

THE FACTORS THAT AFFECT CONSUMERS' ATTITUDES TOWARDS SMART
DELIVERY SYSTEMS AND A SURVEY CONDUCTED IN TURKEY



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THE FACTORS THAT AFFECT CONSUMERS' ATTITUDES TOWARDS SMART
DELIVERY SYSTEMS AND A SURVEY CONDUCTED IN TURKEY

BY

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PLAGIARISM

I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

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ABSTRACT

The development of technology has brought new perspectives to many sectors. One of these sectors is the transportation sector. New shipping methods that come with technology are smart locker / smart parcel locker / automated parcel locker, delivery by drone / UAVs (Unmanned Aerial Vehicles), pick-up point, ADRs (Autonomous Delivery Robots). Within the scope of the study, survey questions were asked to 101 people and the results of the survey were evaluated. While creating the survey questions, interviews were conducted with 5 people working in the transportation sector and experienced the "smart locker" method. The survey questions were created by evaluating the results of the interviews. Interview questions were prepared based on the model of the research. The results were analyzed by drawing graphs.

Key words: Smart locker, smart cargo systems, smart delivery methods, technology, transportation

ÖZET

Teknolojinin gelişmesi birçok sektöre yeni bakış açıları getirmiştir. Bu sektörlerden bir tanesi de taşımacılık sektörüdür. Teknoloji ile birlikte gelen yeni kargo gönderim yöntemleri: akıllı dolap, dron ile teslimat, gel al noktası, otonom teslimat robotları yöntemleridir. Yapılan çalışma kapsamında Türkiye’deki kargo sistemi içerisinde yer almış “akıllı dolap” yöntemi incelenmiştir. Bu yöntemi kullanan kişilerin yöntemi neden seçtikleri, neye göre seçtikleri, tecrübeler ve yöntemi tavsiye edip etmeyecekleri araştırılarak yöntem incelenmiştir. Çalışma kapsamında, 101 kişiye anket soruları yöneltilmiştir ve çıkan anket sonuçları değerlendirilmiştir. Anket soruları oluşturulurken, taşımacılık sektöründe çalışan ve “Akıllı Dolap” yöntemini tecrübe etmiş 5 kişi ile mülakat yapılmıştır. Anket soruları, çıkan mülakat sonuçları değerlendirilerek oluşturulmuştur. Mülakat soruları ise araştırmanın modeli baz alınarak hazırlanmıştır. Çıkan sonuçlar grafikler çizilerek incelenmiştir.

Anahtar kelimeler: Akıllı dolap, akıllı kargo sistemleri, akıllı teslimat yöntemleri, teknoloji, taşımacılık

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LIST OF SYMBOLS/ABBREVIATIONS

ADR	Autonomous delivery robot
UAV	Unmanned aerial vehicle
QR	Quick Response
TDK	Turkish Language Association
E-COMMERCE	Electronic Commerce



1. INTRODUCTION

The development of technology has brought new perspectives to many sectors. One of these sectors is the transportation sector. Cargo transportation means taking a product from one place to another. In other words, it is also defined as ensuring that various products are accessible to the desired people or companies within a certain period of time. Shipping and receiving of cargo has gained different dimensions with technology. The change in the cargo sector is due to human needs. In order to meet these needs, the cargo industry has offered different options to users with the help of technology. Some of those methods are; smart locker / smart parcel locker / automated parcel locker, delivery by drone / UAVs (unmanned aerial vehicle), GADDs (ground autonomous delivery device), pick-up point, ADRs (Autonomous Delivery Robots).

The smart locker method provides access to the cargo of the receivers 24 hours a day, 7 days a week. This method has started to be used in Turkey. Large cargo companies use this method to provide cargo services to people. There are lockers placed in certain areas. With these lockers, receivers access their Cargo easily.

The delivery by drone method enables cargoes to reach places that are difficult to reach with the help of drones. This method has not yet been applied in Turkey. Its implementation is also planned in a short time.

The ground autonomous delivery device method is made by vending machines in certain regions to deliver the cargo. It is the robot that delivers the cargo. The robot is only used for delivery.

In the pick-up point method, shops located at certain points are determined as cargo delivery points. Cargo companies make agreements with shops such as neighborhood

grocery stores or gas stations that are open 24/7 and deliver cargo. In this way, people can receive their cargo from the nearest shop.

The autonomous delivery robots method is implemented in certain regions. Robots take the cargoes to the destinations of the buyers and the buyers pick up them.

Within the scope of the study, the "Smart locker" method, which is included in the cargo system in Turkey, has been examined. The method was examined by investigating why and for what reason people using this method chose the method, their experiences and whether they would recommend this method. Within the scope of the study, survey questions were asked to 101 people and the results of the survey were evaluated. While creating the survey questions, interviews were conducted with 5 people working in the transportation sector and experienced the "Smart locker" method. The survey questions were created by evaluating the results of the interviews. Interview questions were prepared based on the model of the research. The results were analyzed by drawing graphs.

2. TRANSPORTATION AND LOGISTICS

2.1. Overview of the Transport Industry

The cargo industry has been developing rapidly since the early 1970s. This sector, which is formed worldwide, has developed with the help of technology and has moved out of the scope of classical shipping. Cargo transportation, which was carried out as the delivery of small-scale individual products in the 1980s, became more popular in the 2000s. It has become an indispensable element of human life. (Akbulut, 2016, p. 29)

It is possible to consider cargo transportation on a large scale. Intercity cargo transportation is carried out, as well as between countries and even between continents. Due to its geographical location, Turkey is in the position of "logistics center" in the transportation sector. The cargo sector has a close past in Turkey, and courier and logistics services gained momentum after the transition to the free market economy and became an indispensable solution partner of the real sector. In the period we live in, cargo shipping has gained different perspectives. Technology changes the cargo sector as it changes every sector. Companies in the cargo sector develop their companies and allocate serious budgets to keep up with the technology. This situation developed rapidly with the contribution of a competitive environment and was reflected as a quality service to the consumer. (Yahşi, 2021, p. 7)

E-commerce, which is rapidly growing and developing in our country, is now considered one of the most important growth keys. The cargo sector, thanks to the large investments they have made in the field of virtual merchandising, which is seen as a sub-group of e-commerce, has gained the opportunity to offer their products to the market faster and with less cost, thanks to the large investments they have made, and as a result, the cargo sector has achieved a great development has shown (Türkoğlu, 2019, p. 55).

2.1.1. Transport concept

Transportation is defined as the delivery from one place to another. According to TDK, transportation is defined as “The work of transporting people, goods, etc. from one place to another by various means, transportation, transportation are used as synonyms.” (Ulaşım, n.d.)

Cargo transportation is the transport of a product from one place to another. In cargo transportation, the terms of receiver and sender are important. Receiver: the person who receives the product. Shipper: is the person who sends the product. Cargo transportation has taken its place today and makes our lives easier. The fact that the product we want to send reaches the buyer without going ourselves gives us a lot of advantages in daily life.

The purpose of cargo transportation is to take the product from one place to another at the most affordable cost. For this purpose, the transportation sector determines the “movement of products”. Cargo transportation “location of production units and warehouses, procurement, management of physical flows in the production process, packaging, storage and transportation of stocks, product management and preparation of batches in cargo units, transportation and design of physical distribution of products for customers, etc.” contains many functions. (Larrode et al., 2018, p. 343)

Transportation can be defined as the dynamic activities that form the link between production and consumption. The cargo industry is a fast-growing and highly competitive industry that performs complex logistics activities and provides transportation and transfer services to both individuals and commercial firms. (Tüysüz & Şimşek, 2017, p. 170)

The word cargo, which is a foreign word in origin, literally means "load". The types of cargo falling under this definition are the goods not heavier than 100 kg, packed or in a container. In order for an item to be identified as cargo, it must not exceed a certain weight

and have a certain type. However, the definition of cargo has been updated today the baggage that is not accompanied and carried by issuing documents is called cargo. Based on all these definitions, the word cargo means the goods or cargo to be transported. (Songur, 2016, p. 4)

The shipping industry has developed with technology. This development has been aimed at meeting human needs more. Change arises from human needs. Many means of transportation are used in the cargo transportation sector. Products are delivered to their destinations by making use of transportation sectors such as sea transportation, land transportation and air transportation. This sector is developing rapidly. There are many giant companies in the sector. This situation creates competition. It serves both individuals and business firms for shipping and transshipment and has an impact on local and global trade. Cargo companies have diversified their customers and especially play a critical role in the success of their customers' operations. (Songur, 2016, p. 9)

Most of the global cargo companies adopt the strategy of finding different distribution centers to collect the cargoes from their branches and then transferring them to other transfer centers with different transportation methods. These cargoes are then delivered to the final destination through the branches of the company in the customer region. Many of the courier companies provide logistics services to their corporate customers and thus play an important role in their competitive advantage by allowing their customers to reduce their costs and focus on their core activities. (Tüysüz & Şimşek, 2017, p. 173)

The competitive environment in the cargo sector today aims to maximize customer satisfaction. The competition has increased the quality of offered service. For this reason, companies provide better service and keep up with new technological developments. Classic cargo method is out of the way. Systems aiming to serve users 24 hours a day, 7 days a week have found their place in the cargo sector. (Jang et al., 2013, p. 500)

2.1.2. Transport functions

Organizations, in order to respond quickly to the needs of customers, order taking, production, storage, transportation, etc. carries out many actions. Each of these actions, carried out from the first point of supply of products and services to consumption, is within the scope of logistics activities. (Berkman, 2011, p. 10). While logistics activities were limited to transportation and storage before, it has come to the present day with the expansion of its field of activity. (Aydm & Bacak, 2018, p. 195)

According to Lambert and Stock, logistics activities defined as; customer service, demand forecasting, stock control and management, communication network, material handling, order taking, parts and service support, factory and warehouse location selection, warehouse management, procurement, packaging, labeling, scrap and waste operations, traffic and transportation (Lambert & Stock, 1993, p. 479). Some of the functions or applications that are in communication with each other are expressed as transportation, inventory management, order processing, storage, packaging of cargoes and information management. (Erdir, 2013, p. 7) It is stated that procurement, stock management, transportation, storage and returns from customers constitute logistics and that these five logistics activities are intertwined and synchronized parts.

Table 1.

Logistic Functions

Basic Logistic Functions	Auxiliary Logistics Functions
Customer Service Standards	Storage
Transport/Transport	Handling
Inventory Management	Supply Management
Order Management	Packaging
Information Management	

According to Ballou (1992); logistics activities are divided into two groups as basic logistics functions and auxiliary logistics functions. (Erdir, 2013, p. 8)

Ballou stated that the basic functions are located at the most important points of the physical distribution network and play an effective role in the realization of the logistics service (Ballou, 1995, 38). Site selection, reverse logistics management and performance evaluation functions are also included in the logistics functions. On the other hand, Bowersox and Closs discussed the logistic functions as the main titles as follows (Çakaloz, 2008, p. 6).

- Transportation
- Storage
- Inventory Management
- Order Processing
- Packaging
- Procurement

Logistics activities aim to give the customer what the customer wants by working with a customer focus. Even if they do not have a changing effect on the product, the sale of the services performed in the presentation of the product has an increasing effect on the economic value of the product (Aydın & Bacak, 2018, p. 189).

Organizations that plan their logistics activities effectively and efficiently can gain superiority in an intense competitive environment by providing a quality service to their customers at low costs (Kayabaşı & Sezici, 2008, p. 280) and can increase customer satisfaction by increasing shipping speed and safety and reducing costs. In recent years, the activities that take place in the logistics process play a role in reducing the economic costs of the companies and create a competitive advantage (Keskin, 2017, p. 3).

A successful logistics management can be achieved by working in harmony with each function. Functions that make logistics a whole cannot be considered independent of each other.

The degree of success of each function affects other functions and ultimately reveals logistical success. For this reason, the success of each logistics function individually constitutes the success of the business. Organizations that intend to keep their overall performance high should keep the success of each function high and should try to improve the weak point by identifying the functions with low success level (Kayabaşı & Sezici, 2008, p. 294).

2.1.3. Importance of transportation for people

Transportation has great importance in human life. Sending a desired product from one place to another without going on its own makes life easier. Transportation has gained different dimensions, especially during the Covid 19 Pandemic process today. In the epidemic disease, everything has turned into "online". E-commerce has become more and more widespread. Everyone is shopping online. For this reason, it is very important for the product to reach their hands without contact in order to prevent the spread of the disease. The transportation industry has kept pace with this change. Made contactless deliveries quickly. In such extraordinary situations, the importance of transportation has been greatly felt.

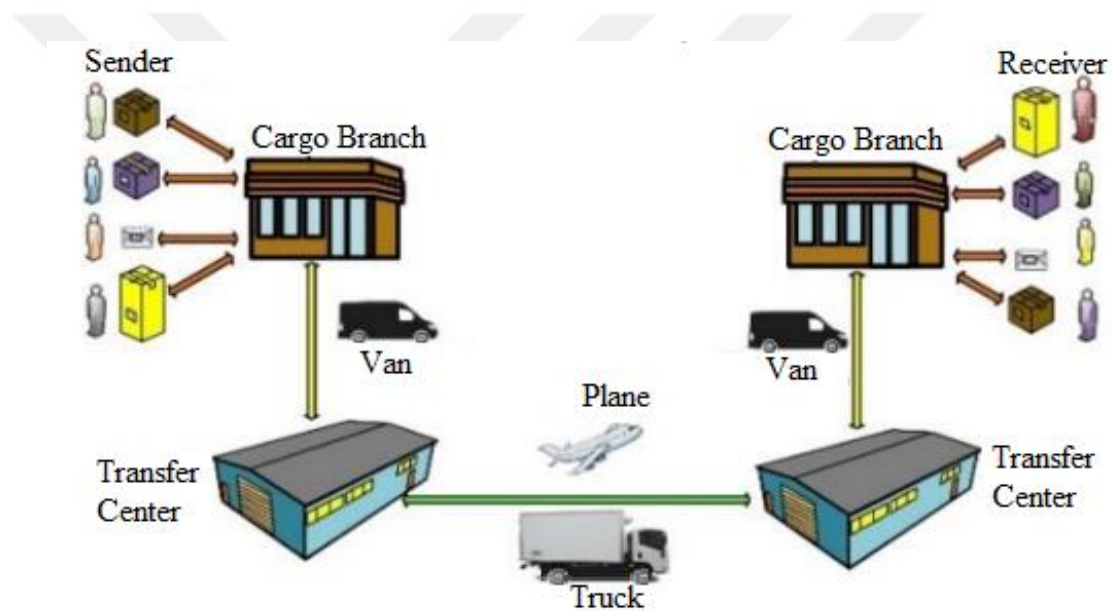
2.1.4. Cargo transportation

This term means is taking a product from one place to another. In other words, it is also defined as ensuring that various products are accessible to the related people or companies within a certain time range. The fact that the product you want reaches another city or another

country without carrying it yourself is the importance of the concept of cargo transportation. The fact that the product you want reaches another city or another country without carrying it yourself is the importance of the concept of cargo transportation (Elmastaş, 2006, p. 42). Classic cargo transportation method is shown in figure 2.1.

Figure 1.

Cargo Distribution System Architecture



According to Figure 2.1; In the classical cargo transportation method, senders go to the cargo branch and leave the package they want to send. Cargo is sent to the desired cargo branch via the transfer center using the selected transportation method. Nowadays, there are usually more than one cargo branch in many provinces, and districts. Cargo branches send the cargo to be sent at the end of the day to the transfer centers by means of various vehicles. Transfer centers are not available in every province in the country. Generally, there are transfer centers in certain regions and cargo branches in the surrounding provinces bring their packages to these transfer centers. Cargoes brought to the transfer centers from the surrounding provinces are transferred to the transfer centers in the relevant regions by air,

sea or road. Packages arriving at the relevant transfer center are classified according to the cargo branches and sent to the branches by pickup trucks. After this stage, the packages arriving at the branches are delivered to the buyers. At every step in the process of sending and delivering the cargo, barcode or QR code labels are read and recorded in the system. Thus, it is ensured that the sender and receiver can receive information about their packages (Yaman & Baygın, 2020, p. 40).

2.2. Factors Affecting Selection of Transport Type

With the development and spread of technology, the types of transportation have also changed. It is important that people choose how the product they will send or receive is delivered. The increase in transportation type options ensures that people's products reach the other side in a healthier way. For individuals, there may be priorities depending on the characteristics of the product when choosing the cargo type in the delivery of the product they send to the other party. "Choosing the type of transport that will serve with the lowest cost and best service quality for a certain route is the most important element in terms of transportation planning. The main purpose in the selection of the transport type should be to benefit from all types of transport in a balanced way. Each type has its drawbacks, advantages and additional costs over the other. For this reason, it is necessary to determine the optimum balance point in the selection of transport types." (Köfteci & Gerçek, 2010, p. 5090). There are many factors that affect the choice of transport type. In the table 2.2 factors affecting the type of transport are given.

Table 2.*Factors Affecting the Type of Transport*

Factors Affecting the Type of Transport
Cost
Speed
Reliability
Traceability
Flexibility
Easy Access to Transport Type

Çancı and Erdal explained the points to be considered in the selection of transportation type in the following articles.

- “All costs incurred in transportation operations,
- The duration of the transport from the starting point to the destination or the speed of shipment,
- Transport of safety,
- The number or variety of places served,
- The suitability of the cargo according to the type of transport,
- Value, volume, weight and size of the Cargo,
- Shelf life of the product and its suitability for climatic conditions,
- The durability of the goods against damage,
- Frequency of regular line services and their applicability” (Çancı & Erdal, 2003, 29)

2.2.1. Cost

Cost is the fee paid for the transportation of the product to be transported. The concept of cost is very important in cargo transportation. The concept of cost is very effective in the selection of the cargo type. Nobody wants to ship the product at high costs. No one

wants to pay more for shipping than the product shipped. The fact that there is a large cost difference between cargo types is effective in choosing the cargo type.

2.2.2. Speed

Speed is the time it takes for the product to be transported to reach the receiver after leaving the sender. Speed prioritizes cargo type selection according to cargo content. For urgent cargo shipments, fast cargo shipments are made. Express shipping is more costly than regular shipping.

2.2.3. Reliability

Reliability is the safe delivery of the product to be transported to the buyer. The product should not be damaged during transportation. The buyer does not accept the damaged, defective product and wants to return it to the seller. For this reason, the seller or the sender suffers a loss. In order to avoid this situation, people choose more reliable companies and more reliable cargo delivery methods.

2.2.4. Traceability

Traceability is very important to control whether the product has reached the other party after the product to be transported has been sent. The receiver and the sender need to see where their cargo is. If the buyer is not at the place where the product will be delivered, the buyer can act according to the product status information. For this reason, the sent or received cargo must be traceable. Tracking the cargo creates a sense of trust in people.

2.2.5. Flexibility

Flexibility is that the buyer reaches the cargo at any time. The buyer wants to receive the cargo without any time limit. With the development of technology, this has become possible. Flexibility is among the reasons for preference, as it allows access 24 hours a day, 7 days a week.

2.2.6. Easy access to transport type

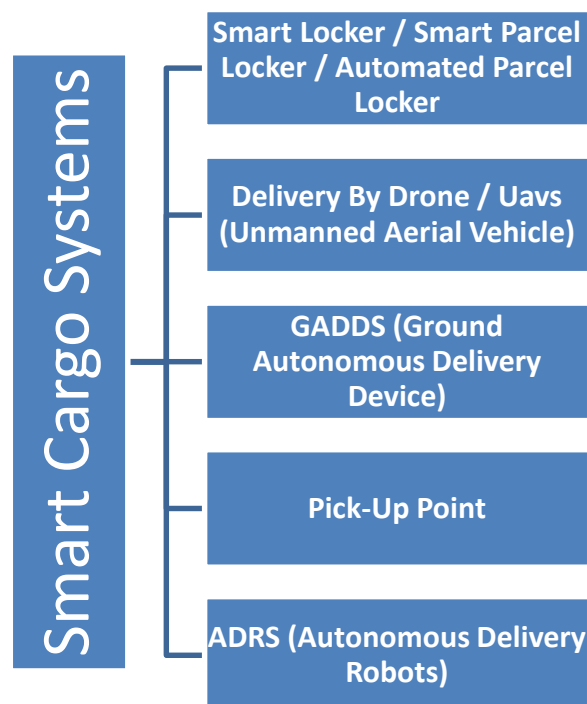
Providing easy access to the type of transportation causes that type of transportation to be preferred. The purpose of transportation is to ensure that the product is easily accessible, safe, fast and at low cost to reach the receiver. If the preferred mode of transport cannot be easily accessed, that mode of transport will not be requested.

2.3. The Concept of “Smart Cargo” in Transportation and Smart Cargo Systems

The rapid development of technology has had many important and positive effects on human life. One of them is the cargo and transportation sector. Where the classical concept of cargo transportation is insufficient, the concept of smart cargo appears. Smart cargo actually means smart delivery. As an alternative to classical cargo delivery, many delivery methods have emerged with technology. Some of these are given in figure 2.2.

Figure 2.

Smart Cargo Systems



2.3.1. Smart locker / smart parcel locker / automated parcel locker

These are the cabinets that cargo companies place in certain locations. The purpose of this system is to provide easier access to users. In the classical cargo method, the cargo that cannot reach the users is returned. In the classical cargo method, users receive cargo between 09:00 and 17:00 only during business hours. If the receiver is not at home when the courier arrives, the cargo is sent back. Thanks to the smart cargo lockers, cargo delivery is made 24 hours a day, 7 days a week. The biggest advantage of this model is there is no time limitation. The company determines the located time of the products in the cargo cabinets. If the receiver does not receive the product within the specified day, the product will be returned back to the sender. It is applied as an alternative method for regions where cargo companies work intensively. This model allows users to access their cargo in a shorter time. Cargo lockers, which are constantly monitored by security cameras with special software, can only be opened with the password sent to the users' phones. Pricing is based on the size of the package (Tsai & Tiwasing, 2021, pp. 5-7).

Advantages

- It is independent of time, cargo can be delivered 24 hours a day, 7 days a week.
- Fast delivery
- Determining the price according to the package size
- Customer service support
- Providing contactless and fast shipping
- Delivery point is close to receiver address

Disadvantages

- If the weight of the cargo is considerable, it may be difficult to transport the cargo to the receiver address. For this reason, it is more comfortable to use for non-heavy cargoes.

- The locations determined for the cargo boxes are far from receiver address.
- The necessity of regular maintenance of cargo boxes. If the software on the shipping boxes does not work correctly, it does not match the code given to the buyer and the buyer cannot receive the cargo. It could also be the opposite of this situation.
- As a result of providing security only with the camera, the boxes may be broken and the products may be lost.
- Determination of package size
- Delivery point is far from receiver address

2.3.2. Delivery by drone / UAVs (Unmanned Aerial Vehicle)

The purpose of cargo delivery by drone is to provide transportation to places difficult to reach geographically by land and sea. Transportation Drones are used in transportation and delivery areas, especially short distances. Postal deliveries with these products have already started in several different countries. Similarly, the distribution of food orders placed over the internet can also do with these products. Many companies in the e-commerce sector, especially Amazon, invest in drones for transportation. Another pillar of transportation is to bring the shopping done in grocery stores or markets directly to the door. Thanks to the special mechanism placed in the lower part, the drone becomes load-bearing. Thus, shopping bags can be loaded into the special bag under the drone and brought to the door. Figure 2.3 shows a package carried by a drone (Yaprak et al., 2021, p. 7).

Figure 3.*Delivery by Drone*

2.3.3. Pick-up point

E-commerce platforms have set Pick-Up Points for receivers to reach their products more easily. These pick up points are companies where people constantly shop. For example: a gas station can be designated as a pickup point, or a cafe can be a pickuo point.

Here, the aim is for the users to reach their product without any time constraint, no matter how long the company at the pickup point is open. Another advantage is that if the recipient is not at the address, the cargo will not return directly, but will wait at the pickup point for the period determined by the company.

2.3.4. ADRs (Autonomous Delivery Robots)

Completely robots carry out the delivery automatically. In addition to the cargo sector, this method is frequently used in the transportation sector. With artificial intelligence technology, robots learn roads and make deliveries on certain routes. After shopping in e-commerce, this method is chosen as delivery. With robots, deliveries are made quickly and safely (Alfandari, Ljubi & Silva, 2021, p. 7).

Figure 4.*Autonomous Delivery Robots*

2.4. Companies Using Smart Cabinet Systems in Turkey

The application of intelligent cargo lockers in Turkey has become widespread in recent years and use by customers to receive cargo. The intelligent cargo locker system only offers an option for online shopping. Below are some of the companies that use smart cabinet systems in Turkey.

2.4.1. Kargopark company

"Kargopark" firm operating in Turkey uses smart cargo lockers system. Thanks to this system, it provides 24/7 service to users. It is used as a shipping option for online shopping. "Kargopark" is the main company and creates an infrastructure for many companies to use the smart cargo system. It is spread over many provinces of Turkey. It is seen that it is more common especially in provinces with high population density. By making agreements with e-commerce firms, it also offers smart locker cargo service to these e-commerce firms..

How Does “Kargopark” Work?

- “Do your shopping online.
- Select Kargopark as the delivery point.
- Receive your cargo without contact, either with the password in your pocket or with the Kargopark app.”

It offers users two options to receive their cargo. To receive an SMS with the unique code that will be entered into the software while receiving the cargo. Another option is to receive the cargo through the software owned by the company. These two options provide security. Since the code to be given by the company only belongs to that box at that location, no one other than receiver can pick up receiver cargo.

“Kargopark” installs its smart cabinets as follows. Locations are determined in the form of structuring in front of sites, structuring in front of offices, agreements with tradesmen or smart cabinet boxes created at points specially determined by the company. The figure 2.5 shows the smart locker of the company "Kargopark". (Kargopark nedir, n.d.)

Figure 5.

Kargopark Smart Locker

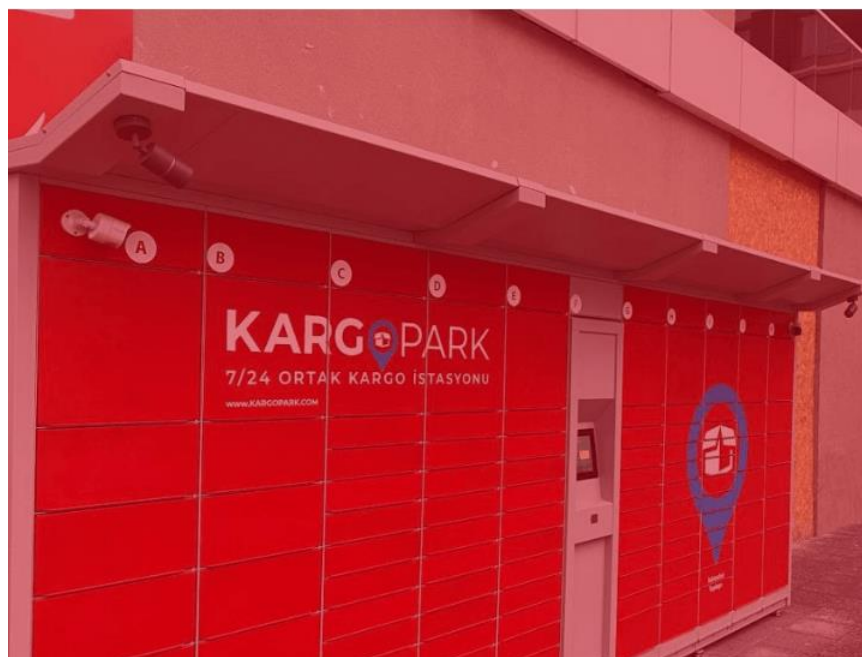


Figure 6.

Kargopark Smart Locker Location



2.4.2. Yurtiçi Cargo company

Another company serving in Turkey, "Yurtiçi Cargo", also uses smart cargo lockers systems. With these lockers, Yurtiçi Cargo provides cargo service to the consumer 24 hours a day, 7 days a week. Thanks to this application, which targets employees who cannot be at

Figure 7.

Yurtiçi Cargo Smart Locker



home during the day, people can pick up their own cargo from the lockers at certain points. Users can benefit from this service without paying an additional fee on top of normal shipping charges. Smart cargo system is implemented in 81 provinces. In the figure 2.7 the smart locker for domestic cargo is given (İHA, 2021).

2.4.3. PTT Cargo company

PTT Cargo offers its smart cargo locker service to users under the name of Kargomat. It provides service in Istanbul, Ankara, Izmir, Antalya, Bursa, Eskişehir and Kocaeli in Turkey.

How does “Kargomat” work?

- “Customers can receive their shipments from the 'Kargomat 7/24' device, whose address is specified in the SMS, with a smart password to be sent to them via SMS.
- In the Kargomat 24/7 service, there are 4 language options besides Turkish, namely English, German, Russian and Arabic.
- With Kargomat 7/24, cargoes are stored in chambers made of steel construction of various sizes, and the devices are monitored by security cameras at any time of the day.
- PTT enables the receivers to open the boxes where the shipments are stored, with an ID number and smart password entry.
- If customers download the Kargomat 7/24 application to their IOS and Android smartphones, they can read the QR code of the shipment left on the Kargomat 7/24 device into the barcode reading section of the device and receive their products without entering a smart password.” (Kargomat nedir, n.d.)

In figure 2.8, the smart locker of the “Kargomat” PTT is given.

Figure 8.

PTT Cargo Smart Locker



2.4.4. DHL Express company

DHL Express offers the smart cargo locker service to the users under the name of “SWIP BOX”. It currently serves 42 countries. It works in the same logic as other smart cabinet systems. In figure 2.9, the smart locker of the DHL Express is given (Ulukan, 2021).

Figure 9.

DHL Express Smart Locker



2.5. Cargo Delivery by Drone in Turkey

It is an application planned to deliver cargo by drone in Turkey.

Regarding this situation, Kemal Yüksek (Civil aviation general coordinator) said, “Preliminary work for drone systems transportation has been completed. By defining air corridors in the main arteries between Istanbul-Ankara or Istanbul-Eskişehir, we will perhaps express the first crumbs of UAV and drone routes.” he said (Kargoda drone dönemi, 2021).

It has not been implemented in Turkey yet, but it is planned to be implemented in the future.

2.6. Pick-Up Point in Turkey

There are many e-commerce companies in Turkey that deliver cargo with this method.

2.6.1. Hepsiburada

The Hepsiburada firm has agreed with the Petrol Ofisi as the pickup point.

As a cheaper option if the buyer choose a pickup point the contracted offices of the Petrol Ofisi come across them and send their products to the nearest pickup point. Since Petrol Ofisi is a pickup point, it charges fee from Hepsiburada and incoming receivers can make extra purchases from market section. It also uses its existing warehouse and personnel for this job (Hepsimat teslimat noktası, n.d.).

2.6.2. Yurtiçi Cargo company

It describes the pickup point as follows. “The YK Plus Delivery Point project is a project where we will include reliable tradesmen known in the neighborhood. However, if you are a well-known entrepreneur in your neighborhood and you are just starting your business, you can still apply.” (YK plus teslim, n.d.).

Yurtiçi Cargo has agreed with cafes, grocery stores and local tradesmen and determined them as delivery points. People who buy products through e-commerce go to their own neighborhood grocery stores and receive their cargo.

2.7. ADRs (Autonomous Delivery Robots)

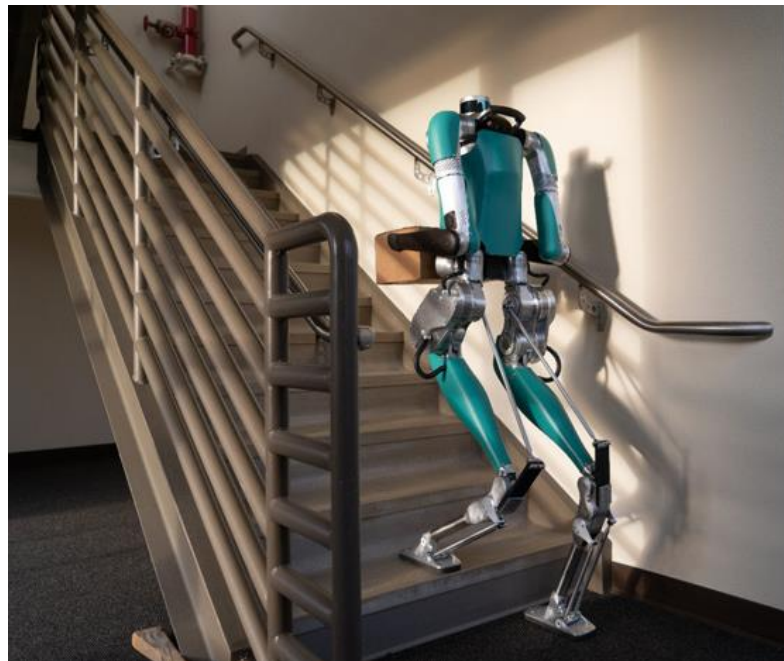
2.7.1. Ford company

“Developed by Agility Robotics, which carries out R&D studies on autonomous vehicles with Ford, Digit, the first robot that acts like a human, is commercially available.” They introduced the robot named "Digit", which they developed with the head, to the world. The robot was introduced in May 2019. Digit is used in the final delivery phase.

Ken W., chief executive at .Ford, said: “We believe robots will help our commercial customers improve their business by offering them the opportunity to make deliveries more efficiently and cost-effectively in today's world of growing online retail. We learned a lot through our joint work with Agility; Now we will accelerate our research on this subject even more” (Otonom teslimat robotu, 2020).

Figure 10.

Ford Company Smart Robot



2.7.2. Speedy Market

It is designed as a field robot. It is designed to provide delivery in areas where residential areas are crowded. It has the ability to take the elevator and walk around the floors.

Speedy Market emerges as an autonomous online market concept, which is set up specifically for a building and where delivery processes are made by robots.

The aim of the system is to create an alternative in places with high density of people such as hospitals and apartments (Neden Speedy market, n.d.).

Figure 11.

Speedy



2.7.3. Coffy

The domestic start-up company started to deliver coffee with a semi-autonomous delivery robot. It was introduced on May 1, 2021. “More than 50 unmanned and contactless deliveries in Erenköy, Caddebostan and Suadiye districts were met with great interest during the weekend curfews and full closure due to the pandemic. While the orders were successfully delivered to the users without spilling coffee and without heat loss, it was

reported that the deliveries were made successfully on the sidewalks as well as at intersections and traffic lights, on the side streets and on rainy slippery floors (Öğütçü, 2021).

Figure 12.

Coffy



3. METHODS AND MATERIAL

3.1. Purpose of the Thesis

A study was carried out to determine what influences customers' preferences when choosing cargo delivery methods during cargo delivery.

3.2. Determination of the Research Model and Survey Questions

The smart locker method, which is used more than other smart cargo methods in Turkey, has been examined. The reasons for the customers to prefer the smart locker method were determined by the survey study. As a result of the literature research, the factors that will affect the research were determined and formed a research model.

The research model is given in figure 3.1.

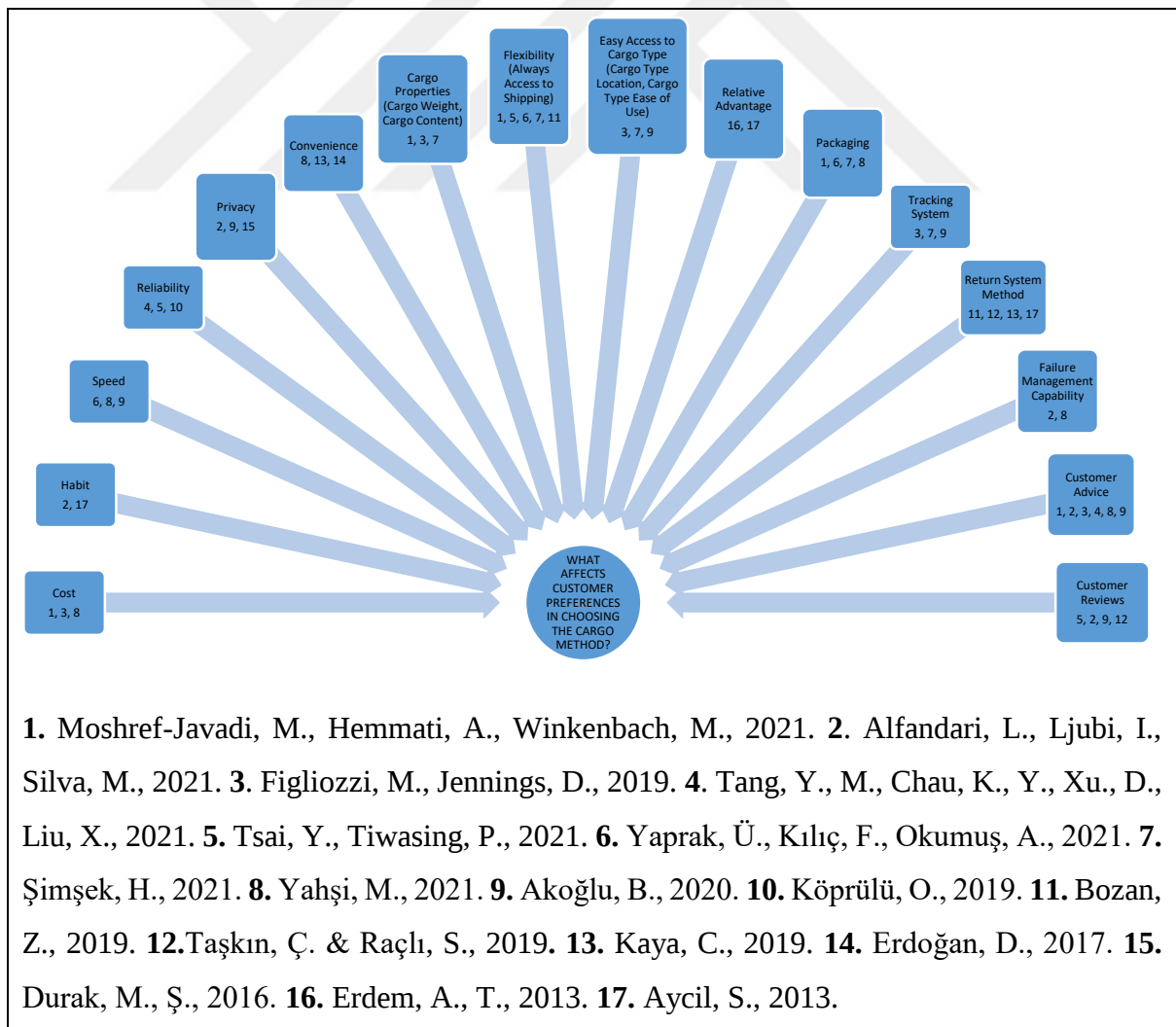
When the research model is examined, it has been obtained that the reasons for customer preference are Cost, Habit, Speed, Reliability, Privacy, Convenience, Cargo Properties (Cargo Weight, Cargo Content), Flexibility (Always Access to Shipping), Easy Access to Cargo Type (Cargo Type Location, Cargo Type Ease of Use), Relative Advantage, Packaging, Tracking System, Return System Method, Failure Management Capability, Customer Advice, Customer Reviews.

While preparing the survey questions, interviews were conducted with five managers working in the transportation sector. Survey questions were prepared by using the experiences of the managers. The people participating in the interview analysis are experts in their fields working in different companies. 1. The participant works as a transport solutions director in a company working in the transportation sector. 2. The participant works as a Transportation Planning Manager in a company operating in the transportation sector. 3. The participant works as a Partial Operations Manager in a company operating in the transportation sector. 4. The participant works as a Road Freight Operations Administrator

in a company operating in the transportation sector. 5. The participant works as a Logistics Operations Administrator in a company operating in the transportation sector. Participants are experts in their fields. They work in companies operating in the transportation sector. The interviews were conducted face-to-face and were limited to 15 minutes. Five questions were asked within the interview scope, and the participants were provided to answer the questions. The participants answered all the questions thoroughly. Questionnaires were prepared by evaluating the results of the interview.

Figure 13.

Research Model



Interview Questions

1. What factors push you to the smart shipping method rather than the classical shipping method?
2. Have you ever received any cargo with Smart locker smart shipping method?
3. What are the advantages of Smart locker over the classical shipping method?
4. What are the disadvantages of Smart locker compared to the classical shipping method?
5. If you were asked to separate the following features, which would be advantageous and disadvantageous according to the smart locker method?
 - Cost
 - Habit
 - Speed
 - Reliability
 - Privacy
 - Convenience
 - Cargo Properties (Cargo Weight, Cargo Content)
 - Flexibility (Always Access to Shipping)
 - Easy Access to Cargo Type (Cargo Type Location, Cargo Type Ease of Use)
 - Relative Advantage
 - Packaging
 - Tracking System
 - Return System Method
 - Failure Management Capability
 - Customer Advice
 - Customer Reviews

Interview Results

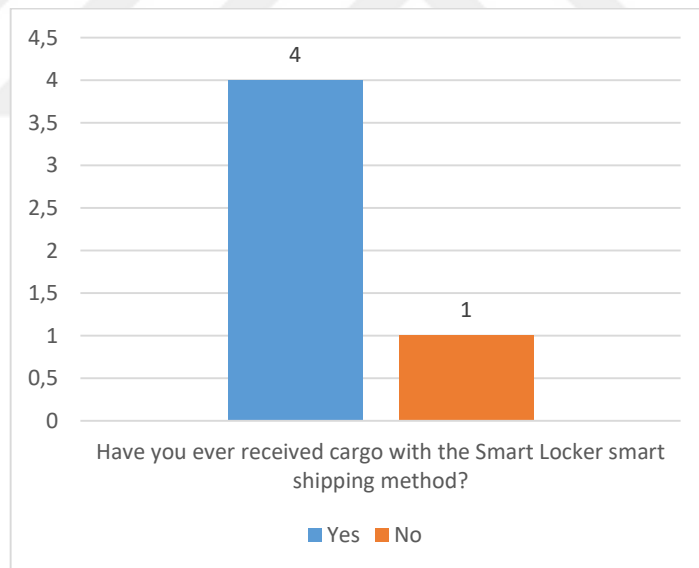
1. When the answers given to the question are evaluated “What factors push you to the smart shipping method rather than the classical shipping method?”

The necessity of being in a certain location in order to receive the cargo led the participants to smart cargo methods. Participants stated that sometimes they could not be found at the address they gave and their cargo was returned.

2. When the answers given to the question are evaluated “Have you ever received cargo with the Smart locker smart shipping method?”

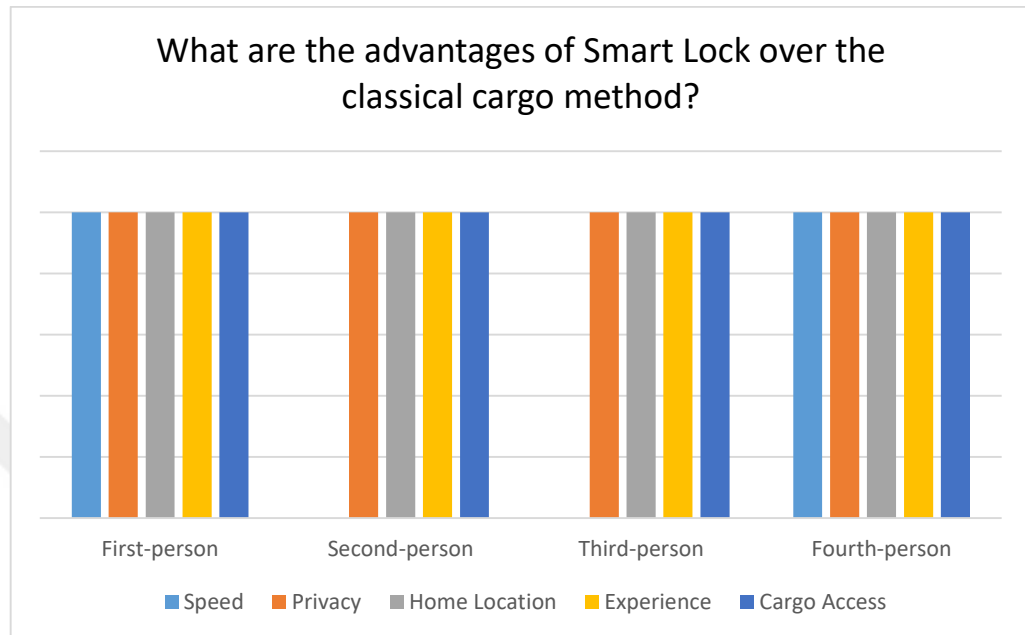
Figure 14.

Interview Answers (2nd Question)



It is seen that four people (80%) used the smart locker method before, and one person (20%) did not use the smart locker method. For this reason, other questions were not directed to the person who did not use the smart locker. After this stage, the interview questions will continue through 4 people who have used smart locker.

3. When the answers given to the question are evaluated “What are the advantages of Smart Lock over the classical cargo method?”

Figure 15.*Interview Answers (3rd Question)*

In general, the advantages of the smart locker cargo method are seen as speed, privacy, location of the house, experience, and access to cargo.

There are 2 participants (50%) say that the cargo reaches their hands faster with the smart locker method. Other participants did not comment on speed.

Users stated that the confidentiality of the product inside the cargo is protected by the smart locker method. It was stated by the participants that cargo was delivered from the seller to the buyer without ever meeting with the delivery man. All participants answered the question as “Privacy”.

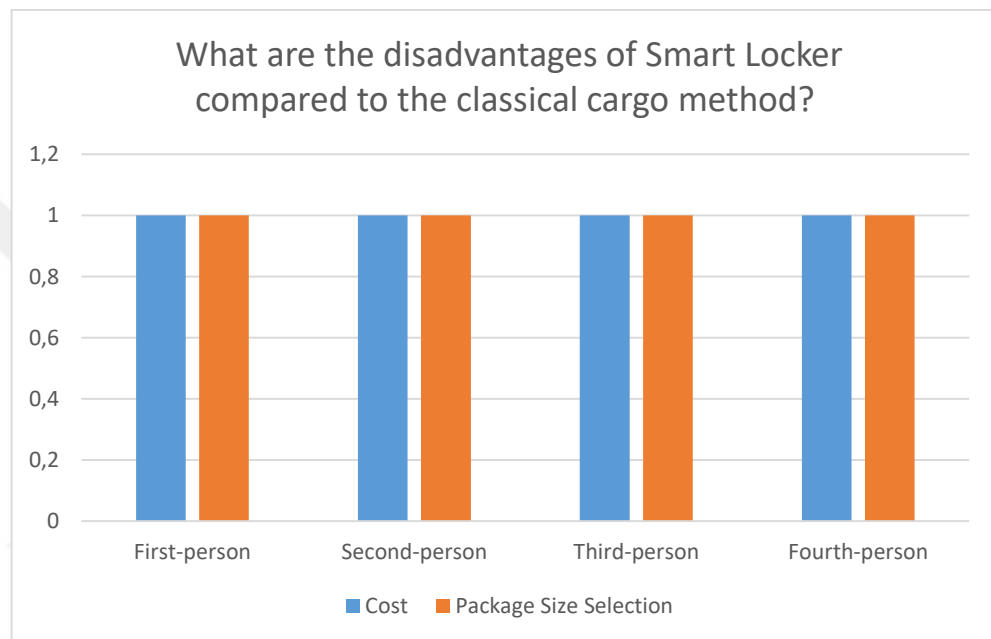
Customers consider the distance of the house's location to the smart boxes as an advantage for the smart locker method. All participants answered the question as “Home Location”.

The participants see that access to cargo is not limited by time as the most crucial advantage in choosing a smart locker. In this way, the participants stated that they received their cargo when they wanted. All participants answered the question as “Cargo Access”.

4. When the answers given to the question are evaluated, “What are the disadvantages of smart locker compared to the classical cargo method?”

Figure 16.

Interview Answers (4th Question)



In general, the disadvantages of the smart locker method are seen as “package size selection” and “cost.”. All participants answered the question.

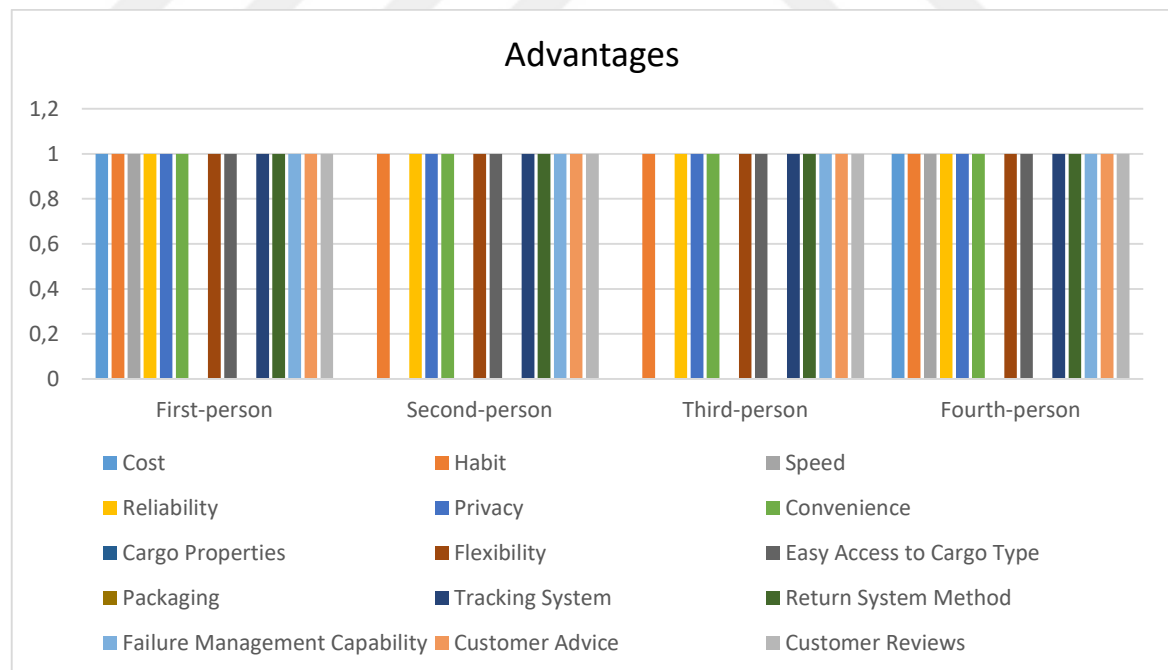
5. When the answers given to the question are evaluated “If you were asked to separate the following features, which would be an advantage and a disadvantage compared to the smart locker method?”

- Cost
- Habit
- Speed
- Reliability
- Privacy
- Convenience

- Cargo Properties (Cargo Weight, Cargo Content)
- Flexibility (Always Access to Shipping)
- Easy Access to Cargo Type (Cargo Type Location, Cargo Type Ease of Use)
- Relative Advantage
- Packaging
- Tracking System
- Return System Method
- Failure Management Capability
- Customer Advice
- Customer Reviews” when the answers given to the questions are evaluated;

Figure 17.

Interview Answers (5th Question)-Advantages

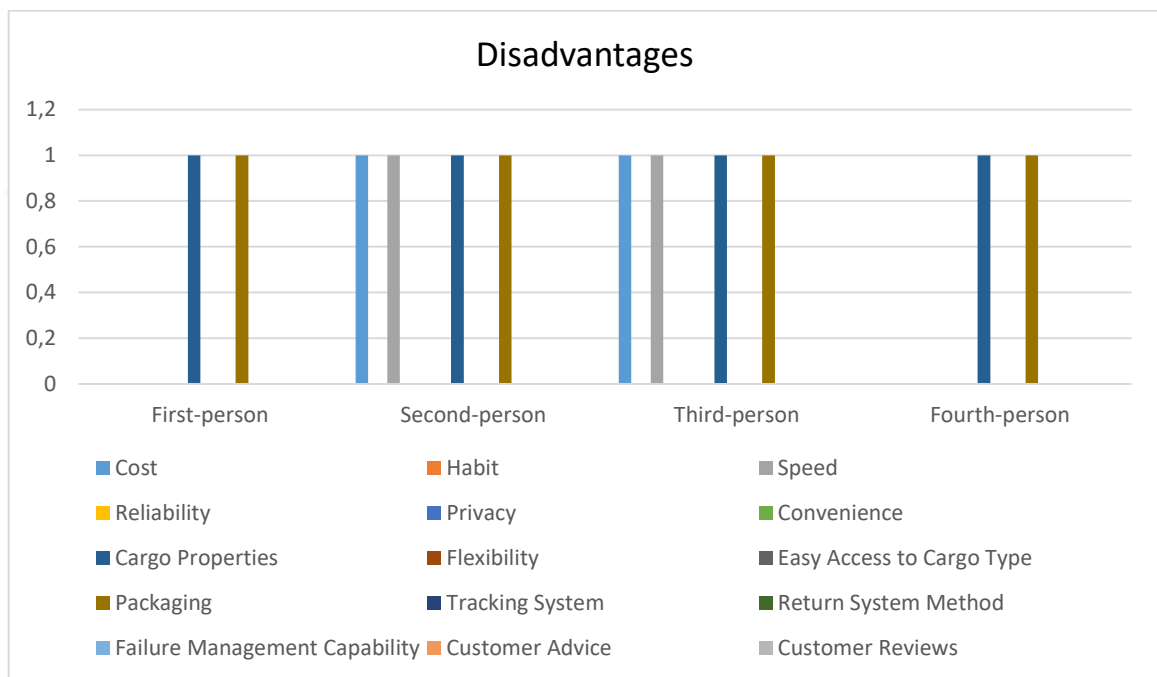


In general terms, "Habit, Speed, Reliability, Privacy, Convenience, Cargo Properties, Flexibility, Easy Access to Cargo Type, Packaging, Tracking System, Return System

Method, Failure Management Capability, Customer Advice, Customer Reviews" features are seen as advantages.

Figure 18.

Interview Answers (5th Question)-Disadvantages



In general terms, "Cost, Speed, Cargo Properties, Packaging" features are seen as an advantage.

As a result of the interview analysis, the survey questions were determined. Survey questions are given in appendix-a. With the determination of the questions, the survey questions were turned into a survey in a computer environment by "Google Forms". Survey questions were sent to people who shopped online. It was aimed to survey a total of 100 people. Personal information of the people surveyed will not be shared within the scope of the study. The survey results were translated into graphics and interpreted in the form of graphics. It was ensured that everyone who participated in the survey answered the questions thoroughly.

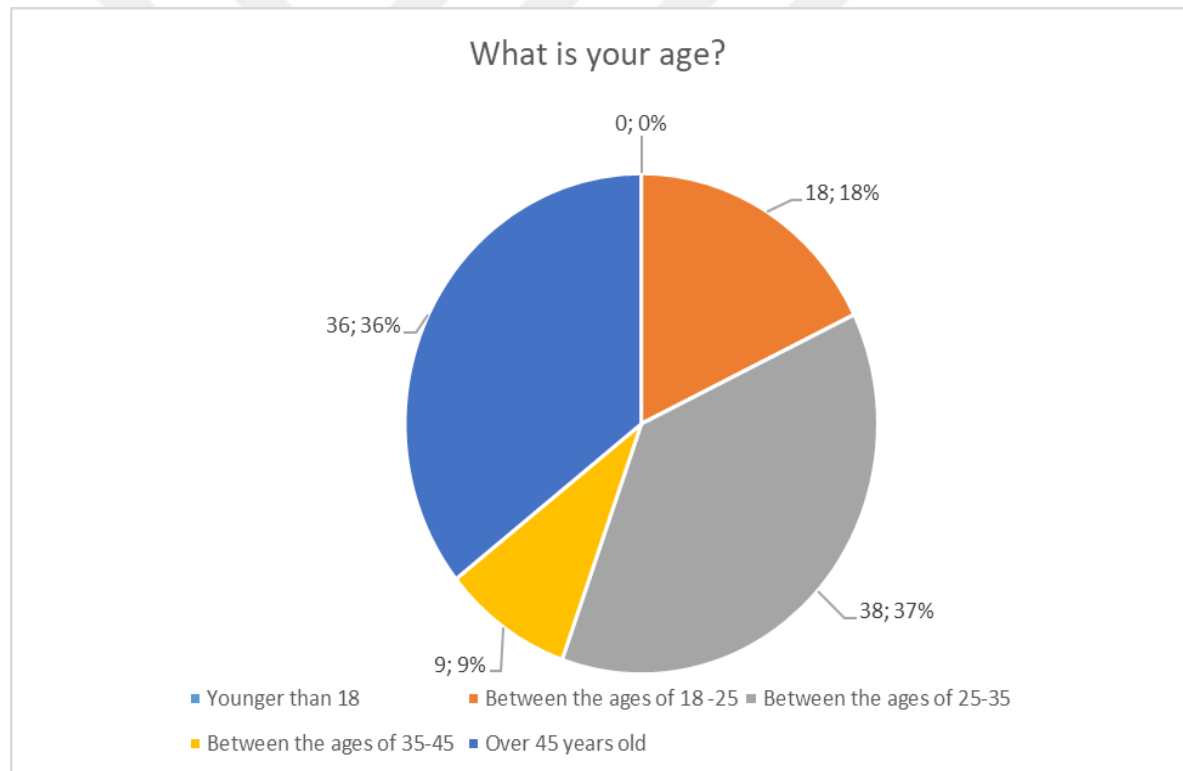
4. FINDINGS

A total of 101 people answered the survey questions. The findings obtained from the survey questions are given below. The first five questions of the survey questions are questions aimed at learning the demographic characteristics of the participants.

1. The answer is given by the participants to the question “What is your age?”

Figure 19.

What is Your Age?



There are no persons younger than 18 years old among the people participating in the survey. All participants are over the age of 18.

Eighteen people between the ages of 18-25 participated in the survey. This situation constitutes 18% of the people who participated in the survey. Thirty-eight people between

the ages of 25-35 participated in the survey. This situation constitutes 37% of the people who participated in the survey.

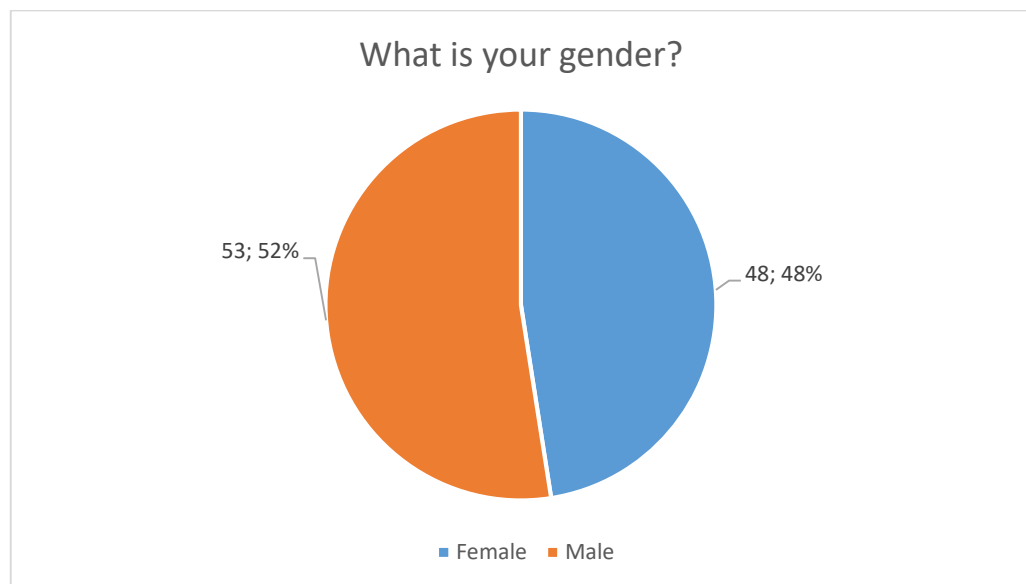
Nine people between the ages of 35-45 participated in the survey. This situation constitutes 9% of the people who participated in the survey. Thirty-six people over the age of 45 participated in the survey. This situation constitutes 36% of the people who participated in the survey.

When the age question is examined in general, it has been found that the number of people in the 25-35 age range and over the age of 45 is high.

2. The answer is given by the participants to the question “What is your gender?”

Figure 20.

What is your gender?



Among the people who participated in the survey, 48 people were female. This situation constitutes 48% of the people who participated in the survey.

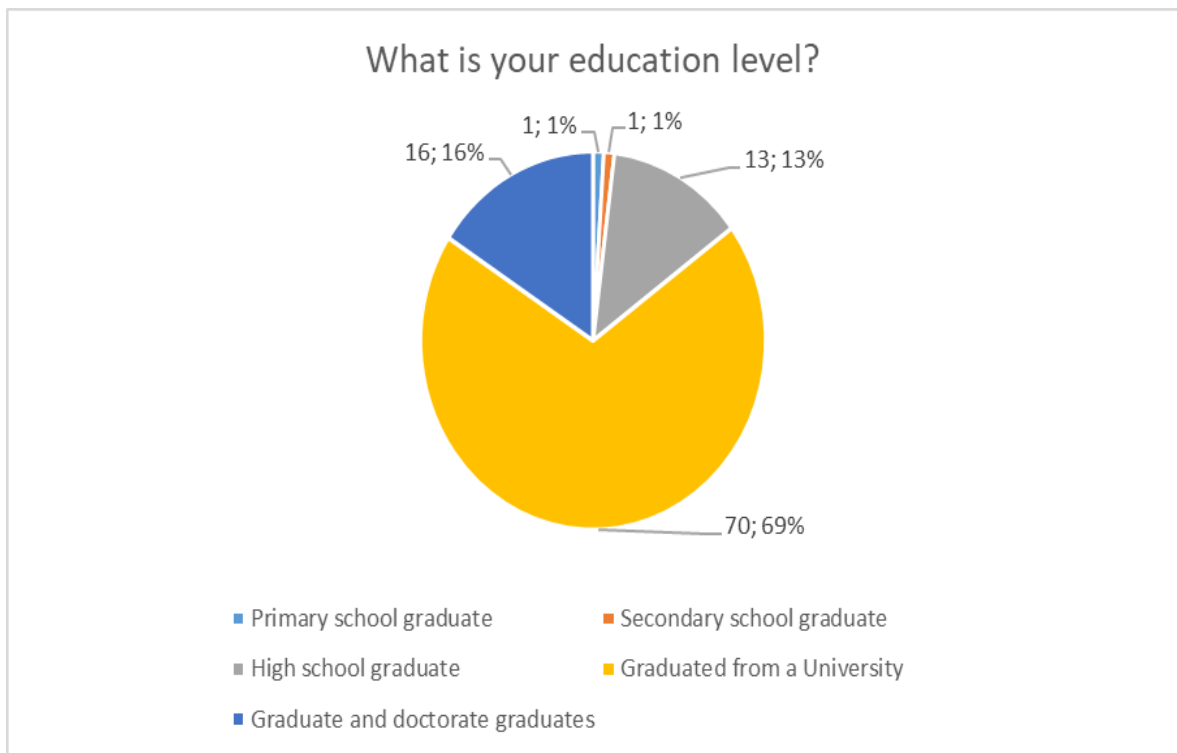
Among the people who participated in the survey, 53 people were male. This situation constitutes 52% of the people who participated in the survey.

Looking at the gender variable in general, an approximately equal number of people of gender participated in the survey.

3. The answer is given by the participants to the question “What is your education level?”

Figure 21.

What is your education level?



Among the people who participated in the survey, there was one person who is a primary school graduate. This situation constitutes 1% of the people who participated in the survey.

Among the people who participated in the survey, there was one person who is a secondary school graduate. This situation constitutes 1% of the people participating in the survey.

Among the people who participated in the survey, there were 13 high school graduates. This constitutes 13% of the people who participated in the survey.

Among the people who participated in the survey, there are 70 university graduates. This situation constitutes approximately 70% of the people who participated in the survey.

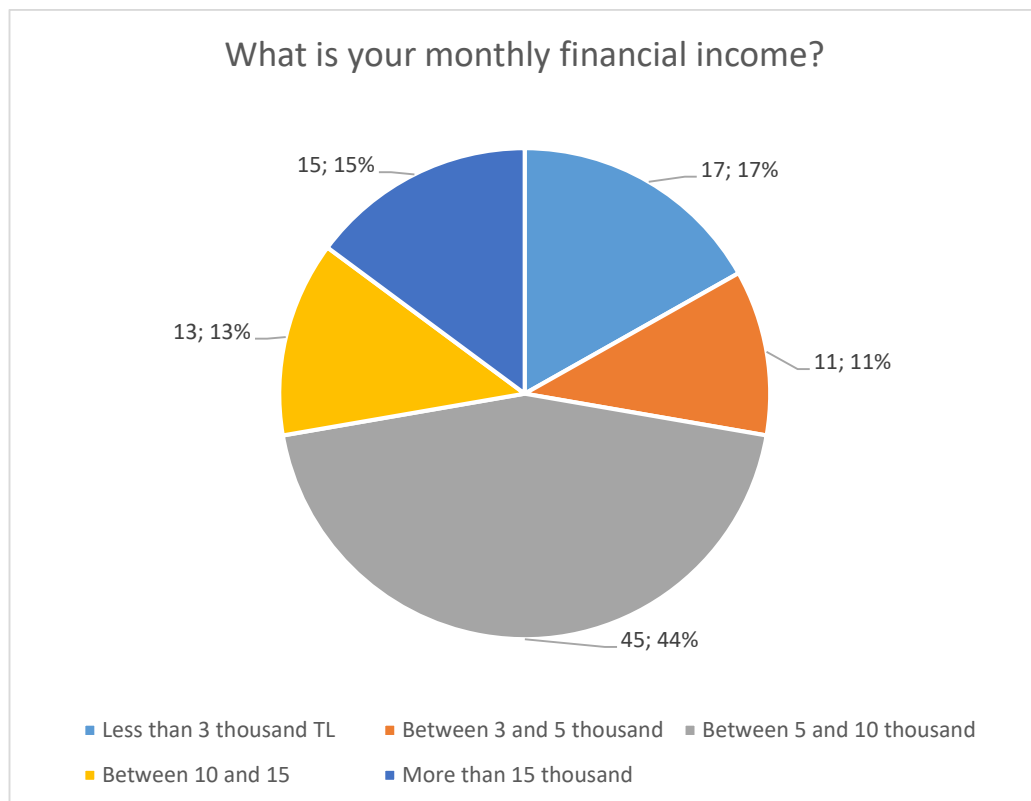
Among the people who participated in the survey, there are 16 people with master and doctorate degrees. This situation constitutes about 15% of the people who participated in the survey.

When we look at the education variable in general, it is seen that the majority of the people participating in the survey are university graduates.

4. The answer is given by the participants to the question “What is your monthly financial income? ”

Figure 22.

What is Your Monthly Financial Income?



Among the people who participated in the survey, there are 17 people with an income of less than 3 thousand TL. This situation constitutes 17% of the people who participated in the survey.

11 people participated in the survey with an income between 3 and 5 thousand TL. This situation constitutes 11% of the people who participated in the survey.

45 people participated in the survey with an income between 5 and 10 thousand TL. This situation constitutes 45% of the people who participated in the survey.

1 people participated in the survey with an income between 10 and 15 thousand TL. This situation constitutes 13% of the people who participated in the survey.

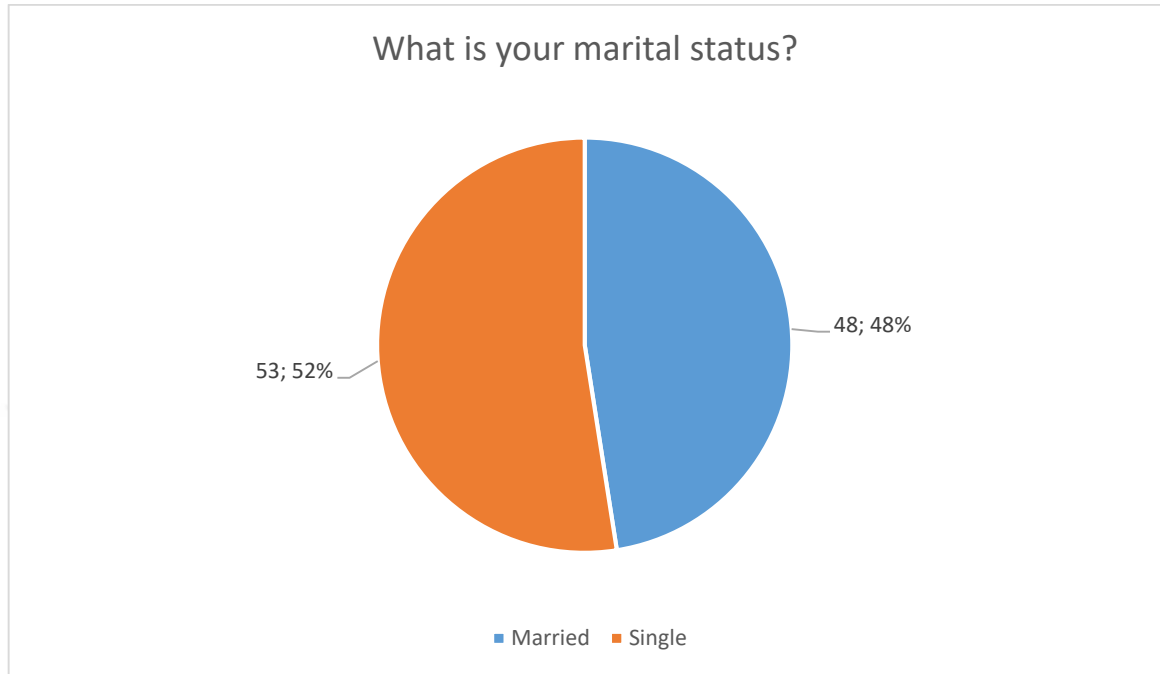
11 people participated in the survey with an income of more than 15 thousand TL. This situation constitutes 11% of the people who participated in the survey.

In general, when the income level of the participants is examined, it is seen that it is between 5 and 10 thousand TL.

5. The answer is given by the participants to the question “What is your marital status?” Among the people who participated in the survey, 48 people were married. This situation constitutes 48% of the people who participated in the survey.

Among the people who participated in the survey, 53 people were single. This situation constitutes 52% of the people who participated in the survey.

Looking at the marital status variable in general, an approximately equal number of people with marital status participated in the survey.

Figure 23.*What is Your Marital Status?*

6. The answer is given by the participants to the question “What do you pay attention to most when sending or receiving cargo?”

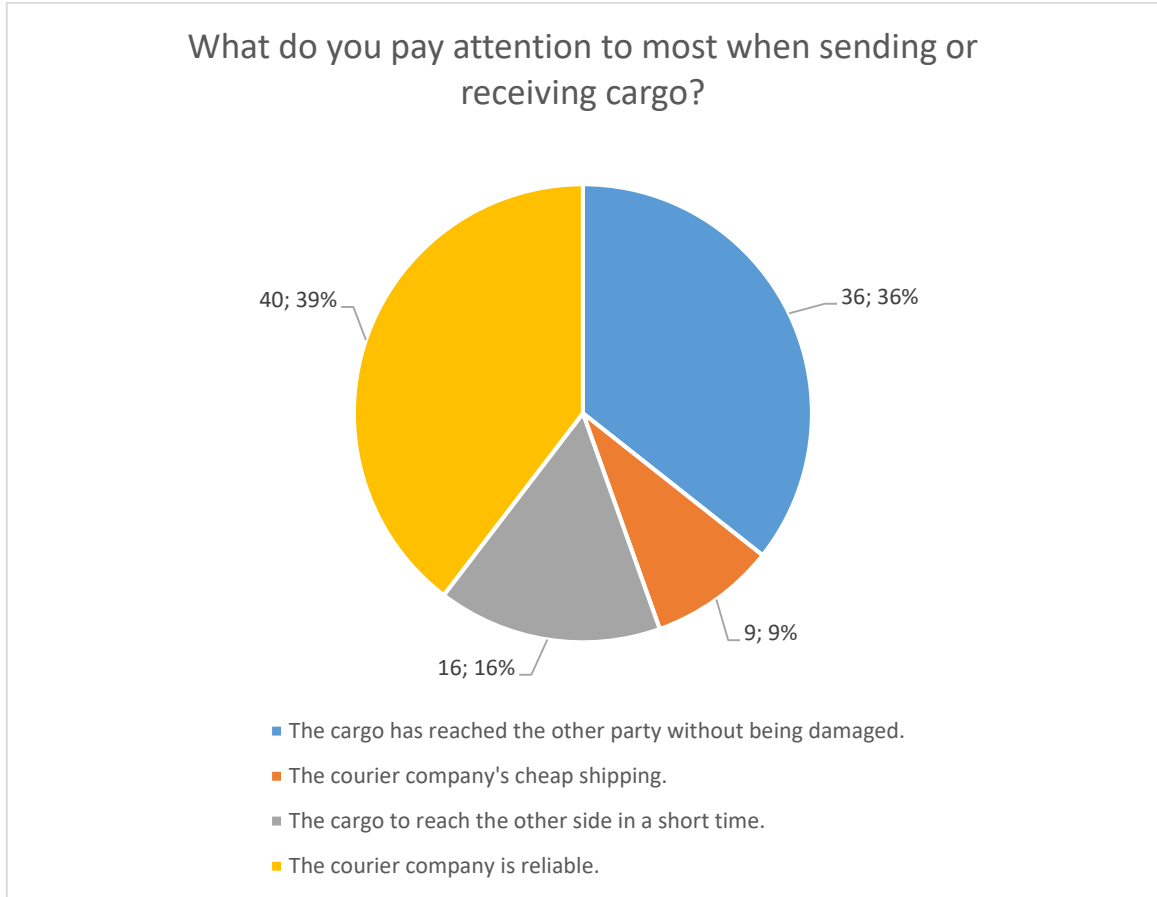
The number of people who pay attention to the "cargo reaches the other party without any damage" is 36 people. This constitutes 36% of the people who participated in the survey. The number of people who pay attention to the "cheap delivery of the cargo company" is 9 people. This constitutes 9% of the people who participated in the survey.

The number of people who pay attention to "the reliability of the cargo company" is 16 people. This situation constitutes 16% of the people who participated in the survey.

The number of people paying attention to “the cargo reaching the other person in a short time” is 40 people. This situation constitutes 39% of the people who participated in the survey.

Figure 24.

What Do You Pay Attention to Most When Sending or Receiving Cargo?



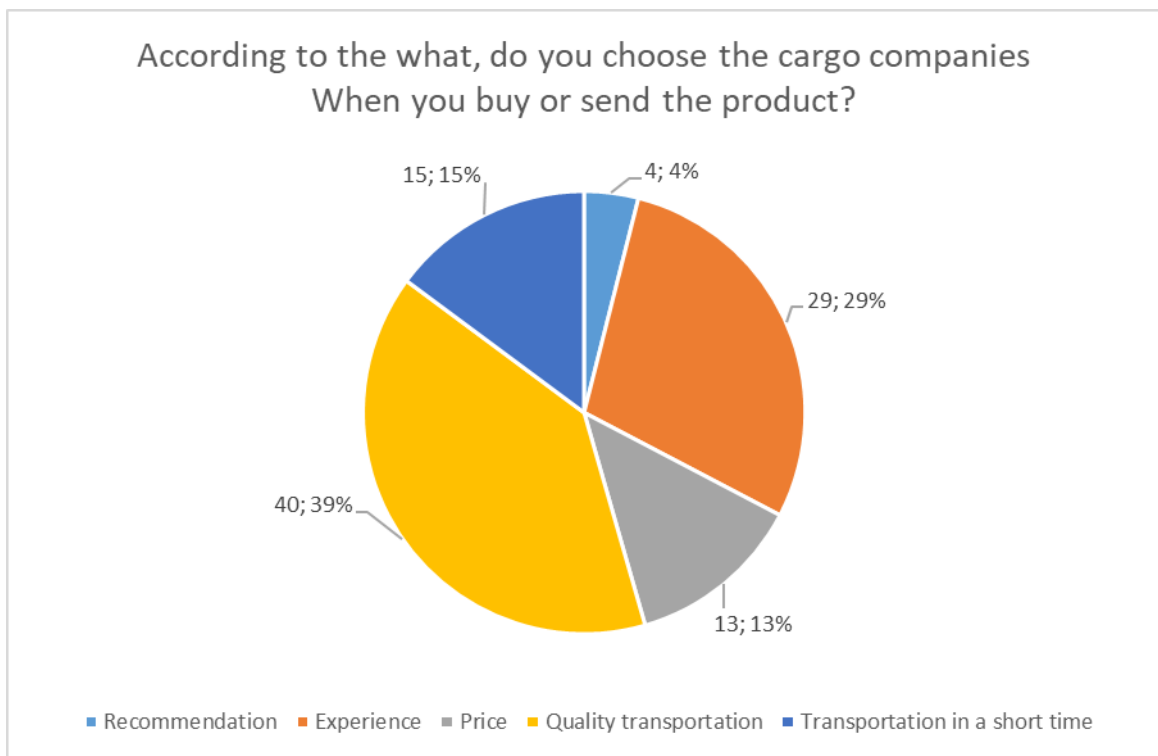
When we look at the survey results in general, it was found that most of the participants paid attention to the reliability of the cargo company when they first sent cargo.

Secondly, it has been obtained that they pay attention to the delivery of the cargo they send to the other person without any damage. Halit Şimşek (2021), in his thesis study "Service Quality In Cargo Transport", found that reliability is effective in choosing a cargo company. The results of the research and the results found by Şimşek support each other.

7. The answer is given by the participants to the question “According to the what, do you choose the cargo companies When you buy or send the product?”

Figure 25.

According to the What, Do You Choose the Cargo Companies When You Buy or Send the Product?”



Among the people who participated in the survey, four people chose the recommended company when sending cargo. This situation constitutes 4% of the people who participated in the survey.

Among the people who participated in the survey, 29 people chose the company based on their cargo experience. This situation constitutes 29% of the people who participated in the survey.

Among the people who participated in the survey, 13 people choose the company according to the shipping fee when they send cargo. This situation constitutes 13% of the people who participated in the survey.

Among the people who participated in the survey, 40 people chose the company by paying attention to the fact that the cargo reaches the other person without any damage when sending cargo. This situation constitutes 39% of the people who participated in the survey. Among the people participating in the survey, 15 people choose the company that allows the cargo to reach the other person quickly. This situation constitutes 15% of the people who participated in the survey.

When we look at the survey results in general, it is very important for the participants that the cargoes reach the other people without any damage. Therefore, considering this situation, the participants prefer cargo companies.

Merve Yahşi (2021) in her thesis study "Determining The Effect Of Green Logistics Applications On Perceived Service Value With Global Scale: A Research On Cargo Company Customers" has found that quality and price are at the forefront in cargo shipping. The result obtained from the study and the result found by Yahşi is in the same direction. Although cargo is sent by different methods, most of the participants want their cargo to arrive without any damage.

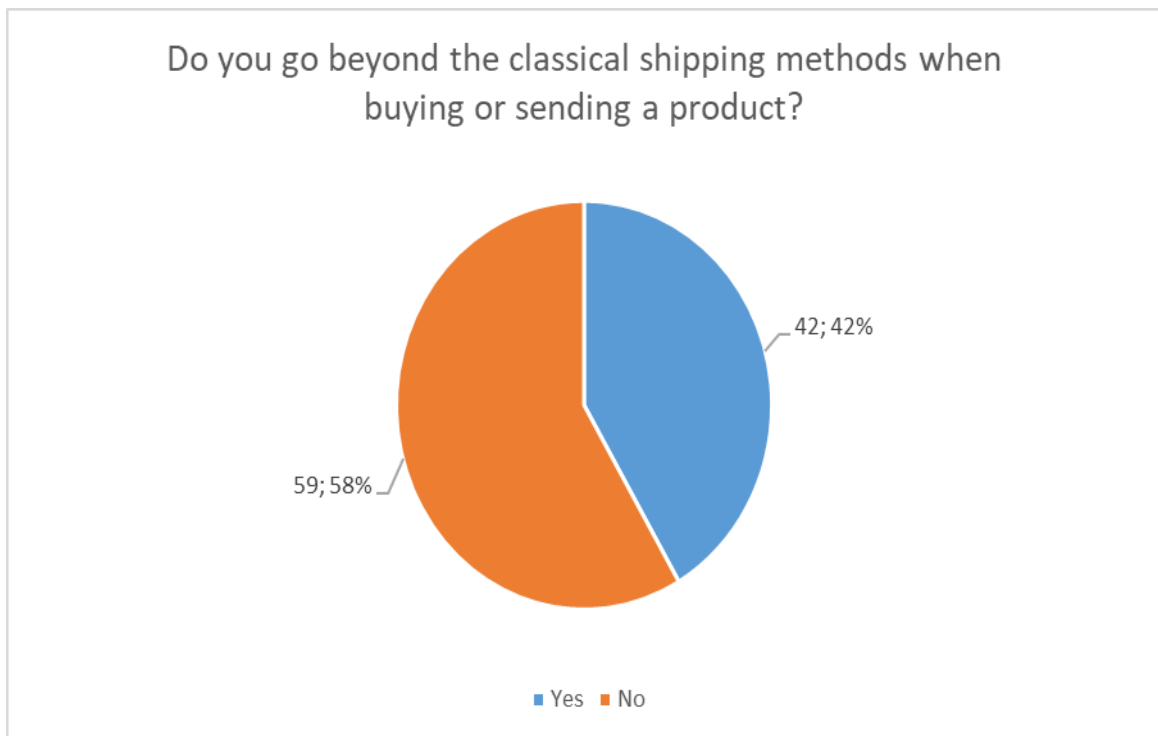
8. The answer is given by the participants to the question “Do you go beyond the classical shipping methods when buying or sending a product?”

Among the people who participated in the survey, 42 people went out of the classical shipping method when sending cargo. This situation constitutes 42% of the people who participated in the survey.

Among the people who participated in the survey, 59 people did not go beyond the classical shipping method when sending cargo. This situation constitutes 59% of the people who participated in the survey.

Figure 26.

Do you go beyond the classical shipping methods when buying or sending a product?

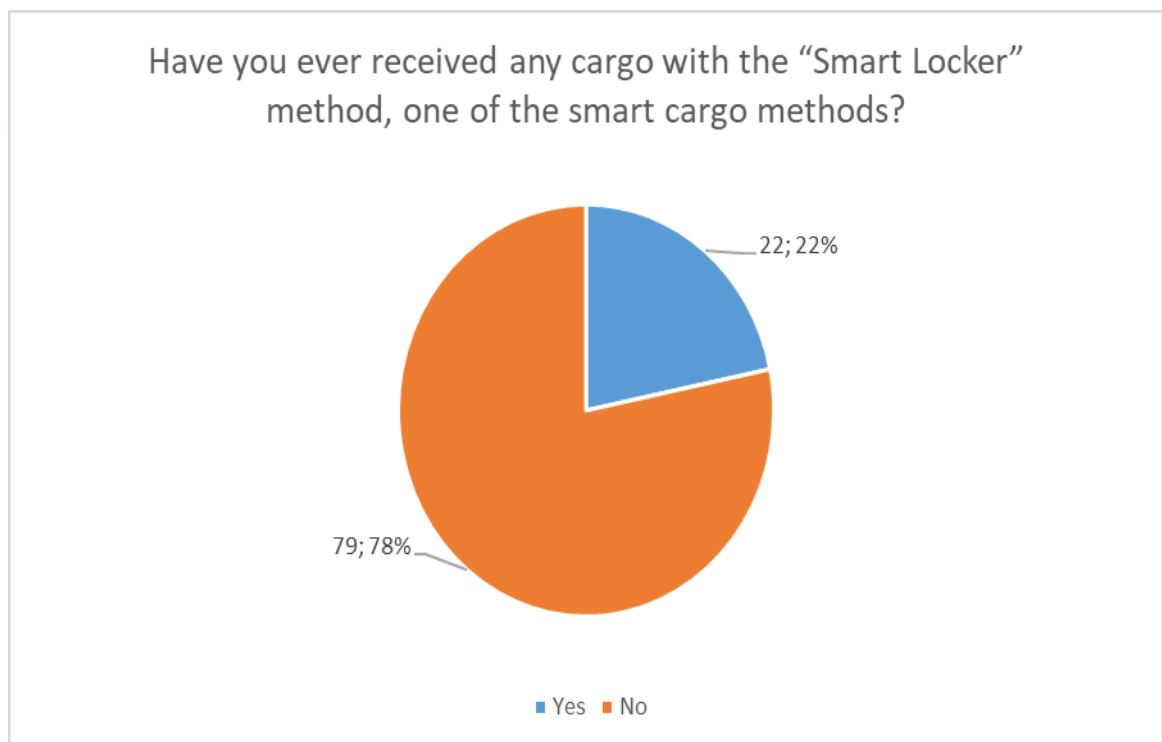


When we look at the survey results in general, it was found that the people who participated in the survey preferred the classical cargo method rather than the other cargo methods.

9. The answer is given by the participants to the question “Have you ever received any cargo with the “smart locker” method, one of the smart cargo methods? ”

Figure 27.

Have You Ever Received Any Cargo With the “Smart Locker” Method, One of the Smart Cargo Methods?



Among the people who participated in the survey, 22 people have used the smart locker method before. This situation constitutes 22% of the people who participated in the survey.

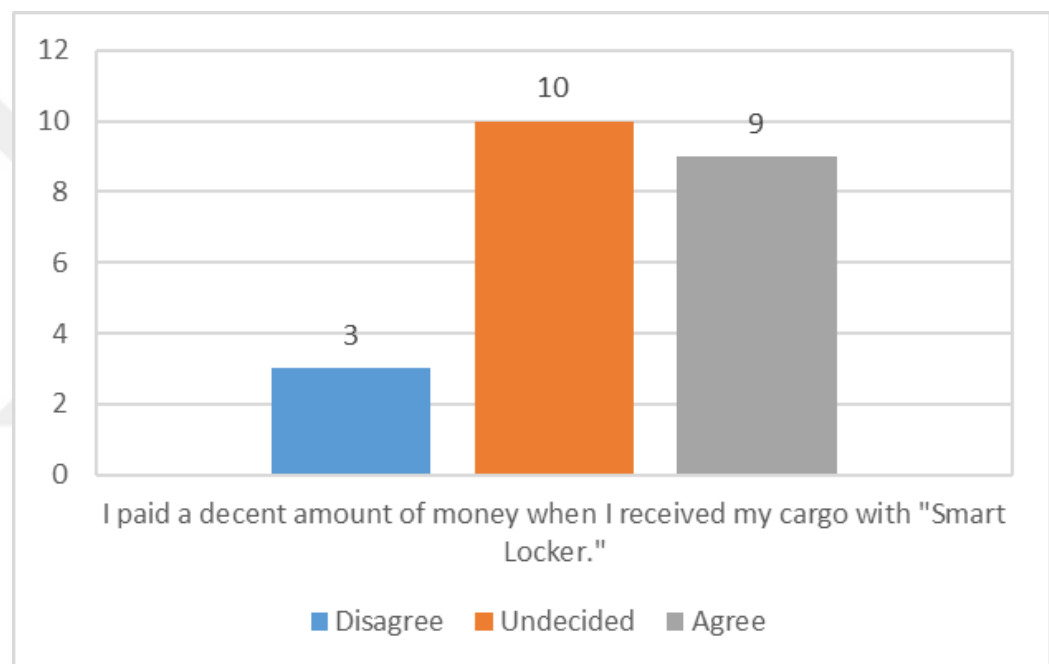
Among the people participating in the survey, 79 people have not used the smart locker method before. This situation constitutes 79% of the people who participated in the survey.

When we look at the survey results in general, it was seen that most of the people who participated in the survey did not use the smart locker method. This situation shows that cargo delivery with the smart locker method is not common.

10. This question was answered by those who answered Yes to Question 9. 22 people answered the 10th question. 10. Evaluation of the question was made among 22 people.

Figure 28.

Evaluate the Questions Below Within the Scope of Your Reason for Choosing the "Smart Locker Cargo System."



Among the people who participated in the survey, 3 people say that they paid more than their value while sending cargo with the "Smart locker" method. This situation constitutes 14% of the people who answered the 10th question.

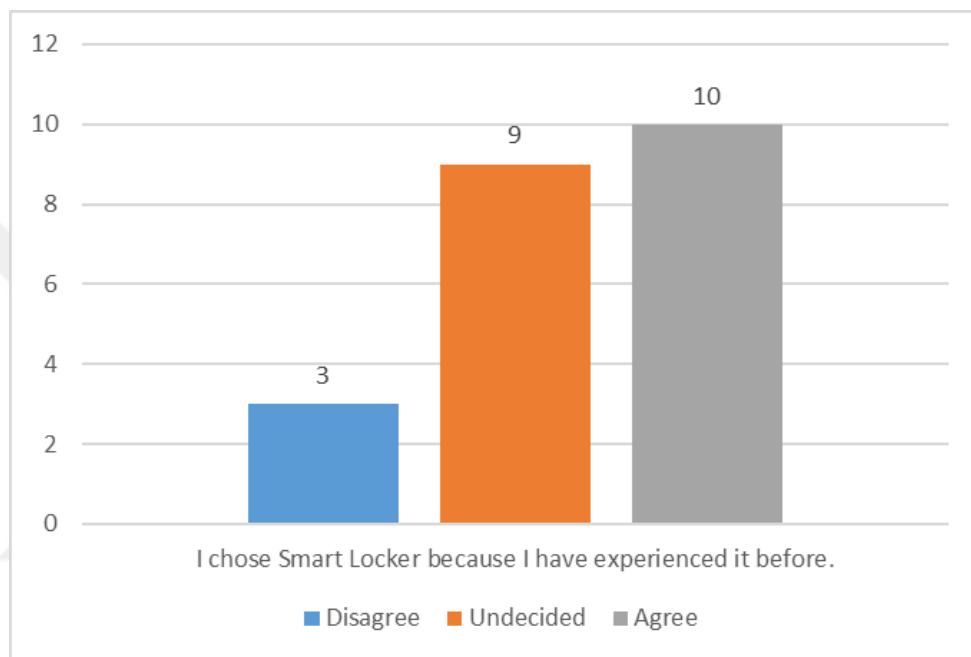
Among the people who participated in the survey, ten people said that they are undecided about the value of the money, they pay while sending cargo with the "Smart locker" method. This situation constitutes 45% of the people who answered question 10.

Among the people who participated in the survey, nine people say that they pay their worthwhile sending cargo with the "Smart locker" method. This situation constitutes 41% of the people who answered the 10th question.

When we look at the survey results in general, most of the people who buy cargo with the "Smart locker" method think that this method is expensive.

Figure 29.

I Chose Smart Locker Because I Have Experienced it Before.



Among the people who participated in the survey, three people said that the reason for choosing the "Smart locker" method was not that they had used this method before. This situation constitutes 14% of the people who answered the 10th question.

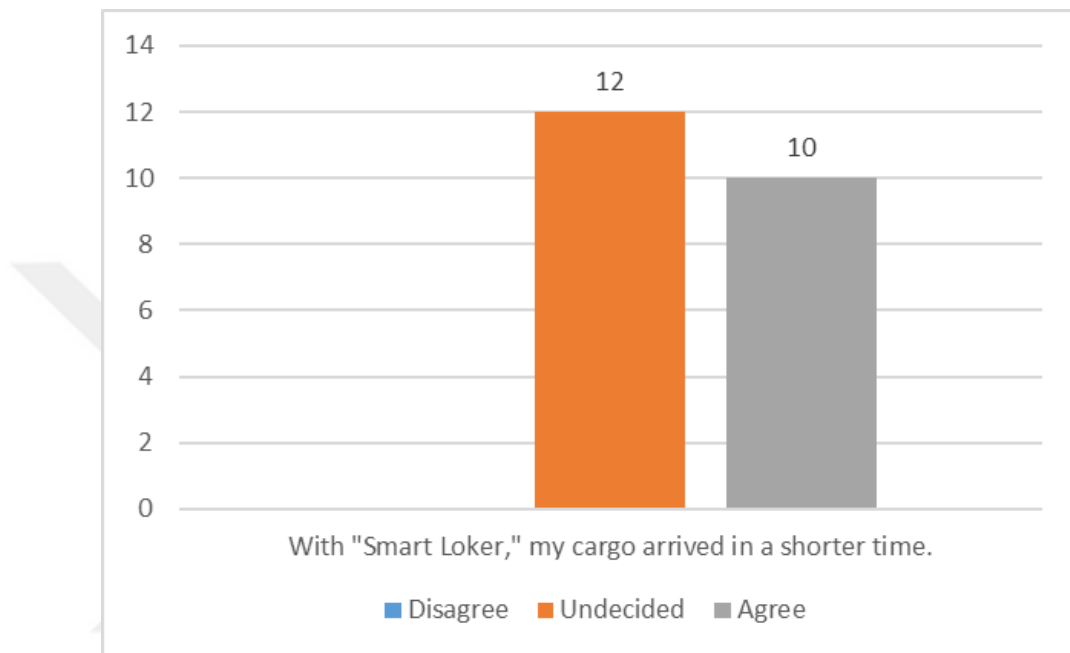
Among the people who participated in the survey, nine people said that they were undecided as to whether the reason for choosing the "Smart locker" method affected their previous use of this method. This situation constitutes 41% of the people who answered the 10th question.

Among the people who participated in the survey, ten people said that the reason for choosing the "Smart locker" method was that they had used this method before. This situation constitutes 45% of the people who answered the 10th question.

When we look at the survey results in general, it is seen that people who bought cargo with the "Smart locker" method prefer this method again.

Figure 30.

With "Smart Locker," My Cargo Arrived in a Shorter Time



None of the people who participated in the survey said that their cargo did not arrive in a shorter time with the "Smart locker" method.

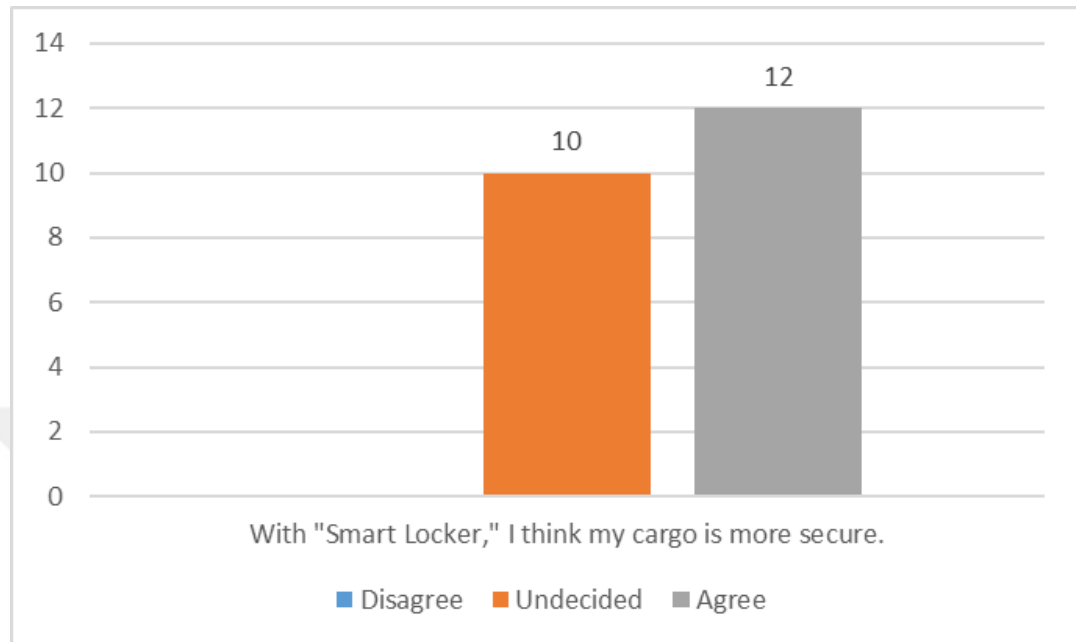
Among the people who participated in the survey, 12 people are undecided about their cargo being delivered in a shorter time with the "Smart locker" method. This situation constitutes 55% of the people who answered the 10th question.

Among the people who participated in the survey, ten people stated that their cargo reached their hands in a shorter time with the "Smart locker" method. This situation constitutes 45% of the people who answered the 10th question.

When we look at the survey results in general, people who bought cargo with the "Smart locker" method stated that their cargo reached their hands in a shorter time. Some people stated that they were undecided on the subject, but no people said otherwise.

Figure 31.

With "Smart Locker," I think My Cargo is More Secure



None of the people who participated in the survey said that their cargo is less secure with the "Smart locker" method.

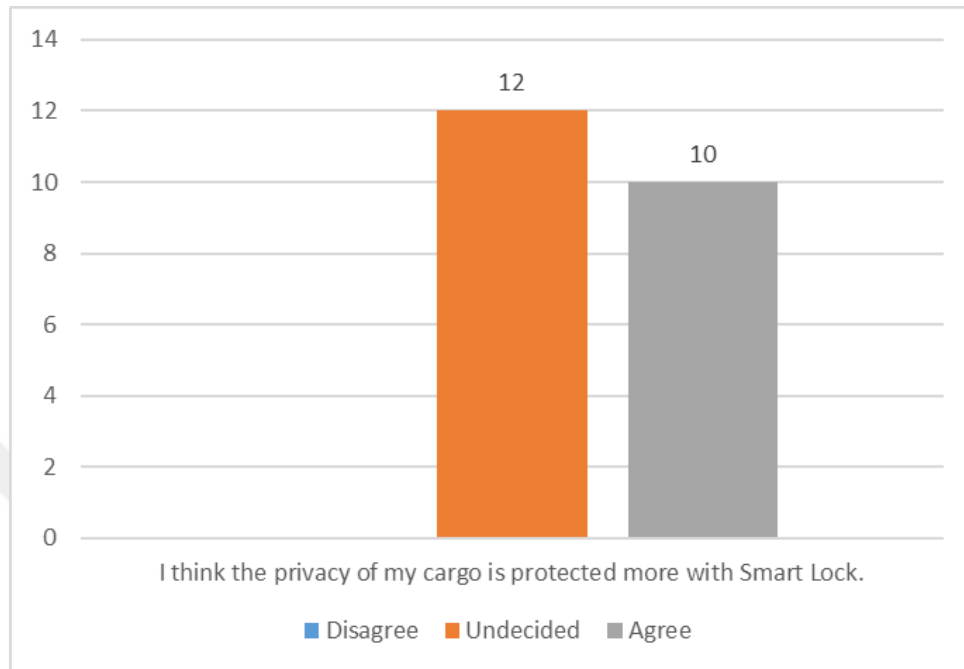
Among the people who participated in the survey, ten people stated that they were undecided about the safety of their cargo with the "Smart locker" method. This situation constitutes 45% of the people who answered the 10th question.

Among the people who participated in the survey, 12 people stated that their cargo was safe with the "Smart locker" method. This situation constitutes 55% of the people who answered the 10th question.

When we look at the survey results in general, people who receive their cargo with the "Smart locker" method think that their cargo is safer.

Figure 32.

I Think the Privacy of My Cargo is Protected More With "Smart Locker"



Among the people who participated in the survey, no one is worried about the privacy of their cargo with the "Smart locker" method.

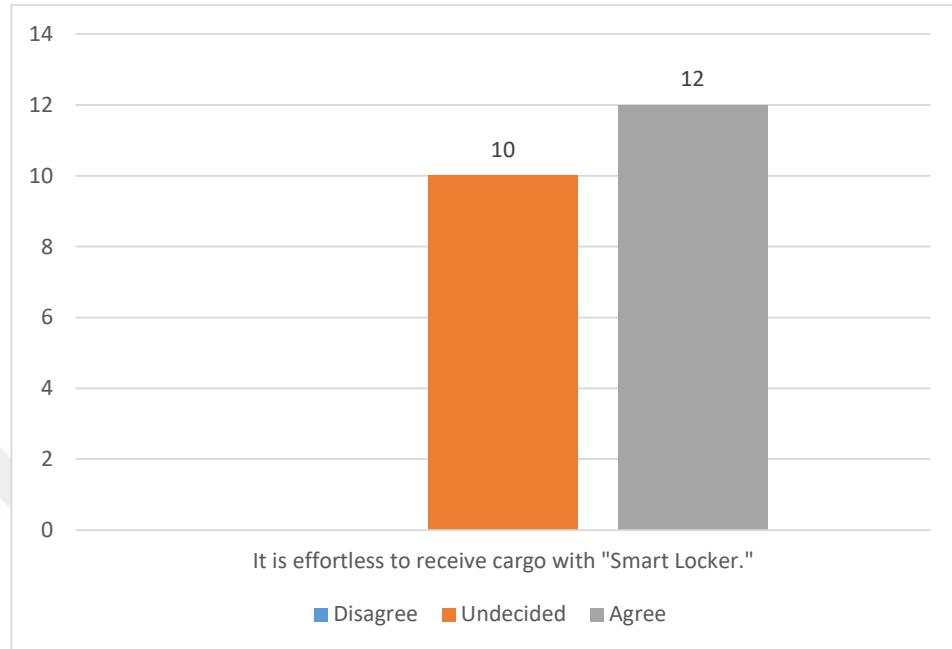
Among the people who participated in the survey, 12 people stated that they were undecided about the privacy of their cargo with the "Smart locker" method. This situation constitutes 55% of the people who answered the 10th question.

Among the people who participated in the survey, ten people stated that the privacy of their cargo was protected with the "Smart locker" method. This situation constitutes 45% of the people who answered the 10th question.

When we look at the survey results in general, people who receive their cargo with the "Smart locker" method think that the privacy of the content of their cargo is protected.

Figure 33.

It is Effortless to Receive Cargo with "Smart Locker"



None of the people who participated in the survey said that it was more difficult to reach their cargo with the "Smart locker" method than with the classical method.

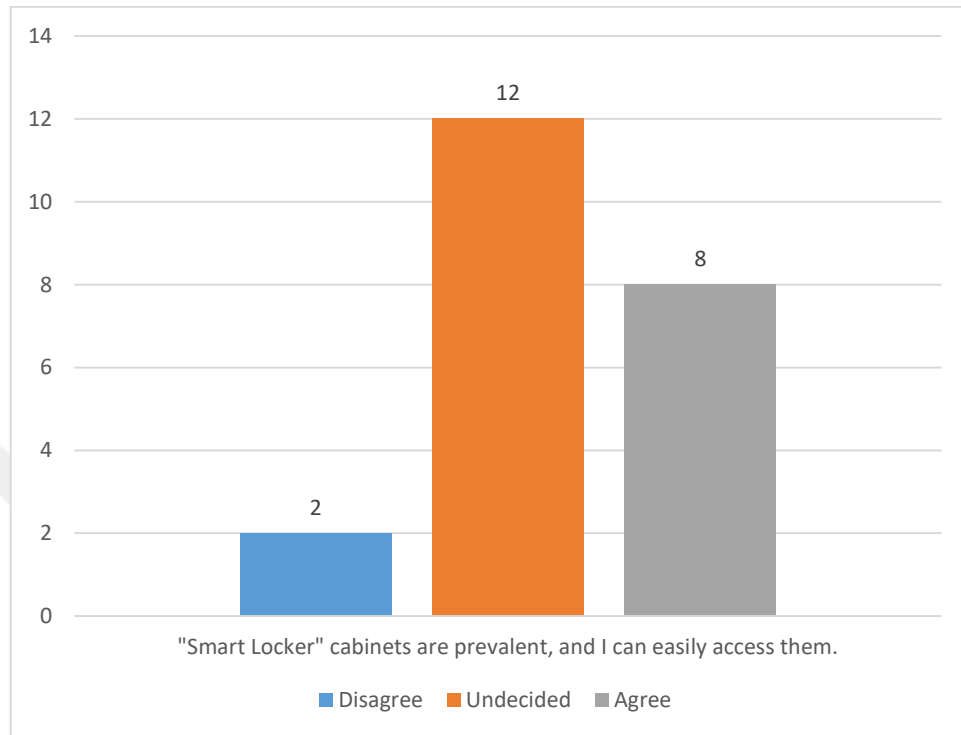
Among the people who participated in the survey, ten people stated that they were undecided about the easy access of their cargo with the "Smart locker" method. This situation constitutes 45% of the people who answered the 10th question.

Among the people who participated in the survey, 12 people said that they could reach their cargo more easily with the "Smart locker" method. This situation constitutes 55% of the people who answered the 10th question.

When we look at the survey results in general, people who receive their cargo with the "Smart locker" method think that they receive their cargo very comfortably.

Figure 34.

"Smart Locker" Cabinets are Prevalent, and I Can Easily Access Them



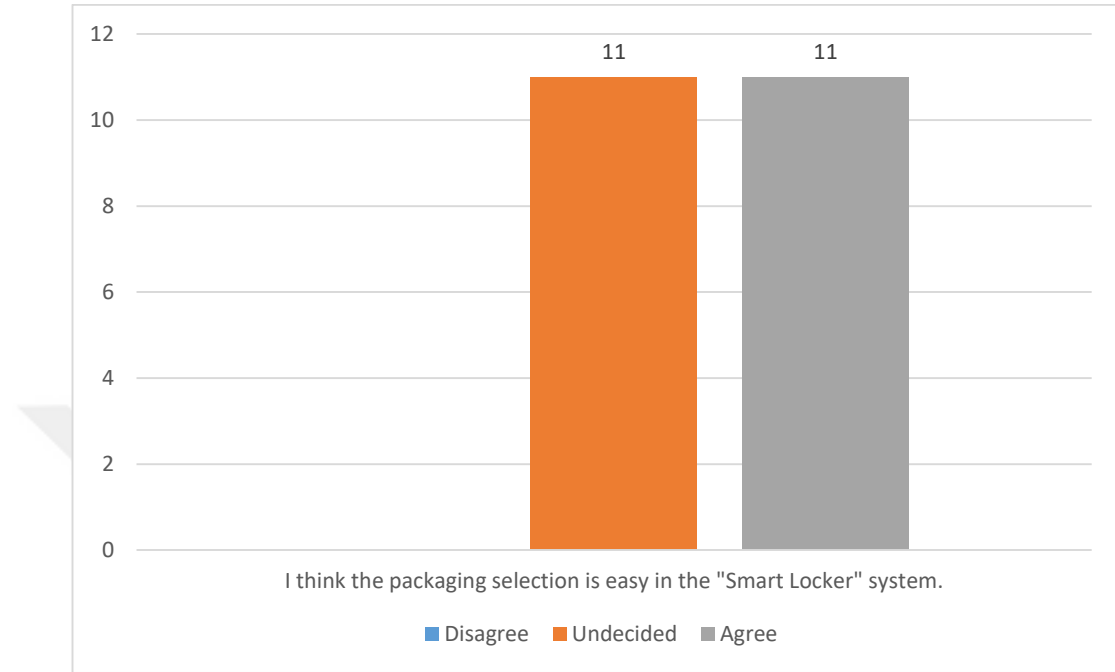
Among those surveyed are 2 who said that "Smart locker" lockers are not common and do not provide access. This situation constitutes 9% of the people who answered the 10th question.

Among the respondents, 12 stated that "Smart locker" lockers were common and were undecided about easy access to the lockers. This situation constitutes 55% of the people who answered the 10th question.

Eight of those surveyed said that "Smart lockers" lockers are common and have easy access to lockers. This situation constitutes 36% of those who answered the 10th question. When we look at the survey results in general, it was found that the "Smart locker" method is common for cargo use and people are close to their homes.

Figure 35.

I Think the Packaging Selection is Easy in the "Smart Locker" System



Among the people who participated in the survey, there is no one who thinks that choosing a package size is not easy when sending cargo with the "Smart locker" method.

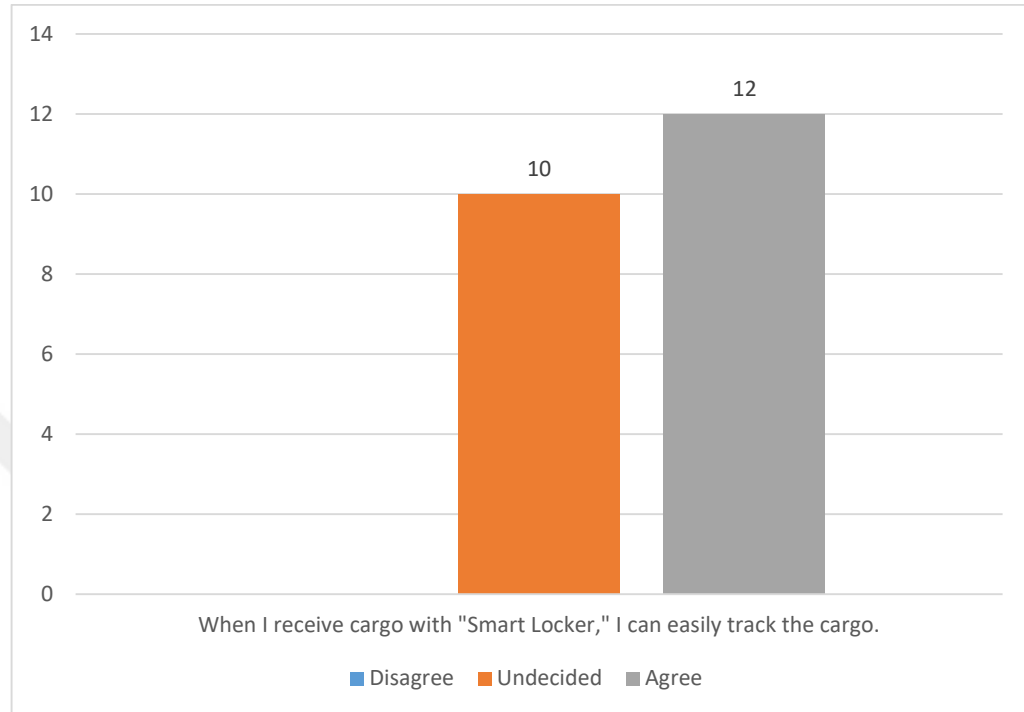
Among the people who participated in the survey, 11 people stated that they were undecided about the easy choice of package size when sending cargo with the "Smart locker" method. This situation constitutes 50% of the people who answered the 10th question.

Among the people who participated in the survey, 11 people said that choosing the package size is easy when sending cargo with the "Smart locker" method. This situation constitutes 50% of the people who answered the 10th question.

When we look at the results of the survey in general, it is seen that people do not have difficulty in choosing package sizes when sending cargo with the "Smart locker" method.

Figure 36.

When I Receive Cargo with "Smart Locker," I Can Easily Track The Cargo



Among the people who participated in the survey, there is no one who has had problems with cargo tracking with the "Smart locker" method.

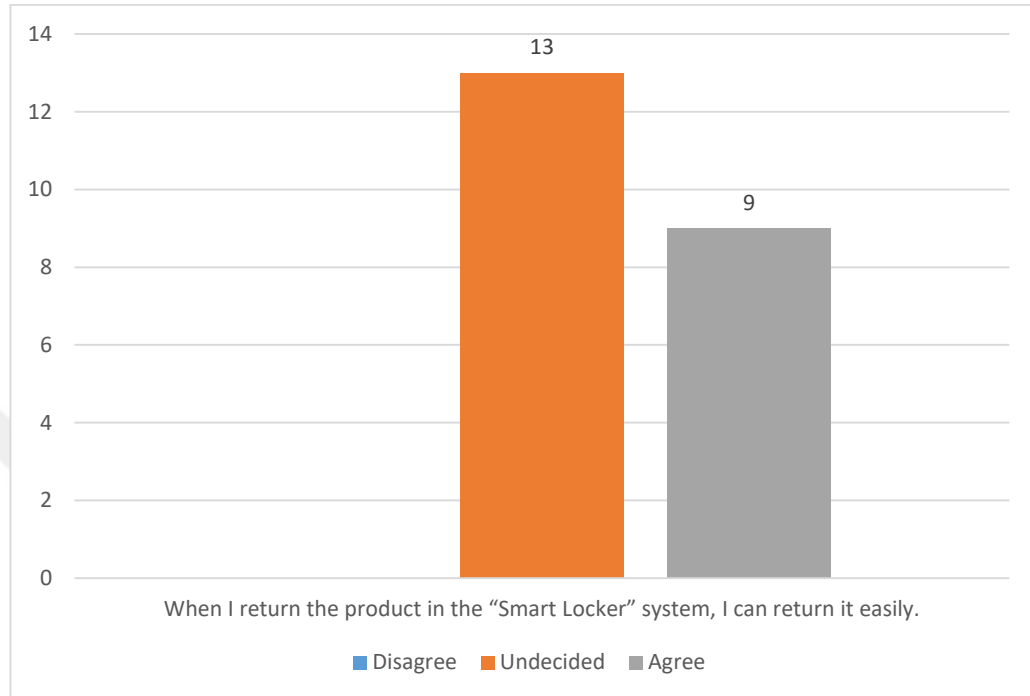
Among the people who participated in the survey, 10 people stated that they were undecided about making a cargo inspection with the "Smart locker" method. This situation constitutes 45% of the people who answered the 10th question.

Among the people who participated in the survey, 12 people said that they could easily track the cargo with the "Smart locker" method. This situation constitutes 55% of the people who answered the 10th question.

When we look at the results of the survey in general, it is seen that the participants can easily track the cargo with the "Smart locker" method.

Figure 37.

When I Return the Product in the “Smart Locker” System, I Can Return It Easily



Among the people who participated in the survey, there was no one who said that they had a problem with the "Smart locker" method product return.

Among the people who participated in the survey, there are 13 people who say that they are undecided about returning the product with the "Smart locker" method. This situation constitutes 59% of the people who answered the 10th question.

Among the people who participated in the survey, there are 9 people who said that they returned the products easily with the "Smart locker" method. This situation constitutes 41% of the people who answered the 10th question.

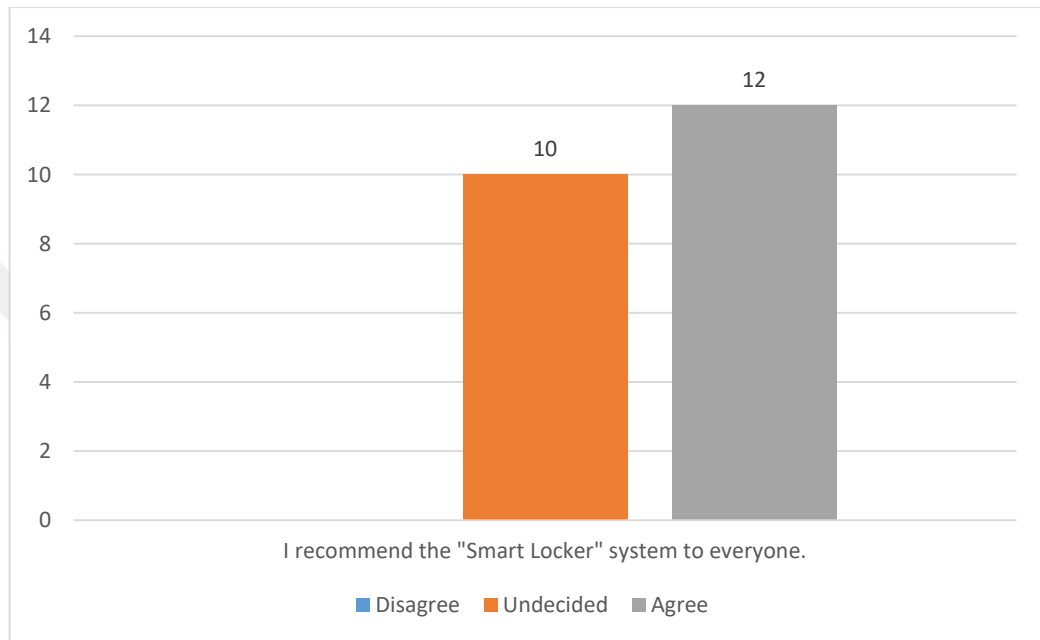
When we look at the results of the survey in general, product returns are made easily with the "smart locker" method.

Mehmet Şahin Durak (2016) revealed in his thesis study “The Analysis Of Airline Selection Criteria At Turkish Air Cargo Transportation Industry With Analytic Hierarchy

Process” that easy product tracking is effective in choosing cargo method. The result obtained with the study supports Durak.

Figure 38.

I Recommend the "Smart Locker" System to Everyone



Among the people participating in the survey, there is no person who does not recommend sending or receiving cargo with the "Smart locker" method to others.

Among the people who participated in the survey, there are 10 people who say that they are undecided about sending or receiving cargo with the "Smart locker" method. This situation constitutes 45% of the people who answered the 10th question.

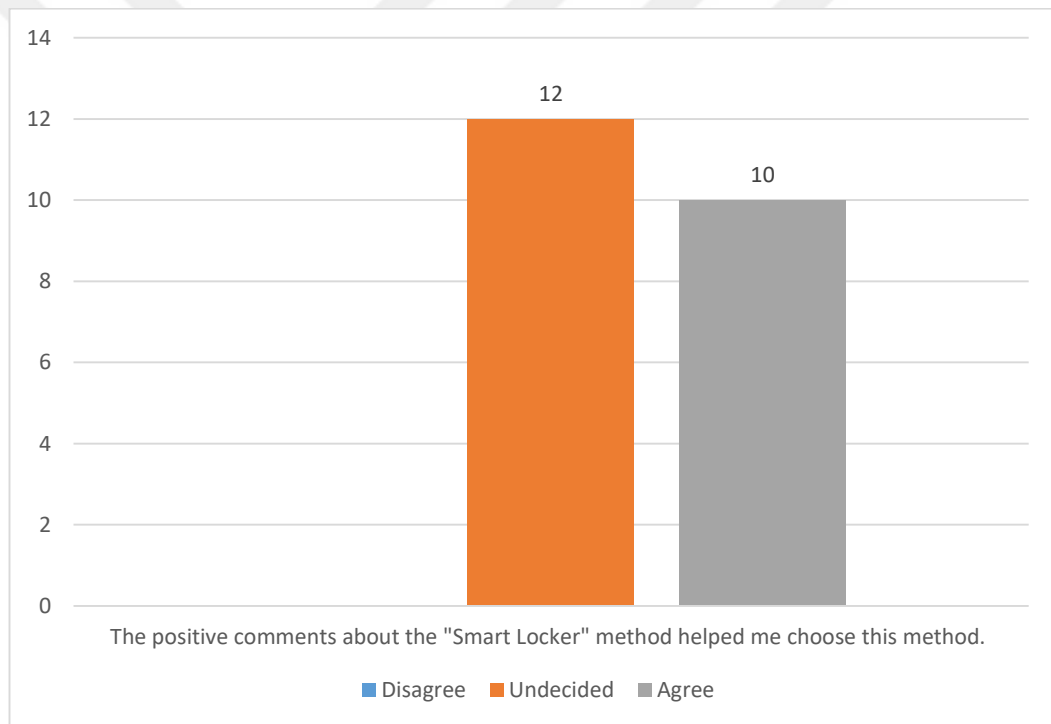
Among the people who participated in the survey, there are 12 people who recommend sending or receiving cargo with the "Smart locker" method to others. This situation constitutes 55% of the people who answered the 10th question.

When we look at the results of the survey in general, the participants recommend it to others after they experience the cargo sending and receiving process with the "Smart locker" method.

Deniz Erdoğan (2017) thesis study "Current Status Of Air Cargo Transportation In Turkey And The Role Of Service Quality In Creating Customer Satisfaction: Horoz Bollore Company Application" has shown that customer recommendations are effective in using that method again. The result obtained with the study is in line with the result of the study done by Kaplan. Positive comments on the method are among the reasons why people prefer that method.

Figure 39.

The Positive Comments About the "Smart Locker" Method Helped Me Choose This Method



None of the respondents stated that the comments about the "Smart locker" method did not help them choose this method.

Among the people who participated in the survey, 12 people stated that they were undecided about the comments made about the "Smart locker" method. This situation constitutes 55% of the people who answered the 10th question.

Among the people who participated in the survey, 10 people stated that the comments made about the "Smart locker" method helped in the selection of this method. This situation constitutes 45% of the people who answered the 10th question.

When we look at the results of the survey in general, it is seen that the comments about the "smart locker" method give ideas to new users and guide them to send and receive their cargo with this method.

Selin Raçlı (2019) has obtained that customer satisfaction is effective in sending cargo in her thesis study "A Research in Customer Complaint Management and Cargo Sector". In the study, the conclusion that the comments made on the cargo method and the experience of cargo delivery are effective in choosing the cargo method is in line with the result obtained by Raçlı.

5, CONCLUSION AND RECOMMENDATIONS

With the development of technology, many sectors have benefited from technology. One of these sectors is the transportation sector. Shipping and receiving of cargo have gained different dimensions with technology. Some of those; smart locker / smart parcel locker / automated parcel locker, delivery by drone / UAVs (Unmanned Aerial Vehicle), GADDS (Ground Autonomous Delivery Device), pick-up point, ADRs (Autonomous Delivery Robots) methods.

Within the scope of the study, the “Smart locker” method, which is included in the cargo system in Turkey, has been examined. The "Smart locker" method was examined by investigating why the participants chose the "Smart locker" method, according to what they chose, their experiences and whether they would recommend the method. Survey questions were asked to 101 people within the scope of the study, and the results of the survey were evaluated. While creating the survey questions, interviews were conducted with five people working in the transportation sector and experienced the "Smart locker" method. The survey questions were created by evaluating the results of the interviews. Interview questions were prepared based on the model of the research.

According to the results of the survey, when the demographic characteristics of the people participating in the survey are examined; It has been obtained that he is over 25 years old. No one under the age of 18 participated in the survey. The gender and marital status of the respondents are almost equal in number. It was observed that the education level of the majority of the participants was university and above, and their income levels were above the average.

When choosing a cargo company, people pay more attention to the reliability of the cargo company. Other options come after the concept of trust. From another point of view,

participants care that the cargo they send goes to the other party without any damage to the cargo. When choosing the cargo company, they provide shipping or receiving with the cargo companies that they are sure will not damage the product. In this case, the conditions such as the arrival or receipt of the cargo in a short time and the low cost of the cargo remained among the second considerations.

Most of the people who participated in the survey stated that they chose the classical shipping method. This is because the "Smart locker" method for the cargo industry is an emerging method. It may take time for people to start using a new method. After the first experience, new methods build trust in people. As obtained from the survey study, people who use the "Smart locker" method prefer this method later on. Experience has an important place among the reasons for preference.

Participants find the "Smart Cargo" method more expensive than the classical cargo method. The shipping fee to be paid is very important in selecting alternative shipping methods when sending or receiving the product. No one will want to pay a shipping fee close to the product they bought, no matter how safe. For this reason, the prices of smart cargo systems are very important for the use of these methods.

The participants put forward their experience as the reason for choosing this method again. For this reason, the positive experiences of people are effective in choosing smart cargo systems. It is very important that these systems work properly and that the sending and receiving processes are carried out without any problems. The slightest problem experienced by a person using this method for the first time will push her/him to receive or send cargo with the classical method.

When the "Smart Cargo" method is compared with the classical shipping method, users stated that the packages that come with "Smart Cargo" are delivered to their hands

faster. People think that their cargo is safer with this method, and their privacy is more protected.

The proximity of the cargo pickup points to the home provides convenience for people to receive their cargo. Increasing the intake points will be effective in the selection of this method. Using systems located at a remote point, people will not want to receive heavy or large-sized packages using this method. Because people using systems located at a distant point will not want to receive heavy or large-sized packages using this method.

Most of the participants said that product tracking is easy. In addition, using technology at the highest level and using software for these systems also facilitates product tracking. Product returns are made using the classical method. For this reason, to be preferred, "Smart locker" systems need to develop themselves and find a smart solution for product return.

It has been seen that the comments made about the "Smart locker" method give ideas to new users and redirect them to send and receive their cargo with this method. For this reason, user experience is very important for a new system.

To popularize the sending and receiving of cargo with the "Smart locker" method, this method should be announced to people with advertisements. The benefits of the method should be explained to the people, and the reliability of the method should be emphasized. In addition, the fact that the prices are at least at the same level as the classical cargo will increase the usability of the method. To encourage people, smart shipping methods should be cheaper than the classical shipping method. To encourage people, smart shipping methods should be cheaper than the classical shipping method. "Smart Cargo" purchase points need to be increased. Today, when technology is intertwined with our lives, finding alternative methods for the cargo sector makes life easier.

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APPENDIX A: SURVEY QUESTIONS

The survey was designed to be used in Yeditepe University master's thesis in Management Information Systems

It was created with the aim of "measuring how much people go out of the classical cargo understanding when buying or sending products." The identities of the people who answered the questions will not be shared. The survey will be used for academic purposes only.

1. What is your age?
 - Younger than 18
 - Between the ages of 18 -25
 - Between the ages of 25-35
 - Between the ages of 35-45
 - Over 45 years old
2. What is your gender?
 - Female
 - Male
3. What is your education level?
 - Primary school graduate
 - Secondary school graduate
 - High school graduate
 - Graduated from a University
 - Graduate and doctorate graduates
4. What is your monthly financial income?
 - Less than 3 thousand TL
 - Between 3 and 5 thousand
 - Between 5 and 10 thousand
 - Between 10 and 15
 - More than 15 thousand

5. What is your marital status?

- Married
- Single

6. What do you pay attention to most when sending or receiving cargo?

- The cargo has reached the other party without being damaged.
- The courier company's cheap shipping.
- The cargo to reach the other side in a short time.
- The courier company is reliable.

7. According to the what, do you choose the cargo companies When you buy or send the product?

- Recommendation
- Experience
- Price
- Quality transportation
- Transportation in a short time

8. Do you go beyond the classical shipping methods when buying or sending a product?

- Yes
- No

9. Have you ever received any cargo with the “Smart locker” method, one of the smart cargo methods?

- Yes
- No

10. Please, those who answered yes to question 9 should answer question 10. Evaluate the questions below within the scope of your reason for choosing the "Smart locker" cargo system.

	Disagree	Undecided	Agree
1. I paid a decent amount of money when I received my cargo with "Smart locker." ⁷			
2. I chose Smart locker because I have experienced it before.			
3. With "Smart Loker," my cargo arrived in a shorter time.			
4. With "Smart locker," I think my cargo is more secure.			
5. I think the privacy of my cargo is protected more with Smart locker.			
6. It is effortless to receive cargo with "smart locker."			
7. "Smart locker" cabinets are prevalent, and I can easily access them.			
8. I think the packaging selection is easy in the "Smart locker" system.			
9. When I receive cargo with "Smart locker," I can easily track the cargo.			
10. When I return the product in the "Smart locker" system, I can return it easily.			
11. I recommend the "Smart locker" system to everyone.			
12. The positive comments about the "Smart locker" method helped me choose this method.			