

THE IMPACTS OF DIGITALIZATION AND COVID-19 ON THE BUSINESS
MODEL OF BANKING: A QUALITATIVE STUDY ON TURKISH BANKS

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ABSTRACT

THE IMPACTS OF DIGITALIZATION AND COVID-19 ON THE BUSINESS MODEL OF BANKING: A QUALITATIVE STUDY ON TURKISH BANKS

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The aim of this thesis is to understand the effect of digitalization and the digitalization-based changes during Covid-19 pandemic on Turkish Banking Sector (TBS). For this purpose, a qualitative study comprised of structured interviews are conducted to seven top managers of diversified banks and a regulatory authority. As a theoretical framework, the digital transformation maturity model is used as a foundation of the first part of the interview to determine the maturity levels of banks. Second part of the interview consists of employing the elements of Business Model Canvas (BMC) and the data generated is analyzed using a pattern-making approach. The results show that only one of the sample banks is classified as optimized which uses digital transformation for creating new business models according to the digital transformation maturity model. Further, due to changing phase of competition, adaptation of regulatory framework for open banking is a must. Together with these, digital money, blockchain, embedded banking and artificial intelligence are major issues that are to determine the future trend of banking with many new technologies to be implemented in this respect. In parallel to these developments, there is also need for collaboration of unions, banks, Fintechs and government authorities for the

employment effects of technological developments. These institutions in collaboration can be remarkably effective in bettering the quality of human resources, competence building and creation of new employment opportunities. In other words, an innovation system perspective is necessary both for policy designers, policy implementers and the actors in TBS.

Keywords: Turkish Banking, Digitalization, Covid-19, Digital Maturity Model, Business Model Canvas



ÖZ

DİJİTALLEŞME VE COVID-19'UN BANKACILIK İŞ MODELİNE ETKİLERİ: TÜRK BANKALARI ÜZERİNE NİTEL BİR ARAŞTIRMA

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Bu tezin hedefi dijitalleşmenin ve Covid-19 pandemi döneminde dijitalleşmeye dayalı değişikliklerin Türkiye'deki bankacılık sektörüne etkisini anlamaktır. Bu amaçla, çeşitlendirilmiş yedi bankanın ve bir düzenleyici otoritenin üst düzey yöneticileriyle yapısal mülakat yapılmıştır. Teorik altyapı olarak mülakatın ilk bölümünü oluşturan bankaların olgunlaşma seviyelerini belirlemek için dijital dönüşüm olgunlaşma modeli kullanılmıştır. Mülakatın ikinci bölümü Canvas İş Modeli öğelerinin uygulanmasını içermektedir ve elde edilen veriler şablon/kalıp oluşturma yaklaşımıyla analiz edilmiştir. Sonuçlar, dijital dönüşüm olgunlaşma modeline göre, örneklem içinde yalnızca bir bankanın optimize edilmiş (optimized) kategorisinde olduğunu yani yeni iş modelleri yaratmak için dijital dönüşüm kullandığını göstermiştir. Ayrıca, rekabetin değişen evresi gereği açık bankacılık için gerekli düzenlemelerin uyarlanması şart olduğu bulunmuştur. Bununla beraber, dijital para, blok zincir, gömülü (embedded) bankacılık ve yapay zekâ, daha birçok oluşabilecek yeni teknolojinin yanında, bankacılığın gelecek trendini belirleyecektir. Bu gelişmelere paralel olarak, teknolojik gelişmelerin iş gücü etkisi için de sendikaların, bankaların, Finteklerin ve devlet otoritelerinin iş birliği gerekmektedir. İş birliği içindeki bu kurumlar insan kaynağı kalitesini iyileştirmede, yeterlilik oluşturmada ve yeni iş fırsatları yaratmada oldukça

etkili olabilmektedirler. Başka bir deyişle, Türkiye’de bankacılık sektöründeki politika tasarlayıcıları, politika değerlendircileri ve aktörleri için bir inovasyon sistemi perspektifi gerekmektedir.

Anahtar Kelimeler: Türkiye’de bankacılık, dijitalleşme, Covid-19, Dijital Olgunlaşma Modeli, Canvas İş Modeli



To my wife who gave me a life of love and love of life.



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LIST OF ABBREVIATIONS

AI	Artificial Intelligence
API	Application Programming Interface
ATM	Automated Teller Machine
BMC	Business Model Canvas
BRSA	Banking Regulation and Supervision Agency
CBRT	Central Bank of Republic of Turkey
GSM	Global System for Mobile Communications
ICTs	Information and Communication Technologies
IT	Information Technology
POS	Point of Sale
PSD	Payment Systems Directive
SWIFT	Society for Worldwide Interbank Financial Telecommunication
TBA	The Bank's Association of Turkey
TBS	Turkish Banking Sector
TURKSTAT	Turkish Statistics Institute
WAP	Wireless Application Protocol

CHAPTER 1

INTRODUCTION

The increasing pace of technological developments are causing radical changes in many sectors with important effects of efficiency and profitability resulting in new business models. Technological developments provide decreases in costs of operation and increases in customer basis and profitability which result in efficiency, utilization of lesser inputs for producing more outputs in banking (Ozel et al., 2017). Banking and finance is the most obvious sector utilizing the benefits of these technological developments and resulting financial innovations. From the 1980s onwards, adaptation of computer technologies led to less costly operational processes in banking. These technologies were then tools for prompt and efficient operations and operational risk mitigation. However, by 2000s onwards, with the expansion of internet and computer networking, digitalization emerged in banking and finance. At first, digitalization was mainly digitization of data. But as data storage capacities enhanced and database management provided data analytics-based tools for developing customized products and processes, data intensive business models started to gain weight.

Hence, digitalization, as a leading factor triggered many changes in the economy. Due to increasing digitalization, codified knowledge base is expanding and this gives way to utilization of various instruments regarding data analytics and decision-making processes. The most prominent of these instruments is artificial intelligence (AI). With utilization of AI and many other instruments, a wide range of sectors benefit from increasing efficiency and profitability that have economic development effects (Accenture, 2018, p.5). We see penetration of AI more and more in banking and finance (Yıldırım, 2019). AI is both used in supply side, in development of new products and decision-making processes in banks and financial institutions, and also in customer side, demand side, for portfolio management and portfolio decisions. This

led to the crowning of utilization of AI in product development and decision-making processes.

Therefore, we see more efficient resource allocation in banking and finance in this context. Digitalization provides enhanced tools for analysis and decision-making processes for financial institutions and customers resulting in the increasing volume of available funds for investment for the economy. Moreover, thanks to digitalization and utilization of AI in banking and finance, value creation is changing in a more efficient way. These issues are repercussion of the strong correlation between financial market development and economic growth. Hence, technological and financial innovations are amongst underlying factors of economic growth. That is to say, efficiency of finance actors as financial intermediaries, provided with technological developments is an important indicator of the overall efficiency of financial system. In this respect, financial innovations, as a key concept for an efficient financial system, contribute to economic development with effective channeling of funds for development and by converting the companies to a more efficient and technology intensive business model (Akhavein et al., 2005).

Based on these aforementioned facts, it is understood that, the role of financial innovation, as induced by digitalization, is very important for efficiency and thus improving productivity. Therefore, the pace and quality of its diffusion matters and faster the diffusion of innovation, more immediate the social and economic impact it causes. In this respect, this thesis is about the likelihood of changes and scenarios in the future of banking and finance with respect to major business model changes due to digitalization. It is important to understand the concepts of financial innovation and digitalization in this context.

1.1. Financial Innovation

There are many definitions regarding innovation. Oslo Manual, as the basis for measuring innovation, defines innovation as the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or

external relations with reference to product, process, marketing and organizational innovations (Oslo Manual, 2005, p.46). However, it is not easy to state a generally accepted definition of financial innovation as there exists many definitions with reference to differing purposes. Mainly, by using the definition of innovation, it is somehow possible to name significant changes in financial instruments, services and markets as financial innovation (Comert and Epstein, 2016). These changes may stem from differing characteristics such like cost minimization, operational efficiency, risk management, development of new financial products etc. Therefore, financial innovation may include product and/or process innovation.

Financial innovation is closely related to the market demand and product/process development capacity of providers in the market. Customers are main drivers of financial innovation with the variety and volume of their demand. The interaction of demand and supply as developing the innovative skills of providers is a historical fact accompanied with the regulatory framework which plays a very crucial role in determining the context, boundaries and path of financial innovation.

With the increasing pace of information and communication technologies, banks and financial institutions can receive prompt feedbacks from the market with reference to changing and differing demand. Hence, these feedbacks result in new financial products which induce new demand and, thus, this trend also results in new staff and departments, additional demand for new software, change in process management and in the end changing business models. In this perspective, the constant interaction of all the parties (banks and financial institutions as providers, customers and regulatory authorities) result in product, process and business model innovation in a certain time. Therefore, the concept of financial innovation has an inclusive content.

This inclusiveness has repercussions in considering digitalization and financial innovation as embedded in each other. Digitalization, as a crucial means of instant banking and finance operations provides ground for a more dynamic demand and supply interaction which results in an increased variety of financial innovations that are product, process and business model innovations. In a sense, digitalization is a

major milestone, a paradigm advancing or shifting phenomenon in the context of financial innovation. It is the transformation of banking, finance and money that is witnessed by means of digitalization as a financial innovation.

1.2. Digitalization

Concepts like digitization, digitalization and digital transformation are all related with each other from micro to macro perspectives. Digitization, transition from analog to digital, is the starting point of this process. In this respect, digitalization is the process of applying digitized information to simplify operations. Stepping towards a macro perspective, digital transformation is integrating all digitized data and digitalized applications by means of new business applications. Therefore, digital transformation is a more holistic perspective with its effects in more data intensive analysis, processing and decision-making processes with increased service quality of organizations (Bakırtaş, 2019). In this study, digitalization and digital transformation concepts are mostly and interchangeably used in order to refer to use of digitalization in a holistic manner for leveraging and utilization of digital technologies. Digital transformation as including digitization and digitalization have a broader context, interchangeable use of these concepts mainly aim to highlight the benefits and changes stemming from this process, developing and changing business models in accordance.

All these concepts, from a holistic perspective transformed banking into a more data-based business by availability and accessibility of data. As a result of digitalization, data and information regarding market, customers, economy, projects and other related business issues can be accessed from related networks and analyzed so that banks can have better risk management practices that allow them to obtain and channel more funds as loans or portfolio investments to economy, diversify and enhance the quality of their services.

Mobile and interactive tools are changing business paradigm in this digital era. Digital transformation transforms businesses towards mobile, flexible, customer-centered base as focused on reshaping customer value propositions and transforming the operating model. In this respect, enhancing products and services for a better customer

experience, extending offerings for new value streams, creating new digital capabilities, leveraging information to manage across the organization, integrating and optimizing all digital and physical elements and redefining core elements for a radically reshaped value proposition are important. In the light of this business paradigm change, banking business, as becoming more data-driven, is repercussion of digital transformation. Qualifications and tasks of employees, organizational structures, business flows, operational routines are all changing in the banks. Effective and active collaboration and data analytics are gaining significance as main sources of value creation in banking. Delivering business model innovation, driving customer and community collaboration, going beyond traditional partnerships with developers and suppliers, integrating cross-channel, getting insights from analytics, optimizing the digitally enabled supply chain and enabling the networked workforce are main digital transformation capabilities to be considered as new concepts of digitalization in business (Berman, 2012).

These aforementioned effects of digitalization as a financial innovation are crowned with the utilization of artificial intelligence (AI) in this process. Developments in data-science, data analytics and software technologies enhanced algorithms and codes to an extent that, self-learning and evolving software technologies entered into our lives. In other words, so called machine learning, deep learning and artificial intelligence developments in software technologies let data-driven self-evolving and learning technologies to enter into our lives. As a result, decision-making processes, risk analysis, credit scoring systems, product development and even private banking services including investment consulting can be performed by AI in banks. Thus, AI can be utilized both for diversifying and enhancing the quality of products, supply in banking services and managing demand on behalf of customers for better management of their savings and funds. Hence, digitalization, digital transformation and utilization of AI are update and important topics of financial innovation in banking business agenda these times.

1.3. Research Purpose and Contribution

The aim of this research is to explore the effects of digitalization and the digitalization-based changes on Turkish Banking Sector (TBS). There are several contributions that make this research initiative in many aspects. First, a theoretical framework, digital transformation maturity model is used to determine the current situation of the banks while building up a business model, Business Model Canvas (BMC), to show the effect of digitalization on banking. Hence, these two models are used simultaneously for the first time in the literature. Second, the data collection period allows to see the changes of the effects of digitalization on banking during the Covid-19 pandemic period that also shows the ability of the banking system against these types of crises. Lastly, the adaptation and openness of the Turkish customers to the digitalization makes the Turkish banking as a special case to investigate.

Digitalization as a business strategy includes strategic decision-making and causes changes in business models. Therefore, this study uses Business Model Canvas (BMC) for understanding and analyzing the effects of digitalization on business models. TBS is changing its crust with reference to digital maturity models and the status of digitalization with reference to changes towards data driven collaboration based value creation and business models between banks.

On the other hand, Covid-19 has many effects in advancing the pace and effects of digitalization on TBS. Covid-19 pandemic is a triggering event, a disruption, a shock in the life-cycle of digitalization, banking industry and digital banking. It has brought forward the digitalization process in many sectors with its effects in business models and work-life generally. As an immediate global shock, Covid-19 globally changed the working habits and many people started remote working temporarily until the pandemic is over. This contributed the tendency of customers and bank officers to utilize digital tools more effectively for their banking transactions and working operations. Yet, as a fact, it is realized that many jobs and operations can be performed

remotely by utilizing digital platforms. Therefore, it is very important to understand recent effects and probable long-run effects of Covid-19 on TBS.

Furthermore, it is the distinctive feature of this study to utilize these models to get an up-to-date picture of TBS with considering the effects of Covid-19 on digitalization.

Turkey has a great potential for the growing banking technology. According to TURKSTAT, total population is 83,154,997 in the end of 2019 (Turkstat, 2020). The percentage of the population uses 93% of internet and mobile banking. According to Statista, the number of active mobile banking customers increased from 6.7 million to 32 million between 2014 and 2018 in Turkey (Cherowbrier, 2020). Digital Banking Maturity Study EMEA of Deloitte has shown Turkish banks as Digital Champions because these banks constitute focusing by giving priority to digitalization in the area of their job models (Deloitte, 2018). As can be seen from these statistics, Turkish digital banking is an interesting case to explore in terms of business models.

As the main research question of the study is: “What are the effects of digitalization on TBS? What are the effects of Covid-19 in this process?; expert views become important to provide an overall picture, for that, structured interviews are conducted with the Vice Presidents and/or Department Heads of banks in TBS. Vice Presidents like Chief Digital Officers or chief officers responsible for business development strategies with reference to digital transformation processes are interviewed as respondents. TBS has private deposit banks, state-owned banks, participation banks, development and investment banks, foreign banks and branches of foreign banks as main types of banks. Therefore, vice presidents and department heads of the banks are interviewed in order to represent this categorization. In addition to these, in order to have an understanding of the perspective and role of the regulatory authority in this process, the views of the President of Banking Regulation and Supervision Agency are considered in the study by a structured interview. The main hypothesis of the study is that, digitalization is more than an operational process, it is a new business model, a paradigm shift with less costs, more customers and incomes.

In sum, main contributions of this research are as follows:

- The study shows the effects of digitalization on TBS by emphasizing the changes in business models
- Digital transformation maturity model is used to assess the digital maturity level of TBS
- Business Canvas Model (BMC) is used to analyze the effects of digitalization on TBS
- Senior management views of banks by structured interviews are reflected in the study which will draw a vision of the future projections for TBS.
- View of regulatory authority is reflected in order to ensure an understanding of regulatory framework for the current status and the future of digitalization and its effects for the TBS.
- Covid-19 and its effects for digitalization and business models are firstly discussed at this extent .

1.4. Outline of the Thesis

The plan of the thesis is as follows: Chapter 2 discusses history and current situation of digitalization in TBS. It is important to understand the historical background of computerization and utilization of other technological developments in the path of digitalization. When the technological milestones in banking business are examined with respect to 1980s, 1990s and 2000s, the pace and trend of change gives an understanding of the background of financial innovations and their effects on TBS. Hence, this chapter paves the ground for a comparative perception of financial innovations and their effects and digitalization and its effects on TBS.

Chapter 3 discusses the main literature on concepts and arguments of financial innovation, digital transformation – digital banking as a paradigm shift, digitalization transformation maturity model and digitalization from a business perspective – business model canvas. These are major arguments stated in the thesis and the contribution of the study stems from the adaptation of digitalization transformation maturity model for determining the digital maturity level of TBS and utilization of

business canvas model to understand the effects of digitalization on changes in business models in TBS.

The next, Chapter 4 gives information about the methodology of this study. Research approach, research design and data collection method are detailed in this chapter. The grounds of structured interviews, selection of banks and respondents are stated. Structure of interview questions and their relation with digital transformation maturity model and Business Model Canvas are discussed in this chapter.

Chapter 5 discusses analysis and findings of the study. Quality of the data, interview outcomes and Business Model Canvas for banks in the study are stated in this chapter. In order to identify the empirical data of the study in an applicable format to the TBS, a matrix technique is used and interview results are displayed as including the nine elements of BMC for analysis of the findings. These are represented in this Chapter. It is these findings and analysis signalling the unique contribution of this study and paving the ground for the next chapter of policy recommendations, conclusion and discussion.

The last one, Chapter 6 covers the summary of the thesis with the main findings of the research with policy recommendations regarding digitalization and business model changes in TBS and effects of Covid-19 in this process. Some discussions and recommendations for future research are also stated in this chapter.

CHAPTER 2

HISTORY AND CURRENT SITUATION OF DIGITALISATION IN TURKISH BANKING SECTOR

Technological developments in Turkish Banking Sector (TBS) are related with the level of general technological development of each decade. Therefore, before 1980s, we can mainly mention local and manual data entry and accounting at branches as main operations. However, by 1980s onwards, due to advances in technology, increasing volume of banking transactions and increasing interaction among banks, the pace of technological developments and their adaptation gained momentum.

Financial liberalization in Turkish economy in 1980 led it to be open to capital flows and imports by repealing import substitution policies. Hence, this caused an increase in demand for imported goods and increasing consumption led to development of retail banking. Moreover, due to development of retail banking and increasing volume of banking transactions, many technological developments were adapted and/or realized in TBS.

In this respect, it is possible and feasible to categorize, analyze and characterize technological developments and their pace as before 1980 and after 1980. Each decade following 1980 also has specific characteristics with reference to developments in IT and level of general technology.

2.1. Main Characteristics of Technological Development of Turkish Banking Sector Before 1980s

Turkish economy and TBS faced a planned development period between 1960 and 1980. Thus, five-year development plans were main determinants in economic

development (Yıldırım, 2006). With respect to these plans, banks were concentrated to finance development projects, development banking and specialized banking for project finance was significant then and commercial banking was restricted. In addition to this, due to import substitution policies, there was an attempt to develop national industry. As a result, by 1970s, holding companies gained importance in TBS as main customers.

As Turkish economy was experiencing controls on capital flows until 1980, main driving force of banks were corporate customers. The volume of retail banking was low and instruments of retail banking were not developed as of 1980s and onwards.

Branches were main pillars of banking. All technological developments were aiming to ease operational processes at bank branches. As a result, accounting operations and data entry were main branch operations during 1960-1980 with central computing during 1970-1985 (İlko, 2003, p.54). Together with the high volume of operations on branches, decision-making process was not centralized due to lacks in communication technologies. Loan decisions were made by branch managers and regional managers to certain extent with limits at certain rates. Thus, partially decentralized decision-making flexibility increased the importance and number of branches and diverted technological efforts to easing operational process at branches (Yıldırım, 2019).

As decentralized decision-making power at bank branches and regional offices were limited, for large credit volumes, customers had to wait for confirmation from bank headquarters. Hence, routine financial intelligence reporting and loan decision-making processes were taking longer durations about four to six months and even sometimes more. As a result, switching the bank was very costly for customers. With each new bank, the customer had to wait for the same long process. In this respect, customer loyalty was a very normal and generally accepted phenomenon for banks and customers.

Branches were crowded when compared to today. Today, a normal bank branch is comprised of five to eight personnel including the branch manager. However, before

1980s, more than 20 or 30 personnel working at bank branches (Yıldırım, 2019). Banking was mainly a branch and personnel-based business.

To sum up, level of development in communication technologies at those decades should be considered as one of main determinants of less dynamic and steady state of TBS then. That is to say, less variety in terms of banking products, less interaction of banks and customers, easing operational routines and can be mentioned as main characteristics of technological level of banking, as signaling less differential adaptation of technological developments at those decades.

2.2. Main Characteristics of Technological Development of Turkish Banking Sector in 1980s and 1990s

Financial liberalization of 1980 resulted in capital flows and rising volumes of international trade in Turkish economy. After years of planned development and import substitution, liberal policies began to turn individuals into consumers. Rising volumes of consumption required financing of this consumption and thus led to the development of retail banking. Hence, technological developments in 1980s mainly stem from these developments.

With respect to developments in information and communication technologies, bank branches began to be connected online. Besides central computing during 1970-1985, we witnessed Reuters Connection in 1980, diffusion of online branch terminals during 1980 and 1987, direct connection to bank by company network terminals in 1985, Automatic Teller Machines (ATMs) in 1985, computerization of the customer and bank relationship in 1987, electronic fund transfers with point of sales (POS) in 1987 and SWIFT Connection in 1988 (İlko, 2003, p.54).

Due to increasing demand from customers for consumer finance and retail banking products, competition in TBS turned into commissioning of new retail banking products. In this respect online networking of branches was not only easing banking operations, but also increasing the level of interaction between branches and banks.

This led to online and prompt transfer of data and with computerization of the customer and bank relationships, decision-making processes shortened. Together with increasing consumer demand and computerization as mentioned, number of bank branches began to increase in Turkey as presented in Table 1 below. Table 1 shows the constant increase in the number of bank branches and personnel from 1961 to 2000. Total increase in the number of branches and personnel is more than five-times in this time period from 1961 to 2000.

Table 1. Number of branches and personnel in TBS between 1961 and 2000.

Years	Number of Branches (including branches abroad)						Number of Personnel					
	State Banks	Private Dep. Banks	Foreign Dep. Banks	Local Banks	Dev. and Inv. Banks	TOTAL	State Banks	Private Dep. Banks	Foreign Dep. Banks	Local Banks	Dev. and Inv. Banks	TOTAL
1961	797	843	61	14	1	1.716	14.310	15.862	1.691	82	110	32.055
1962	843	797	61	14	1	1.716	16.352	14.668	1.707	66	120	32.913
1963	907	847	64	7	2	1.827	16.499	15.737	1.677	36	159	34.108
1964	958	862	68	6	2	1.896	17.710	16.323	1.711	32	165	35.941
1965	995	897	68	6	2	1.968	18.543	17.365	1.807	33	208	37.956
1966	1.044	926	68	5	2	2.045	21.564	18.854	1.781	29	229	42.457
1967	1.121	1.014	68	5	2	2.210	24.184	20.884	1.753	32	247	47.100
1968	1.220	1.223	86	5	3	2.537	27.462	24.118	1.864	31	273	53.748
1969	1.337	1.486	102	5	2	2.932	30.299	28.040	1.879	37	279	60.534
1970	1.433	1.643	111	5	2	3.194	33.006	30.809	1.848	32	273	65.968
1971	1.492	1.800	113	3	3	3.411	34.362	32.949	1.973	13	306	69.603
1972	1.553	1.992	114	3	4	3.666	35.697	36.520	2.016	12	317	74.562
1973	1.616	2.269	114	3	5	4.007	39.037	41.590	2.107	19	324	83.077
1974	1.700	2.585	114	2	6	4.407	41.997	45.012	2.080	8	349	89.446
1975	1.752	2.715	114	-	6	4.587	45.015	48.839	2.145	-	359	96.358
1976	1.835	2.862	114	-	6	4.817	48.931	52.731	2.135	-	367	104.164
1977	2.009	3.094	109	-	6	5.218	54.341	56.680	2.154	-	389	113.564
1978	2.173	3.181	104	-	6	5.464	58.931	58.091	1.800	-	391	119.213
1979	2.353	3.285	104	-	6	5.748	61.076	59.216	1.818	-	379	122.489
1980	2.469	3.374	105	-	6	5.954	62.480	60.596	1.842	-	394	125.312
1981	3.545	2.569	123	-	7	6.244	61.977	62.152	2.034	-	401	126.564
1982	2.602	3.618	127	-	6	6.353	62.458	66.055	2.453	-	430	131.396
1983	2.817	3.345	113	-	6	6.281	69.196	61.203	2.603	-	453	133.455
1984	2.764	3.315	117	-	6	6.202	69.992	61.438	2.769	-	457	134.656
1985	2.817	3.325	120	-	6	6.268	72.214	62.490	2.652	-	449	137.805
1986	2.727	3.493	117	-	11	6.348	72.024	66.783	2.901	-	1.668	143.376
1987	2.898	3.404	104	-	11	6.417	78.390	66.045	2.721	-	1.839	148.995
1988	2.953	3.457	106	-	12	6.528	78.730	67.724	2.810	-	1.998	151.262
1989	2.972	3.501	106	-	14	6.593	80.141	68.041	2.929	-	1.956	153.067
1990	2.975	3.455	113	-	17	6.560	80.825	68.145	3.012	-	2.107	154.089
1991	3.027	3.325	108	-	17	6.477	81.214	66.555	3.011	-	2.121	152.901
1992	3.001	3.077	109	-	19	6.206	78.223	63.337	3.010	-	2.253	146.823
1993	3.008	3.105	108	-	20	6.241	76.553	62.764	2.408	-	2.258	143.983
1994	2.917	3.063	105	-	19	6.104	74.462	59.161	3.256	-	2.167	139.046
1995	2.875	3.240	104	-	21	6.240	72.699	63.010	2.985	-	6.099	144.793
1996	2.886	3.429	104	-	23	6.442	70.284	68.592	3.170	-	6.107	148.153
1997	2.915	3.764	116	-	24	6.819	69.218	76.601	3.799	-	5.246	154.864
1998	2.832	4.393	115	-	30	7.370	71.072	86.066	4.051	-	5.303	166.492
1999	2.865	3.960	121	-	31	7.691	72.007	76.386	4.185	-	5.430	173.988
2000	2.834	3.783	117	-	30	7.837	70.191	70.954	3.805	-	5.556	170.401

Source: Derived by the author from Turkish Banker's Association Statistics. www.tbb.org.tr (August 14, 2020)

ATM was a major milestone in TBS at this decade. With ATM, customer and bank relationship and bank distribution channels gained a new path besides branches. Number of ATMs rapidly increased and in order to be in the competition of developing retail banking, banks promptly had to adapt ATM technology.

As a result of financial liberalization, Reuters connection was important for TBS as being part of a global network of information. Integration of TBS with international accounting standards, financial reporting, supervision and capital markets system was realized with adoption of new capital markets law and formation of Capital Markets Board in 1982 and adoption of new banking law in 1985. Thus, with these steps for integration to global economy, SWIFT connection as complementary of financial liberalization was realized in 1988 as a repercussion of integration of Turkish economy and TBS into global capital flows.

These rapid technological developments during 1980s changed customer bank relationships, competition and the technological paradigm in TBS. This decade as development of retail banking due to financial liberalization led variety generation, increased interaction amongst banks and customers and as a result, increased replication and adaptation capabilities of banks. Differential replication capabilities of banks induced increase in variation in banking products, wider range of selection for customers and hence development in TBS.

As contrary to the inertia of technological development in the years of closed economy and import substitution before 1980, with financial liberalization, the rise of increasing consumption culture, the need to finance this consumption and hence developing retail banking and commercial banking together with developments in information and communication technologies resulted in demand pull and science push sources of inventive activity for TBS.

With developments during 1980s paving the ground for increasing the pace of technological developments during 1990s in TBS, we witnessed office automation in

1990, telephone banking in 1991, electronic fund transfer in 1992, magnetic checks in 1991, Minitel applications in 1993, call-centers in 1997, internet banking in 1998, electronic commerce applications in 1998, GSM banking applications in 1999 and smart card applications in 2000 (İlko, 2003, p.54).

Advances in computer technologies changed offices and computer networking became a standard in bank branches. After launching ATMs in Turkey in 1985, collaborations of banks for sharing ATMs and accepting each other's cards began by 1990s. Increasing interactions of banks began to result in collaboration for adapting, sharing and developing banking products.

Following integration into SWIFT system, electronic fund transfer eased the speed, operation, process and cost of transferring funds and thus the volume of transfers increased rapidly. With these new electronic fund transfer methods and ATMs, developments in payment systems gained momentum by magnetic checks.

Main distribution channel was branch at that time in TBS. Therefore, other developing distribution channels were named as alternative distribution channels. With launching of ATM in 1985, credit card in 1988, the momentum led telephone banking to emerge as another alternative distribution channel in 1991 paving the ground for call-centers in 1997.

On the other hand, prior to internet banking, Minitel application (application prior to world wide web, Wikipedia) was used in TBS in 1993 and just after five years, this led to launching of internet banking in 1998. Internet banking is another milestone in TBS with ATM. Due to developments in recent internet technologies by late 1990s, internet banking and e-commerce gained significance. Following internet banking in 1998, GSM banking applications were launched in 1999. These preliminary steps of internet and mobile banking gained pace by 2000s. These recent developments were initial signals of radically changing rules in the banking business. By these developments, digitalization as a concept began to emerge and in two decades it gave birth to another major paradigm shift.

Together with developments in 1990s retail banking developed in Turkey and headed towards mass banking in accordance with the global trend (Yıldırım, 2019). By enhancements in information and communication technologies, alternative distribution channels like ATM, telephone banking, and recently developing internet and mobile banking provided a constantly developing customer basis on retail side together with increasing number of corporate customers. Banks adapted strategies, software and changed their business models to cope with changing phase of banking with developments in retail side due to increasing number of customers following computerization of bank and customer relations in 1980s.

Automation of offices and developing data transfer capabilities in terms of volume and speed provided centralization of decision-making processes in shorter durations. Authorization for branch and region office basis loan decisions of were partially delegated to headquarters as a result of developing data sharing technologies, financial reporting systems. Increasing volume of transactions necessitated developed software systems for processing and storing increasing volume of data. Hence, abundance of data gave birth to adaptation of risk management software in banking.

In the light of all these developments, due to centralized and shortened duration of decision-making processes, switching costs for customers began to decline. It became easier and cheaper for customers to change their banks due to intense competition in retail side of TBS. These also affected the corporate side in accordance. Time and cost of changing bank for customers began to decrease in the corporate side following the impulsion from retail side. Therefore, customer loyalty concept began to erode by these developments then.

By this decade, increasing interaction amongst banks and customers due to technological developments increased variety in the banking market. Banks collaborated in sharing their ATMs and credit cards and many similar tools and products with each other in order to minimize costs. Increasing numbers of customers changed business models of banks with respect to computerization and alternative

distribution channels and changing competition and collaboration. This organizational changes began to free banks from path dependency of previous decades as being solely dependent on branches as main channel of distribution.

More and more adaptation of IT in banking provided enlargement of codified knowledge base which in return resulted in eased learning processes in the sector and diffusion of banking products and technologies. That is to say, adaptation of IT resulted in development and spread of knowledge regarding this know-how in the TBS. This in turn induced development of various banking products and better practices by using this IT know-how.

2.3. Main Characteristics of Technological Development of Turkish Banking Sector in 2000s and 2010s

With these developments characterizing 1990s and late 1990s, 2000s started having internet banking and GSM banking recently launched. Following the integration of TBS and Turkish economy to global economy, Turkey faced an economic crisis in 2001. This crisis highlighted the importance of risk management in banking. Besides, attempts to set up an international framework for standards in risk management and supervision resulted in development of international convergence of capital measurement and capital standards, international regulatory framework for banks by Bank for International Settlements.

In this respect, with the rising importance of risk management and international standards, financial reporting systems and data based risk management software development was significant in this decade. However, the main factor in this decade was accumulation of data for the sake of market risk, credit risk and operational risk management in banking. This accumulation of data induced development of data science, data engineering, data analytics and respectively these gave rise to embodiment of big data and Artificial Intelligence in the next decade.

Due to development of electronic trade in late 1990s, early 2000s witnessed dotcom bubble burst in 2000 (Investopedia, August, 14, 2020). Following the bust of this

bubble, volumes of e-commerce began to increase globally with risk management practices and standards developed by banks. Hence, retail banking in TBS utilized increasing volumes of internet banking and WAP (Wireless Application Protocol) banking as heralding the development of mobile banking.

Numbers and transaction volumes of ATMs, call-centers and internet banking increased in this decade. Most significantly, increase in internet and mobile banking determines the main trend of digitalization so that these alternative distribution channels turned out to be main distribution channels.

Table 2 summarizes the significant increase in digital banking customers in 2000s and 2010s so that the impacts of digital transformation in TBS can be better understood in this respect.

Table 2. Digital Banking Customers between 2005 and 2020.

Digital Banking Customer Numbers								
Period	Number of Active Retail Customers				Number of Active Corporate Customers			
	Using only internet banking	Using only mobile banking	Using both internet and mobile banking	TOTAL	Using only internet banking	Using only mobile banking	Using both internet and mobile banking	TOTAL
Mach 2020	3.154.376	43.061.071	7.765.844	53.981.291	688.830	1.007.365	646.924	2.343.119
Dec. 2019	3.214.852	40.300.148	7.499.108	51.014.108	663.425	871.977	607.331	2.142.733
Dec. 2018	3.902.629	31.029.892	7.355.463	42.287.984	727.282	607.989	558.728	1.893.999
Dec. 2017	4.662.257	21.518.768	7.193.244	33.374.269	786.210	345.742	483.467	1.615.419
Dec. 2016	N/A	N/A	N/A	19.077.203	N/A	N/A	N/A	1.321.424
Dec. 2015	N/A	N/A	N/A	16.169.883	N/A	N/A	N/A	1.250.568
Dec. 2014	N/A	N/A	N/A	13.181.279	N/A	N/A	N/A	1.133.777
Dec. 2013	N/A	N/A	N/A	11.422.331	N/A	N/A	N/A	1.013.621
Dec. 2012	N/A	N/A	N/A	9.629.597	N/A	N/A	N/A	922.167
Dec. 2011	N/A	N/A	N/A	7.802.990	N/A	N/A	N/A	803.155
Dec. 2010	N/A	N/A	N/A	6.038.342	N/A	N/A	N/A	655.490
Dec. 2016	N/A	N/A	N/A	5.368.510	N/A	N/A	N/A	605.623
Dec. 2008	N/A	N/A	N/A	4.613.670	N/A	N/A	N/A	478.737
Dec. 2007	N/A	N/A	N/A	3.795.627	N/A	N/A	N/A	555.459
Dec. 2006	N/A	N/A	N/A	2.976.292	N/A	N/A	N/A	391.565
Dec. 2005	N/A	N/A	N/A	2.803.482	N/A	N/A	N/A	373.222

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2.4. Regulatory and Supervisory Framework of TBS

Regulation and supervision of TBS was performed by Treasury Undersecretary until 1999. By June 1999, Banking Regulation and Supervision Agency (BRSA) was established with reference to Banking Act No. 4389. The supervisory and regulatory scope of BRSA is mainly comprised of banks. However, leasing companies, factoring companies, consumer finance companies and asset management companies gradually became part of the supervisory and regulatory scope of BRSA in due course (BDDK, 2020).

BRSA, as main regulatory and supervisory institution of TBS has launched many regulations regarding the IT audit and related issues. In this respect, laws and regulations of BRSA regarding the IT developments of TBS may be stated as below:

- Bank Cards and Credit Cards Law, Law no: 5464, date of enactment: Feb. 12, 2006.
- Law on Payment and Security Settlement Systems, Payment Services and Electronic Money Institutions, Law no: 6493, date of enactment: June 20, 2013
- Communique on the Report Format of Information Systems Audit to be made in the Banks by Independent Audit Institutions, Published in the Official Gazette dated December 5, 2006 and numbered 26367
- Communique on Principles to be considered in Information Systems Management in Banks, published in the Official Gazette dated September 14, 2007, Nr. 26643.
- Regulation on the Bank Information Systems and Banking Processes Audit to be Performed by External Audit Institutions, Published in the Official Gazette dated January 13, 2010, Nr. 27461.

The strategic plan of BRSA emphasizes the need for new regulations due to technological developments in TBS. BRSA states that, amendments in IT and

technology related regulations and new regulations are closely monitored and on their agenda (BDDK, 2019, p.5).

BRSA also express that digital transformation is induced by many developments in internet of things (IoT), cloud technologies, Big Data, AI, electronic money and payment systems and financial technologies. As a result, increasing demand for financial products and services triggers innovation and innovation increases the number of products and services. Therefore, diversification of service networks and organizational structures and changing business models are necessitated with these developments. These changes in TBS result in emergence of related legal rules and legal practices. The supervisory function should also respond to the new situation arising due to digitalization by adapting in a comprehensive, effective and sufficient manner. In this framework, the products, services and channels where banks and non-bank financial institutions serve these products and services need to be considered from a supervisory perspective and the status of the practices against the legislation need to be revealed (BDDK, 2019, p.33).

Besides BRSA, Central Bank of Turkey (CBRT) has an important role in terms of regulating and monitoring payment systems and payment services. Until 2019, both institutions had joint responsibilities to provide soundness of payment systems and payment services. Hence, Technology and Cyber Security are stated as main focus areas in the strategic plan of CBRT (CBRT, 2019) from this perspective.

However, by late 2019, the dual structure between BRSA and CBRT was assembled under CBRT for an efficient decision-making process. This stemmed from the improvements in the information and communication technologies as well as the development of new products and the applications in payments area (CBRT, 2020).

In this respect, the banks in TBS, payment institutions, electronic money institutions, Postal and Telegraph Corporation are eligible to provide payment services in Turkey. CBRT is responsible for their authorization, regulation and supervision.

BRSA as the main institution for regulatory and supervisory framework in TBS has a vital role in shedding light to the future of digital transformation for the sector. Therefore, policy framework and policy recommendations are mainly related to the activities, performance and vision of BRSA in TBS. CBRT on the other hand has an important role for monitoring and regulating payment systems. Global developments in digital money, digital payment systems and technological innovations in this respect need to be closely monitored by these authorities for policy development and adaptation of existing regulations in accordance.

2.5. Concluding Remarks

Technological developments in TBS are stated with respect to certain decades in this Chapter. Following the financial liberalization of Turkish economy by 1980 onwards, technological developments in information and communication technologies had repercussions in technological progress and developments in TBS. Retail banking emerged and developed as an important segment of TBS. Integration into global banking network by means of SWIFT, Reuters, internet and other developments in ICTs also had positive effects in providing interactions from foreign banks in this respect.

Together with TBS, regulatory and supervisory framework changed by establishment of BRSA in 1999. Both BRSA and CBRT play important roles for drawing the future path of TBS from policy perspective. Therefore, increasing interaction within TBS and regulatory authorities together with global developments in financial innovations result in a dynamic policy development mechanism. However, due to lack of a systems approach for financial innovations, an innovation system with interaction of financial institutions and Fintechs is not achieved yet. Hence, a regulatory perspective in this context is presented in Chapter 5. Developing such an innovation system requires related policy development and this is discussed in policy recommendations section in Chapter 6.

CHAPTER 3

LITERATURE REVIEW ON DIGITALIZATION OF FINANCE AND CHANGING BUSINESS MODELS

Financial innovation does not have a generally accepted definition in literature. Hence, definitions of financial innovation vary with reference to their goals, structure of legal framework and market demand and opportunities. Due to insufficiency of data collection, stating a comprehensive definition of financial innovation is very difficult (Comert and Epstein, 2016).

However, market demand and opportunities, as one of the main drivers of financial innovation have been effective throughout the history. Therefore, financial innovation also has a long history intertwined with solution-oriented practices, speculations and even manipulations for the sake of opportunity seeking. From a banking perspective, the speed and adaptation of technological developments to banking paved the way for financial innovations from 1980's onwards as the relationship between technology and innovation is strengthened in banking and finance. Technology accelerated the change in financial services with repercussions in products and business models of the financial sector. As a result, banking products have more instant diffusion and the user base of these products expands in an increasing pace thanks to technological developments.

Conventionally, financial sector was comprised of banks and financial institutions like trust companies, insurance companies, brokerage firms and investment dealers. Technological developments recently introduced new actors, firstly FinTech companies and lately BigTech companies, to the financial corporate world. FinTech, a word as a combination of "financial technology" is referred to companies specified

in the delivery and use of financial services like payment systems etc. The emergence of FinTech companies is followed by the entry of BigTech companies to financial sector. BigTech is a term used to describe major technology companies such as Apple, Google, Amazon and Facebook. Thus, as a result of technological developments and welcoming FinTech and BigTech companies, financial world became more and more data analytics oriented.

In other words, with the utilization of digitalization and digital technologies, the history of financial innovation entered into a new era. This era is defined as the prompt interaction of financial sector companies and customers by means of customer feedbacks, together with increasing collaboration and interaction of financial sector companies.

This chapter first aims to define financial innovation and utilization of financial technologies and digitalization. Then, to determine the current digitalization status of the banks in Turkey, the theoretical framework, “Digital Transformation Maturity Model” is explained. As the digitalization of banks is taken as a business perspective, the last part of the chapter includes the demonstration of “Business Model Canvas”. It is important to note that, for the current research, digitalization will not only be considered as the digital transformation of banking processes, but also as a phase of radically changing business models and paradigm shifts in financial sector. Changing roles of actors in financial services industry will be discussed with reference to the new business paradigm of close interactions amongst actors, customers and increasing collaboration. Thus, digitalization as a radical breakthrough causes product, process and mainly business model innovations. The effects of digitalization on TBS, probable future of banking and finance with respect to major business model changes due to digitalization and the effects of Covid-19 in this process are the main points of departures of the thesis.

A summary of literature review is stated in the Table below.

Table 3. Summary of Literature Review

SUMMARY OF LITERATURE REVIEW TABLE			
Topic	Author and Year	Title and Source	Citation in the study
Financial Innovation	Comert H. and Epstein G., (2016)	Finansal Yenilik Yazınındaki Son Gelişmeler. STPS Working Papers 1604, STPS - Science and Technology Policy Studies Center, Middle East Technical University	Definition of financial innovation
	Boot, A.W.A. and Thakor, A.V., (1997)	Banking Scope and Financial Innovation. The Review of Financial Studies, 10 (4)	Definition of financial innovation
	Lerner and Tufano, (2011)	The Consequences of Financial Innovation: A Counterfactual Research Agenda. NBER Working Paper Series No: 16780	Definition of financial innovation
	Frame and White, (2004)	Empirical Studies of Financial Innovation: Lots of Talk, Little Action? Journal of Economic Literature, 42 (1).	Definition of financial innovation
	Schumpeter, (1961)	The Theory of Economic Development: An Inquiry into Profits, Capital, Credit, Interest, and the Business Cycle translated from the German by Redvers Opie (1961) New York: OUP	Definition of financial innovation
	Ankan, (2015)	Türk Bankacılığında İnnovasyon ve Kreatif Bankacılık, Master's Thesis, İstanbul Ticaret Üniversitesi	Definition of financial innovation
	Akhavan et al., (2005)	The Diffusion of Financial Innovations: An Examination of the Adoption of Small Business Credit Scoring by Large Banking Organizations. Journal of Business, 78 (2)	Definition of financial innovation
	Capasso, (2004)	Financial Markets, Development and Economic Growth: Tales of Informational Asymmetries. Journal of Economic Surveys, vol.18 (3)	Benefits of financial innovations for financial system
	Bakırtaş and Ustaömer, (2019)	TÜSİAD, Samsung Türkiye, Deloitte Türkiye, GfK Türkiye, (2016) Türkiye'deki Dijital Dönüşüm CEO Bakışı	Holistic consideration of digital transformation
Digital Transformation	Disheap, (2018)	Assessing the influence of digital transformation on digital maturity within a large corporate bank. North-West University, dissertation	Digitalization as inevitable and compulsory for banking.
	Berman, (2012)	Digital transformation: opportunities to create new business models. Strategy & Leadership, Vol. 40 No. 2	Changes in value creation for banks.
	Davenport, Westerman, (2018)	Why So Many High-Profile Digital Transformations Fail. Harvard Business Review	Business model innovation, reshaping value proposition, digital transformation capabilities.
	Deloitte, (2018)	EMEA Digital Banking Maturity Report	Adaptive skills of companies, coherent digitalization strategy, better understanding of digital transformation
	Mettler, (2018)	Technological Forecasting and Social Change	Defining open banking and beyond banking.
Open Banking and Open X	Buss, A., Freeborn, L. & Silva, J., (2016)	The Digital-Ready Bank: How Ready are European Banks for a Digital World. An IDC Financial Insights White Paper sponsored by SAP	Classifications of digital maturity levels.
	Disheap, (2018)	Assessing the influence of digital transformation on digital maturity within a large corporate bank. North-West University, dissertation	Defining digital maturity.
	Capgemini, EFMA, (2019)	World Retail Banking Report	Defining digital transformation.
	Barefoot, K., Curtis, D., Jolliffe, W.A., Nicholson, J.R., Omohundro, (2016)	Defining and measuring the digital economy. Working Paper Bureau of Economic Analysis, USA	Defining Open X paradigm, Open X environment.
Digital Transformation Maturity Model	Teichert, R., (2019)	"Digital Maturity in Traditional Industries—An Exploratory Analysis". In Proceedings of the 25th European Conference on Information Systems (ECIS), Guimarães, Portugal, June 5-10, 2017	The extent of studies for defining and measuring digital maturity.
	Remane, G., Haneft, A., Wiesboeck, F. and Kolbe, L., (2017)	Technological Forecasting and Social Change	Most digital maturity approaches as neglecting digitalization of the business model.
	Mettler, (2018)	Technological Forecasting and Social Change	Archetype dimensions of models for measuring digital transformation maturity.
	Buss, A., Freeborn, L. & Silva, J., (2016)	The Digital-Ready Bank: How Ready are European Banks for a Digital World. An IDC Financial Insights White Paper sponsored by SAP	Different ways, capacities and paces of each sector and firm in digital maturity and its sustainability in
	Osterwalder, Pigneur & Tucci, 2005	Communications of the Association for Information Systems, vol. 16	Discussing the still department specific digital initiatives within the firm; islands of innovation.
	Bochen, N. M. P., Short, S. W., Rana, P. & Evans, S., (2014)	A literature and practice review to develop sustainable business model archetypes. Journal of Cleaner Production, vol. 65	Discussing classifications of Digital Transformation
Business Model Canvas	Osterwalder and Pigneur (2010)	Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers. Hoboken, NJ: John Wiley and Sons	The use of Business Model Canvas for innovation purposes.
	Osterwalder, A. and Pigneur, Y., (2004)	An e-Business Model Ontology for Modeling e-business. Value Creation from e-business models. Elsevier Ltd.	The use of Business Model Canvas for innovation purposes.
	Gsell and Mette, Gsell, Stefanie, and Mette, J., (2017)	The Impact of Digitalization on the Business Model of German Retail Bank	Four pillars and nine elements of Business Model Canvas.
			Definitions of segments and pillars of Business Model Canvas.

Source: Derived by the author.

3.1. Financial Innovation

With respect to general definition of innovation, financial innovation can be mentioned as the significant changes in financial instruments, services and markets as financial

innovation (Comert and Epstein, 2016). This is a very general characterization, more information regarding the role and features of the concept are necessary for a better understanding. In this context, the role of financial innovation is primarily considered to be improvement of financial sector in the literature with respect to main arguments. Hence, financial innovation is defined as a way to handle risk diversification, to provide an advantage in terms of tax along with its aspect of enhancing information sensitivity in a broad sense (Boot and Thakor, 1987). It is also considered as “the act of creating and then popularizing new financial instruments, as well as new financial technologies, institutions, and markets” (Lerner and Tufano, 2011). Financial innovation is “something new that reduces costs, reduces risks, or provides an improved product/service/instrument that better satisfies financial system participants' demands” (Frame and White, 2004). Thus, market demand emerges as one of the main drivers of financial innovation together with legislative framework and banks, main actors of financial system, facilitate innovation process as Schumpeter (1961) points out.

Financial innovation is mentioned as product or process stemming from the case of inefficient intermediaries in incomplete markets in order to benefit and make profit from this situation (Arıkan, 2015). It is also referred as “life blood of efficient and responsive capital markets” (Akhavain et al., 2005).

There are some categorizations of financial innovations with regards to their functions and nature. As an example, conventional taxonomy of financial innovations consider three main categories as risk transferring innovations (derivatives like futures, option and forward etc.), liquidity increasing innovations (securitizations backed by differing assets, differing bonds and credits etc.) and capital forming innovations (mainly equity shares and derivatives).

Dimensions of innovation as product, process and organizational innovation are exemplified in the content of financial innovations. Financial derivatives of financial engineering comprise one of the classical examples for product innovation. Credit risk monitoring and credit scoring models may be considered as examples of process

innovation whilst internet banking may be conceived as an example of organizational innovation as it brings new segment of business, interactions and structure for the banking business.

Besides these, financial innovations are beneficial for the financial system as they improve information symmetry within the financial system amongst financial actors and customers due to increasing accessibility of information. Quality of distribution of information among agents is the key factor with significant relevance for resource allocation. It effects the management and mitigation of risks, reducing monitoring costs and thus increasing the volume of exposures for more productive investments with higher yields. Benefits of financial innovations for the financial system may be summarized as providing information symmetry, resulting reduction of the cost of risk mitigation and financial intermediation, enhancing the accessibility of the funds for the firms due to a better macro financial framework and resulting increase in the volume of resources in the financial system (Capasso, 2004).

In this respect, digitalization, by mitigating information asymmetries, further plays an important role in providing efficient and prompt information symmetry in the financial system. In a broader context, as a financial innovation, digitalization is also a product, process and business innovation. Thus, digitalization has an inclusive characteristic that enhances the base for diffusion and accessibility for all these innovations. By the year 2010 and onwards, digital transformation changed the concept of financial innovation to a broader context. With the speed of the technological developments stemming from mobile technologies, accessibility and big data, financial innovation now is not only new financial products of financial engineering, but also mobile banking and new payment systems with a more inclusive financial framework in the scope of technological solutions.

Hence, the financial system enters into a new era with digitalization by increasing interactions amongst actors of the system, changing roles and business models.

3.2. Digital Transformation: Digital Banking

Before the development of internet, banks were already using technology for the purposes of automating back-office operations. Conventionally, branches are main distribution channels of banking. However, with utilization of technology, alternative distribution channels emerged initially with automated teller machines (ATM). Alternative distribution channels, including mobile devices, digital TVs as well as internet banking, are attractive to banks because of the advantages they provide (e.g. cost cutting, efficiency and better service quality). Digitalization provided a paradigm shift in banking towards intensive utilization of so-called alternative distribution channels.

Digitalization started with digitization, transitioning from analog to digital. Digitization is the process of making all of the information available and accessible in a digital format. Respectively, digitalization is the process of considering how best to apply digitized information to simplify specific operations. Digital transformation is the process of devising new business applications that integrate all digitized data and digitalized application. Digital transformation should be considered in a holistic perspective with its effects in more data-intensive analysis, processing and decision-making processes with increased service quality of organizations (Bakırtaş and Ustaömer, 2019).

Main drivers of the digitalization in banking are namely competitive advantages, efficiency increase, prompt respond to customer needs and profitability. Macroeconomic factors, legislative issues, digital technologies and their implementation in many other sectors lead digitalization to be a compulsory and inevitable process for banking industry (TÜSİAD et al., 2016).

Financial institutions provide digital services with considering customer demands and positive feedbacks from user experiences. In this respect, main banking functions like information gathering, account opening, customer on boarding, day-to-day banking, expanding relationship and ending relationship are covered in the digital framework. By means of digitalization, banks provide a wider range of services in a time saving

manner with reduced human involvement and errors. Banks face changes in value creation (Ditshego, 2018) in this context and this results in fast and efficient operation of the finance system and cost minimization of operational processes by substituting machinery and digital processes for people and simple automated processes.

Mainly, in the digital era, mobile and interactive tools are changing the business paradigm with new opportunities. Digital transformation also transforms business towards mobile, flexible, customer-centered base as focused on reshaping customer value propositions and transforming the operating model. In this respect, enhancing products and services for a better customer experience, extending offerings for new value streams, creating new digital capabilities, leveraging information to manage across the organization, integrating and optimizing all digital and physical elements and redefining core elements for a radically reshaped value proposition are important. Delivering business model innovation, driving customer and community collaboration, going beyond traditional partnerships with developers and suppliers, integrating cross-channel, getting insights from analytics, optimizing the digitally enabled supply chain and enabling the networked workforce are main digital transformation capabilities to be considered (Berman, 2012).

Hence, business models started to change within banks with digitalization. More efficient back-office operations, internet and mobile banking provided a dynamic platform of interactions and feedbacks between banks and customers. Data-driven business models and analysis became an important part of finance industry. On the other hand, digital transformation does not solve the problems of existing business models but adapts business to a more data intensive, pro-active and customer-centered perspective paradigm. Therefore, companies having sound business models, adaptive skills, coherent digitalization strategy, better understanding and expectations of digital transformation of the markets and economy are more likely to avoid costly mistakes and failures and benefit from this process (Davenport, Westerman, 2018).

In this respect, digitalization initially let in-house changes in business models of banks and financial institutions with increasing operational efficiency, internet and mobile

distribution channels and decreasing human factor. Therefore, digitalization paved the ground for a more dynamic and changing era of financial sector with financial actors interacting more and collaboration of actors emerging as a main determinant of the change of the paradigm, new business models.

3.2.1 A Paradigm Shift: Open Banking

Data privacy and secrecy are main concerns of traditional banking and the legal framework regarding this concept. However, the pace of digitalization caused a paradigm shift to open banking in a platform-based business approach where interactions and value exchanges are facilitated like in old ancient marketplaces. Therefore, in open banking, data, processes and business functionalities are made available within an ecosystem of customers, third party developers, FinTech startups, or partners. The services provided are financial and may come from banks as well as from third parties. Data sharing, accessibility, shared values and collaboration are the main concepts defining open banking paradigm.

Following open banking, another platform-based business approach that is named as “beyond banking” emerged. There are different service providers providing multiple services to customers in this approach. These services are provided in an integrated and harmonious manner. The range of the content of these services have a large variety (e.g. mobility, security, delivery, home security) and banks can be part of this procurement process by providing niche and tailored financial services that consistently integrate the scope of services. This is the vertical integration that is the strategic part of value creation in a more competitive banking business environment. For value creation and benefit optimization, a vertical integration of operational process with specialized partners having cost efficiency in each step of business is of strategic importance. (Deloitte, 2018).

Open banking and beyond banking concepts set-up the bank of the future model in a respective manner. In open banking, banking providers do perform business in banking platform with data sharing and accessibility resulting in collaboration. Banking Provider refers to a leading supplier of (certain) financial services through third party

platforms. In this respect, banking providers are comprised of banks, other financial institutions, third party developers, FinTech companies etc. Hence, Banking Platform is a digital platform where supply and demand, in other words providers and customers meet, where the banks or third party financial products and services are offered to the bank’s customers. With beyond banking concept, banking platform transforms into an exponential platform which is developing and owning a digital platform where all types of (connected) services are offered to customers in a coherent manner (Deloitte, 2018) with respect to aforementioned vertical integration. Due to this vertical integration, banking providers and service providers are together in the ecosystem. This paradigm shift is displayed in Figure 1 below.

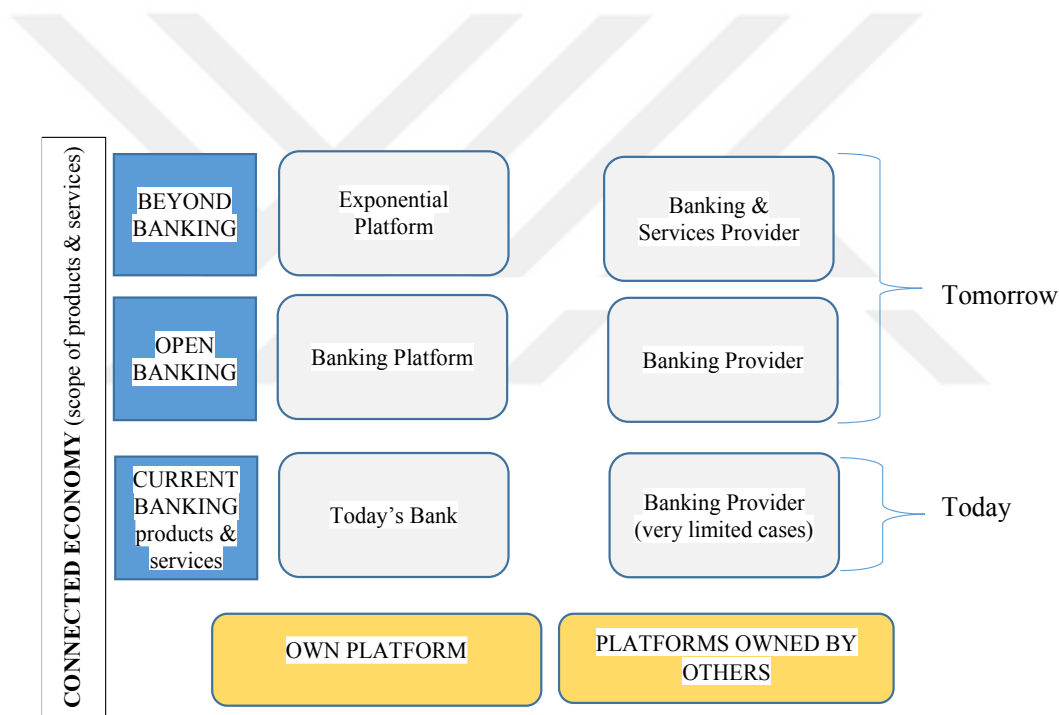


Figure 1: Bank of the future model

Source: Deloitte Bank of the Future Report (2017, p.19)

As seen from the figure, connected economy includes scope of products and services whilst connected customer contains control of client relations, distribution channels and ecosystems. Connected economy displays current banking products and services of today, open banking and beyond banking of tomorrow. Connected customer covers

own platform and platform owned by others. In this respect, current banking products and services of today have today's bank as own platform and banking provider as platform owned by others. Open banking of tomorrow has banking platform as own platform and banking provider as platform owned by others. Finally, beyond banking of tomorrow has exponential platform as own platform and banking and services provider in a more comprehensive manner.

With the rapid diffusion and adoption of digitalization in finance sector, the need for understanding the level of digital transformation, the digital maturity level emerged as an important conceptualization. Digital maturity is the result of a continuous and ongoing process of adaptation to a changing digital landscape (Mettler, 2018, p.5) and it has to do with the perception of the level of digital transformation. In other words, some organizations consider digital transformation only peculiar to office operations and/or security strategies (Buss et.al., 2016). However, a holistic approach to take forward the perception of digital maturity, as comprising different lines of business not only in terms of reducing cost and increasing the customer base and revenues, but also enhancing customer experience, product and service quality, interactions within the organization, with customers, other organizations etc. (Ditshego, 2018) is necessary for the future. From this broad perspective, this study aims to explore and state the digital maturity level of interviewed banks by means of structured interviews.

Classifications as digital champions, digital smart followers, digital adopters and digital late comers arose in the market with reference to understanding the digital maturity level. On the country basis, Turkey is stated amongst the group of digital champions. Customer and competitor pressures are main drivers of digital success in this respect. There is a strong correlation between internet access, internet banking and digitalization of operations as a determinant of digital maturity, level of skills of adaptation to ongoing digital change (Deloitte, 2018).

In this regard, given the current structure of the banking market, early adopters of digitalization and open banking model have competitive advantages. Therefore, digital latecomers in the market need to become banking platforms in order to be in the

competition and not stay behind early adopters, more digitally mature banks and FinTechs. However, developing banking platforms require high investments. Hence, focusing, specializing and deepening on certain specific products and services may be another option for becoming a banking provider in the end.

Increasing competition in banking and finance sector shapes the future of this new business model with increasing need for collaboration. Hence, digital champions should utilize their current strong position to expand Beyond Banking and develop their own exponential platform before other banks and FinTechs try to replace. In order to realize this goal, with respect to aforementioned vertical integration, they will need to work closely with financial and non-financial services providers as level of complexity of this strategic movement will require deep integration with external partners.

At this point, collaboration emerges as a critical factor. For example, it is crucial for FinTechs not to stay behind digital champions and develop further in the direction of exponential platforms for this goal. As customer demand shifts towards more complex banking products, they need broaden the extent of their services in the area of traditional banking services in order to meet this dynamic demand. And this necessitates collaboration with banks and other specialized FinTechs.

Increasing and dynamic collaboration and interaction correspond to the aspects of the future of banking named as beyond banking. Open innovation, sharing economy and shared marketplace in a data-intensive manner define the future paradigm in this respect.

3.2.2 A future paradigm: Open X

Open banking is a paradigm of future. It is not only a technology solution but more than that, it is an important part of business strategy. However, as technology and change are dynamic processes, there are always new paradigms to come to find solutions for the problems of the future. Open banking paves the ground for this dynamic paradigms with significant opportunities. Therefore, the future paradigm of

finance sector is mainly shaped around ecosystem partnerships, collaboration. Finance industry is rebundling services in an integrated manner and thus banks, Fintechs and BigTechs can be solution partners and can collaborate and utilize a wide customer base through omnichannel banking.

In this respect, the concept of Open X emerges as a new paradigm for tomorrow. Open X is a common platform, in a sense a shared marketplace, and actors of this platform are in a data-intensive framework with extensive utilization of data. Another major characteristic in this platform is collaboration among actors for the sake of the quality and sustainability of their services (Capgemini, EFMA 2019). This new paradigm forces actors to change their business model culture and technology architecture by leaving outdated business patterns and starting a radical digital transformation.

The future of banking business, defined by a common platform or a shared marketplace, is a phenomenon that actors of the ecosystem should consider as beyond open banking in order to remain in the ecosystem. The existing actors of the ecosystem, banks have extensive resources, networks of huge volumes of customers. On the other hand, FinTechs, as more recent actors of the ecosystem, are more flexible in their business models and methods and have a more entrepreneurial consideration, a start-up spirit together with their human-centered design expertise and technological capabilities. Thus, partnerships and collaborations will result in a win-win situation in this respect when these peculiarities are considered.

In this business model defined by partnerships and collaborations of actors in the ecosystem, with the utilization of technology, tailor-made financial services and customer feedbacks define the crossroads of customer experiences of financial services. This new paradigm is defined by the shift of the focus from products to customer experience, from assets to data centered approach, from ownership to shared access and from buying or building to partnering.

Application Programming Interfaces (APIs), a software intermediary that allows two applications to talk to each other, are utilized in open banking and are crucially

important means in the Open X environment. APIs, as drivers of innovation, provide flexibility to the actors to develop the quality of the customer experience and to provide prompt launching of products. As the industry moves towards an open architecture and as API recognition enhances, ecosystem players must utilize the use of standardized APIs in order to help reducing fraud, improving interoperability and increasing scalability.

APIs are used not only banks and Fintechs, but also BigTechs like Google, Amazon etc. for integrating or monetizing services. APIs, information and information structure are important components of Sharing Economy that emphasizes the role of collaboration.

Open X environment is also defined with a shift of financial services having four pillars (Capgemini, EFMA 2019). The first pillar is the shift of focus to customer experience (vs. products). Transition from traditional banking to digital banking, digital banking to open banking and open banking to Open X is to be mentioned in this context. Products, ownership, build/buy and assets are respectively replaced by experiences, shared access, partner and data in Open X environment. Consent and trust with respect to data driven and data intensive business are main concepts in this manner. That is to say, trust of customers to banks and their data, which can be quitted by customers easily, define the consent economy and in this respect banks must be able to integrate their services without any problems.

The second pillar is evolving of data as a critical asset. With the evolution of “big data” as a major asset in data-driven economy, strategic utilization of data to benefit from new revenues, creating value and enhancing intuitive decision-making are main issues. Increasing volume of data and the need for data analysis let to utilization and adaptation of Artificial Intelligence (AI) in financial services for understanding customer needs better, prompt and precise analysis and decision-making and thus transforming the business culture towards that of start-ups in a dynamic manner.

Partnering of firms instead of unilaterally developing and purchasing capabilities is the third pillar. In this respect, in order to deliver value to end customers, Open X will force the pace of partnerships between the actors like banks, FinTechs and others for a more efficient ecosystem. It is important to have an encouraging and broadly-skilled ecosystem in order to overcome challenges like data privacy, barriers due to regulatory framework, fraud, preclusion of the trust of customer and channel expertise.

Shared access is the fourth pillar which is due to capabilities and asset ownership. Partnerships in the ecosystem will cause the transformation of ownership to a shared economy. Exploring the opportunities of shared economy following Uber and Airbnb has been a common situation in many industries.

The essence of Open X from a wider perspective is mainly comprised of development of business models and strategies. Consideration and vision of Open X is not only APIs and customer experiences but more than these. Hence, strategy and transformation have prior importance whilst the roles, standards and management of ecosystem will be defined by the actors.

Every domain will have an impact on core business areas in Open X. Crucial importance in this disruption is peculiar to recent actors like BigTechs, retailers and aggregators. As a result, it is also possible to have banks initiate non-financial, value added services in an integrated manner with having networks, partnerships and necessary infrastructure in order to help to sustain customer base, increase loyalty and lifetime value of customer.

Facilitating the integration of actors in the ecosystem and creating value from products and services is a major challenge that most banks encounter. Due to insufficiency of staff, process and technology to backup this integration and provide novelties to the staff and customers, banks do encounter this challenge.

As a result, there emerges new product development and distribution opportunities due to in-house efforts or partnerships with other actors in the developing financial sector

ecosystem. In this respect, the shift from competition to collaboration in the financial ecosystem stems from structural collaboration. Elements of effective collaboration are people, finance, business and technology.

On the other hand, transformation to Open X gives rise to emergence of specialized roles as challenging conventional business customs in the financial ecosystem. Namely, these specialized roles are specified as integrated, supplier, aggregator and orchestrator.

The integrated role is a conventional one with a firm having full control of product and service creation and distribution. In the Open X ecosystem, it is important for integrated firm to cope with rival's abilities and flexibilities in prompt timing to meet customer's unique demands. However, the supplier role is more about developing products and services, having a third-party or external actor to take care of distribution. On the other hand, in the aggregator role, product and service creation is delegated to a third party or external actor. The essence of the orchestrator role is networking and merging with the actors of the ecosystem by connecting and coordinating their interactions in order to create the most value. In other words, this role is the bridge between Suppliers and Aggregators in harmonizing and arranging their interactions. Thus, within this new ecosystem and framework, actors break tradition and adopt new roles as mentioned above (Capgemini, EFMA 2019).

3.2.3 Brief Remarks on Digital Transformation

Relations and opportunities stemming from Big Tech and Fin Tech companies are an important part of inventive banking, which enables the transition of propositions from ideation phase to business through experimentation. Banks do act as platforms in an ecosystem that enhance and utilize networks. Due to information, networks and collaboration they have, banks are willing to invest in start-ups, value chains and new tech opportunities. They set up certain investment funds to invest these and provide financial products for deposit holders and/or people to channel their funds to these products. Banks do act as interfaces, use their market advantages to make profit from

these investments and share certain part of their profits to holders of related financial products.

As a result of having a deep and better understanding of technology, banks not only utilize investment opportunities in newly developing techno-startups, but also let individual investors to benefit from incomes of techno-startups by means of financial products of banks for investing in this business. Mobile banking technologies provide accessibility for such financial products to bank customers. Therefore, bank customers can easily access these products and instantly buy and sell them.

Technology also changes business paradigms towards effective and structured collaboration and sharing economy. Open banking and Open X are alternatives to cope with “Uberisation” observed in other sectors. In other words, it is upgrading existing business models with external innovation for a better quality and sustainable customer experience by means of collaboration with actors having client interactions (Capgemini, EFMA 2019).

3.3. Digital Transformation Maturity Model

There are different models for understanding and measuring digital transformation maturity for traditional industries for single business units, for an organization or across whole industries. Studies vary from the scope of defining and measuring digital economy (Barefoot et.al., 2018) to sectoral and domain specific digital maturity model assessments and digitalization of the business model is neglected in most digital maturity approaches (Teichert, R., 2019, p.12).

Models for measuring digital transformation maturity have certain archetype dimensions such as linear with one dimension or non-linear with two dimensions. They present digital maturity prototypes, one-dimensional and/or linear maturity levels and scores with mainly argumentative method (Remane et.al., 2017, p.145).

However, a non-linear, multi-dimensional perspective that is not neglecting potential differences and bandwagon effect in the impact of digital transformation for each

sector and firm is important for a sound assessment of digital maturity. Each sector and firm mature in different ways with different capacities and paces (Mettler, 2018), p.7). That is to say, a banking sector specific study assessing digital transformation from a holistic perspective with interactions of IT, other departments and customers with a dynamic goal of becoming a digital platform is more in line with the current status and digitalization vision of banking industry.

Digital technologies challenge traditional banking models and give rise to new business models beyond traditional banking. In this process, banks are engaged in some form and level of digital transformation. Moreover, digital transformation practices of each and every bank in the ecosystem differ from each other. At this process, there is a need for a holistic enterprise-wide approach to harmony IT and lines of business to lead digital transformation with an entire goal of digital platform.

Although there are huge investments in digital transformation in banking ecosystem, it is most likely that fewer banks are evaluating their business models from a holistic perspective and its role as a prudential strategy for future. Instead of an enterprise-wide corporate strategy, that is to say an inclusive digital corporate strategy executed by IT department in collaboration with other departments, many digital initiatives are still department specific. These “islands of innovation” or product-specific digital initiatives most often manifest themselves in the form of standalone cloud or mobile applications for customer-centric projects (Buss et.al, 2016, p.5).

Therefore, using a model to understand the current maturity of digital transformation in banking in order to find out where institutions are focusing and how they are measuring their digital transformation efforts and initiatives, investigating the collaboration of departments at this process is strategically very important.

Hence, at this point, the digital maturity model of IDC is an important tool that is also used in this study to understand the digital maturity level of banks in Turkey. Main taxonomy of the model and the criterion for this taxonomy is stated below.

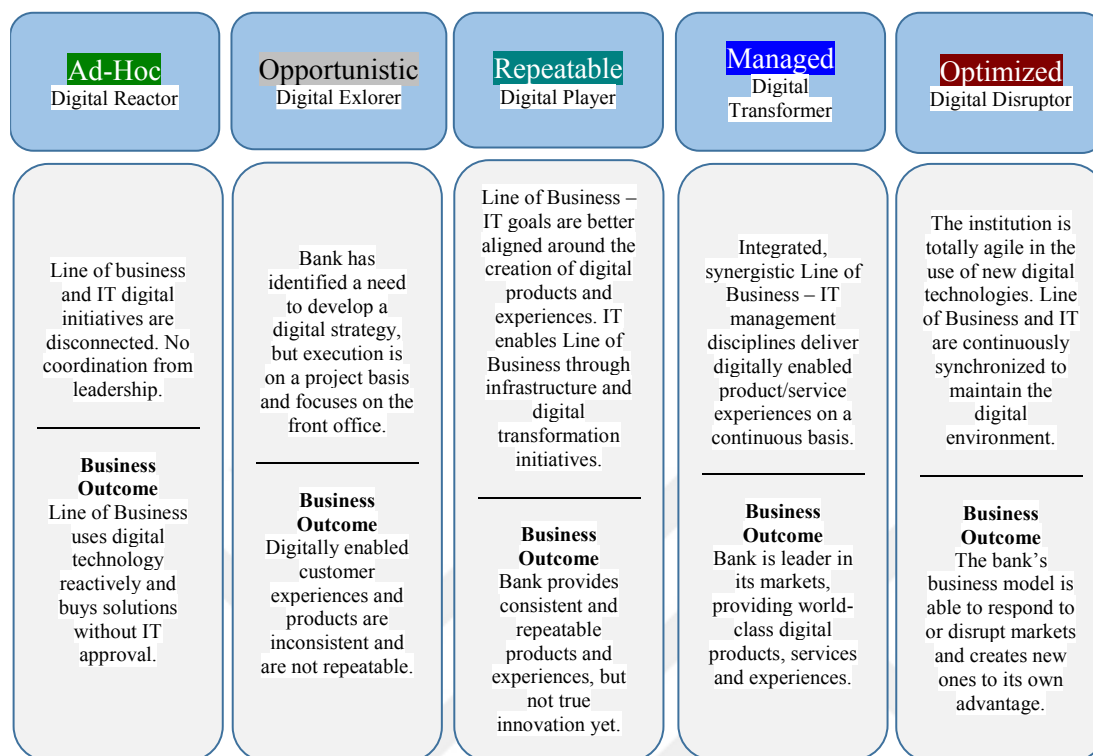


Figure 2: The IDC Digital Transformation Maturity Model in Banking

Source: Buss et.al, (2016)

As stated in the Figure 2 above, model has Ad Hoc-Digital Reactor, Opportunist-Digital Explorer, Repeatable-Digital Player, Managed-Digital Transformer and Optimizer-Digital Disruptor categories for banks.

“Digital Reactors,” which practice ad hoc, siloed digital transformation, are governed by leadership that lacks vision or commitment for digital transformation, and have a culture that is resistant to change. At the other end of the scale, “Digital Disruptors” use digital transformation to transform markets and customers by creating new business models and product/service experiences. Digital Disruptors can create game-changing business models and disrupt the competitive environment due to their focus across all of IDC’s Digital Transformation Maturity Model Dimensions. An example

of the way an optimized financial institution can leverage digital transformation is in going “beyond banking” by expanding beyond its traditional boundaries into its customers’ value chain (Buss et.al, 2016, p.7).

In the absence of such a sector specific holistic approach, factors like organizational inertia and path dependency that restrict the change, the status of digital transformation and diversity of digital readiness, may be neglected. Insistence on conventional business models due to lacks in understanding and adapting cognitive managerial approaches that comprise adoption and utilization of technological developments and respective organizational change is a major example of path dependency in this context.

Digital maturity is a very dynamic concept and changes rapidly with respect to differing dimensions of technological change. Thus, once digitally mature, does not mean always digitally mature (Mettler, 2018, p.17). Therefore, assessing the managerial abilities, top-management perception and perspective for digital transformation, inter-organizational collaborations and interactions for addressing the organizational transformation abilities due to digital transformation are constituents of the holistic approach for this study.

In this study, as detailed in Chapter 4, aforementioned digital transformation maturity model is used as a foundation of the first part of the structured interview.

3.4. Business Model Canvas

A modelling approach is necessary in order to analyze the impact of digitalization on business models of banks and explain the way a bank creates value, delivers it and runs the business. Business Model Canvas (BMC) can be used for comparison and benchmark purposes, for performance and competitive analyses as well as for management, communication, and innovation purposes (Osterwalder, Pigneur & Tucci, 2005; Bocken, Short, Rana & Evans, 2014). Osterwalder and Pigneur (2010) identify nine elements that can be categorized in four pillars. These pillars are presented in Table 4 below.

The first pillar stated below is customer interface pillar. This pillar is based customer and value. Questions of “who” and “how” people interact with the company are answered, company’s target customers, channels to deliver products and services to these customers and the way of managing relations with these customers are identified. In other words, the way a company interacts with the market, approaches customers and sustains relations with them are defined (Osterwalder and Pigneur, 2010).

Customer segment explains for whom a company creates value and who the most important customers are, whilst, customer relationships describe the different connections a company builds up between itself and its customer segments and customer channels show how a company reaches out to its customers (Osterwalder and Pigneur, 2004).

On the other hand, the product pillar describes the products that are offered to the market by means of the value proposition. Osterwalder and Pigneur (2004, p.71) define value proposition as “the way a firm differentiates itself from its competitors and is the reason why customers buy from a certain firm and not from another”.

Table 4. Elements of BMC and descriptions

Pillar		Element		Description
I	Customer Interface	1	Customer Segments	A company aims to create value to different segments.
		2	Customer Relationship	Describes the connection a company establishes between the customer and itself.
		3	Channels	Means of interacting with the customer.
II	Product	4	Value Proposition	A company's promise of value intended to make a product or service attractive to customers.
III	Infrastructure Management	5	Key Resources	Describes the assets needed to create value to the customer.
		6	Key Activities	Actions a company does to create value.
		7	Key Partners	Network of external partners a company cooperates with to make the business model work.
IV	Financial Aspects	8	Revenue Streams	Generated revenue streams resulting from successfully offering value to customers.
		9	Cost Structure	The representation in costs that incur when running the business.

Source: (Gsell and Mette, 2017)

The infrastructure management pillar is about how a company creates value. In this respect, specifies resources needed, activities required to perform and the partnerships that are used to fulfil the value proposition are declared.

The financial aspects pillar defines a company's cost structure and revenue model, resulting in profitability. It defines the business model's economic performance because customer interface, value proposition and infrastructure management have an influence on financials (Gsell and Mette, 2017, p.26).

In accordance with these pillars, the structured interview questions are designed to cover the pillars and segments of the model so that BMC can be used for comparison and benchmark purposes, for performance and competitive analyses in this study.

Details regarding the categorization and structure of the interview questions are stated in Chapter 4.

3.5. Concluding Remarks

Digitalization has a challenging history of transformation in banking sector. Digitalization, initially as an operational development, gained an inclusive aspect in due course as comprising financial innovations in terms of product, process and business innovations. Therefore, digital transformation as changing business models requires a coherent and systematic strategic approach with more interaction and collaboration of financial actors emerging as a main determinant of the change of the paradigm, new business models.

Digital transformation brings variety and change in banking. As a relative concept, it has to be maintained over time. In an evolutionary path of different banks with differing and changing digital maturities, external business, social environment and technological developments change the path of digital maturity for banks. Adaptation capabilities of banks depend on human factor as well as other factors as like hardware, software, routines, customs and replication skills. Organizational cultures face many challenges in adaptation capabilities and maintaining digital maturity levels due to path dependencies stemming from cultural barriers and/or organizational routines.

Therefore, the evolutionary path from Open Banking towards Open X needs to be well understood for considering the future of banking. Amongst many models in defining and measuring digital maturity level, IDC Digital Transformation Maturity Model is used in this study as it has been used in comparative analysis of European banks from a holistic perspective in a multi-dimensional manner.

Business Model Canvas (BMC) is the model used in this study as a novelty as complementary of IDC Digital Transformation Maturity Model in TBS. Four main pillars of BMC are important in understanding value creation and how these pillars are affected from digital transformation. Structured interview questions designed for this study cover the pillars and segments of the model with respect to digitalization. For each bank, questions for understanding the level of digital transformation maturity level are followed by questions for addressing their effects in customer interface,

products, infrastructure management and financial aspects in this study. Thus, BMC gains significance for comparative assessments and benchmark purposes for performance and competitive analysis in TBS.



CHAPTER 4

METHODOLOGY

4.1. Research Approach

In order to understand the effect of digitalization and the digitalization-based changes during Covid-19 pandemic on Turkish Banking Sector (TBS), a qualitative study (Patton, 2002) comprised of structured interviews are conducted. For this purpose, initially a theoretical framework is explored to determine the current situation of the digital maturity of banks. The digital transformation maturity model is used as a foundation of the first part of the structured interview.

The previous literature and some empirical data provided in the previous chapters has shown that the digitalization process of banking is not only applied to front-desk (customer-oriented) activities such as mobile banking, it is a business strategy that includes all stages of strategic decision-making. These approach takes our research to the business models. For this purpose, the second part of the structured interview is based on determination of the elements of Business Model Canvas (BMC). For that reason, the data generated from the interviews is analyzed employing the BMC using a pattern-making approach (Yin, 2014).

In sum, banking industry is presented in accordance to digital maturity models and the status of digitalization with reference to changes towards data-driven and collaboration based value creation and business models between banks. This presentation is based on digital transformation maturity model of IDC and Business Canvas Model (BMC) with respect to digitalization and its effects in TBS in this study.

4.2. Research Design

4.2.1 Theoretical Background

Theoretical framework to conduct the structured interview questions will be based on (1) the study of Kondo et al. 2020 regarding the relationship between trust, collaboration and economic growth; (2) digital transformation maturity model (Buss et al. 2016); and (3) Business Model Canvas (Osterwalder and Pigneur (2010)).

According to digital transformation maturity model, any company, including banks, can be at different stages of incorporating digitalization into their business processes and strategies. *Ad Hoc (Digital Reactor)* is considered to be the primitive stage where any new digital technology is applied after the IT approval or not. *Opportunistic (Digital Explorer)* is when the digital services are now regular. This regularity can transform into an innovation at the *Repeatable (Digital Player) stage*. Yet, A bank can only be *Managed (Digital Transformer)* if it is a leader in Turkey and provides digital services/products all over the world. The final stage is *Optimized (Digital Disruptor)* where the bank creates new business models that respond to the market (Buss et.al, 2016, p.6). .

The purpose of this research is first to determine at what stage are Turkish banks in terms of digital transformation. These questions regarding digital maturity level and sum-up question as covering all the aforementioned levels give an understanding of the digital maturity level of the bank.

Digitalization initiates the structural changes in the economy which brings new opportunities and benefits to customers and firms (Teece, 2010). In banking business models, generally we talk about the scale economies, retailing, investment and overseas banking. However, nowadays the business models need to incorporate blockchain, decentralized and new competitive environments (Nitescu, 2016). Business Model Canvas (BMC) as a good model for comparison, benchmark purposes, performance and competitive analyses as well as for management and innovation purposes (Gsell and Mette, 2017) can be used for management, communication and

innovation purposes (Osterwalder, Pigneur & Tucci, 2005; Bocken, Short, Rana & Evans, 2014). There is no research about the integration of digital banking and Covid-19 pandemic effects on BMC of banks in Turkey. This initial attempt will allow us to see the effect of digitalization on banks in a macro strategic business perspective that aims to represent TBS.

According to Osterwalder and Pigneur (2010) BMC has 4 main titles and 9 subtitles:

- I. Customer interface**
 - a. Customer segments
 - b. Customer relationship
 - c. Channels means of interacting with the customer
- II. Product**
 - a. Value proposition
- III. Infrastructure management**
 - a. Key resources-assets
 - b. Key activities-actions
 - c. Key partners-network
- IV. Financial aspects**
 - a. Revenue streams
 - b. Cost structure

4.2.2. Qualitative Structured Interview

Qualitative research allow us to get “different interpretations, expressions, and opinions” (Bryman and Bell, 2015). The aim is to get an overall picture of where Turkish banks are standing in terms of digital transformation and to have an understanding of the characteristics of changing business models, including the Covid-19 pandemic period. Therefore, qualitative data are collected through structured interviews from experts (Alvesson, 2011).

Interview of this study is designed from a neopositivist view by using structured interview method. All interviewees are asked the same, pre-established, questions in

order to minimize researcher bias and increase generalizability of the findings (Qu, 2011). The interview questions are prepared based on theoretical framework of digital transformation maturity model and BMC (see Appendix B for Turkish and English versions).

As the first part of the questions, the personal background is asked as warming questions. The overall influence of digitalization on the sector with a global perspective is determined with following questions.

Interview questions regarding the digital maturity level of the bank were formulated from the study of the literature (Buss et.al, 2016). These questions aim to understand whether the bank is *ad hoc* (digital reactor), *opportunistic* (digital explorer), *repeatable* (digital player), *managed* (digital transformer), *optimized* (digital disruptor).

There are four questions for investigating the digital maturity of the banks in accordance with the IDC model. These questions initially aim to understand the interaction and collaboration of business departments of the bank with IT department. In addition to this, the constant usage of digitalization in customer services is questioned to have an understanding of digital predisposition of bank and customer interactions. The innovative characteristics of digital products and services, current position of the bank in digitalization in TBS and globally offered services are also comprised in following questions for understanding the capacity and potential of the bank in terms of digital maturity as a digital transformer. As the last question of this section, bank's ability to create new business models responding the market is questioned to understand whether the banks has a digital disruptor characteristic or not.

BMC related questions are categorized mainly into five: general questions about the digitalization and its effects on the bank, customer related questions (whether the digitalization is used in customer relationship), product/service related questions, questions related to resources and partnerships (how digitalization affect the resource

supply and partnerships/outsourcing), finally financial aspects related questions such as whether digitalization brings cost advantages for the bank.

The first categorization of BMC questions is “Business Model and Digitalization”. In this category, main purpose is to understand view’s of the bank on digitalization, effects of Covid-19 on digitalization and change in retail banking, change induced in customer, products and processes due to digitalization.

The second categorization is “Product (Offerings)”. The change in products and services, the need for this change and Covid-19 effects are questioned in this category.

With the third category, “Customer”, the change in customer expectations and relations with customers are questioned together with repercussions of Covid-19 on this. The target customer base and value proposition to this customer base with respect to competition in the sector, changes in customer base in this process and motivation of customers are questioned in this respect.

Infrastructure Management is the fourth category. This category is very important in understanding competencies and their change due to digitalization, managerial support for digitalization, changes in internal processes due to digitalization, collaborations with new partners and effect of Covid-19 in this process. Each of these address important indicators also mentioned in Digital Maturity model discussions. Digitalization strategy and awareness of top management in this respect, resulting organizational changes and adaptations are important repercussions of digital readiness and capabilities. Collaborations with new partners and Fintechs in this context are of crucial importance for indicating the interactions in the eco-system.

The fifth and last category is “Financial Aspects” stating the cost benefits and changes in revenues stemming from digitalizations.

BMC questions are followed by future projection questions. This section aims to understand the vision of interviewees about the employment effects of digitalization,

new digital products like blockchain, digital money and AI with an open ended question regarding the future of the sector with respect to digitalization.

The interviews are conducted on Zoom due to Covid-19 pandemic.

4.2.3. Interview Regarding Regulatory and Public Authority Perspective

An additional interview has been conducted with a senior manager of regulatory authority to understand the regulatory and public authority perspective in digitalization of TBS. This interview is comprised of 10 questions. The interview questions are derived and prepared in accordance with the models and questions in previous topic (see Appendix B for Turkish and English versions).

This interview intends to understand the effects of digitalization on the sector, the status and position of the TBS in the world with respect to digitalization, regulations that have been made and planned in the future. The effect of Covid-19 in making regulations, already existing and planned regulations in line with pandemic are questioned to perceive the consideration of Covid-19 from regulatory perspective.

The vision of regulatory authority for formation of an eco-system with regulating the interactions and collaborations of banks, Fintechs, APIs, data-oriented telecommunication operators and BigTechs is questioned in this context. In addition to this, consideration for digital banking license for the future of TBS is stated in the interview.

The role and business models of regulatory and supervisory authorities, ensuring protection of bank customer rights in digital processes with respect to open banking and platforms is also considered in the interview.

Opinions regarding the future of banking with considering AI, digital money, blockchain, supervisory regulatory structure in the digitalization process and employment effects in the sector are questioned.

These questions are important indicators to understand the consideration of policy framework of TBS and its future. Digital awareness and readiness of public authorities are inducing actors in digitalization process with developing an understanding of a common vision to cope with harmonization and adaptation of policy development framework. Analysis and discussions regarding this single interview are stated in Chapter 5 and Chapter 6.

4.3. Data Collection

4.3.1 Selection of Banks as Cases

It is important to have a sound sampling representing the population in accordance with the research purpose stated above as investigating the digital maturity and understanding the impacts of digitalization in business models in TBS. In order to have respondents representing all the groups of banks in TBS, different banking groups like state-owned banks, private deposit banks, Islamic participation banks, medium-sized banks and foreign banks are considered in this study.

Representative banks selected in this study in terms of bank types are listed as:

- Bank A – medium scale foreign deposit bank,
- Bank B – big scale private deposit bank,
- Bank C – medium scale participation bank,
- Bank D – state development bank,
- Bank E - big scale private deposit bank,
- Bank F - medium scale private deposit bank
- Bank G- medium scale state-owned deposit bank

Hence, one bank from each banking group, as a relevant sample size represents the TBS in a sound manner. Banks are selected in accordance with the classification of Banking Regulation and Supervision Agency (BRSA). Asset share of selected banks in the study comprise about 40% of Turkish Banking Sector as of 2019 year-end.

This sample size, in terms of covering different types of banks in the sector, as classified by BRSA, and covering the 40% of assets of TBS is a reasonable and saturated sample for the sector. More interviews with other banks would most likely be iterations of findings of this study in this regard due to the saturation level of the sample. Besides, a senior manager from public authority is interviewed to have a better understanding of regulatory and public institutional perspective in this manner.

Therefore, interviewed banks and the interview with the senior director of regulatory and supervisory authority comprise a good, diversified and saturated sample of TBS for the context of this study.

Following these interviews, two interviews were also planned in the context of this study. Directors from The Bank's Association of Turkey (TBA) and Central Bank of Republic of Turkey (CBRT) were in the scope of this study. However, as the interview with the senior director from regulatory and supervisory authority already covered major topics, the interview with a director of TBA was left for future studies.

On the other hand, as CBRT is responsible for payment systems, an interview with a director from CBRT is again left for future studies as the main focus is on the banks and their interactions with other actors and business models in the ecosystem in this study. A future study regarding payment systems and companies in this regard should definitely have an interview with CBRT in this regard.

4.3.2 Selection of the Respondents

As the purpose of the research is to find out the industry wide impact of digitalization, it is crucial to have diversified banks than interviewing large amount of people from each bank. Therefore, respondent from each bank is selected carefully to have a picture of the ongoing business activities related to strategies, business development and digitalization.

Selection criteria of the interviewees were mainly relating to their position in leading and managing the digitalization strategy and process of their banks. Therefore, all participants are in the top management positions closely related to strategy and digitalization in their banks. They are either Vice-Presidents or Department Heads responsible from digitalization, digital transformation, alternative distribution channels and/or IT systems so that they provide not only perspective of their banks but also an overview of the industry together with projections for future regarding the industry and their bank.

The interviewee from regulatory authority is selected in accordance with his/her title, leading role in policy development and decision-making processes.

4.4. Limitations of the Study

Digitalization is a very dynamic and on-going process. Therefore, the literature and representative data regarding this context is limited and not synchronous with this dynamic process. Even findings regarding this topic become obsolete very quickly. In this respect, besides academic literature, reports of consultancy companies, banks and state authorities have been considered with regards to current developments (Gsell, 2017).

It has been very difficult to arrange interviews due to busy schedule of senior directors of banks. As a result of Covid-19, most bank directors were working at home and they had busy and tight schedules of Zoom and Webex meetings. Some banks could reply at the last moment for arranging interviews.

CBRT and TBA could not be included in interviews due to time constraints and refraining from iterations in interviews. For further studies, payment systems may be included in the context and CBRT directors may be interviewed.

Policies and studies regarding establishing value chains for innovative activity in TBS are lacking. Therefore, only two models, Digital Transformation Maturity Model and Business Model Canvas, have been used to analyze digitalization in TBS. However,

with the set-up of value chains for innovative activities in TBS in time, more methodologies like Five Forces and Diamond Models of Porter, multiple comparative case study etc. can be used in further studies for exploring effects of digitalization and changing business models.

As a result, limiting the scope and context of interviews due to time and Covid-19 constraints and using only two methodologies have been main limitations of the study.

4.5. Concluding Remarks

In accordance with the literature framework mentioned in Chapter 3, IDC Digital Maturity Model and Business Model Canvas is used together for analyzing TBS in this study. Questions of the interview are constructed with regards to the relationship between trust, collaboration and economic growth (Kondo et.al., 2020) together with IDC Digital Maturity Model and BMC.

In this study, an assessment of TBS with regards to these models is performed with considering Covid-19 pandemic effects on BMC of banks. Integrating digital banking, these models and Covid-19 effects is the novelty of this study for TBS. On the other hand, consideration of regulatory perspective with an additional interview gives an important insight to policy recommendations of this study.

The structure of questions in the interview with banks are designed to understand digital readiness and capacity of banks. Digital Maturity and BMC questions are complementary to each other. Sampling of the banks is also considered in this respect to represent the sector both in terms of asset size and variety of banks in TBS.

This structured interview sheds light to the framework stated in literature review Chapter with reasoning grounds and provides fruitful findings in Chapter 5 with recommendation of a sound policy framework in Chapter 6.

CHAPTER 5

ANALYSIS AND FINDINGS

The data collected through a structured interview is analyzed using the pattern-making approach presented by Yin (2014). “To identify patterns from the empirical data that are applicable to the whole industry, a matrix technique is used” (Miles and Hubermann, 1994). There are two tables that summarize the analysis for maturity level and business model canvas of banks. First, the maturity level of seven banks are determined according to the questions designed according to Digital Transformation Maturity Model (Buss et.al, 2016) and presented in Table 3 below. In addition, nine elements of the BMC (Gsell and Mette, 2017) are represented in columns and the responses from the interviewees in rows of Table 4.

5.1. Digitalization and Sector Competition

Digital transformation has started in Turkish banking sector around 2015-2016 as stated by Bank A.

BANK A “In 2015, we have started mobile banking in Turkey. For digitalization, there is no such a thing as one-size-fits-all”

As mentioned by Bank B and Bank C, Turkish banking has become one of the leaders in the world; better than US and Europe banking in terms of service quality and variety, especially in the retail banking operations (Bank F). In fact, the installment option to credit cards is one of the inventions.

BANK B “Turkey is in front of Europe and US in terms of service quality in banking. Our customers are spoiled. This is a demand-driven sector”

BANK C “Turkish banking sector is much better than Europe and US in terms of product variety. For

example, installment to credit card is our invention”

BANK F “Retail banking is faster than corporate banking in digitalization”

In fact, as stated by Bank E, Turkey has 56 million digital banking users of which 44 million of them are using mobile banking.

BANK E “There is digitalization index 2016 of Accenture and accordingly, Turkey in general is 61%, for financial companies 81%. Turkish retail banking digitalization has a leading role in the world. By January- March, according to banking association, there are over 56 million digital banking of which 44 million are using mobile banking. It is an important sales channel”.

“First digitalization was a channel change, now it is the main channel”

As a customer demand-driven sector, stated by Bank F, after digitalization, the competition has been based on service instead of price. The channels of providing services have been changed to digital platforms, mainly internet and mobile phones and due to the expectations and necessities of the consumers, the priority is given to seamless and personalized services (Bank B). As Bank D states, customers can easily change service providers according to their expectations.

BANK F “There is customer driven competition”

BANK B “New developments in technology brought radical changes. Specifically, as the internet and mobile phone usage has become an important part of our daily lives, individuals’ expectations and necessities with their interactions with financial institutes have changed”

“Now services provided out of the banks should be seamless”

“There is a need to design personalized solutions and proposals. As the life expectancy has increased, there is a new and niche segments that need extraordinary solutions”

BANK F “Before digitalization, competition was based on price, now it is based on service. People want to get good service, fast accessibility, and trustful environment; we were focusing on product before; now we focus on customer”

BANK D “Digitalization provided customer base enlargement as customers are quick to shift towards institutions with faster operations.”

One main effect of digitalization of the sector has been providing high quality, fast, personalized, accessible services, the other is the reduction in the number of branches. The number of branches has decreased from 12.000 to 10.000 in the last few years.

BANK B "...the effect of digital transformation banks have started to close their branches between 2017-2019"

BANK F "Digitalization fastens and ease processes: customers' operations diversification, and makes them paperless. In the long run, I think banking will be without branches. I cannot think of our children going to branches to pay electricity, gas bills, transfer money, buy currency etc. Branches may only be used for consultancy"

"We have a digital financial portal that uses no branch operation, which has been very beneficial during pandemic"

"For the last few years, the number of branches has decreased from 12.000 to 10.800"

BANK G "In banking, digitalization brought branchless banking. We try to provide trustful, fast and user friendly customer experience through internet and mobile banking"

With the decrease in the number of branches, more operations have to be handled through the digital platforms. That has brought the need of fast, trustful, innovative solutions to customer expectations, which is front desk operations; and also a new organizational system, back desk operations. In order to achieve this digital transformation, banks have started to use AI.

BANK G "Digitalization is transformation of knowledge and data to digital and it affected not only the product but also the whole system"

BANK B "Now, AI is the trend"

"Artificial intelligence, non-intermediary systems etc. affect doing business in the financial world"

One additional effect of AI also has been on digital marketing as mentioned by Bank D. Therefore, besides operational processes and service quality, AI is increasing the quality of competition by digital marketing.

BANK D "Retail banks started using AI. We are starting to use AI in pop-ups and digital marketing in our bank."

New technology usage in the financial system has brought a new challenge to the competition. Banks have started to compete to provide new service channels and adapt/restructure their organization to the new digital world. That has created a necessity to cooperate with other technology and data driven companies such as Fintechs and technology firms.

BANK A “Digitalization is there, in some cases as leapfrog, in some slower. Maturity differs from one country to another, for example, Fintech is growing much higher in China than any other country due to its market, population, and social status.”

BANK B “In Europe there is Payment Services Directive, Open Bank Standards, Opening APIs for Fintechs that create competition risk as threats to payment services, asset management, and financial consultancy services of banks”

“In US there is **GAFAM** (Google, Amazon, Facebook, Apple and Microsoft) and in Asia there is **BATPJ** (Baidu, Alibaba, Tencent, Xiaomi, PJ Pingan and JD) as the giant technology firm competing aggressively against banks due to their collected data size, customer network and their expertise in AI”

Turkey, as one of the leaders of the global banking sector in terms of product variety and quality, has been behind many countries in cooperating with other financial institutions. In the first decade of 2000s, due to investments for the adaptation of recent banking technologies, TBS was mentioned among the leaders in global banking sector as stated in the interviews. However, due to lacks in collaboration with Fintechs and other actors, TBS failed to create an innovation system and consequently, Turkey has been behind many countries as mentioned in the interviews.

BANK F “Yet, we do not have enough cooperation with Fintechs. We are followers in that respect. If we put AI maturity level on a scale of 1-5 (1 lowest, 5 highest), our sector is 2”

5.2. Digital Transformation Maturity Model

According to IDC (Buss et al., 2016), banks have different maturity levels of digital transformation. This model classifies the banks according to how much and in what respect (perspective) they incorporate digitalization to their organization: ranging from having no IT cooperation (Ad Hoc) to integration of digitalization as a business strategy to vessels of the organization (Optimized).

The analysis for maturity level is summarized in the Table stated below:

Table 5. Digital Transformation Maturity Model

	Ad Hoc	Opportunistic	Repeatable	Managed	Optimized
Bank A			X		
Bank B					X
Bank C				X	
Bank D			X		
Bank E				X	
Bank F				X	
Bank G			X		

Source: Derived by the author.

* “Digital Reactors-Ad Hoc” which practice ad hoc, siloed digital transformation, are governed by leadership that lacks vision or commitment for digital transformation, and have a culture that is resistant to change; they use digital technology reactively and buy solutions without IT approval. “Digital Explorer-Opportunistic” has identified a need to develop a digital strategy but execution is on a project basis and focuses on the front office; they enable digitally customer experiences and products are inconsistent and not repeatable. “Digital Player-Repeatable” IT goals are better aligned the creation of products and experiences. IT enables line of business through infrastructure digital transformation initiatives. They provide consistent and repeatable products and experiences but not true innovation yet. “Digital Transformer-Managed” has integrated, synergistic line of business – IT management disciplines deliver digitally enabled product/service experiences on a continuous basis. They are the leaders in their markets, providing world class digital products, services and experiences. At the other end of the scale, “Digital Disruptors-Optimized” use digital transformation to transform markets and customers by creating new business models and product/service experiences. They are totally agile in the use of new digital technologies. Line of business and IT are continuously synchronized to maintain the digital environment. Digital Disruptors can create game-changing business models and disrupt the competitive environment.

** Types of banks: Bank A – medium scale foreign deposit bank, Bank B – big scale private deposit bank, Bank C – medium scale participation bank, Bank D – state development bank, Bank E - big scale private deposit bank, Bank F - medium scale private deposit bank, Bank G- medium scale state deposit bank.

The seven experts at the top management of diversified banks in Turkey has classified their banks as follows:

Banks that do not get IT approval for digital technology usage is called “Ad Hoc”. All of the experts participated to the interview has mentioned that when any technology decision is made, they cooperate with IT.

BANK B “We are affiliated with our own software company, we are not outsourcing”

BANK E “We work as one team. Decisions are made not trough waterfall mechanism, we decide as a team”

BANK F “Mobile banking, internet center, call center, ATM, all IT related operational activities are Chief IT Officer’s responsibility”

BANK C “When we want to use digital technology/need vendor for cooperation, yes we talk to IT”

BANK A “Yes. We cooperate”

BANK F “We get their approval”

BANK D “We are proceeding with respect to a plan in technology. Business departments and IT department work together from kick-off to the end.”

The second maturity level of the digital transformation maturity model is “Opportunistic” which states that the products are not repeatable and consistent. None of the banks fit in this category. “Repeatable, however, is when there is consistent and repeatable products and experiences but not innovative yet. When the expert thinks his/her bank uses innovative products/services, the bank is considered not to be “Repeatable”. Participants define what innovative is at first. Innovation is generally taken as developing different products and/or better, differentiated existing ones to solve customer problems.

All banks have found to be at least in “Repeatable” maturity level of the model which supports the view that Turkish banking sector is quite good in terms of providing innovative services.

BANK B: “We call developing different and new product as innovation. Also developing an existing product to be better and differentiated is also a part of innovation. For that most of our products are innovative”

BANK E “Yes. There is especially a worldwide success that is draw money from ATM machine with QR Code. It is not developed because of Covid-19, it has been used for years and we have invested in this technology usage for years.

“We do not invent but we use innovative technologies to solve customer problems”

BANK F “We do have innovative services like digital financial portal, digital approval with no wet signature, having no operational team in branches, only retail and corporate portfolio managers are in branches, just sales team. We reduce paper usage almost one fourth”

BANK C “Most innovative services of banks give have been known for a while. But there are things like video call through mobile banking that has not been available right now”

“We do have an innovative service: making the processes of fund usage fully digital”

BANK A “In terms of user experience we do have some innovative services, especially in terms of mobile banking. Yet, these can have 50% innovative value in academics”

BANK G “We do have innovative digital channels like chat bot, live help, webcat with AI, QR payment”

BANK D “We have globally unique products in our niche finance area which have complex IT infrastructures, developed in-house as unique and innovative. Our mobile app is getting launched. We

have digital platforms for information sharing with other banks and factoring companies and we are working with them.

“Managed” banks have digital services continuously and they are leaders in their markets with their world class services and experiences. According to this, Bank A, D and G expert answers show that these two banks cannot be in this category, they will stay to be “Repeatable”, others will pass this maturity stage. Specifically, Bank B seems to be the leader retail bank almost in all digital platforms, but other banks like Bank C, for example, is the leader in more specialized niche areas, such as smart ATM.

BANK B – “initiated almost all digital platforms in Turkey”

BANK E- “We are not digital native, we think digitally. It is inside our organizational structure. Our major shareholder is an internationally well-known foreign bank”

“What we do brings sound all over the world. We are role model to other foreign banks.”

BANK F “We do not have worldwide services, but we will see different implementations of our digital financial portal in different countries hopefully”

BANK C “We have been leading in many things: such as a digital platform we developed that allows us to ease the process to have contracts with customers”

“We are the first at smart ATM in Turkey and I think there are a few all over the world; Commerzbank, one in Dubai. We have designed it as front desk and branch”

BANK A “I do not think we are in leader position”

BANK G “We have improved our mobile banking services, we have paperless Project and we provide customer services through online and live support”

The highest level of digital transformation maturity is “Optimized” that “use digital transformation to transform markets and customers by creating new business models and product/service experiences”. When we look at the answers, only Bank B seems to be qualified to be “optimized” bank. It has achieved to incorporate the digitalization transformation into their organizational structure with new business models and products used in front and back desk. As opposed to other banks that see digitalization as a concept to improve their operations, Bank B incorporates digitalization as a perspective, a model that is beyond “just transforming operations to digital channels” that transforms the market.

BANK B “For us, digitalization is making processes non-intermediary”

“We aim to provide value added products and services to our customers in their all stages of life through following their footprints in and out of banking system. That is why digitalization in our perspective is way beyond a concept than “just transforming operations to digital channels”.

BANK E “We change our branches according to digitalization. We have digital signature and we have digitalization integrated into our culture”

BANK F “In Turkey, we initiated giving some customer services like credit usage through mobile banking”

BANK C “We have channel-free banking project: customers give signature once instead of 40-50 pages through mobile. We try to improve our mobile branch but there are problems. Now our mobile branch needs 180 MB and not every branch has wifi”

“We were providing services through individual banking internet branch. Now customers use mobile banking and we integrated mobile banking to e-government”

BANK A “We have tailored made mainly SME, commercial type of services. We have few number of customers and we try to have new business models, co-operations using our global network”

BANK G “We try to follow new digital channels and build necessary infrastructure”

Hence, appetite of banks for digitalization and long-term investments in this respect bring diversification of digital maturity level as stated in this Digital Transformation Maturity Model. Digitalization needs long-term, consistent and visionary effort to be categorized in “Optimized” maturity level as a digital leader. With rising awareness of digitalization as a new business paradigm, TBS may step forward in this model with digital channels as major channels with a wide variety of tailor-made digital banking products.

5.3. Digitalization as a Strategy and Covid-19 Effect

Digitalization has changed the marketing, sales, human resources and investment strategies of banks. But for some banks, like Bank C, digitalization is still considered just for front desk operations, mainly as a channel, because during their digital transformation process, they hesitate to invest on more digitalization concerning about the cost-benefit balance.

BANK C “Digitalization, according to us, is improving customer experiences through using digitals: mobile banking or robotic or a process automation”

“When we try to transform digitalization, we sometimes have to decide how much: for example, there is a financial analytics project that forecasts 3 months, 6 months, 1 year, two years balance sheets- ALM

(asset-liability management). Big banks do it, but we need to think whether to go further or not to invest on more digitalization”

For Bank G, digitalization is a channel, and still an operational based thing instead of a business strategy, yet these channels have an ecosystem among them and it causes operations to be done without using branches.

BANK G “We try to give banking services through mobile banking or Omni-channel. Channels have been an ecosystem that our customers feel privileged”

“We have 2.5 million customers that use digital banking regularly every month, 90% of the operations are without using branches”

As Bank B mentions banks should invest in digital infrastructure because it is already integrated into our lives as “augmented reality” and as Bank E states digitalization has no longer been just a channel but the main concern of banks.

BANK B “With digitalization, banks should strengthen their infrastructures, position their physical and digital channels as complements, use robots, models and automation based on customer perspective. In fact, concepts such as industry 4.0, AI, internet of things, blockchain, artificial reality, augmented reality have already in our lives”

BANK E “We are one of the first banks that has general director assistant specialized in digitalization. In our sector digitalization was called “alternative distribution channel” but we changed its name to “digital banking” because we do not see it as a distribution channel we see digital as a bank main thing”

Covid-19 is a pandemic that requires people to stay at home and therefore limits the face-to-face communication. This automatically has forced the services sector, including banks, to provide their services more through digital platforms, hence fasten the digital transformation period. Both banks and customers have become more digital.

BANK B “Because of Covid-19, projected digitalization have realized within two months instead of five years”

“With Covid-19, e-government and mobile banking usage have increased even among the ones who are digitally illiterate”

BANK A “Convenience digital channels become must have”

Furthermore, as Bank B, D, E and F states employees in banks have started to work from their homes, and as Bank G states the banking has become “branchless”, Bank E mentions that branches have transformed into digital platforms.

BANK B “We realized that operational routines are unnecessary and process reengineering is a must. Also distance, at home working became obligatory”

“We have a 20 year old history in digitalization, have had 98% of our operations out of our branches. Still this Covid-19 period has shown that 2% can also be decreased and have started not to come to branches”

“We became branchless suddenly: branchless meaning we should not want our customers come to branches, we should not want them to leave their homes. We have not thought of that before”

“Our employees worked at home with their iPads and call customers and our call center was very active”

BANK F “65% of the employees (including top management, call centers) have started to work from home during Covid-19. We had meetings through Webex and Skype”

BANK D “We utilized IT infrastructure and digital tools for working at home due to Covid-19. Our customers also preferred internet banking channel which is recently enhanced.”

BANK G “We try to reduce the operational load of branches after Covid-19 through transferring it to digital channels and try to reach our segment that way”

BANK E “Branching has been changed. Most employees in some cities and provinces have continued to work at home with their phones as call centers, Ipads. Branches have turned to phone and digital platform. Distant interaction have increased. Our way of doing business has changed”

Both banks and customers have realized that most of the operations that they have thought should be done in branches can, in fact, be done easily through using digital platforms. For example, as Bank F explains customers have been ordering using emails instead of fax, they sign less to get credits. Mobile banking usage has increased, even in branches.

BANK F “Customers were giving orders by fax, after Covid-19 they have started to send emails and they realized it was easier”

“We chose operations that have highest frequency/concentration and have started to digitalize consumer credits first because one needs to sign 37 times to get credit. We still have some operations/processes that need to be digitalized”

BANK C “With covid-19, number of mobile branches increases from 210.000 in 2015 to 1.400.000 now”

BANK A “Mobile banking users have increased, with Covid-19, digitalization become part of our life, we try to offer seamless, fast and easy digital service”

It seems like some banks feel that they have been ready and open to the radical digital changes Covid-19 has brought to the sector.

BANK B “Because of our investments on digital transformation for many years, we were ready to give necessary banking services very fast and easy”.

While other banks, such as Bank C and Bank A, have been having some operational problems or thinking conservative about adapting digital platforms to provide their services.

BANK C “The number of our digital portal users increase so dramatically that we are overloaded. For some contracts, we still need wet signature so we used cargo companies to carry documents from customers to home working employees and it took 15 days to finish the procedures instead of 3 days”

BANK A “Mobile banking users have increased, but we and our customers have still preferred using branches, we kept our branches half day open”

Covid-19 has been an important experience to test the results of previous investments for technology and digitalization. It has accelerated digitalization and has even taught using digital technologies to 65+ elderly population. This process has reminded humans their adaptation capabilities. People adapt and learn rapidly when they have to. So do organizations. Therefore, following Covid-19, forward steps for digitalization will be bolder.

5.4. Business Model Canvas (BMC)

The digital transformation is no longer just a front desk issue for banks that try to find innovative solutions to customer needs and expectations. It is now integrated to all fields of business, including marketing, accounting, finance, and human resources. Therefore, it is crucial to look at any sector's (especially services sector like banking's) digitalization process as a new business model. The BMC (Osterwalder and Pigneur, 2004; 2010) has been the most commonly used model in that respect for competitive analyses, management and innovation purposes (Osterwalder, Pigneur & Tucci, 2005; Bocken, Short, Rana & Evans, 2014). It is also adapted for banking by Gsell and Mette

(2017). Accordingly, there are four main pillars in the model: “customer interface, product, infrastructure management, and financial aspects”.

Table 6 summarizing interview findings is stated below.

Table 6. Interview Findings

INTERVIEW FINDINGS - BUSINESS MODEL CANVAS									
Company	Customer Interface			Product	Infrastructure Management			Financial Aspects	
	Segments	Relationships	Channels	Value Proposition	Resources	Activities	Partners	Revenue	Cost
Bank A	Few number of customers, tailored made commercial and SMEs, Niche segment. Segmentation have not changed much during pandemic	Face to face communication, few mobile banking. Personalized services, half day open branches, call center overload	Conservative to use digitalization, mobile banking only, still branches. Convenience digital channels become must have, volume of mobile banking and call center increased.	Personalized and high quality services to niche segment. Faster and more personalized service.	IT personnel, inhouse IT services, sometimes outsourcing especially data mining, Digital tech department. Half time working employee in branches, more for call center.	New organizational structure, digital tech department. Opened branches half day, increase in employees of call centers.	Inhouse IT, mobile. Partners with technology companies for data mining.	Personalizes services at Branches. Mobile banking and call center services.	Theoretically there is cost reduction, but with minimum required branch number there is still a cost. With call center and mobile banking increase, there is cost reduction on paper.
Bank B	More contious, questioning, hard to satisfy, less loyal. More life expectancy creates new niche segments and the need for extraordinary solutions. 20% more mobile-internet users, current customers, increase mainly 56, retired, years old and above, and 36-45 years old private sector workers.	Direct telephone and using artificial intelligence, easily accessible, fast, trustful, personalized. Higher usage of digital platforms when directly interacted within the last 5 years.	Digital Platforms - mainly-mobile and internet banking. Videos and direct telephones for explaining digital services. More frequent usage in all digital platforms, “embedded banking” with blockchain and AI.	Being beside the customers at their all stages of life through trustful, personalized (different life styles and necessities), innovative technology driven and socially beneficial services. Personalized and seamless internet mobile banking service, no face to face communication, fast, safe.	Transforming most capital to digital investment-150 million dollars. Investment in Data Storage Centers, Software Development, Open Banking, New Personnel-Data Scientists, Data Architect, Test and Maintenance. Data Academy in universities, training, planning to build own lab in the bank.	Services provided out of banking system (through social media, web pages etc). New departments and units therefore personnel for digitalization (not only front office but inside the organization). Online service, home office. Data Academy in universities, training, planning to build own lab in the bank.	Plug and Play Affiliated with own software company, Silicon Valley and China branch, data and knowledge sharing with Fintech. Affiliated Software Company (not outsourcing), Fintechs.	94% operation through digital channel, only 6% in branches. More revenue from mobile banking.	High reduction in cost. Cost reduction due to home office working and using digital platforms.

Table 6. Interview Findings (continued)

INTERVIEW FINDINGS - BUSINESS MODEL CANVAS									
Company	Customer Interface			Product	Infrastructure Management			Financial Aspects	
	Segments	Relationships	Channels	Value Proposition	Resources	Activities	Partners	Revenue	Cost
Bank C	More continuous more demanding and questioning customers, SMEs, Entrepreneurs, digital platforms for youngs and digital onlvs, foreigners,try for small district (mahalle) housewives etc. More continuous more demanding and questioning customers, SMEs, Entrepreneurs, digital platforms for youngs and digital onlvs, foreigners,try for small district (mahalle) housewives etc. Not a drastic change in the	Mainly mobile banking, informing new products through youtube. Working on having video call for mobile banking to have face to face relation. Trying to provide mobile internet services through e-government.	Digital portal, smart ATM, mobile branch (one signature is enough instead of many), QR Code, word of mouth. Mobile banking, e-government integrated banking	Provide developed digital portal, smart ATM, Fund exposure. Digital fund exposure in domestic market.	Investment on mobile banking usage-video call. Investment more on digital infrastructure, robotics.	Build three units, customer, product, process; build digital transformation innovation department, idea platform, process mining, robotic teams. More digital portal usage, and for signatures especially has to use cargo companies to reach home office working employees, invest more on digital infrastructure.	In-house core banking activities, Outsource special applications, web sites, BT, SEO. In-house core banking activities, Outsource special applications, web sites, BT, SEO. Trying to be partners with Fintechs., content marketing companies,e-government	Revenue mainly from smart ATM, portal. Branchless services, digital fund exposure.	Cost reduction after mobile banking and portal usage, robotics. More digital platform usage, robotics and home office working reduce cost, e government integration.
Bank D	Mainly working with traders. 13,000 trading companies as customers last year. More effective utilization of digital tools.	Tailor made products, recently launched mobile banking. Prompt operations with digitalization. Besides internet banking, launching of mobile application is expected to increase customer awareness for digital tools.	Digital banking; internet banking and branch, digital marketing is about to get launched with launching of mobile app.	Specialization in specific finance and flexibility to afford the cost of operations, tailor made product development, recent mobile app and internet banking; mitigation of operational risk, prompt timing and operational quality, efficiency of operations.	Mostly in-house.	New department named as Strategy and Project Management, enlarged IT organization, digitalized operational processes. Distant working capacity is tested.	Tendency to increase incorporation with Fintechs and ministries by digitalization.	Increased number of customers by digitalization and potential marketing opportunities.	Prompt operations with lower costs, cost advantages due to digitalization. Distant working cost advantaged.

Table 6. Interview Findings (continued)

INTERVIEW FINDINGS - BUSINESS MODEL CANVAS									
Company	Customer Interface			Product	Infrastructure Management			Financial Aspects	
	Segments	Relationships	Channels	Value Proposition	Resources	Activities	Partners	Revenue	Cost
Bank E	Aim to cover all groups. 65+ have started to use digital platforms, mainly mobile banking.	Most operations through the branches. Trying to give all services without having to go to branches, even for the trust based problematic ones, ID Approval, Personalized services through call centers, phones.	QR Code in ATM Face to face to find new customers Branch-based introduction. Becoming branchless Transfer branch services to mobile, Call Centers, Telephone calls, for introducing services.	Using technology, (but not producing) to give trustful strong high quality services (as a commodity product). Find innovative solutions to transform almost all branch operations to digital platforms.	In-house IT Branch based services Regular services by digital platforms, others through human force. Resource-allocation optimization Reduction in branch working personnel.	Branch based activities. Working at home with iPads and phones, increase side services providing through ID approval Not used regular committee approval procedure, instead direct fast decisions.	In-house IT but for value-added services cooperation with Fintechs. Urgent IT inhouse but value added services with Fintechs.	98% operation through digital channel, only 2% in branches. 2% nondigital customers have started to use digital platforms. Revenue increase.	Cost reduction by branch, call center distribution channels ATM, but not only that it allows effective intensive frequent relationship. Increase in cost reduction.
Bank F	Retail and corporate (especially SMEs) banking, retired and university students, increase in young digital users. Advertising for retired to use mobile banking, university students to use digital financial portal more.	Most communications through a digital financial portal, fax, calling and talking call centers. Increase in the usage of digital financial portal, call center, email, customer tracking his/her own operations through different digital channels, chatting through mobiles and call centers.	Only portfolio consultancy in branches Use of digital financial portal for most operations, Orders through fax Only using digital financial portal and call center, orders through email, not only calling but chatting through call centers	Digital Financial Portal with its costless, accessible, and good interest rate offers. New services provided through call centers and digital portal like credits, paper-free, wet-signature free services.	IT and internal operation are inhouse, call center is outsourced, new teams with digital marketing skills. No change in terms of in-house IT and outsource call center.	Provide paperless (no wet signature) front and back desk operations. 65% of employees have started to work from home, Webex, Skype usage, providing extra services through email, digital platforms (consumer credits etc), redesigning products to digital.	Outsource call center. Outsource call center, IT and Operations are insourced, Fintechs have become digital bridge.	Mainly through digital portal users, 95% Market share has increased with branchless operations and at home working.	Cost reduction, increase in market share, high accessibility. Increase in cost reduction.

Table 6. Interview Findings (continued)

INTERVIEW FINDINGS - BUSINESS MODEL CANVAS									
Company	Customer Interface		Product		Infrastructure Management		Financial Aspects		
	Segments	Relationships	Channels	Value Proposition	Resources	Activities	Partners	Revenue	Cost
Bank G	SMEs, students, retired, public private workers.	Omni-channel relation, some operations in branches-face to face SME portals, giving credits to low income households.	Mobile banking, omni-channel, SME portal, branches.	Keeping social responsibility spirit and giving priority to public, especially low income households. Try to give seamless digital services.	Increase in investment to digital infrastructure and techno human resources due to young customer demand. Investment in mobile banking.	Invest in digital infrastructure of frond desk and back desk activities. Make employees work at home, start giving consumer credits (necessity based) digitally.	Not too much cooperation. Will cooperate more with other banks and companies.	90% of operations are out of branch. Mostly from mobile banking.	Branchless, digital operation are more productive effective and cheaper. Doing operation through digital platforms are 15-20 times cheaper than branch operations.

Note: Red colored text in the Table represents Covid-19 effect on BMC.

Following Table 6, interview data has been categorized and analyzed accordingly.

5.4.1. Customer Interface

Digitalization has affected the customers, product and the process at the same time. Yet, when we asked which one has been affected the most, almost all banks stated that customers have been affected the most.

BANK A “Customers are affected the most from digitalization”

BANK C “We were focusing on products before, now we focus on customers and customers have been affected the most”

BANK D “Initially customers get affected and this has repercussions in processes... We are also customers of other banks. Therefore, first developers in digitalization have advantage.”

In addition, as pointed out by Hagberg, Sundstrom and Egels-Zandén (2016) and mentioned by Bank B, D and G, they are the ones that triggered most of the usage of digital platforms.

BANK B “With the trigger of customers, the way of doing business and the organizational culture have been changed”

BANK G “If you cannot digitally transform, you lose in competition. You need to adapt to continuously changing customer demand”

BANK D “As our customers are traders, they give us professional and keen feedbacks from abroad regarding trade finance and push us for product and process development.”

Hence, as pointed-out by Bank B, E, F, C, during the digital transformation, banks have been trying to satisfy the expectations that pushes them to provide branchless, fast, accessible, innovative and secure services (Atz & Bohlat, 2016).

BANK B “Banks should provide easy, fast, time and location independent, differentiated and personalized experiences”

BANK E “Customers must trust you. They are all affected together, it is a process management”

BANK F “Customers do not need to come to branches anymore. They can track their operations through using different digital channels. All products are converted into digital and thus simplified”

BANK C “We have three units: product development, process & experience, and customer. We have customer experience workshop that we use design thinking.”

5.4.2. Customer Segments

With digitalization, it is obvious that customers have learned a lot with their experiences. As Bank B and C mention they have become more curious, more questioning, less loyal, and demanding.

BANK B “We are now faced with more continuous, more questioning, less loyal and difficult to satisfy customers”.

BANK C “We face more curious, questioning, demanding customers, especially new generation”

Each bank has its own customer segment mainly classified by demographics (e.g., retired, and aged 65+; especially after Covid-19), retail, corporate, SMEs.

BANK G “In digital banking, our target segment is SMEs, students, retired, public and private personnel, very broad group”

BANK E “Different age groups and almost all of the population are included in our target segment. Individual, institutional and investment sides...”

BANK F “We have diversified segments: retail, corporate (especially SMEs), retired banking and university students. We encourage them to use our digital financial portal and mobile banking for e-bills etc.”

BANK A “We have few customers and most are tailored made services, mainly SMEs and commercial, niche segment”

As opposed to Gsell and Mette (2017) that finds a minor impact of digitalization on the segmentation. Young population is mentioned to be earlier and most frequent users of digital technology, mainly mobile banking. In fact Bank B states that they have 8.4 million young mobile users and Bank C calls these youngsters as “digital only”s and aim to capture them through their digital portal. In terms of segmentation, some banks, e.g., Bank B and C mentioned about they aim to capture niche segments like foreign customers, housewives, artisans during digital transformation.

BANK B: “Due to the change in the life expectancy there are new and niche segments”

BANK C “Our digital portal mainly aim to capture youngsters, ‘digital only’s; we do have foreign customers and also want to reach small districts housewives, artisans, in their BES application for example”

After Covid-19, especially with the quarantine period, as Bank B states, number of mobile and internet banking users has increased by 20% also with the frequency of usage.

BANK B “With covid-19, the number of customer using mobile and internet banking has increased by 20% since 13 March. Also the frequency of usage have increased too”

Gsell and Mette (2017) states that even after digitalization “customers 50+ tend to use branch services”, which also applies to our banking sector till Covid-19. The most affected segment during Covid-19 is 65+ year old, retired people. As stated by Bank B and Bank E, they have become digital users after pandemic. In addition, it is interesting to note that according to Bank B, 56+ years old retired and 36-45 year old private sector workers have used mobile banking more, but the main point is these customers have been contacted within the 5 years. So recent communication also plays a key role of capturing different segments and make them to use digital platforms.

BANK B “Between 16-23 March usage of our mobile banking has increased dramatically for 56 years old retired customers and the customers that we have communicated 5 years ago. Between 1-17 April

non-active and 36-45 year old private sector worker and the ones communicated 5 years and before have increased the usage of mobile banking”.

BANK E “Covid-19 did not change our target segment but segment concentration especially 65+ years old retired people have been added into digital users”

In addition, banks have given priority to health workers and 65+ year old retired people in providing digital services after Covid-19.

BANK B “We especially focused on giving services priority to 65 years old and older and health sector workers during pandemic”.

5.4.3. Customer Relationship

Customer relationship has a priority in terms of business strategy after the digitalization As Bank C mentions, product-based service has become customer-based.

BANK C “We were focusing on products before, now we focus on customers”
“We ask our customers’ about their needs more

Bank A states that they are led by customer needs and as Jakšič and Marinč (2015), it is crucial to think “customer centric” to adapt to digital transformation.

BANK A “Customers lead us about what to do”

Banks have various digital solutions to satisfy the customer needs after digitalization, such as mobile banking with AI (Bank B), integrating banking services with call centers (Bank F), eliminating some procedural time taking and costly processes like card price, account fee, signs to get credit using mobile banking (Bank C, Bank G).

BANK B “We use mobile, direct communication and mass communication are our channels. We renew especially the mobile channel using artificial intelligence and remind/ inform our customers about our channels regularly”.

BANK F “Customers are leading us. For example, they used to call the call centers and chat only through mobile even though we had chat option for the call centers.

BANK C “We do not ask for card price, account fee and they love it”.

BANK G “After digitalization, our customers can see their account balance or get credits with their mobiles”

As Bank C states, customers have started to criticize more and they have become less loyal (Kirchner and Beyer 2016).

BANK C “Some customers blame us for some regulations such as 1% tax to gold and currency. They criticize in social media, and they are less loyal”

With the Covid-19, as Bank G mentions, usage of digital platforms have increased, relationship with the customers have become more personalized and digital. Customers have started to prefer fast and convenient channels to communicate, as stated by Bank F. Convenience has, in fact, been one of the most important criteria of communication of banks with their customers after digitalization (Milkau and Bott, 2015).

BANK G “After Covid-19, we have started to inform customers more about how to use digital channels”

BANK F “During pandemic, due to potential internet problems (our call centers employees were also working from home), they found chatting more convenient and faster than talking when they use the call centers”

5.4.4. Channels

Branching was the main communication channel with customers before digitalization (Bank B).

BANK B “Before digitalization, till 2016 big banks were capturing unbanked populations through branching”

Yet, with digitalization, as Bank D states banks have started to use digital marketing more actively. In addition, supporting Sia, Soh & Weill (2016), number of branches has decreased as stated by Bank B and even trust demanding operations like removing blockade on checks, signing in branches have been transferred to digital platforms (Bank E and F). Hence, almost all banks stated that these digital transformation effects have been even more accentuated during Covid-19 (Bank C).

BANK B "...the effect of digital transformation banks have started to close their branches between 2017-2019"

BANK E "We especially try to give digital and innovative solutions/services that customers need to come to branches, side and trust demanding services such as removing blockade on checks etc"

BANK F "Customers have started to use digital portal more. Retired people have used mobile banking and give orders through e-signature. They do not come to branches"

BANK C "We use digital portal and mobile banking, especially during Covid-19 time"

BANK D "Digitalization provided us better utilization of digital channels and more active digital marketing."

Customers prefer digital platforms, because, as Bank B states they demand simple and seamless communication channels, supporting Gsell and Mette, (2017) finding.

BANK B "Customers demand to do banking operations through seamless and simple out of banking applications"

As Hagberg, Sundstrom and Egels-Zandén (2016) points, the new devices are used for communication in banking. The main communication channel has become mobile banking after digitalization (Bank B and E)

BANK B "We use mobile banking mostly. We communicate our customers through sending videos and calling them by phone directly for informing about the usage of our channels "

BANK E "We especially had face-to-face communication to find new customers. Now we quickly turned into mobile banking and transfer all branch operations into mobile"

Increase in the mobile banking usage increase has obviously been drastical during the pandemic period. As Bank E and B state, more personalized communication ways like video calls have been used to the target segments like 65+ years old and young customers.

BANK E "We did video calls, improved or ID approval processes and become digitalized quickly in two months after Covid-19. We have seen that the risky segment 65+ can easily do most operations through mobile banking without going to branches"

BANK B "We design videos and call our customers that are in younger age group to inform them that our digital platforms are like the social media and texting apps that they use in their daily lives".

With all these digital platforms available for communication, it is obviously seen by the interviews that face-to face communication is still important and preferable sales channel, supporting Gsell and Mette, (2017). In fact, in almost all banks they try to reach their customers through video calls by phone or try to integrate videos to mobile banking (Bank C). Bank A mentions that in Turkey face-to-face communication is a cultural must and even during pandemic, they have kept half of their branches open. This is a cultural path-dependency as a barrier for limiting fitness, adaptation for digitalization. Such path-dependencies are important determinants for the diffusion of new technologies in different sectors, amongst society. But they are also transforming by time as in the example of video calls vs. face-to-face communication.

BANK C “We try to have video call on mobile banking to have face-to-face communication”

BANK A “My colleagues say that there will be no branches soon but I think face-to-face communication is a must in Turkish culture. I think digitalization will necessitates learning curve for us and for customers”

“Our customers asked when will be our branches be open, we kept our branches open half day even during pandemic”

In addition, Bank C mentions the importance of “word of mouth” as a sales channel. Especially in marketing, sharing of customer feedbacks and experiences has significant impact. But “word of mouth”, as a means of advertising and promotion for enabling the diffusion of products has also changed with digitalization. Digital platforms of “word of mouth” and digital marketing are now important channels for sales as mentioned in the interviews.

BANK C “We have payment, investment online through QR and we introduce this feature through YouTube.”

As for the future prospects about the banking services channels, Bank C states the integration of portals, especially the bank services with the government portal e-government to pay bills, taxes etc. Bank B mentions a new concept “embedded banking” where new technologies such as AI and blockchain are embedded into the banking system.

With these new technologies, tailor-made, decentralized, end-to-end transactions gain significance such as blockchain. All of these transactions are in unique conditions. Hence, instead of conventional banking products for mass finance, technological developments provide designing these transactions with unique conditions of finance. This business model contradicts with economies of scale. However, thanks to technological developments, cost of designing and implementing such transactions is becoming lower and unique conditions of finance in each transaction are named as “embedded banking”. Consequently, the future of banking products is prone to canalize financial system to such transactions like blockchain. This change requires of transformation of business models and legal framework in this respect as mentioned in the interviews.

BANK C “We have integrated our portal with e-government”

BANK B “The future will be based on “embedded banking”- blockchain and AI will be embedded into the payment, all sorts of banking services”

5.4.5. Product

In terms of the changes in product and services after digitalization, as Bank B says, it has become important to who, how, and with what value the banks deliver the services.

BANK B “After digitalization, it became important to provide services and products to who, which point of contact and which proposed value”

For example, for a public bank like Bank G, it is being accessible and fast to provide financial support to public that is in need, like credits to SMES and households with 5000 TL or less income level. Thus, it is not only using digital platforms that makes the bank digitally successful, it is for what reason to who and how that is important to be a successful digital transformer.

BANK G “We support reel sector, we have SME support portal that allows SMEs to apply for credits. We also provide credits to households that has monthly income 5000 TL and less”.

Customers are also providing prompt feedback to their banks to push them in product development and digital process development as pointed out by Bank D.

BANK D “Digitalization became a necessity for us as our customers are more active in giving feedbacks regarding products and processes of other banks abroad. Therefore, customers are pushing for us for product development and digitalized and eased operational processes.”

After Covid-19, it was inevitable that with the services provided, it seems like the whole system has changed.

Bank E, “Covid-19 have forced us to think and live simple. We have started to think simple and tried to find solutions for not being have to go to branches and do everything digitally. Some happened because of customer demand but not all of them. Because customers were not aware that most of their necessities can be available through digital platforms. We have informed them. Also, we now try to find innovative solutions to provide some services (the ones we think branches will provide anyway digitally)”

Most of the changes were customer driven and the services that necessitates more time and effort have been given priority (Bank F)

BANK F “We were customer driven and have started with the most problematic ones, for example consumer credit that one has to sign 37 times. With Covid-19, we see that customers have started to use the services that have not experienced before, they have refrain from using”.

Bank B states that AI usage in digital platforms has increased dramatically. In fact “the number of dialogues was 1.8 million average per month, but in April it was 3 million”.

BANK B “We have had an AI personal assistant service that we have started to use 2.5 years ago. During the pandemic period it became even more important due to its natural language developing skills. It suddenly became substitute to face-to-face communication in branches. The number of dialogues was 1.8 million in average per month but just in April it reached 3 million”.

Mobile banking, digital portals and call centers have been the most often used channels, as stated by Bank C and Bank A.

BANK C “People demand mobile branching and portals more. After Covid-19, we have started to use Digital Application Center that includes private pension insurance (BES). We were digitally behind giving credits; car, house, needs and SME, now we are trying to improve in this area.

“All of our products have become digital now”

BANK A “Mobile banking usage has increased, also we kept our branches open half day”

“Call center has been overloaded”

Yet, the highest change in terms of product has been in “contactless cards” usage because of social distance obligation in Covid-19 time (Bank B).

BANK B “Due to the increase in social distance, contactless card usage has increased 4 times more compared to March and April last year. Our 200.000 customers that has never been used contactless cards have started to use during the Covid-19 period”

5.4.6. Value Proposition

The value the banks propose is being a financial intermediary to provide banking services, and this role of banks still remains, yet, the customer expectations has changed with digitalization (Nitorescu, 2016).

Customer expectations like innovative, high quality, costless, accessible, user friendly, trustful services are taken to be the values proposed, as pointed out by Bank B, E.

BANK B “Through creating positive effect on public and environment, we aim to be the first financial solution partner choice and life friend of our customers with personalized innovative products and services”

BANK E “We try to be trustful, strong and high quality service provider and we use technology to achieve this. Banking is like a commodity product”.

As a specialized bank, Bank D declares its support for traders and tailor-made products as specific value to their customers.

BANK D “...we are able to develop tailor-made products and processes for our traders even if they’re costly and/or one time.”

Hence, improved digital products such as digital financial portals, smart ATM, creating funds, differentiated call centers are given as an answer to value proposition by banks (Bank F, C, A and G)

BANK F “Our digital financial portal is chosen by our customers for three simple reasons. First it is costless. You can do operations with no payment. Second, they get good deal with interest rate. And its user friendly accessible feature. Our call center for example is highly reachable and our credit card is also strong”

BANK C “We provide costless digital portal, smart ATM, fund exposure in the domestic market digitally”

BANK A “We provide high quality, personalized service to a niche segment, we don’t need aggressive marketing”

BANK G “We give priority to public, especially low income households with social responsibility, trust and honesty”

However, in order to propose unique value, banks should adapt themselves to a rapidly changing high technology-driven market conditions that changes their competitors. As Bank E mentions, most banks use existing innovative technologies, but they do not invent one. For that, as Bank B states, technology giants are the new threats to banks and Fintechs should be the new opportunities to cooperate (also supported by Gsell and Mette (2017)).

BANK E “We use some innovative technologies but we do not produce them”

BANK B “At this stage, instead of Fintechs it seems like digital giants are the main competitors of banks. During this time, it is important to change doing business through investing in improving technologies and conducting partnerships with Fintechs”.

5.4.7. Infrastructure Management

5.4.7.1. Key Resources

Osterwalder and Pigneur (2010) classifies key resources as “physical, financial, intellectual and human”. Digitalization, first has changed the physical resources, IT systems have been improved/updated by banks through in-house (Bank D and E) or outsourcing (Bank F).

BANK E “IT is our in-house area. Our digital solutions belong to us. We have not changed our strategy with Covid19 but we did resource allocation optimization”

BANK D “Most of our sources are in-house in this process”.... We get outsource support from company for a while and then these outcomes become the asset of the bank.

BANK F “We outsource call center, provide IT and operations insource that have not changed much during Covid-19

Bank B, in addition, states that they have data analysis academy center in cooperation with universities.

BANK B “We also do have data analysis academy centers in some well-known universities, where we educate our personnel and use as PR. We want our own lab in our bank”

Investing on IT has become the priority of banks after digitalization. For example, Bank B states that they have been investing 150 million dollars per year.

BANK B: “Digitalization mostly affected the technology investments. Each year we invest 150 million dollar”

Bank C and Bank A state the trade-off between outsourcing and developing software/data analysis in-house. Bank C makes the core banking facilities and buys high technology for special applications, whereas Bank A mentions the intellectual property and security issues as reasons for outsourcing data/software algorithm. In other words, all algorithms can be outsourced even security, as it may be costly to develop these. In this respect, data mining algorithms are costly to develop and as IPR is already purchased with software, it is in vain to try to develop this costly software in-house when it is already available.

BANK C “We try to decide make or buy. We make if it is a core banking service/facility and if it is risky to change vendor. We buy web sites or special applications. For example, we buy SEO (search engine optimization), content marketing services like Google analytic, knowledge technologies (BT)”

BANK A “Security is important for this decision. There is one thing that you must outsource data mining, because data or software algorithm is somebody else’s there is intellectual property right issue”

As Bank G mentions improving the infrastructure and also human resources with it is a must to adapt to digital transformation.

BANK G “Because of the demand of our continuously increasing number of young customers, we had to improve our digital infrastructure and human resources”

In fact, Bank A has 10.000 IT employees and Bank B states that they have started to employ data scientists and data architects since 2018.

BANK A “We have more than 10.000 IT employees”

BANK B: “In 2018, we have started AI Project and since then we have a team of data scientists, data architects, test and maintenance”

Therefore, as the digitalization leads to satisfying demanding customer with new working areas and skilled workers employment, it necessitates big investments on technology, well established intellectual property rights, training and educating employees with new skills and updated know-how.

5.4.7.2. Key Activities

Digital transformation for the front office activities such as payment, getting credit, account management that is related to providing services have been quickly processed by the banks as we mentioned before. Yet, the back office facilities, that is digitalizing inside the organizational process at all stages is a business strategy. As Bank B and A state organizational structure has changed; now there are innovation units and centers for digitalization processes.

BANK B “Digitalization has changed our organizational structure, we have new departments and units to digitalize front and back office processes”

BANK A “In organizational structure, there is digital technology center, financial technologies and PR departments that shows digitalization effect”

As Bank C explains the processes inside the organization have started to be based on digital transformation projects such as constructing robotic teams.

BANK C “Processes inside the organization have changed. We build digital transformation innovation department that is responsible of innovation, partnerships with Fintechs etc. We also have idea platform that can create digital transformation projects. We develop processes: process mining that improves the processes of services to strengthen customer experiences”

“We have started to build robotic teams. We transfer the monotone, low value creating tasks to robotics. We have 23 tasks that is done by robotics. We ask each department to do their own robotics and they like it. It is a new business model”

After Covid-19, banks have had to adapt to an unexpected need for digital front office and back office facilities. Bank E mentions the importance of acting fast and without bureaucracy in this situation.

BANK E “Agile methods have newly been being tried all over the world. We are an execution bank. We adapt quickly and make fast optimum decisions.

“During the Covid19 period, we did not apply regular committee approval procedures, long meetings. Teams have decided quickly”

Bank A, B, D, F and G state that their employees have started to work at their homes during the pandemic period.

BANK A “Call center have been overloaded since Covid-19, our employees have worked through call center or half day at branches, it has been tiring”

BANK B “Covid-19 made home office and distance working crucial”

BANK F “It is not only front office, with digitalization and mainly because of Covid19, all of our teams have started to work from home easily”

BANK G “We have invested in digitalization of back-office processes. This ease to adapt Covid-19 period. We in fact made our employees to work at home”

BANK D “During Covid-19, we experienced and tested our infrastructure for distant working. In normal times, we would not be able to test this in the bank. This showed the benefits of previous investments for digital transformation.”

5.4.7.3. Key Partnerships

Partnerships of banks in terms of digitalization can be with strategic alliances, joint ventures or sponsored innovation hubs to have access to new technologies and know how. Most interviewed senior directors of banks state that they cooperate with Fintechs (Bank E, F, C).

BANK E “We have our main technologies in-house. However, Fintechs give value added services position and with this respect we communicate, work with and aware of Fintechs. In fact, our foreign shareholder arrange Fintech competition four times”

BANK F “Fintechs have become digital bridge”

BANK C “We select Fintechs, Regtechs, Insurance Tech to be partners. First we have checklists, second we look at their way of doing, how they can provide solutions to our payment system. Finally we evaluate the risk of working with them whether there are legislative or IT problems.

Bank A makes the mobile banking product development in-house, but outsource data mining.

BANK A “We do mobile product development in-house mostly, but we have partnership with technology companies, especially for data mining”

Bank B and G are the exceptional banks in two extreme points on the continuum. While Bank B is in front of the other banks in terms of partnership variety and quantity, Bank G is quite behind.

Bank B has had co-operations with Fintechs for a while, in fact Fintechs are not considered to be their competitors, Bigtechs, Techfins are their rivals. For adaptation to this aggressively high competition, they chose to have alliances with a software company, open a base in Silicon Valley and an innovation center in China. Thus, they do not follow the changes in the tech world from outside, they are inside the world physically. They have partnerships not only inter industry but also intra industry through their affiliate companies as also stated in the interviews.

BANK B “As we develop our value proposition, we believe it is important to combine our experience, technology and resources with Fintechs”

“We support our digital transformation with our technology alliances and create synergy. We have an alliance with a big software company, a base in Silicon Valley, a technology focused entrepreneurship program, an innovation center in China”

Fintechs are not our competitors, they need banks, open banks. But Bigtechs, Techfins are: such as Google, Alibaba, Samsung, Turkcell...”

As opposed to that, Bank G follows the changes behind and will try to cooperate within the sector, supporting Sia, Soh and Weill (2016) claim that “old IT and heavy compliance can be the reasons for less innovative spirit in banks”

BANK G “As a public bank, we have started to provide consumer credits for their basic needs through digital channels during Covid-19”

“We think we will cooperate more with other banks and companies in the future”

5.4.8. Financial Aspects

5.4.8.1. Revenue Streams

After digitalization, the revenue is mainly generated by the operations through digital channels.

BANK B “In the last periods, number of operations done through digital channels has a share of 94% and branches have 6% out of all operations. Profit per worker has increased (less workers due to decrease in number of branches) with digitalization”

BANK E “We have a 20 year old history in digitalization, have had 98% of our operations out of our branches”

Customers also are very price sensitive when they get digital services.

BANK C “We do not ask for card price, account fee and they love it”.

5.4.8.2. Cost Structure

According to Hitt and Brynjolfsson (2000), there can be a cost reduction due to digitalization, which is also supported by our interview data.

Bank B and G state that there is, in fact, a cost reduction with digitalization when they when they compare the cost in digital platforms and the cost in branches. Bank B claims that the cost decreased due to a decrease in the number of branches and Bank G states that operational cost for digital channels is “at least 15-20 times lower than for branches”

BANK B “There is a cost reduction due to digitalization due to reduction in the number of branches”

BANK G “Digital channels are much productive and cheap, operational cost is at least 15-20 times lower than branches.”

In addition to cost reduction, Bank E and F mentions the effects of digitalization on customer relationship and market share.

BANK E “We have started to think cost reduction in terms of branch cost, distribution channels ATM, digital-call center. But we have realized that digital by itself is a bank. It provides not only cost reduction but also more frequent, intensive and effective relationship”

BANK F “There is cost reduction, increase in customer accessibility and market share”

Bank C and A, however, have some doubts about the cost reduction. Bank C is precautious about investing in new technologies, Bank A claims that cost reduction is just on paper and cannot be achieved because both branches have to stay open and mobile banking has to be active at the same time.

BANK C “If we invest in the right things we can reduce cost. Right things like blockchain may be, internet of things, channelless banking, smart ATM. There are uncertainties in terms of R&D, but you cannot be behind. We visited well-known global Fintech companies in San Francisco, and we know we have to take a step but slowly and carefully”

BANK A “I think cost reduction is on paper. Theoretically. But in practice, I cannot reduce the branch number below certain level so the branch is still open, even there is active mobile banking”

5.4.9. Adaptation and Future of New Technologies

When we think of adaptation of new technologies, the first and one of the most important effect is the employment rate.

Some banks clearly state that digitalization has created unemployment. Bank B, for example, explains that for profit earning purposes, banks have reduced the number of branches and go for downsizing.

BANK B “The indicators of profit are total profit, profit per branch, profit per worker. Therefore, first till 2016 big banks were capturing unbanked populations through branching, yet after 2016 they have started downsizing and fire some workers as an effect of digitalization to sustain profit earning”

However, these unemployed workers would probably have less skilled employees, creating, as Bank G states, “new” unemployment.

BANK G “We can see new unemployments”

More, specifically, as Bank E, F, C, and G state, there will be new opportunities for new expert areas, jobs. Bank E mentions data team, Bank F talks about digital marketing, Bank C states technology communicator as new occupations, among others that we are not even aware of today. Bank D states that in the short-run even the recruitment is to increase while customer base is increasing.

BANK E “With life conditions change, we have to develop technologies and scan our expertise. Workforce will not change in terms of numbers but the type of data team, digital world will be important, but we still need human power to see the potential customers and products. For example, instead of credit card payments, a human should be talking to customers about ones saving for the next five years, ones children school payments etc. So operations that are clearly defined and regular may be digitized but extraordinary personalized operations will be still provided by human force”

BANK F “10 years ago we had 50-60 people teams trying to put EFT orders into the system. Now all repeated operations are digitalized. Now 95% of our customers are using digital portal. For that, it is inevitable to decrease operation oriented human resources. There are new job descriptions with digitalization, for example, digital marketing. There will be new opportunities for skilled employees”

BANK C “We have never fire any employees because we were ready for digitalization, eg smart ATM. There are new occupations now like technology communicator. We may not know 20-30% of future jobs”

BANK G “We think digitalization will have positive effect on workforce. I will bring new occupations with new opportunities.

BANK D “In short-term digitalization will increase the need for recruitment even in operations. Customer base is increasing thanks to digitalization. However, due to increase in customers, there is still need for new personnel for serving the differing needs of increasing customers, not only in operations.”

In terms of new technologies such as blockchain, AI, digital money and the new prospects of the banking sector, Bank B clearly states that these technologies are inevitable. With blockchain, there will be “embedded banking”.

BANK B “Blockchain is a candidate technology to change the definition and exchange of money. It must be seen as new business model. Inside the blockchain world you would not need to store or transfer money, but inside it there will be “embedded banking” model where there exists banking services. With the data that come through sensors, while contracts are realized, money transfers will happen. Therefore, it will be inevitable for banks to open their services through blockchain

According to Bank B and D, with AI, banks can provide personalized services and have an efficient usage of human resources.

BANK B “Artificial intelligence is very important. We have the first and biggest Tier IV certification data center in Turkey. With AI and machine learning, personal assistant service, customers think they are the ONLY customer, we can give personalized services, suggestions”

“With the learning and self-improving models, we get a high rate of correct decisions. For our internal processes we try to make low value added tasks automated and lead our employees to higher value added areas”

“We also built AI Application and Research Center”.

BANK D “AI will be able to analyze data and give right and just in time decisions before human beings can do. This will lead to increased tailor-made product diversification with more data analytics being available.”

Banks other than Bank B, have uncertainties about the new technologies. Bank E and C states that blockchain is on trial and will take a while. For Bank C, there are still problems concerning the government safety guarantees about blockchain and according to Bank A, again because of safety/trust issues, blockchain is a governmental decision. In other words, as blockchain is a decentralized peer-to-peer instrument, its adaptation to areas that are regulated by laws regulations is difficult. For example, realizing real estate sales by using blockchain is possible, however, title registration system and debt financing through banks for this sale is problematic in this respect. Harmonization of blockchain with title registration system and banking needs a holistic change in systems as an example. That is to say, realizing already regulated transactions and their combination with other transactions by using blockchain, in a

decentralized and peer-to-peer manner, is not compatible with mass based legal framework of the social order yet.

BANK E “Blockchain and digital money are still a pilot stage for us”

“Data became important, we have not known the real importance of customer data before. AI can be used for analytic approach for personalization of services. But we have to decide how to use AI”

BANK F “We will see these in the long run, but not too fast”

BANK C “There are uncertainties about blockchain but I think we should try it. There are problems with the safety concerns on the government side, there are question marks about having a guarantee by the government”

BANK A “I think some technologies exaggerated with the new concept “business intelligence”, yet most are remarketing. Blockchain is different. Who is the master? Who is the auditor? Only the one on the top that has the control can temple. Trust is a big issue. This is nationwide governmental strategic decision”

Also bitcoin is still a question mark, according to Bank C.

BANK C “Bitcoin is quite speculative”

For digital money, Bank C and Bank A state that it can easily be applied to more demographically homogeneous countries and Bank A mentions that it is country’s Central Bank that has to decide what to do.

BANK C “Digital money is easier for homogeneous, small and comparably evenly distributed income level countries like Estonia for example”

BANK A “Digitalization process will be much easier for homogeneous countries in terms of education level, culture etc. You can go with common optimization. For heterogeneous countries it will be more costly”

“Digital money is also a national strategy. Central banks play key role”

Artificial intelligence has been used mainly for front desk processes and repeated, low skill required tasks (Bank G). “For rule-based operations” or decisions regarding high amounts of money, we still need humans according to Bank C. Supporting Bank C, Bank A states that experts are still needed for grey areas and AI has not been used inside the organizations. Bank D considers AI as a support for human decisions.

BANK G “For now, banks are using AI in front desk processes. We also use AI to analyze customer data and accordingly personalize our services and give investment and consumption suggestions to them”

BANK D “besides product diversification, AI will be major decision support tool for directors”.

BANK C “Turkish banking is quite far from where it should stand in AI. AI should give suggestions but humans must decide. For rule based operations, you don’t need AI or for example, if you give 7.5 million as SME credits, it is big money, I would want to give the last decision”

“I can use AI for example to scan 1000 product suggestions written in our Idea Platform considering our customer needs/profiles”

BANK A “AI is popular because processing speeds increase, storage cost decrease, machine can trial and error. These algorithms have been used for some operational processes like generic credit card that has generic algorithm. However, you still need expert for grey areas in operations, because machine cannot learn without enough repetition. Plus I don’t think AI has been used inside the organization yet”

For future projections, there will be an increasing trend for digital channels, especially mobile banking (Bank B), increasing partnerships: digital partnerships among banks and with other institutions (Bank B, Bank E, Bank F), that is “open banking” and increase in distance home office, non-hierarchical working environments (Bank B), with an increase in usage of QR code and electronic wallet for payments. As Bank A states, all these new trends, especially the ones that you do not need face-to-face interaction and touch such as contactless payments (credit cards etc), long distance account opening will even get more important with Covid-19. But as almost all banks mention, government, Central Banks have to take proactive decisions, rules and regulations for a secure environment.

BANK B “Digital banking, channels, especially mobile banking, e-commerce, digital partnerships, open banking, contact-free economy, distance-home office working will be increased”

“Simple organizations will be the trend. Dynamic, non-hierarchical teams will be working for the goal. Managers will not direct employees instead they will determine strategies and provide necessary working environment for employees”

BANK E “Now, it is important to see where open banking will be taking us”

“With open banking, you share data with other institutions. The point is how we will share data, transform data to personalized value added services”

BANK F “Banking will become a platform, backbone in 10-15 years where different various channels will be served, different operations, money transfers, processes can be done very fast from one bank to another”

BANK C “Long distance account opening is important. Most banks are not ready for that. Customers, especially youngsters are more continuous, demanding, questioning and in five years customers will be our priority more”

“With PSD2 in EU, there will be more co-operations among banks”

BANK A “In mature credit card markets like US, digital money or payment system QR code etc. has small value that have habits. But in China, beggars have QR code on their body“

“We have digital money, QR code payment technologies but still the decision is Central Bank’s”

“I think with Covid 19, contactless payment will our future”

BANK G “New digital era will bring usage of QR code and electronic wallet”

5.4.10. Policy Recommendations

There have been some improvements in regulations to ease the adaptation process to digital transformations and Covid-19 period. For example, as Bank B states, some regulations promote financial technology, crisis management and Development Plan covering the issues of e-government and ID verification system to ease the adaptation of customers and banks to new technologies. That is to say, digital transformation of regulations in accordance is very important for ensuring the diffusion and adaptation of new technologies.

BANK B “Regulations are promoting financial technology usage and increase competition in this area”.

“In Turkey, in the Development Plan, there are actions for diversifying financial institutions, developing e-commerce, retail chain, e-government open data and ID verification systems”.

“The first reaction to 2001 crises makes the system stay on its feet”.

BANK C “Opening Digital Transformation Office and e-government portal by the government is good in terms of awareness”.

As Bank F states, banking sector is in front of many countries in product variety and can be better if new regulations are adapted. For example, easing bank account opening by developed ID confirmation systems and harmonization of legal framework with respect to digital transformation.

BANK F “Turkish banking sector is very good in terms of technology, innovation, product diversification compared to Europe and US. However, it can become a leader if regulatory side is also adapted”.

There are some main problems to solve like transparency issue with the macroeconomic problems that reduce investments (Bank B). Also, according to Bank B and E; Turkey needs government support for open banking. Convergence of legal framework with flexibilities for data sharing in TBS is a major issue. Legal framework restricts data sharing. However, harmonization of legal framework to digital transformation with flexibilities in data sharing, developed ID verification systems and substituting the need for physical signature are stated as main support from government in terms of adapting legal framework in this manner.

BANK B “Unfortunate thing about Turkey is transparency issue”

“Macroeconomic problems prevent investments”

“China, UK, US... all have open banking structure. Turkey could not step forward and get behind. Turkey is not like China. China has a large scale, product has a big chance of being successful. For us, we need government supported fragmentation and specialization”

BANK E “The future is open banking and our country is in its initial stage. We need to share data with other institutions and this stage needs new regulations”

“Regulations slow down the innovation process of banks” (Jakšič and Marinč, 2015; Vasiljeva and Lukanova, 2016). Bank B states that capital restrictions and controls and restrictions related to data sharing limit the improvements in innovation.

BANK B “In Turkey, there are limitations due to regulations. From now on even bills will not be sent through email. Capital restrictions and controls prevent innovation improvements”.

“In the foundation of AI, there is data. In Turkey, according to the legislations, data should stay inside the country. For that reason, we could not utilize related cloud technologies and architects”

Bank B and E mentions the government role for unionized and secure structure of labor market for banks.

Bank B “For the workforce, there has to be a sound union structure, employee focused culture and instead of firing there can be a retirement options”.

BANK E “Our service necessitates legislative responsibilities in terms of work security and with covid-19 life security”

As Bank E, C, and A state for new technology (blockchain and digital money) adaptation, especially for corporate banking, as Bank F mentions, which is not as fast as retail banking in digitalization, new regulations that ease the operations to use new technologies and trustful environment have to be made by the government.

BANK E “For blockchain and digital money, it is early to say something because traditionally government prints money. Of course, in economy these will be placed somehow, active reactive management, regulations, limitations will determine our activities”

BANK C “For blockchain usage, there are question marks about having a guarantee by the government. For example, if I use blockchain for land registry system or smart contracts, will the government accept this or will Central Bank accept money transfers by blockchain?”

BANK A “Only the one on the top that has the control can temple of blockchain. Trust is a big issue. This is nationwide governmental strategic decision”

“Digital money is also a national strategy. Central banks play key role”

BANK F “Corporate banking is not as fast as retail banking in digitalization. To catch up, government should have new legislations”

In fact, because of the limitations of the regulations, as Bank F explains, some operations do still need physical signature. E-signature usage should be encouraged by building safe and standardized environment with regulations. Also this paper based, time consuming and sometimes intransparent processes can be costly for advisory/supervisory authorities during the investigation period. In addition, Bank C mentions the importance of flexible regulations in some instances such as having an easier processes for long distance account openings and/or opening a branch.

BANK F “For example, onboarding has been our agenda, becoming customer process. We still need wet signature. This (e-signature) has passed as a regulation in the parliament but still should be supported by BDDK and MASAK to be safe”

“Organizational processes have been digitalized even the supervisory controlling activities. There is no document or wet signature anymore, supervision process has been shortened”

BANK C “We still cannot open a bank account for long distance. We have problems with AML (Anti-Money Laundering) and related KYC (Know Your Customer). We need more flexible regulations. Otherwise, technology companies for example mobile operators will be adapted very fast and start to give credits, open accounts etc.”

“BigTech, Techfin are threat for us. We have some regulatory limitations in this competition. For example, we need the permission of BRSA to open a branch but BigTechs do not need this kind of permission”

Also, Bank D mentions the need of harmony in legislative framework for the sake of digital transformation. As mentioned above, Civil Law, Law of Obligations, Commercial Law and Banking Law should be amended to include digital signature in harmony with the digital transformation of working life, business and personal lives. In this respect, as opening bank account transforms to a digital operation, a major obstacle in digitalization of banking would be overcome.

From these findings, it seems like regulations can be behind the practices of banks in terms of adapting new technologies and providing innovative service channels to customers.

5.5. Regulatory and Public Institutional Perspective

Turkey is considered to be in a good status in terms of front office digitalization and, according to the regulatory authority, regulations have mainly been made to protect consumers.

“Turkey is one of the world leaders in digital banking for two reasons: consumers are open to using technology and to and banks have cost advantage of using technology”

“The regulations we made are mainly to protect consumers from risks they are exposed when they use technology and to encourage banks to make some investments. For example, guaranteeing that banks provide security features required for internet banking and take minimum precautions”.

However, current regulatory environment has not been ready yet for out-of-bank high technology digital services companies (Fintechs, BigTechs etc.) usage of AI, digital money and blockchain and open banking. New regulations in this perspective aim to protect consumers and customers in open banking, data sharing and also develop digital security for applications, internet and mobile platforms of banking. They try to start a system parallel to PSD-2 of EU¹.

¹ Payment Systems Directive (PSD)-1 came into force in 2009 for developing a standardized, efficient, rapid, secure and a competitive payment system. As each directive is revised every five years, in 2015,

“Turkish banking is in front of many countries in terms of digital services, but behind in terms of non-financial institutions’ services. In fact, in our country there are institutions that provide internet based credit and deposit services that has not been approved/allowed yet”.

“The rights of some facilities (such as giving credits and collecting deposits) that are given to only banks can be also given to some digital services companies, Fintechs, BigTechs, Telecom but we have to think about the benefits and risks and make changes in regulations after some evaluations. There is no regulatory change about this issue yet”.

“Digital banking license has been practiced in some countries and as we see these successful example, I expect it will be allowed in Turkey too”

“As for open banking, obviously, it will be beneficial for customer but the approach still should be to compare the risks and benefits. The current regulations will limit BRSA supervision and make it hard to early intervention in risky situations. Therefore I think the change in regulations is a must”.

“With digitalization, presentation of financial products has differ and BRSA and other regulatory authorities should improve themselves in terms of knowing new technologies”

“For AI, the supervisory authorities should prevent banks’ abuse. For digital money and blockchain, it will create big risk s if regulatory framework to protect government and consumers has not taken before they pervade. Therefore, for now, I think usage of them should be prevented”

“In order to improve digitalization, recently, we plan to give opportunity for third parties that develop apps for banking system (open banking). With that, we can have a system parallel to PSD-2 of EU”.

One other important effect of digitalization that necessitates regulatory intervention is the creation of unemployment. The suggestion is to have possible policies that ease to open branches and reduce business costs. Banks submit their business plan and feasibility analysis to BRSA when they start operations after establishment. Banks have to allocate certain capital for their branches for covering operating expenses. Promoting technological developments, as lowering operating expenses may be helpful for lowering the cost of each branch and opening new branches.

“The most observable effect of digitalization on banking sector is the reduction in the number of branches and employees. We can add the competition of alternative payment structures as another effect”.

“There is a negative effect of digitalization on employment. What BRSA can do is limited. Possible policies can be to open branches and reduce business costs”.

Lastly, during Covid-19, the regulations are given priority to contactless payment.

PSD-2 came into force with new concepts like Account Information Service Providers and Payment Initiative Service Providers to pave the ground for Open Banking (EU, 2015).

“During Covid-19, we try to make new regulations to reduce the risk of contamination such as contactless payment that allows consumers not to go to branches”.

5.6. Concluding Remarks

The interviews and models used to analyze these interview data reveal the fact that TBS has to move forward from being technology adapter to technology developer as there is only one bank that is categorized at “Optimized” maturity level of digitalization in TBS yet. TBS has a great potential due to recently growing unbanked young population. This potential of the market shows the potential whereas the competition is getting tight. Therefore, the need for a systematic policy design and holistic collaboration including not only banks but also Fintechs, regulatory and supervisory authorities, technology companies is obvious. In other words, an innovation system perspective is necessary both for policy designers, policy implementers and the actors in TBS.

With these facts being revealed through these findings, the next Chapter covers discussions, policy recommendations and conclusions.

CHAPTER 6

DISCUSSION, POLICY RECOMMENDATION AND CONCLUSION

6.1. Digitalization and Sector Competition

As mentioned by selected banks, digital transformation has gained pace in Turkish Banking Sector by 2015 onwards. But with underlying grounds, the real transformation started by the second decade of the millennium.

In parallel with the rapid diffusion of smart phones with 3G technology by 2001 onwards, first digital applications emerged. By these years, Turkish banks already began to adapt internet banking with late 1990s and early 2000s. The increasing volume of internet banking (Tekeli, 2018) was accompanied with WAP banking services provided by Turkish banks with an increasing wide range of services (Türkoğlu, 2002).

Rapid adaptation and diffusion of internet services and development of WAP banking technologies provided a prompt adaptation and learning process for customers. As mentioned in interviews, the paradigm of competition shifted from price competition to providing prompt and qualified services in Turkish Banking Sector. Besides, this paradigm shift, in order to maintain and develop their brand value, banks were facing pressure to be pioneers or not being laggards in adaptation and provision of new technologies (Türkoğlu, 2002). In this respect, as a repercussion of domino effect, the increasing adaptation of internet services, e-trade and digital services paved the ground for development of basic mobile applications, WAP banking and respectively, the competition in Turkish Banking Sector forced banks to rapidly adapt and provide these services to customers.

Customer demand as a driving force was one of the reasons of this adaptation of digital technologies. Another reason for this dynamic competition structure of Turkish Banking Sector was the ability of Turkish banks to invest in digital technologies to be pioneers in the sector in the first decade of 2000s. Due to stringent financial policy and supervision mechanism, Turkish Banks had strong capital adequacy ratios during the financial turmoil in that decade which paved the ground for investment appetite for new technologies. When product variety, customer satisfaction and sector as a whole is considered, Turkish banks are strong in adapting and developing digital products and technologies in a demand-driven manner.

Hence, Turkish banking gained global significance in terms of service quality, product development and rapid adaptation of demand-driven digital technologies. The role of Turkish banks as early adapters or leaders is also emphasized in interviews.

However, until recent years, Turkish banks were mostly utilizing in-house resources for development of products and utilization of digital technologies as pointed in interviews. From 2015 onwards, we begin to see emergence of Fintechs and an eco-system with actors other than banks.

Insufficiency of collaboration between banks, Fintechs and other technology companies is the recent problem of Turkish Banking sector for losing the global leading role and becoming a follower in this process. We need to see a more dynamic collaboration between banks, Fintechs and other technology developers in an eco-system for Turkish banking sector. That is to say, besides being strong in adapting digital technologies and changes, it is important to have a sound eco-system, an effective system of innovation with interactions and collaborations among actors to have a pioneer and leading role globally in digital competition as digitalization is not only an operational innovation but instead a new paradigm as pointed out by Bank B in interviews.

In order to set up such a system of innovation, banks, government authorities, Turkish

Banker's Association and/or other actors should have leaded banks and Fintechs to enhance collaboration networks. Turkish banks already have a history of collaboration with each other as in the examples of sharing POSs and ATMs for operational cost minimization. But on the contrary, Turkish banks lack in collaboration with Fintechs and other companies in order to be able to compete with technology companies. In terms of inter industry vs. intra-industry collaboration, the deficiency in inter-industry collaboration is a repercussion of conservatism and lacks in understanding the philosophy of digitalization, its effect in business models, new challenges that digitalization brings and the importance of digital tools in new business model of banking.

Hence, it is possible to state that, a serious and long-term consideration of digitalization as a radical innovation in banking and all services sector will bring more focus and investment on development of digital technologies, products and rapid adaptation of them in collaboration with other actors of innovation system. This will most likely result in customer base enlargement with utilization of these technologies and creation of new digital business models and services.

6.2. Digital Transformation Maturity Model

In the context of this study, digital transformation maturity model shows us that Turkish banks are mainly at repeatable stage and managed stage when the sample of this study is considered. Only Bank B is at optimized stage of digital maturity as the digital leader in the sector.

It is due to conservatism amongst banks regarding the perception of digitalization not mainly as a new business philosophy yet. Hence, this conservatism delayed the structure of innovation networks between banks and Fintechs in 2010s with a result of Turkish banks mainly having digital maturity levels of repeatable and managed.

But the pace of digitalization is increasing to such an extent that, an intellectual perception regarding the merits of digitalization is evolving amongst banks. With this evolving perception, a more dynamic interaction and collaboration between banks,

Fintechs and other companies may become more effective in an innovation systems perspective so that the digital maturity level of Turkish Banking Sector may leapfrog.

In order to have such a leap in maturity level of the Turkish Banking sector, banks need to concentrate and invest more on the future of the digitalization as a new business philosophy as Bank B. And with the existence of constitution of a system of innovation perspective in Turkish Banking Sector, networks of collaborative relationships amongst actors would be efficiently working with having an integrative framework, coordination, effective learning, better diffusion of codified and tacit knowledge, development of best-practices, interaction, competence building, linkages and synergies etc.

However, as digitalization is a demand-driven process, a systems approach for sectoral development in this manner requires joint effort and collaboration driven process of government authorities, banks, Fintechs and sectoral authorities like Turkish Banker's Association.

6.3. Digitalization as a Strategy and Covid-19 Effects

Transformation of perception of digitalization from an operational development to a business strategy is an ongoing phenomenon. Covid-19 process provided an important chance to banks to test and develop their digital business capacities. By means of Covid-19, digitalization gained momentum and reputation as a strategically important vision.

Covid-19 has been an important means to raise awareness for digitalism. Rising awareness regarding digitalism has reached the highest level with Covid-19 as senior management of many banks provide more support for digital transformation processes.

In this respect, Turkish banks are monitoring the recent developments in big technology companies like GAFAM (Google, Amazon, Facebook, Apple and Microsoft) in America and BATPJ (Baidu, Alibaba, Tencent, Xiaomi, PJ Pingan and JD) in Asia. Bank B has innovation centers at Silicon Valley and/or China, some banks

have incubation and innovation centers in Istanbul. They are trying to receive new ideas, support new start-ups and Fintechs and develop their existing Fintech network and aim to have a more dynamic network of collaboration. These are positive developments to have digitalization strategies and strategic collaborations with Fintechs in Turkish Banking Sector.

We see the repercussion of these developments in the organizational structures of banks and in fact in most companies in services sector with the emergence of departments like digitalization, digital transformation and digital marketing, digital channels etc. These departments in many companies were considered as secondary support departments, but lately and by Covid-19, they are considered as main departments.

Covid-19 is considered to drive the change for remote working. Many people working at headquarters of banks are still working from their homes. During Covid-19, banks and many companies adapted working from home and this became a generally accepted way of working. It has been realized that, this way of working is cost saving in operational processes. Therefore, the habits and rules of work life are changing. As a result of this change, customer expectations and behaviors are also changing towards increased utilization of digital processes. These developments cyclically affect each other and thus, digitalization as a strategy gains importance.

6.4. Business Model Canvas (BMC)

Business Model Canvas is a multi-perspective tool considering customer interface, product and value proposition, infrastructure management and financial aspects to analyze digital transformation in Turkish Banking Sector. Therefore, if these topics have all repercussions in banks due to digitalization, then, digitalization becomes not only an operational ease but instead a business strategy.

In this respect, as a customer demand-driven process, digitalization has started and gained pace with rapid diffusion of digital and mobile technologies. Customer needs

and expectations have been main determinants of digitalization. Also competition amongst banks have been another factor affecting the pace of digitalization.

As switching cost for customers disappeared by technological developments, customers can easily switch banks. Therefore, the competition for customer portfolio is very tough amongst the banks and it is now digital quality that determines the competition instead of price. Therefore, customers are less loyal, more conscious, more questioning, more demanding and more difficult to satisfy.

In this respect, demographic profile of customer groups and their digital appetite as driving force of digitalization makes sense. Younger groups are more prone to digital culture and digital technologies and they are main target group of banks. However, during Covid-19, it has been realized that, older age groups like 65 and older have also strongly adapted to digitalization.

Digital adaptation of differing age groups create and increase digital appetite of customers which also shapes product development processes of banks. Hence, digital platforms and digital markets gain significance together with APIs for presentation and development of digital products. Also, digital marketing emerges as an important line of business at this stage.

Digital marketing and digitalization itself begin to become main channel for banks as starting to substitute branches. In this perspective, increasing pace of digitalization and digital products is to increase customer volume but decrease the need for branches. Covid 19 process has been a major successful test both for customers and employees to be out of bank branches.

Bank branches as conventional channels of distribution are now losing their importance to mobile banking, digital portals, call-centers and recently to AI, chatbots. Even in this new channels, AI and robotic systems are gaining significance as important means of customer interaction and customer relations. Starting from younger generations, more and more customers prefer chatbots and differing interfaces

of AI for communication and problem solving. As a result, call centers also seem to be lose significance by time due to more and more penetration of AI in customer relations and communication.

However, bank branches as conventional channels of distribution still have certain functions as customer behaviors and preferences are mainly shaped by cultural values and hence face-to-face communication and interaction are still very important in Turkish culture. Bank branches are satisfying this cultural demand of customers in building relations of trust in banking. But banks are considering to integrate video-calls into digital banking and mobile application so that digital face-to-face communication as an important part of culture will be included in digital channels. And conventional reasoning ground for branches will be substituted with digital technologies in due course.

Hence, in the light of aforementioned arguments and discussions, a recent question raises to clarify the increasing role of banks besides being financial intermediaries. The role of banks and value they propose was defined as being financial intermediary and channeling funds in the society. However, during the course of digitalization, the content and scope of the roles of banks and the value they propose have expanded. Banks also have titles as digital leaders, innovation leaders and pioneers and role models for organizational culture, business models, companies and customers.

They not only provide banking services, but also affect customer demand and expectations, gradually set up a clustering, a network of collaboration with Fintechs and other banks. Therefore, as leaders of an innovation eco-system, banks contribute to competence building in digital technologies. Applications, trends and investments in this eco-system also shape customer preferences and expectations as well as being effected from them in an interactive manner.

Banks also contribute to digitalization of their corporate customers as digital Management Information System tools like digital financial reporting systems etc. are provided by banks to their customers. Development of digital adaptation and

absorption capacity of corporate customers result in a systemic development and thus banks are more willing to give loans to such customers and sectors. As this example points out, role model and digital leader role of banks with such contribution to customers have spillover effects.

During digitalization, banks are learning to define their competitors and collaborators. Banks were considering Fintechs as their competitors at the early stage of digitalization and were reluctant to collaborate with them. However, it became obvious that Fintechs are not competitors of banks, but instead collaborators. With this being perceived lately, a network of collaboration is now being established between banks and Fintechs. On the other hand, technology and mobile communication companies, with their large customer databases are tending towards providing retail finance, consumer finance to their customers and emerging as competitors of banks.

Such a competition is bringing more pressure on banks to collaborate with Fintechs. Most interviewed banks defined their keen experience regarding in-house technology development. However, with the inclusion of technology and mobile communication companies as competitor to banks, competition gained a new phase. As a result, banks need to be prompt in developing and adapting new digital technologies and expanding their customer bases in this competition. Fintechs emerge at this point as major collaborator of banks.

Moreover, collaboration with universities and research laboratories are equivalently important in this process. Behavioral finance, data science and data engineering are gaining significance in banking for understanding, modelling and forecasting customer and market behaviors. Scenario analysis for differing situations, financial turmoil, collaboration networks are becoming strategically important and Covid 19 has been a major proof for the importance of these. That is to say, Covid-19 process showed the importance of agile methods in doing business in this respect.

Besides these spillover effects and network of collaborations, digitalization has begun to change the organizational structure of banks. As digitalization proceeds from being

an operational ease to a business model and strategy, departments related with digitalization like IT, digital transformation innovation, digital marketing, distribution channel management, strategy development, technology development centers, incubation centers, robotic teams etc. are all reorganized within banks to be able to work in harmony and efficiently.

As a result of all these developments, revenues stream began to change in banks. Digitalization and digital channels began to emerge as major source of revenues besides the cost advantages they provide in banks. Hence, these factors contributed to competition in Turkish Banking in terms of price sensitivity of customers. With minimized operational costs and increasing customer base and revenues, banks are able to serve to their customer with lower prices. In this respect, the focus of competition was able to switch from price to service quality in TBS.

6.5. Adaptation and Future of New Technologies

Banks are yet conservative in understanding the vision of digitalization and new technologies but this is changing by time. New technologies like artificial intelligence, blockchain, digital money etc. are diffusing globally with a wide variety of applications. Hence, banking will have to adapt to these inevitable changes.

Digitalization, as providing basis for these new technologies, is in a sense starting a radical breakthrough with increasing adaptation of these technologies. With blockchain, banking business model is to change and “embedded banking” from a holistic perspective is to be part of blockchains. Therefore, operational process management models and value creation of banks are to change and adapt to this new blockchain perspective in due course.

Discussions regarding role of central banks and monetary policy are very widespread in the context of digital money in this respect. However, as limited with the content of this study, both blockchain and digital money are signals of changing role of banks in value creation and business models.

Artificial Intelligence is a more commonly recognized phenomenon that is rapidly penetrating into banking and in most services sectors. Data analytics and data science as leverage provide a more personalized characteristic to services by means of AI as interacting with customer needs and expectations. This dynamic interaction of banks as service providers and customers result in variety and development of products and also efficient utilization resources, including human resources.

This efficient utilization of resources do result in employment effects of these new technologies. This is also stated in the interviews such that, the general concern regarding new technologies is that, human factor is to be replaced by AI and other new technologies and a decrease in employment will be realized. Nevertheless, this argument reveals the need for another transformation in human capital; competence building. That is to say, by considering this major paradigm shift in the economy starting with digitalization, education systems should concentrate on raising more skilled, creative and adaptable generations.

In the short-run, due to increase in customer base, digitalization process may require additional recruitment for many businesses, but does not seem to be sustainable in the long-run. Therefore, generations will most likely adapt to this reality and develop their skills and entrepreneurial capabilities in accordance with utilization of their technological skills and competences. We will most likely be talking about new jobs, new opportunities and new expert areas in the long-run. For example, we will most likely see fewer bank branches in the near future but more solution partner Fintechs to banks as in the form of small scale start-ups or even individuals.

Therefore, adaptation and future of new technologies will most probably be discussed with new competences and skills in the workforce, new networks of collaborations, holistic value chains as in the form of blockchains and redefined role of banks as innovation leaders in differing systems of innovation. This change has already began in the organizational structure of banks with rising importance of technology and digitalization-based departments, shift from conventional channels of distribution to digital channels of distribution and gradual decreasing of number of branches or no

more new branches. Hence, Covid-19 has a main role in accelerating the pace of these developments.

6.6. Policy Recommendations

Policy recommendations have a large variety of topics to be covered. However, it is initially important to consider and express planned policies related with the content of this study that are stated in 11th Development Plan that was issued by Strategy and Budget Department of Presidency of Turkey in 2019.

Digital transformation is a strategic factor as stated in the Plan. Therefore, accelerating digital transformation, development of interfaces, standards, measurement methodology for digital transformation is emphasized in this context.

The formation of a safe financial technology (fintech) ecosystem together with a road map for its development, legislative alignment with the EU Payment Services Directive-2 for strengthening open banking legal infrastructure, establishing Association of Payment Services and Electronic Money Institutions and Istanbul Finance and Technology Base, implementing blockchain-based digital central bank money are following related goals denoted in the Plan.

Hence, considering the policy goals of the Plan, innovation systems approach is used for designing policy recommendations to overcome policy problems and related weak points stated in this study. Therefore, development of collaboration networks, transformation of legal system, developing entrepreneurship in TBS by supporting Fintechs, revising regulatory and supervisory framework from innovation perspective, competence building and harmonization of work-life in this respect are major policy recommendations that will be detailed with policy aims, policy tools and policy targets respectively.

Policy recommendations are stated in Table 7 in the following pages and then stated in related topics respectively.

Table 7. Policy Implications for Digitalisation in Turkish Banking Sector

Policy Problem: Insufficient inter-industry interactions and collaborations			
Policy Recommendations	Policy Aims	Policy Tools	Policy Targets
- Collaboration networks in TBS should be developed.	- Developing a Technological System of Innovation in TBS.	- Promoting perception of Fintechs and banks as collaborators by joint activities and projects. - BRSA is to have an innovation perspective for TBS and prepare innovation strategy documents with joint committees from sector. - Penetration of universities and research institutes to the eco-system should be promoted by joint activities and projects. - Joint working groups and committees comprised of all stakeholders stated above in the eco-system should be established. - Strategy and road map for a sectoral innovation system for TBS should be discussed and drafted by these joint working groups and committees.	- Having a sectoral innovation system with strong interactions and collaborations among stakeholders. - Becoming digital leader and reaching the optimized digital maturity level in digital transformation maturity model of this study.
Policy Problem: Shortcomings and problems stemming from legal system that slow down the sectoral progress in digitalization			
- Legal System should be transformed in harmony with digitalization.	- Having a legal system in compliance with digitalization process.	- Revising and amending Civil Law, Law of Obligations, Commercial Law and Banking Law in accordance with digital transformation. - Adaptation of digital signature and smart ID verification systems for customers in opening bank accounts. - Revising competition law in accordance with digitalization and new business models stemming from this process. - Revising legal framework for data sharing.	- Providing the legal basis of global competitive advantage for TBS in digitalization.
Policy Problem: The need for developing entrepreneurship in TBS in accordance with 11th Development Plan.			
- Developing Entrepreneurship in TBS by supporting Fintechs.	- Having a developed entrepreneurial framework with knowledge spillovers and interactions in accordance with systems of innovation approach.	- Setting-up a framework for interactions of Fintechs with knowledge spillovers. - Promoting new start-up Fintechs. - Designing tax incentives and new funding opportunities for start-up Fintechs in collaboration with banks. - Revising legal framework for data sharing.	- Utilizing the benefits of developed entrepreneurship by means of Fintechs.

Table 7. Policy Implications for Digitalisation in Turkish Banking Sector (continued)

Policy Problem: The need for a leading role in developing standards, sectoral strategy and road map for digital transformation and setting up a systems of innovation with a revised regulatory and supervisory framework from innovation perspective.			
Policy Recommendations	Policy Aims	Policy Tools	Policy Targets
- Revising Regulatory and Supervisory Framework from Innovation Perspective.	- Having a proactive regulatory and supervisory framework from innovation perspective in TBS.	- Drafting sectoral innovation strategy and developing innovation rankings and ratings for banks. - Developing sectoral digital maturity level models and rating banks in accordance. Organizing joint activities, setting-up study groups and committees with participation of sector actors for ranking and rating innovative capacities of actors in TBS, developing strategies for adaptation of future technologies like AI, blockchain and digital money. - Developing standards for APIs and implementation of other technological developments in TBS. - Collaborating with other banking regulation and supervision authorities in an international level for adaptation of various policies in other countries from an innovation perspective.	- Having a sectoral innovation system with strong interactions and collaborations among stakeholders. - Having a dynamic innovation policy development framework with active participation of sector actors.
Policy Problem: Shortcomings and problems stemming from legal system that slow down the sectoral progress in digitalization			
- Legal System should be transformed in harmony with digitalization.	- Having a legal system in compliance with digitalization process.	- Revising and amending Civil Law, Law of Obligations, Commercial Law and Banking Law in accordance with digital transformation. - Adaptation of digital signature and smart ID verification systems for customers in opening bank accounts. - Revising legal framework for data sharing.	- Providing the legal basis of global competitive advantage for TBS in digitalization.
Policy Problem: The need for developing entrepreneurship in TBS in accordance with 11th Development Plan.			
- Developing Entrepreneurship in TBS by supporting Fintechs.	- Having a developed entrepreneurial framework with knowledge spillovers and interactions in accordance with systems of innovation approach.	- Setting-up a framework for interactions of Fintechs with knowledge spillovers. - Promoting new start-up Fintechs. - Designing tax incentives and new funding opportunities for start-up Fintechs in collaboration with banks. - Revising legal framework for data sharing.	- Utilizing the benefits of developed entrepreneurship by means of Fintechs.

6.6.1. Development of Collaboration Networks

Insufficient inter-industry interactions and collaborations are policy problem that necessitates development of collaboration networks for the policy aim of developing a system of innovation in TBS. Therefore, enhancing interactions and collaborations between banks, Fintechs, technology companies, regulatory and supervisory authority, universities and research institutes as stakeholders are main components of this policy aim.

In order to enhance these interactions and collaborations, policy tools are as such:

- Promoting perception of Fintechs and banks as collaborators by joint activities and projects.
- Regulatory and supervisory authority, BRSA, should have an innovation perspective for TBS and prepare innovation strategy documents with joint committees from sector.
- Penetration of universities and research institutes to the eco-system should be promoted by joint activities and projects.
- Joint working groups and committees comprised of all stakeholders stated above in the eco-system should be established.
- Strategy and road map for a sectoral innovation system for TBS should be discussed and drafted by these joint working groups and committees.

Policy target for TBS in this context is having a sectoral innovation system with strong interactions and collaborations among stakeholders, becoming digital leader and reaching the optimized digital maturity level in digital transformation maturity model of this study.

6.6.2. Transformation of Legal System

Shortcomings and problems stemming from legal system in the operational process that slow down the sectoral progress in digitalization are policy problems that necessitate transformation of legal system in accordance with digitalization. Policy

aim in this title is having a legal system that is door opening for digitalization and innovations in TBS.

Policy tools for such a legal system are stated below:

- Revising and amending Civil Law, Law of Obligations, Commercial Law and Banking Law in accordance with digital transformation.
- Adaptation of digital signature and smart ID verification systems for customers in opening bank accounts.
- Revising competition law in accordance with digitalization and new business models stemming from this process.
- Revising legal framework for data sharing.

Policy target in this context is to provide the legal basis of global competitive advantage for TBS in digitalization. Therefore, increasing pace of adaptations and developments in digitalization may attribute a leading role to TBS in digital globalization.

6.6.3. Developing Entrepreneurship in TBS by supporting Fintechs

Entrepreneurship is an important phenomenon to be promoted as stated 11th Development Plan. Hence, there is a need for supporting and developing entrepreneurship in financial sector in accordance with development goals. As a result, policy aim in this respect is having a developed entrepreneurial framework with knowledge spillovers and interactions in accordance with systems of innovation approach.

Policy tools for developing entrepreneurship in TBS by supporting Fintechs are stated below:

- Setting-up a framework for interactions of Fintechs with knowledge spillovers.
- Promoting new start-up Fintechs.
- Designing tax incentives and new funding opportunities for start-up Fintechs in collaboration with banks.

As a result, policy target in this context is utilizing the benefits of developed entrepreneurship by means of Fintechs. Fintechs are very dynamic and agile actors with high skills of adaptation and innovative capacities in the ecosystem. They are able to trigger banks for enhanced collaboration and develop a system of innovation with enhanced innovative capacity.

6.6.4. Revising Regulatory and Supervisory Framework from Innovation Perspective

The need for a leading role in developing standards, sectoral strategy and road map for digital transformation and setting up a systems of innovation necessitate revising regulatory and supervisory framework from innovation perspective. Policy aim in this perspective is having a proactive regulatory and supervisory framework from innovation perspective in TBS.

In this respect, policy tools for revising regulatory and supervisory framework from innovation perspective are stated below:

- Drafting sectoral innovation strategy and developing innovation rankings and ratings for banks.
- Developing sectoral digital maturity level models and rating banks in accordance.
- Organize joint activities, set-up study groups and committees with participation of sector actors for ranking and rating innovative capacities of actors in TBS, developing strategies for adaptation of future technologies like AI, blockchain and digital money.
- Develop standards for APIs and implementation of other technological developments in TBS.
- Collaborating with other banking regulation and supervision authorities in an international level for adaptation of various policies in other countries from an innovation perspective.

Hence, policy targets in this context are having sectoral indicators, as rating and ranking of innovation for sector actors in solo basis and for sector in a consolidated basis, and a dynamic innovation policy development framework with active participation of sector actors.

6.6.5. Competence Building and Harmonization of Work-Life

With respect adaptation of technologies like AI, the need for human factor in banking and mainly in service sector decreases. Moreover, new technologies are prone to create employment problems in service sector and more specifically in financial sector. Hence, competence building and harmonization of work-life in TBS in accordance with digitalization and technological developments are policy aims in this context.

Policy tools for competence building and harmonization of work-life in TBS in accordance with digitalization and technological developments are stated below:

- Joint committees and working groups comprised of sector representatives, unions and state authorities should work together for developing strategies for competence building in TBS and coping with negative employment effects new technologies.
- Unions should be more active and in collaboration with TBS, together with universities in developing competence building academic programs.
- Collaboration of TBS with universities for developing curriculums and training their staff, forming bank academies like data academy etc.
- Framework of Labor Law need to be revised in accordance with new business models and work relations stemming from digitalization and other technological developments.
- Retirement options need to be promoted in TBS, instead of firing from work due to decreasing need for personnel as a result of digitalization.
- Need for enhanced negotiations, communication, interactions and networks of unions and TBS.
- As experienced during Covid-19, developing a culture of distant working, working from home in TBS.

Policy target in this context is coping with employment effects of new technologies with more competent human capacity, utilizing new employment opportunities for developing requirements for new skills. Thus, development of skills and competency of human capacity is very important as a social policy, in the era of rapidly changing requirement for skills and substitution of human factor by technology (like AI mainly in finance sector etc.).

6.7. Final Remarks and Suggestions for Future Research

The current thesis explores the effect of digitalization and Covid-19 on the Turkish banking sector. For that, there are two models used as the theoretical framework: Digital Transformation Maturity Model to determine the digital maturity levels of banks and Business Model Canvas to analyze the digitalization and Covid-19 effects on banks' business pillars. This study is the first attempt to combine both maturity model and canvas model for banking, in addition, it determines the effect of Covid-19, which is considered to change/fasten the digital transformation of banking system drastically.

Data is collected through structured interviews with top managers of seven diversified banks and as complementary, through an interview with a top manager of regulatory authority. Results show that the digital maturity level of sampled seven banks mainly repeatable and managed. That is to say, as they give repeatable and consistent services to their customers which are not considered to be truly innovative and managed as they consider themselves as leaders in their markets with their digital products and services. Yet, only one of the sample banks is classified as optimized which uses digital transformation for creating new business models. The main difference of the optimized bank from others is that, digitalization itself considered as a business vision and strategy and the bank is open to new technological developments though acting as a high-tech company with global basis and collaboration with universities, Fintechs and other technology companies so that it comprises its own eco-system.

As for the Business Model Canvas (BMC), customers are classified with respect to demographics and niche segments. Digitalization has not changed the profile of the customers but their expectations and needs. In fact, most customers seek for safe, fast, convenient and personalized services. For that, the usage of internet and mobile banking increased and the number of branches began to decrease. With more utilization of digital channels, customer's learning process was shortened even for elderly customers especially during Covid-19.

Due to increasing phase of digitalization, besides in-house technology development, outsourcing and collaboration with Fintechs began to increase although not sufficient yet. Banks are still in trade of between in-house and outsourcing new technologies. But intellectual property rights force them to collaborate with Fintechs and other interfaces like state authorities. As of human resources, unemployment as a result of decrease in the importance and number of branches is an important issue that can be seen with its positive and negative sides. The positive aspect is that it creates new opportunities and jobs for skilled workers. However, the employees of low skilled routines that are to be replaced by AI and other technologies need competence development. After Covid-19, home office working has been widespread and commonly accepted phenomenon to change the customs of working life generally.

The increasing volume of digital channels has repercussions in cost and profit structure of banks. The decreasing importance of branches result in decreasing cost of operations and increasing rates of income and profits stemming from digital channels with very low operational costs. Therefore, digitalization has contributed to profitability and thus began to change the organization of banks. Covid-19 has been an important experience to realize the decrease in utilization of branch channels with slight increase in digital channels.

On the other hand, from a macro perspective, TBS is better than US and EU in terms of product variety and adaptation of new technologies. But lack of sectoral collaboration with Fintechs and an efficient innovation eco-system in TBS, conservatism and lacks in understanding digitalization as a paradigm shift in business

models are weak points of TBS. Hence, this prevents TBS in satisfying the expectations of more demanding, conscious, questioning and less loyal customers, especially digital only young generation. The main means of achieving this is better utilization of open banking as it provides data sharing for product development, faster and safer service development as in the example of ID verification technologies. In this respect, Fintechs are seen as cooperators whereas, BigTechs are seen as competitors.

Due to changing phase of competition, adaptation of regulatory framework for open banking with adaptation of Payment Systems Directive 2 and development of API standards is a must. Together with these, digital money, blockchain, embedded banking and AI are major issues that are to determine the future trend of banking with many new technologies to be implemented in this respect.

In parallel to these developments, there is also need for collaboration of unions, banks, Fintechs and government authorities for the employment effects of technological developments. These institutions in collaboration can be very effective in bettering the quality of human resources, competence building and creation of new employment opportunities.

Structured interviews are used as means of qualitative method in this study. Seven banks were interviewed in this respect. Digital Transformation Maturity Model and Business Model Canvas are combined together with answers of interviewees regarding Covid-19 effects. This study will shed light to future studies regarding the effects of digitalization and Covid-19 in TBS. With differing collaboration models and business strategies to result from these developments, and changing phase of the future trends in banking with respect to digital money, blockchain and AI, following studies will most likely provide very detailed and/or quantitative complementary findings.

Limitations of time and scope were significant in this pioneering study in terms of business model perspective of digitalization. However, variety of the scope in interviews may be expanded in future studies like including more banks, Fintech

companies and other financial institutions such as leasing, factoring, consumer finance and insurance companies, BKM (Interbank Card Center), digital money and payments companies etc.

More studies are expected to follow in the future with expanded population beyond TBS, in Turkish Finance Sector and using differing methodologies. By development of open banking and Open X, quantitative methods also may give more insight about policy impact analysis and future policy projections.

With policies regarding value chains and production chains for innovative activities being implemented in TBS in the future, following studies using multiple comparative methodologies together with considering entrepreneurship and Fintechs for a technological innovation system are expected to be conducted.

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APPENDICES

A. APPROVAL OF THE METU HUMAN SUBJECTS ETHICS COMMITTEE

UYGULAMALI ETİK ARAŞTIRMA MERKEZİ
APPLIED ETHICS RESEARCH CENTER



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20 Şubat 2020

Konu: Değerlendirme Sonucu

Gönderen: ODTÜ İnsan Araştırmaları Etik Kurulu (İAEK)

İlgi: İnsan Araştırmaları Etik Kurulu Başvurusu

Sayın Prof.Dr. Erkan ERDİL

Danışmanlığını yaptığınız Ahmet ÇOŞKUN YILDIRIM'ın "Digitalisation of Finance and Fintech Developments in the Context of Turkish Banking Sector; Probable Effects and Scenarios" başlıklı araştırması İnsan Araştırmaları Etik Kurulu tarafından uygun görülmüş ve 064-ODTU-2020 protokol numarası ile onaylanmıştır.

Saygılarımızla bilgilerinize sunarız.


Prof.Dr. Mine MISIRLISOY
Başkan


Prof. Dr. Tolga CAN
Üye

Doç.Dr. Pınar KAYGAN
Üye


Dr. Öğr. Üyesi Ali Emre TURGUT
Üye

Dr. Öğr. Üyesi Şerife SEVİNÇ
Üye


Dr. Öğr. Üyesi Müge GÜNDÜZ
Üye


Dr. Öğr. Üyesi Süreyya Özcan KABASAKAL
Üye

B. INTERVIEW QUESTIONS / MÜLAKAT SORULARI

TURKISH VERSION OF INTERVIEW GUIDE

TÜRK BANKACILIK SEKTÖRÜNDE DİJİTALLEŞME VE COVID-19 ETKİLERİ MÜLAKAT SORULARI

- 1- Biraz özgeçmişinizden bahseder misiniz? Kaç yıldır bankacılık sektöründesiniz? Şu an hangi görevdesiniz? Bu görevdeki deneyim süreniz ne kadardır?
- 2- Bankanızın temel çalışma alanı nedir? Diğer bankalardan farkınızı ifade edebilir misiniz?
- 3- Dijitalleşmenin ülkemizde sektöre etkisi ve küresel bağlamdaki durumu nedir?
- 4- Dijital bankacılık ile birlikte piyasada rekabet nasıl etkilendi? Rekabet için dijitalleşme olmazsa olmaz mıdır? Bu durum bankanızı nasıl etkiledi?
- 5- Bankanızda dijital bir teknoloji kullanılacağı zaman IT biriminizin onayı alınıyor mu?
- 6- Sürekli kullandığınız dijital ürün(ler)/hizmet(ler)in inovatif olduğunu düşünüyor musunuz?
- 7- Türkiye’de dijitalleşmede lider konumda olduğunuzu düşünüyor musunuz? Dünya çapında sunduğunuz hizmetler ürünler var mı?
- 8- Bankanız piyasaya cevap veren ve yeni iş modelleri yaratabiliyor mu?
- 9- Bankanızın dijitalleşmeye bakış açısı nasıl? Üst yönetim destekliyor mu? Bankanızın dijitalleşme stratejisi ve bu süreçte kendini konumlandırışı ne durumda?

- 10- Bankanız son yıllarda daha çok dijitalleşti mi? Neden? Covid-19 sonrasında bu değişim nasıl etkilendi?
- 11- Müşteri, süreç, ürün ve varsa diğer unsurlar... Sizce dijitalleşmeden hangisi ya da hangileri en çok etkilendi?
- 12- Ürün ve hizmet bazında dijitalleşme ile birlikte neler değişti? Hangi ürünlerin ve/veya hizmetlerin değişmesi gerektiğini nasıl anladınız? Talep mi değişti? Bu bağlamda Covid-19 sonrasında ne tür değişimler gözlemlediniz?
- 13- Müşterilerinizle olan iletişiminiz ve ilişkiniz dijitalleşme sürecinde nasıl değişti? Covid-19'un bu değişime olan etkisi nasıl gerçekleşmiştir?
- 14- Hedef kitleniz kimlerdir? Hedef müşteri kitlenizi ve bu kitlenin profilini tanımlayabilir misiniz?
- 15- Dijitalleşme süreci ile birlikte hedef kitlenizde bir değişim oluştu mu? Covid-19 nedeniyle hedef müşteri kitlesinde böyle bir değişim söz konusu oldu mu?
- 16- Bankanızın müşterilerinize rekabetçi avantaj olarak sunduğu değer nedir? Neden sizi seçiyorlar?
- 17- Dijitalleşme sürecinde temel kaynaklarınız değişti mi? Nasıl tedarik ediyorsunuz?
- 18- Dijitalleşme sürecinde iç işleyişiniz değişti mi? Bir değişim söz konusu ise bu değişim nasıl gerçekleşti? Covid-19'un böylesi bir değişime etkileri nasıl oldu?
- 19- Bu süreçte yeni işbirlikleri oluşturdunuz mu? Eğer oluşturduysanız kimlerle? Örneğin fintech, big-tech firmaları ya da başka bankalar, yazılım ve uygulama geliştirme hizmet sağlayıcıları vs....
- 20- Dijital bankacılık bankanız için ucuz mu? Maliyet avantajı sağlıyor mu? Nasıl?
- 21- Sizce dijitalleşmenin sektörde istihdam üzerindeki etkisi nasıl olacak? Bu konuda ne düşünüyorsunuz?

22- Blockchain, dijital para gibi yeni dijital ürünlerin sektörün geleceğine etkisi konusunda ne düşünüyorsunuz?

23- Yapay zeka aşağıdaki süreçleri nasıl etkiler sizce?

- a. Operasyonel süreci
- b. Ürün geliştirme ve ürün çeşitlendirme
- c. Müşterinin tasarruf ve yatırım kararları

24- Dijitalleşme sektörü nasıl bir geleceğe götürecektir sizce?



ENGLISH VERSION OF INTERVIEW GUIDE

DIGITALIZATION IN TURKISH BANKING SECTOR AND EFFECTS OF COVID-19: INTERVIEW QUESTIONS

- 1- Could you tell us more about your professional background? How many years have you been working in banking sector and your current position?
- 2- What is the core business of your bank? • How does xxx differ itself from its competitors?
- 3- What is the effect of digitalization on your sector and globally?
- 4- How is the competition affected by digitalization? Is offering digital banking a must to compete in the industry? How does this affect your bank?
- 5- *Ad Hoc (Digital Reactor)* Do you get approval of IT department when using a digital technology?
- 6- *Repeatable (Digital Player)*: Do you think that the digital product(s)/service(s) that you use constantly are innovative?
- 7- *Managed (Digital Transformer)*: Do you think that you are in a leading position in digitalization in Turkey? Are there any services and/or products you offer worldwide?
- 8- *Optimized (Digital Disruptor)*: Can your bank create new business models that respond to the market?
- 9- How is your bank's perspective on digitalization? Does top management support it? How is your bank's digitalization strategy and positioning itself in this process?
- 10- Has your bank been more digitalized in recent years? Why? How was this change affected after Covid-19?
- 11- Which one or ones were mostly affected by digitalization: customer, products, processes?
- 12- Which changes have occurred on product and service basis with digitalization? Did your products and services change? How did you find out which products and services need to be changed? Did demand change? In this context, what kind of changes did you observe after Covid-19?

- 13- How has your communication and relationship with your customers changed in the digitalization process? How did the effect of Covid-19 on this change occur?
- 14- Who are your target customers? Can you define your target customer base and their profile?
- 15- Has there been a change in your target customer base with digitalization process? Has such a change occurred in the target customer base due to Covid-19?
- 16- What is the value your bank offers to your customers as a competitive advantage? Why do they choose you?
- 17- Have your basic resources changed in the digitalization process? How do you supply them? In-house or outsource?
- 18- Did your internal processes and business flows change during the digitalization process? If there is a change, how did this change happen? How did Covid-19 affect such a change?
- 19- Did you have new collaborations in this process? If so, with whom? For example, Fintech, big-tech firms or other banks, software and application development service providers etc....
- 20- Is digital banking cheap for your bank? Does it provide a cost advantage? How?
- 21- What do you think will be the impact of digitalization on employment in the industry? What are your considerations regarding this phenomenon?
- 22- What do you think about the impact of new digital products such as blockchain and digital money on the future of the industry?
- 23- How do you think artificial intelligence affects the following processes?
- a. Operational process
 - b. Product development and product diversification
 - c. Saving and investment decisions of the customer
- 24- To what kind of a future do you think the digitalization will take the sector?

**TURKISH VERSION OF INTERVIEW FROM THE REGULATION AND
SUPERVISION PERSPECTIVE**

**TÜRK BANKACILIK SEKTÖRÜNDE DÜZENLEME VE DENETİM
PERPEKTİFİNDEN DİJİTALLEŞME VE COVID-19 ETKİLERİ**

- 1- Dijitalleşmenin ülkemizde sektöre etkisi ve küresel bağlamdaki durumu nedir?
- 2- Türkiye'nin bankacılık sektöründe dijitalleşmede dünyada lider konumda olduğunu düşünüyor musunuz? Neden?
- 3- Sektörde dijitalleşme ile birlikte hangi düzenlemeleri gerçekleştirdiniz? Dijitalleşmeyi geliştirmek için bundan sonra neler yapmayı planlıyorsunuz?
- 4- Covid-19 sürecinde dijitalleşme ile ilgili ne tür düzenlemeler yaptınız ve bundan sonra pandemi doğrultusunda neler yapmayı düşünüyorsunuz?
- 5- Bankalar, Fintek'ler, API'ler (yazılım, uygulama hizmet sağlayıcıları), veri odaklı telekomünikasyon operatörleri (Turkcell, Vodafone vs.) ve BigTech'ler (Facebook, Google, Apple) gibi aktörlerde oluşan ekosistemin bankacılık ve ödeme sistemleri alanında işbirliği ya da rekabetine yönelik projeksiyonunuz, düzenleme oluşturma vizyonunuz nasıldır?
- 6- Dijital bankacılık lisansı vermek gibi bir konuyu gelecek muhtemel bir olgu olarak değerlendiriyor musunuz?

- 7- Açık bankacılık ve veri odaklı platformlar üzerinden bankacılık iş modellerinin düzenlenmesi ve denetlenmesi, müşteri haklarının korunmasının sağlanması konularındaki düşünceleriniz nelerdir?
- 8- Dijitalleşme, düzenleme ve denetim çerçevesi bağlamında kurumsal iş yapma biçiminizi, kurumsal kapasitenizi ve etkinliğinizi nasıl etkiliyor ve etkileyecek sizce?
- 9- Dijitalleşme sürecinde yapay zeka, dijital para ve blockchain gibi olguların sektördeki ve denetleyici düzenleyici yapıdaki geleceği ve olası yeri hakkındaki düşünceleriniz nelerdir?
- 10- Dijitalleşmenin sektördeki istihdam sürecine olan etkisini nasıl değerlendiriyorsunuz? Bu bağlamda olası düzenlemeler için düşünceleriniz nelerdir?

**ENGLISH VERSION OF INTERVIEW FROM THE REGULATION AND
SUPERVISION PERSPECTIVE**

**DIGITALIZATION AND COVID-19 EFFECTS IN THE TURKISH
BANKING SECTOR FROM THE REGULATION AND SUPERVISION
PERSPECTIVE**

- 1- What is the effect of digitalization on the sector in our country and its status in the global context?
- 2- Do you think that Turkish Banking Sector has a leading position in the world in digitalization? Why?
- 3- Which regulations have you made in the sector with digitalization? What are you planning to do to next improve digitalization?
- 4- What kind of regulations have you made regarding digitalization in the Covid-19 process and what do you plan to do in line with the pandemic from now on?
- 5- What is your projection and vision of creating regulations for the ecosystem's (comprised of actors like banks, Fintechs, APIs (software, application service providers), data-oriented telecommunication operators (Turkcell, Vodafone etc.)) and BigTechs (Facebook, Google, Apple etc.) cooperation or competition in the field of banking and payment systems?
- 6- Do you consider issuing a digital banking license as a possible future phenomenon?

- 7- What are your thoughts on regulating and supervising banking business models and ensuring the protection of customer rights through open banking and data-focused platforms?
- 8- How do you think digitalization affects and will affect your corporate way of doing business, corporate capacity and effectiveness in the context of the regulatory and supervisory framework?
- 9- What are your thoughts on the future and possible place of phenomena such as artificial intelligence, digital money and blockchain in the sector and in the supervisory regulatory structure in the digitalization process?
- 10- How do you evaluate the impact of digitalization on the employment process in the sector? What are your thoughts on possible regulations in this context?

C. TURKISH SUMMARY / TRKE ZET

Teknolojik geliřmelerin hızlı ekonomide birok sektrde radikal deęiřikliklere yol amaktadır. Bu deęiřimler zellikle verimlilik ve krlılıkta kendisini gstermekte ve bylece yeni iř modellerini doęurmaktadır. Teknolojik geliřmeler dolayısıyla operasyonel giderler azalmakta, mřteri tabanı geniřlemekte, krlılık artmakta ve daha az girdi ile daha ok ıktı elde edilebilmektedir.

Bankacılık ve finans bu teknolojik geliřmelerden ve nihayetinde oluřan finansal yeniliklerden faydalanan en belirgin sektrdr. 1980’li yıllardan bu yana bilgisayar teknolojilerindeki geliřmelerin etkisiyle bankacılıkta iřlem maliyetleri gittike azalmıřtır. Bu yeni teknolojiler daha hızlı, verimli ve dřk maliyetli iřlemlerde ve riskin azaltılmasında ara olarak nemli iřlev grmřlerdir.

2000’li yıllarla birlikte, internet teknolojilerinin ve bilgisayar aęlarının geliřmesiyle birlikte bankacılık ve finans alanında dijitalleřme olgusu belirmiřtir. İlk etapta dijitalleřme verinin sayısallařtırılmasından ibaretti. Fakat, veri depolama kapasitesinin geliřmesiyle birlikte veri tabanı ynetimi sayesinde veri analitięine dayalı aralar geliřti. Bylece zelleřtirilmiř rn ve sreler ile veri yoęun iř modelleri nem kazanmaya bařladı.

Dolayısıyla dijitalleřme, bařlıca bir faktr olarak ekonomide birok deęiřimi tetikledi. Dijitalleřmenin artmasıyla birlikte kodlanmış bilgi tabanı geniřlemekte ve bu durum veri analitięi ve karar verme sreleri ile ilgili olduka eřitli araların kullanımına yol amaktadır. Bu aralardan en belirgin olanı yapay zekdır. Yapay zek ve bu baęlamda birok enstrmanın kullanımı ile birlikte ekonomide ok eřitli sektrler artan verimlilik ve krlılık etkisinde yararlanmaktadır. Bu baęlamda yapay zek bankacılık ve finans alanında gittike kendisine daha ok yer bulmaktadır. Yapay zeka banka ve finans kuruluřlarında hem arz tarafında rn geliřtirme ve karar verme srelerinde, hem de talep tarafında portfy ynetimi ve portfy ynetim kararlarında

kullanılmaktadır. Böylece ürün geliştirme ve karar verme sürelerinde yapay zekânın kullanımı gittikçe yaygınlaşmaktadır.

Bu bağlamda bankacılık sektöründe daha verimli kaynak tahsisi görülmektedir. Dijitalleşme finansal kuruluşların ve müşterilerin artan yatırım fonlarının yönetimi amacıyla analiz ve karar verme süreçleri için gelişmiş araçlar sağlamaktadır. Öte yandan, dijitalleşme ve yapay zekânın bankacılık ve finans alanında kullanımı ile birlikte değer oluşturma biçimi daha verimli bir yöne doğru değişmektedir. Tüm bu olgular ise, finansal piyasaların gelişmes ve ekonomik büyüme arasındaki güçlü ilişkinin yansımasıdır. Zira, ekonomik ve finansal yenilikler ekonomik büyümenin altında yatan önemli faktörlerdendir. Diğer bir deyişle, finansal kuruluşların finansal aracılık işlevlerinin etkin ve verimli olması, teknolojik gelişmelerle birlikte tüm finansal sistemin verimliliğine dair önemli bir gösterge niteliğindedir. Bu bağlamda finansal yenilikler, finansal sistemin etkinliği için anahtar kavram olup, ekonomideki fazla fonların kalkınma hedefleri doğrultusunda daha etkin dağılımını sağlayarak ve şirketleri daha verimli ve teknoloji yoğun iş modellerine yönlendirerek ekonomik kalkınmaya katkı sağlamaktadırlar.

Tüm bu gerçekler ışığında, dijitalleşmenin de sebep olduğu üzere finansal yeniliklerin rolünün verimlilik ve verimliliği artırmak için çok önemli olduğu görülmektedir. Dolayısıyla bu yeniliklerin yayılmasının hızı ve kalitesi önemlidir. Zira, yeniliklerin yayılma hızının yüksek olması, sebep oldukları sosyal ve ekonomik etkilerin de daha çabuk görülmesini sağlamaktadır.

Bu tez çalışması, bankacılık ve finans alanında dijitalleşmeye bağlı olarak görülecek büyük iş modeli değişiklikleri bağlamındaki senaryoları ve değişimleri konu almaktadır. Finansal yenilik ve dijitalleşme kavramlarının anlaşılması bu bağlamda önem arz etmektedir.

Bu çalışmanın amacı dijitalleşmenin ve dijitalleşme temelli değişimlerin Türk Bankacılık Sektörü üzerindeki etkilerini araştırmaktır. Araştırmanın bu anlamda çeşitli katkıları bulunmakta olup, ilk olarak dijitalleşmenin bankalar üzerindeki etkisini

göstermek adına Kanvas İş Modeli geliştirmek için bankaların mevcut durumunu analiz edecek teorik bir çerçeve, bir dijital dönüşüm olgunluk modeli kullanılmaktadır. Dolayısıyla bu iki model literatürde ilk defa eş zamanlı olarak kullanılmaktadır. İkinci olarak ise, araştırma verilerinin toplanma dönemi, Covid-19 salgın döneminde dijitalleşmenin bankacılık üzerindeki etkilerinin değişimini görmeye olanak tanımakta ve bu da bankacılık sisteminin bu tür krizlere karşı yeteneğini göstermektedir. Son olarak da Türkiye'deki müşterilerin dijitalleşmeye uyumu ve bu konudaki açıklığı Türk bankacılığını araştırılması gereken özel bir durum haline getirmektedir.

Bir iş stratejisi olarak dijitalleşme, stratejik karar almayı içermekte ve iş modellerinde değişikliklere neden olmaktadır. Bu nedenle, bu çalışmada, dijitalleşmenin iş modelleri üzerindeki etkilerini anlamak ve analiz etmek için Kanvas İş Modeli kullanılmaktadır. Türk Bankacılık Sektörü dijital olgunluk modellerine, dijitalleşmenin düzeyine, veri odaklı işbirliğine dayalı değer oluşturmaya ve bankalar arası iş modellerine atfen bir kabuk değişimi yaşamaktadır.

Öte yandan Covid-19, dijitalleşmenin Türk Bankacılık Sektörü üzerindeki hızını ve etkisini önemli ölçüde etkilemiştir. Covid-19 salgını, dijitalleşme, bankacılık sektörü ve dijital bankacılığın yaşam döngüsünde tetikleyici bir olay, bir aksaklık, bir şoktur. İş modellerine ve genel olarak iş hayatına etkileri ile birçok sektörde dijitalleşme sürecini ön plana çıkarmıştır. Covid-19, ani bir küresel şok olarak, küresel ölçekte çalışma alışkanlıklarını değiştirmiş ve birçok kişi pandemi bitene kadar geçici olarak uzaktan çalışmaya başlamıştır. Bu durum, müşterilerin ve banka yetkililerinin bankacılık işlemleri ve çalışma operasyonları için dijital araçları daha etkin kullanma eğilimine katkıda bulunmuştur. Dijital platformlar kullanılarak pek çok işin ve işlemin uzaktan gerçekleştirilebileceği gerçeği görülmüştür. Bu nedenle, Covid-19'un Türk Bankacılık Sektörü üzerindeki son etkilerini ve olası uzun vadeli etkilerini anlamak çok önemlidir. Ayrıca, Covid-19'un dijitalleşme üzerindeki etkilerini de dikkate Türk Bankacılık Sektörünün güncel bir resmini elde etmek için bu modellerden yararlanılmış olması da bu çalışmanın ayırt edici özelliğidir.

Bu süreci daha iyi anlamak için Türk Bankacılık Sektöründeki (TBS) teknolojik gelişmeleri, özellikle 1980 sonrası dönemde gerçekleşen değişimleri bilmek önemlidir. TBS'deki teknolojik gelişmeler, her on yılın genel teknolojik gelişme düzeyi ile ilgilidir. Bu nedenle, 1980'li yıllardan önceki dönemde şubelerde yerel ve manuel veri girişi ile muhasebe işlemlerini ana işlemler olarak belirtebiliriz. Ancak, 1980'li yıllardan itibaren teknolojideki gelişmelerin, bankacılık işlemlerinin hacminin ve bankalar arası etkileşimin artması nedeniyle teknolojik gelişmelerin hızı ve adaptasyonu ivme kazanmıştır. 1980 yılında Türkiye ekonomisindeki finansal serbestleşme, ithal ikameci politikaları yürürlükten kaldırarak sermaye hareketlerinin ve ithalatın serbestleşmesine yol açmıştır. Bu durum ithal mal talebinde artışa neden olmuş ve artan tüketim bireysel bankacılığın gelişmesine yol açmıştır. Ayrıca, bireysel bankacılığın gelişmesi ve artan bankacılık işlem hacmi nedeniyle birçok teknolojik gelişme TBS'ye uyarlanmış ve/veya gerçekleştirilmiştir. Örneğin, SWIFT, Reuters, internet ve Bilgi İletişim Teknolojilerindeki diğer gelişmeler aracılığıyla küresel bankacılık ağına entegrasyonun sağlanması, yabancı bankalarla etkileşimin sağlanması adına olumlu etkiler meydana getirmiştir. Bu etkiler, yeni teknolojilerin adaptasyonu, geliştirilmesi ve yayılması bağlamında belirgindir.

Bu etkileşim ve dönüşüm sürecinde ortaya çıkan dijitalleşme bankacılık sektörünün dönüşümünde önemli bir mihenk taşı olmuştur. Dijitalleşme, başlangıçta operasyonel bir gelişme olarak ortaya çıkmış olsa da, zamanla ürün, süreç ve iş yenilikleri açısından finansal yenilikleri içerecek şekilde kapsayıcı bir boyut kazandı. Bu nedenle dijital dönüşüm, değişimin belirleyicisi olan finansal aktörlerin daha fazla etkileşimi ve işbirliğiyle tutarlı olarak sistematik bir stratejik yaklaşım ve yeni bir iş modeli gerektirmektedir.

İnternetin gelişmesinden önce, bankalar ofis işlemlerini otomatikleştirmek için zaten teknolojiyi kullanıyorlardı. Geleneksel olarak şubeler, bankacılığın ana dağıtım kanallarıdır. Fakat, teknolojinin kullanımıyla birlikte, başlangıçta otomatik para çekme makineleri (ATM) ile alternatif dağıtım kanalları ortaya çıktı. Mobil cihazlar, dijital TV'ler ve internet bankacılığı dahil olmak üzere alternatif dağıtım kanalları, sağladıkları avantajlar (örn. maliyet düşürme, verimlilik ve daha iyi hizmet kalitesi)

nedeniyle bankalar için caziptir. Dijitalleşme, bankacılıkta alternatif dağıtım kanallarının yoğun kullanımına doğru bir paradigma kayması sağladı.

Dijitalleşme, verinin sayısallaştırılmasıyla, analogtan dijitalle dönüştürülmesi ile başladı. Sayısallaştırma, tüm bilgilerin dijital formatta erişilebilir ve erişilebilir hale getirilmesi sürecidir. Dijitalleşme ise, belirli işlemleri basitleştirmek için dijitalleştirilmiş bilgilerin en iyi nasıl uygulanacağını değerlendirme sürecidir. Öte yandan, dijital dönüşüm, tüm dijitalleştirilmiş verileri ve dijitalleştirilmiş uygulamaları entegre eden yeni iş uygulamaları geliştirme sürecidir. Dijital dönüşüm, kurumların artan hizmet kalitesi ile daha fazla veri-yoğun analiz yapabilme, veri işleme ve karar alma süreçlerindeki etkileri ile birlikte bütüncül bir bakış açısıyla düşünülmelidir.

Finans kuruluşları, müşteri taleplerini ve kullanıcı deneyimlerinden gelen olumlu geri bildirimleri dikkate alarak dijital hizmetler sunmaktadır. Bu kapsamda, bilgi toplama, hesap açma, müşteri kabulü, günlük bankacılık, müşteri ilişkisini genişletme ve ilişkiyi sonlandırma gibi temel bankacılık fonksiyonları dijital çerçevede ele alınmaktadır. Dijitalleşme sayesinde bankalar, daha az insan müdahalesi ve hataları ile zamandan tasarruf sağlayan daha geniş bir hizmet yelpazesi sunmaktadır. Bankalar bu bağlamda değer oluşturmada değişikliklerle karşı karşıyadır. Bu durum, finans sisteminin hızlı ve verimli çalışmasına, insanların ve basit otomatik süreçlerin yerine makine ve dijital süreçlerin geçmesine ve operasyonel süreçlerin maliyetinin en aza indirilmesine neden olmaktadır.

Dijitalleşme ile birlikte bankalarda iş modelleri değişmeye başladı. Daha verimli ofis işlemleri, internet ve mobil bankacılık, bankalar ve müşteriler arasında dinamik bir etkileşim ve geri bildirim platformu sağladı. Veriye dayalı iş modelleri ve analizi, finans sektörünün önemli bir parçası haline geldi. Dolayısıyla, sağlam iş modelleri, uyarlanabilir becerileri, uyumlu dijitalleşme stratejisi olan ve piyasaların ve ekonominin dijital dönüşümü hakkında daha iyi anlayış ve beklentilere sahip şirketlerin, maliyetli hata ve başarısızlıklardan kaçınma ve bu süreçten yararlanma olasılığı daha yüksektir.

Bu bağlamda dijitalleşme, operasyonel verimlilik artışı, internet ve mobil dağıtım kanalları ve azalan insan faktörüyle öncelikle banka ve finans kuruluşlarının iş modellerinde kurum içi değişikliklere neden oldu. Böylece dijitalleşme, finansal aktörlerin daha fazla etkileşime girmesi ve paradigmanın değişiminin ana belirleyicisi olarak ortaya çıkan aktörlerin işbirliği ve yeni iş modelleri ile birlikte finansal sektörün daha dinamik ve değişen çağına zemin hazırladı.

Dijitalleşmenin hızı, eski eski pazar yerlerinde olduğu gibi etkileşimlerin ve değer değişimlerinin kolaylaştırıldığı platform tabanlı bir iş yaklaşımında açık bankacılığa doğru bir paradigma değişikliğine neden oldu. Bu nedenle, açık bankacılıkta veriler, süreçler ve işler, müşteriler, üçüncü taraf geliştiriciler, FinTech girişimleri veya ortaklardan oluşan bir ekosistem içinde kullanıma sunulur. Veri paylaşımı, erişilebilirlik, paylaşılan değerler ve işbirliği, açık bankacılık paradigmasını tanımlayan ana kavramlardır.

Açık bankacılığın ardından, "bankacılığın ötesi" olarak adlandırılan başka bir platform tabanlı iş yaklaşımı ortaya çıktı. Bu yaklaşımda müşterilere birden fazla hizmet sunan farklı hizmet sağlayıcılar vardır. Bu hizmetler bütüncül ve uyumlu bir şekilde verilmektedir. Bu hizmetlerin içerik yelpazesi çok geniş bir çeşitliliğe sahiptir. Bankalar, hizmet kapsamını tutarlı bir şekilde entegre eden niş ve özel finansal hizmetler sağlayarak bu sürecin bir parçası olabilirler. Bu durum, daha rekabetçi bir bankacılık iş ortamında değer yaratmanın stratejik parçası olan dikey entegrasyondur. Değer yaratma ve fayda optimizasyonu için, işin her adımında maliyet etkinliğine sahip uzman ortaklarla operasyonel sürecin dikey entegrasyonu stratejik öneme sahiptir.

Açık bankacılık bir gelecek paradigmasıdır. Sadece bir teknoloji çözümü değil, bundan daha fazlası, iş stratejisinin önemli bir parçasıdır. Ancak teknoloji ve değişim dinamik süreçler olduğundan, geleceğin sorunlarına çözüm bulmak için her zaman yeni paradigmalar ortaya çıkmaktadır. Açık bankacılık, bu dinamik paradigmalara önemli fırsatlarla zemin hazırlamaktadır. Bu nedenle, finans sektörünün gelecekteki paradigması esas olarak ekosistem ortaklıkları ve işbirliği etrafında şekillenmektedir.

Finans sektörü, hizmetleri entegre bir şekilde yeniden sunmakta ve bu nedenle bankalar, Fintech'ler ve BigTech'ler çözüm ortakları olabilir ve çok kanallı bankacılık yoluyla geniş bir müşteri tabanını birlikte kullanabilirler.

Bu bakımdan Open X kavramı, yarın için yeni bir paradigma olarak ortaya çıkmaktadır. Open X ortak bir platformdur, bir bakıma paylaşılan bir pazardır ve bu platformun aktörleri, yoğun veri kullanımı ile veri yoğun bir çerçeve içindedir. Bu platformdaki bir diğer önemli özellik, hizmetlerinin kalitesi ve sürdürülebilirliği adına aktörler arasında işbirliğidir. Bu yeni paradigma, aktörleri modası geçmiş iş modellerini bırakıp radikal bir dijital dönüşüm başlatarak iş modeli kültürlerini ve teknoloji mimarilerini değiştirmeye zorlamaktadır.

Bu değişimin başlangıcı ve dinamizmi dijitalleşmeye dayanmaktadır. Dolayısıyla dijital dönüşümün düzeyini anlamak ve anlamlandırmak bu bağlamda önem kazanmaktadır. Zira, kurumların nereye odaklandıklarını ve dijital dönüşüm çabalarını ve girişimlerini nasıl ölçtüklerini öğrenmek için bankacılıkta dijital dönüşümün mevcut olgunluğunu anlamak için bir model kullanmak, bu süreçte departmanların işbirliğini araştırmak stratejik olarak çok önem arz etmektedir. Dolayısıyla, IDC'nin dijital olgunluk modeli Türkiye'deki bankaların dijital olgunluk düzeyini anlamak için bu çalışmada da kullanılan önemli bir araçtır.

Öte yandan, dijitalleşmenin bankaların iş modelleri üzerindeki etkisini analiz etmek ve bir bankanın değer yaratma, bunu sağlama ve işi yürütme şeklini açıklamak için bir modelleme yaklaşımı gereklidir. Kanvas İş Modeli, performans ve rekabet analizlerinin yanı sıra yönetim, iletişim ve inovasyon amaçlarıyla karşılaştırma ve kıyaslama amacıyla kullanılabilir.

Bu bağlamda, TBS'nin dijital olgunluk düzeyini tespit etmek ve Kanvas modelini oluşturabilmek için yapılandırılmış mülakat tasarlanmış olup, böylece performans ve rekabet analizlerinin yapılması için karşılaştırma ve kıyaslamada Kanvas modelinden yararlanılmıştır.

Bu çalışmada, bankaların Kanvas İş Modeli üzerinde Covid-19 pandemisinin etkileri dikkate alınarak bu modellere göre TBS'nin bir değerlendirmesi yapılmıştır. Dijital bankacılık ile bu modelleri ve Covid-19'un etkilerini entegre etmek ve bunu TBS ölçeğinde yapmak bu çalışmanın yeniliğidir. Ayrıca, ek bir mülakat yapılarak, denetim ve düzenleme perspektifinin değerlendirilmesi bu çalışmanın politika önerilerine önemli bir bakış açısı sağlamaktadır.

Bankalarla yapılan mülakatlardaki soruların yapısı temel olarak bankaların dijitalleşmeye hazır olma durumunu ve kapasitesini anlamak için tasarlanmıştır. Dijital Olgunluk ve Kanvas İş Modeli soruları birbirlerini tamamlamaktadırlar. Bankaların örnekleminin de bu bağlamda hem aktif büyüklüğü hem de banka çeşitliliği açısından TBS'de sektörü temsil ettiği düşünülmektedir.

Katılımcıların TBS'de tüm banka gruplarını temsil etmeleri için, bu çalışmada, kamu sermayeli bankalar, özel mevduat bankaları, İslami katılım bankaları, orta ölçekli bankalar ve yabancı bankalar gibi farklı bankacılık grupları ele alınmıştır. Bu çalışmada banka türleri açısından seçilen temsili bankalar şu şekilde sıralanmıştır:

- Banka A - orta ölçekli yabancı mevduat bankası,
- Banka B - büyük ölçekli özel mevduat bankası,
- Banka C - orta ölçekli katılım bankası,
- Banka D - devlet kalkınma bankası,
- Banka E - büyük ölçekli özel mevduat bankası,
- Bank F - orta ölçekli özel mevduat bankası
- Banka G - orta ölçekli devlet mevduat bankası

Dolayısıyla, her banka grubundan bir banka, ilgili örneklem büyüklüğü olarak TBS'yi sağlıklı bir şekilde temsil etmektedir. Bankalar, Bankacılık Düzenleme ve Denetleme Kurumu (BDDK) sınıflandırmasına göre seçilmiştir. Çalışmada seçilen bankaların aktif payı 2019 yıl sonu itibarıyla Türk Bankacılık Sektörünün yaklaşık% 40'ını oluşturmaktadır.

Yukarıda belirtilmiş olan bankaların dijitalleşme ve dijital bankacılıktan sorumlu Genel Müdür Yardımcıları ya da Birim Müdürleri ile yapılan bu mülakatlara ek olarak denetim ve düzenleme bağlamında kamu tarafında da bir üst düzey yönetici ile yazılı mülakat yapılmıştır.

Bankacılarla yapılan mülakatlar dijital olgunluk düzeyi, Kanvas İş Modeli ve yeni teknolojilerin sektörü nasıl bir geleceğe yönlendirdiğine dair vizyonu anlamak bağlamında oluşturulmuştur. Dijital olgunluk düzeyine dair sorular bankanın geçici (dijital reaktör), fırsatçı (dijital gezgin), tekrarlanabilir (dijital oynatıcı), yönetilen (dijital dönüştürücü) ya da optimize edilmiş (dijital bozucu) olup olmadığını anlamayı hedeflemektedir.

Kanvas İş Modeli ile ilgili sorular ise temelde beş kategoride ifade edilmiştir. Bunlar; dijitalleşme ve bunun banka üzerindeki etkileri hakkında genel sorular, müşteri ile ilgili sorular (müşteri ilişkilerinde dijitalleşmenin nerelerde kullanıldığı), ürün/hizmetle ilgili sorular, kaynaklar ve ortaklıklarla ilgili sorular (dijitalleşmenin kaynak arzı ve ortaklıklar/dış kaynak kullanımına etkileri), son olarak dijitalleşmenin banka için maliyet avantajı getirip getirmediği gibi finansal yönlerle ilgili sorular şeklinde kategorilerden oluşmaktadır.

Bu bölümü gelecek vizyonuna ilişkin sorular takip etmiştir. Bu sorularla, mülakat katılımcılarının dijitalleşmenin istihdam üzerindeki etkileri, blockchain, dijital para ve yapay zekâ gibi yeni dijital ürünler hakkındaki vizyonunu ve dijitalleşme ile ilgili olarak sektörün geleceğine dair öngörülerini anlamak amaçlanmıştır.

Bankacılarla yapılan bu mülakatları müteakiben denetim ve düzenleme bağlamında kamu tarafında da bir üst düzey yönetici ile yapılan yazılı mülakat yapılmıştır. Bu mülakat bağlamında dijitalleşmenin sektör üzerindeki etkilerini, TBS'nin dijitalleşme açısından dünyadaki durumunu ve konumunu, gelecekte yapılan ve planlanan düzenlemeleri anlamak amaçlanmıştır. Ayrıca, Covid-19'un yasal düzenlemeler bağlamındaki etkisini, pandemiye paralel olarak halihazırda var olan ve planlanan düzenlemeler ile Covid-19'un dikkate alınmasını düzenleyici perspektiften algılamaya yönelik sorular sorulmuştur.

Böylece, bankaların, Fintech'lerin, API'lerin (Application Programming Interface – Uygulama Programlama Arabirimi), veri odaklı telekomünikasyon operatörlerinin etkileşimlerini ve işbirliklerini düzenleyen bir eko-sistem oluşumu için kamu otoritesinin vizyonu görmek mümkün olmuştur. Buna ilave olarak dijital bankacılık lisansının TBS'nin geleceğindeki olası yeri bu mülakat kapsamında sorgulanmıştır.

Bu mülakatlar neticesinde yapılan analizler, TBS'de henüz dijitalleşmenin “Optimize edilmiş” olgunluk düzeyinde kategorize edilmiş tek bir banka olduğunu ortaya koymaktadır. Bu durum, TBS'nin teknolojiyi uyarlamanın ötesinde teknolojiyi geliştiren bir dönüşüm yaşaması gerçeğini ortaya koymaktadır. TBS, ülkemizin artan genç nüfusu ve bu nüfusun bankacılık sektörüne henüz dahil olmamış olması nedeniyle büyük bir potansiyele sahiptir. Pazarın bu potansiyeli aynı zamanda artacak rekabetin de göstergesidir. Bu nedenle, sistematik bir politika tasarımına ve sadece bankaları değil, aynı zamanda Fintech'leri, düzenleyici ve denetleyici otoriteleri, teknoloji şirketlerini de içeren bütüncül bir işbirliğine duyulan ihtiyaç açıktır. Diğer bir deyişle, hem politika yapıcılar ve bu politikaları yürütenler, hem de TBS'deki aktörler için bir inovasyon sistemi perspektifi gereklidir.

TBS'nin son yıllardaki sorunu bankalar, Fintech'ler ve diğer teknoloji şirketleri arasındaki işbirliğinin yetersizliğidir. Dolayısıyla, TBS ekosisteminde bankalar, Fintech'ler ve diğer teknoloji geliştiricileri arasında daha dinamik bir işbirliğinin oluşturulması önem arz etmektedir. Diğer bir deyişle, dijital teknolojilere ve değişimlere uyum sağlamada güçlü olmanın yanı sıra, dijital rekabette küresel ölçekte öncü ve lider bir role sahip olmak için sağlam bir eko sisteme, aktörler arası etkileşim ve işbirlikleriyle etkili bir inovasyon sistemine sahip olmak önemlidir.

Böylesi bir inovasyon sistemi kurmak için, bankalar, kamu otoriteleri, Türkiye Bankalar Birliği ve/veya diğer aktörlerin, işbirliği ağlarını geliştirmek için bankalara ve Fintech'lere öncülük etmesi gerekmektedir. Türk bankalarının daha önce POS ve ATM paylaşımı gibi farklı örneklerle de ifade edilebilen bir işbirliği geçmişi bulunmaktadır. Fakat, bankalar arasındaki bu işbirliği geçmişine rağmen, bunun tam

tersine TBS'deki bankalar Fintech'ler ve diğer şirketlerle yeterince işbirliğini henüz oluşturamamışlardır. Bu durum, bankaların dijitalleşme ve değişen iş modelleriyle ifade edilen bu dinamik süreci algılamakta zorlandığını ve dolayısıyla tutumlarının, sektördeki söz konusu işbirliğinin gelişmesini sınırlandırarak muhafazakar kaldığını göstermektedir.

Bankalardaki bu muhafazakarlık nedeniyle dijitalleşme algısı henüz yeni bir iş felsefesi değildir. Nitekim bu muhafazakarlık, Türk bankalarının çoğunlukla tekrarlanabilir ve yönetilebilir dijital olgunluk düzeylerine sahip olması sonucunda bankalar ve Fintech'ler arasındaki inovasyon ağlarını yapısının gelişmesini geciktirmiştir. Ancak dijitalleşmenin hızındaki artış bankalar arasında dijitalleşmenin esasına ilişkin farkındalık gelişmesine neden olmaktadır. Gelişen bu algı ile bankalar, Fintech'ler ve diğer şirketler arasında daha dinamik bir etkileşim ve işbirliği, Türk Bankacılık Sektörünün dijital olgunluk seviyesinin sıçraması için inovasyon sistemleri perspektifinde daha etkili hale gelebilir.

Türk Bankacılık sektörünün olgunluk seviyesinde böyle bir sıçrama yapabilmek için, Bankaların, B Bankası gibi yeni bir iş felsefesi olarak dijitalleşmenin geleceğine daha fazla konsantre olması ve yatırım yapması gerekmektedir.

Türk Bankacılık Sektöründe bir inovasyon perspektifi sisteminin oluşturulmasıyla birlikte, aktörler arasındaki işbirliğine dayalı ilişki ağları, koordinasyon, etkili öğrenme, kodlanmış ve zımni bilginin daha iyi yayılması, en iyi uygulamaların geliştirilmesi ile verimli bir şekilde çalışacaktır.

Covid-19 süreci, bankalara dijital iş kapasitelerini test etme ve geliştirme şansı vermiştir. Covid-19 sayesinde dijitalleşme, stratejik öneme sahip bir vizyon olarak ivme ve itibar kazanmıştır. Covid-19, dijitalizm konusunda farkındalık yaratmak için önemli bir araç haline gelmiştir. Covid-19'un artışı ile birlikte, bankaların üst düzey yöneticilerinin dijital dönüşüm süreçlerine daha fazla destek sağlamasıyla dijitalleşmeye ilişkin farkındalık en üst seviyeye ulaşmıştır.

Bankaların rolü ve oluşturdıkları değer, finansal aracılık ve fonları kanallere etme olarak tanımlanmıştı. Ancak dijitalleşme sürecinde bankaların rollerinin içeriği ve kapsamı ve önerdikleri değer genişlemiştir. Bankalar ayrıca dijital lider, yenilik lideri ve öncü gibi ünvanlarının yanında kurumsal kültür, iş modelleri, şirketler ve müşteriler için rol model niteliğini haizdir.

Bankalar, inovasyon eko-sisteminin liderleri olarak, dijital teknolojilerde yeterlilik geliştirmeye katkıda bulunmaktadır. Ayrıca bankalar, müşterilerine sağladıkları dijital finansal raporlama sistemleri vb. Dijital Yönetim Bilgi Sistemi araçları ile birlikte kurumsal müşterilerinin dijitalleşmesine de katkı sağlamaktadırlar. Kurumsal müşterilerin dijital uyum kapasitesinin geliştirilmesi, sistematik bir gelişmeye neden olmakta ve bu nedenle bankalar bu tür müşterilere ve sektörlerle kredi vermeye daha istek olmaktadır. Bu örnekten de görüldüğü üzere, müşterilere bu kadar katkı sağlayan bankaların rol modeli işlevinin ve dijital lider rolünün böylesi yan etkileri de görülmektedir.

Dijitalleşmenin ilk aşamalarında bankalar Fintech'leri rakip olarak görükleri için onlarla işbirliği yapmak konusunda isteksizlerdi. Ancak, Fintech'lerin bankaların rakibi olmadığı, aksine işbirliği ortağı olduğu ortaya çıktı. Son zamanlarda bu gerçeğin farkedilmesi ile birlikte, artık bankalar ve Fintech'ler arasında bir işbirliği ağı kurulmaktadır. Öte yandan, teknoloji ve mobil iletişim şirketleri, geniş müşteri veri tabanları ile müşterilerine perakende finansman, tüketici finansmanı sağlama ve bankaların rakibi olarak ortaya çıkma eğilimindedir.

Bu rekabet aynı zamanda ekosistemdeki aktörler arasında etkin işbirliğinin de oluşumunu gerekli kılmaktadır. Yine bu bağlamda ekosistem aktörlerinin yanısıra üniversiteler ve araştırma laboratuvarları ile işbirliği de aynı derecede önemlidir. Zira, davranışsal finans, veri bilimi ve veri mühendisliği, müşteri ve pazar davranışlarını anlamak, modellemek ve tahmin etmek için bankacılıkta gittikçe önem kazanmaktadır. Finansal karmaşa ve işbirliği ağları için senaryo analizi stratejik olarak önemli hale gelmekte olup, Covid 19 bu olguların öneminin önemli bir kanıtı olmuştur.

Tüm bu gelişmeler sonucunda bankalarda gelir akışının kaynağı değişmeye başladı. Dijitalleşme ve dijital kanallar, bankalarda sağladıkları maliyet avantajlarının yanı sıra ana gelir kaynağı olarak ortaya çıkmaya başladı. Dolayısıyla bu faktörler, müşterilerin fiyat duyarlılığı açısından Türk Bankacılığı'nda rekabete katkı sağlamıştır. Böylece, bankalar, minimum faaliyet giderleri, artan müşteri tabanı ve gelirleri ile müşterilerine daha düşük fiyatlarla hizmet verebilmektedir. Bu bağlamda TBS'de rekabet odağı fiyattan hizmet kalitesine geçebilmiştir.

Yine bu bağlamda, yeni teknolojilerin adaptasyonu ve geleceği, işgücündeki yeni yetkinlikler ve beceriler, yeni işbirliği ağları, blok zincirleri biçimindeki bütünsel değer zincirleri ve farklı inovasyon sistemlerinde inovasyon liderleri olarak bankaların yeniden tanımlanmış rolü anlam kazanmakta olup tartışılmaktadır. Teknoloji ve dijitalleşme temelli departmanların artan önemi, geleneksel dağıtım kanallarından dijital dağıtım kanallarına geçiş, şube sayısının kademeli olarak azalması veya yeni şubelerin açılmaması ile birlikte bankaların organizasyon yapısında değişim şimdiden başlamıştır. Dolayısıyla Covid-19'un bu gelişmelerin hızlanmasında önemli bir rolü vardır.

Tüm bu bulgular ışığında politika önerileri, işbirliği ağlarının geliştirilmesi, mevzuatın dönüştürülmesi, Fintek'lerin desteklenmesi yoluyla TBS'de girişimciliğin teşvik edilmesi, denetim ve gözetim yapısının inovasyon perspektifine göre gözde geçirilmesi, çalışanların yetkinliklerinin geliştirilmesi ve iş yaşamının bu yeni sürece uyumlaştırılması başlıkları altında belirtilmiştir.

İşbirliği ağlarının geliştirilmesi bağlamında politika araçları; ortak faaliyetler ve projeler yoluyla Fintek'lerin ve bankaların işbirlikçi olarak algılanmasını teşvik etmek, düzenleyici ve denetleyici otorite olan BDDK'nın, TBS için inovasyon perspektifine sahip olması ve sektörden ortak komitelerle inovasyon strateji dokümanları hazırlaması, üniversitelerin ve araştırma enstitülerinin eko-sisteme katılımı, ortak faaliyetler ve projelerle desteklenmesi, ekosistemde yukarıda belirtilen tüm paydaşlardan oluşan ortak çalışma grupları ve komiteler oluşturulması, TBS için

sektörel bir inovasyon sistemi için strateji ve yol haritasını bu ortak çalışma grupları ve komitelerde tartışmak ve taslak haline getirmek şeklindedir.

Bu başlık altında belirtilen politika hedefi, TBS için paydaşlar arasında güçlü etkileşim ve işbirliklerinin olduğu bir sektörel inovasyon sistemine sahip olmak, dijital lider olmak ve bu çalışmanın dijital dönüşüm olgunluk modelinde optimize edilmiş dijital olgunluk seviyesine ulaşmaktır.

Mevzuatın dönüştürülmesi bağlamındaki politika araçları ise; Medeni Kanun, Borçlar Kanunu, Ticaret Kanunu ve Bankacılık Kanunu'nun dijital dönüşüm bağlamında gözden geçirilip ilgili değişikliklerin yapılması, dijital imza ve akıllı kimlik doğrulama sistemlerinin adaptasyonu ve bunların müşterilerin banka hesap açılışında kullanımının sağlanması, Rekabet hukukunun dijitalleşme ve bu süreçten kaynaklanan yeni iş modellerine göre revize edilmesi ve veri paylaşımı için yasal çerçevenin revize edilmesi şeklindedir. Bu bağlamdaki politika hedefi, dijitalleşmede TBS için küresel rekabet avantajının yasal temelini sağlamaktır.

Fintek'lerin desteklenmesi yoluyla TBS'de girişimciliğin teşvik edilmesi bağlamında politika araçları ise; Fintek'lerin etkileşimleri ve bilginin yayılımı ile için bir çerçeve oluşturma, yeni kurulan Fintek'lerin teşvik edilmesi, bankalarla işbirliği içinde yeni kurulan Fintek'ler için vergi teşvikleri ve yeni finansman fırsatları tasarlamak olarak ifade edilebilir.

Böylece, Fintek'ler aracılığıyla gelişmiş girişimciliğin faydalarından yararlanmak hedeflenmektedir. Fintech'ler, ekosistemde yüksek adaptasyon becerileri ve yenilikçi kapasiteleri olan çok dinamik ve çevik oyunculardır. Dolayısıyla bankaları gelişmiş işbirliği için tetikleyebilecek ve gelişmiş yenilikçi kapasiteye sahip bir inovasyon sistemi geliştirebilecek niteliktedirler.

Denetim ve gözetim yapısının inovasyon perspektifine göre gözde geçirilmesi bağlamında önerilen politika araçları ise şunlardır;

- Sektörel inovasyon stratejisinin hazırlanması ve bankalar için inovasyon sıralamalarının ve derecelendirmelerinin geliştirilmesi.
- Sektörel dijital olgunluk seviyesi modellerinin geliştirilmesi ve buna göre bankaların derecelendirilmesi.
- TBS'deki aktörlerin yenilikçi kapasitelerini derecelendirmek ve derecelendirmek, yapay zekâ, blockchain ve dijital para gibi gelecekteki teknolojilerin uyarlanması için stratejiler geliştirmek için sektör aktörlerinin katılımıyla ortak faaliyetler, çalışma grupları ve komiteler düzenlemek.
- API'ler ve TBS'deki diğer teknolojik gelişmelerin uygulanması için standartlar geliştirmek.
- Diğer ülkelerdeki çeşitli politikaların inovasyon perspektifinden uyarlanması için uluslararası düzeyde diğer bankacılık düzenleme ve denetim otoriteleri ile işbirliği yapmak.

Dolayısıyla bu kapsamda politika hedefleri, sektör aktörleri için tek başına ve sektör için konsolide bazda inovasyon derecelendirme ve sıralaması gibi sektörel göstergelere ve sektör aktörlerinin aktif katılımıyla dinamik bir inovasyon politikası geliştirme çerçevesine sahip olmaktadır.

Çalışanların yetkinliklerinin geliştirilmesi ve iş yaşamının bu yeni süreçte uyumlaştırılması bağlamında önerilen politika araçları şöyledir;

- Sektör temsilcileri, sendikalar ve devlet yetkililerinden oluşan ortak komiteler ve çalışma grupları yoluyla TBS'de yetkinlik oluşturma ve yeni teknolojilerin olumsuz istihdam etkileriyle başa çıkma stratejileri geliştirmek için birlikte çalışılmalıdır.
- Sendikalar, çalışan niteliğinin geliştirilmesine yönelik akademik programlar geliştirme konusunda üniversitelerle birlikte daha aktif ve TBS ile işbirliği içinde olmalıdır.
- TBS'nin üniversitelerle müfredat geliştirmek ve personelini eğitmek, veri akademisi vb. Banka akademileri oluşturmak için işbirliği içinde olması.

- Dijitalleşme ve diğer teknolojik gelişmelerden kaynaklanan yeni iş modelleri ve iş ilişkilerine göre İş Kanunu çerçevesinin revize edilmesi gerekmektedir.
- Dijitalleşme ile azalan personel ihtiyacı nedeniyle işten kovulmak yerine emeklilik seçeneklerinin TBS'de teşvik edilmesi önemlidir.
- Sendikalar ve TBS arasında gelişmiş iletişim ve etkileşim ağları oluşturulmalıdır.
- Covid-19 sırasında görüldüğü üzere, TBS'de evden çalışma, uzaktan çalışma kültürünün geliştirilmesi gerekmektedir.

Bu bağlamda politika hedefi, yeni teknolojilerin istihdam etkileriyle daha yetkin insan kapasitesi ile başa çıkmak, yeni beceriler için gereklilikler geliştirmek için yeni istihdam fırsatlarını kullanmaktır. Bu nedenle, becerilerin ve insan faktörünün teknolojiyle ikame edilmesinin hızla değiştiği bu çağda (özellikle finans sektöründe yapay zeka gibi) insan kapasitesinin becerilerinin ve yetkinliğinin geliştirilmesi bir sosyal politika olarak çok önemlidir.

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