customer**
- **Seniority**

Question number 05 : How long have you been a customer of Société Générale Algérie?

According to the fifth question, here are the collected results :

Figure 10: Pie chart of the customer seniority of the population



Source : Made by the author using MS EXCEL

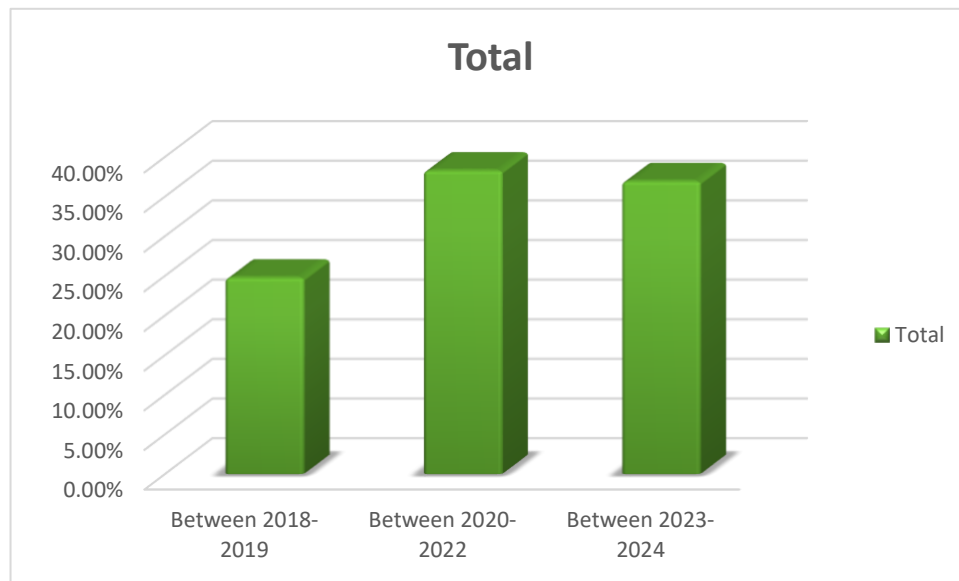
According to the result on the pie chart, 43,24% of the population have been customers of SGA for less than 3 years, and 19,82% of the population have been customers for 4 to 6 years, on the other hand, the percentage of the population that have been customers of SGA for 7 to 10 years is up to 17,57%, 13,06% of the population have been customers of SGA for 11 to 15 years, and only 6,31% of the population have been customers for over than 15 years old.

- **Year of the APPLI SGA download**

Question number 06 : In what year did you download your Société Générale Algérie mobile application “APPLI SGA”?

Through this question we were able to know in which year SGA customers download the APPLI SGA the most :

Figure 11 : 3D bar chart of the year of download of the APPLI SGA



Source : Made by the author using MS EXCEL

We can see through the bar chart that 38,29% of the population felt the need to download the application between 2020 and 2022, while 36,94% of the population downloaded it between 2023 and 2024, meanwhile, 24,77% of the population downloaded it between 2018 and 2019.

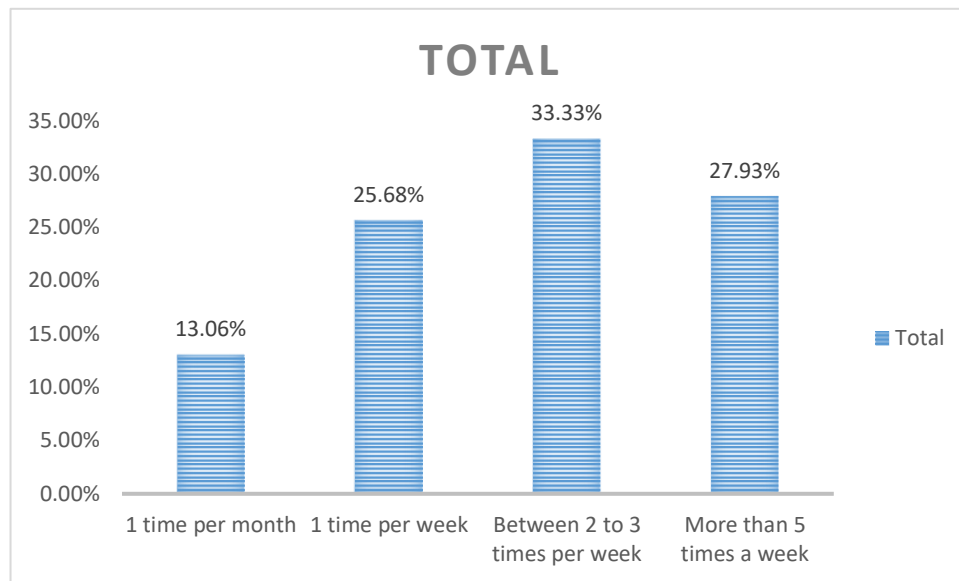
From the result, it is outstanding that the period of the COVID-19 pandemic is the highest in terms of application downloading.

- **About the APPLI SGA**
- **The application use frequency**

Question number 07: How often do you use your Société Générale Algérie mobile application “APPLI SGA”?

The following questions indicate information about the use of the APPLI SGA by the users, here the first one is about the use frequency of the application :

Figure 11 : Bar chart of the use frequency of the APPLI SGA



Source : Made by the author using MS EXCEL

The figure displays that 33,33% of the population and APPLI SGA users, use their application between 2 to 3 times per week, 27,93% use the application 5 more than 5 times a week, 25,68% use it 1 time per week, and only 13,06% of the users use it 1 time a month.

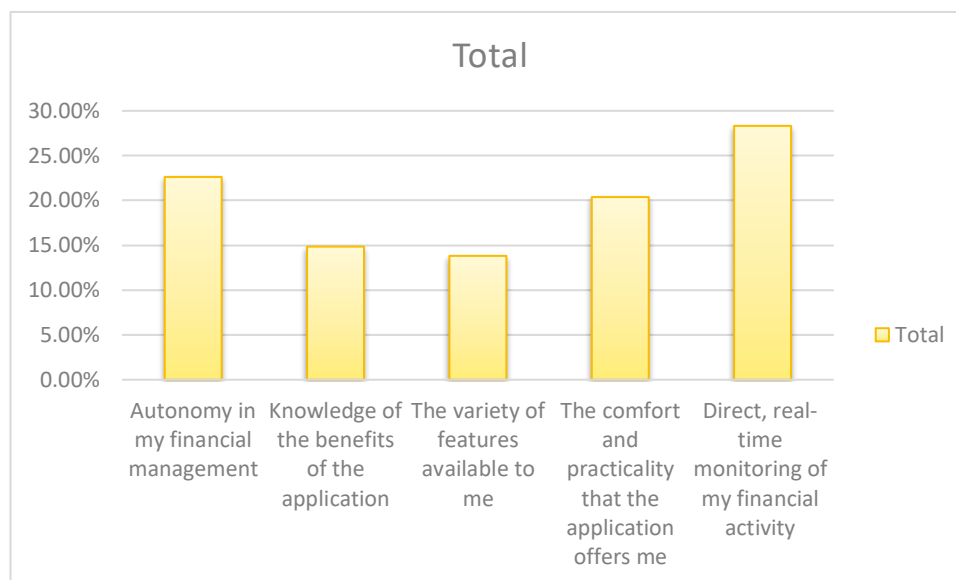
We can see that most of the people using the application use it at least 1 time per week, which shows the need they have for the APPLI SGA.

- **Motivations for using the application**

Question number 08: What pushed you to use the Société Générale Algérie mobile application “APPLI SGA” ?

The following question reveal to us the motivations of customers using the APPLI SGA :

Figure 12: Bar chart of the motivations to use the APPLI SGA



Source : Made by the author using MS EXCEL

The findings show that the answer “Direct, real-time monitoring of my financial activity” was the most chosen by the population with 28,32%, followed next by “The comfort and practicality that the application offers me” which was chosen by 20,38% of the population, while the answer “Autonomy in my financial management” was the choice of 22,63% of the population, 14,85% of the SGA customers respondents answer that “Knowledge of the benefits of the application” was their motive to use the application and finally 13,83% of the population went for “The variety of features available to me”

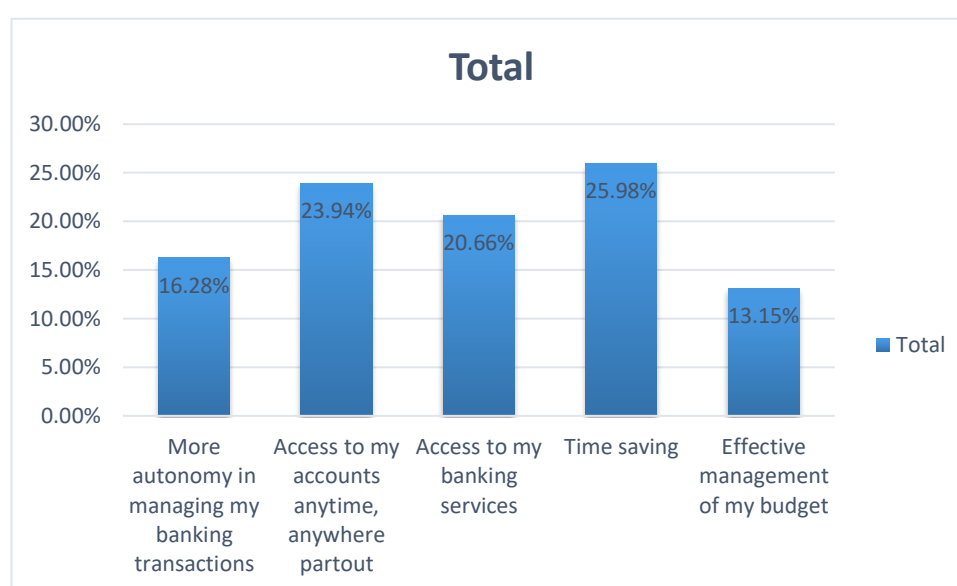
We can notice through these results that the majority of the population is motivated by the direct real-time monitoring of their financial activity and the accessibility to their financial services that are offered to them through the mobile banking application APPLI SGA is very valued.

- **Gains**

Question number 09 : What have you gained by using the Société Générale Algérie mobile application “APPLI SGA”?

The results of this question constitute a good way to know the gains of the customers after its utilization :

Figure 13 : Bar chart representing the gains of the customers using the APPLI SGA



Source : Made by the author using MS EXCEL

The findings indicate that “Time-saving” was chosen by 25,98% of the population, 23,94% of the SGA customers answered that “Access to my accounts anytime, anywhere” is their most important gain, meanwhile 20,66% indicate that “Access to my banking services” is their gain, 16,28% of the population chose the answer “More autonomy in managing my banking transactions” and finally 13,15% of the SGA customers indicated the answer “Effective management of my budget”.

It is clear through these results that the most repeated gain is the “Time-saving” aspect, thus we can deduce that going to the bank branch wasn’t the best option for the customers.

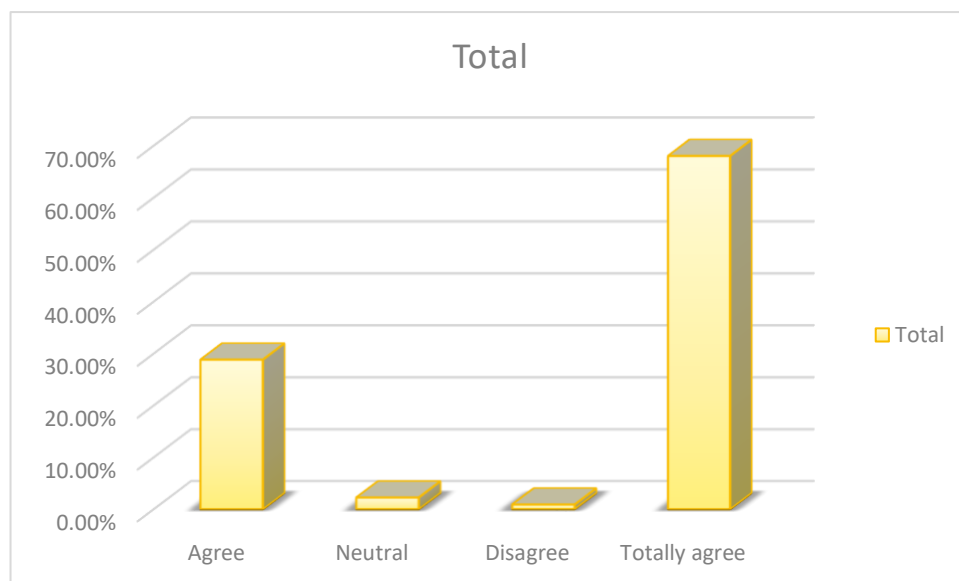
Noting that this question allowed multiple choices, we can notice that 222 of the population chose at least 2 gains, which shows the APPLI SGA's positive impact on their bank experiences.

- **Opinion about the usefulness of the APPLI SGA**

Question 10 : To what extent do you agree with the following statement “The Société Générale Algérie mobile application “APPLI SGA” meets my needs” ?

For this question, the bar chart shows the customers opinion about the APPLI SGA and whether it meets their needs :

Figure 14 : Bar chart representing the agreement of the respondents with the satisfaction of their needs by the APPLI SGA



Source : Made by the author using MS EXCEL

We can clearly see through the bar chart that 68,02% of the population totally agree that the APPLI SGA is an answer to their needs, 28,83% of the population also agree with the fact that the APPLI SGA meet their needs as customers, only on less pronounced level, 2,25% of the SGA customers stay neutral. Only 0,9% disagree with this affirmation.

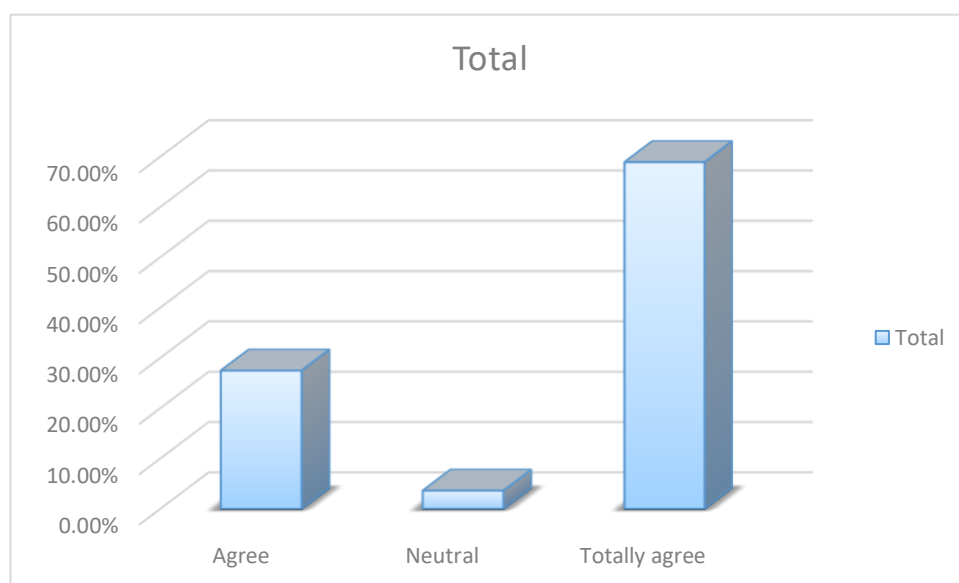
It is obvious that the majority agree that the APPLI SGA satisfies their needs, this insinuates that the application is a great tool to meet the customers' needs and more importantly that it is indeed succeeding in doing it.

- **Opinion about the reassurance towards the APPLI SGA**

Question 11: How much do you agree with the following statement “I feel reassured and confident using the Société Générale Algérie mobile application “APPLI SGA”?”

The opinion about the security of the application is revealed through this question :

Figure 15 : 3D bar chart representing the agreement of the respondents about the security they feel towards the APPLI SGA



Source : Made by the author using MS EXCEL

This bar chart indicates the level of confidence the users of the APPLI SGA feel toward it, we can visualize that 68,92% of the population totally agree with the affirmation, 27,48% agree on another level, and only 3,6% stay neutral, thus, in 100% of the population, nobody disagree with the affirmation.

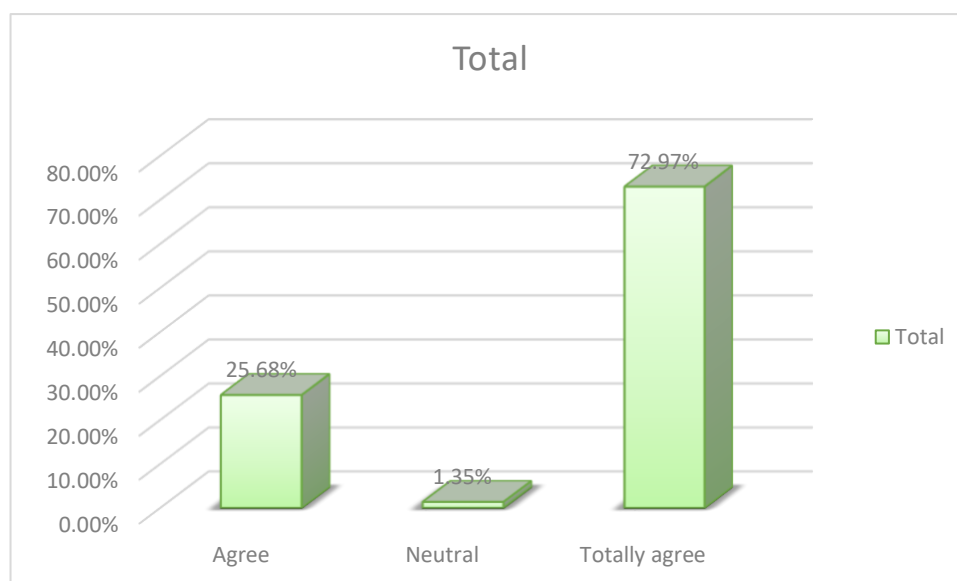
It is clear that the majority of the SGA customers, feel secure and trust their bank with their finances.

- **Opinion about the ease of use of the APPLI SGA**

Question 12: To what extent do you agree with the following statement “I use the Société Générale Algérie mobile application “APPLI SGA” with complete ease and fluidity” ?

By answering the previous question, users of the APPLI SGA gave us a look at their opinion regarding the ease of use of the application :

Figure 16: 3D bar chart representing the agreement of the respondents with the ease of use of the APPLI SGA



Source : Made by the author using MS EXCEL

Looking at the bar chart results, we can notice that 72,97% of the respondents totally agree with the affirmation about the ease of use of the APPLI SGA, 25,68% of the population agree with this affirmation on another level, and only 1,35% stay neutral. As we can see, there is no answer indicating the disagreement with this affirmation.

CHAPTER 03 : Société Générale Algérie' Case Study

The chart shows us how the most majority of the customers find the application fluid and easy to use.

- **Preferences of the customers :**

Question 13 : What is the most important aspect you are looking for in the Société Générale Algérie mobile banking application "APPLI SGA" ?

To know the expectations of our customers users of the APPLI SGA? We aimed to ask them the previous question, here's the results :

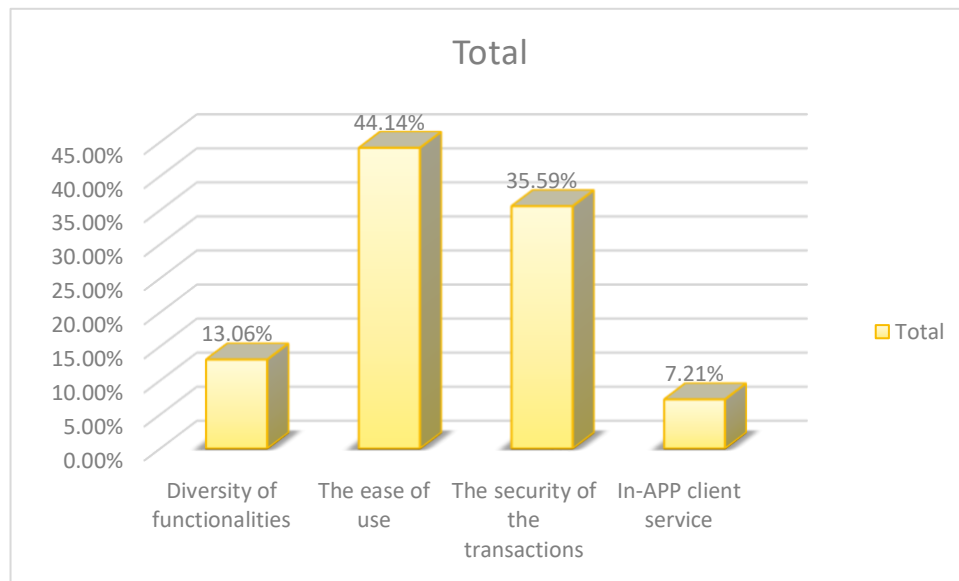
Table 4 : Table of the important aspects of the customers regarding the APPLI SGA

	Results (n)	Opinion (%)
Diversité des fonctionnalités	29	13,06%
Facilité d'utilisation	98	44,14%
Sécurité des transactions	79	35,59%
Service client intégré dans l'application	16	7,21%
Total	222	100,00%

Source : Made by the author using MS EXCEL

The data from the table are represented in the bar chart below :

Figure 17: 3D bar chart of the most important aspects the customers are looking for



Source : Made by the author using MS EXCEL

The figure displays that 44,14% of the population declare “The ease of use” as the most important aspect they’re looking for in the APPLI SGA, followed directly by “The security of the transactions” with 35,59% of the population choosing it as an answer, 13,06% of the population opted for “The diversity of the functionalities” and only 7,21% of the population chose “ The in-APP client service”

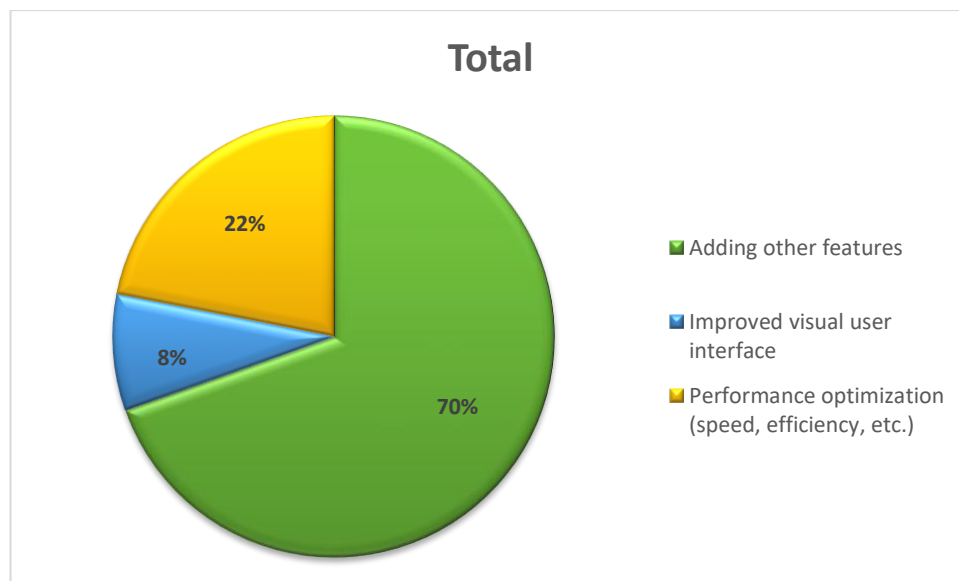
This chart shows how important the ease of use and the facility of utilization of a tool like a mobile banking application is for the customers.

- **Expectations of the customers :**

Question 14 : What do you expect from the Société Générale Algérie mobile application “APPLI SGA” (Please choose the answer that speaks to you the most)?

The following pie chart indicates the expectations of the APPLI SGA according to our 222 respondents:

Figure 18 : Pie chart of the customers' expectations



Source : Made by the author using MS EXCEL

The pie chart in front of us shows that, 69,61% of the population expect the “Adding of other features”, 21% of the population, on the other hand, expect the “ Performances optimization”, only 8,48% of the population went for the “ Improved visual user interface” aspect of the application.

2.2.Two-variable cross-sort analysis:

Cross-sorting is a method of statistical analysis that involves examining relationships between different variables by cross-tabulating them with each other. It is a technique for exploring the interactions and dependencies between two or more variables in order to better understand their relationships and their impact on a given phenomenon.

Crossing 01 :

A crossing between question 07 “How often do you use your Société Générale Algérie mobile application “APPLI SGA”?” and question 10 “To what extent do you agree with the following statement “The Société Générale Algérie mobile application “APPLI SGA” meets my needs”?”, the findings as follows :

CHAPTER 03 : Société Générale Algérie' Case Study

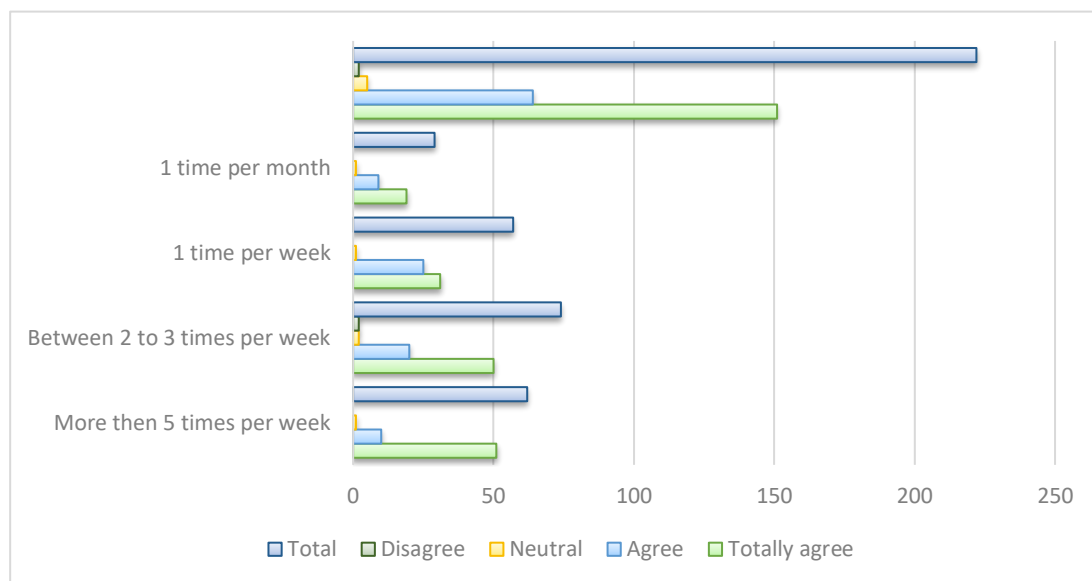
Table 5 : Table of the crossing between the utility and the frequency of use

FRENQUENCY OF USE		UTILITY				Total
		Totally agree	Agree	Neutral	Disagree	
FRENQUENCY OF USE	More than 5 times a week	51	10	1	0	62
	Between 2 to 3 times à week	50	20	2	2	74
	1 time per week	31	25	1	0	57
	1 time per month	19	9	1	0	29
	Total	151	64	5	2	222

Source : Made by the author using SPSS

In the bar chart below, we find the representation of the data from the table:

Figure 18 : Bar chart representing the crossing between the opinion about the utility and use frequency



Source : Made by the author using MS EXCEL

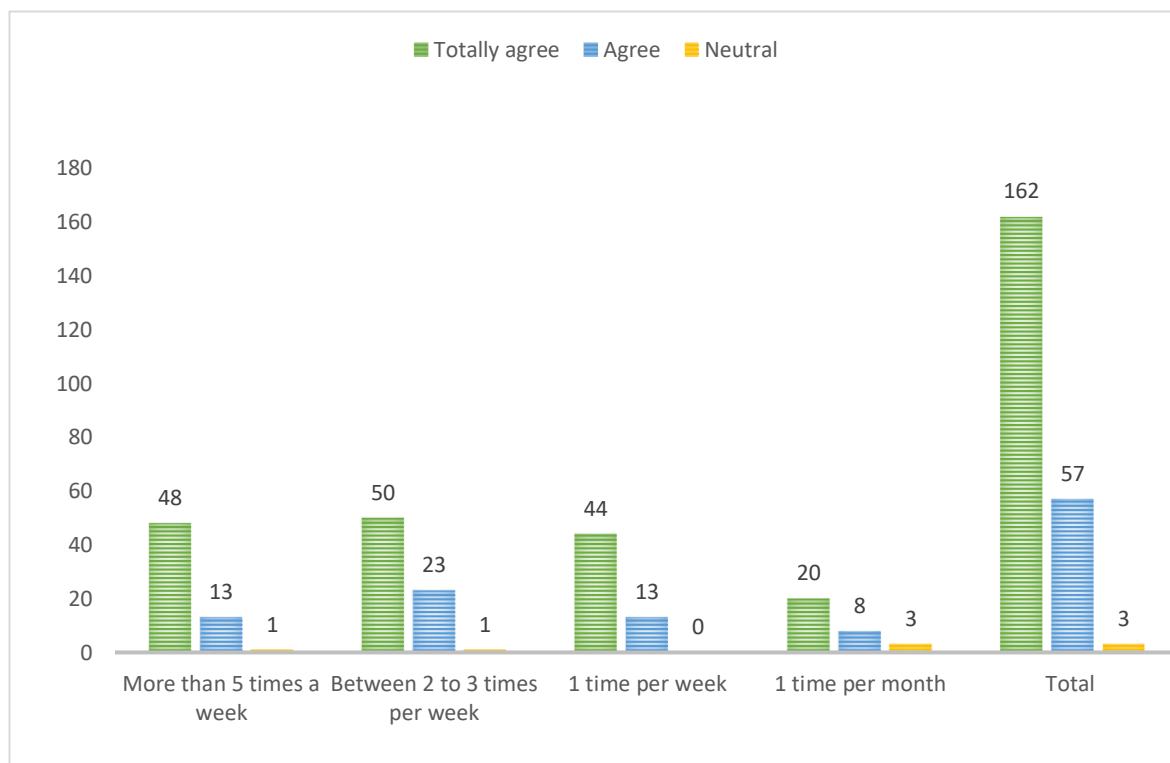
We can see that 51 users of the SGA application, who use it more than 5 times a week, say that they find it useful and that it meets their needs. Additionally, 50 users who use it more than 2-3 times a week share this opinion. Through the graph and the table, it appears that the majority of respondents who find the application useful and that it meets their needs, the table shows that they frequently integrate it into their daily lives. Only a minority (5 respondents) remains neutral, only 2 leave a negative response.

CHAPTER 03 : Société Générale Algérie' Case Study

This demonstrates that the SGA application is perceived as useful given that the majority of respondents say that it meets their needs.

Crossing 02 : A crossing between question 07 “How often do you use your Société Générale Algérie mobile application “APPLI SGA”?” and question 12 “To what extent do you agree with the following statement “I use the Société Générale Algérie mobile application “APPLI SGA” with complete ease and fluidity”, as follows, the findings :

Figure 19: Bar chart of the crossing between the utility and the use frequency



Source : Made by the author using MS EXCEL

We can visualize that 50 users of the SGA APP who use it 2 to 3 times a week say that they use it with ease and fluidity, not far away we find 48 users who use it more than 5 times per

CHAPTER 03 : Société Générale Algérie' Case Study

week, we see through the graph and the table that the majority of respondents who find the application easy to use use it frequently in their daily lives, only a minority (3 respondents) is neutral, and there's no negative answer.

This demonstrates that ease of use is achieved in the use of the SGA APP and this is why the majority of respondents and those who use it frequently say this.

Crossing 03 :

A crossing between question 07 “How often do you use your Société Générale Algérie mobile application “APPLI SGA”?” and question 02 “What is your age range”, as follows, the findings:

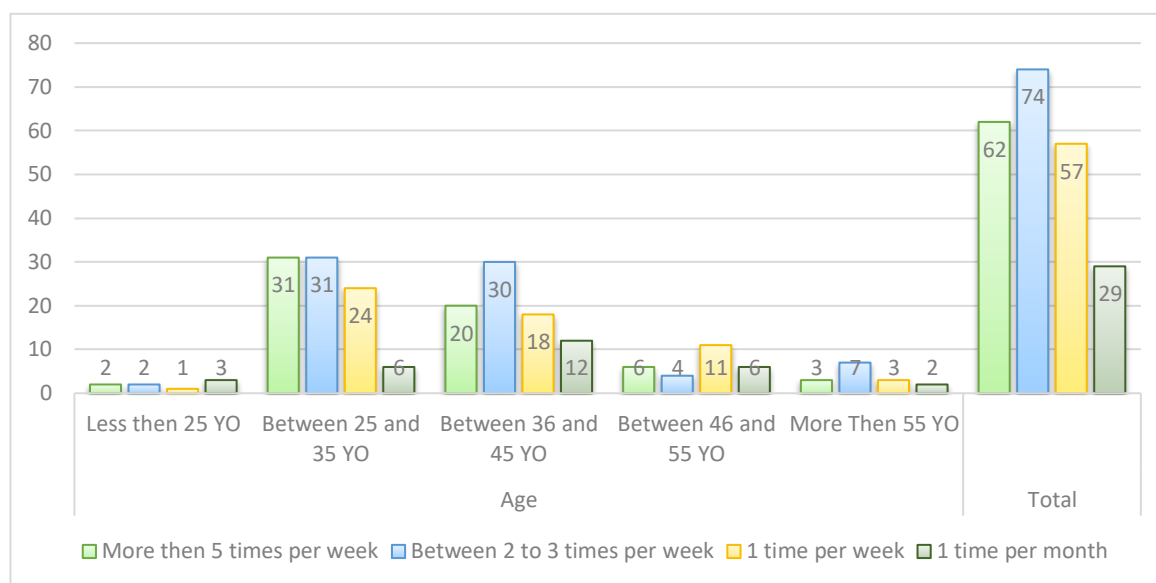
Table 6 : Table representing the crossing between the age and the use frequency

		More than 5 times per week	Between 2 to 3 times per week	1 time per week	1 time per month
Age	Less than 25 YO	2	2	1	3
	Between 25 and 35 YO	31	31	24	6
	Between 36 and 45 YO	20	30	18	12
	Between 46 and 55 YO	6	4	11	6
	More Than 55 YO	3	7	3	2
Total		62	74	57	29

Source : Made by the author using SPSS

The table is graphically represented in the bar chart below:

Figure 20 : Bar chart representing the crossing between the age and the use frequency



Source : Made by the author using MS EXCEL

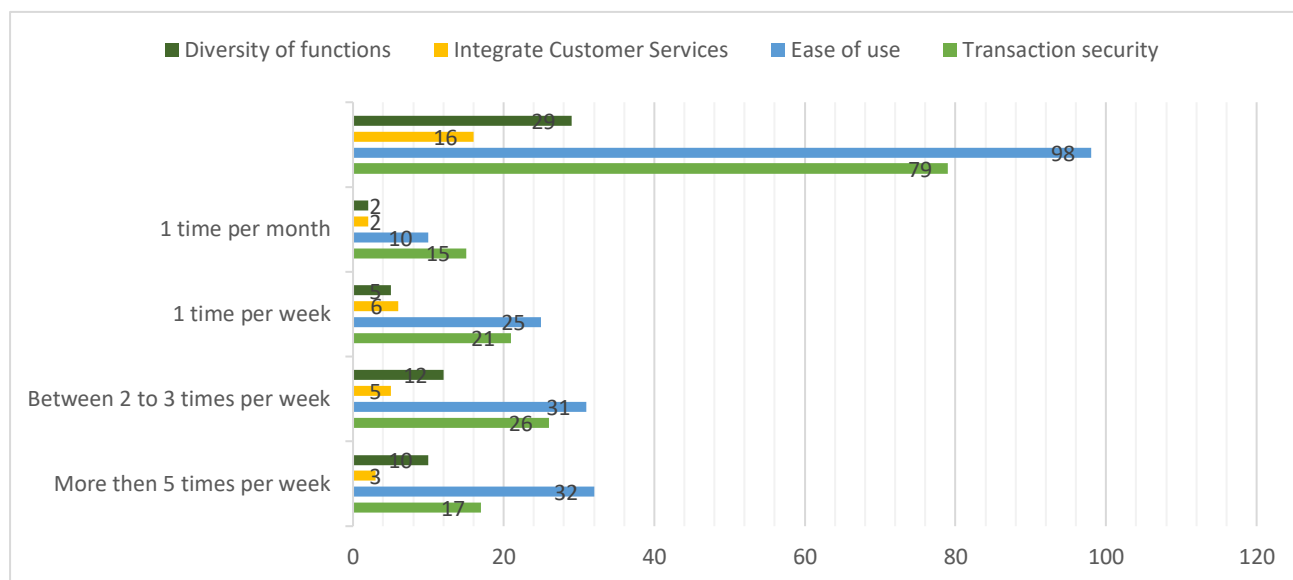
These results give us an idea of the age groups of users according to their frequency of use. Through this bar graph, we notice that 31 respondents in the “Between 25 and 35” age group use the app more than 5 times a week. Likewise, 31 respondents in this same category use it 2 to 3 times a week. For the “Between 36 and 45” age group, 20 respondents use the application more than 5 times a week, and 31 of them use it 2 to 3 times a week. The minority of respondents belongs to the age groups "Between 46 and 55 years" and "Over 55 years", where we note a low frequency of use, especially for the categories "more than 5 times a week" and "between 2 to 3 times a week.

These results show that the age group that uses the SGA application most frequently is that of “Between 25 and 35 years old”.

Crossing 04 :

A crossing between question 07 “How often do you use your Société Générale Algérie mobile application “APPLI SGA”?” and question 13 “ What is the most important aspect that you are looking for in the Société Générale Algérie mobile banking application “APPLI SGA” ?”, as follows, the findings :

Figure 21: Bar chart representing the crossing between important aspects of customers and the use frequency



Source : Made by the author using MS EXCEL

Table 7 : Table of the crossing between the most important aspects for the customers and the use frequency

		Transaction security	Ease of use	Integrate Customer Services	Diversity of functions
FREQUENCY OF USE	More than 5 times per week	17	32	3	10
	Between 2 to 3 times per week	26	31	5	12
	1 time per week	21	25	6	5
	1 time per month	15	10	2	2
Total		79	98	16	29

Source : Made by the author using SPSS

According to the results, we note that the "ease of use" aspect is mentioned by 98 respondents. Indeed, 32 respondents who use the SGA application more than 5 times per week indicate that ease of use is an important aspect, followed by 31 respondents who use the application

frequently, between 2 to 3 times per week. The other aspects were chosen in the minority, except transaction security which was mentioned 79 times, especially by users with a frequency of use between 2 to 3 times per week.

We conclude from this bar graph that the majority of SGA app users prefer an easy-to-use app. This demonstrates the importance of this aspect and represents an avenue for prioritization in development.

The result summary :

After conducting the qualitative research to understand the dynamics of app development in SGA, which served us as a base for the quantitative study, in which we collected the data about the customers, we can summarize these results study into the following ascertainment :

- The sample of this study is composed of 75 women and 147 men. The majority of the respondents are aged between 25 years old and 35 years old. Regarding the professional distribution, we have 123 employees from the private sector, 44 employees from the public sector, 28 entrepreneurs/traders, 13 from the liberal professions, 5 students, 4 retirees, 3 Freelancers/Startups, and 2 unemployed people. For the region of residence, most of the population comes from the center of the country, with 96 of the respondents, followed directly by the east with 89 respondents, 27 people from the western region, and 10 people from the south of the country.
- The 222 respondents are customers of Société Générale Algérie, among these customers we have 96 client respondents who have been customers for less than 3 years, 44 respondents who have a seniority of 4 years to 6 years, 39 respondents have been customers for 7 to 10 year, 29 respondents have been customers for 11 to 15 years and 14 respondents, the oldest, have been customers for more than 15 years.
- Among 222 respondents, we have 85 customers who downloaded the APPLI SGA application between 2020 and 2022, which coincides with the period of the COVID-19 pandemic, the mobile banking application was a means to meet their needs for financial management.

- Most respondents, customers, and users of the application use the application from high to medium-high frequency, we have 74 customer respondents who use it between 2 to 3 times a day, 62 respondents who use it more than 5 times a week, 57 respondents using it around once a week and 29 using it once a month. This result demonstrates that SGA customers often use their mobile application, so we can infer that they find it useful for their needs.

- The majority of SGA customers using the mobile application are satisfied with the services offered by their SGA APP, most affirm that the application meets their needs, that they find it easy and fluid to use, and that they trust it with their personal data.

- Customer users of the application are motivated by several aspects of the APPLI SGA mobile banking application, firstly, the idea of having the hand to manage their money and finances with complete autonomy motivates them, moreover, they declare that the banking solution saves them time, and because they find the application's functionalities interesting and diversified.

- SGA customers who use the application and respond to the questionnaire, confirm through another question that they have gained in time, in autonomy, in effective management of their financial resources, thanks to the access to the accounts provided by the SGA application, which allowed them to carry out their banking transactions at any time and anywhere while avoiding travel and waiting times and offering them a better experience with their Société Générale Algérie bank.

- The simplicity and ease of use of the application are among the most important aspects for respondents; to move from one mode of consumption (the bank branch) to another mode which is said to be more digital, the bank must ensure to provide the customer with smooth transitions and avoid the complexity of the digital customer journey.

- Another important aspect according to customers is the aspect of the security of their transactions and personal information, if the bank wants to ensure a good customer experience it must first gain their trust and reassure them about the security of their personal data.

- The surveys show that adding new features to the application is part of customers' expectations, we can deduce through this that customers are asking for more and more features because they find that they will be useful to their needs, by listening to customers and adding the expected features, obviously taking into account their motivations and preferences.
- Cross-analysis of the results of the questions on ease of use, and that on usefulness with the question on the frequency of use of the app allowed us to note that the majority of users of the SGA APP find it easy and fluid to use, useful and meets their needs, which means that they have adopted it in a very positive way, and which is an important element to improve their experience.
- Cross-analysis of data concerning the age of respondents and the frequency of use of the application reveals that individuals aged 25 to 35 constitute the most active age group. This observation highlights a strong affinity for digital technologies within this population.
- Another relevant cross-analysis concerns the most valued aspects of the application by the most frequent users. The majority of these users highlighted that ease of use is a primary criterion, closely followed by transaction security. By taking these results in consideration, the APPLI SGA squad can now direct its development efforts by focusing on these key aspects.

Recommendations and suggestions:

First, we will present improvements in terms of user interface, given that enhancing the interface is among the crucial expectations of APPLI SGA users, including:

- Firstly, we suggest integrating advanced personalization, allowing the APPLI SGA to offer content and services tailored to the specific needs of the customers. By analyzing user behaviors and preferences, the mobile banking application can provide personalized notifications. The aim of this approach is to increase APPLI SGA users engagement towards the app, as they feel understood and valued. Moreover, precisely

meeting customer expectations, enhances their satisfaction, and remains crucial for maintaining a positive relationship with the SGA.

- Based on our findings, security is paramount for customers. Biometric authentication is a good way to secure customers' personal and financial data, enhancing their trust. Methods like facial recognition and fingerprint scanning secure app access. The convenience and security offered by biometric authentication reduce usage barriers, increasing client satisfaction and trust.
- One key aspect of interface improvement, can also be interesting for customers, is the voice user interface. It allows users to interact with the app using voice commands, making the experience more accessible and convenient, especially for those with difficulties using touch interfaces. It can be a great addition to the APPLI SGA regarding the interest they give to the ease of use, it can facilitate hands-free usage, making the app more inclusive, simplifying interactions, improving user experience, and encouraging broader adoption.
- Continuing with interface ergonomics improvement, micro-interactions such as animations and haptic feedback make the app more responsive and engaging. We are after all addressing it to humans, and by nature we like to be brain stimulated frequently. These interactions enhance the user experience by providing immediate responses to user actions and creating a positive emotional connection with the app, making it more enjoyable to use. SGA should put in head that one of the most important aspects is the emotional bond, since before being rational, the human being is emotional. By reducing complexity perception and increasing emotional engagement, micro-interactions can help promote the usage of the APPLI SGA.
- Another innovative aspect of interface ergonomics is gesture navigation, which consists of replacing traditional clicks with intuitive gestures for smoother, and natural interaction with the mobile banking application. This method can simplify interactions with the APPLI SGA, allowing users to navigate features quickly and efficiently, minimizing frustration, this can help keep them more on the application, and encourage them to use it more.

- We also suggest integrating dark mode into the APPLI SGA, which reduces eye strain by lowering screen brightness, particularly useful for prolonged use or in low-light environments and thus provides comfort and convenience to APPLI SGA users. This feature enhances visual comfort, potentially extending app usage time.

Moving to feature suggestions, which were also highlighted by user customers and are among the most important aspects for them:

- Among necessary feature integrations that enhance customer proximity is 24/7 customer support provided by chatbots, ensuring immediate assistance at any time. This constant availability reduces waiting times and frustrations associated with unresolved issues that the APPLI SGA users in particular and SGA customers in general. These chatbots are trained through machine learning, they can answer frequently asked questions, resolve simple problems, and direct users to appropriate resources. By improving accessibility and efficiency of customer support, this feature can increase user satisfaction and makes them feel better supported, enhancing their usage and pushing them to consume services in an easy and fluid way.
- Another aspect that is considered interesting is allowing users to track expenses and manage finances. It can help them better control their finances, offering clear visual representations of transactions and budgets. This feature enables customers to track their spending, set financial goals, and receive alerts for budget overruns. By adding this practical tool for SGA customers' financial management, the APPLI SGA reduces stress related to money management and enhances transparency, furthermore, it's considered as an added value since it gives the users more control over their finances besides regular financial operations.
- We also suggest adding personalized notifications to inform APPLI SGA users in real-time of important account movements, such as low balances or suspicious transactions, or even congregating them on their special events. These alerts keep users informed and able to react quickly to urgent situations. Providing relevant and timely

information, personalized notifications strengthen user control and security, making them feel safer with the management of their finances. It can also be a way to strengthen emotional bonds with the SGA customers. This feature improves client responsiveness and overall satisfaction, as they feel better considered, supported, and protected by SGA.

- One of the most important features, currently requested, we're talking about the bill payment functionality. Integrating this feature can help the SGA customers in the easy payment of electricity, water, and phone subscriptions, it offers unmatched convenience, allowing the APPLI SGA users to pay bills in a few clicks without needing to visit crowded public places.

It is important to note that the suggested improvements are only the ones who are not currently present in the SGA mobile app. Given that APPLI SGA is already feature-rich and well-designed, we will emphasize these suggestions for a more futuristic application through innovative development.

This final chapter allowed us to complete our research and thoroughly explore each aspect of the study by employing the presented methodologies, collecting and analyzing data, and proposing improvements for SGA.

General Conclusion :

Several studies have demonstrated the importance of integrating mobile banking apps into the customer journey and their positive impact on the customer experience. Placing the customer at the center of these app developments is essential. The study by Komulainen and Saraniemi (2019) shows that to understand and improve the customer experience in mobile banking services, it is crucial to consider various factors such as how the services are used, the context of their usage, the outcomes achieved, and the evolution of these elements over time. These aspects are vital for creating value for the customer and enhancing their satisfaction with mobile banking services.⁹⁹

On the other hand, a study by Rajaobelina, Brun, Prom Tep, and Arcand (2018) emphasizes that to enhance the customer experience through the optimized design of mobile banking apps, financial institutions must create apps that are not only visually appealing and pleasant to use but also intellectually stimulating for users. Simultaneously, it is crucial to avoid negative experiences to prevent emotions such as disappointment and anger, which can harm user satisfaction.¹⁰⁰

Our study aims to identify the key areas for developing mobile banking applications, focusing on both the utility of features and the ergonomics of the interface. These elements are part of enhancing the customer experience in the banking sector, which is more delicate compared to other sectors as it involves managing customers' financial resources.

Providing a highly useful, high-performance, and highly secure tool offers a competitive advantage for the bank. This tool allows the bank to stay in constant contact with its customers and ensure their loyalty by enabling remote transactions. This strengthens the customer relationship and increases their satisfaction.

To achieve this, our study focused on the key aspects of improving the customer experience. First, we aimed to understand customers' motivations for using the application and the factors driving their adoption.

⁹⁹ Komulainen, H., & Saraniemi, S : Customer centricity in mobile banking: a customer experience perspective. *International Journal of Bank Marketing*, 1082-1102. 2019,

¹⁰⁰ Rajaobelina, L., Brun, I., Prom Tep, S., & Arcand, M. Towards a better understanding of mobile banking: the impact of customer experience on trust and commitment. *Journal of financial services marketing*, 23, 141-152, 2018.

General Conclusion

Second, we identified their expectations to better guide the internal development of the application. Third, we surveyed on their adoption and satisfaction with the application, which will allow the bank to gauge its customers' perceptions and tailor its development strategy accordingly.

This research was conducted to demonstrate the importance of the optimal design of mobile banking applications in improving the customer experience, through a field survey of the customers, who are the target of this study. This will lead us to answer our research question: **"To what extent can the optimized development of mobile banking applications be a lever for improving the customer experience?"** by verifying the previously formulated hypotheses.

First, we found that 61,23% of respondents use the application frequently. These same respondents, along with others, confirm that the application meets their needs in terms of features. Among the most frequently cited motivations for using the application, with 64,78% is the autonomy in real-time financial management, in addition to the variety of features that is considered an important motivation. All these elements fall under the aspect of the utility of the application's features for users, thereby contributing to their satisfaction.

Another important aspect is the benefits linked to using the application. Time-saving, chosen by the majority, also appears as a key motivation. In other words, time-saving motivates customers to adopt the APPLI SGA, demonstrating its utility.

This first hypothesis. **"The usefulness of the APPLI SGA features can contribute to customer satisfaction."** is confirmed

Second, we observed that 98,65% of respondents consider ease of use of the interface the most important aspect of a mobile banking application. Cross-referencing this result with the frequency of use, we notice that those who use the application most frequently find this interface easy to use. The ease of use aspect relates to the ergonomics of the APPLI SGA, which helps avoid user frustration and consequently, prevents negative experiences, thereby increasing retention on the application.

These elements confirm the second hypothesis **"The ergonomics of the APPLI SGA favorably lead to its adoption."**

General Conclusion

Third, we found through the study that 61,23% of respondents report using the application frequently. They overwhelmingly agree that the application meets their needs, is easy and smooth to use, and that they trust it for the security of their personal and financial data.

Users claim to have benefited from numerous advantages in terms of time-saving, autonomy, and accessibility thanks to using the APPLI SGA. The results of our analyses show that high usage frequency is often linked to the utility and fluidity of the application, indicating that the APPLI SGA can ensure a favorable user experience.

Thus, we can say that these elements confirm our final hypothesis, which states that **"Customers of Société Générale Algérie have favorably adopted the APPLI SGA."**

The work carried out has allowed us to have a vision of the future of the APPLI SGA in particular and mobile banking applications in general. Mobile banking is an emerging trend in our country, especially after the COVID-19 pandemic accelerated this field. Customers have discovered new needs, such as the necessity to access their accounts and financial transactions remotely. Most of them have also discovered the existence of digital tools such as the mobile banking application.

The use of mobile banking, thanks to the proper development of mobile banking applications, is an approach that must be followed by all financial institutions, especially with the emergence of new technologies such as artificial intelligence. This will allow the development of these solutions and, consequently, guarantee a better experience for customers.

To improve the customer experience on the APPLI SGA, we propose to integrate advanced personalization, biometric authentication, and voice interface for more intuitive and secure use. Micro-interactions and gesture navigation would improve ergonomics, making the application more enjoyable and easy to use.

In terms of functionality, 24/7 customer support, expense tracking, personalized notifications, and remote bill payment would increase convenience and user satisfaction. These improvements aim to offer a smoother, richer, more secure, and more personalized banking experience.

Additionally, the research limitations are of a technical nature. We had planned several channels for disseminating the questionnaire, one of which was the mobile application itself.

General Conclusion

This would have helped overcome another limitation: the insufficient number of respondents to perform certain cross-analyses necessary for hypothesis verification with SPSS software.

Another limiting aspect is the literature review. This subject encompasses both technical and commercial aspects, making the search for appropriate books, articles, journals and even websites particularly difficult, sometimes nearly impossible due to the non-free nature of these resources.

Conducting this study and writing this dissertation required a lot of investment, motivation, curiosity, and rigor. However, this first experience in scientific research has also allowed us to evolve and integrate into the professional world in parallel, participating in daily banking activities through our daily tasks at the SGA.

We conclude our modest work with the hope that it will be useful to students, the company, and the development of scientific research in commercial sciences.

Bibliography

Bibliography:

- **Books :**

1. PATAT, J. P.: « Monnaie, institution financière et politique monétaire. », Economica, Paris, 1993.
2. Garsuault Philippe, Priami Stéphane: « la banque : fonctionnement et stratégie », édition Economica, Paris, 1995.
3. J. ELIA: The leadership of digital transformation, collection Business Science Institute, ems, 2023.
4. Fabrice Lamirault & Collectif: Livre blanc L'évolution du modèle bancaire à l'ère du digital, 1ère édition, Mars 2017.
5. Adream Blair-Early and Mike Zender: User Interface Design Principles for Interaction Design, Massachusetts Institute of Technology Design Issues: Volume 24, Number 1 Winter 2008.
6. Marcus, A: Dare we define user-interface design?. interactions, (2002), P.19-24.
7. Batat Wided: Le Triangle de l'Expérience Digitale pour réussir la transformation digitale - Le Blue Sunflower Marketing pour innover efficacement - L'approche Physical 2030 pour performer, Eyrolles, 1st edition, 2018.
8. Dan Michaeli and Rick DeLisi: "Digital Customer Service: Transforming Customer Experience for an On-Screen World", 2021.
9. Sansan Honkounne KAMBOU: Manuel d'initiation au traitement de données sous SPSS, 2021.
10. Pichler, Roman: Agile product management with Scrum: Creating products that customers love. Boston: Addison-Wesley. Pichler, Roman, 2010.

- **Scientific Articles:**

1. SMAILI, S: Le mode de fonctionnement des banques publiques algériennes dans un contexte de crise. Revue d'économie et de statistique appliquée, (2017).
2. Jurnal Administrare: A Systematic Review on Banking Digital Transformation, Jurnal Pemikiran Ilmiah dan Pendidikan Administrasi Perkantoran, Volume 9, Issue 2, July-December 2022, Pages 543-552.

Bibliography

3. J. Scott Brennen, Daniel Kreiss: Digitalization, 2016.
4. Anni DASHO1, Elvin MEKA2, Genci SHARKO3, Indrit BAHOLLI4: Digital Banking the Wave of the Future, International Conference Proceedings, 2016.
5. Balkan, B: Impacts of digitalization on banks and banking. The Impact of Artificial Intelligence on Governance, Economics and Finance, Volume I, 2021, P.33-50.
6. Malik Mustapha: Mobile Banking App Development and Implementation, International Journal for Modern Trends in Science and Technology, Faculty of Computing Sciences, Gulf College, Muscat-Oman, 2021.
7. Courtney Elizabeth Cleveland: "A Study on How Mobile Banking Has Affected the Banking Industry: Has Mobile Banking Improved Bank Performance?", University of Mississippi. Sally McDonnell Barksdale Honors College, 2016.
8. BOAJUMA Otieno: CHALLENGES IN THE IMPLEMENTATION OF MOBILE BANKING INFORMATION SYSTEMS IN COMMERCIAL BANKS IN KENYA, UNIVERSITY OF NAIROBI, 2008.
9. Pousttchi, Key and Schurig, Martin: Assessment of Today's Mobile Banking Applications from the View of Customer Requirements, Munich Personal RePEc Archive, University of Augsburg, 2004.
10. Hoyer, W. D., Kroschke, M., Schmitt, B., Kraume, K., & Shankar, V.: Transforming the customer experience through new technologies. Journal of interactive marketing, 2020, P.57-71.
11. Katherine N. Lemon, Peter C. Verhoef: Understanding Customer Experience throughout the Customer Journey, Journal of marketing, JM-MSI Special Issue, 2016,.
12. Johnston, R., & Kong, X: The customer experience: a road-map for improvement. Managing Service Quality: An International Journal, 2011, P.5-24.
13. Verhoef, P. C., Lemon, K. N., Parasuraman, A., Roggeveen, A., Tsiros, M., & Schlesinger, L. A.: Customer experience creation: Determinants, dynamics and management strategies. Journal of retailing, 2009, P.31-41.
14. Khan, S., & Iqbal, M. (2020, June): AI-Powered Customer Service: Does it optimize customer experience?. 8th International Conference on Reliability, Infocom Technologies and Optimization (Trends and Future Directions)(ICRITO), 2020, P.590-594. IEEE.
15. Fan, B., Gu, Y., Ma, H., Cui, J., Wang, Y., & Han, S. (2023, March): A Study on Personal Customer Experience Optimisation. In 2022 3rd International Conference on

Bibliography

- Big Data Economy and Information Management (BDEIM 2022), P.449-454. Atlantis Press.
16. Khan, S., & Iqbal, M: Modeling User Interface Adaptation for Customer-Experience Optimization. In FMT, 2018, P.68-72.
 17. Komulainen, H., & Saraniemi, S: Customer centricity in mobile banking: a customer experience perspective. International Journal of Bank Marketing, 2019, P.1082-1102.
 18. Rajaobelina, L., Brun, I., Prom Tep, S., & Arcand, M: Towards a better understanding of mobile banking: the impact of customer experience on trust and commitment. Journal of financial services marketing, 2018, P.141-152.
 19. Callen-Naviglia, J., & James, J: FINTECH, REGTECH AND THE IMPORTANCE OF CYBERSECURITY. Issues in Information Systems, 2018.
 20. Maghraoui, S., & Belghith, E: L'expérience-client: quels apports des technologies de l'Intelligence Artificielle. International Journal of Economics & Strategic Management of Business Process (ESMB), 2019, P.2.
 21. Abbott, Lawrence (1955): Quality and Competition. New York: Columbia University Press.
 22. Märтин, C., Herdin, C., & Bissinger, B: Modeling User Interface Adaptation for Customer-Experience Optimization. In FMT, 2018, P.68-72.
 23. Johnston, R., & Kong, X: The customer experience: a road-map for improvement. Managing Service Quality: An International Journal, 2011, P.5-24.
- **Websites:**
 1. <https://dictionary.cambridge.org/dictionary/english/bank>, visited 14 May 2024 at 12:37.
 2. <https://www.boursedescredits.com/lexique-definition-credit-operation-credit-1307.php>, accessed on 16 May 2024 at 10:00.
 3. <https://www.mataf.net/fr/edu/glossaire/reception-de-fonds-du-public>, accessed on 16 May 2024 at 10:32.
 4. <https://pressbooks-dev.oer.hawaii.edu/principlesofeconomics/chapter/27-3-the-role-of-banks/>, visited 17 May 2024 at 17:55.
 5. <https://www.newmetrics.net/insights/digital-transformation-in-banks-impact-and-roadmap/>, visited 20 May 2024 at 20:24.

Bibliography

6. <https://www.arcweb.com/blog/what-digitization-digitalization-digital-transformation/>, accessed on 10 May 2024 at 15:04.
7. <https://www.channelinsider.com/business-management/digitization-vs-digitalization/#:~:text=While%20all%20three%20processes%20leverage,for%20a%20total%20organizational%20overhaul.>, visited 21 May 2024 at 21:21.
8. <https://maddevs.io/blog/digital-transformation-in-banking-and-financial-services/>, visited 18 May 2024 at 21:34.
9. <https://www.mbdconsulting.ch/publications/montee-du-digital-necessaire-secteur-bancaire>, visited 19 May 2024 at 15:26.
10. <https://botr.bank/news/what-is-a-digital-bank-everything-you-need-to-know/>, visited 24 May 2024 at 11:40.
11. <https://www.forbes.com/advisor/banking/what-is-a-neobank/>, visited 27 May 2024 at 11:27.
12. <https://startups.epam.com/blog/digital-banking-strategy>, visited 24 May 2024 at 20:13.
13. <https://www.glance.cx/blog/enhancing-digital-banking-experiences-strategies-for-customer-engagement>, visited 24 May 2024 at 20:53.
14. <https://blog.exactbuyer.com/post/distribution-channels-for-financial-services>, visited 26 May 2024 at 21:24.
15. <https://www.trustt.com/blog/a-complete-guide-to-digital-distribution#:~:text=Digital%20distribution%20refers%20to%20the,mobile%20applications%2C%20and%20online%20>
16. <https://www.forbes.com/advisor/in/banking/what-is-mobile-banking/#:~:text=Mobile%20banking%20is%20an%20online,are%20connected%20to%20the%20internet.>, visited 27 May 2024 at 12:34.
17. <https://blog.kms-solutions.asia/best-tech-stack-for-banking-app-development#:~:text=For%20mobile%20app%20development%2C%20some,development%20different%20types%20of%20apps>, visited 30 May 2024 at 1:45.
18. <https://distantjob.com/blog/mobile-developer-skills/>, visited 30 May 2024 at 02:13.
19. <https://successive.tech/blog/mobile-banking-app-development-guide/#6>, visited 31 May 2024 at 13:45.
20. <https://procreator.design/blog/banking-app-ui-top-best-practices/#:~:text=The%20UI%20of%20a%20banking%20app%20reflects%20the%20bank's%20brand,the%20bank's%20overall%20customer%20service.>, visited 2 June 2024 at 21:34.

Bibliography

21. <https://hbr.org/2023/03/8-best-practices-for-creating-a-compelling-customer-experience>, visited 5 June 2023 at 01:35.
22. <https://www.snaplogic.com/glossary/what-digital-customer>, visited 4 June 2024 at 21:15.
23. <https://www.voxco.com/blog/digital-customer-experience-vs-customer-experience/>, visited 4 June 2024 at 21:22.
24. <https://www.sitecore.com/knowledge-center/digital-marketing-resources/what-is-digital-customer-experience>, visited 4 June at 21:30.
25. <https://www.sprinklr.com/blog/customer-experience-optimization/#toc-2>, visited 7 June 2024 at 01:23.
26. <https://www.sprinklr.com/blog/customer-experience-optimization/#toc-0>, visited 7 June 2024 at 01:32.
27. <https://missiveapp.com/blog/customer-experience-optimization#why-customer-experience-optimization-is-important>, visited 7 June 2024 at 01:44.
28. <https://vwo.com/customer-experience-optimization/>, visited 7 June 2024 at 01:32.
29. <https://www.nejlepsi.cx/en/pillars>, visited 7 June 2024 at 20:15.
30. <https://medium.com/everything-new-is-dangerous/customer-experience-through-continuous-improvement-f4f27c55cec1>, visited 8 June 2024 at 02:57.
31. <https://www.societegenerale.com/fr/actualites/newsroom/cest-vous-lavenir-la-nouvelle-plateforme-de-marque>, visited 15 June 2024 at 05:52.

Appendixes

Appendixes :

Appendix 01 :

Here is the interview guide for the qualitative study. The interviewee preferred to answer in French as it is the language they are most proficient in.

Bonjour M. Ammadj,

Dans le cadre de la préparation de mon mémoire de master en marketing à l'École des Hautes Études Commerciales, nous travaillons sur le thème "L'amélioration de l'expérience client à travers le développement optimal des applications mobiles bancaires" au sein de la Société Générale Algérie.

À cette fin, nous vous prions de bien vouloir répondre à nos questions de manière objective, afin de rassembler les données nécessaires pour la réalisation de notre étude, qui a une finalité scientifique. nous vous remercions par avance pour la précision de vos réponses et pour la contribution que vous apporterez à cette étude.

Veuillez agréer, Monsieur, l'expression de nos salutations distinguées.

Cordialement.

Les axes	Les questions
1. Présentation et rôle de l'interrogé	<ul style="list-style-type: none">• Pouvez-vous vous présenter et décrire votre rôle à la SGA et au sein de la Squad APPLI SGA ?• Depuis quand êtes-vous Agile Master de l'application mobile ?

<p>2. Historique et objectifs du lancement de l'APPLI SGA</p>	<ul style="list-style-type: none">• Quand l'APPLI SGA a-t-elle été lancée sur le marché ?• Quels étaient vos objectifs et votre vision en lançant l'application APPLI SGA ?
<p>3. Stratégie de développement de l'APPLI SGA</p>	<ul style="list-style-type: none">• Sur quelles stratégies vous êtes-vous basés pour développer l'APPLI SGA ?• Quels critères ergonomiques de l'interface avez-vous pris en compte ?• Quels étaient les critères de choix des fonctionnalités de l'APPLI SGA ?
<p>4. Mesure de la performance de l'APPLI SGA</p>	<ul style="list-style-type: none">• Comment mesurez-vous la performance et l'utilité de votre solution bancaire APPLI SGA ?
<p>5. Défis et axes d'amélioration de l'APPLI SGA</p>	<ul style="list-style-type: none">• Quels obstacles et défis avez-vous rencontrés lors de la phase de lancement et au cours du cycle de vie de l'APPLI SGA• Quels sont les axes d'amélioration que vous avez identifiés pour l'APPLI SGA ?

Appendixes

Appendix 02 :

This quantitative method questionnaire was developed and distributed across SGA agencies throughout the country, and is presented as follows:

Q1: vous êtes ?

- Homme
- Femme

Q2: Quelle est votre tranche d'âge ?

- Moins de 25 ans
- Entre 25 ans et 35 ans
- Entre 36 ans et 45 ans
- Entre 46 ans et 55 ans
- Plus de 55 ans

Q3: Quel est votre statut socio-professionnel ?

- Salarié secteur privé
- Salarié secteur publique
- Entrepreneur/ Commerçant
- Profession libérale
- Freelancer/ Startup
- Retraité
- Sans emploi
- Etudiant

Q4: Avez-vous l'habitude d'utiliser des applications digitales au quotidien ?

- Oui
- Non

Appendixes

Q5: Depuis quand êtes-vous client de Société Générale Algérie ?

- Moins de 3 ans
- Depuis 4 à 6 ans
- Depuis 7 à 10 ans
- Depuis 11 à 15 ans
- Depuis plus de 15 ans

Q6: En quelle année avez-vous téléchargé votre application mobile Société Générale Algérie " APPLI SGA " ?

- Entre 2018-2019
- Entre 2020-2022
- Entre 2023-2024

Q7: Combien de fois utilisez-vous votre application mobile Société Générale Algérie " APPLI SGA " ?

- 1 fois par mois
- 1 fois par semaine
- Entre 2 à 3 fois par semaine
- Plus de 5 fois par semaine

Q8 : Qu'est ce qui vous a poussé à utiliser l'application mobile Société Générale Algérie " APPLI SGA " ?

- L'autonomie dans ma gestion financière
- La connaissance des avantages de l'application
- Le suivi direct et en temps réel de mon activité financière
- La variété des fonctionnalités à ma disposition
- Le confort et la praticité que m'offre l'application

Appendixes

Q9: Qu'avez-vous gagné en utilisant l'application mobile Société Générale Algérie " APPLI SGA " ?

- Un gain de temps
- Plus d'autonomie dans la gestions de mes opérations bancaires
- Un accès à mes services bancaires
- Une gestion efficace de mon budget
- Un accès à mes comptes à tout moment et partout

Q10: À quel point êtes-vous d'accord avec la déclaration suivante " L'application mobile de Société Générale Algérie " APPLI SGA " répond à mes besoins "

- Tout à fait d'accord
- D'accord
- Neutre
- Pas d'accord
- Pas du tout d'accord

Q11: À quel point êtes-vous d'accord avec la déclaration suivante "Je me sens rassuré et confiant en utilisant l'application mobile Société Générale Algérie " APPLI SGA " "

- Tout à fait d'accord
- D'accord
- Neutre
- Pas d'accord
- Pas du tout d'accord

Q12 : À quel point êtes-vous d'accord avec la déclaration suivante " J'utilise l'application mobile Société Générale Algérie " APPLI SGA " en toute facilité et fluidité "

- Tout à fait d'accord
- D'accord
- Neutre
- Pas d'accord

Appendixes

- Pas du tout d'accord

Q13: Quel est l'aspect le plus important que vous recherchez dans l'application mobile bancaire Société Générale Algérie " APPLI SGA " ?

- Facilité d'utilisation
- Sécurité des transactions
- Diversité des fonctionnalités
- Service client intégré dans l'application

Q14 : Qu'attendez vous de l'application mobile Société Générale Algérie " APPLI SGA " (Veuillez choisir la réponse qui vous parle le plus) ?

- Ajout d'autres fonctionnalités
- Amélioration de l'interface utilisateur visuelle
- Optimisation des performances (Rapidité, efficacité .. etc)

Appendix 03 :

Below is the poster we created to launch the questionnaire for the quantitative survey.

**Prenez 5 minutes et aidez
une étudiante dans son projet
de fin d'études**

**SCANNEZ LE
CODE ET
RÉPONDEZ AU
QUESTIONNAIRE**



Appendixes

Appendix 04 :

The image below shows a screenshot shared on Instagram stories by a micro-influencer named “**Manel BENJHODJA**” who is also an employee at SGA.



Appendix 05 :

Here we have the qualitative study results

Les axes	Les questions
32. Présentation et rôle de l'interrogé	<ul style="list-style-type: none"> • Pouvez-vous vous présenter et décrire votre rôle à la SGA et au sein de la Squad APPLI SGA ? • Smail Ammadj, chef de projets senior à la sga, agile master dans la squad APPLI SGA • Depuis quand êtes-vous Agile Master de l'application mobile ? • J'étais le chef de projet du projet APPLI depuis novembre 2020, avec la transformation opérée dans la Banque et l'intégration de la méthode scrum/agile dans la gestion de nos projets, mon rôle est devenu agile master depuis juin 2021
33. Historique et objectifs du lancement de l'APPLI SGA	<p>11. Quand l'APPLI SGA a-t-elle été lancée sur le marché ?</p> <p>12. LE produit appli SGA existé depuis novembre 2018</p> <p>13. Quels étaient vos objectifs et votre vision en lançant l'application APPLI SGA ?</p> <p>14. L'objectif était essentiellement de lancer une application mobile sur le marché bancaire, a tous nos clients retail de la Banque avec une vision Banque 2.0 (Banque virtuelle où le client pourra effectuer toutes ses opérations bancaires, et ce, sans avoir à se déplacer vers son agence)</p>
3. Stratégie de développement de l'APPLI SGA	<ul style="list-style-type: none"> • Sur quelles stratégies vous êtes-vous basés pour développer l'APPLI SGA ? • La stratégie est décrite par la Direction Générale, partagée par le Sponsor avec sa vision, le PO traduit cette vision en users story (fonctionnalités) pour répondre aux attentes de nos utilisateurs et en même temps, atteindre les objectifs tracés par le Sponsor • Quels critères ergonomiques de l'interface avez-vous pris en compte ?

	<ul style="list-style-type: none"> • Le critère économique suit plusieurs facteurs, mais le plus pris en compte, est la conjoncture économique du pays, et les différentes évolutions du marché susceptible d'impacter le marché • Quels étaient les critères de choix des fonctionnalités de l'APPLI SGA ? • Les critères de choix des fonctionnalités développés et livrés sans en priorité celles dictées par la Direction générale (impact Produit Net Bancaire), ainsi qu'être à l'écoute de nos utilisateurs
<p>4. Mesure de la performance de l'APPLI SGA</p>	<p>24. Comment mesurez-vous la performance et l'utilité de votre solution bancaire APPLI SGA ?</p> <p>25. Plusieurs KPI peuvent être servis pour jauger la performance de l'APPLI, les plus utilisés sont le taux d'activation (taux de connexion par rapport au nombre de souscriptions vendues), le taux de dématérialisation ; quelle est le nombre d'opérations ayant pu éviter le déplacement du client en agence</p>
<p>5. Défis et axes d'amélioration de l'APPLI SGA</p>	<p>26. Quels obstacles et défis avez-vous rencontrés lors de la phase de lancement et au cours du cycle de vie de l'APPLI SGA</p> <p>Les principales difficultés est principalement d'ordre Ressources, avec les départs vers l'étranger, les équipiers faisant partie de la squad (principalement les développeurs) connaît un tourn-over continu</p> <p>27. Quels sont les axes d'amélioration que vous avez identifiés pour l'APPLI SGA ?</p> <p>28. Les axes d'amélioration sont identifiés à chaque fin d'un sprint pendant la rétrospective, celui qui revient le plus est comment améliorer le rendu des livraisons afin d'optimiser les phases des tests et des mises en production</p>

Table of contents

General Introduction.....	Page 1
Chapter 1: Mobile Banking Applications.....	Page 6
Introduction to Chapter 1.....	Page 6
Banks and Digitalization of Banking Services.....	Page 6
Overview of Banks.....	Page 6
Digital Transformation of Banks.....	Page 10
Mobile Banking Applications Development.....	Page 22
Fundamentals of Mobile Banking Applications.....	Page 23
Development of Mobile Banking Applications.....	Page 29
Chapter 2: Customer Experience.....	Page 44
Introduction to Chapter 2.....	Page 44
The Customer Experience and the Digital CX.....	Page 45
Fundamentals of the digital customer experience.....	Page 56
Impact of these digital technologies on Customer Experience.....	Page 59
Customer Experience Optimization.....	Page 60
Benefits of the customer experience optimization.....	Page 63
Continuous improvement of the customer experience optimization.....	Page 69
Chapter 3: Société Générale Algérie Case Study.....	Page 72
Presentation of the Host Organization.....	Page 76
Presentation of the bank Société Générale Algérie.....	Page 76
Evolution of Société Générale Algérie.....	Page 78
Organization of the general management.....	Page 80
The services of SGA.....	Page 83
Presentation of the Research Methodology.....	Page 86
Choice of the research topic.....	Page 86
Choice of the research methodology.....	Page 87
Study Results Analysis.....	Page 95
Analysis of the results.....	Page 96
The result summary.....	Page 117
Recommendations and suggestions.....	Page 119
General Conclusion.....	Page 123
Bibliography.....	Page 127
Appendixes.....	Page 133

