

Mersin University

Journal of Maritime Faculty

Mersin University Journal of Maritime Faculty (MEUJMAF)
Vol. 2, Issue 1, pp. 7-13, June 2020
ISSN 2687-6612, Turkey
Research Article

PROBLEMS IN URBAN E-COMMERCE DELIVERIES: A SURVEY STUDY

Mehmet Karaoğlu *¹

¹Mersin University, Vocational School of Maritime, Department of Transportation Services, Mersin, Turkey
ORCID ID 0000 – 0003 – 0433 – 6006
mehmetkaraoglu@mersin.edu.tr

* Corresponding Author

Received: 15/11/2019

Accepted: 10/01/2020

ABSTRACT

Many businesses in the e-commerce sector have different logistic processes, delivery quantity, densities and speeds. Nevertheless, the most important goal is to ensure that the products and services reach their customers quickly and smoothly. However, online businesses and logistics companies have not been able to adapt to e-commerce and digital processes as fast as customers. For this reason, both businesses and customers experience major problems in the delivery of online products. Therefore, the aim of this study is to investigate the physical distribution problems in e-commerce logistics. In the first three sections, e-commerce, logistics and e-commerce logistics are mentioned and in the last part, a survey is conducted for online retail businesses in Mersin province and the data obtained are evaluated.

Keywords: *E-Commerce, Logistics, E-Commerce Logistics, Urban Delivery Problems*

1. INTRODUCTION

In the last quarter of century, with the development of information and communication technologies and the widespread use of the internet, a great technological revolution and change has taken place. This technological revolution directly affects and changes not only our daily lives but also economic life. With the new structure brought by technology, the traditional forms of trade and shopping have changed, and many concepts like e-commerce, e-business, e-government, e-logistics, which can be defined as making goods and services exchanges in electronic environment, have begun to take their place in economic literature (Çevik, 2013).

The increase in e-commerce has influenced the classical trade structure and understanding. In the digital economy, consumers prefer to shop on the internet in order to save time and make shopping easier and more rationally. Advantages such as the opportunity to trade and shop 365 days and 24 hours without a time limit, to be able to sell without having a physical store, product options, increased competition among enterprises and to make shopping from anywhere force companies to change.

E-commerce provides various advantages to businesses and consumers as well as challenges for businesses. With the elimination of distances in online shopping, businesses who want to supply the needs of customers in time, are faced with various logistical difficulties in the distribution of products and services to customers. Whether online orders are from out of town or from a local business; In both cases, the urban distribution of the products must be carried out. Today, most of the problems in e-commerce shoppings are experienced at this point.

In this study, the problems experienced by e-commerce enterprises in urban delivery operations were investigated. In the first part of the study, the concept of e-commerce is emphasized. In the second part, information about logistics and e-commerce logistics is given. In the third part, the problems experienced by the enterprises in the last step of deliveries in the city are discussed. In addition, a comprehensive survey was conducted in May 2019 for online retail businesses in Mersin. The data obtained from the questionnaires were analyzed and conclusion and recommendations were presented at the end of the study.

2. E-COMMERCE

New business models and business areas have emerged with the widespread use of the Internet, rapid and easy access to information and use in many business processes. The use of this information by enterprises has enabled them to perform marketing more effectively by measuring their marketing activities and results, and it has been possible to reach many segments of the society at lower cost with new business models (Özçelik, 2017). In addition, the Internet has started to be used as a new communication and distribution channel in commercial life. It has become easier to enter difficult markets, communication between businesses has accelerated and cheaper (Terzi, 2016). While traditional trade refers to the process involving the change of ownership of the goods or services or the use rights (Akar and Kayahan, 2007), the concept of e-commerce

has emerged through the electronic environment and took its place in the economic literature.

Many countries, international organizations and organizations have made different definitions of e-commerce. According to the World Trade Organization, e-commerce is the production, advertising, sales and distribution of goods and services between enterprises, individuals, governments, public and private organizations through the internet or electronic data exchange (<https://www.wto.org>). The Organization for Economic Cooperation and Development (OECD) defines e-commerce as all commercial transactions concerning individuals and institutions based on the processing and transmission of digitized written text, sound and image (<http://www.oecd.org>).

Some scholars have defined e-commerce as follows;

•“The transfer of commercial transactions to internet or web-based systems.” (Bozkurt, 2013).

•”E-commerce is the production, promotion, sales, insurance, distribution and payment transactions through electronic tools.” (Turban and Others, 2002: 4).

When the above definitions are evaluated, it can be said that e-commerce is much more than buying and selling processes.

3. E-COMMERCE BUSINESS MODELS

E-commerce business models vary according to the type of shopper. The most common used e-commerce business models can be shown in Table 1.

Table 1: E-Commerce Business Models

	Government	Companies	Consumers
Government / Public Institutions	G2G	G2B	G2C
Companies	B2G	B2B	B2C
Consumers	C2G	C2B	C2C

Source: <http://www.igeme.org.tr>

3.1. Business to Business E-commerce (B2B)

Within the scope of supply chain activities of enterprises, all products, services and information exchange between each other is to be done over the internet. From sales contracts to production contracts, distribution, marketing and transfers of products and many other inter-business activities (Deniz, 2011). The B2B business model is used to reduce the costs of communication between businesses and increase the efficiency of business processes (Trepper, 2000).

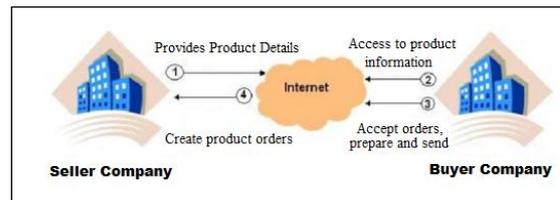


Figure 1: Business to Business E-Commerce - B2B

3.2. E-Commerce Between Business and Consumer (B2C)

It is a type of e-commerce that enables businesses to offer their goods and services directly to customers through internet applications. Thanks to the convenience of the internet, consumers mostly prefer to shop on the internet and B2C e-commerce is increasing rapidly. In addition, because of the low costs of the internet, businesses use B2C e-commerce to reach new markets (Trepper, 2000).

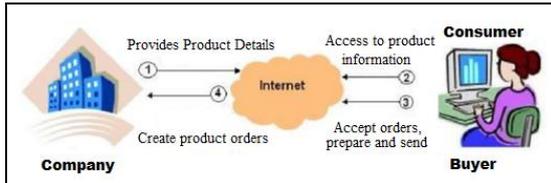


Figure 2: E-commerce between Business and Consumer (B2C)

3.3. Customer to Business E-Commerce (C2B)

This E-commerce model; electronic data exchange between a customer and a business organization. The model is similar to B2C. However, this model is different; consumer is the party that performs the sales transaction and the entity is the party that performs the purchase transaction. This business model usually includes individual users who sell products or services to businesses. People publish their resumes through these websites and describe the services they will offer. If businesses like people and their services; they buy or rent it. For example, freelancer.com, armut.com and so on (Altun, 2004).

3.4. Consumer to Consumer E-commerce (C2C)

The basis of the e-commerce process between consumer and consumer, which is a business model created by the Internet, is based on the exchange of second-hand products between consumers. It can be explained that traditional second-hand markets are easier and less costly among consumers without intermediaries. Another contribution of the Internet to this process is the expansion and registration of traditional second-hand markets to a wider audience. In this way, the websites that provide C2C trade operate as intermediaries.

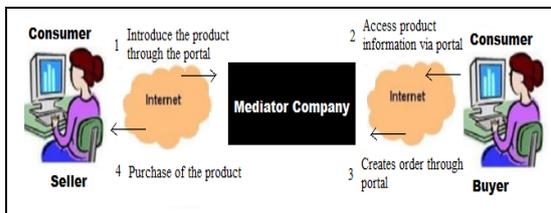


Figure 3: Consumer to Consumer E-commerce (C2C)

Apart from those described above, there are also models of business processes with the state. These are G2G; between two public bodies, G2C; between public and individual customers, C2G; between individual client and public (tax payments, etc.), G2B; B2G refers to the exchange of electronic data between public and

business organizations, and finally B2G.

4. THE CONCEPT OF E-COMMERCE LOGISTICS

The concept of logistics has become a process that needs to be meticulously managed for the competition and success of enterprises in today's world where new economic rules apply. Beginning in the 80s, enterprises started to see logistics activities as the key to creating a more efficient and comprehensive supply chain rather than cost reduction (Öz, 2011). The most general definition of logistics; It can be described as all the activities necessary to deliver the product to its final consumer (customers) quickly and with minimum cost.

The greatest aim in logistics management is to organize and increase the efficiency of logistics activities in a way that minimizes the cost of the customer throughout the supply chain (Bramel and Levi, 1997). Logistics activities have become more important in the eyes of enterprises that see the service provided to customers more important in increasing the number of loyal customers. Businesses are now making plans by focusing on the customer, not production. Therefore, customer satisfaction is the basis of logistics today and the success of logistics activities is measured by customer satisfaction. Delivering the products purchased in developed societies at the promised time, on the ground, at the desired quality and price, constitutes the greatest expectations of the customers and in this direction, the concept of logistics competence becomes important (Bowersox et al., 2002).

Due to the widespread use of e-commerce and the many conveniences it provides in every field, the need to make logistics activities suitable for the e-commerce sector has emerged. For example, the fact that high volume orders are replaced with small volume and frequent orders and the transportation movements become continuous are among the changes that can be given as examples (Durusu, 2011).

With the rapid increase off e-commerce volume and these changes, it is inevitable that the logistics sector will respond to the following demands (Reynolds, 2001):

- Supply of required products at desired time,
- Positioning of products in desired places at any time,
- Decreasing the prices of products to competitive levels,
- Products are available at the time of demand,
- Delivering products to consumers at the right time.

It is inevitable that logistics activities should be supported with information and information technologies in order to integrate into e-commerce sector and produce solutions to problems. The logistics sector, which is known as the classic transportation service in Turkey in the recent past, is adding new ones to its innovative and technological activities with the increasing consumer awareness and needs and new service concepts are emerging. With these developments, more information and services were started to be provided with different software and applications developed with information technologies in logistics activities and e-logistics concept, which is the advanced

form of logistics, emerged. There is no generally accepted definition of e-logistics concept since e-logistics is a new field and its effects on logistics and supply chain management cannot be explained clearly (Groznić & Kovacic, 2004). In addition to this, e-logistics is an activity where online information and communication technologies are taken as a basis in the realization of logistics processes and used intensively. In this way, speed efficiency and more customer satisfaction are provided in the processes (Türkmen and Sarıcan, 2017). According to Bayles (2001), e-logistics is the advanced form of traditional logistics where more information and services are provided, and internet technologies are based on traditional logistics processes (procurement, storage, customer service, etc.). The importance of e-logistics services is very important for e-commerce enterprises and customers of this sector.

5. PROBLEMS IN E-COMMERCE LOGISTICS PHYSICAL DISTRIBUTION PROCESS

In the face of the need for fast and high quality transportation of the new economy, the interest of producers and consumers in physical distribution has increased considerably. Especially perishable products, pharmaceuticals and so on. Delivery rate criteria for many products such as has become extraordinarily important (Grau et al., 2001: 33-43). Nobody shopping online expects a product he ordered to his home or office to be delivered to him/her days later. Therefore, delivery speed is very important in e-commerce. Therefore, for e-commerce companies, the time of delivery of the product to the customer after the purchase action has become one of the biggest indicators of success. When we evaluate the logistics problems experienced by e-commerce companies and customers in Turkey in general, it is seen that these problems are experienced especially in the urban distribution part of the physical distribution stage. The problems experienced in urban delivery operations are among the most important problems of consumers in online shopping.

These problems have made physical distribution a very popular topic in e-commerce logistics. Although there are many positive developments in physical distribution in e-logistics around the world, a permanent innovative solution to these problems has not been found yet. Therefore, companies providing logistics services to online businesses now face many new challenges (Terry et al., 2000). Many experts are working on this topic and are trying to make new contributions to the e-commerce logistics literature.

In today's e-commerce, the physical distribution of products is mostly undertaken by cargo companies. Producers and consumers are mostly trying to meet the needs of fast and high quality delivery through cargo companies. For this reason, the demand for cargo sector has intensified in recent years in Turkey and in the world. The changes in economic and social life and the needs that emerged have stimulated the cargo transportation sector (Simona and Maggi, 2003: 492). Cargo companies, the leading players of physical distribution in the city, have reached the capacity to serve all corners of our country in line with the growth and need in e-commerce. These developments in cargo companies and

delivery processes significantly increase consumers' desire and motivation to shop online (Özçelik, 2017). Cargo services emerge as an important factor in reaching consumers' desired products and brands and ensuring customer satisfaction (Duran, 2017). The success of physical distribution and customer satisfaction depends on the competence and success of cargo companies (Özçelik, 2017).

Most of the e-commerce companies all over the world have to work with the cargo companies that offer the most technological and appropriate solution in the physical distribution stage which constitutes the most important step of e-commerce logistics. However, cargo companies are not able to meet the needs of consumers and businesses sufficiently during the urban physical distribution stage and problems are experienced.

There are very few empirical studies that address problems related to urban deliveries and the cargo sector and examine the impact on consumer satisfaction. In the research on-time delivery is of great importance for 89% of online shoppers (Yankelovich, 2000). In addition, 85% of those who receive their orders on time are shopping again from these companies, while only 33% of those who do not receive their orders on time have made purchases from these companies again (ComputerWorld, 1999). Therefore, online businesses and logistics service providers have to focus more on delivery issues as the key components of online consumer satisfaction (Bromage, 2001).

In the research, it is seen that the problems experienced in e-commerce logistics mostly arise in the last step deliveries carried out by the cargo companies. The main reasons why cargo companies have problems in logistics operations can be listed as follows (Deniz & Gödekmerdan, 2011);

- Difficulty in finding qualified personnel and inability to employ personnel for a long time,
- Disruptions experienced in dealer, agency structures and management,
- Products cannot be delivered to customers at one time and delivery times are extended,
- Failure of customers to reach branches and agencies, communication problems,
- Difficulties and problems of integration in new technologies
- Insufficient access to villages and provinces and distribution network problems
- Inadequate technological applications and product options for the e-commerce sector.

In the study conducted by Deniz and Gödekmerdan, it was determined that the biggest problem of the customers receiving service from the cargo companies was delays in deliveries. However, it is stated by the customers that cargo personnel try to find solutions to the problems in good faith and try to improve the process (Deniz & Gödekmerdan, 2011).

In his study, Duran conducted a survey on 450 people with high educational level. Consumers' opinions about cargo services were evaluated within the framework of 5 factors: "logistic value", "reliability", "time", "economic expense", "personnel service". As a result of the research, it is seen that consumers are dissatisfied with time factor, especially e-commerce sites have to use contracted cargo companies. With regard to shipping charges, consumers were found to have higher pricing on a unit basis (Duran, 2017).

In a study based on cargo complaints to consumer associations, it was found that the cost of carrying cargo is higher than the cost of carrying airline passengers and cargo companies do not fulfil most of their transportation responsibilities. Although the cargo companies state that the distribution networks are wide and the quality of their services, the complaints made by the customers show that the cargo companies do not fulfil their promises in advertisements most of the time. The most frequently complained issue was the lack of timely deliveries. According to the report compiled from the complaints, cargo companies attribute these problems to lack of qualified personnel, limited time and personnel errors (www.tuketiciiler.org).

6. THE LAST STEP IN E-COMMERCE FINDINGS OF THE SURVEY ON DELIVERY PROBLEMS

Within the scope of the study, a survey was applied to retail businesses that sell products such as flowers, cake, souvenirs and food online in Yenişehir and Mezitli districts of Mersin. The delivery problems of these enterprises were investigated.

In the collection of the data suitable for the purpose of the research, a questionnaire method consisting of forty questions, most of which were open ended, consisted of three parts. In the first part, information about the business was taken, in the second part, questions were asked about online orders, in the third part, questions were asked about the problems in delivery operations. Since the small number of enterprises surveyed eliminates the possibility of statistical analysis, the data obtained are classified and evaluated.

As it can be seen in the table below, the biggest problems that enterprises face in their final step delivery operations are; It was determined that the customer address could not be found at 40%, the lack of personnel at 31% and the arrival of orders at different densities at different times, the failure to find experienced delivery personnel at 17% and frequent personnel change at 12%.



Figure 2: The Experienced Problems in The Last Step Delivery Problems

In this respect, the following results were obtained;

- About 80% of the purchases made by companies in the sectors such as Flowers, Pizza, Gifts, Pastry and Dessert are realized online. On special occasions such as Valentine's Day and Mother's Day, it was determined that the enterprises took hundreds of orders and could not keep up with deliveries and hired special vehicles and extra personnel. It has been determined that product delivery process and speed are very important for such enterprises.

- In other types of businesses, which have both physical stores and online shopping, online shopping accounts for approximately 35% of total shopping.

- Most online businesses are unable to perform delivery operations efficiently. Many enterprises cannot allocate resources to the logistics distribution infrastructure and cannot provide delivery services to consumers because they do not reach a certain order volume. Delivery companies face many problems. Some of these problems are;

- Inadequate delivery personnel in consecutive orders,

- Lack of sufficient logistics technology or lack of resources in order processing and delivery of orders,

- Depending on the type of business, some businesses receive less orders at certain times of the day and more orders at certain times. In this case, the enterprise cannot use the delivery personnel efficiently at all hours of the day, while the delivery personnel remain idle in idle hours and the delivery personnel remain inadequate during peak hours.

- Many businesses cannot find qualified delivery personnel with driver's license (a2 or b). In addition, frequent delivery personnel change, traffic fines of delivery personnel and accidents are among the problems that enterprises experience.

- Companies that receive a small amount of online orders do not suffer or provide delivery services because the revenue from online orders does not cover the amount invested in delivery personnel, intermediary and infrastructure.

- Since online initiatives that deliver products from their own warehouse or supplier work with traditional cargo companies for online orders, deliveries are delivered to the customer in 2-3 days due to the logistical and technological deficiencies of these cargo companies, customers cannot receive fast and high-quality delivery service.

- Companies that work with order-forwarding websites have problems due to both system and delivery operations. Flower basket, food basket and so on. such as order-forwarding businesses, customers only take orders from the local businesses, the preparation and delivery of the product to the local business responsibility. The order-forwarding website is often unaware of the logistical problems experienced by the local business, the shortage of delivery personnel or the removal of the delivery service, and therefore online customers become victims of delivery problems. The biggest problem of this kind of internet initiatives is the last step delivery problem. For example, 90-95% of the problems with Yemeksepeti.com's orders were due to the restaurant and therefore 880 of the 2,500 restaurants worked in 2007 had to be removed from the list because they could not serve well. In order to overcome this problem, the food basket agreement with the courier

companies (Yemeksepeti valet service) has included the companies that do not provide delivery services for an additional fee and allowed the customers to order from these restaurants.

• Since online initiatives that deliver products from their own warehouse or supplier work with traditional cargo companies for online orders, deliveries are delivered to the customer in 2-3 days due to the logistical and technological deficiencies of these cargo companies, customers cannot receive fast and high-quality delivery service.

• At the end of the survey, close to 90% of the companies providing online sales and same day delivery service stated that they can use it if it is a less costly and quality delivery system.

5. CONCLUSION

When we evaluate the logistics problems experienced by e-commerce enterprises and customers in our country, it is seen that these problems are experienced especially during the physical distribution of products called last km delivery to customers. It is possible to say that the reason of these problems is the lack of logistics technology, the use of traditional methods and inefficiency.

The speed of delivery is very important for customers when shopping over the Internet. Therefore, delivery operations have become one of the biggest indicators of measurable performance for e-commerce companies. Problems in product deliveries and increasing complaints of customers led the online service providers to seek solutions and improve their logistics operations.

Today, many companies that offer online shopping have the same day delivery, fast delivery, appointment delivery, etc. that have a positive impact on customers' shopping decisions. as well as developing and providing logistics services to its customers. Many of the Istanbul-based internet companies have agreed with local courier companies to offer their customers the same day delivery option throughout Istanbul. After a while, internet companies established their infrastructures in all possible big cities instead of Istanbul and set up their delivery networks in the same day and in the surrounding regions at the latest the next day as more private and boutique than standard cargo companies. continuity, customer service and communication are expected to increase service standards.

REFERENCES

Akar, E. ve Kayahan, C. (2007). *Elektronik Ticaret ve Elektronik İş Uygulamalar, Modeller, Stratejiler*, Nobel Yayın Dağıtım, Ankara.

Altun, A., (2004). Elektronik Ticaretin Ekonomik Etkilerinin Gelişmiş Ülkeler ve Türkiye Açısından Değerlendirilmesi, Yüksek Lisans Tezi, Dumlupınar Üniversitesi Sosyal Bilimler Enstitüsü, Kütahya, s.25.

Bayles, D. L., (2001). *E-Commerce Logistics & Fulfillment Delivering the Goods*, London: Prentice Hall PTR, p.3.

Bozkurt, Veysel., (2002). *Elektronik Ticaret*, Alfa Yayınları, İstanbul.

Bowersox D. J., vd., (2002). *Supply Chain Logistics Management*, Boston: The McGraw Hill/Irwin.

Bramel, J., Simchi-Levi, D., (1996). "Probabilistic Analyses and Practical Algorithms for The Vehicle Routing Problem with Time Windows", *Operations Research*, May/June, Vol. 44, No. 3, pp. 501-10.

Bromage, N., (2001). "Keep the Customer Satisfied", *Supply Management*, Vol. 6, No. 10, pp. 34-36.

Çevik, K.K., Koçer, H.E., (2013). "Parçacık Sürü Optimizasyonu ile Yapay Sinir Ağları Eğitime Dayalı Bir Esnek Hesaplama Uygulaması", *Süleyman Demirel Üniversitesi Fen Bilimleri Enstitüsü Dergisi*, Vol. 17, No. 2, pp. 39-45.

Deniz, R.B., (2001). *İşletmeden Tüketicie İnternette Pazarlama ve Türkiye'deki Boyutlar*, Beta Yayım, s.14.

Deniz A., Gödekmerdan L., (2011). "Müşterilerin Kargo Firmalarının Sunduğu Hizmetlere Yönelik Tutum ve Düşünceleri Üzerine Bir Araştırma", *Atatürk Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, Vol. 15, No. 2, pp. 379-396.

Duran, G., (2017). "Kargo Hizmetlerinin Tüketici Davranışlarına Etkisi Üzerine Bir Uygulama", *Strategic Public Management Journal*, Vol. 3, No. 5, pp. 109-123.

Durusu, A., (2011). Türkiye'de Lojistik Sektörünün Gelişimi ve Örnek Uygulamaların İncelenmesi, Yüksel Lisans Tezi, İstanbul Arel Üniversitesi, İstanbul, s.69.

Groznik A. ve Kovacic A., (2004). "E-Logistics Informatization of Slovenian Transpory Logistics Cluster", Working Papers/Research Center of The Faculty of Economics, <http://www.tlg.net>, 25.05.2007.

Öz, M., (2011). "Lojistikte Yeni Yaklaşımlar", *Sütçü İmam Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, Cilt:1, s:147.

Özçelik, M., (2017). "Türkiye'de İnternet Kullanımı ve E-Ticaret İstatistikleri", Konya Ticaret Odası Etüd-Araştırma Servisi, p.8.

Reynolds, J., (2001). *Logistic & Fulfillment for E-Business: A Practical Guide to Mastering Back Office Function for Online Commerce*, London: McGraw-Hill, p.9.

Terzi, N., Mandal, Y., (2016). "An Application on Relationship Between Electronic Commerce and Logistics in Retail Sector", *Global Business Research Congress (GBRC)*, May 26-27, Vol.2, İstanbul.

Terry L. E., Thomas D. J., Fernanda L. T. and Scot B., (2000). "The Last Mile: An Examination of Effects of Online Retail Delivery Strategies on Consumers", *Journal of Business Logistics*, Vol. 24, No. 2.

Trepper, C.H., (2000). *E-Commerce Strategies*, Microsoft Press, Washington, p.9.

Turban, E., (2002). *Electronic Commerce 2002: A Managerial Perspective*, Englewood Cliffs, NJ: 4

Turban, E., King, D., Jae L., Merrill W., Michael C., (2002), *Electronic Commerce*, Prentice-Hall Inc., New Jersey, p.4.

Türkmen M. A, SARICAN M. A., (2017). “E-Lojistikte Kritik Faktörlerin Belirlenmesi: Türkiye’deki E-Lojistik Uygulamaları”, *Pamukkale Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, No. 26, s.278.

Yankelovich., (2000). “Monitor eTrends: Customer Service”, <http://www.yankelovich.com>, [Accessed, 21 August 2019].

<http://www.tuketiciler.org>, [Accessed, 23 August 2019].

<http://www.oecd.org>, [Accessed, 23 August 2019].

<http://www.wto.org>, [Accessed, 23 August 2019].

<http://www.ekonomi.gov.tr>, [Accessed, 23 August 2019].

<http://www.igeme.org.tr/tur/sss/eticaret.htm>, [Accessed, 23 August 2019].

<https://www.computerworld.com>, [Accessed, 23 August 2019].