

FACTORS EFFECTING SELECTING ONLINE PAYMENT SYSTEMS BY ECOMMERCE
ORGANIZATIONS IN TURKEY



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ABSTRACT

eCommerce is developing rapidly around the world, and Turkey is not an exception, and each year the volume of sales increases significantly. Especially now, during the pandemic, many consumers who have never used online shopping are forced to use it to buy groceries and other goods.

On the other hand, eCommerce cannot exist without online payments. Online payment systems are also constantly evolving, and become easier to use, more reliable and secure, new payment methods appear.

The main objective of this study is to analyze factors effecting the choice of an online payment system by organizations engaged in electronic commerce in Turkey. The study is based on the literature review and analysis of the results of a survey filled out by eCommerce organizations in Turkey.

According to the research, such factors as Security Factors, Payment Factors, Cost Factors, Support Factors, Reporting Factors, Social Factors are positively effect selecting of an online payment system by eCommerce companies in Turkey. At the same time, result of the study shows that the companies' size and the companies' sector doesn't actually effect selecting of online payment system.

ÖZET

e-Ticaret dünya çapında hızla gelişmektedir ve Türkiye bir istisna değildir ve her yıl satış hacmi önemli ölçüde artmaktadır. Özellikle şimdi, pandemi döneminde, daha önce hiç online alışveriş yapmayan birçok tüketici, yiyecek ve diğer ürünleri satın almak için kullanmak zorunda kalıyor.

Öte yandan, e-ticaret online ödemeler olmadan var olamaz. Online ödeme sistemleri de sürekli gelişiyor ve kullanımı kolaylaşıyor, daha güvenli hale geliyor, yeni ödeme yöntemleri ortaya çıkıyor.

Bu çalışmanın temel amacı, Türkiye'de elektronik ticaret yapan kuruluşlar tarafından online ödeme sistemi seçimini etkileyen faktörleri analiz etmektir. Çalışma, Türkiye'deki e-ticaret kuruluşları tarafından doldurulan bir araştırmanın sonuçlarının literatür taramasına ve analizine dayanmaktadır.

Araştırmaya göre, Güvenlik Faktörleri, Ödeme Faktörleri, Maliyet Faktörleri, Destek Faktörleri, Raporlama Faktörleri, Sosyal Faktörler gibi faktörler, Türkiye'deki e-ticaret şirketleri tarafından bir online ödeme sisteminin seçilmesini olumlu etkilemektedir. Aynı zamanda, çalışmanın sonucu, şirketlerin büyüklüğünün ve şirketlerin sektörünün aslında online ödeme sisteminin seçimini etkilemediğini göstermektedir.

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TABLE OF CONTENTS

PLAGIARISM.....	i
ABSTRACT.....	ii
ÖZET	iii
ACKNOWLEDGEMENTS.....	iv
LIST OF FIGURES	vii
LIST OF TABLES.....	ix
LIST OF ABBREVIATIONS.....	xi
INTRODUCTION	1
1. eCOMMERCE.....	4
1.1 ECOMMERCE DEFINITION.....	4
1.2 TYPES OF ECOMMERCE.....	5
1.3 ADVANTAGES AND DISADVANTAGES OF ECOMMERCE RELATED TO THE TRADITIONAL BUSINESS.....	7
1.4 FACTORS EFFECTING THE GROW OF ECOMMERCE.....	10
1.5 FACTORS EFFECTING THE SUCCESS OF ECOMMERCE.....	11
1.6 GLOBALIZATION AND ECOMMERCE	12
1.7 ECOMMERCE NOWADAYS IN TURKEY	13
1.8 ECOMMERCE INFRASTRUCTURE PROVIDERS.....	20
2. ONLINE PAYMENTS.....	22
2.1 ONLINE PAYMENTS AS SUBSET OF ECOMMERCE.....	22
2.2 PAYMENT SYSTEMS' HISTORY	23
2.3 THE MOST USED PAYMENT METHODS IN ECOMMERCE	25
2.4 PAYMENTS IN ECOMMERCE IN TURKEY	26

2.5	FACTORS EFFECTING ADOPTION OF ONLINE PAYMENT SYSTEMS FROM THE CONSUMERS PERSPECTIVE.....	28
3.	PAYMENT GATEWAY.....	30
3.1	PAYMENT GATEWAY DEFINITION.....	30
3.2	ONLINE PAYMENT GATEWAY MODEL	31
3.3	MOST POPULAR ONLINE PAYMENT SYSTEM COMPARISON	32
4.	ONLINE PAYMENT SYSTEMS IN TURKEY.....	34
4.1	GENERAL TENDENCY.....	34
4.2	ONLINE PAYMENT SYSTEMS PROVIDERS (PAYMENT AGGREGATORS).....	35
4.3	PAYMENT SYSTEMS PROVIDED BY BANKS	38
5.	RESEARCH OBJECTIVE AND METHODOLOGY	41
5.1	AIM OF THE RESEARCH	41
5.2	SCOPE OF THE RESEARCH.....	41
5.3	METHODOLOGY.....	41
5.4	HYPOTHESES AND RESEARCH MODEL.....	42
6.	HYPOTESIS TESTING	46
6.1	DESCRIPTIVE STATISTICS	46
6.2	STATISTICAL ANALYSIS.....	51
	CONCLUSIONS.....	60
	REFERENCES	64
	APPENDICES	67

LIST OF FIGURES

Figure 1.1. Global revenue comparison in 2020	2
Figure 1.2 eCommerce market size in Turkey	13
Figure 1.3 Categories that e-commerce customers have bought at least once in the last 6 months for September 2018	15
Figure 1.4 Clothing Category E-commerce Brands Purchase Rates	17
Figure 1.5 Purchase Rates of E-commerce Brands in the Electronic Category	18
Figure 2.1 Preferred payment methods of online shoppers worldwide as of March 2017	25
Figure 3.1 Online payment process	30
Figure 3.2 Payment Gateways Comparison	32
Figure 5.1 The representation of the research model	43
Figure A.1. Company Size	66
Figure A.2.Monthly Fee	66
Figure A.3. Each Transfer Fee	67
Figure A.4. Integration Fee	67
Figure A.5. Reputation of Online Payment System	68
Figure A.6. Security of Payments and Personal Data	68
Figure A.7. Integration Possibility with Your ERP/CRM System	69

Figure A.8. Easy User Interface	69
Figure A.9. Easy Integration	70
Figure A.10. Customer Support 24/7	70
Figure A.11. Sales Using Currencies and Their Number in Payment System	71
Figure A.12. Number of Days Money Come to Bank Account	71
Figure A.13. Tech Support Response Speed	72
Figure A.14. Financial Reports Availability	72
Figure A.15. 3D Security	73
Figure A.16. Offered Several Payment Methods	73
Figure A.17. Connection to Several Banks	74
Figure A.18. Installment Availability	74
Figure A.19. Cancel/Return Payments Availability	75
Figure A.20. Used Payment Systems	75
Figure A.21. Satisfaction with Payment Systems	76

LIST OF TABLES

Table 4.1 Comparison of Payment Systems	36
Table 5.1 Literature Reviews Related with the Research Model	44
Table 7.1 Results of the Descriptive Statistics for Company Size	45
Table 6.2 Results of the Descriptive Statistics for Companies' Sector	46
Table 6.3 Results of the Descriptive Statistics for Payment Methods	46
Table 6.4 Results of the Descriptive Statistics for Sales Abroad	47
Table 6.5 Results of the Descriptive Statistics for Used Payment System	47
Table 6.6 Results of the Descriptive Statistics for Online Payment Systems' Characteristics	48
Table 6.7 Results of the Reliability Analysis	50
Table 6.8 Results of the Reliability Analysis	51
Table 6.9 Results of the Normality Test	52
Table 6.10 Results of the Kolmogorov-Smirnov Test	52
Table 6.11 Kruskal-Wallis H Test	53
Table 6.12 Crosstabs Cost/Payment System Analysis	54
Table 6.13 Crosstabs Security/Payment System Analysis	54
Table 6.14 Crosstabs Support/Payment System Analysis	54
Table 6.15 Crosstabs Reporting/Payment System Analysis	55

Table 6.16 Crosstabs Social/Payment System Analysis	55
Table 6.17 Crosstabs Payment/Payment System Analysis	55
Table 6.18 Frequency Distribution for the Company Size	56
Table 6.19 Test of Homogeneity (Levene Statistics)	56
Table 6.20 Result of ANOVA Analysis	57
Table 6.21 Frequency Distribution for Sector's Name	57
Table 6.22 Test of Homogeneity (Levene Statistics)	57
Table 6.23 Result of ANOVA Analysis	58

LIST OF ABBREVIATIONS

TUBISAD	Information Technology Manufacturers Association
B2B	Business to Business
B2C	Business to Consumer
B2G	Business to Government
C2C	Consumer to Consumer
G2C	Government to Citizens
C2B	Consumer to Business
G2G	Government to Government
B2P	Business to Partners
B2L	Business to Alliance
B2E	Business to Employee
SEO	Search Engine Optimization
SMM	Social Media Marketing
CRM	Customer Relationship Management
SPSS	Statistical Package for the Social Sciences
ANOVA	Analysis of Variances
WITSA	World Information Technology and Services Alliance

EDI	Electronic Data Interchange
BKM	Turkstat, Interbank Card Center
TUSIAD	Turkish Industrialists and Business People Association
POS	Point of Sale
ATM	Automated Teller Machine
SSL	Secure Sockets Layer
HTML	HyperText Markup Language
EFT	Electronic Funds Transfer
ICC	Interbank Card Center
QR	Quick Response

INTRODUCTION

In the last years, especially with the penetration of internet and information technologies in all areas of people's lives, access to information and interaction between people has increased significantly and this development has felt its effect in all areas of human lives.

Because of development of the internet and information technologies, it is observed that banking, commerce, health, public services can be provided in an electronic environment and services that are increasingly become widespread.

eCommerce is one of the most important fields of activity implemented in electronic environment. Internet technology provides opportunities for consumers or suppliers to achieve competitive price in product and service purchasing processes. In this environment where competition and consumer expectations have increased, eCommerce businesses have started to be more interested in identifying, understanding and retaining consumers.

Nowadays everything is available online. Thus, eCommerce companies like Amazon, eBay, AliBaba etc. are the biggest companies in the world. For this reason, this modern trading method is getting more and more attention and enables the development of new commercial models.

Like trends around the world, an increase in eCommerce is also seen in Turkey. According to eCommerce report published by TUBISAD in 2019: in 2018 e-commerce market size in Turkey reached 31.5 billion Turkish Liras in retail and 28.4 billion Turkish Liras in non-retail transactions. According 2017- 2018 period, the e-commerce market grew 42% in Turkish Liras terms in Turkey. In American Dolars terms, growth remained at 7%.

The most popular definition of eCommerce is based on the online business perspective. eCommerce provides the opportunity to buy and sell products, information and services on the Internet. As with traditional trading, the issue of safe and reliable money transfer between

participants in the sale is fundamental. In eCommerce, payments are made in the form of electronic money exchanges and are therefore called electronic payments. Electronic payments are a fundamental part of eCommerce. Electronic payment is a form of financial exchange between a buyer and a seller using electronic channels. An electronic payment is an online money exchange (Kalakota & Whinston, 1997).

The purpose of electronic payment systems is to process the most important actions after a customer pays for a product or service: to get a payment from the customer to the supplier in the most efficient, effective and safe way.

Most online payments are currently made using bank or credit cards, which have problems with the cost of service, security and trust (Laudon & Traver, 2002; Guttman, 2003).

In Turkey, according to eCommerce report published by TUBISAD in 2019: In 2018, total expenditures with commercial cards increased by 25%. The use of cards storage solutions offered by companies like İyzico, Mastercard and others has been increasing in recent years in Turkey. On the other hand, almost each bank in Turkey has own online payment system.

The aim of this study is to analyze factors what effects use of online payment systems by eCommerce organizations in Turkey.

The first chapter of the study includes description of eCommerce in general, history of eCommerce, type of eCommerce, factors effecting success and grow of ecommerce and description of eCommerce in Turkey.

The second chapter of the study includes description of online payments, online payments history, online payment methods description, factors effecting adoption of online payments and online payments in Turkey.

The third part of the study includes description and model of the payment gateways and comparison of the most popular payment gateways.

The fourth part of the study discusses online payments system in Turkey, tendencies and alternatives.

The fifth chapter discusses methodology of the study, scope and hypotheses of the research.

The sixth chapter includes analysis of the study, statistical tests and description of the result.

Survey, what is used in the study, is aimed to evaluate various aspects what effect use of online payment systems in Turkey by eCommerce companies.

The aim of the survey is evaluation of factors what effect eCommerce business owners in Turkey to select the most suitable online payment system provider for them.

At the end of the study, the factors that statistically affect the view of online payment systems will be evaluated with the hypotheses that were established for eCommerce companies in Turkey. In the analysis of the data obtained from the research, statistical analyzes with categorical variables and parametric and nonparametric tests will be used.

SPSS packet statistics program will be used in the analysis. With the help of SPSS, Chi-Square analysis, ANOVA test analysis and distribution graphics will be used.

1. eCOMMERCE

1.1 ECOMMERCE DEFINITION

eCommerce is an entrepreneurial activity that, in one way or another, is associated with the distribution, advertising, promotion, sale of services or goods via the Internet. To simplify, any actions with a commercial bias in the global network fall under the definition of online commerce. This sphere originated in the United States of America, then it developed in Europe and at the end of the 90s of the last century began to actively develop in China and Russia (Calltouch, 2019).

eCommerce combines such global categories - online sales, online banking, booking tickets and hotels, transactions in payment systems, online marketing and advertising. Grow of eCommerce is unstoppable.

Since 1998, electronic commerce has smoothly reached a turnover of 3-3.5 trillion dollars in the world over 20 years of activity. eCommerce Leaders – China and United States of America.

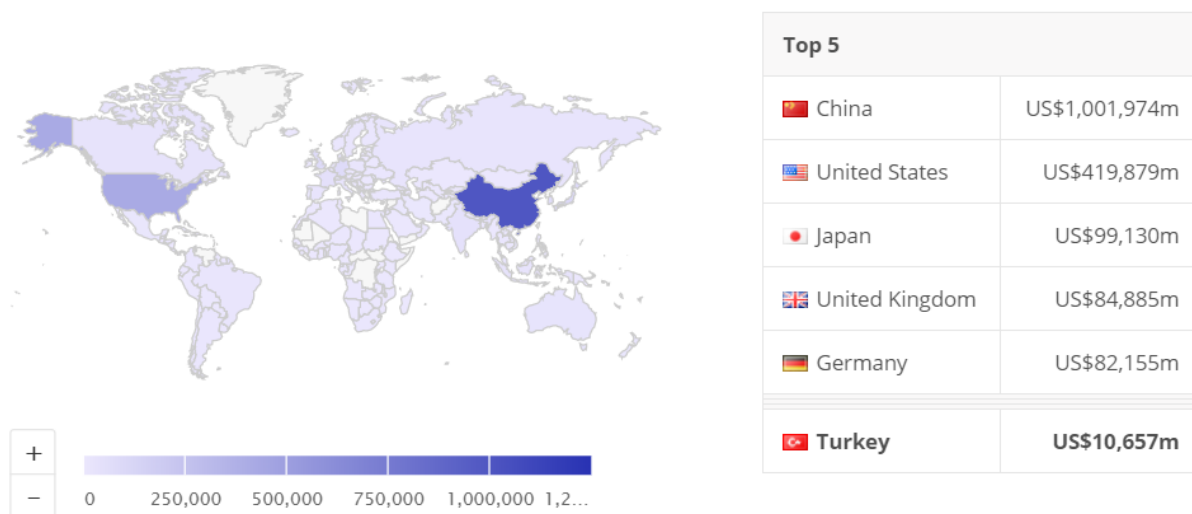


Figure 1.1. Global revenue comparison in 2020

Source: <https://www.statista.com/outlook/243/113/ecommerce/turkey#market-paymentTypes>

In technical terms, eCommerce on the Internet has three pillars - a server, a database, and a system for delivering goods or services to a customer. The first component is crucial - a high-quality and fast server. Large objects need a database, and the delivery of electronic goods or services does not require complex logistics (Calltouch, 2019).

1.2 TYPES OF ECOMMERCE

The scope of eCommerce is divided into types depending on the target audience with which the company works (Calltouch, 2019):

- B2B (Business-to-Business). The niche “Business to Business” implies commercial relations between legal entities, economic entities of the market. That is, companies, manufacturers interact with each other - enter into transactions, partnership contracts for the supply, sale, purchase of goods or services. To establish contacts, search for partners and negotiations in B2B, specialized Internet platforms and interactive databases are used.
- B2C (Business-to-Consumer). The scope of “Business for the consumer” involves the sale of goods and services between legal entities and individuals. This is a kind of retail sales, but only with the help of online platforms - shops, services, banks and more. The advantage of customers in a wider range of choices, ease of ordering and delivery of goods to your home or office. eCommerce allows the entrepreneur to reduce the cost of maintaining retail and warehouse space.
- B2G (Business-to-Government). The niche “Business for the Government” includes the following market participants: legal entities - companies, corporations, brands on the one hand and municipal authorities, state authorities - on the other. B2G transactions are based on contests, tenders or quotes. This eCommerce industry works with large transaction sizes, which places stringent demands on market participants. The company participating in the tender must have a high status and an impeccable reputation.

- C2C (Consumer-to-Consumer). eCommerce in the “Consumer to Consumer” niche implies transactions between individuals. The success of such Internet sites as Zebramo, Ebay, Sahibinden.com and others is based on the commercial relations of users through an electronic announcement system.
- G2C (Government-to-Citizens). A fairly popular type of eCommerce in recent years, “Government for Citizens”, is providing access to state information through online services. For example, payment of taxes and fines, registration of projects and forms of commercial activity, obtaining permits and more. Citizens' information support also falls into this category; therefore, G2C does not fully belong to the commercial niche.
- C2B (Consumer-to-Business). An interesting type of eCommerce "Consumer for the company", where the client himself sets the cost of goods and services. That is, buyers by voting determine the price at which they would like to purchase the proposed product. However, the final decision to sell or not is made by the owner of the product. In the C2B system, a site or any other electronic platform acts as an intermediary broker who is looking for sellers for the formed price of potential buyers.
- G2G (Government-to-Government). The sphere of eCommerce “Government for government” implies the business relationship of government agencies among themselves: the supply of products, the provision of services, etc. Such interaction is realized through online technologies.
- B2P (Business-to-Partners) or B2L (Business-to-ALLiance). The niche “Business for partners” is a commercial relationship with suppliers of services and goods, between branches, partner organizations of the same network or third-party companies.
- B2E (Business-to-Employee). The area of relationships with staff can also be commercialized. “Business for employees” implies the use of various automation systems for managing business processes and corporate tasks. Such systems are combined into an internal corporate network - an intranet, which has access to the global system via secure channels.

Today most of the niches are B2B and B2C. Niches G2C and C2C are developing well.

In any case, according Calltouch (2019), eCommerce should include the following elements:

- site (site, account, online store, Landing Page);
- traffic attraction channels (SEO, SMM, contextual advertising);
- order processing systems, customer service - CRM, sales departments, support services;
- procurement, supply, delivery, return of goods services.

1.3 ADVANTAGES AND DISADVANTAGES OF ECOMMERCE RELATED TO THE TRADITIONAL BUSINESS

eCommerce is a form of trading, that is, the process of exchanging goods from the seller for the buyer's money.

eCommerce, like any niche in the market, has its pros and cons. According to Kaur's (2011) research:

Benefits:

- **Cost reduction.** eCommerce simplifies business processes in many industries. For example, to open an online store you do not need to rent a physical area, hire a staff of sellers and delivery employees. All actions can be automated, and if the goods are electronic, then they can simplify the delivery service at times. As a result, transaction costs are lower, which affects the cost of products or services.
- **Expanding your target audience.** Through the Internet you can sell around the world at no particular cost. Of course, if the business is connected with physical goods, then you have to rack your brains with delivery. A simple solution is to work with transport companies. But if you sell electronic goods, services - electronic books, programs, services, etc., then the market is unlimited.

- Fewer intermediaries. eCommerce allows you to work directly with the manufacturer, excluding the chain of intermediaries. This creates a direct channel between the seller and the buyer, which affects the cost of goods and quality of service.
- The ability to analyze sales, promotion, business development online with 100% accuracy. Analytics, call tracking systems allow you to monitor the situation and take timely measures.
- The ability to conduct business 24 x 7. eCommerce can work all day every day. There is no need to open a physical store for customers and suppliers to conduct business electronically.
- Easy market entry and the increase in the range of goods. When geographical restrictions are no longer relevant, market entry will be easier. As the market expands, the variety of available products will also expand.
- Ability to improved customer service. Due to direct contact with customers, it is possible to solve their issues much faster regarding price, quality, additional product characteristics, etc. As a result, the quality of customer service and their loyalty is improving.
- Sharing information with customers. Now, buyers can find up-to-date information on goods and services in real time on the seller's website and can quickly make purchase decisions. Customers can get comprehensive information about the product and its various features on the seller's website. As well, it takes just a few seconds to spread information over the Internet. The company can email its customers about any new product or discount. Also, the company can quickly resolve customer issues related to the product and welcome suggestions for improving the quality of service. This is a major advantage that overcomes the limitations of traditional business practices
- Customized products. Based on customer demand for their product requirements, you can differentiate the product for them. Customized computers, T-shirts designed specifically for customers, etc.
- Higher profits. A significant reduction in costs is noted in the implementation of electronic commerce in terms of various types of commercial transactions, that is, without manual transaction processing, paperless exchange, simple payments from customers, reduction in storage and transportation costs. In addition, the conduct of

business through the Internet itself attracts every client from all over the world, and the presence in new markets increases the profit of a business firm.

- Electronic payment system. The system of electronic payments on the Internet is provided by payment gateways (intermediary) through which payments are made between commercial firms and physical clients, as well as between commercial organizations. Electronic payments are made without loss of time, which is their advantage, but when using the electronic payment system, it is necessary to ensure the security of personal data of customers.
- Confidentiality of purchases. Customers can order private goods and services via the Internet that they would not dare to buy in a regular store, fearing social condemnation or ridicule.

Disadvantages:

- Dependence on information and communication technologies. Not all regions have free access to the Internet at high speed, this factor greatly inhibits the development of electronic business.
- Features of the legislation, taxes. The lack of legal regulation of online commerce often serves as an obstacle to the conclusion of certain transactions.
- Information Security. Online trading and online business require a high guarantee of confidentiality of user, customer, and business data. Actively introducing certification, authorization, captcha and other options to combat fraud.
- Copyright. Protecting property rights is no longer a new problem for the Internet. Pirated copies of software, master classes, books and other products of intellectual work merged into free access - all this is becoming a problem for e-commerce around the world.
- Difficult to find staff. Managers and other staff need to be trained separately to work with clients, and to work with new software.

1.4 FACTORS EFFECTING THE GROW OF ECOMMERCE

eCommerce is showing significant growth. However, he still has not reached the desired level. E-commerce has not been able to achieve the expected pace of development due to problems and obstacles encountered in the Internet environment. In addition to infrastructure issues, other important issues hinder the development of eCommerce, such as security and the legal basis of transactions. Countries must ensure that a transparent legal environment is created to support global trade. Due to the lack of a sufficient legal framework at the stage of applying electronic commercial transactions, many companies and consumers today are wary of doing business on the Internet.

The aim of the “International Survey of eCommerce”, conducted by WITSA (World Information Technology and Services Alliance) within 27 countries in the 2000, was determining what are the obstacles to eCommerce.

According to the survey, identified obstacles are as follow:

- 26% lack of trust in eCommerce;
- 21% lack of knowledge about eCommerce;
- 10% the cost of the transition and implementation of the eCommerce system;
- 10% business application incompatibility with eCommerce;
- 10% lack of technical skills and knowledge in the field of eCommerce among employees;
- 8% frequent changes in the financial regulations;
- 7% lack of budget, allocated by commercial organizations for the development of eCommerce;
- 1% technological barriers;
- 6% other barriers;
- 1% doesn't identify any obstacle.

The study revealed that the biggest obstacle in eCommerce is cyber security (26%) and not having enough information about e-commerce (21%). The second issue can be resolved through

trainings and education. However, ensuring trust in eCommerce will be achieved by reaching both the technical and legal infrastructure to the desired level.

According to the study, it identified the security problems that prevented commercial enterprises from adopting the e-commercial system as follows:

- 25% insecurity about electronic payments,
- 17% thoughts that technology infrastructures are insufficient to prevent cyber attacks,
- 15% problems with information confidentiality and data integrity,
- 14% not knowing the identity of the parties involved in commercial transactions,
- 9% concern about complying with established commercial behavior patterns,
- 8% uncertainty of risks,
- 6% international eCommerce standards have not been determined yet,
- 1% other.

Analyzing results shows that the security factor creates serious problems on eCommerce and online payment systems development.

1.5 FACTORS EFFECTING THE SUCCESS OF ECOMMERCE

eCommerce can be implemented using many tools, including EDI (electronic data interchange), e-mail, online registries, web services, etc. Today, the main vector is moving to mobile commerce and social networks. This is evidence that ecommerce has changed dramatically, but the main factors affecting the success of eCommerce remain unchanged (Talk Business, 2018):

1. Design quality:

Sites that are user-friendly and design-friendly (with better functionality and usability) are more likely to be used by eCommerce users. Website design is an important aspect of website development and it is expected that the success of the design will lead to distinctive differences compared to other competitors.

2. Differentiated product:

The most successful products on the Internet are inaccessible in offline space products. Selling on the network what you can buy in any store near the house does not make sense.

3. Easy payment method:

An easy and quick payment procedure ensures that the buyer does not have disappointment, and he does not decide to refuse the purchase. The complicated payment process scares people away and causes distrust of the company.

4. Efficient logistics:

Modern buyers are demanding not only in the quality of the goods and price, the method and speed of delivery is important for them. The company's logistics should guarantee the consumer that he will receive his order as soon as possible and at the lowest delivery price.

5. Adaptation to mobile devices:

More and more people are using smartphones and tablets to shop at online stores. The company's mobile site should be convenient and understandable for any, even the most advanced gadget user.

1.6 GLOBALIZATION AND ECOMMERCE

Globalization is a phenomenon that deals with inter-country integration as a whole by improving the relations between countries in terms of economic, legal, political, social, sociological and cultural aspects, and better recognition of different social and cultural structures and strengthening international social relations (Öğüt & Sevinç, 2000).

Globalization is a fact based on a competitive understanding where national borders are eliminated. One of the most important effects of global competitive understanding has been through technological developments. Competition based on technological developments; it has brought new breaths to the markets by revealing new opportunities. Considering the link between

globalization and technology, it is seen that developments, especially in the field of information technologies, are structured in a way that can significantly affect globalization. In this way, technology easily reaches the companies that continue their struggle with a global competitive understanding, while supporting the competition between the companies using the technology, it determines new supply and demand functions and can easily enter the global markets.

In eCommerce, companies have the freedom to enter and exit the market. Accordingly, business scales do not have any significance and their advantage arising from economies of scale disappears. Due to e-commerce, it is easier to open small-scale enterprises to national markets, since the competitiveness power provided by scale businesses from economies of scale is losing its effect, there is an equal competition.

“As a result, the idea that the division in the world (globally enriched countries, on the other hand, constantly impoverished) will not be able to keep up with the technological developments is becoming more widespread. Therefore, countries that cannot follow technological developments and cannot have infrastructure will always decline in terms of economic and development level compared to countries with technological power. We will witness the differentiation of countries in different ways after the inequalities to be experienced in this respect.” (Keser, 2019, 2).

1.7 ECOMMERCE NOWADAYS IN TURKEY

Ecommerce continued to grow steadily in the global arena, it is trying to keep pace with the developments in Turkey. Although data and statistical sources are limited in our country related to eCommerce, three important sources were used in the research. These Turkstat, Interbank Card Center (BKM) and IT Industrialists Association of Turkey (TUBISAD) reports.

According to eCommerce report published by TUBISAD in 2019:

2018 e-commerce market size in Turkey reached 31.5 billion Turkish Liras in retail and 28.4 billion Turkish Liras in non-retail transactions. According 2017- 2018 period, the eCommerce

market grew 42% in Turkish Liras terms in Turkey. In American Dolars terms, growth remained at 7%.

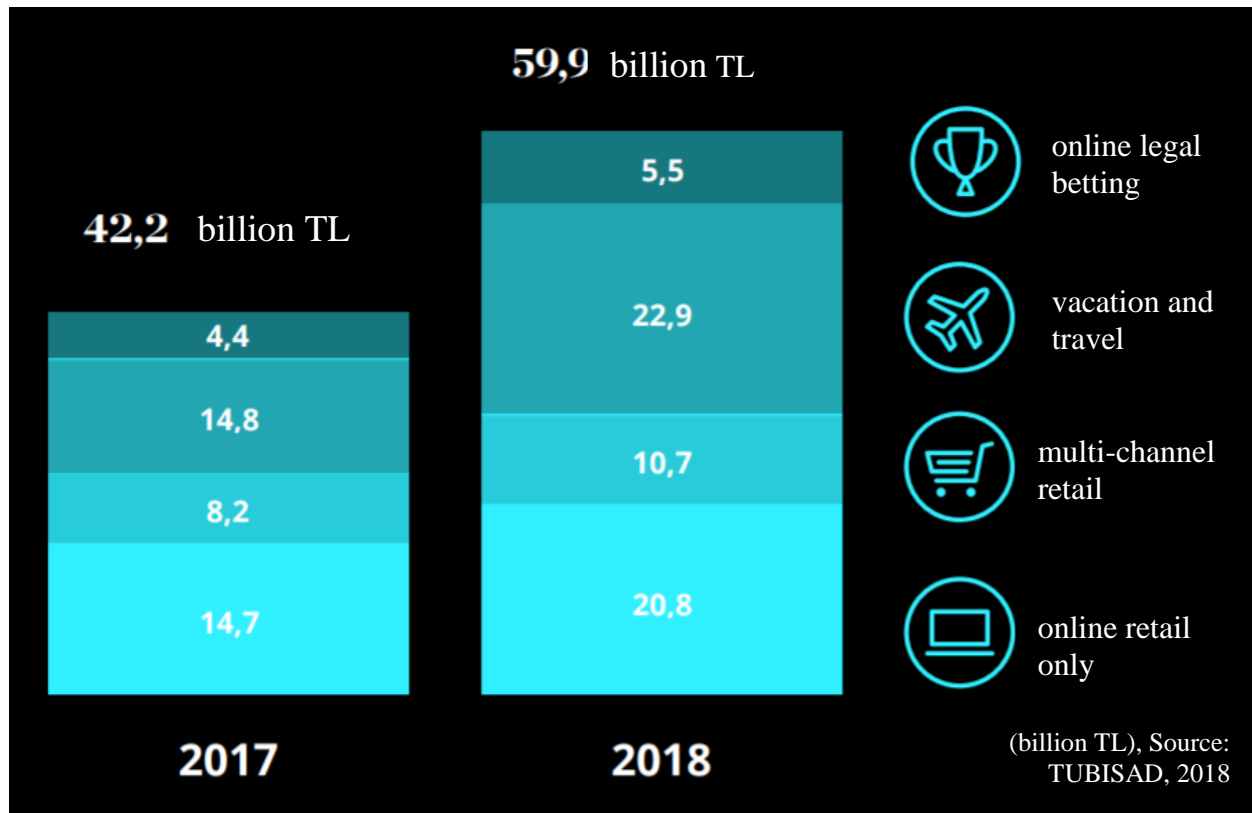


Figure 1.2 eCommerce market size in Turkey

Source: <https://www.eticaretraporu.org/wp-content/uploads/2019/05/tusiad-eticaret-raporu-2019-infografik.pdf>

In addition, the highlights of the report are as follow (TUSIAD, 2019):

- This year, basket sizes increased more than previous years due to the price increase in consumer products and the exchange rate effect.
- Increasing foreign tourists traffic to Turkey; airline and hospitality companies had positive effects on online traffic figures. In addition to traffic, the holiday travel category grew rapidly, with the effect of rising exchange rates.
- In line with the decline in demand in durable consumer goods, the electronics category performed lower than in the past.

- While exhibiting low growth performance last year, the total retail sector in Turkey; Due to the rapid growth of the eCommerce channel within the sector, the share of e-commerce has increased rapidly to 5.3%.
- When looking at other sub-categories other than holiday-travel, “Online retail only” increased by 41 % to 20.8 billion TL, “Multichannel online retail” increased by 30 % to 10.7 billion TL, and “Online betting” increased by 26 % to 5.5 billion TL.
- One of 20 spending is online
- In the multi-channel online retail category, the highest growth came from “clothing and shoes”, which reached 52 billion TL with an increase of 52%.
- 2018 retail eCommerce's share in total output to 5.3 % from 4.1 % in Turkey (in other words, one of about 20 spending in retail last year has gone through online channels). However, this rate reached 5.9 % in developing countries and 11.1 % in developed countries last year.
- The rate of online transactions in the total retail market increased to 23.7 % in China. In other words, a quarter of retail shopping in China last year was done through online channels.

Online Shopping Behavior of users in Turkey (TUSIAD, 2019):

- Use of mobile devices: Especially for many leading brands in the online retail industry, more than 70% of consumer visits come through mobile channels, and over 60% of turnover comes from mobile.
- Delivery expectation: As stated in the logistic services sections of the report, services such as same-day delivery and next-day delivery have become an important expectation by consumers today.
- Categorical changes: Another change that came to the forefront in the interviews within the scope of the report is that electronic product-oriented online shopping has started to spread to other categories in recent years.
- Product discovery through social media: With the development of social media platforms, such as Instagram, Turkish consumers more and more prefer observation and buying products from social media platforms.

- According to a study carried out with the participation of 2 thousand 85 consumers in Turkey: most of the eCommerce operations occurred in the following categories: clothing, electronics, food ordering, travel/accommodation, and books.

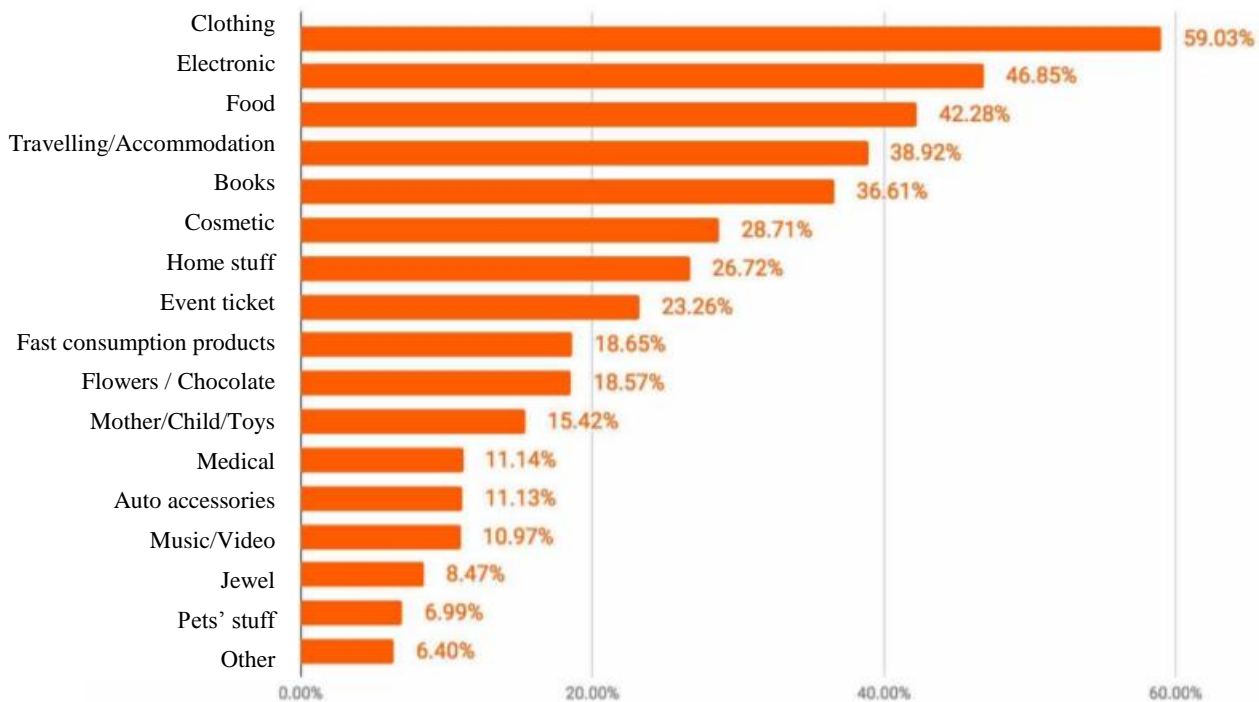


Figure 1.3 Categories that e-commerce customers have bought at least once in the last 6 months for September 2018

Source: Twentify. https://www.pazarlamasyon.com/wp-content/uploads/2018/09/Twentify_Turkiyede-Eticaret.pdf

In the same report from TUISAD (2019) it is mentioned that the market place model is growing up in Turkey:

- Marketplace in Turkey started from the GittiGidiyor market, major players like Hepsiburada and N11 has also shown improvement with the use of this model.

- Trendyol, which was invested by Alibaba in 2018 and transformed its business model from the shopping club structure to the marketplace model, emerged as an important player.
- In addition, the fact that the N11 Pro platform, which is one of the few examples of the B2B open marketplace model, started to serve last year shows that the potential and demand in this area are high in our country.
- In 2019, the world's largest e-commerce platform, Amazon began providing services in Turkey. Amazon's market entry into Turkey may upset the balance in the local e-commerce market.

According to one of the digital marketing research companies Twentify (2018):

- The market is consolidated around Hepsiburada, N11 and Gittigidiyor. When we look at the highest-rated brands with a purchase rate, we see that, besides the books, music / video and electronics categories, Hepsiburada, N11 and Gittigidiyor have very high penetration rates compared to the industry players. This shows that the strategies of these players, which appeal to many categories, are correct.
- The best customer experience is in Hepsiburada. When we look at the NPS (Net Promoter Score) scores of the brands, we see that Hepsiburada is ranked first with 36.92, Migros Virtual Market is second with 34.38, Trendyol is third with 30.06 and N11 is fourth with 28.85 points.
- N11 turns half of those who know its brand into repeat customers. When we look at the average conversion rates of e-commerce companies, we see that the conversion rate from brand awareness to repeat customers is 27.67%. When we look at the overall conversion rates, we see that N11 ranks first with 49.56%, Hepsiburada is second with 45.29% and Gittigidiyor with third place with 40.50%. In other words, almost half of the consumers who know the N11 brand can make active customers.
- One third of the active customers of the Sahibinden actively prefer only the Sahibinden. When we look at the exclusivity rates of brand members, we see that Trendyol is in the first place with 10.13%, the Sahibinden is in the second place with 9.09%, Hepsiburada is the third with 8.98% and N11 is the fourth with 8.89%. When we look at the exclusivity rate of the active members of the brands in terms of being active customers in other brands, the

Sahibinden comes first with 32.35%, N11 with 31.71%, Trendyol with 30.65%, and Aliexpress with 29.89%.

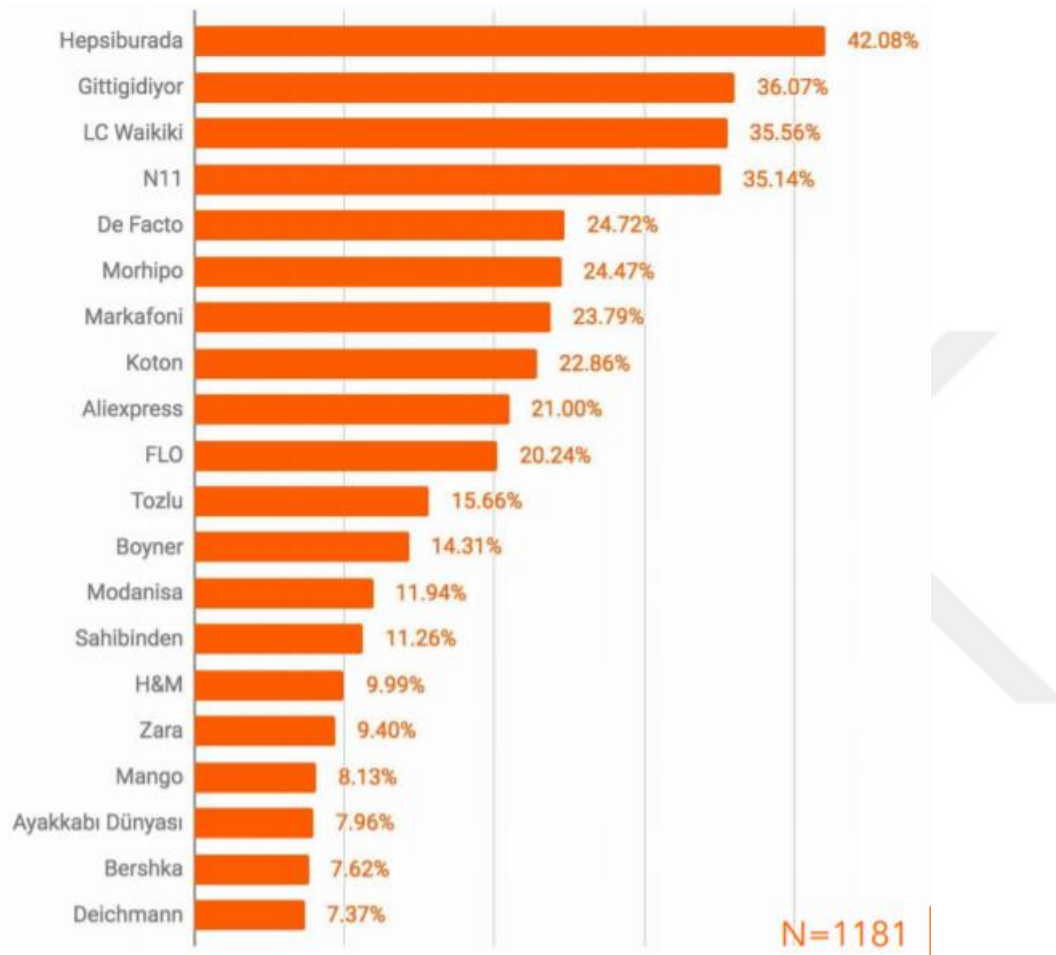


Figure 1.4 Clothing Category E-commerce Brands Purchase Rates

Source: Twentify. https://www.pazarlamasyon.com/wp-content/uploads/2018/09/Twentify_Turkiyede-Eticaret.pdf

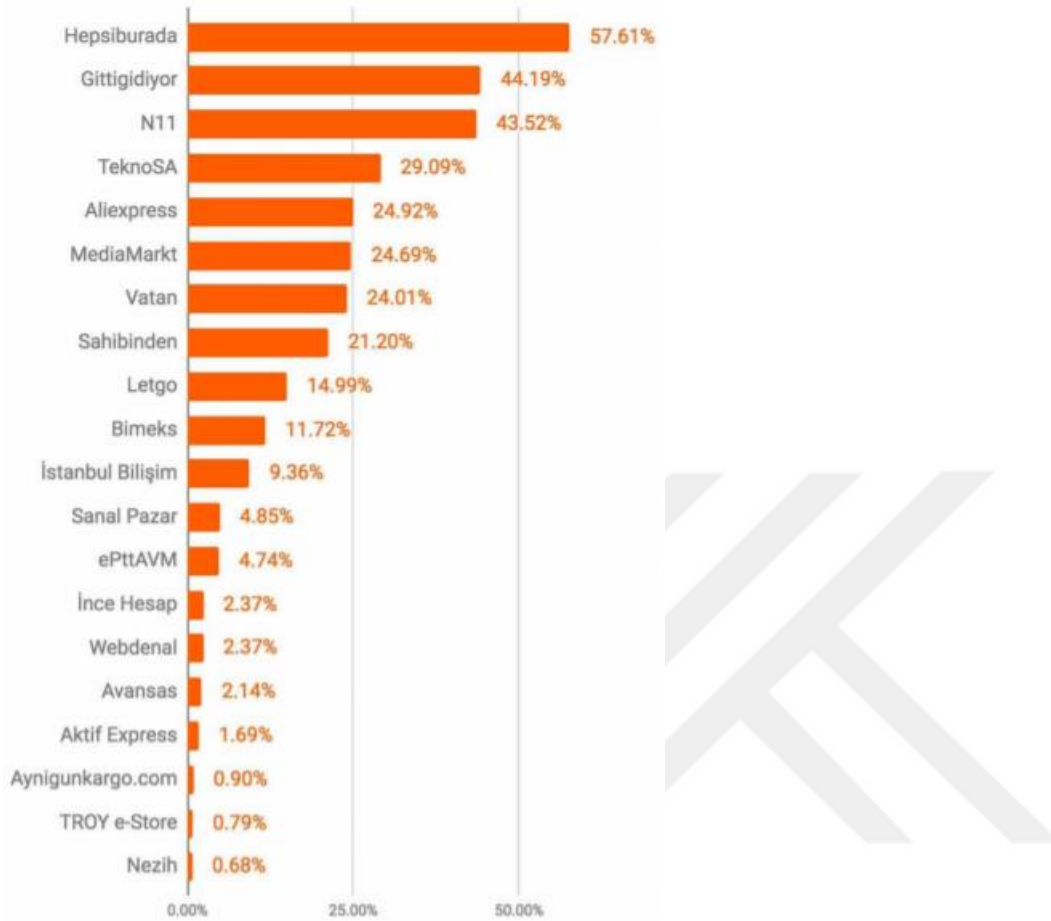


Figure 1.5 Purchase Rates of E-commerce Brands in the Electronic Category

Source: Twentify. https://www.pazarlamasyon.com/wp-content/uploads/2018/09/Twentify_Turkiyede-Eticaret.pdf

1.8 ECOMMERCE INFRASTRUCTURE PROVIDERS

eCommerce infrastructure is a collection of hardware, software, network etc. that facilitates the workforce of companies and adds flexibility into the eCommerce sector. eCommerce infrastructure providers usually offer several ready-made packages to select. Companies may select the one which matches their preferences and business size.

Ready-made eCommerce packages are often preferred by companies that want to manage their business without dealing with technical issues. By using ready eCommerce infrastructure, a company can manage products and start sales on the Internet without any experience in setting up an eCommerce site.

The most popular eCommerce infrastructure providers in Turkey are as follow:

- IdeaSoft
- T-Soft
- Ticimax
- Projesoft
- ShopPlus

There are some huge international eCommerce infrastructure providers in the list below:

- Wix
- WordPress
- OpenCart
- WooCommerce
- Shopify
- Magento

eCommerce infrastructure providers offer many different opportunities to a company. They help to avoid failures in setting up infrastructure correctly whose may cause them to face many problems in the long run.

Pros of using ready eCommerce infrastructure:

- Allows faster start of online business without dealing with many technical issues
- Different design solutions and editing options
- Compatibility with search engines (SEO)
- Different online payment method options and integration with different online payment systems
- Integration with social media
- Product and inventory management
- Cargo management and integration with different cargo systems
- Email sending and company's blog management options
- Report systems that can analyze many different data such as sales, returns, traffic

Most of online payment systems have integration with eCommerce infrastructure providers. So when you buy service from an infrastructure providers they offer list of online payment systems they have integration with. Such approach allows start new eCommerce business for almost anyone, even if they are not technical specialists and had no experience in technology before.

2. ONLINE PAYMENTS

2.1 ONLINE PAYMENTS AS SUBSET OF ECOMMERCE

The payment environment is an essential condition for the existence of electronic commerce. In a network economy, the competitiveness of its entities is determined by the level of development and mutual integration of trade and payment instruments. For effective commercial activity, it is necessary that banking institutions and payment systems can process transactions in real time, both domestically and using foreign currencies in world markets. It is in this direction that payment systems and tools are developing in the network economy today.

The amount that corresponds to the product is transferred to the account of the seller with different methods. Sellers usually offer several different ways of payment to the consumer. The provision of different payment methods to the consumer enables consumers to choose the method that is more suitable for them.

Using different payment methods make shopping faster and more reliable. Credit card and debit card payment method are the most used payment methods. Mobile payment is used not only for online shopping but also for shopping from the store. Making payments in a healthy and safe way makes online shopping more widespread (Kalakota & Whinston, 1997).

The payment systems of the site are also created with a secure infrastructure. POS is taken by applying to the bank for withdrawals. However, this POS is not like abstract POS devices. The bank defines virtual POS to the site owner who has completed certain procedures. POS information from the bank is processed into the POS module of the site and the process is done easily with virtual POS. eCommerce is speeded up with the easiest payment methods. Making payments safely also provides gain and trust to both the consumer and the seller.

As it was already mentioned above, payment method is one of the factors that affect success of an eCommerce project. Adoption of the online payment, from the customers' point of view, is

mostly influenced by the following factors: flexibility of the payment system, functionality, data management, privacy, and security of the system (Harris et al., 2011).

Since electronic payments provide financial exchange, it is considered as one of the main roles of the online shopping payment mechanism. Electronic payment systems are crucial for the future of electronic commerce, as the growth of electronic commerce will depend on the development of electronic payment systems (Abrazhevich, 2004).

Processing transactions through the Internet must go through a payment gateway. In practice, payment gateways serve as a link between financial institutions responsible for exchanging money and the provider's website (Khan et al., 2017).

2.2 PAYMENT SYSTEMS' HISTORY

With the development of technology, the first alternative to cash and check payments was credit cards and debit cards. The credit card, which first appeared in the USA, began to be used as it is today, in the 1950s. Until that time, some oil companies, hotels and restaurants had offered payment cards that can be used in their branches. In the late 1950s, American Express created a worldwide credit card network. Thus, consumers started to experience digital payments widely for the first time. By the 1960s, ATMs entered our lives. The machines placed by Barclays Bank only served to withdraw money.

The debit cards were used for the first time in the USA in 1966 and brought a digital alternative to cash and check usage. In 1968, credit cards were used for the first time in Turkey. The Diners Club card started to be used by some travel and recreational organizations and the number of users of the card in Turkey did not exceed a few thousand in those years (Kutsal, 2018).

The chips used in credit cards and many other fields were patented in the early 1970s. During that period, while debit cards spread all over the world, the first POS machines were also produced. In this way, it has become easier to accept digital payments. eCommerce, one of the first concepts that come to mind when it comes to digital payments, was found in 1979 by an

Englishman named Michael Aldrich. Aldrich became the inventor of online commerce between businesses and consumers or companies. By the 80s, there were developments in the security part of digital payments. To prevent counterfeiting in credit cards, hologram technology began to be used in these years (Kutsal, 2018).

The 80's were the first years online shopping took place. The first online shopper in history was a 72-year-old woman named Jane Snowball. In May 1984, Snowball ordered margarine, cornflakes and eggs with his TV remote in the living room. The 80's was also the period when ATMs spread all over the world. At that time, payments by credit card were paid to the bank at the end of the month. On the other hand, American Express introduced a business model in which payment was spread over time in 1987 and opened the way for consumers to use real credit from their cards. 1980s was also the time when the first foundations of online banking were laid (Kutsal, 2018).

Another revolutionary development was PayPal. PayPal, which emerged as a wireless mobile payment system for use in handheld computers and is the pioneer of secure online shopping. These included innovations such as paying by email, enhancing digital payment security, creating HTML payment buttons. Paypal was purchased by eBay, the world's largest online commerce location in 2002, and became one of the world's first common digital payment systems.

In the 2000s, the foundations of today's digital payment systems were laid. First of all, chip-and-pin cards appeared in England. The opportunity to make transactions using the password loaded on microchips is one of the most important steps to ensure credit card security today.

In January 2009, the bitcoin network emerged with the release of the first open source bitcoin client and the production of the first bitcoin. The first purchase with Bitcoin was two pizzas delivered by Pope John's on bitcoin forums.

2.3 THE MOST USED PAYMENT METHODS IN ECOMMERCE

- Credit /Debit card: Card is one of the most preferred payment methods of online sales sites. In addition to being very easy to use, it provides the opportunity of installment, making the card advantageous among other methods. An SSL eCommerce website requires an SSL security certificate to shop with a card.
- Virtual credit card: Virtual credit cards are among the choices of shoppers in sales sites in recent years. Such cards, besides being linked with real credit cards, give customers the chance to define a special limit. In this way, even if the customers gave their credit card information while shopping, more money cannot be withdrawn from the limit cards in case of theft.
- Electronic Funds Transfer (EFT): One of the most used payment methods in eCommerce is the EFT method. In this method, a secure payment is made by transferring money between banks. The advantage of EFT against credit card is that it is more secure.
- Money Order: Money Order is used extensively in online shopping transactions. In cases where the account of the buyer and seller is in the same bank, the transfer is made. The transaction takes place in a short time and costs less than EFT and is free of charge in some banks.
- Payment at the door: This payment method is widely used in our country. The advantage is that it is reliable, and payment takes place in product delivery.
- Mobile payment: This method, which has been used in online shopping in recent years, is seen to be advantageous and preferred because it provides payment opportunities from wherever the mobile network is located.
- Apart from the methods listed above, e-commerce sites also use payment methods such as electronic credit card, mail order, e-cash, electronic money, cryptocurrency, smart card, electronic check, e-wallet.

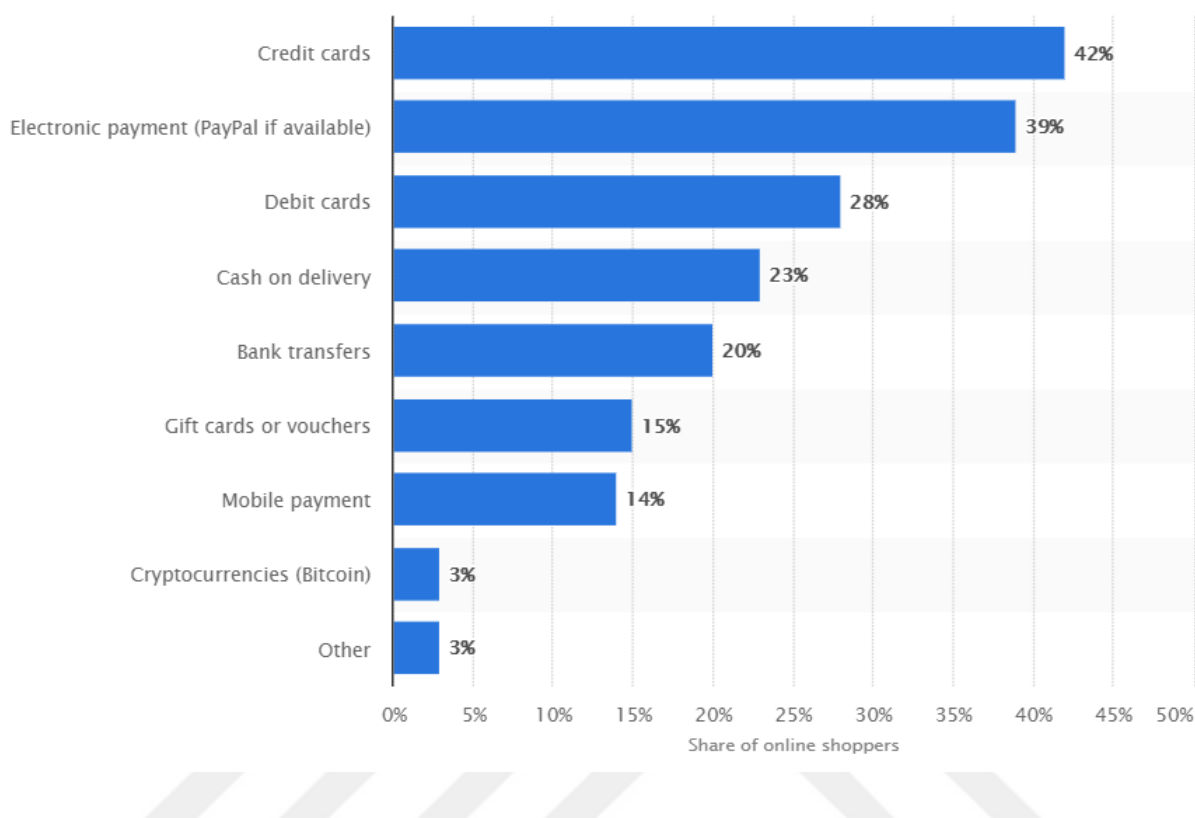


Figure 2.1 Preferred payment methods of online shoppers worldwide as of March 2017

Source: <https://www.statista.com/statistics/508988/preferred-payment-methods-of-online-shoppers-worldwide/>

2.4 PAYMENTS IN ECOMMERCE IN TURKEY

According to eCommerce report published by TUBISAD in 2019:

- In addition to payment methods such as credit card, debit card, alternative methods such as e-wallet and payment infrastructures of social media platforms are increasing in eCommerce.
- According to the 2018 year-end evaluation report published by ICC (Interbank Card Center), the total number of cards increased by 6% compared to 2017 and reached 66.3 million units.

According to data released in October 2018 while the number of credit cards per person in Turkey is calculated as 2.2.

- Another prominent point in recent years is the increase in the number of debit cards. Growing in 11-12% band since 2016. As of the end of 2018, 146.3 million have been reached in debit cards. It is thought that the decrease in credit card scores triggered this increase due to the economic conditions of the past year.

In addition, the rate of use of bank cards, which is a more profitable financial product for banks compared to credit cards, has increased through various campaigns provided by banks.

- The number of transactions made with commercial cards in 2018 has increased compared to previous years, and its share in total expenditures has reached 25%.

When the card payment behaviors of the companies were analyzed in the past years, it was observed that the business owners made their company expenditures through their personal cards. In recent years, company accounts and personal accounts are beginning to separate.

- Parallel with the trends in payment services in the world, the use of cards storage solutions offered by İyzico, MasterCard and other companies shows growth in recent years in Turkey.

On the other hand, the use of digital wallets, which is the fastest growing online payment method in the world, is not at the desired level yet in Turkey.

- According to data provided by the ICC, the data matrix method (QR code) used by mobile devices, is a preferred method of payment mostly for low value transactions in Turkey.

Banks are working with their own QR code systems and a common structure between banks has not been achieved yet. It is necessary to establish a committee on this subject and to collaborate.

2.5 FACTORS EFFECTING ADOPTION OF ONLINE PAYMENT SYSTEMS FROM THE CONSUMERS PERSPECTIVE

Despite the growing popularity and spread of electronic commerce, many consumers are still reluctant to accept electronic payment systems, especially in developing countries, because they believe that it is more convenient and safer to use cash. There is still a large group of customers who refuse to use such services because of their perception of risk (uncertainty and security problems) when carrying out their transactions on the Internet. 52% of buyers in Turkey admit that they do not trust the provision of their credit card information to the world of the Internet (The Nielsen Company, 2019). In addition, another study revealed customer concerns or lack of interest in using online payment methods (Johar and Awalludin, 2011).

- **Easy of use.** As it was mentioned earlier, the structure of the site and its content affects the ease of use. Ease of use also affects the intention of customers to use the electronic payment system. Abrazhevich (2001) argues, that the successful design of electronic payment systems from the point of view of users is important for attracting users to use electronic payments.
- **Perceived risk (security and trust).** In eCommerce and online payments, in particular, conscious risk and trust are closely related, as suggested by Featherman and Pavlov (2003), that the level of risk will decrease if customers trust the parties involved in the transactions.

Many consumers find that disclosing their credit card information is risky. Risks are related to payment security issues, such as credit card fraud and hacking. Thus, the reluctance to use electronic payment services is increasing, and consumers are less motivated to accept an electronic payment system because they believe that it is more risky than the traditional payment method (Jarvenpaa, Tractinsky, and Vitale, 2000).

- **Social influence.** Since online payments are made in an online environment, the reputation and impression of the payment system can be directly transferred to other users / consumers through online communication channels and communities (for example, social networks, forums), creating a social impact on the system. Therefore, social influences, for example, the opinions of other users, family members and friends, as well as the reputation of the companies and providers of online payment services

involved, should be taken into account when planning the use of electronic payment systems (Abrazhevich, 2004).

- **Demographic (Gender).** The differences between men and women in how they perceive electronic banking services and new technologies in general are also obvious. Male customers use electronic banking because of their deep technical involvement, while female customers use it only because it is faster and more accurate (Olalekan, 2011).
- **Culture.** Cultural factors such as educational level and technology experience are very important for the adoption of new technologies. Depending on the country or region, the culture is also different. According to Keramati et al. (2012), a set of cultural factors that affect these things, like computer knowledge, Internet access, Internet use, mobile phones, region of residence and travel habits. Overall knowledge of technology and the use of the Internet affects acceptance of electronic payment systems.

3. PAYMENT GATEWAY

3.1 PAYMENT GATEWAY DEFINITION

A payment gateway is a key component of an online payment processing system. In other words, Payment Gateway is a payment infrastructure provider. This is a special program that accepts money from various sources. The more functional the gateway, the more ways to accept payment on the site. Gateways operate over secure protocols. This eliminates the transfer of transaction data to third parties and is safe for the buyer.

A payment gateway is a technology used by merchants to receive purchases from customers.

Payment gateways are software and services that transmit transaction information to recipient banks and responses from issuing banks (for example, whether the transaction is approved or rejected). Basically, payment gateways facilitate communication within banks (Gulati et al., 2013).

An e-commerce payment gateway is a critical infrastructure component that ensures the smooth operation of such transactions and the complete security of electronic networks. This component has many advantages, among which the most important are several payment options, secure transfer, multi-currency payments and fast processing (Khan et al., 2017).

There are some factors that are important when selecting a payment gateway for eCommerce:

- The speed at which transactions are processed
- Integration with eCommerce software / shopping carts, as well as with any business software
- Flexibility in terms of payment methods and types of credit cards accepted
- Easy setup and control
- Quality and availability of service and support
- Fraud and return policy and procedures

3.2 ONLINE PAYMENT GATEWAY MODEL

An e-commerce payment gateway is an essential part of the infrastructure to ensure that transactions occur without problems and the overall security of electronic systems is maintained.

A payment gateway acts as an access point to the national banking system. Each individual online transaction must go through the Payment Gateway for processing. A payment gateway routes and confirms payment details in surprisingly safe conditions between connected banks and various fractions.

The payment gateway operates mainly as a “coded” communication channel that safely routes transaction details from the customer’s personal computer to banks for authentication. After approval, the Payment Gateway sends the data back to the seller, after which it completes the “order” and gives a confirmation (Khan et al., 2017).

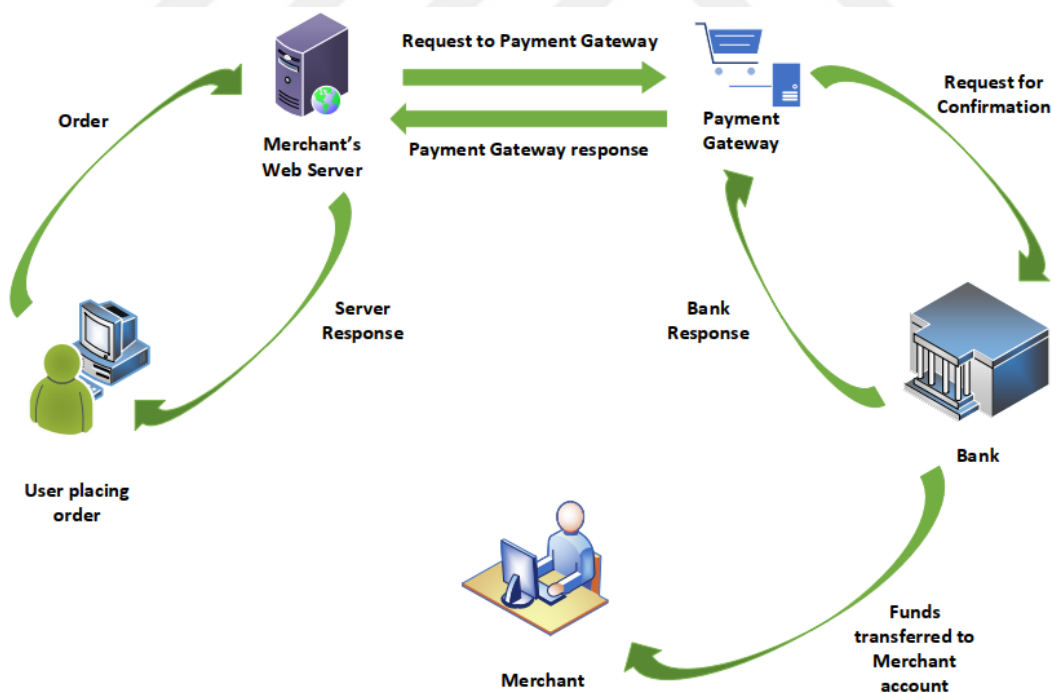


Figure 3.1 Online payment process

3.3 MOST POPULAR ONLINE PAYMENT SYSTEM COMPARISON

A payment gateway is a tool that provides up to 50% of the success of your online store. A payment gateway is a heart of any online payment provider system.

According Khan et al (2017), when choosing a payment system, the following main factors should be taken into account: card types, transaction fees, periodic accounts and forms of payments. These elements will vary depending on the business, therefore it is necessary to ensure that the selected payment gateway must meet the needs and budget of the client.

Comparison of the most popular payment systems in the world, their services and criteria are described below. Each of these payment system concentrates on various elements such as currencies, cost, security, support, functions, etc.












Payment Gateway	MONTHLY FEES	TRANSACTION FEES	RECURRING BILLING	ON-FORM PAYMENTS	MOBILE PAYMENTS	COUNTRIES	CURRENCIES	CARD TYPES	LIMITS
 Square	Free	2.9% + \$0.30	✓		✓	5 ●	5 ●	6 ●	
 PayPal	Free	2.9% + \$0.3 ●	✓		✓	200+ ●	25 ●	5 ●	Depends on currency ●
 PayPal Pro	\$35	2.9% + \$0.3	✓	✓	✓	200	26 ●	5 ●	
 PayPal Payflow	0 - \$25 ●	\$0.1	✓	✓	✓	4 ●	22 ●	7 ●	
Authorize.Net	\$25	2.9% + \$0.3	✓	✓	✓	35 ●	11 ●	9 ●	
 stripe	Free	2.9% + \$0.3	✓	✓	✓	25 ●	138 ●	6 ●	
 stripe Checkout	Free	2.9% + \$0.3		✓	✓	25 ●	138 ●	6 ●	
Braintree	Free	1.9% + €0.30 + 1% ●	✓	✓	✓	45+	130+ ●	8 ●	
 worldpay	€19.95	2.75% + €0.20	✓	✓	✓	146 ●	126 ●	9 ●	
 sage pay	£20.90 - £45 ●	£0.10 - £0.12 ●	✓	✓	✓	189	25+ ●	3 ●	
 PayU	0 - €25 ●	€2% ●	✓		✓	17	4 ●	6 ●	
 sisow	Free	€0.45 Batch fee €0.25	✓			2 ●	EUR	8 ●	
 PayFast	Free	2% - 4.5%	✓		✓	South Africa	Rand	4 ●	Custom ●

Figure 3.2 Payment Gateways Comparison

Source: <https://www.123formbuilder.com/payment-gateways-comparison/>

4. ONLINE PAYMENT SYSTEMS IN TURKEY

4.1 GENERAL TENDENCY

As it was already discussed before in the paper, most popular methods of payment for eCommerce in Turkey are credit and debit cards. In order to receive online payments by card in eCommerce, it is necessary to integrate a virtual POS system on behalf of the company to an eCommerce site. Virtual POS systems can be obtained from:

- banks such as Garanti, Akbank, Ziraat etc., which also provide physical POS;
- third party applications (Payment Aggregators) such as Iyzico, PayU, PayTr etc., that provide common virtual POS integration with multiple banks.

While each bank applies a different commission rate to its virtual POS; Iyzico, PayU and other online payment infrastructure providers offer virtual POS services with a common commission rate for all banks. But, only officially registered companies are eligible to apply and use a virtual POS.

On the other hand, as it was mentioned above in the paper, it is extremely important to ensure payment and user security on an eCommerce site. For this, choosing an online payment infrastructure provider is a very important step. It is perhaps one of the most important factors for providing a reliable payment channel to customers and for an eCommerce site to grow.

Payment infrastructure providers can provide customers with a secure payment infrastructure and facilitate their business from different perspectives thanks to their integration. For example, if a business owner plans to buy virtual POS from multiple banks, it would be healthier to purchase bulk packages that integrate virtual payment systems of many banks from third party applications that provide virtual POS integration instead. In this way, they have the luxury of accepting payments from many banks and the convenience of being charged over a single commission fee instead of paying each commission separately.

In addition to virtual POS integration, these third-party payment infrastructure providers offer businesses and eCommerce users the opportunity to receive different types of online payments such as EFT, Mobile Payment etc.

If a company plans to make sales also in other countries also, then it must set up suitable online payment infrastructure that works with foreign currencies.

Payment aggregators are a more universal solution than bank acquiring, which usually works exclusively with cards and accepts payment only with their help.

This is a special program that accepts money from various sources. The more functional the gateway, the more ways to accept payment on the site. Gateways operate over secure protocols. This eliminates the transfer of transaction data to third parties and is safe for the buyer.

4.2 ONLINE PAYMENT SYSTEMS PROVIDERS (PAYMENT AGGREGATORS)

4.2.1 Iyzico

Iyzico, which is preferred by many e-commerce companies, was founded in 2012 by three partners. The purpose of the organization is to provide easy and reliable payment opportunities to e-commerce sites of different sizes. Today, it constitutes the infrastructure that enables online payment on more than 29,000 websites. The company attaches great importance to security, has PCI-DSS 1 certificates. There is no security problem when shopping on sites with this infrastructure. There is also a protection against fraud with artificial intelligence.

4.2.2 **PayU**

PayU is one of the payment system providers that has great interest by eCommerce sites in Turkey. It is among the largest technology investors in the world. Used in many countries of the world. PayU is a business partner with more than 70 banks and 15 financial networks worldwide.

4.2.3 **PayTR**

PayTR is among the pioneers in this field in Turkey and was established in 2009 with entirely domestic capital. It attracts attention with its strong infrastructure. The fact that it has been operating in the sector for a long time has enabled it to become a trusted organization.

4.2.4 **iPara**

iPara was founded in 2012 as the company that provides online payment service. With its innovative and market-oriented solutions, it played an important role in turning users and merchants into shopping in the virtual environment.

4.2.5 Comparison of the Payment Systems

Table 4.1 Comparison of Payment Systems

	PayU	Iyzico	PayTR	iPara
Subscription Fee (annual)	716 TL	no	no	293 TL
Payment period (days)	7	21	1	10
API Support	yes	yes	yes	yes
Marketplace	yes	yes	yes	no
Güvenlik				
3D Secure	yes	yes	yes	yes
Anti-fraud filters	yes	yes	yes	yes
Destek				
Telephone support	yes	yes	yes	yes
Email support	yes	fast	fast	yes
Technical documentation	yes	yes	yes	yes
Sample code	<i>php</i>	<i>php, .net,</i>	<i>php</i>	<i>php,</i>
		<i>java, node,</i>		<i>java</i>
		<i>ruby, python</i>		
Detailed error codes	weak	good	good	good
Commission rates for one transaction	%1,5	%2,65 + 0,25 TL	%2,95	%2,3

Sources: <https://www.iyzico.com/isim-icin;> <https://www.payu.com.tr/urunler;>
[https://www.paytr.com/;](https://www.paytr.com/) <https://www.ipara.com.tr/>

4.3 PAYMENT SYSTEMS PROVIDED BY BANKS

Payment aggregators are a more universal solution than online payment systems provided by banks, which usually works exclusively with cards and accepts payment only with their help. But as it was discussed above in the literature research, the most popular payment method in Turkey is debit / credit card, and some companies find virtual POS solution sufficient.

In order to receive online payments by card in eCommerce, it is necessary to integrate a virtual POS system on behalf of the company to an eCommerce site. Virtual POS systems can be obtained from banks which also provide physical POS. Each bank applies a different commission rate to its virtual POS. But offered services seems to be almost the same.

Examples of virtual POS solutions are going to be discussed below.

4.3.1 Garanti Bank's Virtual POS

Garanti Virtual POS is a secure payment solution created to receive payments by credit card for online sales.

Garanti Virtual POS offers (www.garantibbva.com.tr):

- Use cards with Visa, Mastercard, American Express Card and Diners Club logo.
- Offer the opportunity to pay in installments to the Bonus, Flexi, Miles & Smiles credit card and American Express card holders.
- Make transactions easily and safely.
- Easy track of sales with an effective, fast and detailed reporting interface.
- Secure Partner Payment Page.
- 3D security.

4.3.2 Yapi Kred Bank's Virtual POS

Yapi Kredi brings its merchants together in a safe environment with the consumer on the internet, enabling them to make sales and develops a collection system in the world of e-commerce.

Yapi Kredi Virtual POS offers (www.yapikredipos.com.tr):

- The opportunity to receive information about the status, amount, date, card number (masked), order number and confirmation code of the transaction by sending information about the order number, member office number and terminal number, and to solve possible reconciliation problems on the basis of transactions.
- Euro and USD transactions only work for foreign cards. TL transactions are made with domestic cards.
- Financial reports
- Provides 7x24 collections.
- Provides Secure Payment page service prepared for companies with or without SSL certificate.
- It provides security standards with 3D Secure.
- The fast and technological service offered.

4.3.3 Akbank's Virtual POS

All companies that make sales on the internet and collect the return of their sales from their credit cards on the internet can benefit from Akbank Virtual POS service.

Akbank Virtual POS offers (www.akbank.com):

- 7x24 Collection Opportunity: All transactions at Akbank Virtual POS are carried out over the internet. Thus, companies can make collections at any time 7 days and 24 hours from anywhere with internet connection.

- **Fast and Secure Collection:** Akbank's advanced security systems enable companies to make their collections quickly and securely over the internet.
- **Sales Advantage:** Support is provided not only for information purposes but also for sales-oriented work of virtual stores opened by companies on the internet.
- **Ease of Tracking and Reporting:** Akbank Virtual POS provides companies with detailed reports on transactions. (Order and transaction review, sales statistics etc.)

4.3.4 Is Bank's Virtual POS

With its easily integrated software infrastructure, service provides effortless acceptance of card payments in the world of eCommerce. It offers various reports with its different formats.

Is Bank's Virtual POS offers (www.isbank.com.tr):

- Visa, Mastercard, American Express, UnionPay, JCB and MIR logo all credit and debit cards are accepted in İşbank's virtual POS. Sales, installment sales, pre-authorization receiving / closing transactions can also be done in Virtual POS.
- Ability to use credit and debit cards of foreign banks in 14 different currencies: US Dollar (USD), Euro (EUR), British Pound (GBP), Australian Dollar (AUD), Danish Krone (DKK), Swedish Krone (SEK), Swiss Franc (CHF), Japanese New (JPY), Canadian Dollar (CAD), Kuwaiti Dinar (KWD), Norwegian Krone (NOK), Saudi Arabian Riyal (SAR), Russian Ruble (RUB) and Chinese Yuan (CNY).
- 3D security
- Businesses without SSL certificates can use İşbank's Secure Payment Pages.

5. RESEARCH OBJECTIVE AND METHODOLOGY

5.1 AIM OF THE RESEARCH

The purpose of the study is to determine the factors that influence the choice of an online payment system for companies trading on the Internet in Turkey.

When I conducted a literature study on the topic of online payments, I found that a lot of research was done on factors that affect buyers of goods and services online on the Internet, but there are practically no studies on factors affecting the choice of an online payment system for online business owners.

I have not found a single study of the factors affecting the choice of an online payment system for e-commerce, conducted in Turkey. However, I believe that this topic deserves extensive research and its results can be put into practice by people who want to engage in electronic commerce and who will choose which payment service to use specifically.

The research results are important in terms of determining the aspects that influence the choice of a suitable payment system for an online business. An analysis of the factors that will guide companies in terms of choosing a payment system is an important contribution to this study.

5.2 SCOPE OF THE RESEARCH

This study was conducted on 108 Turkish companies selling goods and/or services on the Internet and using online payment systems.

5.3 METHODOLOGY

The development of technologies in general, including the development of technologies and methods of electronic payment, has a significant impact on the stable growth of the eCommerce

market in the world and in particular in Turkey. A significant increase in e-commerce volumes, observed throughout the world, did not pass by Turkey. Many stores have their own representation on the global Internet, and some do not have a physical representation at all, but only a virtual one.

The purpose of this study is to determine the factors that influence the choice of an online payment system by eCommerce business companies in Turkey; determine which payment systems are most preferred in Turkey.

The research methodology contains developed elements based on literature, a questionnaire research application and data analysis, interviews with employees of eCommerce companies, as well as companies that provide online payments.

The data collected as a result of the survey will be processed by the statistical program of the SPSS version 25.0.

5.4 HYPOTHESES AND RESEARCH MODEL

Currently, many studies of the factors affecting the implementation of electronic payment systems are being conducted. However, very little research has been done to find out what motivates companies to implement electronic payment systems. Harris, Krishnan Guru and Avvari (2011) studied that flexibility, functionality, data management, privacy and security are some of the important factors that companies pay attention to before implementing electronic payment systems.

The focus was on electronic cases, electronic checks, smart cards and credit cards to ascertain Malaysian perceptions of using online payment systems (Hair et al., 2006). An online payment system is defined as any prevailing or new payment system that allows you to safely conduct financial transactions from one organization or individual to another through the Internet.

Sumanjeet (2009) focused on technological, as well as on the study of other factors, for example, security, cost, anonymity, acceptability, convenience, traceability and control, as well as

assessing the differences of each electronic payment system by studying their requirements, characteristics and evaluation the applicability of each system.

Trivedi and Mago (2013) studied the perceptions of the company regarding the adoption of an electronic payment system. Their study examined the main factors, such as functionality, usability, data processing and trust, which influence the implementation of the electronic payment system and help organizations identify the various opportunities that they need to develop in order to provide customer-oriented services in area of electronic payment systems.

The hypotheses of this study, created as a result of the literature review, which were comprehensively discussed above, were formed as follows:

H1: Increasing company size influences the selecting of online payment system overall positively.

H2: Company's sector influences the selecting of online payment system overall positively.

H3: Low setup cost influences the selecting of online payment system overall positively.

H4: Low transaction cost influences the selecting of online payment system overall positively.

H5: Lack of monthly fee influences the selecting of online payment system overall positively.

H6: Securing transaction and personal data influences the selecting of online payment system overall positively.

H7: Technical support 24/7 and fast reply for an issue influence the selecting of online payment system overall positively.

H8: Easy setup and compatibility influences the selecting of online payment system overall positively.

H9: Positive feedback about online payment system influences the selecting of online payment system overall positively.

H10: Variety of payment methods influences the selecting of online payment system overall positively.

H11: Availability of international business and variety of currencies influence the selecting of online payment system overall positively.

H12: Easy refund influences the selecting of online payment system overall positively.

H13: Short payout period influences the selecting of online payment system overall positively.

H14: Variety of financial reports influences the selecting of online payment system overall positively.

In line with the hypotheses mentioned above, the research model was created as shown in figure below.

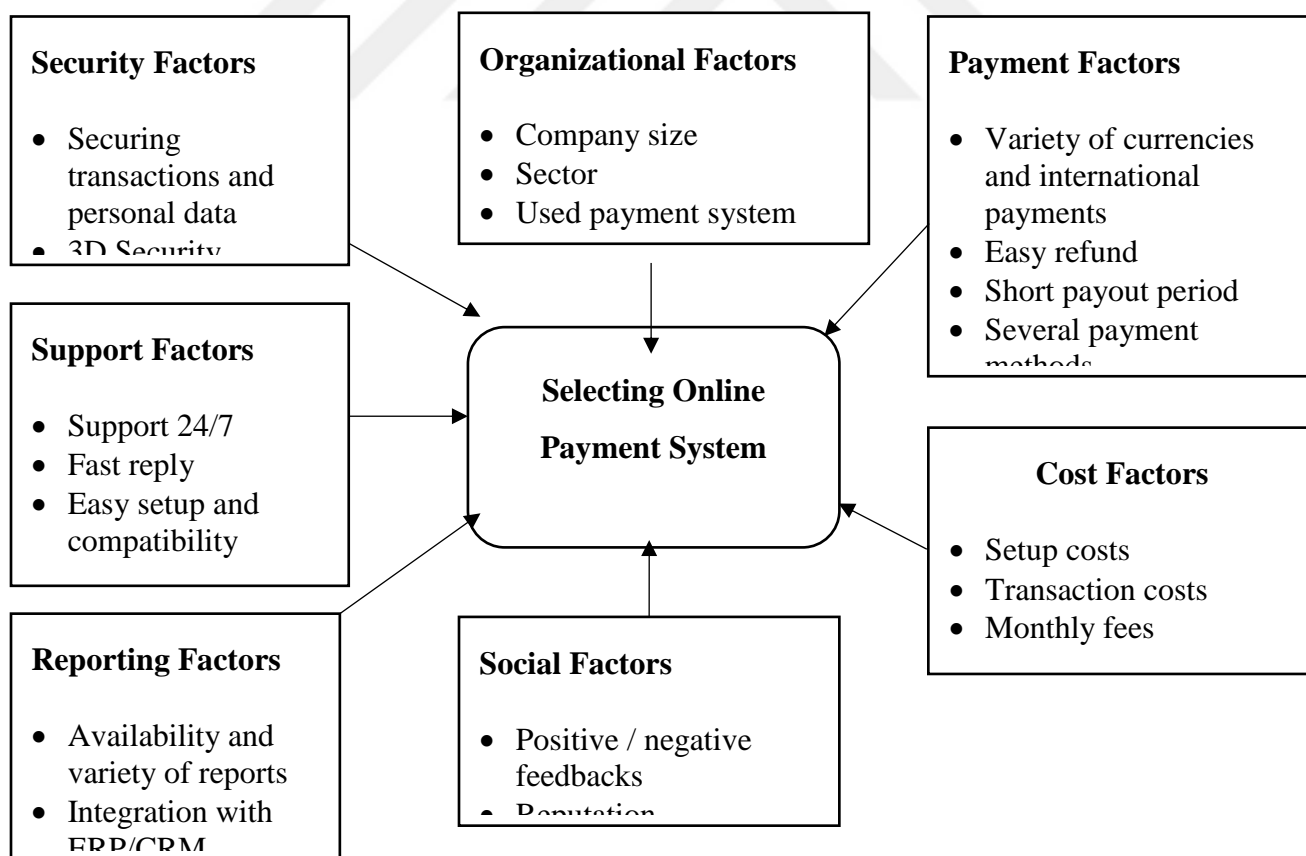


Figure 5.1 The representation of the research model

Table5.1 Literature Reviews Related with the Research Model

1	Hair, J.F.J., Black, W.C., Babin, B.J., Anderson, R.E. & Tatham, R.L. (2006)
2	Trivedi, P. and Mago, B. (2013)
3	Sumanjeet, S. (2009).
4	Harris, H., Guru, B. K., Avvari, M. V. (2011)
5	Khan et al., (2017)
6	Gulati, V.P., Srivastava, S. (2007)
7	Kalakota, R. & Whinston, A. (1997)
8	Abrazhevich, D. (2001)
9	Abrazhevich, D. (2004)
10	Keramati et al., (2012)

6. HYPOTESIS TESTING

The hypothesis testing section consist of two parts: descriptive statistics and testing of hypotheses related to the research.

6.1 DESCRIPTIVE STATISTICS

6.1.1 Descriptive Statistics for the Organizational Factors

Company size was presented by the following variables: small, medium and big.

Research shows that respondent companies are mostly big. But I have not marked boundaries for each company size in the questionnaire, so respondents made decision about size of their company themselves.

Table 7.1 Results of the Descriptive Statistics for Company Size

Descriptive Statistics for Company Size		
	Number in Sample	% in Population
Small	31	28.7
Medium	32	29.6
Big	45	41.7
Total	108	100

The following sectors were selected by the respondent companies: Commerce, Construction, Education, Financial, Food, Health, Other, Automotive, Production, Service, Technology.

As we can see in the results, Technology and Service companies are leaders in the list.

Table 6.2 Results of the Descriptive Statistics for Companies' Sector

Descriptive Statistics for Companies' Sector	
	% in Population
Commerce	7.4
Construction	8.3
Education	4.6
Financial	4.6
Food	8.3
Health	10.2
Other	5.6
Automotive	10.2
Production	7.2
Service	15.7
Technology	14.8
Total	100.0

According to the findings, the most popular payment method is EFT 31.9%, Bank Card 25.9% and Cash 25.5%. Three participant companies selected Check as Other Payment Method. Some companies have not only online but also offline shop/service point.

Table 6.3 Results of the Descriptive Statistics for Payment Methods

Descriptive Statistics for Payment Methods		
	Responses	
	Number	Percent
Bank (debit/credit card)	65	25.9%
EFT	80	31.9%
Cash	64	25.5%
Mobile Payment	39	15.5%
Other	3	1.2%
Total	251	100.0%

According to the result, more than half of all companies sales their goods or services abroad, 58.3%.

Table 6.4 Results of the Descriptive Statistics for Sales Abroad

Descriptive Statistics for Sales Abroad		
	Number in Sample	% in Population
Yes	63	58.3
No	45	41.7
Total	108	100.0

As it is shown in the research, the most popular result in question about used online payment system is agreement with a bank – 68.5%, the second result is PayU – 12.0% and then Iyzico – 10.2%. That shows that companies prefer to make agreement with a bank directly instead of commercial online payment providers.

Table 6.5 Results of the Descriptive Statistics for Used Payment System

Descriptive Statistics for Used Payment System		
	Number in Sample	% in Population
Direct agreement with a bank	74	68.5
iPara	4	3.7
Iyzico	12	11.1
PayTR	4	3.7
PayU	13	12.0
Wirecard	1	0.9
Total	108	100.0

6.1.2 Descriptive Statistics for Online Payment System Characteristics

Below, descriptive statistics for online payment systems' characteristics going to be shown. Characteristics are analyzed by using means (measured on a five point scale from "Strongly Disagree" to "Strongly Agree") and listed in the table below.

Table 6.6 Results of the Descriptive Statistics for Online Payment Systems' Characteristics

Descriptive Statistics for Online Payment System Characteristics				
	Min	Max	Mean	Std. Deviation
Monthly Fee	1	5	3.67	1.460
Transfer Based Fee	1	5	3.83	1.507
Integration Fee	1	5	3.59	1.434
Reputation of Online Payment System	1	5	3.53	1.430
Security of Payments and Personal Data	1	5	4.06	1.468
Integration Possibility with Your ERP/CRM System	1	5	3.65	1.506
Easy User Interface	1	5	3.75	1.422
Easy Integration	1	5	3.78	1.430
Customer Support 24/7	1	5	3.92	1.422
Sales Using Currencies and Their Number in Payment System	1	5	3.47	1.384
Number of Days Money Come to Bank Account	1	5	3.87	1.460
Tech Support Response Speed	1	5	3.92	1.467
Financial Reports Availability	1	5	3.39	1.420
3D Security	1	5	4.04	1.407
Offered Several Payment Methods	1	5	4.00	1.440
Connection to Several Banks	1	5	3.86	1.424
Installment Availability	1	5	3.69	1.405
Cancel/Return Payments Availability	1	5	3.88	1.399

As descriptive findings show, eCommerce business companies in Turkey aware about importance of securing transaction and personal data. (The mean rating of “Security of Payments and Personal Data” is 4.06, “3D Security” is 4.04 over 5, which are above the average rating 3).

Companies believe that cost factors are positively influence selection of online payment system. Monthly fees, transfer based fees and setup cost affect selecting of online payment system by eCommerce companies in Turkey. (“Monthly Fee” mean = 3.67, “Transfer Based Fee” mean = 3.83, “Integration Fee” mean = 3.59 over 5, which are above the average rating 3).

Payment factors such as: variety and number of currencies, ability to work with several banks, availability of several payment methods, easy refund and fast payout period, affect selecting of online payment system by eCommerce companies. (“Sales Using Currencies and Their Number in Payment System” mean = 3.47, “Number of Days Money Come to Bank Account” mean = 3.87, “Offered Several Payment Methods” mean = 4.00, “Connection to Several Banks” mean = 3.86, “Installment Availability” mean = 3.69, “Cancel/Return Payments Availability” mean = 3.88 over 5, which are above the average rating 3).

Social factor so as positive/negative references from friends and other business owners also positively influence selecting of online payment system. (“Reputation of Online Payment System” mean 3.53 over 5, which are above the average rating 3).

Descriptive findings also show that availability of various financial reports also positively affect selection of online payment system by eCommerce businesses. (“Financial Reports Availability” mean = 3.39 over 5, which are above the average rating 3).

Companies also believe that availability of wide range of financial reports also effects selecting of online payment system. (“Financial Reports Availability” mean = 3.37 over 5, which are above the average rating 3).

One of the most important factors according to descriptive findings is customer support factor. As it is shown in the table above, customer support 24/7, fast response from the customer support service, easy integration and user-friendly interface are affect positively selecting of online payment system by eCommerce companies in Turkey. (“Integration Possibility with Your

ERP/CRM System” mean = 3.65, “Easy User Interface” mean = 3.75, “Easy Integration” mean = 3.78, “Customer Support 24/7” mean = 3.92, “Tech Support Response Speed” mean = 3.92 over 5, which are above the average rating 3).

6.2 STATISTICAL ANALYSIS

6.2.1 Reliability Analysis

There are two steps in the reliability analysis:

- Internal consistency of 18 variables from the research model,
- Testing of groups of factors from the research model to understand if they selected correctly or not.

Cronbach Alpha is used for both tests.

Table 6.7 Results of the Reliability Analysis

Reliability Statistics		
N of Cases	Cronbach's Alpha	N of Items
108	0.981	21

Seven groups of factors contain 18 independent variables related to the research model. Cronbach Alpha values of the groups are described in the table below:

Table 6.8 Results of the Reliability Analysis

Organizational factors	Company size, Sales abroad, Used payment system	0.474
Security factors	Securing transactions and personal data, 3D Security	0.952
Cost factors	Setup costs, Transaction costs, Monthly fees	0.947
Support factors	Support 24/7, Fast Reply, Easy Setup and Compatibility, Easy User Interface	0.950
Reporting factor	Availability and variety of reports, integration with CRM/ERP	0.882
Social factor	Positive/negative feedback, reputation	0.874
Payment factors	Variety of currencies and international payments, Easy refund, Short payout period, Several payment methods, Connection with several banks	0.962

All the factors, except the Organizational factors, have Cronbach Alpha values greater than 0.70. The factors are going to be tested by the normality test and then according to the result, regression or non-parametric test will be applied.

Organizational factors' Cronbach Alpha value is lower than 0.70. But the "sector type" variable is a nominal data and is going to be analyzed by ANOVA test.

6.2.2 Normality Test

When analyzing data, it should be distributed normally or close to normal. Working on non-normally distributed data affects the validity of statistical tests and the reliability of analysis results. If data is not normally distributed, we should continue with Non-Parametric Analysis.

There are two normality tests: the Shapiro – Wilk test and Kolmogorov – Smirnov tests. We use the Kolmogorov-Smirnov tests if the N value is greater than 60.

Table 6.9 Results of the Normality Test

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
cost	0.252	108	0.000	0.801	108	0.000
security	0.301	108	0.000	0.689	108	0.000
support	0.250	108	0.000	0.751	108	0.000
report	0.192	108	0.000	0.863	108	0.000
social	0.197	108	0.000	0.834	108	0.000
payment	0.220	108	0.000	0.805	108	0.000

a. Lilliefors Significance Correction

Table 6.10 Results of the Kolmogorov-Smirnov Test

		cost	security	support	report	social	payment
N		108	108	108	108	108	108
Normal Parameters ^{a,b}	Mean	3.6975	4.0509	3.8704	3.5185	3.6389	3.7948
	Std. Deviation	1.39539	1.40417	1.39784	1.37556	1.35831	1.30213
Most Extreme Differences	Absolute	0.252	0.301	0.25	0.192	0.197	0.22
	Positive	0.175	0.25	0.21	0.141	0.158	0.177
	Negative	-0.252	-0.301	-0.25	-0.192	-0.197	-0.22
Test Statistic		0.252	0.301	0.25	0.192	0.197	0.22
Asymp. Sig. (2-tailed)		.000c	.000c	.000c	.000c	.000c	.000c

a Test distribution is Normal.

b Calculated from data.

c Lilliefors Significance Correction.

The significance level obtained according to the Kolmogorov-Smirnov test results is Asymp. Sig. (Asymptotic Significance) = 0.000 for each group of factors. So, since Asymptotic Significance values are lower than 0.05 significance level for each group of factors, we can say that the data is not distributed normal and non-parametric analysis is going to be applied.

6.2.3 Non-Parametric Analysis

The Kruskal-Wallis test is a rank-based nonparametric test that can be used to determine if there are statistically significant differences between two or more groups of an independent variable on a continuous or ordinal dependent variable.

Table 6.11 Kruskal-Wallis H Test

	cost	security	support	reporting	social	payment
Kruskal-Wallis H	5.304	5.733	4.255	5.954	7.485	6.812
df	5	5	5	5	5	5
Asymp. Sig.	0.380	0.333	0.513	0.311	0.187	0.235
a. Kruskal Wallis Test						
b. Grouping Variable: Payment System						

If Asymptotic Significance value is less than or equal to 0.05, it can be decided that there is a significant meaningful difference between at least two of the averages compared. If this value is greater than 0.05, there is no significant difference between any of the averages of these groups, these groups can be decided to be equivalent.

The result of the analysis means that there is no significant difference between payment system and the factors and expectations are the same for each payment system.

To prove the result of the Kruskal-Wallis H test from the table 7.10 above, Crosstabs (Chi-Square) test was applied.

Table 6.12 Crosstabs Cost/Payment System Analysis

Cost			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	76.008 ^a	55	0.032
Likelihood Ratio	60.640	55	0.280
Linear-by-Linear Association	0.035	1	0.852
N of Valid Cases	108		
a. 68 cells (94.4%) have expected count less than 5. The minimum expected count is .01.			

Table 6.13 Crosstabs Security/Payment System Analysis

Security			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	55.820 ^a	40	0.049
Likelihood Ratio	39.292	40	0.502
Linear-by-Linear Association	1.024	1	0.312
N of Valid Cases	108		
a. 49 cells (90.7%) have expected count less than 5. The minimum expected count is .01.			

Table 6.14 Crosstabs Support/Payment System Analysis

Support			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	52.418 ^a	55	0.574
Likelihood Ratio	42.800	55	0.884
Linear-by-Linear Association	0.230	1	0.632
N of Valid Cases	108		
a. 68 cells (94.4%) have expected count less than 5. The minimum expected count is .01.			

Table 6.15 Crosstabs Reporting/Payment System Analysis

Reporting			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	52.418 ^a	55	0.574
Likelihood Ratio	42.800	55	0.884
Linear-by-Linear Association	0.230	1	0.632
N of Valid Cases	108		
a. 68 cells (94.4%) have expected count less than 5. The minimum expected count is .01.			

Table 6.16 Crosstabs Social/Payment System Analysis

Social			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	37.576 ^a	40	0.580
Likelihood Ratio	36.693	40	0.620
Linear-by-Linear Association	0.002	1	0.969
N of Valid Cases	108		
a. 49 cells (90.7%) have expected count less than 5. The minimum expected count is .03.			

Table 6.17 Crosstabs Payment/Payment System Analysis

Payment			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	37.576 ^a	40	0.580
Likelihood Ratio	36.693	40	0.620
Linear-by-Linear Association	0.002	1	0.969
N of Valid Cases	108		
a. 49 cells (90.7%) have expected count less than 5. The minimum expected count is .03.			

As that is listed in the table 7.11, Asymptotic Significance is less than the expected level 0.05, that shows that there is no significant relationship between the Cost factors and selected payment system.

Asymptotic Significance in the able 7.12 is 0.49, that is very close to 0.05, so the Security factors have some significant relationship with the selected payment system.

The Support factors with Asymptotic Significance = 0.574 (table 7.13), the Reporting factors with Asymptotic Significance = 0.574 (table 7.14), the Social factors with Asymptotic Significance = 0.580 (table 7.15) and the Payment factors with Asymptotic Significance = 0.580 (table 7.16) show that there are significant relationship between the factors and selected payment system.

6.2.4 Analysis of Variance (ANOVA)

Payment System / Company size

Table 6.18 Frequency Distribution for the Company Size

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Small	31	1.9032	1.49119	0.26783	1.3563	2.4502	1.00	5.00
Medium	32	1.7188	1.08462	0.19174	1.3277	2.1098	1.00	4.00
Big	45	1.5778	1.19637	0.17835	1.2183	1.9372	1.00	6.00
Total	108	1.7130	1.25341	0.12061	1.4739	1.9521	1.00	6.00

Table 6.19 Test of Homogeneity (Levene Statistics)

Levene Statistic	df1	df2	Sig.
0.615	2	98.115	0.543

Levene statistics result demonstrate that the variances are homogeneous ($p > 0.05$) and ANOVA analysis shows that there is no relationship between payment system and company size ($F=0.615$, $p>0.05$).

Table 6.20 Result of ANOVA Analysis

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.946	2	0.973	0.615	0.543
Within Groups	166.156	105	1.582		
Total	168.102	107			

Payment System / Sector

Table 6.21 Frequency Distribution for Sector's Name

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1	8	2.6250	1.18773	0.41993	1.6320	3.6180	1.00	4.00
2	9	2.2500	1.50000	0.75000	0.1368	4.6368	1.00	4.00
3	5	1.1818	0.60302	0.18182	0.7767	1.5869	1.00	3.00
4	5	2.4000	1.94936	0.87178	1.0204	4.8204	1.00	5.00
5	9	1.3333	1.00000	0.33333	0.5647	2.1020	1.00	4.00
6	11	1.8182	0.98165	0.29598	1.1587	2.4777	1.00	4.00
7	6	2.0000	1.54919	0.63246	0.3742	3.6258	1.00	4.00
8	11	1.1818	0.60302	0.18182	0.7767	1.5869	1.00	3.00
9	11	1.2727	0.90453	0.27273	0.6651	1.8804	1.00	4.00
10	17	1.1176	0.33211	0.08055	0.9469	1.2884	1.00	2.00
11	16	3.0000	1.71270	0.42817	2.0874	3.9126	1.00	6.00
Total	108	1.7130	1.25341	0.12061	1.4739	1.9521	1.00	6.00

Table 6.22 Test of Homogeneity (Levene Statistics)

		df1	df2	Sig.
Levene Statistic	4.127	10	42.698	0.051

Levene statistics result demonstrate that the variances are homogeneous ($p > 0.05$) and ANOVA analysis shows that there is no relationship between payment system and company's sector ($F=4.821, p>0.05$).

Table 6.23 Result of ANOVA Analysis

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	55.808	10	5.581	4.821	0.000
Within Groups	112.294	97	1.158		
Total	168.102	107			

CONCLUSIONS

eCommerce is evolving every year to meet the needs of people and make their purchases on the Internet as convenient as possible. Most people understand eCommerce as online shopping, but in fact this concept is much broader: this includes paying for online games, purchasing software products, training courses, and tickets to various events. Any business, any service can be provided on the Internet and be eCommerce. In addition, if look a little deeper, all those services that provide the functioning of the same online stores, games and other things are also eCommerce.

At the same time, eCommerce is not possible without online payment systems. So as eCommerce is exponentially growing nowadays, online payment systems are also developing accordingly. Bank cards still is the most popular payment method in the world, but new payment methods (like electronic money, mobile payments, eWallet etc.) are become more popular every new day.

Payment aggregators (providers) aggregate different payment methods in the same place. Payment aggregators are a more universal solution than online payments provided by banks, which usually works exclusively with cards and accepts payment only with their help. This is a special program that accepts money from various sources. The more functional the gateway, the more ways to accept payment on the site.

The aim of the research is to analyze factors affecting selecting an online payment system for eCommerce business in Turkey. In the study I observed both types of online payment systems as, payment aggregators and bank acquiring, without focusing on one of them. But I believe, payment aggregators and bank acquiring are deserved to be a part of separate studies.

When conducting a literature study, I found that a lot of research was done on factors that affect buyers of goods and services online on the Internet, but there are practically no studies on factors affecting the selecting of an online payment system for online business owners. I have not found a single study of the factors affecting the selecting of an online payment system for eCommerce, conducted in Turkey. However, I believe that this topic deserves extensive research and its results can be put into practice by people who want to engage in electronic commerce and who will choose which payment service to use specifically.

The research results are important in terms of determining the aspects that influence the choice of a suitable payment system for an online business. An analysis of the factors that will guide companies in terms of choosing a payment system is an important contribution to this study.

The study includes fourteen hypotheses based on the literature review. There are seven main group of factors affecting selection of payment system in the research model. Each group includes several sub-factors (sub-hypothesis). The factors are as follow:

1. **Organizational Factors** (Company size, Sector, Used payment system)
2. **Security Factors** (Securing transactions and personal data, 3D Security)
3. **Payment Factors** (Variety of currencies and international payments, Easy refund, Short payout period, Several payment methods)
4. **Cost Factors** (Setup costs, Transaction costs, Monthly fees)
5. **Support Factors** (Support 24/7, Fast reply, Easy setup and compatibility)
6. **Reporting Factors** (Availability and variety of reports, Integration with ERP/CRM)
7. **Social Factors** (Positive / negative feedbacks, Reputation)

Each sub-hypothesis forms the survey and was measured by using 5-point scales. The survey was sent to eCommerce business owners in Turkey. Results of the survey was analyzed by SPSS software with version 25.

Descriptive statistics demonstrates that the most popular result in question about used online payment system is an agreement with bank – 68.5%, the second result is PayU – 12.0% and then Iyzico – 10.2%. That shows that companies prefer to make agreement with a bank directly instead of third-party online payment providers (payment aggregators). Such result may be because almost each bank offers a solution for eCommerce (their own online payment system, virtual POS) and it's easy for a company to select such solution when opening a bank account.

Research shows that respondent companies are mostly big (41.1%). But I have not marked boundaries for each company size in the questionnaire, so respondents made decision about size of their company themselves.

According to the findings, the most popular payment method is EFT 31.9%, Bank Card 25.9% and Cash 25.5%. Three participant companies selected Check as Other Payment Method. Some companies have not only online but also offline shop/service point.

According to the result, more than half of all companies sales their goods or services abroad, 58.3%. In addition, 58.43% agreed that ability to sell in currencies and their number in a payment system positively affects selecting of online payment system.

As descriptive findings show, eCommerce business companies in Turkey aware about importance of securing transaction and personal data. (The mean rating of “Security of Payments and Personal Data” is 4.06, “3D Security” is 4.04 over 5, which are above the average rating 3).

Companies believe that cost factors are positively influence selection of online payment system. Monthly fees, transfer based fees and setup cost affect selecting of online payment system by eCommerce companies in Turkey. (“Monthly Fee” mean = 3.67, “Transfer Based Fee” mean = 3.83, “Integration Fee” mean = 3.59 over 5, which are above the average rating 3).

Payment factors such as: variety and number of currencies, ability to work with several banks, availability of several payment methods, easy refund and fast payout period, affect selecting of online payment system by eCommerce companies. (“Sales Using Currencies and Their Number in Payment System” mean = 3.47, “Number of Days Money Come to Bank Account” mean = 3.87, “Offered Several Payment Methods” mean = 4.00, “Connection to Several Banks” mean = 3.86, “Installment Availability” mean = 3.69, “Cancel/Return Payments Availability” mean = 3.88 over 5, which are above the average rating 3).

Social factor so as positive/negative references from friends and other business owners also positively influence selecting of online payment system. (“Reputation of Online Payment System” mean 3.53 over 5, which are above the average rating 3).

Descriptive findings also show that availability of various financial reports also positively affect selection of online payment system by eCommerce businesses. (“Financial Reports Availability” mean = 3.39 over 5, which are above the average rating 3).

One of the most important factors according to descriptive findings is customer support factor. As it is shown in the table above, customer support 24/7, fast response from the customer support service, easy integration and user-friendly interface are affect positively selecting of online payment system by eCommerce companies in Turkey. (“Integration Possibility with Your ERP/CRM System” mean = 3.65, “Easy User Interface” mean = 3.75, “Easy Integration” mean = 3.78, “Customer Support 24/7” mean = 3.92, “Tech Support Response Speed” mean = 3.92 over 5, which are above the average rating 3).

Reliability analysis shows that the data in the research are reliable and selection of the six main factors is true (Cronbach Alpha value for variables is 0.981 and Security factors, Cost factors, Support factors, Reporting factor, Social factor, Payment factors Cronbach Alpha values are greater than the limit of 0.70).

Non-Parametric Crosstable analysis was applied to each group of factors and payment system. The analysis demonstrates that there is no significant relationship between the Cost factors and selected payment system (Asymptotic Significance is less than the expected level 0.05). The Security factors have some significant relationship with the selected payment system with Asymptotic Significance = 0.49. The Support factors with Asymptotic Significance = 0.574, the Reporting factors with Asymptotic Significance = 0.574, the Social factors with Asymptotic Significance = 0.580 and the Payment factors with Asymptotic Significance = 0.580 show that there are significant relationship between the factors and selected payment system.

Also, ANOVA analysis demonstrates that there is no relationship between payment system and company size ($F=0.615$, $p>0.05$) and that there is no relationship between payment system and company’s sector ($F=4.821$, $p>0.05$).

The result of the research may be very useful for eCommerce companies which are on the stage of selecting their online payment system. It demonstrates that such factors as Security Factors, Payment Factors, Cost Factors, Support Factors, Reporting Factors, Social Factors are positively effect selecting of an online payment system by eCommerce companies in Turkey.

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APPENDICES

Appendix A. Pie Charts for the Sample Data in Percentages

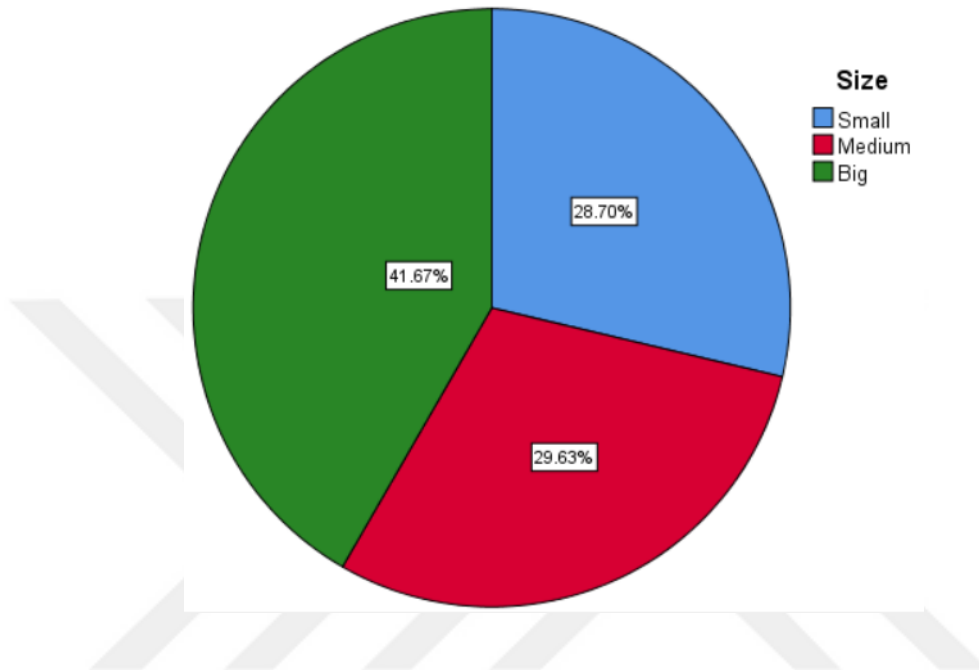


Figure A.1. Company Size

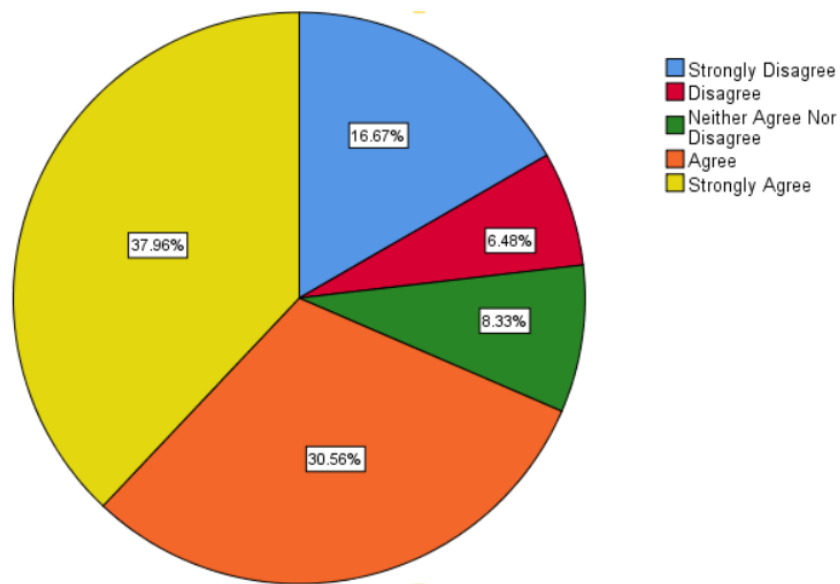


Figure A.2. Monthly Fee

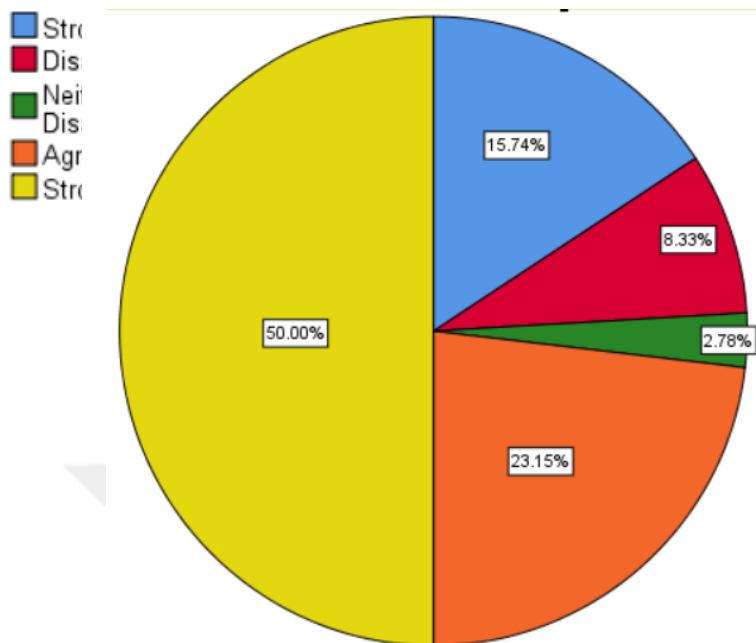


Figure A.3. Each Transfer Fee

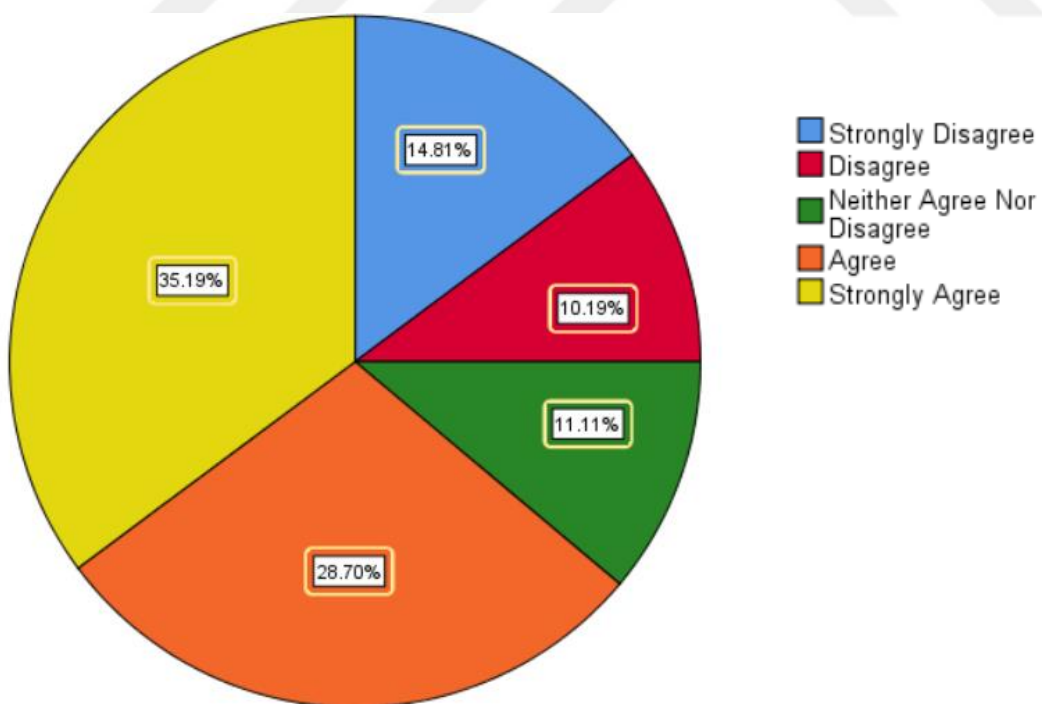


Figure A.4. Integration Fee

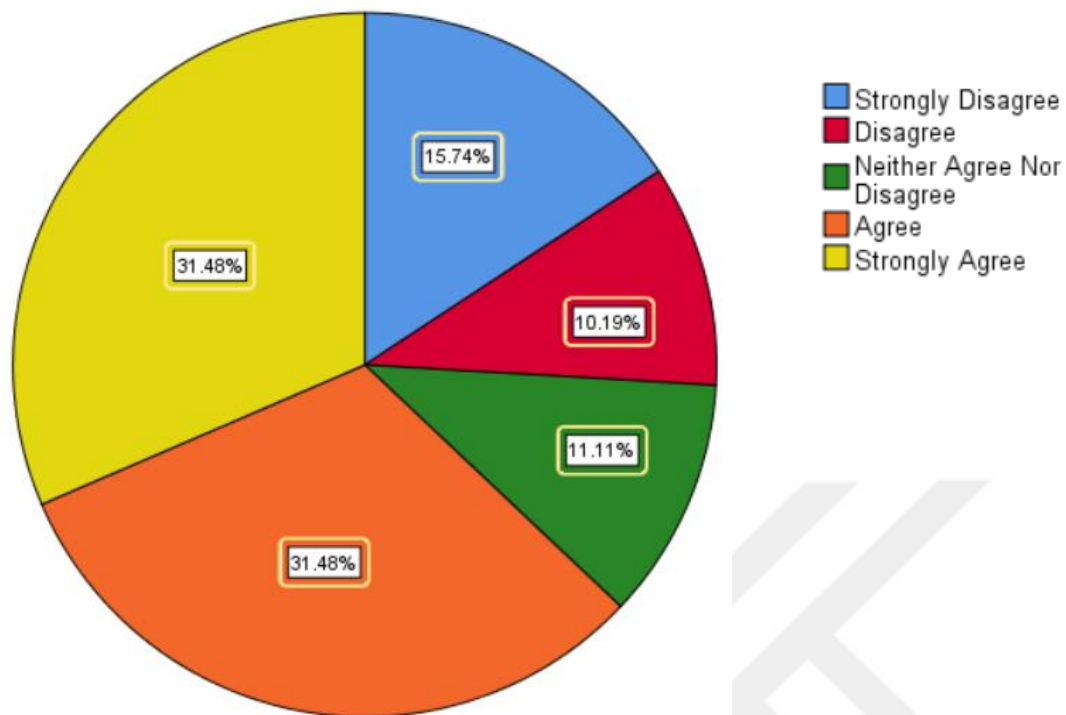


Figure A.5. Reputation of Online Payment System

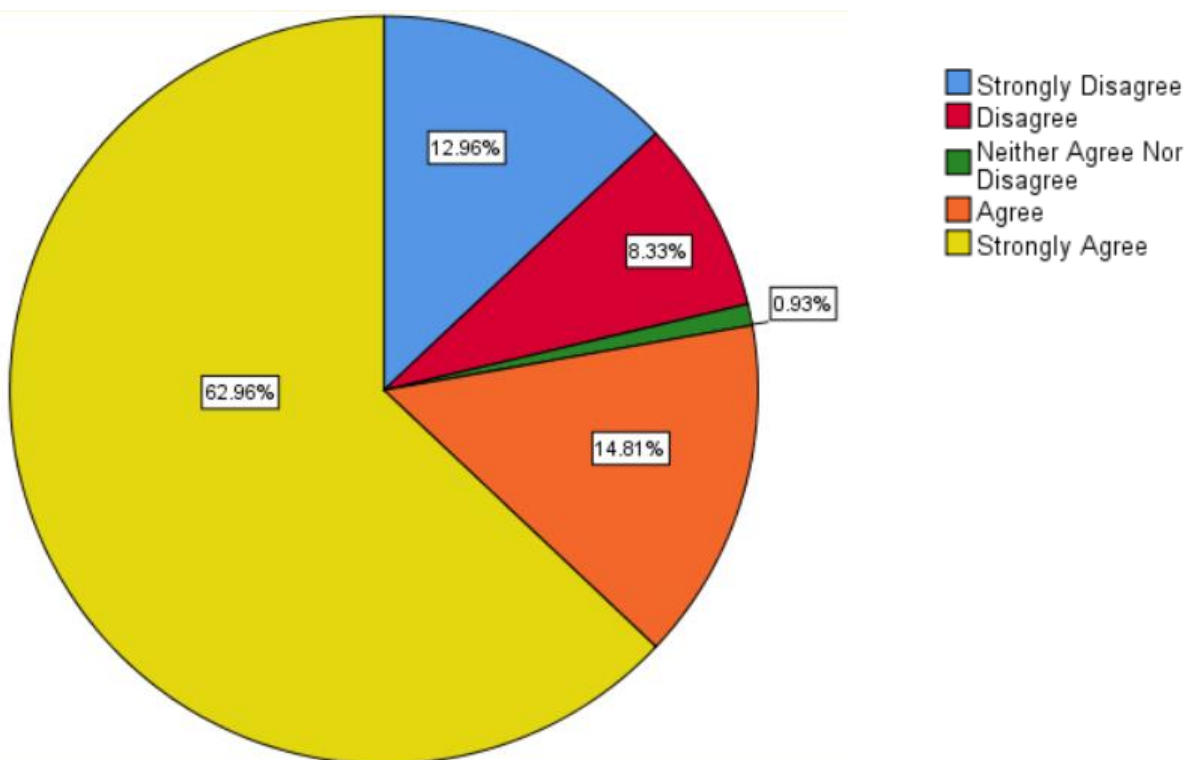


Figure A.6. Security of Payments and Personal Data

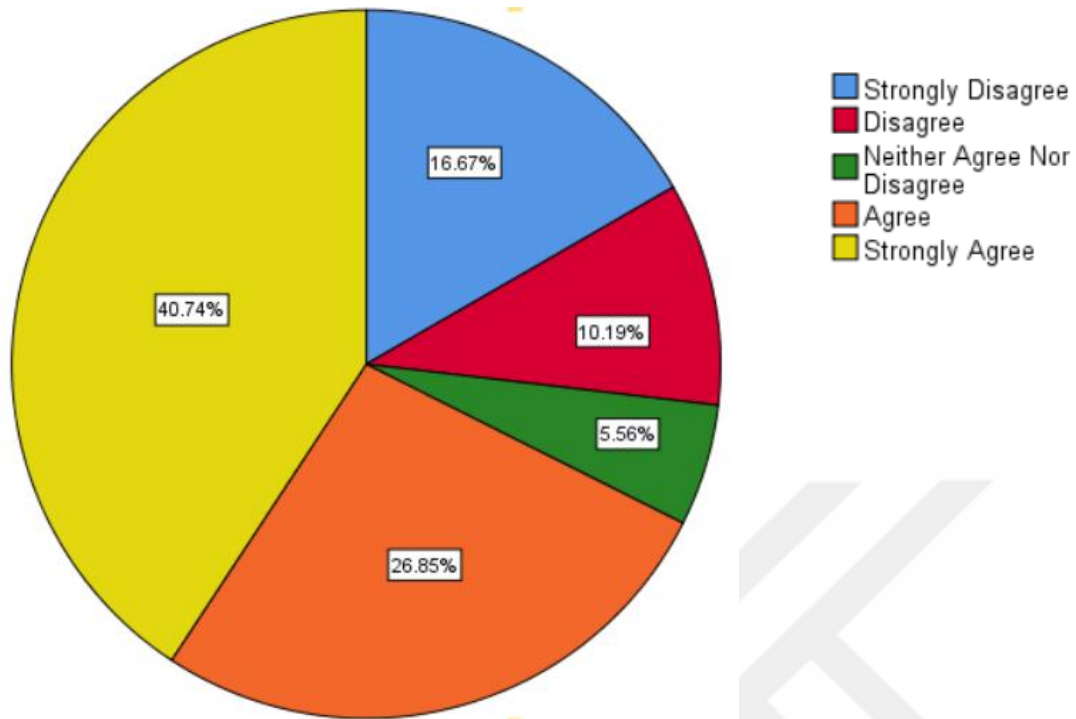


Figure A.7. Integration Possibility with Your ERP/CRM System

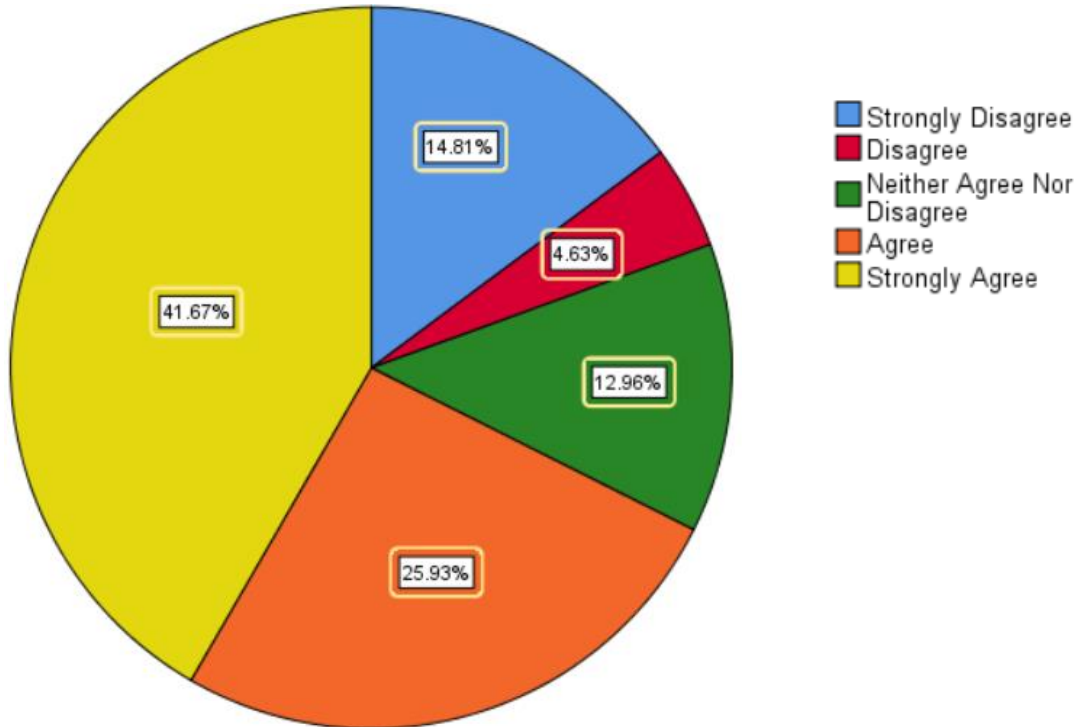


Figure A.8. Easy User Interface

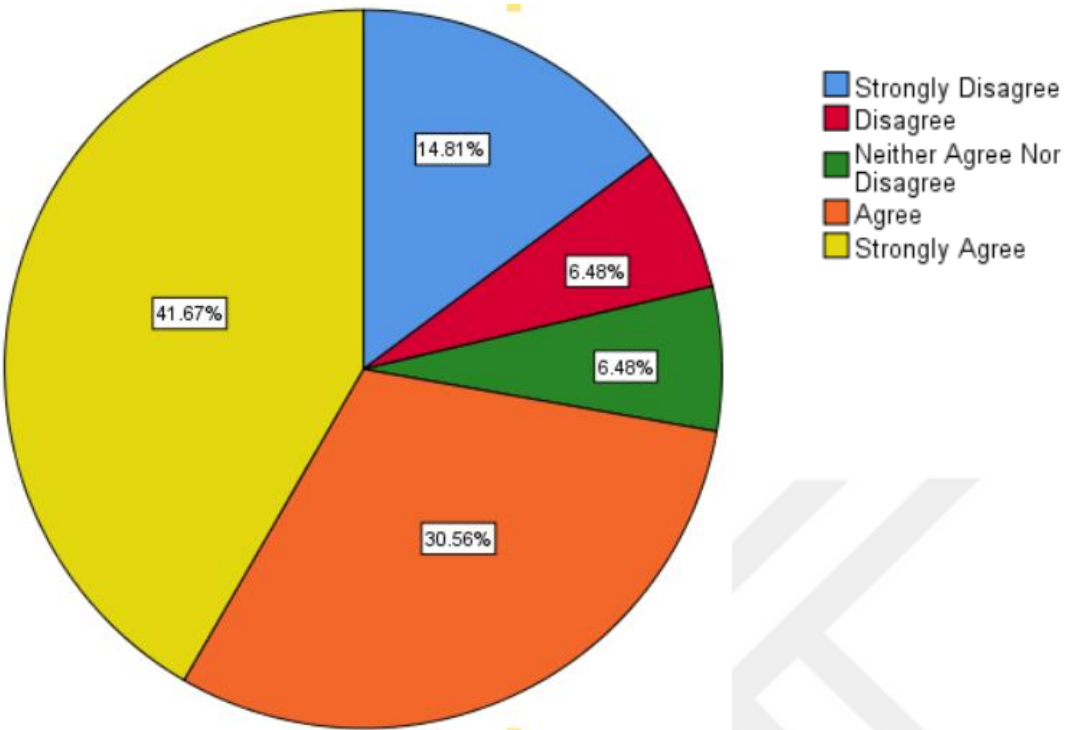


Figure A.9. Easy Integration

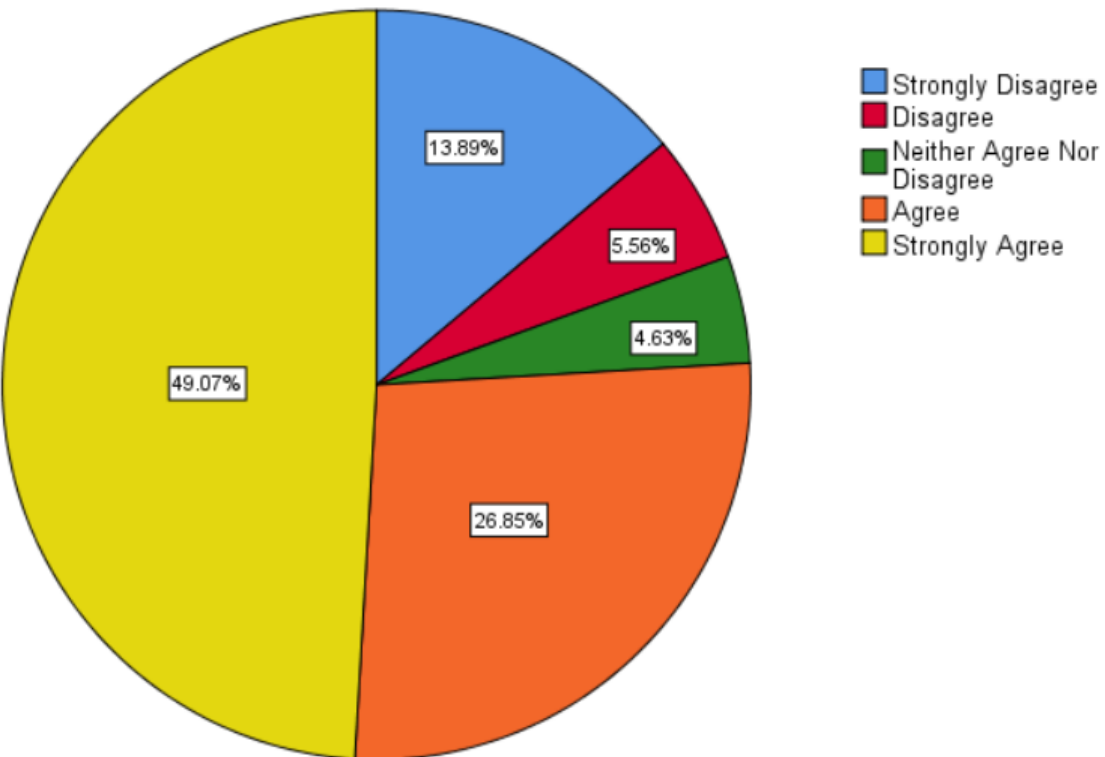


Figure A.10. Customer Support 24/7

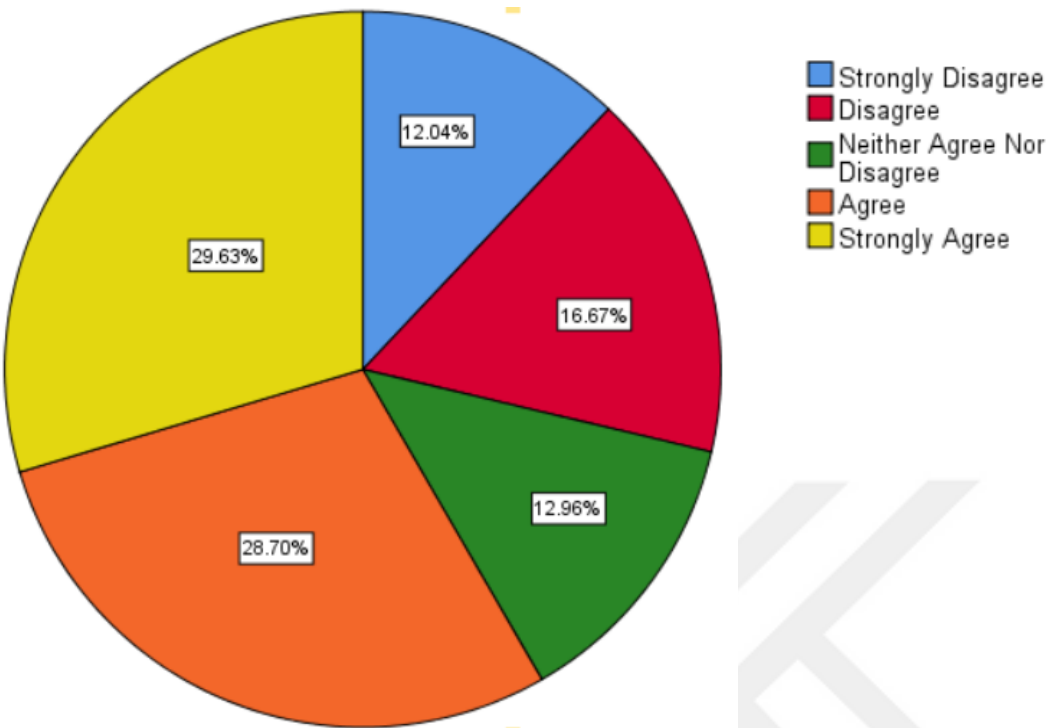


Figure A.11. Sales Using Currencies and Their Number in Payment System

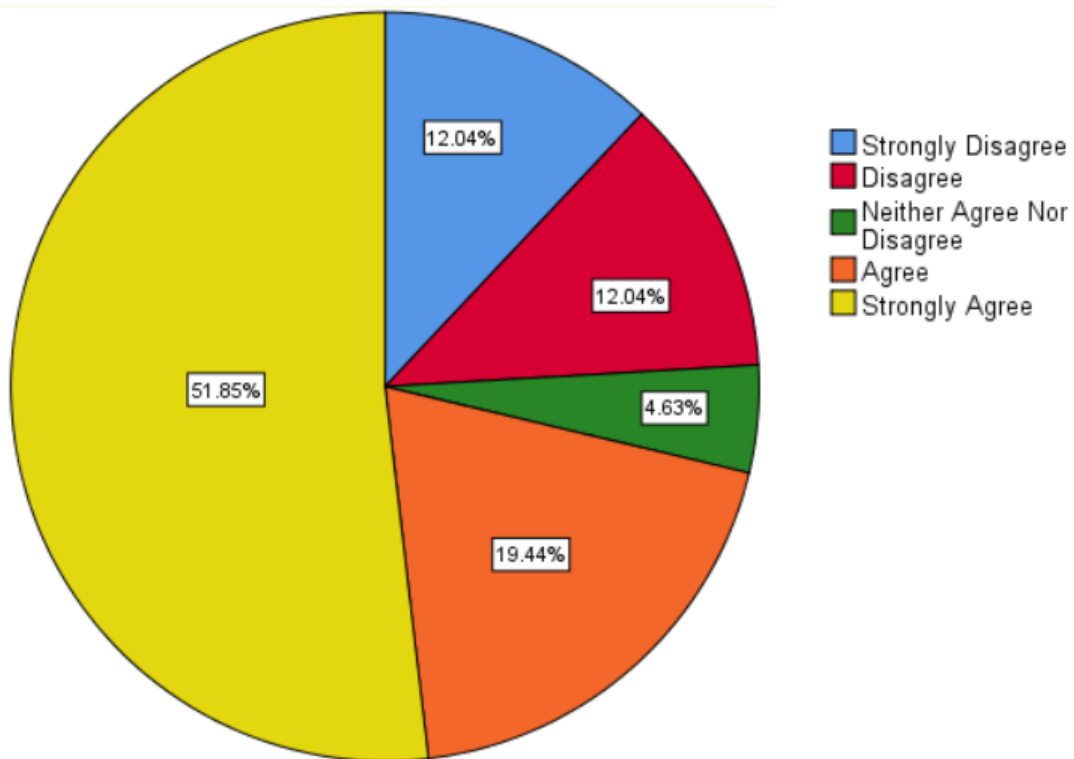


Figure A.12. Number of Days Money Come to Bank Account

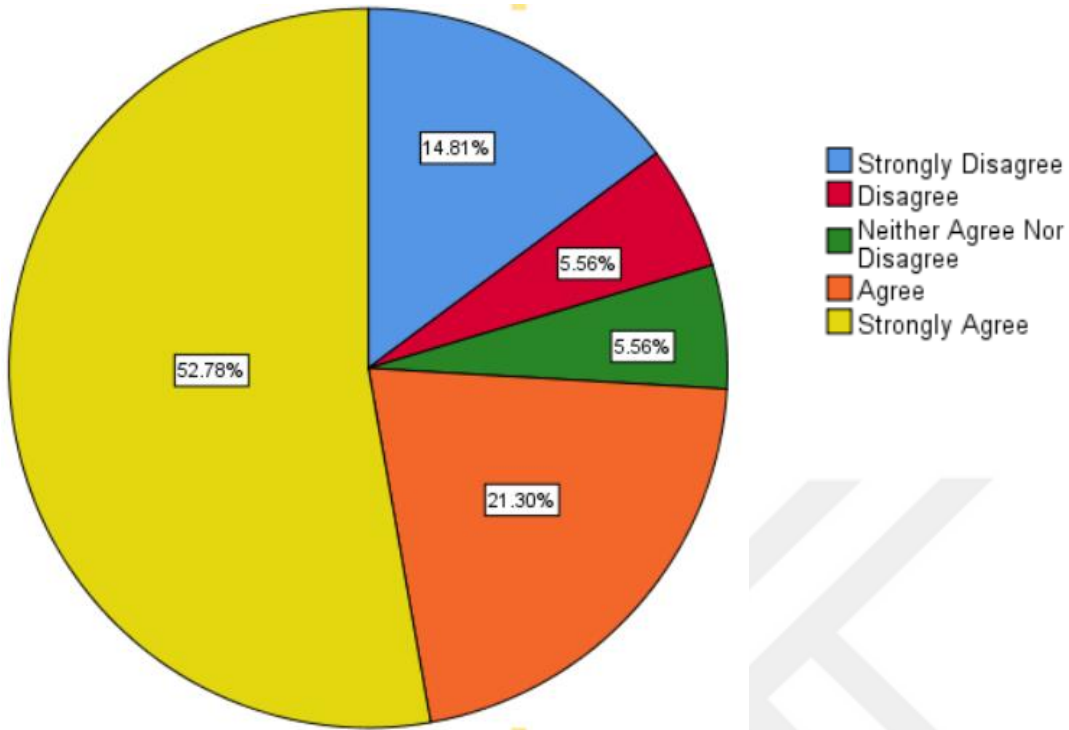


Figure A.13. Tech Support Response Speed

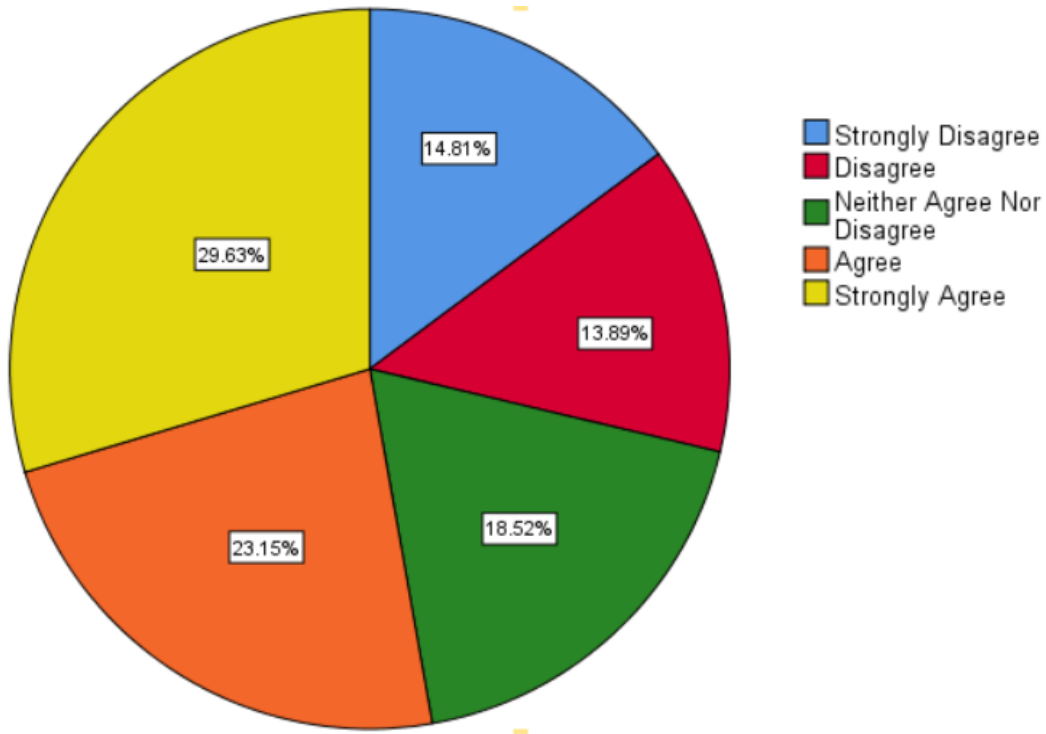


Figure A.14. Financial Reports Availability

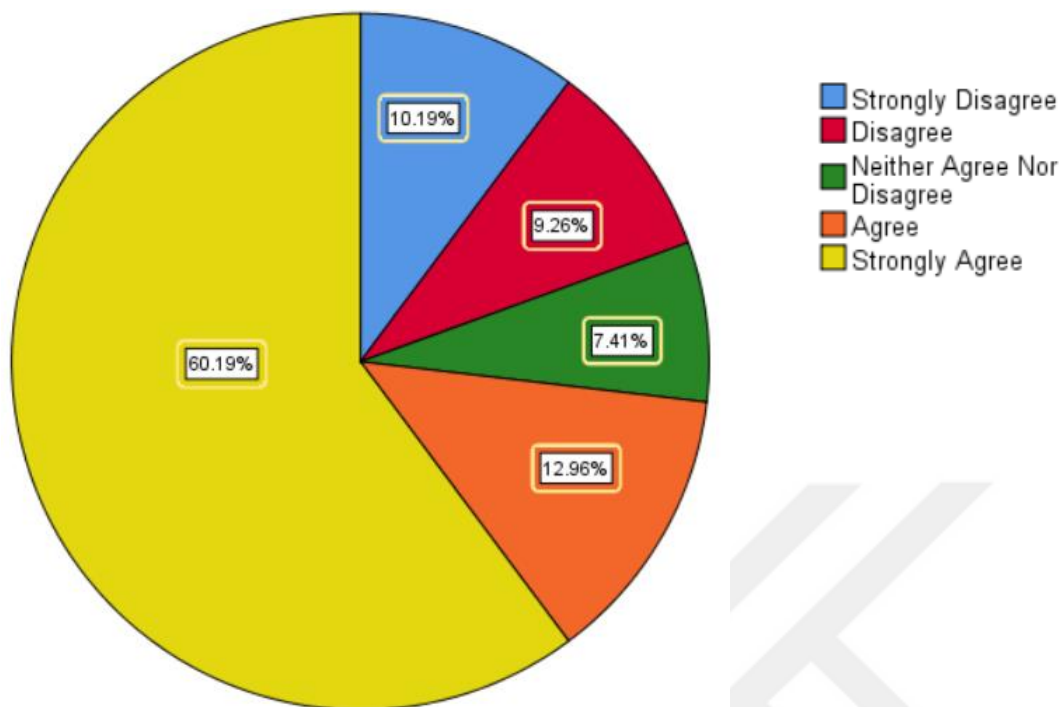


Figure A.15. 3D Security

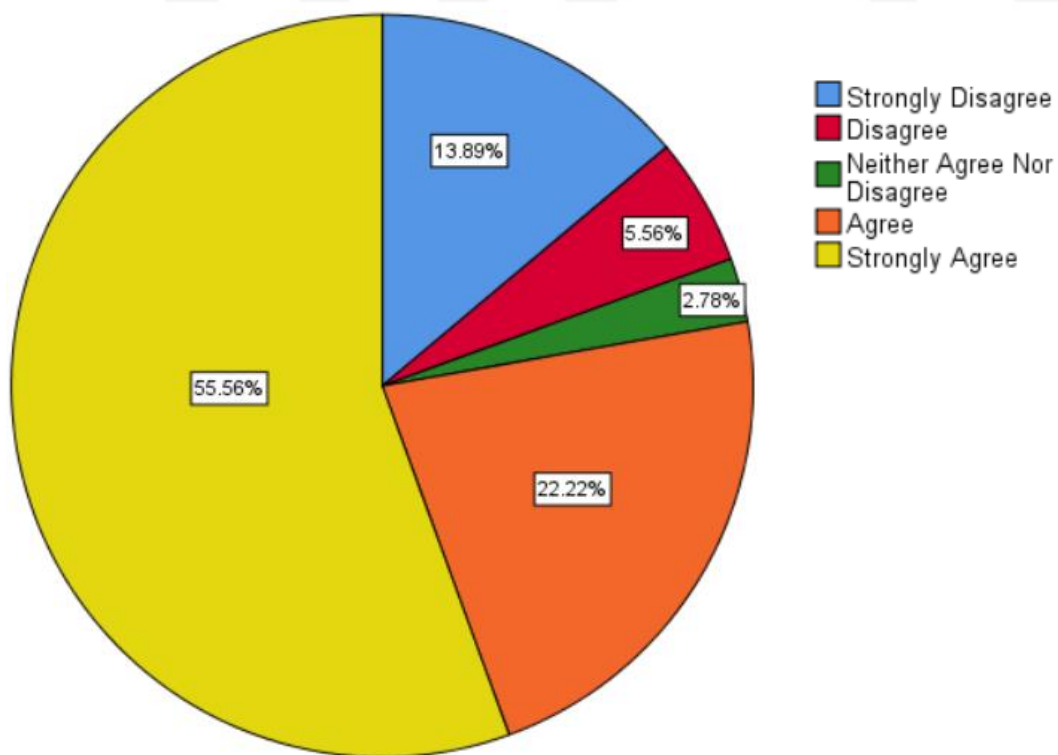


Figure A.16. Offered Several Payment Methods

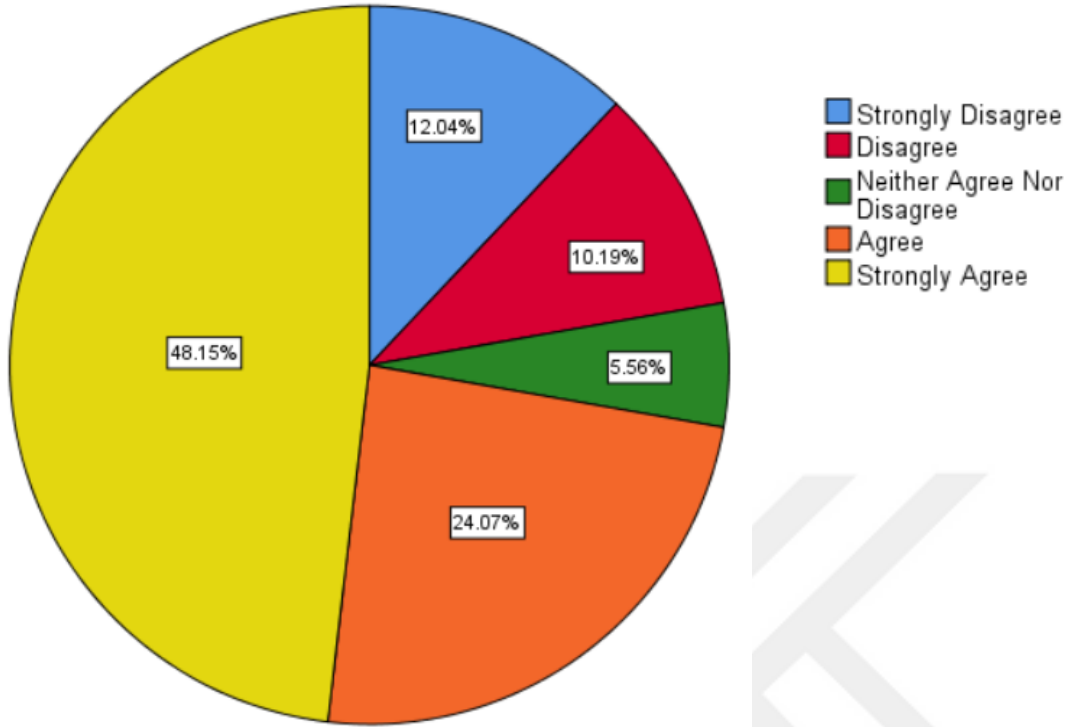


Figure A.17. Connection to Several Banks

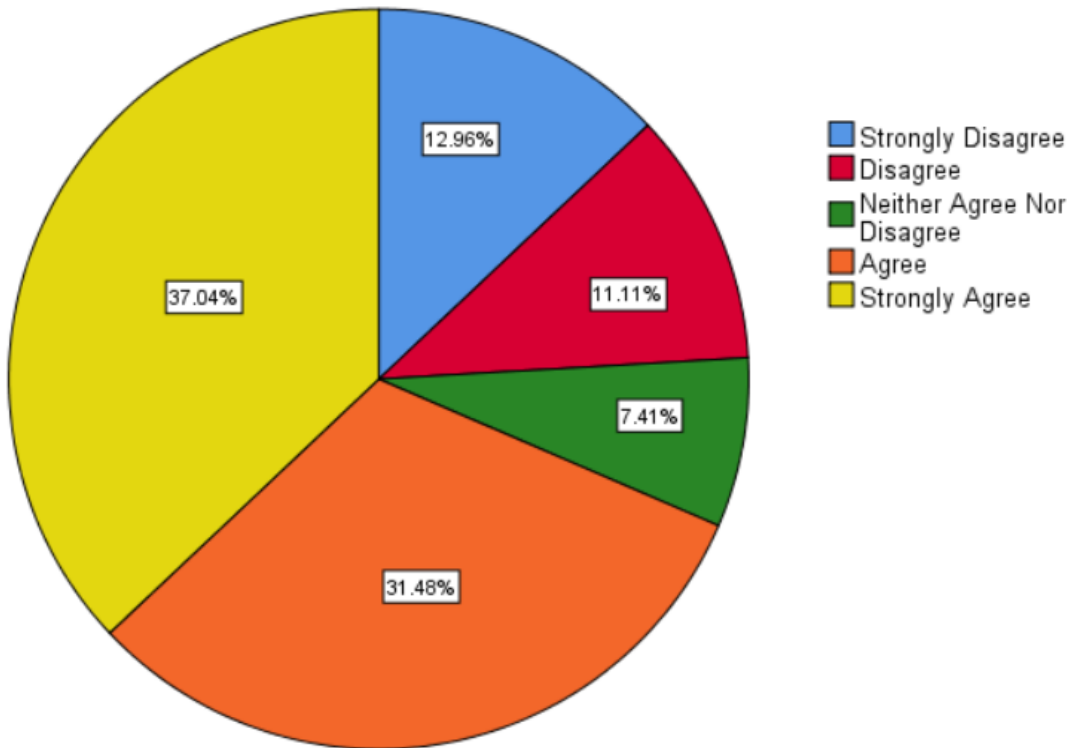


Figure A.18. Installment Availability

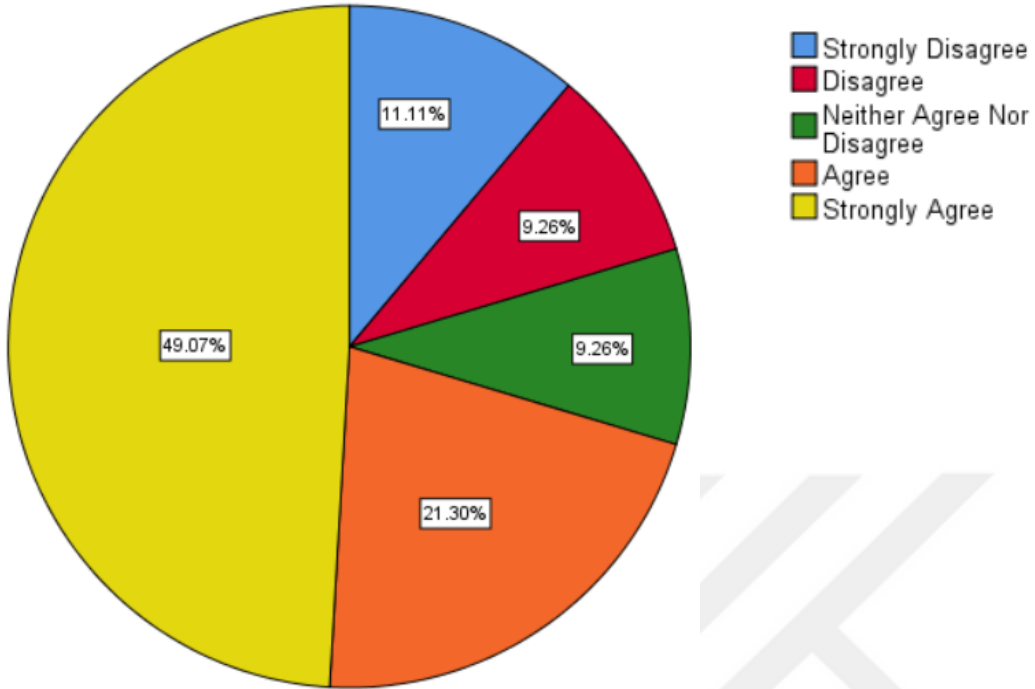


Figure A.19. Cancel/Return Payments Availability

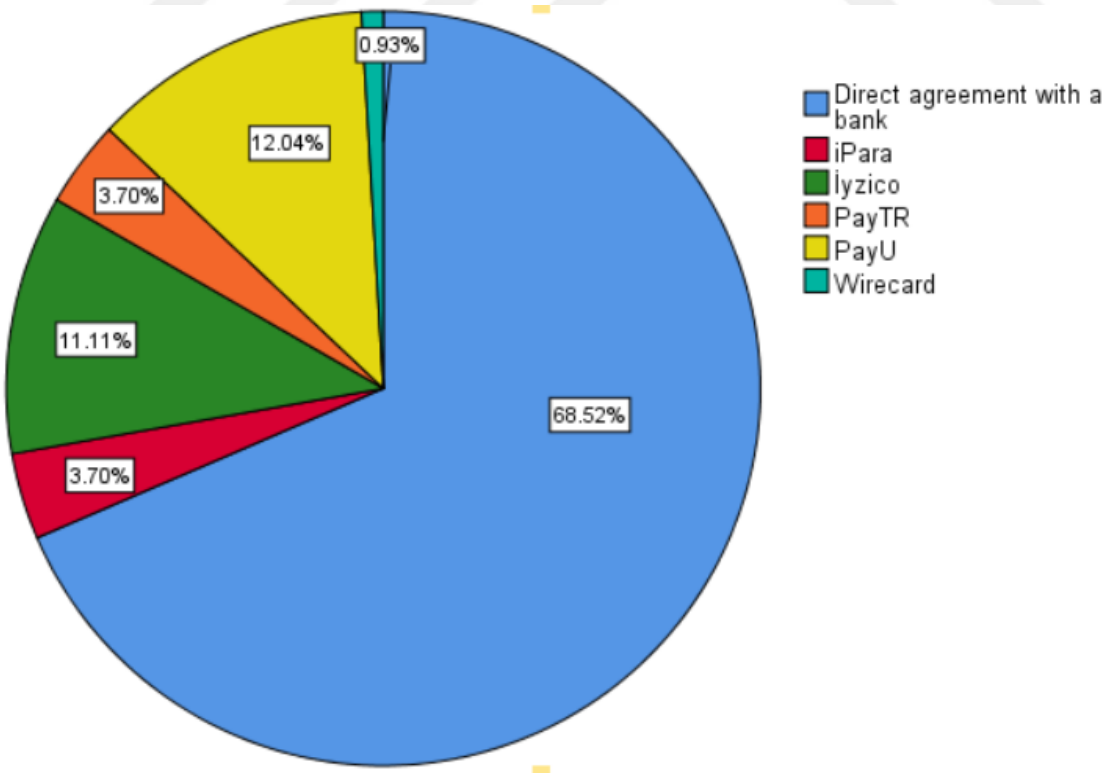


Figure A.20. Used Payment Systems

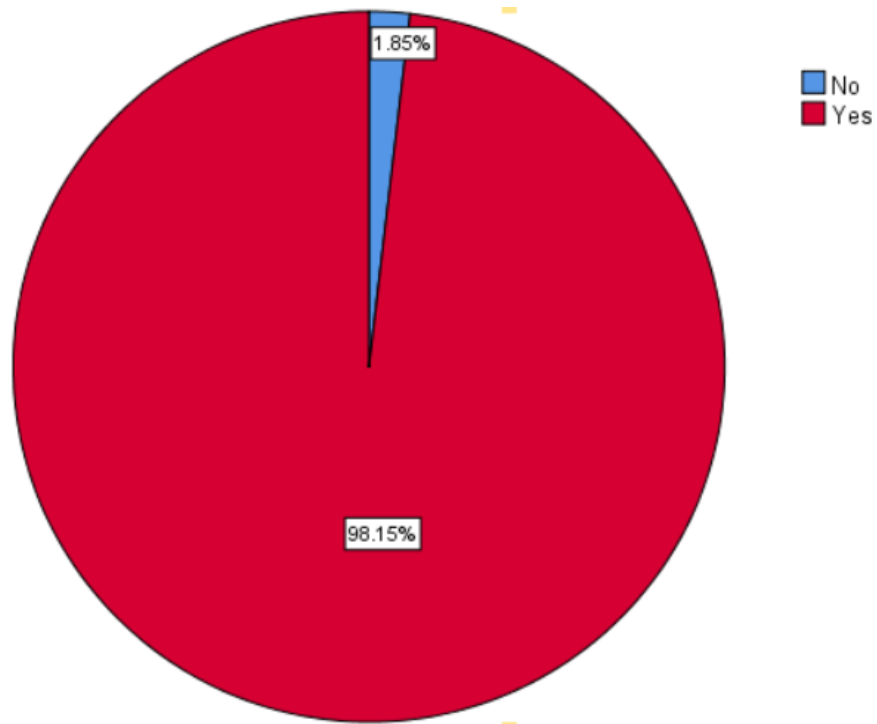


Figure A.21. Satisfaction with Payment Systems

Appendix B. Survey's Questions

The sector your company operates in:
Your Company Size:
Does your company sell abroad?
What types of payment do you accept in your company?
Which online payment system is used in your company:
If you have directly agreed with a bank's online payment system, would you write the name of the bank?
When choosing the payment system you use, evaluate the effect of the following factors on your decision (measured on a five point scale from “Strongly Disagree” to “Strongly Agree” for each factor):
<i>Presence or absence of monthly subscription fee</i>
<i>Commission amount for each transaction</i>
<i>Integration or application fee</i>
<i>Reputation about the payment system</i>
<i>Security of money transfer and personal data</i>
<i>Ability to integrate with your current CRM, ERP and / or accounting system</i>
<i>Simplicity of the user interface</i>
<i>Easy to connect and integrate</i>
<i>Customer and technical support 24/7</i>
<i>Ability to sell with foreign currency and number of foreign currencies offered by the system</i>
<i>Numbers of days money come to your bank account</i>
<i>Technical support and problem-solving speed</i>
<i>Presence of various financial reports</i>
<i>Having 3D security</i>
<i>Presence of various payment methods (bank card, EFT, mobile etc.)</i>
<i>Ability to work with different banks at the same time</i>
<i>Payment opportunity in installments</i>
<i>Ability to cancel and refund the payment</i>
Are you satisfied with the payment system you use?
If you are not satisfied with the payment system, please write why?
Your company's name (optional):