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## Bank Customers And The Use of Open Banking: Have We Introduced It Yet?

### ABSTRACT

Developments in technology are closely followed by financial sector actors, and the banking sector is one of the leading actors among these actors. The banking sector closely follows technological innovations and integrates them into banking systems in order to provide better service to customers and increase financial inclusion. Open banking is one of the innovations made available to customers as a result of technological innovation in the banking sector. Open banking, which refers to the sharing of customer information with the consent of the customer, enables customers to access the products and services of all banks on a single platform wherever there is internet access. Thanks to this service provided in cooperation with FinTek and the banking sector, it is expected that customers will be able to access their account and card information from a single platform, make banking transactions faster, make interbank comparisons and make financial decisions more rationally. On the other hand, open banking offers customers advantages such as transparency, product/price competition and innovation.

Although open banking is a very new concept for the Turkish banking sector, it is considered as the future of banking. It is stated that the biggest obstacle to the acceptance of technological innovations is the attitude of customers towards innovation. Therefore, this study aims to measure the level of knowledge and attitudes of bank customers toward open banking. For this purpose, 574 customers of banks offering open banking services through mobile banking applications were surveyed through digital channels using a simple random sampling method. The answers given by the participants to the survey statements were subjected to frequency analysis with the help of statistical software. As a result of this analysis, it was concluded that open banking is not sufficiently known by bank customers, open banking is not used by bank customers and a significant portion of them have negative attitudes toward open banking.

**Keywords:** Banking, Open Banking, Digital Banking, FinTech.

### 1. INTRODUCTION

The change in the field of technology has led institutions and organizations in the financial field to change their internal structures. With this change, banks aim to provide a new service in the banking sector with FinTech technology companies that bring together new products and services in order to provide a better service to customers and respond to the changing demands of customers. With the increasing use of the internet, which is a part of technology, a significant portion of transactions such as money transfer, bill payment and customer account monitoring are carried out through digital channels such as mobile banking. Since business models in the Banking sector are changing day by day, the banking sector is shaped according to these business models.

As a traditional model, banks have continued their business flow with traditional methods such as receiving and giving money and providing loans to customers within the framework of these services. However, with the developments in technology, both artificial intelligence technology and changes in digital assistants have affected the banking sector and created a new change model in the sector. In this context, banks have entered the digitalization race in line with customer requests and needs, without the need for customers to go to the branch wherever there is an internet environment with mobile devices in general. With the open banking system and the use of technologies to access services and connect to payment networks, FinTechs have challenged banks, gained popularity in the sector and gained market share, creating an opportunity for banks that provide services through traditional

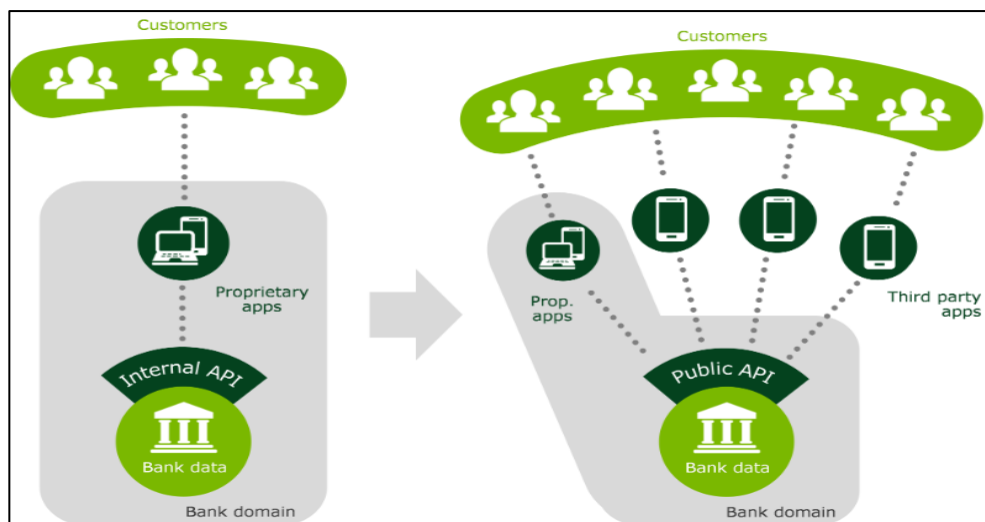
methods to rethink their position and rethink their value propositions to their customers. Banks are not indifferent to these developments and try to offer the services and opportunities offered by technology to customers by acting together with other service providers. With these developments, the concept of "Open banking", a new concept in the Banking sector, has emerged due to the preference of FinTech companies for financial services as customer demands and needs have changed.

Open banking is defined as a banking system that allows the customer to use the data held by the customer as they wish by sharing this data with third service providers and providing access to all financial information of the customer on a single platform as a change in the traditional banking understanding. With this system, banks give their customers the opportunity to access all banking services and offers under a single application since they give their consent to use their data with their own declarations. Before moving on to the concept of an open banking system, this study focuses on the innovations brought by technology, how banks keep up with this change and what changes they create in this digital environment and serve their customers. In addition, it is tries to examine issues such as the fact that customers can move away from situations such as going to branches in traditional banking and waiting in line, wasting time, and managing all their data from a single source with their own free will without the need to go to the branch and wait in line.

## 2. OPEN BANKING SYSTEM

The business model that enables the development of new products and services by sharing banking data with third-party banks and institutions through application programming interfaces and with the explicit consent of customers is called an open banking system (Akin, 2020: 23).

The open banking system is an innovative practice. In this system, customers can access all their financial information from a single platform and use their financial services more accurately and transparently, as customers allow their data to be used and used by third party service providers. This innovation will provide a different perspective on Banking and play a role in reshaping the banking sector (Chappelow, 2020).



**Figure 1:** Comparison of Traditional and Open Banking Systems, Source: (FinTech Istanbul, 2019: 9).

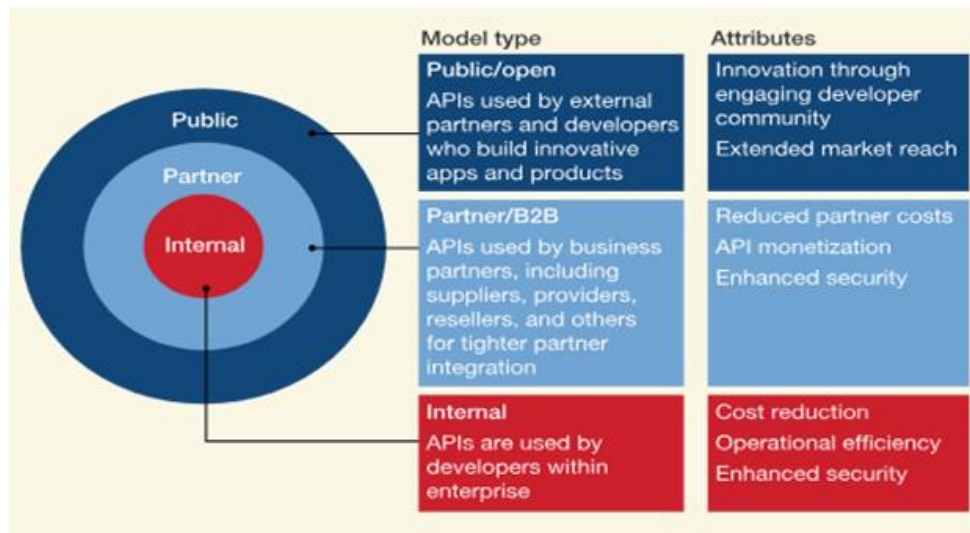
Open Banking in the World and Turkey: The Future of Banking In Figure 1, banking services are provided in the traditional way. In the application, there is no intermediary between the bank and the customer and internal APIs are used only between certain individuals and institutions. The one next to it is what we call an open banking system (open API system), where the customer is on one side, banks are on the other side and service providers are on the other side.

## 3. HOW THE OPEN BANKING SYSTEM WORKS

As a result of the joint work of the banking sector and Fintech companies, it is seen that new innovations have been brought to the banking sector with digitalization. With the information obtained with the permission of the customers, Fintech companies and artificial intelligence technology, machine learning and other technologies are used to create new products and innovative approaches to provide better service to customers (Cerit, 2019:11).

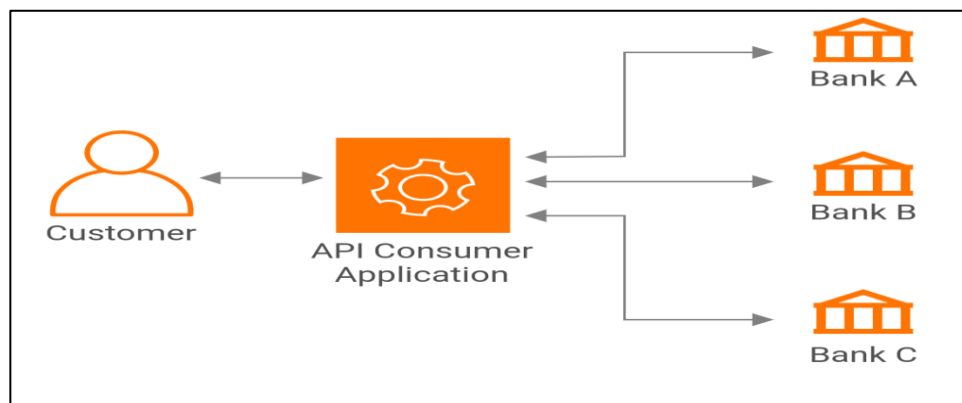
To understand how the open banking system works, the API system is the interface of the application. The working principle of this program can be defined as a software tool that allows two applications to communicate with each other. It is a technology used by third service providers to create this application, provided that customers' information remains confidential in this application (PWC, 2019).

If we give an example of an API application, when you enter the information of this city when you are going to travel to a city with the application on that ticket site, this application serves as an application that instantly offers us when the buses of which company will depart, ticket prices and how many seats are available on these buses by presenting all the information on the web page of the travel companies in the database. It is the API application that provides us with all the information here.



**Figure 2.** API Classification, Source: (McKinsey, 2017: 4)

In general, the open banking system is an application that allows the use of accounts in other banking systems in a single application in application where customers enter their data with the permission of the customers, providing ease of access to technological companies in the financial field and allowing third-party APIs to access the customer's financial accounts and transaction histories by using the data shared by the customer.



**Figure 3.** How Open Banking Works, Source: (PWC, 2019: 1016).

It is seen that the obstacle to the implementation of the open banking system in our country stems from the responsibility of 'Banking Law No. 5411' not to disclose the data of bank customers to third parties. On February 20, 2020, some amendments were made to Law No. 7222, allowing the sharing of data on a limited basis. PSD2, the European Union payment services directive, which laid the foundations of the open banking system, left the implementation to the parties to use the services related to the open banking system. It states that the banking sector must have a secure interface when providing data to third parties. In our country, it is seen that there have been some developments towards the open Banking system and banks use these applications in their digital applications (Sezal, 2021: 71).

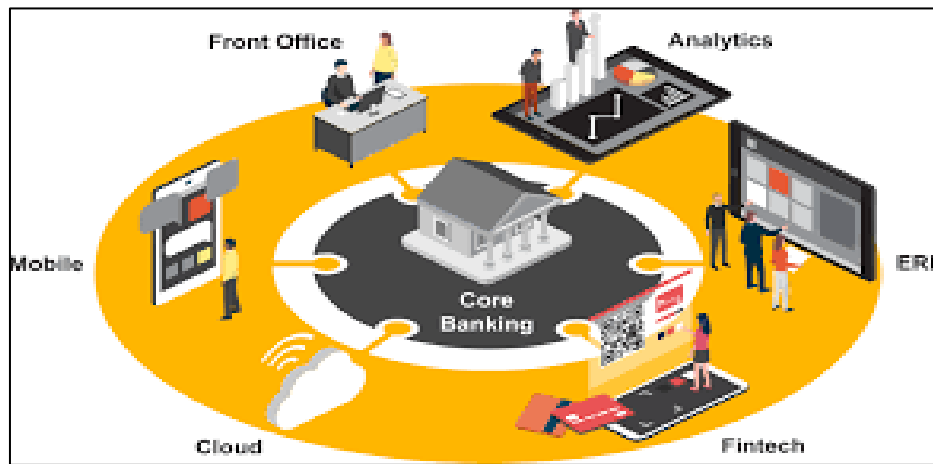


Figure 4. Payment Initiation Service, Source: (PWC, 2019: 1016).

#### 4. LITERATURE REVIEW

Şahan (2017) stated that as a result of the changes in technology, banks will move fast in this change and cooperate with Fintech companies to carry out innovative works in Digital transformation and achieve higher success in the competitive markets. Göktepe (2018), in his study, stated that banks providing financial services should completely change their data infrastructure, turn to open banking applications and cooperate with fintech companies to continuously innovate and improve their banking applications. Mounaim et al. (2016) defined the concept of open banking in their study. It is stated that competition is inevitable in the digital environment, and in this direction, they should create their own banking interfaces by cooperating with other technology companies within the scope of customer permissions, and take part in the competitive environment by specifying their strategy with a platform they have created in line with changing market needs. Gozman et al. (2018) examined the opportunities and threats that the open banking system offers to FinTechs and banks. In line with the data they obtained, they stated that the producers who create the platforms that financial institutions are in the process of integrating into this change play a role in becoming distributors offering this service and that these developments are still in their infancy.

Zachariadis and Özcan (2017) emphasized the importance of the free use of APIs as a requirement of an open banking system. The positive reflection of APIs on the banks' system in a competitive environment and whether there is any risk is emphasized. They emphasized that banks should focus on how stakeholder partners should be integrated into their platforms without worrying about profitability when using the API system. In his study, Niemela (2019) emphasized the important effects of the open banking system in the banking system, where banks and fintech companies cannot exist without one another and customers' trust in banks and fintech companies are seen as a faster, expert service source in the field of technology. Moysan and Rudnicki (2019) stated that it offers new opportunities to the banking model unlike the traditional banking approach and how it differs from traditional banking with the efficient use of APIs and the inclusion of Fintechs. Possible solutions to future Banking problems are listed. Şahin and Cantürk (2020) evaluated open banking and API technologies within the scope of the legislation and PSD2 in Turkey. The effects of open banking and API technologies on the financial system are discussed on a domestic and foreign basis and sample applications are included.

Vives (2017), in his study, emphasized that open banking will increase the impact of the implementation of open banking by FinTechs, where customers manage data at their own request and have their own sphere of control from this service. As the development of business models reduces the costs of financial intermediation and provides financial services for new consumers, it is stated that it will create major changes in the changing market shares in banking as it addresses the superiority of banks and fintechs over each other. Aksoy and Bilgel (2019) discuss the strategies and goals of financial technology companies of the open banking system of the banking sector in Turkey and evaluate the contribution of this new product to technology. Araluze (2020) studied whether the open banking model is needed in Spain and whether changes in digital banking are a need or a necessity for customers. Sivathanu (2019) wanted to investigate the impact of the open banking system and in this direction, he conducted a survey of 945 people in India and conducted a study on the "technology readiness and acceptance model" and found that open banking was positively received by the society and that the security risk was a risk factor by the participants.

Hsieh (2019), in his studies, tried to define the open banking system as open ecological system, open application interface, openness of data by evaluating how much the open banking system has developed in Taiwan and the open banking system in three stages. Sevim and Gökođlan (2023), in their study, emphasize the importance of the open Banking system and that the open banking system provides access to all data. They stated that the open banking system provides the opportunity to access financial data anywhere without time and space limitations and that the open banking system should be introduced to customers by banks and more customers should use this system.

## 5. METHODOLOGY

In the light of the data obtained as a result of the survey conducted in this study, Frenkas analysis was performed using the SPSS 18 package program for data analysis and the interpretation of the tables created was provided. Frenkas analysis is a statistical analysis technique that shows the frequency of observation in the data. It shows what measurements are observed and the number of repetitions of each, which measurements are taken by how many individuals. In this study, in order to measure the level of customer knowledge and attitudes towards the open banking system, a survey was conducted on how often the open banking system is used. The population size of this study consists of 574 customers engaged in banking activities. In the study, face-to-face surveys were conducted with 574 bank customers and surveys were tried to be conducted. 287 questionnaires were applied and 574 questionnaires were valid.

The data obtained in this study were obtained from the sources in the primary data through the survey method from the study tools. The study utilized primary data obtained from the study samples through the questionnaire method. Since this study is quantitative, the responses obtained from the questionnaire were subjected to the Cronbach Alpha internal consistency test (SPSS). The Cronbach alpha reliability of the 11-item scale for the open banking system was 84.2%. It is seen that this reliability value is quite sufficient. In other words, the reliability of the items is quite high.

## 6. DATA ANALYSIS AND INTERPRETATION

First of all, the results of descriptive statistics; the results of the perspectives of the users of the open banking system to measure the level of knowledge and attitudes of customers, are shown by expressing the results in tables.

**Table 1.** Cronbach Alpha Reliability Analysis

Reliability Statistics	
Cronbach's Alpha	N of Items
.842	11

Table 1 shows that the Cronbach alpha reliability of the 11-item scale for the open Banking system is 84.2%. It is seen that this reliability value is quite sufficient. In other words, the reliability of the items is quite high.

**Table 2.** Age Range of Participants

Valid	Frequency(N )	Percent ( % )
20 years and under	118	20,6
21 to 39 years	206	35,9
40 to 59 years	178	31,0
60 years and older	72	12,5
Total	574	100,0

Table 2 shows the ages of the participants. We see that 20.6% of the participants are under the age of (20), 35.9% are between the ages of (21-39), 31.0% are between the ages of (40-59), and 12.5% are 60 years and over. A total of 574 respondents participated in the survey, resulting in a response rate of 100%.

**Table 3.** Education Level of The Participants

Valid	Frequency(N )	Percent ( % )
Primary And Secondary Education	124	21,6
Associate Degree	188	32,8
License	152	26,5
Postgraduate	110	19,2
Total	574	100,0

As can be seen in Table 3, the education levels of the participants are shown. It is seen that 21.6% of the participants are primary education graduates, 32.8% are associate degree graduates, 26.5% are bachelor's degree graduates and 19.2% are postgraduate. It is seen that there were 287 participants who answered this question and all participants answered this question.



**Table 4.** Income Level of Participants

Valid	Frequency (N)	Percent( % )
Between 0-9.999 TL	208	36,2
Between 10.000-19.999 TL	144	25,1
Between 20.000-29.999 TL	110	19,2
Between 30.000-39.999 TL	68	11,8
40.000 TL and above	44	7,7
Total	574	100,0

Table 4 shows that 36.2% of the participants have an income below 10 thousand, 25.1% have an income between 10 and 20 thousand, 19.2% have an income between 20 and 30 thousand, 11.8% have an income between 30 and 40 thousand, and 7.7% have an income of 40 thousand TL and above.

**Table 5.** Banks Used by The Participants

Valid	Frequency (N)	Percent ( % )
Garanti Bank	50	8,7
Vakıf Bank	86	15,0
Qnb Finans Bank	66	11,5
Akbank	72	12,5
Yapı ve Kredi Bank	78	13,6
Ziraat Bank	76	13,2
İş Bank	92	16,0
Halk Bank	54	9,4
Total	574	100,0

Table 5 shows that 8.7% of the participants used Garanti Bank, 15.0% used Vakıf Bank, 11.5% used QNB Finans Bank, 12.5% used Akbank, 13.6% used Yapı Kredi, 13.2% used Ziraat Bank, 16.0% used İş Bank and 9.4% used Halk Bank.

**Table 6.** Do You Use The Open Banking Application?

Valid	Frequency (N)	Percent ( % )
Yes	144	25,1
No	430	74,9
Total	574	100,0

Table 6 shows that 25,1% of the participants answered yes to the question about the use of the open banking system, while 74,9% of the participants answered no and expressed their views on the use of open banking applications.

**Table 7.** Do You Know That You Can Access Your Accounts in Other Banks Through A Single Bank Application?

Valid	Frequency (N)	Percent( % )
Yes	196	34,1
No	378	65,9
Total	574	100,0

Table 7 shows that 34.1% of the participants answered "yes" and 65.9% answered "no" in their response to accessing all other financial accounts from a single source with the open banking application and it is concluded that they are not aware of the open banking system.

**Table 8.** Do I Have Enough Information About Open Banking?

Valid	Frequency (N)	Percent ( % )
Strongly Disagree	100	17,4
Disagree	258	44,9
Neither Agree nor Disagree	36	6,3
Agree	160	27,9
Strongly Agree	20	3,5
Total	574	100,0

As seen in Table 8, 17.4% of the participants strongly disagree, 44.9% disagree, 6.3% neither agree nor disagree, 27.9% agree, and 3.5% strongly agree, indicating that they have sufficient knowledge about the open banking system.

**Table 9.** Is The Open Banking System Adequately Promoted?

Valid	Frequency( N )	Percent( % )
Strongly Disagree	198	34,5
Disagree	204	35,5
Neither Agree nor Disagree	68	11,8
Agree	42	7,3
Strongly Agree	62	10,8
Total	574	100,0

As seen in Table 9, 34.5% of the participants strongly disagree, 35.5% disagree, 11.8% neither agree nor disagree, 7.3% agree, and 10.8% strongly agree, expressing their views that the open banking system is adequately promoted.

**Table 10.** I Have Information About The Advantages of Open Banking?

Valid	Frequency( N )	Percent( % )
Strongly Disagree	74	12,9
Disagree	166	28,9
Neither Agree nor Disagree	80	13,9
Agree	176	30,7
Strongly Agree	78	13,6
Total	574	100,0

As indicated in Table 10, 12.9% of the participants strongly disagree, 28.9% disagree, 13.9% neither agree nor disagree, 30.7% agree, and 13.6% strongly agree, indicating that the open banking system is more advantageous.

**Table 11.** Do I Have Sufficient Information About The Necessity of Open Banking System in The Financial Sector?

Valid	Frequency( N )	Percent( % )
Strongly Disagree	88	15,3
Disagree	152	26,5
Neither Agree nor Disagree	122	21,3
Agree	136	23,7
Strongly Agree	76	13,2
Total	574	100,0

As indicated in Table 11, 15.3% of the participants strongly disagree, 26.5% disagree, 21.3% neither agree nor disagree, 23.7% agree, and 13.2% strongly agree, indicating that open banking system is necessary in the financial sector.

**Table 12.** Do I Have Sufficient Information About The Difference Between Open Banking System and Traditional Banking Activities?

Valid	Frequency( N )	Percent( % )
Strongly Disagree	80	13,9
Disagree	150	26,1
Neither Agree nor Disagree	96	16,7
Agree	162	28,2
Strongly Agree	86	15,0
Total	574	100,0

As seen in Table 12, 13.9% of the participants strongly disagree, 26.1% disagree, 16.7% neither agree nor disagree, 28.2% agree, and 15.0% strongly agree that the open banking system is different from the traditional banking system.

**Table 13.** I Think The Open Banking System Will Make A Difference To The Financial World in Digital Transformation?

Valid	Frequency( N )	Percent( % )
Strongly Disagree	70	12,2
Disagree	136	23,7
Neither Agree nor Disagree	104	18,1
Agree	176	30,7
Strongly Agree	88	15,3
Total	574	100,0

When Table 13 is taken into consideration, 12.2% of the participants strongly disagree, 23.7% disagree, 18.1% neither agree nor disagree, 30.7% agree, and 15.3% strongly agree, indicating that the open banking system will make a difference in the financial world with digital transformation.

**Table 14.** Does The Open Banking System Meet Our Expectations And Needs?

Valid	Frequency( N)	Percent( % )
Strongly Disagree	54	9,4
Disagree	96	16,7
Neither Agree nor Disagree	170	29,6
Agree	144	25,1
Strongly Agree	110	19,2
Total	574	100,0

According to Table 14, 9.1% of the participants strongly disagree, 16.7% disagree, 29.6% neither agree nor disagree, 25.1% agree, and 19.2% strongly agree. These results show that the open banking system is insufficient to meet the expectations in the financial world.

**Table 15.** Do You Agree That Open Banking Applications Make Our Lives Easier?

Valid	Frequency( N)	Percent ( %)
Strongly Disagree	62	10,8
Disagree	112	19,5
Neither Agree nor Disagree	90	15,7
Agree	208	36,2
Strongly Agree	102	17,8
Total	574	100,0

According to Table 15, 10.8% of the participants strongly disagree, 19.5% disagree, 15.7% neither agree nor disagree, 36.2% agree, and 17.8% strongly agree, indicating that the open banking system will make our lives easier.

**Table 16.** I Would Accept To Use Open Banking If I Know That The Open Banking System Will Offer More Advantageous Loan/Deposit Interest Offers?

Valid	Frequency( N)	Percent( %)
Strongly Disagree	86	15,0
Disagree	166	28,9
Neither Agree nor Disagree	86	15,0
Agree	118	20,6
Strongly Agree	120	20,6
Total	574	100,0

According to Table 16, 15.0% of the respondents strongly disagree, 28.9% disagree, 15.0% neither agree nor disagree, 20.6% agree, and 20.6% strongly agree that the open banking system will provide advantageous offers.

**Table 17.** Do You Think That You Have Gained More Conscious Customers With The Open Banking System?

Valid	Frequency( N)	Percent( %)
Strongly Disagree	158	27,5
Disagree	116	20,2
Neither Agree nor Disagree	86	15,0
Agree	120	20,9
Strongly Agree	94	16,4
Total	574	100,0

As seen in Table 17, 27.5% of the participants strongly disagree, 20.2% strongly disagree and 20.2% strongly disagree. Disagree, 15.0% neither agree nor disagree, and 20.9% agree, 16.4% strongly agree, indicating that the open banking system has gained more informed customers.

**Table 18.** Do I Have Enough Information About Accessing All My Banking Information With A Single Application And Managing My Bank Accounts With A Single Application In The Open Banking System?

Valid	Frequency ( N)	Percent ( %)
Strongly Disagree	184	32,1
Disagree	218	38,0
Neither Agree nor Disagree	62	10,8
Agree	70	12,2
Strongly Agree	40	7,0
Total	574	100,0

Table 18 shows that 32.1% of the participants strongly disagree, 38.0% strongly disagree and 38.0% strongly disagree. 10.8% disagree, 10.8% neither agree nor disagree, 12.2% agree, and 7.0% strongly agree, indicating that they will access all financial data with a single application in the open Banking system.



## 7. CONCLUSIONS AND RECOMMENDATIONS

With digitalization, it is seen that many applications are included in our lives. Adding a new one to the digital applications in the finance sector is seen as an important step for banks to provide a better service to customers. With the open banking system, which appears as a new system in the finance sector, customers can now access all their banking accounts from a single application, thus providing the opportunity to access their financial data with a single application instead of downloading many applications. In this study, a study on customer perception of the open banking system was conducted and data were obtained. A total of 574 questionnaires were conducted for the open banking system and the participants' perspectives on the open banking system were evaluated. In 574 questionnaires, the participants fully participated in the answers given.

As a result of the questionnaire, tables were obtained and interpreted with the Frenkas analysis method using the SPSS program. (SPSS) was subjected to the Cronbach Alpha internal consistency test. The Cronbach Alpha reliability of the 11-item scale for the open banking system was found to be 82.5%. It is seen that this reliability value is quite sufficient. This result shows that the reliability of the items is quite high. The data obtained from the survey revealed that the open banking system is not sufficiently known and used by the customers. The open banking system is expected to provide many advantages to customers. The most important of these advantages is that it saves time and space without the need for customers to wait in queues and branches. It is seen that the open banking system is not sufficiently promoted. Customers should be encouraged to use the open banking system by starting promotional activities by the banks as soon as possible.

Such technological innovations in the financial sector should always be prioritized by the banks and offered to service of the customers and the customers should be ensured that the banks are with the customers by using the banking services and the customers should be included in the banking system by introducing technological innovations to the customers. In short, as a result of the study and as a common conclusion of many researchers, it is thought that the open banking system should now be a mandatory practice in the financial world.

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