RISK MANAGEMENT IN LOGISTICS: SAMPLING OF RISK COMPONENTS

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ABSTRACT

In global business in the world, businesses produce their products in different parts of the world in partnership with suppliers as a result of global production, install them in another country and market them in another country. In global markets where there is intense competition, the fact that manufacturers, suppliers, vehicles and consumers are in different parts of the world has made risk management in logistics and logistics important. In this context, the importance of logistics and risk management has become increasingly important as the level of quality and expectations of products / services increases, costs are minimized, speed in operational processes, quality and delivery become more important.

Logistics in global production and marketing system; In order to meet the needs of customers, from the starting point of the raw material to the last point where the product is consumed, the material and service services are to be done efficiently in a bidirectional manner. Because of this, logistics has become an activity related to difficult and risky processes that are central to all processes. During the activities such as loading, transportation, unloading, warehousing, which are operational in logistics processes; Breaking, falling, crumbling, crushing, crushing, burning, explosion, etc. risks occur. In addition, there are other risks such as natural disasters, terrorism, theft. In the context of global business, these risks, which constitute important obstacles in all business activities, must be managed. In order to minimize the risks in logistics activities and take an active role in the market, processes must be managed through information technology. In this study, risk management in logistics and logistics and the technologies used in implementation will be examined.

Key words: *Logistics, Risk Factors in Logistics, Risk*

INTRODUCTION

As a logistic activity, starting with the creation of human beings, the term is based on ancient Greece as a term. It is thought to be the Latin word "logisticos", which comes from the word root, skillful, or master. It has come to the point that the combination of logic and static. In French, logistics is defined as "back service" as military concept. The history of the civilian inland history of the logistics can be seen as the oldest and largest project, the Egyptian pyramids. The transport of the stone blocks in the Egyptian pyramids and the construction of the water channels in the substructure can be seen as an important logistic activity (Tekin, 2013: 13-16).

Although there is a lot of definition about logistics, the logistics definition which is frequently done in the sources; In order to produce and market products and services in order to meet the needs of the customers, from the start of production to the end of the product, effectively and efficiently planning, implementation, transport, store and keep under control the logistics are called activities (www. cscmp.org, 2015).

As a logistic process, it is necessary to ensure that the product is transported in the most appropriate way in terms of cost. Logistics aims to do everything right, but its principles are as follows: (Öz, 2011 : 2)

- In the right place,
- Right time,
- At the right amount,
- Correctly,
- Right price,
- Correct customer,
- With the right distribution channel, it is the principle to realize.

Here are some of the issues that are important to your business in terms of logistics: (Korucuk, 2015 : 3).

- In all enterprises, it is the most basic function of the logistics company because it needs to supply production material.
- Because the logistics cost is high, the turnover is also high.
- It has a direct effect on profits and has a direct impact on business performance.
- It has a strategic precaution because it affects the long-running performance of the business.
- Establish strong links with suppliers and ensure that products are of good quality.
- Producing contributes by connecting with customers.
- Orders have direct contributions to the supply period and delivery period.

1. Logistics Risk Management And Logistics Risk Types

There are many risks at every stage of logistics activities. It is very important that these risks are predicted, detected and taken precautions. Otherwise, the difficulty of a ring in a chain could be a negative effect on the whole chain's activities.

Risk management allows you to remove uncertainties and the negative situations that will cause them. It ensures that measures are taken before problems arise. It exposes the probabilities of the problems and makes plans to destroy it. When doing so, it ensures that resources are used effectively (Balıkçı, 2009:38).

By virtue of the risk management to be made according to the working culture, structure, existing resources, capital, sector of the enterprise, the enterprises have the following benefits (Keskinlioğlu, 2012:6):

- Ensuring that quick and effective decisions are taken,
- Efficient use of time,
- Prevention of resource waste,
- Effective management of risks, ensuring the most appropriate earnings,
- Offering opportunities to follow innovations,
- Financial protection of the business, ensuring stability,
- The protection of the image of the operator,
- The transparency of management understanding,
- Due to the proper management structure of the operator, the inconvenience of finding cash and obtaining credit,
- Providing growth and development in the operator's market,
- Development of internal auditing,
- Due to internal audits, it can be listed as an increase in the employee's business consciousness.

Efficiently managing supply chain processes can be achieved by increasing the efficiency and agility of jobs in a complex and uncertain business environment. What has happened in recent years; September 9 attack, Katrina hurricane, Taiwan earthquake and tsunami caused more interest in logistics activities. Because of these crises, problems such as supplier loss or quality problems make supply chain risk management important (Dereli, 2014 :22-23).

Cristopher and Peck argue that the concept of supply chain risk is "from the suppliers to the delivery of the final product; Information, material and product mobility, any risk "(Bahar, 2007: 38-39).

It is referred to as supply chain risk management, where the causes of the decrease in the total profitability of the chain such as disruption and uncertainty that might occur in the supply chain of the enterprises, the control of the performance criteria that determine in advance, the decision making and correcting of the chain (Salkın, 2014:12).

Table: World Economic Forum Supply Chain Risk Classification

RISK RESOURCE	RISK	OCCURRING IN PERCENTAGE	Controllability ▲ Kontrol edilemez ■ Effects can be ◆ Can be controlled
ENVIRONMENTAL RISKS	Natural disasters	% 59	▲
	Bad weather conditions	% 30	▲
	Epidemics	% 11	■
GEOPOLYTIC RISKS	Conflict and political unrest	% 46	■
	Imports / exports restrictions	% 33	◆
	Terrorism	% 32	■
	Poverty	% 17	■
	Pirate trade and organized crime	% 15	■
	Sea piracy	% 9	■
	Nuclear / chemical / biological weapons	% 6	■
ECONOMIC RISKS	Sudden demand shocks	% 44	■
	Product prices fluctuate too much	% 30	■
	Customs delays	% 26	■
	Exchange fluctuations	% 26	■
	Global energy shortage	% 19	■
	Ownership / investment restrictions	% 17	◆
	Labor shortage	% 17	■
TECHNOLOGICAL RISKS	Information and communication discontinuities	% 30	◆
	Inadequacy of transport infrastructure	% 6	◆

Reference: Kırılmaz, 2014 :55

2. Risks in Logistics Activities

The types of risks involved in logistics activities are listed below.

2.1. Transportation Risks

Some of the transportation risks that often arise during logistics operations are as follows (Kaba, 2013: 44):

- Failures and accidents of work machines or vehicles,
- Problems in finding spare parts for work machines or vehicles, inadequacy of repair and maintenance services,
- Air and road conditions prevent the carriage,
- Unplanned fuel calculations on vehicles,
- Do not load according to the specifications of the products,
- Incidents of burglary in loading or transportation,
- The fact that incidents such as quitting or shutting down the business prevent timely transportation,
- Failure to comply with laws or regulations during transportation,
- Personnel performing the transportation activity; Physical, mental illnesses or conditions such as lack of adequate rest,
- Providers are exposed to difficulties in financial difficulties,
- Incorrect documents used in transport or installation,
- Problems arising from information technologies.

2.2. Stock Management Risks

The risks that can be encountered during inventory management can be listed as follows: (Tanrıverdi, 2010: 84).

- Excess inventory investment,
- Inadequate customer service,
- Income and profit losses due to unplanned inventory management,
- Storage that is not suitable for storage capacity,
- Problems caused by the software,
- Being subjective in inventory management,
- If the staff is not specialist and is not trained,
- If the staff turnover rate is too high,
- In the production department, pauses due to lack of materials,
- Uneven storage of product inputs and outputs,
- Do not keep the right property at the right time, in the right place,
- If there is a lot of deterioration, waste and loss,
- Stock surpluses resulting from demand fluctuations,
- Working folks,
- Sellers, sell excess or damaged product,
- Theft cases,
- Fire,
- Natural disasters,
- Failure of security systems,
- Failure of warning systems,
- Incorrect inventory counting,
- Inaccurate inventory records,
- Damaged products are left unattended to customers,

- The subjective decisions of internal auditors,
- Risks such as incorrect bar coding.

2.3. Customer Service Management Risks

Risks that may arise during customer service can be listed as follows:

- Incomplete operations,
- Incorrect material identification,
- Incorrect sales,
- Incorrect orders,
- Lack of information systems, security problems or faults,
- Passing information about the customer to competitors,
- If the staff is uneducated,
- Budget deficiency,
- The information needed by customers, the businesses for which they are procured are not professional,
- The fact that survey studies are not conducted correctly and correctly,
- Delays in deliveries,
- High transportation fees and bid farewell,
- Customers can not express their wishes and needs exactly,
- Failure to maintain continuity in customer service,
- Customer service workers are resistant to changes,
- Losses of customers due to not showing a different relationship with loyal customers,
- No management support,
- Systems are not first applied locally, but they are applied generically, which affects a wide range of customer faults,
- Incomplete transfer of information between departments or timely transfer of information,
- By making staff cheerful, the quality is not the same among all employees,
- Relations with the sponsors,
- Improper use of advertising tools such as advertisements and brochures,
- Demand forecasts are not done correctly,
- Internal auditors submit subjective reports.

2.4. Reverse Logistics Management Risks

Risks occur in the reverse logistics process can be summarized as follows: (Ayhan, 2012: 61).

- The transportation and transportation costs are very high,
- Quality problems during activities,
- Inadequacies in customer service work,
- The internal and external environmental and operational pressures of the operator,
- Failure to perform cost-benefit analyzes,
- Storage problems,
- Disruptions in the supply chain,
- Difficulties in reproduction,
- Packaging problems,
- Effectiveness of company policies,
- The absence of strategic plans,

- Employees, resistance to change,
- The inadequacy of the information and technology systems that the operator has,
- Financial resources problems,
- Inadequate human resources,
- Quality problems of returned products,
- The fact that consumers, intermediaries, distributors and wholesalers do not give importance to the work,
- It is unclear from which channel the products will return to the business,
- The use of tools such as pallets, containers, etc., due to the small amount of returning products to the operation, so that operations are made slower and uneven.

2.5. Green Logistics Management Risks

The risks involved in green logistics activities can be listed as follows:

- The lack of coordination between departments and businesses,
- High transaction costs,
- Product development and innovation problems,
- Inadequate knowledge and skills of employees,
- Difficulty in complying with environmental management rules,
- The first-time service providers, the second-time service rate is low,
- Customer expectations are negative,
- Legal requirements,
- Financial problems,
- Management's support is inadequate,
- Inadequacies of suppliers,
- Vehicle locating problems,
- Faults in vehicle tracking systems,
- High conversion costs and technological inadequacies,
- Vehicles have a high fuel consumption rate,
- Deviations in driving efficiency of vehicles,
- The pressure of environmental organizations,
- Impact of climate conditions,
- Irregularities in the package,
- Failure to calculate load weights,
- Distance distances to customers,
- Inadequacy of consulting firms.

2.6. Customer Order Processing Risks

The risks involved in customer ordering operations can be listed as follows:

- Problems caused by product characteristics,
- Management problems in product diversity,
- Fluctuations in demand,
- Software problems,
- Information sharing problems between departments,
- Insufficient training and expertise of employees,
- Not preparing the orders on time,

- Inadequacy of tools and equipment required for order preparation,
- No information is given at the time of order processing,
- Costs related to order processing,
- The risks created by the web-based software used by the competitors in order to increase the effectiveness of their order processing.

2.7. Warehouse Management Risks

Together with the discovery of problems in warehouse management, warehouse costs will have little impact on operations. In order to be effective in warehouse management and perfect transportation, it is necessary to take measures against the following risks together with being quality oriented (Aksoy, 2017: 72-73).

- Acceptance of products from front door,
- Returned products,
- Product waits,
- Delays due to the density of the product between floors,
- Storage at the place where the products are shipped,
- Addressing problems,
- Incorrect / ıncomplete delivery / delivery documents,
- Products are barcode-free,
- Inadequacy of transport vehicles,
- Lack of security in warehouse systems,
- Errors in the selection of the warehouse location,
- Due to the fact that the shelves are not made according to the products,

2.8. Purchasing Management Risks

Risks that may arise in purchasing activities can be listed as follows (Dikmen, 2006: 151):

- The risk of not working due to product functionality,
- The risk of damage to products affecting human health / other products,
- As a result of incorrect purchasing, the financial risk of the entity,
- The risks to be incurred due to the products that are purchased / sold will not comply with the life culture of the region,
- If the purchased products do not conform to the expectations of the customers,
- During the return of the products; The risk of repairs, the difficulty of replacing products that are difficult to replace,
- The risk that your product can not deliver the performance desired by the consumer,
- Administrative risks arising as a result of incomplete or incorrect use of the software program used in the procurement activity,
- Risks such as lack of knowledge and skills of the personnel performing the purchasing work.

3. Logistics Information Technology and Effects

Some of the information technologies used in logistics are briefly given below (Ertek ve Aba, 2013: 2-3).

- Intranet and Extranet,
- E-Commerce,
- Warehouse Management Systems,
- Transportation Management System,
- Order Management Systems,
- Database Management,
- POS Tracking System,

- Geographic Information Systems,
- Simulation,
- Enterprise Resources Planning (ERP),
- Electronic Data Interchange (EDI),
- Vehicle Tracking System,
- Barcode,
- RFID (Radio Frequency Identification).

3.1. Contribution of Logistics Information Technologies

The contribution of information technology applications to operational performance in logistics activities is as follows: (Çağlar, 2014: 45-46)

3.1.1. Logistics Performance Contribution in Transportation Management:

- Shortening transport times,
- Minimum transportation costs,
- Improvement of vehicle route planning,
- Ensure product delivery reliability,
- Increase delivery speed performance,
- Flexibility at delivery time.

3.1.2. Contributions to Order Management:

- Reduction of the customer order fulfillment period,
- To increase the rate of correctness of orders,
- Reducing the loss rate in orders,
- Providing flexibility in the ordering process.

3.1.3. Contributions in Warehouse Management:

- Improvement of warehouse planning operations,
- Decrease in product cycle times,
- Decrease in inventory level,
- Ensuring accuracy in inventories,
- Decrease in the number of employees.

3.1.4. Effects on Marketing Performance:

- Faster acceptance of customer requests,
- The quality of the service provided is good,
- Increased customer satisfaction,
- Decrease in customer complaints about the company,
- Longterm agreements with customers,
- Ensuring customer diversity.

3.1.5. Contribution to Financial Performance:

- Increased profitability,
- Increase in investment returns,
- The total cost of the operator is reduced to a minimum.

3.2. Risks in Logistics Information Technologies

The difficulties and risks involved in using logistics information technologies are as follows:

- Problems arising from infrastructural inadequacies of information technology,
- Risks caused by the absence of information and technology systems in enterprises,
- Problems in finding qualified staff,
- Incorrect use of information,
- Access to information by non-responsible persons,
- The passing of customer information to other persons,
- problems with software updates or upgrades and causes of lost business,
- Software system security deficiencies,
- Problems with computer viruses,
- The resistance of the operating personnel to new systems,
- The financial resource constraints experienced in establishing systems,
- Problems arising from the suppliers of the software system,
- Unpredictable hidden costs (maintenance, repair, backup, virus, etc.)
- Problems encountered in the integration of written programs, the operator's existing systems,
- There is an integration problem between the operator's system and the systems used by the suppliers / customers,
- Defects during the use of the software program,
- The high cost of installing software programs or technologies into the business,
- The continuous dependence on outsourcing for the technical infrastructure,
- Problems and difficulties experienced in the control of data due to the inability to know where the data are stored physically in the cloud environment,
- Problems arising from not receiving backups of the data on a regular basis,
- Disruptions or slowdowns in the performance of software and information technologies,
- Problems of statutory application differences in countries, including data security and confidentiality, caused by the storage of data in different countries in cloud technology,
- If the software program reaches the end of the agreement period, problems with transferring the data when understood by the new software vendor,
- In case the payments to the software companies are paid in installments, in case of late payment,
- Problems arising from the lack of similar systems in different countries where logistics companies operate (lack of vehicle tracking or warehouse tracking systems)
- Risk of intervention in the system when user accounts are not closed for staff leaving the organization.

CONCLUSION

For logistics companies, factors such as speed, quality, undamagedness are crucial in order to be able to provide confidence and meet the increasing customer expectations. Thanks to the information system technology used, the efficiency of logistics management has increased in the course of all logistics activities, from storage to distribution. This makes auditing, flexibility and decision-making easier. The success of logistics management depends on how effectively information technologies are utilized as infrastructure. For this reason, it is important to use information technologies effectively in the logistics sector as well as in other sectors.

In order for businesses to be able to compete on the market and reduce the risks they face the most, they must follow and implement the developments in information technology in the sector. If the logistics businesses consider the risks described above, they will easily gain advantage against their competitors.

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