



Institute of Banking Studies Research

Digitalization of Financial Services: Opportunities & Threats to Kuwaiti Banks

Consultancy and Research Department

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Please note that the findings and recommendations presented in this study are the authors' sole responsibility and do not reflect any organization or any other government body.

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1 Abstract

Worldwide, the banking industry has undergone significant transformations starting from the introduction of mainframes in the early 1960s to the enablement of 24X7 banking via ATMs, then online banking in the 1990s, and more recently, the introduction of mobile banking. The rapid technological advancement in computing and networking has mainly driven this banking revolution.

The last two decades have ushered in further financial and banking transformations, driven by ultimately evolving forces, the so-called digital revolution. Three main factors have driven this digital revolution: 1) Ubiquitous data, 2) high interconnectivity, and 3) increased processing powers. These factors laid the ground for superior technologies, evolving conventional banking and finance methods.

Technologies such as RPA, Advanced Analytics, AI, Cloud Computing, Block-chain, Conversational Chatbots, IoT, etc., have created newer business models such as NEO Banks, Banking as a Service, Banking as a Platform, and embedded banking. The ultimate consequence of this situation has been newer banking paradigms, more opportunities, enhanced customer experiences, and faster execution times. These breakthroughs formalized these efforts into the so-called digital transformation within the banking industry. Like its counterpart in the region and worldwide, the Kuwaiti Banking industry is

undergoing significant digital transformation to stay up-to-date and sustain relevance in this dynamically changing industry.

This paper assesses the opportunities and threats created by adopting digital banking transformations in the Kuwaiti banking industry. Local banks have been selected as a subject for this study. The outcome of this research study is neither comprehensive nor conclusive as some banks decided not to volunteer their relevant data points in this regard as it was considered their Intellectual property and competitive advantage over other banks. This study aims to stimulate thinking and motivate further research in this critical area.

2 Introduction

Digitalization of banking services amongst Kuwaiti Banks has witnessed unprecedented growth during the last two decades. Preliminary forms of online banking provided basic account inquiries and typical fund transfers. While now, with the advent of smartphones, all banking services can be conducted using a mobile phone. Unsurprisingly, the Covid-19 pandemic accelerated the conversion and adoption of Mobile banking as an adequate, frictionless platform for convenience, safely, and securely running banking services. Digitalization of banking and financial services has been at the core of many digital transformations in Kuwaiti Banks. The main drivers for almost all digital transformation have been:

- Improved customer experience,

- Reduced operational costs,
- Newer sources of revenue through digital sales.

Successful digital transformation via digitalization of financial services, i.e., minimal friction, has established significant economies of scale and provided responsive services to rapidly evolving customer needs. The objective of this paper is to examine the experience of the Kuwaiti Banks in digitalizing banking and financial services.

3 Terms and Definitions

This section will have the terms and definitions, if any, used within the document.

Terms	Description
C.B.K	Central Bank of Kuwait
FinTech	Financial Technology
R.P.A	Robotic Process Automation
Chatbot	A computer program that simulates human conversation through voice commands or text chats, or both. Chatbot, short for chatterbot, is an artificial intelligence (AI) feature that can be embedded and used through any major messaging application.
Chat GPT	Chat Generative Pre-Trained Transformer
Blockchain	a system in which a record of transactions is maintained across computers that are linked in a peer-to-peer network.
IFRS	International Financial Reporting Standards

4 Research Scope & Approach

The advent of digital technologies has brought about significant changes to the financial services industry, with many banks worldwide embracing digitalization to improve their operations and meet customers' evolving needs. This research paper examines the digitalization of financial services and the opportunities and threats digitalization presents to Kuwaiti banks.

The scope of this research focuses on digital financial services enabled by Kuwaiti Banks.

In particular, the following topics will be addressed:

- The advantages and challenges associated with digitalization.
- The growth of the digital banking market.
- The legal and regulatory framework governing the digital banking sector.

The research approach utilized in this work includes the following tools:

- Internet research
- Interviews with industry experts and stakeholders
- Surveys (14.1 I)
- Questionnaires (Appendix II)

Another objective of this research is to analyze the impact of the Covid-19 pandemic on the pace of digitalizing financial services of Kuwaiti Banks. A timeframe of three years has been chosen (2020–2022) to extract representative data points for this research. The following set of variables has been identified to extract the necessary trends and patterns:

- The percentage of bank customers that activated online banking on mobile & online.
- The growth comparison between pre- and post-COVID
- The percentage and growth of those who activated online banking and used the services.
- The different types of online products/services offered by local Banks.
- Number of products/services customers use before, during, and after COVID.
- The use of data generated by digital operations to expand the customer base and manage risks.

A questionnaire-based survey method has been utilized to extract the appropriate insight to emphasize the impact of the COVID-19 pandemic on the performance of financial systems institutions. The survey was sent to a selective set of Kuwaiti Islamic and conventional banks.

4.1 Central Bank of Kuwait's Digital Regulations

CBK is unwavering in its commitment to promoting monetary and financial stability, especially in today's increasingly complex and risky environment. Furthermore, the CBK is aggressively embracing digitalization to modernize its operations, promote innovation, and leverage financial technologies in the financial sector. (*CBK Financial Stability Report, 2021 - 7*)

A digital banking framework has been established to enhance customer service and promote innovation. Traditional banks can now offer digital services by either creating digital units within their organizations or partnering with a third party. Additionally, new independent digital banks can be created.

The CBK is dedicated to promoting technology adoption for digital transformation. It encourages sustainable innovation and provides digital insights to enhance knowledge. The Bank has issued instructions on cloud computing, updated frameworks, developed QR code payments, and improved cross-border transactions.

The Kuwaiti banking sector benefits from the Central Bank of Kuwait's (CBK) comprehensive cybersecurity framework, including robust digital regulations. The framework prioritizes enhancing cyber resilience, improving cybersecurity controls, and ensuring CBK's responsibility to provide informed regulation. The GRC core principles, which are Governance, Risk Management, and Compliance, are essential in guiding regulated entities' cybersecurity posture in Kuwait. The framework promotes collaboration and sharing of cyber threat intelligence and sectoral initiatives, thereby improving the sector's overall cybersecurity preparedness. The Continual Improvement

principle emphasizes the regular assessment of cybersecurity practices, especially in cyber crisis management plans. (*Cybersecurity framework for Kuwaiti banking sector, 2020 - 15*)

5 Technologies Impacting the Banking Sector

In Kuwait, modern technologies are having a significant impact on various aspects of life. New technologies are revolutionizing how people interact and do business, from data availability across all banking sectors and organizations to fast processing power and high interconnectivity of systems and networks. These new technologies impacted:

- Data availability across all banking sectors and organizations.
- Fast processing power, and high interconnectivity.

The banking sector in Kuwait is undergoing a significant transformation due to technological advancements. Banks are now armed with more data and can better understand their customers' needs and preferences. This data-driven approach has resulted in more personalized services, proactive decision-making, and risk management. Additionally, advancements in processing power and system connectivity have made faster transaction times, seamless service delivery, and an integrated banking experience possible. These digital transformations aren't just improving operational efficiencies but are also changing customer expectations and interactions with financial institutions. Therefore, digital transformation is crucial for the continued growth and evolution of banking services in Kuwait, promoting innovation, and competitiveness within the sector.

5.1 Chatbots

The use of Chatbots in the banking industry has grown significantly in recent years, particularly in Kuwait, where technology adoption has been on the rise. This analysis examines Chatbot's growth and conversion rate in Kuwaiti banks during and after the COVID-19 pandemic (Figure 1)

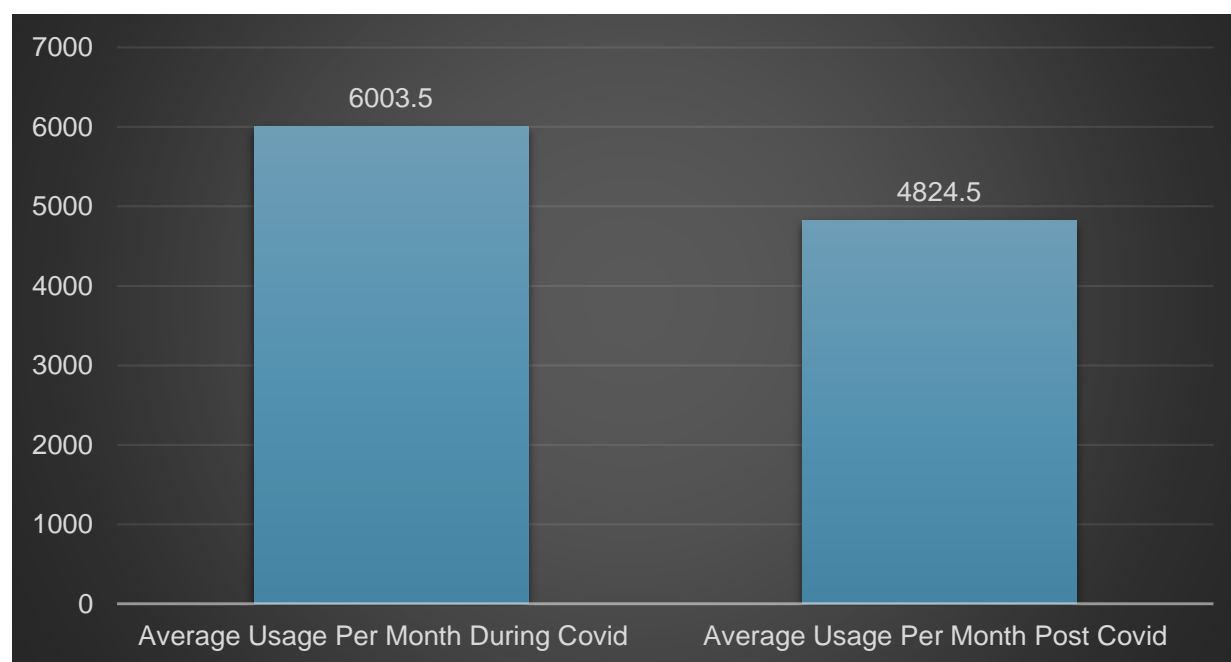


Figure 1: Chatbot Usage During & Post Covid-19

The data shows that the average usage of online Chatbot services in Kuwaiti banks was 6003.5 per month in February 2021, during COVID. In February 2022, post-COVID, the use decreased slightly to 4824.5 per month. As the majority of the selected banks have not had Chatbot as a service for the customers, considering that Chatbot usage was zero prior to the pandemic, the overall Chatbot usage growth in Kuwaiti banks before and during the pandemic was 60% over the two years, which indicates the importance of this technology during a crisis.

Chatbot Recommendation

The increase in Chatbot usage in Kuwaiti banks during the pandemic highlights the importance of technology in providing customer service. Banks in Kuwait should continue to invest in and develop their Chatbot services to maintain their competitive advantage, meet their customers' evolving needs, and be well prepared for any catastrophic event that could happen at any time. This can be achieved by:

1. Incorporating advanced features such as natural language processing and machine learning to improve the accuracy and efficiency of Chatbots.
2. Implement a multi-channel approach, including live chat and voice recognition, to provide a more comprehensive customer service experience.
3. Chat GPT, a language model developed by OpenAI, can significantly enhance a bank's Chatbot in Kuwait by providing more accurate and efficient responses to customer inquiries, as Chatbots equipped with advanced AI technology like Chat GPT have shown a significant increase in customer satisfaction, as it provides faster and more helpful responses compared to traditional Chatbots, as the benefits of incorporating Chat's extensive large language model training data, leading to a more natural and human-like conversational experience for customers becomes evident.

5.2 Blockchain Technology

In this work, we analyzed Kuwait's financial market and discovered that Blockchain Technology is the next big thing to fill the digital transactional gap. Blockchain technology has the potential to revolutionize the banking sector in Kuwait, offering significant benefits in terms of security, transparency, and efficiency.

One tangible example in the banking sector demonstrating blockchain technology's benefits in Kuwait is the collaboration between the National Bank of Kuwait (NBK) and Ripple, an enterprise blockchain company (*NBK Group, 2019 - 11*). In December 2018, NBK announced it would use Ripple's blockchain-based solution, RippleNet, for remittance services to achieve the following:

1. **Increased Security:** Using RippleNet, the National Bank of Kuwait could ensure their remittance transactions were secure and tamper-proof. The blockchain technology provided by RippleNet significantly reduced the risk of fraud and cyber-attacks.
2. **Improved Transparency:** With RippleNet, both the sender and receiver of the remittance transactions could track the status of their transactions in real-time. This transparency gave customers better visibility into their transactions and increased trust in the banking system.
3. **Increased Efficiency:** RippleNet enabled the National Bank of Kuwait to process cross-border transactions more efficiently. Blockchain technology allowed the bank to reduce the need for intermediaries, resulting in faster transaction times and lower customer costs.
4. **Enhanced Customer Experience:** By offering faster, more secure, and more efficient remittance services through RippleNet, the National Bank of Kuwait

improved the overall customer experience. This increased customer satisfaction and helped the bank to stay competitive in an increasingly digital financial market.

This collaboration between the National Bank of Kuwait and Ripple is a real example of how blockchain technology can provide significant benefits in terms of security, transparency, and efficiency, revolutionizing the banking sector in Kuwait.

In conclusion, while blockchain technology has the potential to improve the banking sector in Kuwait significantly, it is still a developing field, and the full potential of this technology has yet to be realized. As the technology continues to evolve, we will likely see increased adoption of block-chain in the banking sector, providing customers with more secure, transparent, and efficient financial services.

5.3 Data-Driven Financial Services (Advanced Analytics)

In Kuwait, digital operations generate data to expand the customer base and manage risks. Cloud platforms are also being used to offer personalized services in the country. Companies are leveraging data analytics and cloud computing to gain insights into customer behavior, improve customer experience, and manage risks effectively. Personalized services, such as targeted marketing and tailored customer support, are also offered using cloud-based solutions.

Data availability across all banking sectors and organizations, fast processing power, and high interconnectivity of systems contribute to the development of Kuwait's economy due to the strong presence of new technologies. By making data available across all banking sectors and organizations, businesses can access vital information faster, leading them to make more informed decisions. Also, the fast-processing power enables data to be processed, stored, and transferred more quickly, allowing businesses to make quicker transactions and decisions. Lastly, the high interconnectivity of systems allows businesses to collaborate and benefit from one another's knowledge while providing a safe, secure, and reliable way to protect their data. Ultimately, new technologies pave the way for Kuwait's economic growth and prosperity.

Many institutions rely on big data and advanced analytics to enhance their offerings. An example in Kuwait showcasing the benefits of using big data and advanced analytics in the banking sector is Boubyan Bank. Boubyan Bank, has actively adopted data-driven approaches to enhance its offerings and improve customer experience.

Boubyan Bank has gained insights into customer behavior, preferences, and needs by utilizing big data and advanced analytics. This information has helped the bank design and offer more personalized products and services, increasing customer satisfaction and loyalty. Additionally, Boubyan Bank has improved its operational efficiency through data-driven decision-making, streamlining processes, and reducing costs.

Data analytics has also contributed to the bank's financial success. Boubyan Bank reported a net profit increase of 12% in 2019, outperforming many regional competitors

(*Boubyan Bank Annual Report, 2019 - 2*). This example highlights the significant impact of data-driven approaches on the banking sector in Kuwait.

Here are a few examples of data-driven financial services and tools that could be implemented in Kuwaiti banks:

1. Customer segmentation and targeted marketing: Using data analytics to segment customers based on demographics, behavior, and financial habits.
2. Fraud detection and prevention: Implementing machine learning algorithms to detect and prevent real-time fraudulent transactions.
3. Personalized financial planning and advice: Using data to generate personalized financial plans and customer recommendations based on their specific financial goals and risk tolerance.
4. Predictive loan default analysis: Analyzing data to identify early warning signs of loan default and proactively address the situation before it becomes a problem.
5. Real-time monitoring of financial markets: Using data analytics to monitor and analyze economic market trends and make informed investment decisions.
6. Improved operational efficiency: Using data to optimize operations, reduce costs, and improve overall efficiency and profitability.

5.4 Robotic Process Automation (RPA)

Robotic Process Automation (RPA) technology has recently gained popularity, especially in the banking sector. RPA is the use of software robots or digital workers that mimic the actions of humans to automate repetitive tasks. In the Kuwaiti banking industry, RPA has been adopted to reduce manual processing time, enhance accuracy and efficiency, and increase productivity. *(The Impact of Robotic Process Automation on Operational Performance, 2021 - 8)*

In the rapidly evolving banking industry of Kuwait, the potential for Robotic Process Automation (RPA) to make a significant impact is immense. To illustrate this potential, one can look at the initiatives of Al Ahli Bank of Kuwait (ABK). ABK has initiated a partnership with EdgeVerve Systems, a subsidiary of Infosys, to incorporate AssistEdge Robotic Process Automation (RPA) into their operations. AssistEdge, a comprehensive service for establishing and deploying RPA, provides integrated software robots to automate high-touch, repetitive processes, thereby improving business processes, customer service, and operational productivity.

Somnath Menon, the Group Chief Operating Officer at ABK, expressed confidence in RPA as a crucial element of the bank's digitization strategy aimed at enhancing innovation and technology in banking. The bank has successfully integrated RPA into significant operational and information security areas, with plans to extend its use to other areas. This automation journey is expected to transition repetitive tasks to a digital workforce and allow staff reskilling to perform more value-added activities. The overarching goal is to enhance efficiency, productivity, security, and customer

experience, affirming ABK's belief in the positive impact of RPA on the bank's operations. (*Infosys, 2019 - 17*)

Moreover, according to a report by Deloitte, implementing RPA in the banking industry can also result in reduced errors, increased compliance, and better risk management. In the case of Kuwaiti banks, these benefits can lead to improved profitability, better risk management, and competitive advantage. However, the successful implementation of RPA requires proper planning, selection, implementation of suitable processes, and effective change management. (*Deloitte Global RPA Survey, 2021 - 9*)

However, further research is needed to explore other financial and banking applications for RPA, such as:

1) Financial Products

- Loan Processing and validation
- Trade Finance
- Account closure
- Card Management
- Same-day funds transfers

2) Customer Service

- KYC
- Customer ID Verification
- Responding to customer requests

3) Data processing & verification

- Processing involving Data and Verification Checks
- Financial Reconciliation
- Digitization of Structured Paper Forms

4) Audit & Compliance

- Audits
- Quality Assurance (QA) Processing

According to the (*Gartner Magic Quadrant for Robotic Process Automation, 2022 - 10*), the leading five RPA technologies are:

1. UiPath: UiPath is a leading RPA software with a user-friendly and scalable platform for automating repetitive tasks. It offers a wide range of automation capabilities and is recognized for its ease of use and broad integration capabilities.
2. Automation Anywhere: Automation Anywhere is another popular RPA software that provides a comprehensive platform for automating business processes. It offers a range of features, including unattended and attended automation, natural language processing, and machine learning capabilities.
3. Blue Prism: Blue Prism is a scalable RPA platform that enables enterprises to automate complex and high-volume business processes. It offers a drag-and-drop interface and a robust set of automation features.

4. Microsoft: Microsoft's Power Automate is a low-code RPA solution that allows users to automate repetitive tasks and workflows across different applications and services. It offers a wide range of pre-built templates and connectors, making it easy to build automated processes.
5. WorkFusion: WorkFusion is an AI-powered RPA platform that combines RPA and cognitive automation capabilities. It offers a range of features, including data ingestion, AI-powered document processing, and a no-code interface for building automated processes.

6 Impact of Covid-19 on Digital Banking Transformation

The impact of online banking in Kuwait before, during, and after the COVID-19 pandemic has been quite significant. Before the pandemic, the use of online banking in Kuwait had been steadily growing since its introduction in the late 1990s. This increase in usage was further accelerated during the pandemic due to the need for contactless payments for essential services and goods. As more individuals started to use online banking services, frequent transactions also increased significantly. This increase in transactions was also aided by introducing new technological features, such as digital wallets and payment links, which allowed people to make payments and transfer funds more quickly.

The convenience of online banking has led to an increase in customer satisfaction, as well as an increase in the number of customers using online banking services in

Kuwait. The increased usage of online banking services has also positively impacted the Kuwaiti economy by increasing the number of transactions and improving the efficiency of financial transactions. Overall, the impact of online banking in Kuwait before, during, and after the COVID-19 pandemic has been quite significant and positively impacted the economy. (*S Toglaw, 2022 - 1*)

The impact of the COVID-19 pandemic on online banking in Kuwait has been far-reaching. According to the survey sent to the banks, the data shows that the pandemic has caused a significant increase in the usage of online banking in Kuwait. The introduction of lockdowns and social distancing has compelled customers to use digital banking services. The study found that the number of people using online banking services increased by over 40% in the first year of the pandemic. Moreover, the study revealed that the security and convenience of online banking services greatly improved. This was due to the new safety measures, such as improved encryption protocols and two-factor authentication. In addition, the study highlighted that customer satisfaction with online banking services had significantly increased as well. This is likely because customers could access banking services from the comfort of their homes.

Furthermore, the study concluded that banks in Kuwait had invested heavily in digital banking technology to improve the customer experience. In conclusion, the COVID-19 pandemic has profoundly impacted online banking in Kuwait, with customers now accessing banking services with greater security and convenience. (*S Toglaw, 2022 - 1*)

The pandemic impacted the growth and usage of online banking, accelerated the launch of new services, and reshaped how online products work. For example, during the pandemic, CBK expedited the completion of the regulatory framework required for providing digital loans. *(CBK Stability & Enablement Event, 2022 - 14)*

Digital banking services have allowed Kuwait banks to reduce operational costs and increase efficiency, enabling them to remain competitive despite the economic downturn caused by the pandemic. Further, digital banking services allow customers to access more banking services, such as loan and credit facilities, which have benefited businesses during the pandemic. This research shows that online products and services have tremendously impacted banking in Kuwait before, during, and after COVID-19.

As access to mobile devices and high-speed internet connectivity has grown exponentially during COVID, so have businesses. Banks and financial institutions must undergo digital transformation to meet the needs of increasingly internet-savvy clients. Financial institutions must be responsive by enabling the proper digital transformations to meet the ever-growing needs of digitally savvy customers.

7 Digital Growth & Conversion

7.1 Growth

Mobile usage in Kuwait increased by over 104% from February 2020 to February 2022.

This suggests a rise in mobile banking services adoption during the pandemic, as shown in Figure 2.

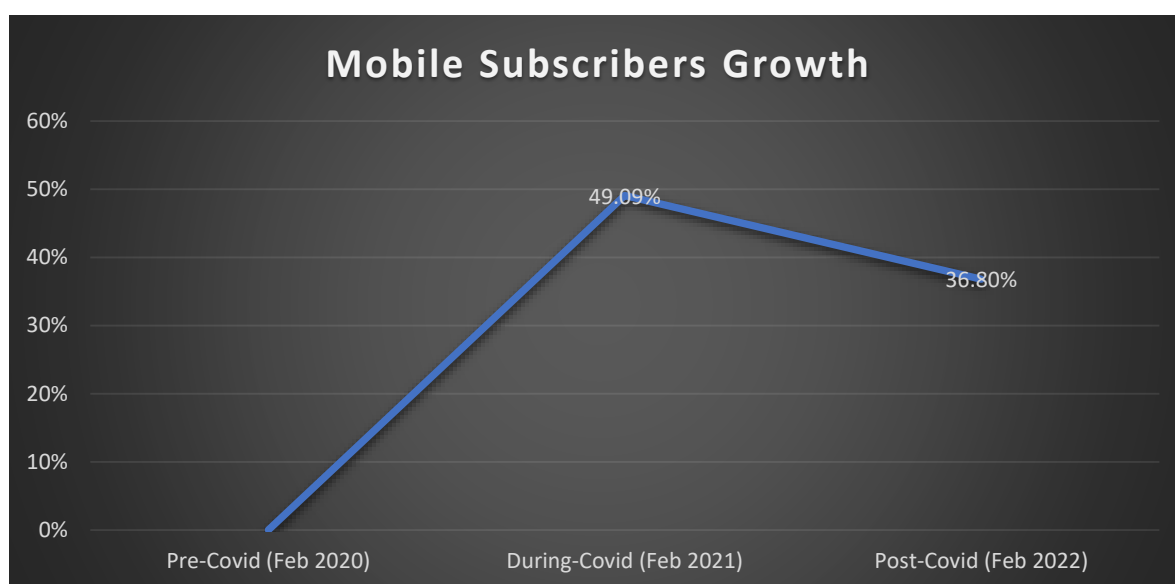


Figure 2: Mobile Subscribers Growth

Based on the information at hand, it is evident that there was a significant surge in growth during these timeframes. Between February 2020 and February 2021, subscribers rose by approximately 49.09%. This could be attributed to the increased demand for mobile banking services as physical bank branches were less accessible because of lockdowns and social distancing measures.

In the post-COVID period (from February 2021 to February 2022), the number of mobile banking subscribers continued to grow, but at a slightly slower pace of 36.80%. Even after the most severe pandemic measures have ended, this ongoing progress may indicate a

permanent shift in consumer behavior towards mobile banking as people have grown accustomed to its convenience.

7.2 Conversion

The conversion rate of total mobile subscribers to total active subscribers is an essential metric in the banking industry as it reflects the level of engagement of mobile subscribers with their devices and the services they offer.

- Trends in mobile subscriber engagement:

The conversion rate of the average total mobile subscribers to the average active subscribers can provide insights into the level of engagement of mobile subscribers with their devices and the services they offer, including any changes in the conversion rate over time and the reasons for these changes.

- Factors affecting mobile subscriber engagement:

Various factors, such as the availability of services, user experience, and service price, can influence the conversion rate of mobile subscribers to active subscribers through a detailed analysis of the conversion rate and the factors affecting it.

- Impact of the Covid-19 pandemic on mobile subscriber engagement:

The data shows an increase in active mobile subscribers during the Covid-19 pandemic. This impact enormously shifted non-active mobile subscribers to highly active through mobile engagement during and after the pandemic in Kuwait.

These calculations show that the conversion rate of total mobile subscribers to total active subscribers increased over time, with the highest rate observed in the During-Covid period (88.7%). This could suggest that mobile subscribers became more engaged with their devices and the services they offer during the Covid-19 pandemic. Although there was a slight decrease after the pandemic, engagement was still high (83.5%).

8 Digitalized Financial Services

The past year has seen multiple shifts in how Kuwaiti consumers interact with online products and services. With the onset of the COVID-19 pandemic, businesses and consumers have had to adapt rapidly to an increasingly digital environment. The impact of online shopping on the Kuwaiti economy has been a topic of great interest in recent times, especially since the onset of the COVID-19 pandemic, as shown in the bar chart below.

(Figure 3)

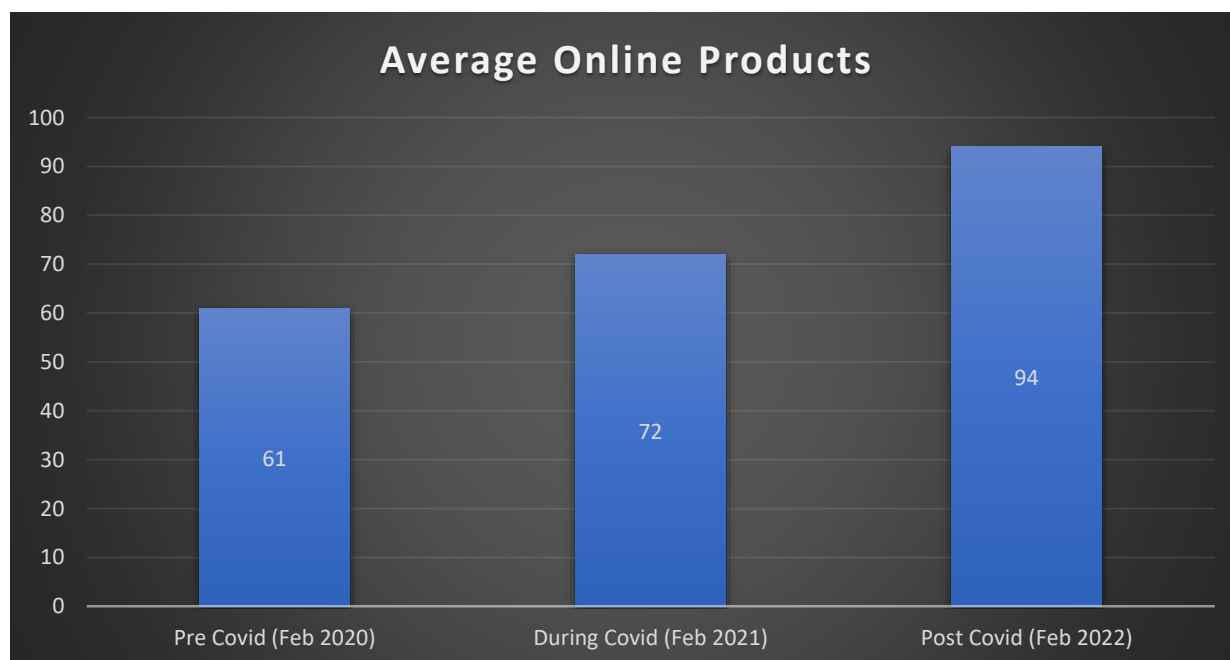


Figure 3: Average Online Products

According to the 2022 KDIPA report, the financial services and banking industry in Kuwait is rapidly transitioning to digitalization. The Central Bank of Kuwait and other banks are leading the charge towards digital banking. Despite the COVID-19 pandemic causing disruptions in 2020, insurance, consumer finance, and brokerage services are expected to make a strong recovery. Capital markets in the country, which are closely monitored by the Capital Markets Authority, are expanding at a fast pace, with the Boursa Kuwait stock exchange showing particularly impressive growth. *(KDIPA Report, 2022 - 18)*

In 2020, ATM transactions were valued at a whopping KWD 12 billion. Consumer finance reached a staggering USD 51.2 billion in 2021, with Boursa Kuwait transactions hitting 2.3 million in 2020. Kuwaitis are quickly embracing digital banking, with 99.6% of the population using the Internet and a mobile subscription rate of 178.5% per 100 people. This trend is being facilitated by the high-income, educated population and tech-savvy youth. Despite increased ATM transactions, the pandemic had a significant impact in 2020. However, new developments in digital banking such as e-payment systems, Peer-to-Peer transfers, digital wallets, self-service terminals, biometric security, and more are on the rise. In conclusion, there is no denying that the global pandemic has profoundly impacted the Kuwaiti economy.

However, the country's customers have become increasingly reliant on online products and services before, during, and after the onset of COVID. This shift has enabled the Kuwaiti population to maintain the necessary levels of productivity and interconnectedness to stay competitive in the global economy. Despite its startling effects, the pandemic has ushered in a new era of digital growth in Kuwait, and companies are quickly adapting to this changing landscape. *(KDIPA Report, 2022 - 18)*

Kuwaiti banks currently offer a variety of online products and services, including:

1. Online Banking: Customers can access their account information, view transactions, transfer funds, and pay bills from their computer or mobile device.
2. Mobile Banking: This allows customers to access their banking services through a mobile app, allowing them to manage their finances on the go.
3. E-Wallets: This service enables customers to store and manage their money electronically, making payments and transferring funds quickly and easily.
4. Investment Services: Customers can invest their money online through various investment products such as mutual funds and stocks.
5. Loan Services: Customers can apply for and manage loans online, including personal loans, auto loans, and home loans.
6. Foreign Exchange Services: Customers can buy and sell foreign currency online, with competitive exchange rates and secure transactions.
7. Bill Payments: This enables customers to pay their bills electronically, reducing the need for paper-based billing and providing a convenient and efficient payment option.

While Kuwaiti banks have made significant strides in offering digital financial services, there are still a few products and services that are not available.

8. Digital Investment Advice: Some banks offer basic online investment information and tools but must provide personalized investment advice through digital channels.

9. Digital Mortgages: Online mortgage applications and services are unavailable in Kuwait.
10. Digital Wealth Management: Some banks offer investment services online but still need to provide comprehensive wealth management services through digital channels.

In conclusion, while Kuwaiti banks have made significant progress in offering digital financial services, there is still room for improvement. The adoption of these and other digital financial services will continue to evolve in response to changing customer needs and market trends.

8.1 Digital Channels Verses Physical Channels

To conduct a thorough analysis of digital and physical channel usage in Kuwaiti banks, it is crucial to establish a solid foundation by comprehending the types of products offered and customer behavior. Kuwaiti banks provide a wide range of products, from basic transactions like money transfers and bill payments to more intricate offerings such as financial advice and real estate loans. Over time, the use of digital channels in Kuwaiti banks has steadily increased. Customers find digital channels, particularly online banking, and mobile apps, to be more convenient, accessible, and efficient for simple transactions like balance inquiries, fund transfers, and bill payments. However, for more complex products such as financial advice and real estate loans, the usage of physical channels remains significant.

Many customers prefer face-to-face interactions for these services due to their complexity and the need for personalized guidance. This preference is influenced by the customer's trust in the bank's physical presence and the comfort of direct, personalized service. It is imperative to note that this baseline represents a general trend and may not capture variations among individual banks or specific customer segments' behavior. Changes in these trends may occur due to technological advancements, changing customer preferences, or external events like the COVID-19 pandemic, which has accelerated digital adoption in many sectors, including banking. The below table and graph (Figure 4) show the usage metrics (High, Low, Medium) and are representative of global approximations in the banking industry based on a study by Deloitte (*Deloitte, Digitalization in Banking 2022 - 16*):

Product Category	Type of Product	Digital Channel Usage	Physical Channel Usage
Simple Transactions	Money Transfers	High	Low
Simple Transactions	Bill Payments	High	Low
Simple Transactions	Balance Inquiries	High	Low
Complex Products	Financial Advice	Low-Medium	High
Complex Products	Real Estate Loans	Low-Medium	High

Consumers would prefer using digital channels for transactional activities but bank branches for high-touch interactions

Preferred channels to undertake the following banking activities in a post-COVID-19 world

■ Branches ■ Contact centers ■ Online banking ■ Mobile banking apps

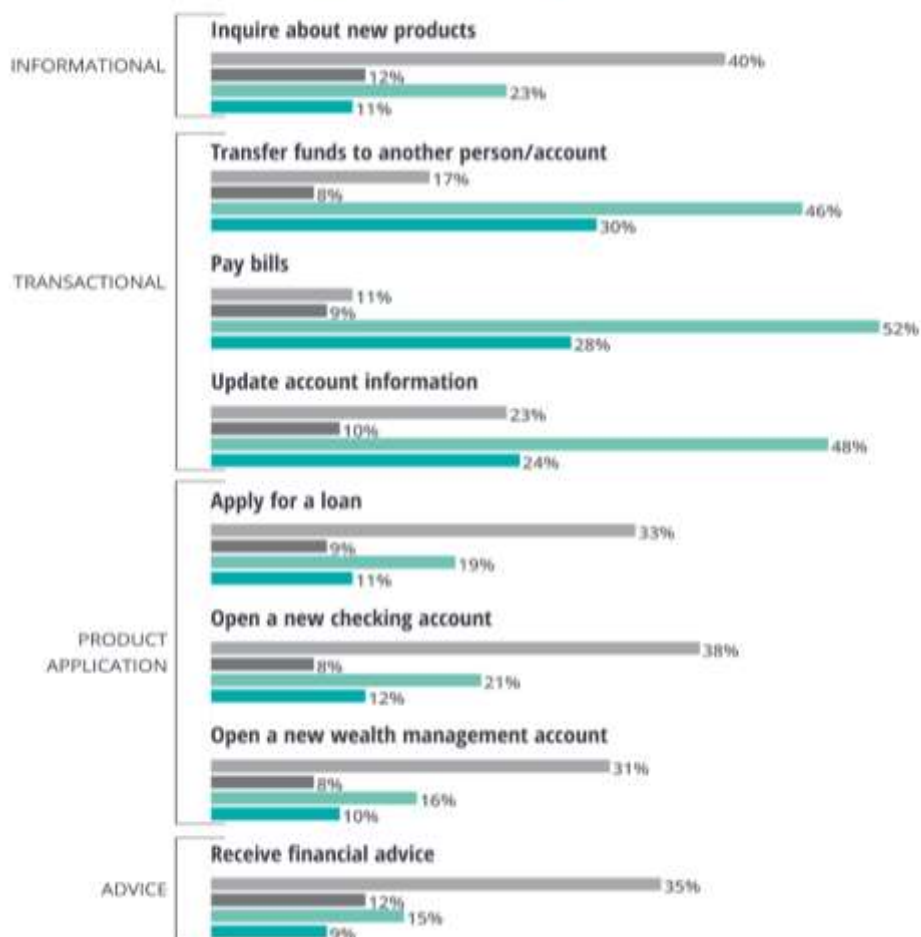


Figure 4: Post-Covid Consumers Preferred Channels

9 New Technological Solutions Advantages

Developing and integrating new technologies into Kuwaiti banks have provided many advantages. Through business process reengineering (BPR) and the speed of development and integration, Kuwaiti banks have increased operational efficiency and gained a competitive edge.

Business Process Reengineering (BPR) is a powerful tool for improving the efficiency and effectiveness of business processes. It is a process of restructuring and redesigning processes and systems to achieve higher organizational performance and cost-effectiveness (*Hashem, 2020 - 3*). The benefits of BPR for Kuwaiti banks are numerous:

1. BPR can help Kuwaiti banks reduce their costs and improve efficiency by reducing redundant processes and streamlining existing processes. This can result in cost savings and improved customer service.
2. BPR can help banks increase their profits by improving operations and reducing costs. By automating manual processes and eliminating redundant tasks, banks can become more efficient and increase their profits.
3. BPR can help Kuwaiti banks increase their competitive advantage by improving service delivery and customer service. Banks can attract more customers and gain a competitive edge by providing customers with better and faster services.
4. BPR can help Kuwaiti banks adapt to new market conditions and customer needs.

Banks can improve their services and remain competitive by utilizing the latest technologies and trends in the banking sector, such as RPA.

In conclusion, BPR can bring numerous benefits to Kuwaiti banks and help them grow and succeed in a competitive market.

In Kuwaiti banks, technology-driven solutions are becoming increasingly crucial for operational efficiency. Most Kuwaiti banks have used technology-driven solutions to improve operational efficiency. These banks have used technology to automate processes, streamline customer service, and reduce the cost of transactions. Furthermore,

many Kuwaiti banks have invested in advanced technology solutions to keep up with customer expectations and changing customer preferences. For example, the banks have invested in online banking platforms, mobile applications, and customer relationship management systems.

By investing in advanced technology solutions, Kuwaiti banks have been able to automate processes, streamline customer service, reduce the cost of transactions, and keep up with customer expectations and changing customer preferences. In doing so, banks and financial organizations have improved their operational efficiency and remain competitive in a dynamic banking industry.

The recent technological solutions adopted by Kuwaiti banks have been widely beneficial, with particular attention to their processes, the speed of development, and ease of integration. Business process reengineering programs have notably improved operational efficiency and cost-effectiveness within these banks. Furthermore, the pace of development and seamless integration has accelerated the banking process, resulting in greater customer satisfaction and loyalty. The sheer number of advantages stemming from the new innovative solutions implemented in Kuwaiti banks is indisputable. They constantly strive to be at the forefront of technology to ensure the highest quality and service levels.

10 Types of Digital Risks

As technology advances and our lives become increasingly digital, the risks to our digital security also increase. There are three types of digital risks and how best to protect ourselves:

- The impact of social networking on digital security
- The risks of mobile banking and online shopping
- Protection from digital risks and identity theft

Social networking has significantly impacted digital security in the digital age. According to B. Thuraisingham in the 2020 IEEE International Parallel and Distributed Processing Symposium, the rise of social networking has caused an increase in online attacks and data breaches. Hackers can gather personal data and access privileged information by leveraging social media. For example, hackers can find an individual's date of birth, address, and other sensitive information by studying a user's social media profiles. This information can then be used to launch targeted attacks or to gain access to an individual's private accounts.

Furthermore, malicious actors can also exploit social networks to spread malware, ransomware, and other malicious software. Therefore, individuals need to protect their private information on social networking sites. This includes setting strong passwords, avoiding suspicious links, and regularly updating their security settings. By doing so, individuals can ensure that their data remains safe and secure. (*Thuraisingham, 2020 - 4*)

The risks of mobile banking and online shopping are becoming increasingly apparent. The authors explored the risks associated with mobile and online banking in a study by KS Lee, HS Lee, and SY Kim, published in The Journal of Internet Banking. They identified six major risk areas associated with mobile banking and online shopping: customer service, security, privacy, convenience, cost, and operational efficiency. Within each of these risk areas, they identified and discussed specific threats. (*Factors Influencing the Adoption Behavior of Mobile Banking* - 5)

For customer service, they highlighted the lack of face-to-face interaction, the inadequate handling of customer inquiries, and the lack of customer feedback as potential risks. Security risks included the possibility of data theft and unauthorized access and the lack of adequate encryption measures. Privacy risks had the potential for mishandling customer data and the risk of information being shared with third parties without the customer's explicit consent. When it comes to convenience, the authors noted the potential for customers to be unable to use the service easily or to be required to provide more personal information than necessary to complete their transactions. Cost risks included the potential for customers to be charged hidden fees or locked into contracts that are difficult to terminate. Finally, they identified the risk of operational inefficiencies due to the lack of real-time processing or the inability of customer service representatives to provide immediate responses. As the authors concluded, these risks must be carefully managed to ensure consumer protection and the smooth operation of mobile banking and online shopping services.

Digital risks and identity theft are becoming increasingly common due to the increased use of technology. It is essential to take measures to protect oneself from these risks.

According to B Huettner's IEEE International Professional Communication Conference, there are three main steps to protect from digital threats and identity theft (*B Huettner, 2006 6*):

1. It is essential to practice good "cyber hygiene." This involves making sure to use strong passwords and to update them regularly, being aware of the types of software used, and being aware of the data being shared online.
2. To be aware of the risks associated with digital platforms and be mindful of shared data types.
3. Protecting any digital devices with antivirus software and limiting the amount of personal data shared online is crucial.

By following these steps, individuals can help protect themselves from potential digital risks and identity theft.

The three main categories of digital risks are typically described as technical, operational, and behavioral risks.

1. **Technical Risks:** Organizations must be aware of the technical risks they face, which encompass vulnerabilities in their software and hardware, system malfunctions, and difficulties arising from integrating third-party software. These risks demand attention and preparation to avoid potential damage to the organization.
2. **Operational Risks:** Operational risks are an undeniable reality for any business and are closely linked to the way it operates, including its processes and organizational structure. These risks can stem from inefficient procedures or

failures that can have serious consequences, resulting in costly disruptions to the business.

3. **Behavioral Risks:** Behavioral risks are a serious concern for organizations and can be caused by human factors such as user error, negligence, or insider threats. It is crucial to address and mitigate these risks to ensure the safety and security of the organization and its assets. Failure to do so can result in significant consequences and damage to the organization's reputation and financial stability. Therefore, it is essential to prioritize and take proactive measures to prevent and manage these risks effectively.

11 Threats and Opportunities

Digital Transformation carries a host of opportunities and challenges for banks and financial institutions. On the one hand, it has opened up new streams for banks to reach a broader customer base, provide advanced banking services, and enter new marketplaces. It has also exposed banks to new threats such as bank vulnerability, lack of cyber security capabilities, and customers' limited knowledge and culture from a financial perspective.

One of the critical opportunities digital financial services present is the ability to enable advanced banking. With the increasing use of mobile devices and the Internet, banks can now offer a range of services to their customers that were once only available at brick-and-mortar branches. This includes online and mobile banking and the ability to transfer funds, pay bills, and manage investments. The convenience and accessibility of

these services have made banking more accessible and efficient for customers, leading to increased customer satisfaction and loyalty.

Another opportunity digital financial services offer is the ability to enter new marketplaces. With the increasing use of mobile devices, banks can now reach customers previously unserved or underserved by traditional banking methods. It includes customers in rural areas or those who are unbanked or underbanked. Banks can tap into new markets and reach a broader customer base by offering digital financial services, leading to increased revenue and growth.

Digital financial services present numerous opportunities but pose various threats that require banks to act. One of the most significant threats is the vulnerability of banks. Banks are at risk of cyber-attacks with an increasing reliance on digital systems and networks. These attacks can lead to the theft of sensitive customer information, financial losses, and damage to a bank's reputation. The Central Bank of Kuwait has made significant efforts to guide and direct local banks into investing heavily in cybersecurity measures. In recent years, they have implemented regulations to help mitigate potential risks.

11. Another threat digital financial services pose is customers' need for cyber security knowledge. Many customers may need to be made aware of the risks associated with online banking and may not take the necessary precautions to protect their financial information. This lack of capability can lead to increased fraud and identity theft. Banks proactively safeguard against potential threats by enhancing their cybersecurity capabilities and educating their customers.

It is imperative to note that the Central Bank of Kuwait is taking a proactive approach to address this issue. The bank invests in highly effective marketing campaigns through various digital channels to ensure the message is delivered clearly. Additionally, the bank is making it mandatory for local banks to comply with CBK's Cybersecurity Framework without exception. (*Cybersecurity framework for Kuwaiti banking sector, 2020 - 15*). This is a crucial step in safeguarding the financial sector and ensuring the protection of customers' sensitive data.

12. Finally, a threat to the growth of digital financial services is the customer's limited knowledge and culture from a financial perspective. Many customers may need to be more familiar with the terminology or the technology used in digital services and may need help understanding how to use these services effectively. Kuwaiti Banks must provide education and training to help customers understand the benefits of digital financial services and how to use them safely and securely.

In conclusion, the growth of digital financial services in Kuwait presents opportunities and threats to banks and financial institutions. By capitalizing on the opportunities, banks can reach new markets, increase customer satisfaction, and drive growth. At the same time, banks must address the threats posed by bank vulnerability, lack of cybersecurity capabilities, and customers' limited knowledge and culture from a financial perspective. By doing so, they can ensure the long-term success of digital transformation, which leads to better and safer services to protect their customers' financial information.

12 SWOT Analysis of Digital Financial Services in Kuwaiti Banks

INTERNAL FACTORS

STRENGTHS +	WEAKNESSES –
<ol style="list-style-type: none">1. Increased Customer Reach2. Improved Customer Experience3. Increased Efficiency	<ol style="list-style-type: none">1. Lack of Customer Awareness2. Cybersecurity Concerns

EXTERNAL FACTORS

OPPORTUNITIES +	THREATS –
<ol style="list-style-type: none">1. Market Expansion2. Increased Product Offerings3. Improved Customer Experience (CX)	<ol style="list-style-type: none">1. Competition2. Technical Challenges3. Resistance to Change

Strengths:

1. Increased Customer Reach: Kuwaiti banks are reaching a broader customer base through digital financial services, and among unbanked or underbanked customers.
2. Improved Customer Experience: Customers have a more convenient, efficient, and accessible banking experience, increasing customer noticeable satisfaction and loyalty.
3. Increased Efficiency: To help streamline banking processes and reduce operational costs, increasing efficiency and profitability.

Weaknesses:

1. Lack of Customer Awareness: Many customers in Kuwait may need to be more familiar with digital financial services and may need help understanding how to use them effectively.
2. Cybersecurity: As digital financial services become more widespread, they also become more vulnerable to cyber-attacks, which can result in the theft of sensitive customer information and financial losses.

Opportunities:

1. Market Expansion: Kuwaiti banks can tap into new markets and reach a broader customer base, leading to increased revenue and growth.

2. **Increased Product Offerings:** Provide banks with new avenues for product innovation, such as mobile banking and online investment management.
3. **Improved Customer Experience (CX):** Provide banks with valuable insights into customer behavior and preferences, which can be used to improve banking products and services.

Threats:

1. **Competition:** Kuwaiti banks may face increased competition from fintech companies and other digital financial service providers.
2. **Technical Challenges:** The implementation of digital financial services may be hindered by technical challenges such as lack of infrastructure and data privacy concerns.
3. **Resistance to Change:** Some customers may resist adopting new technological services, leading to a slower adoption rate and lower customer satisfaction.

In conclusion, implementing digital financial services presents opportunities and challenges for Kuwaiti banks. By addressing the weaknesses and threats, and capitalizing on the strengths and opportunities, Kuwaiti banks can ensure the long-term success of digital financial services and remain competitive in the rapidly evolving financial services industry.

13 Summary

The impact of the COVID-19 pandemic on online banking in Kuwait has been significant and far-reaching. Before the pandemic, the usage of online banking was steadily increasing, but the pandemic accelerated this trend as individuals sought contactless payments for essential services and goods. The convenience and security of online banking services have led to increased customer satisfaction and usage. With the C.B.K.'s oversight, Kuwait's banks have invested heavily in digital banking technology to improve the customer experience, reduce operational costs, and increase efficiency.

The data provided by the banks shows that the number of mobile subscribers and the adoption of digital financial services increased during the Covid-19 pandemic. The conversion rate of total mobile subscribers to total active subscribers was calculated to provide insights into the level of engagement of mobile subscribers with their devices and the services they offer. The results show that the conversion rate increased over time, with the highest rate observed in the post-Covid period, suggesting that mobile subscribers became more engaged during and after the pandemic. The banks are actively using digital channels and data extracted from their databases to expand their customer base, with measures in place to ensure data safety.

Regarding government initiatives, the Kuwaiti government has proactively promoted the economy's digitalization. It has implemented several programs and policies to support the development of digital financial services in the country. For example, in 2020, the Central Bank of Kuwait launched a new digital payment system that aimed to enhance the country's digital financial infrastructure and promote financial inclusion. Additionally, the

Kuwaiti government has been investing in digital infrastructure and technology, including 5G networks, cloud computing, and data centers, which are expected to support the development of new digital financial services.

Moreover, the government has been working with the private sector to develop digital financial services, including partnerships with technology companies and fintech startups. These partnerships aim to provide innovative solutions that address the needs of consumers and businesses in Kuwait, enhance the delivery of financial services, and promote financial literacy and inclusion.

Finally, digital risks threaten individuals and organizations as technology advances and our lives become increasingly digital. Digital risks can be further categorized into technical, operational, and behavioral risks, and organizations should implement encryption and other cybersecurity measures to reduce their digital risk. Digital transformation has opened up new opportunities for financial institutions and exposed them to threats like vulnerability and lack of cybersecurity capabilities.

Overall, the digitalization of financial services in Kuwait has been driven by a combination of customer demand, technological advancements, and government initiatives. The trend is expected to continue as the country invests in digital infrastructure and technology and promotes adopting modern digital financial services.

14 Appendix

14.1 Appendix I

Topic/Function	Pre Covid (Feb 2020)	During Covid (Feb 2021)	Post Covid (Feb 2022)
Total Mobile Subscribers			
Total Active Mobile Subscribers*			
Number of Online Products & Services			
Most used Online Products & Services (top three)			

*Total Active Mobile Subscribers: Subscribers logged in within the last 30 Days (February)

Are Chatbots being used?

Service	Average Usage Per Day	Average Usage Per Month	Average Usage Per Day	Average Usage Per Month	Average Usage Per Day	Average Usage Per Month
Online Chatbot Service						

Topic	Yes/No	Main Obstacles
Do you Have Digital Loans? If not, what was the main obstacle to enabling digital loans?		

Granted Loans Through Digital Channels

Service	Granted Loans Pre Covid (Feb 2020)	Granted Loans During Covid (Feb 2021)	Granted Loans Post Covid (Feb 2022)
Granted Loans (Digital Channels)			

14.2 Appendix II

Question	No/Not Available	Yes/Available	Comment
Is Digital Channels data, extracted from the bank's Data Base, being used to expand the customer base? If Yes, what are the risks?			
Does the Bank use Cloud platforms? If No, what are the reasons/obstacles?			
Does the Bank segment digital customers by geographic location and demographic factors, including gender, age, occupation and financial parameters?			
Are internal/external auditors of the banks using data to enhance audit quality- especially with regard to compliance of banks with IFRS standards?			
Are the Bank planning to partner with third parties to allow for Open banking?			

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