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Research Article

Risk management in air freight forwarding services at some logistics enterprises in Vietnam

Van Nga T. Nguyen[1], Phuong Anh Pham[2], Lam Hoang Xuan[3]
[1]*Thanglong University*
[2] *Thanglong University*
[3] Hanoi University of Business and Technology

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ABSTRACT

Introduction: In the context of complex fluctuations in the world economy and the problems of war and terrorism, air transport activities also face great risks.

Objectives: The study focuses on risk management in air freight forwarding services

Methods: The study conduct a review of studies on this topic and surveying businesses providing this service in Vietnam.

Results: Research has shown that businesses have paid attention to and implemented risk management, but the analysis methods using risk assessment techniques that most businesses are using are Risk Matrix, complex techniques such as FMEA (Potential Failure Mode and Effects Analysis), etc. Root cause analysis is rarely used, but it has also helped businesses evaluate and implement, there are quite a few businesses that choose to take measures to reduce the probability of risk occurrence and implement to minimize or limit the consequences. Another way to respond to risks that many businesses also choose is to make a contingency plan for risks. Not all risks can be handled thoroughly, so there are businesses that choose to adapt to the risks.

Conclusions: Not all risks can be handled thoroughly, so there are businesses that choose to adapt to the risks. Some of the proposals include applying modern technology in carrying out delivery activities, training quality personnel, optimizing operational processes and strengthening cooperation with partners in the supply chain.

Keywords: Risk; Air freight forwarding; Air Transport; Risk Management; Vietnam

INTRODUCTION

Air transport plays a very important role in international cargo transport in terms of the value of transported goods. This is a mode of transportation that was born later than other modes of transportation. However, with great advantages in speed and safety, it has rapidly promoted the development of air transportation. In Vietnam, the air freight forwarding industry has witnessed many significant changes and developments, associated with many periods of economic opening, international integration and modernization of aviation facilities. Air freight forwarding services are an important link, considered a fast and efficient mode of transportation, especially for high-priced goods or short-term delivery requirements. The development of air freight forwarding services is taking place strongly, but the issue of risk management has not really been focused on by many businesses in Vietnam. In the world, there have been studies on the impact of the epidemic on air transport, system risks in air transport, security risks, etc. For example, the research of Li et al. (2021) on the COVID-19 pandemic has seriously impacted the global air transport network. Policies restricting the number of international visitors from many countries are effective responses to control the spread of the virus. Research by McCallie et al. (2011) of the U.S. Federal Aviation Administration's NextGen upgrade proposes a fundamental transformation aimed at enhancing the capacity and safety of air transportation systems. The study analyzes security vulnerabilities related to the implementation of an automated dependent Broadcast system. The article describes the classification of attacks and examines the potential impact that attacks can have on air transport operations. The classification helps to provide a comprehensive understanding of the threats associated with the deployment of an automated dependent monitoring broadcast system, thus supporting risk analysis and risk management efforts. The paper also makes recommendations that can enhance

security if integrated into the plan to implement an automated dependent surveillance broadcast system. Wandelt et al. (2024) study air transport management, which involves all aspects of aviation operations, policies and strategies, is essential to make the aviation system more sustainable and prepare it for the challenges inherent in the present and future. Based on the data-based classification of nearly 2,000 published articles on the topic, the study discusses the current state of air transport management research. Through data-based classification, the study identified 15 broad topics. According to Yoon et al. (2016), access to freight capacity has become a permanent problem in the minds of logistics managers due to the shortage of capacity. In a buyer-seller relationship, access to reliable, timely and cost-effective transportation is critical to the success of such partnerships. Maklakovs et al. (2019) in the field of transport security, distinguishing risks related to flight safety and aviation security. The safety of flights is ensured through the reliability of aviation equipment and the qualifications of equipment maintenance and operation personnel, aviation security is a condition of protection from illegal interference in the operation of equipment. Risk management in civil aviation in the field of security is a relatively new direction of operation. In-depth research in this field began only at the beginning of the twenty-first century. It is difficult to use the existing risk management experience, accumulated in other areas, since civil aviation has significant characteristics. A variety of methods and diagrams can be used to assess risk. The article discusses the different options for predicting risk using the "event tree" and "risk factor tree" methods. Kucuk Yilmaz et al. (2017) argue that business management requires both a comprehensive strategy and a strategy that is appropriate for each business because each company has its own characteristics and standards. Different standards create different risks, and different risks require managers to have a customized approach. Air transport has always been considered to have an inherent strategic role. Air transport is an important strategic asset as it provides market access and thus enables the economic development of countries and regions. However, the aviation industry faces risks that can affect operations, customers, business value, security, and safety. Risks can also occur to a business through industry-based and organization-based changes, each of which can also bring changes in the type of risk. These current and emerging risks are the main reason why the implementation of enterprise risk management in airlines is becoming increasingly important. The study begins with the definition of business, international business, and multinational enterprise.

There are very few studies in Vietnam on risk management in air transport. Therefore, the gap of this study is to study on the implementation of aviation risk management by air transport service providers in Vietnam. From there, it makes recommendations for businesses to help improve business efficiency. To clarify the research issues in addition to the general information and introduction, the rest of the paper is presented as follows: Part 2 is the Theoretical basis, Part 3 is Literature Review, Research and Methodology, Part 4 is Findings and discussion, and Part 5 is Conclusion.

THEORETICAL BASIS

Logistics is understood as the process of planning, implementing, and controlling the effective flow of goods, services, and information from the point of origin to the point of consumption to meet customer requirements (David, 2003). According to Christopher (2022), logistics is the process of strategically managing the procurement, transportation, and storage of raw materials, components, and finished product inventory (along with related information flows) within the organization and its marketing channels, to optimize current and future profits through cost-effective order fulfillment. Freight forwarding services are activities related to organizing, managing, and implementing freight transportation services from the point of origin to the destination in an efficient, flexible, and cost-effective manner. According to the Commercial Law of Vietnam 2005, logistics services are commercial activities, whereby traders organize to perform one or more jobs including receiving, transporting, warehousing, warehousing, customs clearance, other paperwork, customer consulting, packaging, etc inscribe codes, deliver goods or other services related to goods as agreed upon with customers to enjoy remuneration (Nam, 2005). It can be understood that forwarding is also one of the logistics services, related to transportation, warehousing of goods and related paperwork. According to FIATA-International of Freight Forwarders Associations (2004) forwarding services include any activities related to transportation, consolidation, storage, handling, packaging, or distribution of goods, as well services related to such activities, including but not limited to financial, insurance, or payment matters. Thus, it can be understood that air freight forwarding is a logistics activity related to the organization, management and transportation of goods by commercial aircraft or cargo aircraft. This is a form of fast transportation, suitable for high-value, perishable goods that need to be transported to remote locations or in a short time. Compared to other modes of transportation such as road, sea, etc., then air is the fastest form of transportation. In addition, the connection range of this method is almost all points in the world, especially places that are difficult to reach by other

methods. Air transportation has a higher cost than other methods due to the cost of fuel, landing, insurance, etc. Goods that are commonly transported by air include electronic goods, fashion goods, pharmaceutical goods, fresh goods and high-value goods.

According to Donald Waters (2007), a risk in the supply chain is any event that can disrupt the operation or performance of the supply chain. The concept is further expanded to include all events that can affect operations, with a focus on proactive management. Supply chain risk management is the process of systematically identifying, analyzing, and handling risks to the supply chain. Businesses should consider the nature and extent of the risks they face, the risks for which they are responsible, the likelihood of the occurrence of risks, the ability to mitigate risks, opportunities to mitigate operational impacts, and assess the cost of managing these risks. Accordingly, there are three core elements of supply chain risk management: identifying risks to the supply chain, analyzing risks, and designing appropriate responses to risks. In air freight forwarding services, risks are events that occur that disrupt the operation and performance of the business from the beginning to the end of the implementation of this service. Based on the content of risk management in logistics and supply chain along with the definition of risk in air freight forwarding services, we can understand that risk management in air freight forwarding services is the process of identifying, analyzing and responding to risks that may affect air freight activities. In this study, risk management in air freight forwarding is based on four main steps according to the ISO 31000:2009 standard on risk management, focusing on risk identification, risk analysis, risk assessment and risk handling (Standard, 2010).

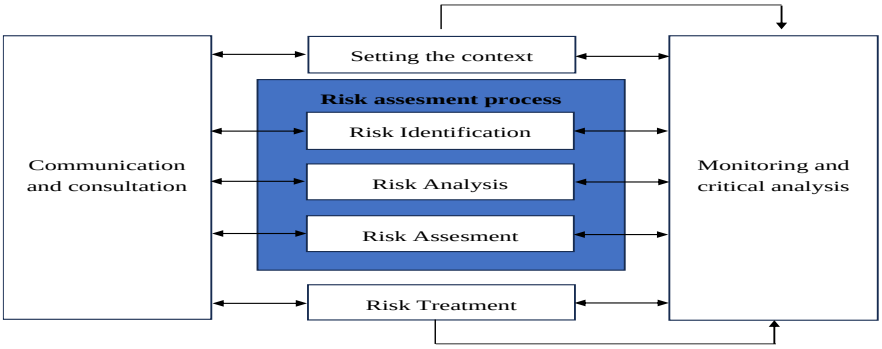

Figure 1. Risk management process recommended in ISO 31000:2009

Source: (Standard, 2010)

LITERATURE REVIEW, RESEARCH AND METHODOLOGY

Literature review

The Risk management in logistics plays an important role in maintaining the stability and efficiency of the supply chain, especially in the context of today's volatile market. According to a study by Wee et al. (2012), risks in logistics are identified including operational errors, loss of goods, and technical problems. The study has highlighted that both objective and subjective factors can affect the supply chain, requiring businesses to take appropriate risk management measures. This study also shows that if you want to manage risk, you should first understand the source of risk. There is no specific standard framework for risk management, businesses will have different management processes, and the research by Wee et al. (2012) is based on the ISO 31000:2009 standard to implement the risk management process. The study also mentioned some techniques in this process such as FMEA, risk matrix, HAZOP (Choi et al., 2016). A good supply chain risk management plan is the key to business success (Pando Villegas, 2020). The article focuses on a flexible supply chain development strategy, emphasizing the importance of adapting to unexpected fluctuations in logistics. Research by Chung et al. (2015) has made discoveries about the risk of disruption in express delivery, especially in air transport. The study has identified a number of causes of disruption in air transport. In addition, the study classified two main strategies for responding to risks: Reactive Recovery, which only handles risks after an incident occurs, including emergency remediation planning and flight rerouting and proactive planning. Businesses anticipate risks in advance using Big Data, early warning systems, and contingency plans. The study also highlights that a proactive strategy helps to mitigate the negative impact of disruption in logistics better than a reactive strategy and recommends that businesses adopt technology, collaborate with multiple service providers, and develop contingency plans to increase supply chain flexibility (Chung et al., Donald Waters (2007) has given the

definition of risk and risk management in the supply chain. The content analyzes the two main types of risks in logistics: internal risks and external risks. In addition, the study emphasizes that supply chain risk management needs to be carried out based on a methodical process, which includes three core elements: identifying risks to the supply chain, analyzing risks, and designing appropriate responses to risks. The study is particularly important in the context of aviation logistics where operational, financial and environmental risks can have a serious impact on the supply chain.

In the research of Choi et al. (2016), there have been discoveries in logistics risk management in several important areas such as disruption risk management, operational risk control, disaster and emergency management, and logistics service risk analysis. The risk mitigation solution proposals in this article are adopted through strategic cooperation and information sharing between parties in the supply chain. Models such as Quick Response (QR), Collaborative Planning, Forecasting and Replenishment (CPFR), and Vendor Managed Inventory (VMI) help synchronize logistics activities, minimize information asymmetry, and increase risk control (Choi et al., 2016). The study by De Oliveira et al. (2021) researched related to air transport but also came up with a risk management process according to ISO 31000:2009, thereby establishing a set of survey questions about risk management at enterprises. Kyseľová's (2013) study classifies risks in air transport, including technical, human, environmental, financial and security risks. The study emphasizes that insurance plays an important role in protecting businesses against financial losses caused by risks, with types of insurance such as aircraft insurance, civil liability insurance, and personal accident insurance. Kyseľová (2013) suggested that aviation businesses should adopt the safety standards of the International Civil Aviation Organization (ICAO) to mitigate risks. Additionally, using a risk matrix to assess the impact and frequency of risks can help airlines develop more effective response strategies. (Kyseľová, 2013). According to Wu and Chaipiyaphan (2020), they focus on delivery vulnerability and how to use data analytics to manage risk in logistics. The study applies the Normal Accident Theory (NAT) to determine that the logistics system can be affected by many complex interacting factors. The results of the analysis show that the risks in the logistics system come not only from each individual component but also from the interaction between these factors. This study is pioneering in applying big data analytics to freight forwarding risk management, and at the same time instructing businesses on how to extract useful information from inventory data (Wu and Chaipiyaphan, 2020).

According to Yoon et al. (2016), guaranteed capacity contracts with third-party logistics service providers (3PLs) can appeal to forwarders to increase access to capacity and effectively meet customer requirements. With this new opportunity, 3PLs must focus on methods that can assist them in analyzing their options as they promise guaranteed capacity to forwarders in the face of uncertain demand and associated risks in transportation. In this study, Yoon and colleagues analyze three competency-based risk mitigation strategies and the combined use of these individual strategies using industry-specific data to provide insights into which strategies are preferred over 3PLs and under what conditions. The study hypothesizes that choosing a strategy depends on a number of conditions faced by both the shipper and the carrier. Although the analytical approach is analytical, it is highly practical in that 3PLs can use the decision model in research to effectively analyze and visualize trade-offs between different strategies by considering the right cost and demand data. Research by Li et al. (2021) explores the impact of two entry restriction policies implemented by some countries on international travelers during COVID-19, i.e., the suspension of direct flights and the complete suspension of entry, on the international connectivity of the global air transport network. Taking China as an example, this paper assesses the impact of two policies based on the actual policy implementation of some countries on visitors from China. Yassien et al. (2020) point out that a key attribute of resilience, robustness, serves as a predictor of the performance of an infrastructure system during disruption, thus informing proactive infrastructure risk management. The study first evaluates existing methods and then develops a new method to quantify the robustness of the air transport infrastructure network. Specifically, based on the integration of travel time and flight frequency, the study develops best route approaches and alternative link weights to evaluate the key robust measures of the air transport infrastructure network and the associated operating cost losses. The results of the analysis show that the robustness of the network is affected by the evaluation method used, especially after 20% of the network components are inactive. It enables proactive risk management in the direction of the recovery of the air transport infrastructure network in the face of natural or man-made hazards.

RESEARCH AND METHODOLOGY

The study uses desk research methods, qualitative methods, actual survey methods at aviation logistics service providers and comparison and comparison methods. The data collection process is carried out through several stages. The first is to synthesize information and theories from course articles, industry reports and documents related to risk and risk management in air freight forwarding services to build a solid theoretical basis and determine a risk management model based on ISO 31000:2009 standards to serve the completion of the questionnaire survey. After the process of researching and synthesizing documents, a set of survey questions was completed and sent through the groups of Vietnam Logistics Association, Hai Phong Logistics Association, Hanoi Logistics Association, Ho Chi Minh Logistics Association to businesses that have been implementing air freight forwarding services in Vietnam and collected 21 responses from managers logistics service enterprises. The survey will be conducted from 02/01/2025 to 09/01/2025. Respondents include managers, who understand the air freight forwarding process and have implemented risk management measures when risks occur in this activity. The data in the survey is qualitatively analyzed to show the risk trends that businesses often encounter as well as the methods and techniques that businesses apply in each step of risk management. The survey focused on four main aspects of the risk management process with 5 main parts: General information about the business; Risk identification; Risk analysis; Risk Assessment and Risk Management.

The survey results in Figure 2 show that 81% of the surveyed employees came from enterprises in the past, the remaining 4.8% are joint venture enterprises and 14.3% are 100% foreign-owned enterprises. In addition, the main market served by these enterprises is the international market, with 23.8% of enterprises serving the domestic market and the rest operating in parallel on both markets. It is possible that the aviation logistics industry mainly serves import and export while domestic demand has not been fully exploited. The reason may be the high cost of transportation, which makes domestic businesses less likely to use this method or businesses focus more on imports and exports to take advantage of opportunities from international trade agreements. (Figure 3).

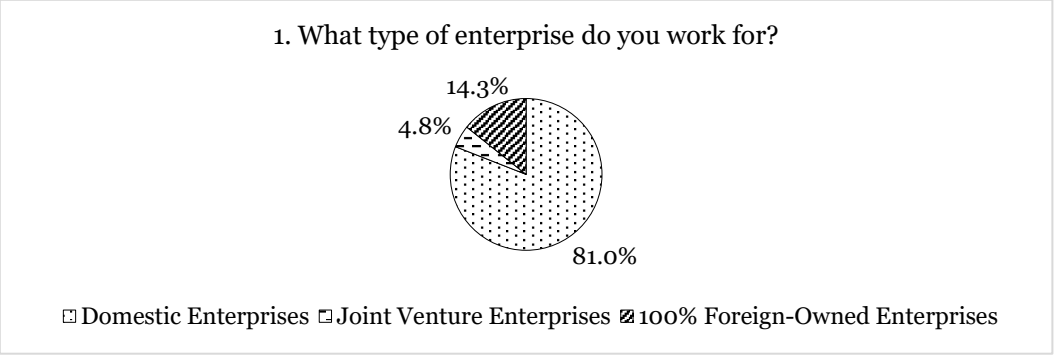

Figure 2. Types of surveyed enterprises

(Source: Survey Link, 2024)

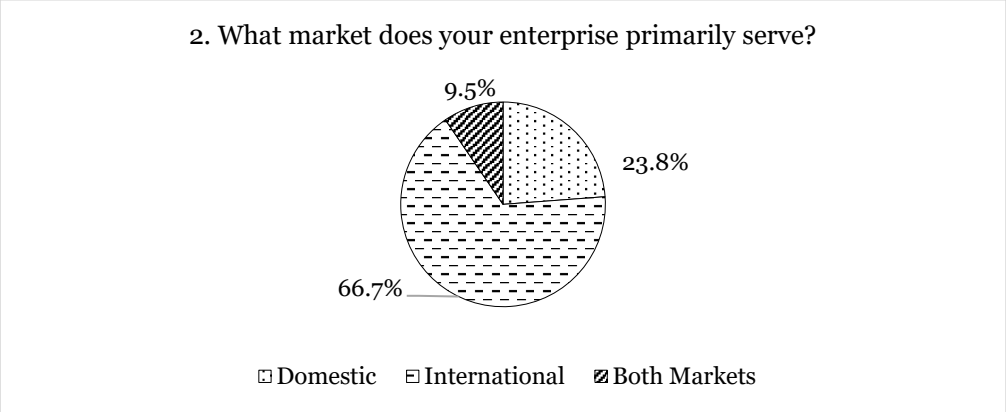

Figure 3. Market served by enterprises

(Source: Survey Link, 2024)

FINDINGS AND DISCUSSION

The communication of risks between departments is an important factor to promptly grasp and find a plan to deal with risks. Based on Figure 4, enterprises communicate risks through regular internal meetings accounting for 19%, mainly using email or management tools (57.1%). In addition, 14.3% of companies use both, the rest do not really have a clear process for communicating risk information between departments in the company. Some businesses have not really invested in a risk management system in a methodical way, the corporate culture has not actively promoted risk communication or may be due to a lack of dedicated personnel, leading to risk information not being shared in a timely manner between departments.

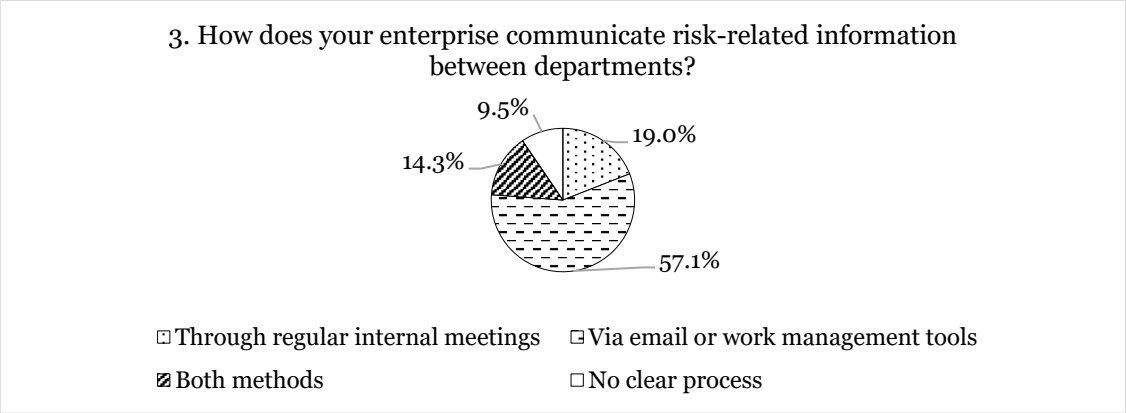

Figure 4. Methods of risk communication in enterprises

(Source: Survey Link, 2024)

When asked about the divisions or personnel specializing in risk management, the results obtained in Figure 5 show that 42.9% of enterprises have a separate department for risk management and 33.3% of enterprises have personnel who also experience this problem. The remaining answers are that there are no part-time departments/personnel, but 19% of companies are considering opening this department, the remaining 4.8% of businesses have no plans for this.

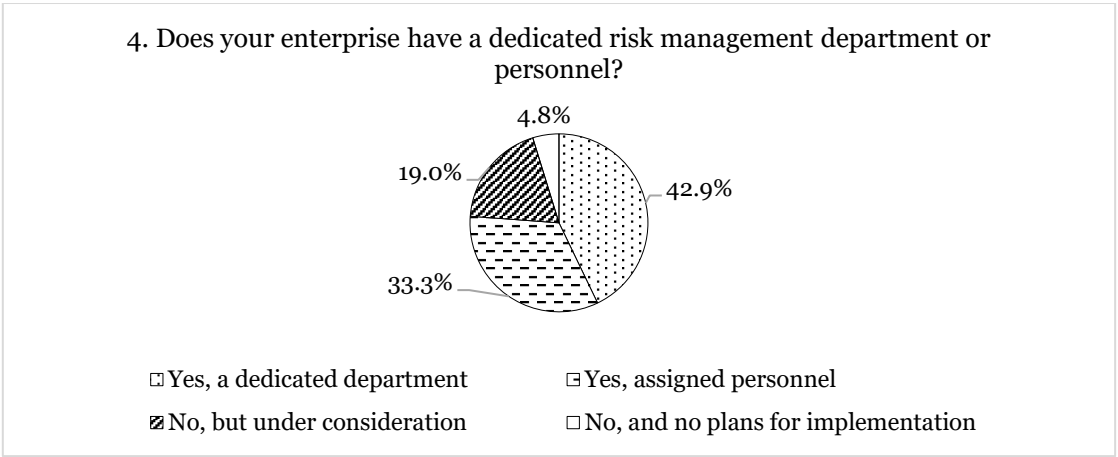

Figure 5. Departments or personnel dedicated to risk management

(Source: Survey Link, 2024)

Risk Identification

Among the series of risks outlined below, the most common risks are uncompetitive rates. Lost goods and errors in the order processing process are also worrisome risks, affecting safety, accuracy and delivery time. In addition, risks such as late payments, airport congestion, and changes in legal policies affect finance and operations, requiring businesses to have a flexible response strategy. Some less common risks such as lack of manpower, equipment damage, and cyber attacks still have the potential risk of operational disruption. This result shows that aviation

logistics businesses need to optimize operations, improve risk control and proactively prevent to ensure efficient forwarding.

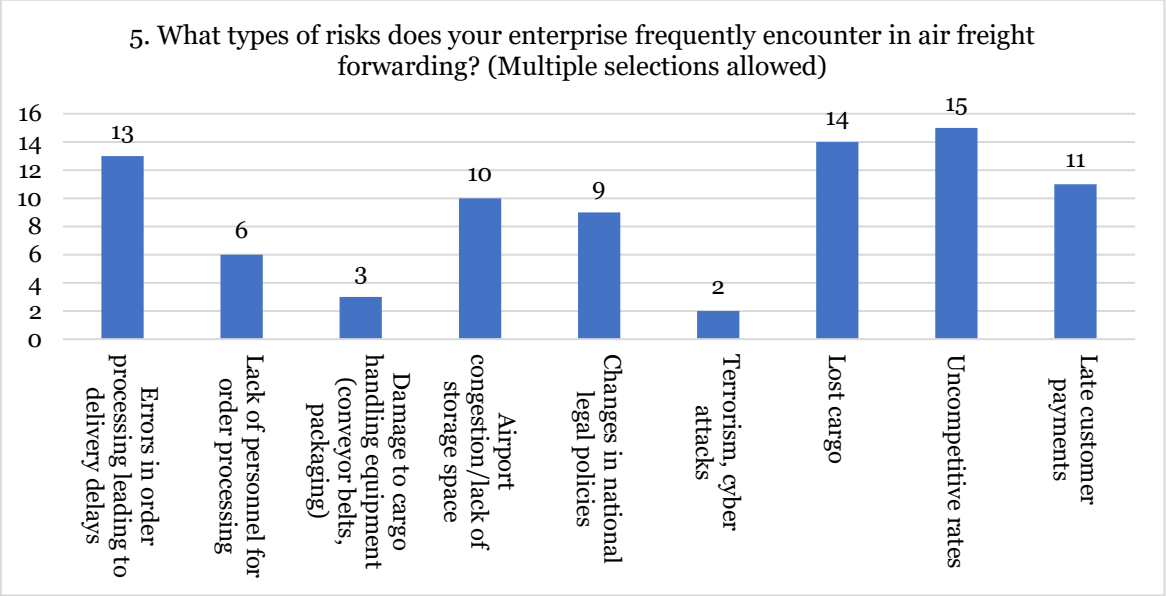

Figure 6. Common risks encountered in air freight forwarding

(Source: Survey Link, 2024)

Figure 7 reflects the techniques (according to ISO/IEC 31010) that businesses use to identify risks in air freight forwarding operations. The results show the diversity of methods applied to identify risks. Checklist is the most used technique, it is a simple, intuitive and easy to apply method in identifying risks. Next is the script analysis technique. The remaining techniques have not been widely used. For in-depth analysis tools, they have not been utilized to the fullest. This shows that businesses need to promote the combination of many different techniques to identify risks more comprehensively, thereby building effective prevention and response measures.

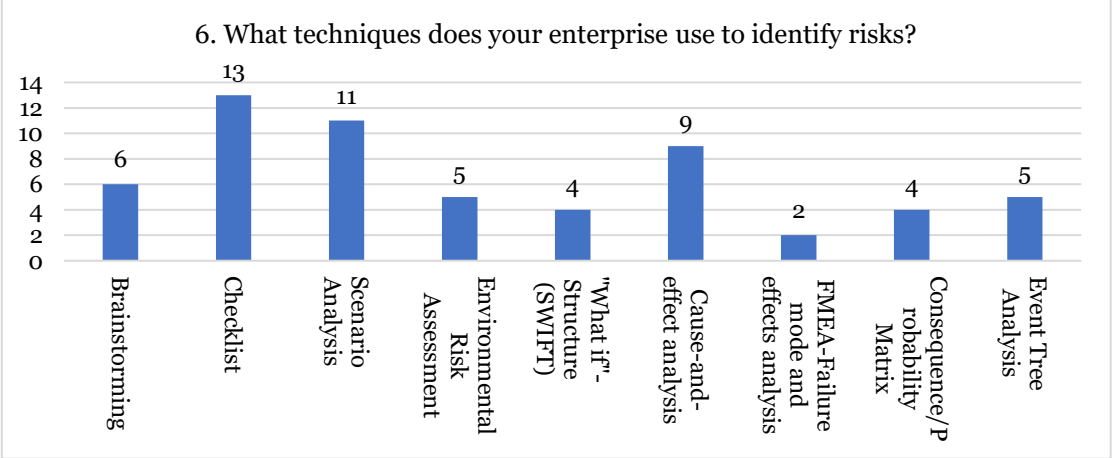

Figure 7. Techniques used for risk identification

(Source: Survey Link, 2024)

Risk identification is an important step in risk management, most businesses are well aware of the role of this work. Specifically, the rate of "Very Important" and "Important" both accounted for 42.9%, showing that nearly 86% of surveyed enterprises highly appreciated the role of risk identification according to Figure 8. This reflects the great interest of businesses in early detection and prevention of risks, in order to limit negative impacts on business activities. Overall, these results show that risk identification is an important step in the risk management process of logistics businesses. However, there is still a need for training and awareness raising programs so that businesses

that have not properly appreciated the role of this work can better understand the benefits of risk identification to prevent and respond promptly to adverse situations.

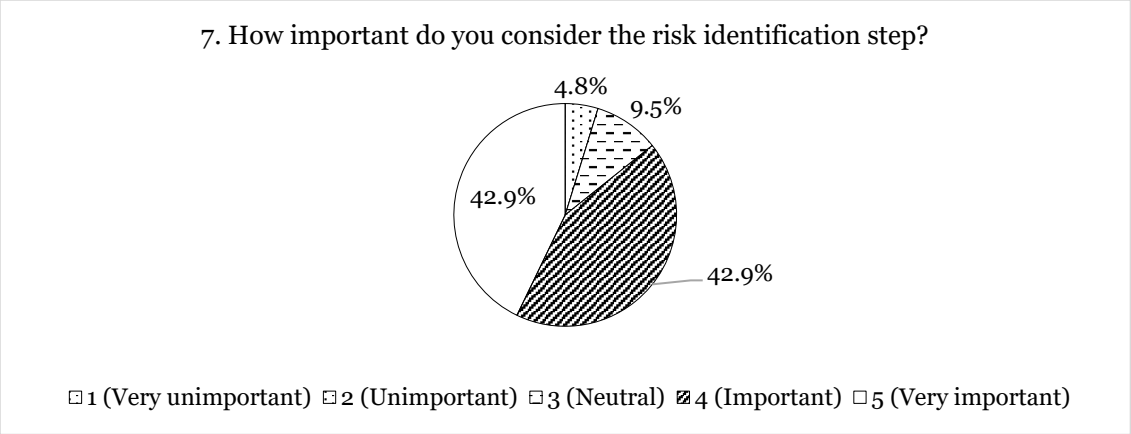

Figure 8. Importance of risk identification step

(Source: Survey Link, 2024)

Risk Analysis

Looking at Figure 9 shows that there are many causes of risks for businesses. Among them, there are prominent reasons such as high operating costs and unforeseen events, which often lead to risks such as soaring air freight rates, epidemics or economic crises. This is followed by inconsistent information between departments, which indicates a lack of synchronization and delays in the internal information exchange process, leading to errors in order processing, causing delays and incurring unnecessary costs. The remaining causes also cause worrisome risks and have a certain degree of impact

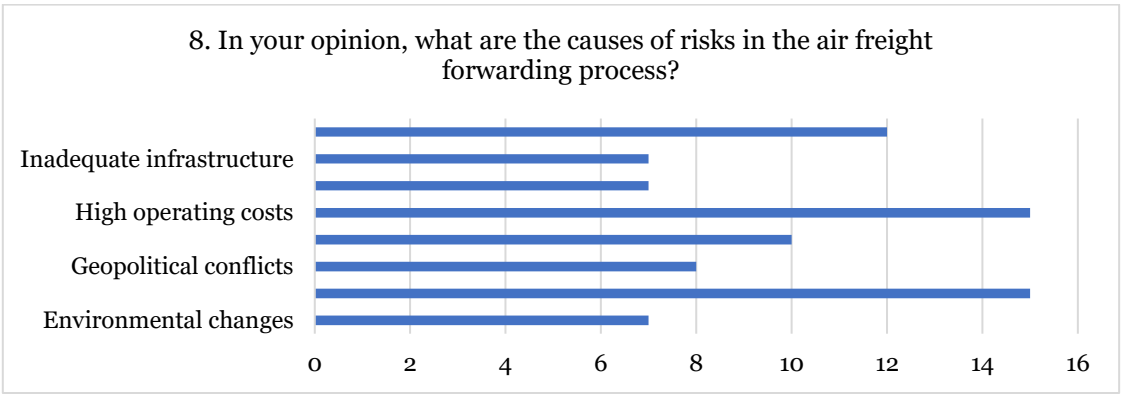

Figure 9. Causes of risks in the air freight forwarding process

(Source: Survey Link, 2024)

Figure 10 illustrates the likelihood of risks in air freight forwarding services, with 10 factors surveyed. Congestion at airports and lack of storage space are the most worrying risks when receiving a high appreciation at the level of "Most likely". This clearly reflects the severe pressures at airports and warehouses – key links in the aviation supply chain. At the same time, issues related to the shortage of manpower to process orders, damage to cargo handling equipment, and errors in the processing process leading to delays in delivery are also classified as major risks, emphasizing the need to improve processes, upgrade equipment and strengthen personnel. In addition, factors such as lost goods and uncompetitive freight rates are also highly anticipated, indicating that these are common challenges that businesses need to pay special attention to. Slow payment customers are not prominent, but they are still considered a potential risk, which can cause serious problems in cash flow and the ability to operate the business. Risks related to changes in legal policies between countries are considered difficult to predict, greatly affecting the international logistics industry. Although less appreciated, factors such as terrorism and cyberattacks are still considered potential risks, which should be noted in the context of globalization.

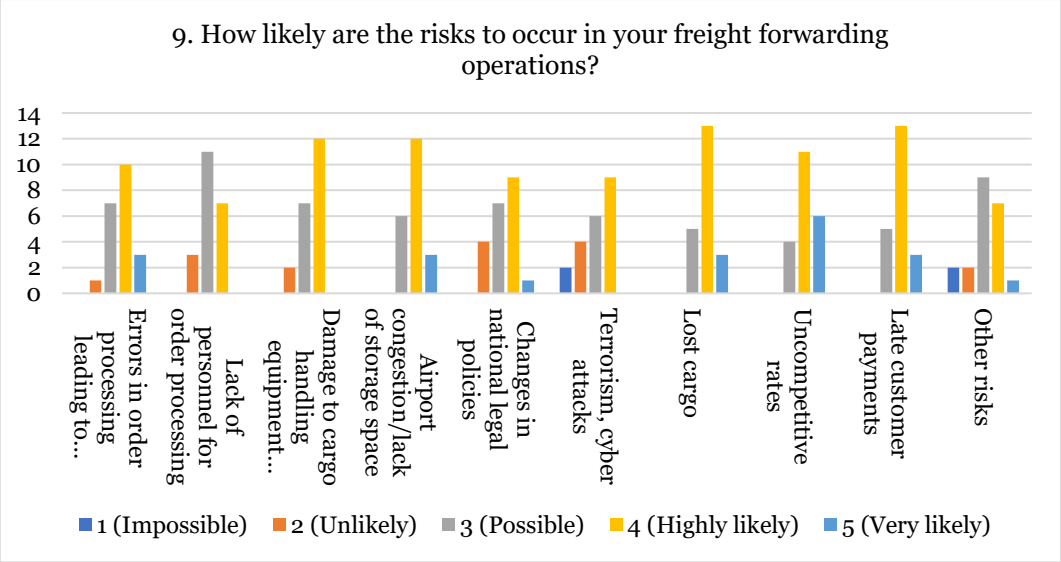

Figure 10. Likelihood of risk occurrence in air freight forwarding

(Source: Survey Link, 2024)

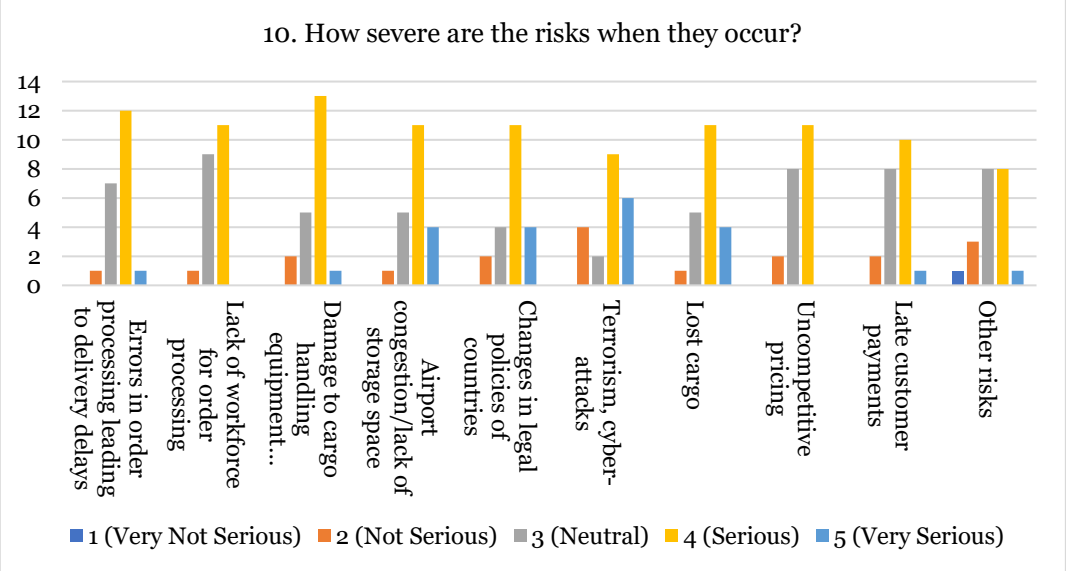

Figure 11. Severity of risks when they occur

(Source: Survey Link, 2024)

Looking at Figure 12, we can see that Root Cause Analysis is the most used technique in the surveyed enterprises, showing a focus on understanding the root cause to solve the problem thoroughly. This is followed by two methods, Business Impact Analysis and Environment Risk Assessment, which are also widely used, indicating that businesses have also focused on assessing the impact of risks and operational efficiency. Techniques such as Event Tree Analysis, Fault Tree Analysis, and Fault and Effect Mode Analysis (FMEA) are also used to a significant extent, reflecting the concern for systematization in risk management. However, hazard and operability analysis (HAZOP) and consequence/probability matrices are less common, suggesting that these may be highly specialized methods or not suitable for all types of businesses. Notably, there are still some businesses that do not use any analytical techniques, indicating a lack of capacity or awareness of risk management. Overall, Figure 11 shows that businesses, especially in the freight forwarding industry, are focusing on direct and highly practical methods for risk analysis and control. However, increasing the application of in-depth techniques and improving awareness of risk management will be necessary to improve operational efficiency.

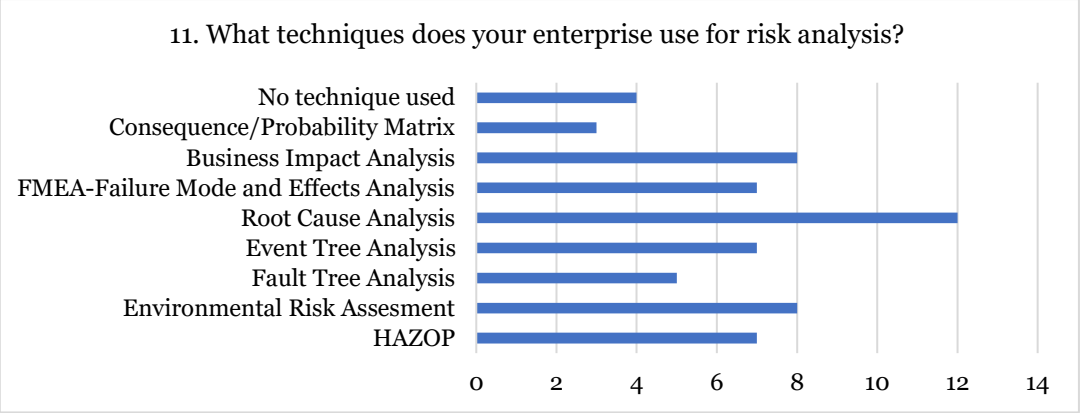

Figure 12. Risk analysis techniques used

(Source: Survey Link, 2024)

The survey assessing the importance of the risk analysis step has obtained most opinions that this is an important step (52.4%) and very important (42.9%). This shows that most individuals in the organization are aware of the essential role of risk analysis in the management and operation of the aviation supply chain. However, a small percentage (4.8%) think that this step is not important, which may stem from the peculiarities of some businesses or different views on how to manage risk (Figure 13).

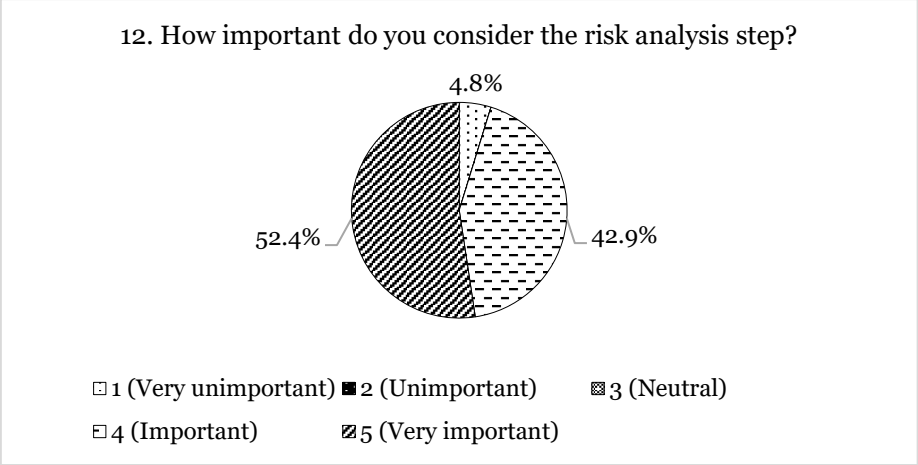

Figure 13. Importance of the risk analysis step

(Source: Survey Link, 2024)

Risk Assessment

According to the survey data Figure 14, most of the risk assessment criteria of businesses are both the likelihood of risk occurrence and the severity of the risk (76.2%). This shows that the combination of both criteria is a comprehensive approach, helping businesses identify and assess risks more effectively. The use of both criteria helps businesses not only assess the frequency of risks but also determine the impact of each risk on operations and business activities. This is an important part of risk management, especially in the aviation industry, which is subject to many volatile factors such as time, cost, and service quality. Meanwhile, 23.8% of businesses only focus on the severity of risks. This factor may come from prioritizing minimizing major business dynamics rather than predicting their probability. These approaches appear to be appropriate for situations where resources are limited, forcing the business to focus on the risks with the greatest impact.

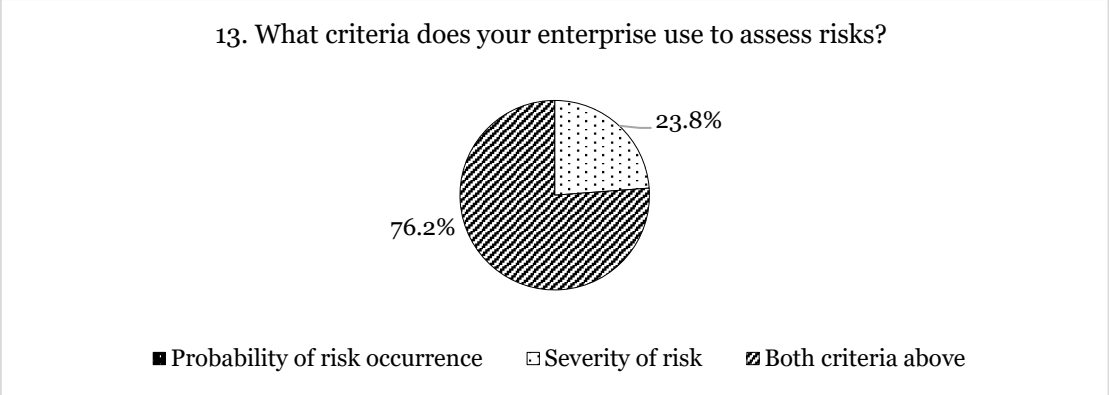

Figure 14. Criteria used for risk assessment

(Source: Survey Link, 2024)

The risks that occur will be accompanied by the consequences that it brings, each risk will impact the business in a different way. Figure 14 shows some of the consequences of the risks in air freight forwarding services that businesses are facing. Dissatisfied customers are the consequence that many businesses suffer the most. This shows that risks in the freight forwarding process do not directly impact on the quality of service, reducing customer trust and satisfaction. When customers are not satisfied, businesses easily lose their competitive advantage and market share in the market. In addition, putting price pressure on customers, reducing the demand for services and putting pressure on corporate finance are also consequences that occur in many businesses. This reduces competitiveness and customers will look to other suppliers with more reasonable prices. At the same time, financial pressure also makes it difficult for businesses to maintain stable operations, affecting the ability to expand business and investment. The long processing time of goods is also a worrying consequence, when the transportation time is prolonged due to the risks that arise, not only affecting the delivery schedule but also disrupting the entire supply chain, causing losses for both businesses and customers. Finally, order compensation, although there are fewer mentions, is still a notable issue. Having to pay compensation due to loss, damage or delayed delivery is something no one wants, it not only causes financial losses but also reduces the reputation of the business.

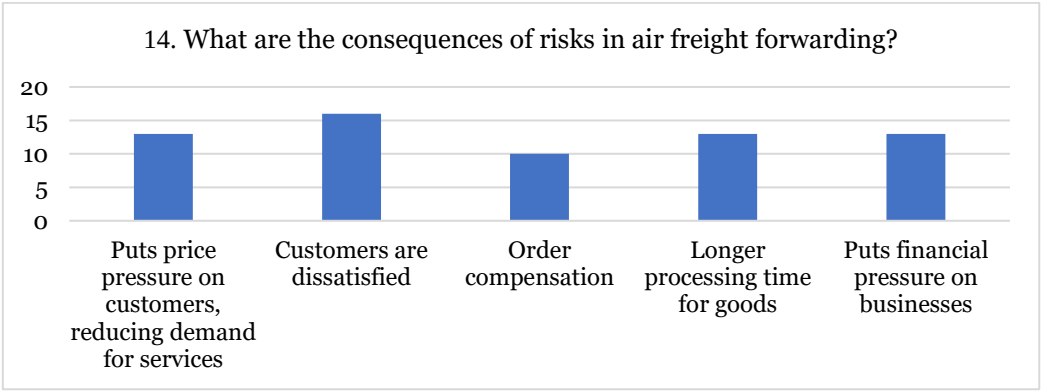

Figure 15. Consequences of risks in air freight forwarding

(Source: Survey Link, 2024)

According to Figure 16, there are significant differences in the use of techniques to assess risk. Most businesses in the survey still choose to use manual methods such as risk assessment tables, root cause analysis. The reason may be that these methods are easy to use and still effective. The number of businesses using FMEA or simulation methods is limited because these are more complex methods that require employees to be able to process data. Businesses still mostly use simple methods while more complex techniques have not been exploited much.

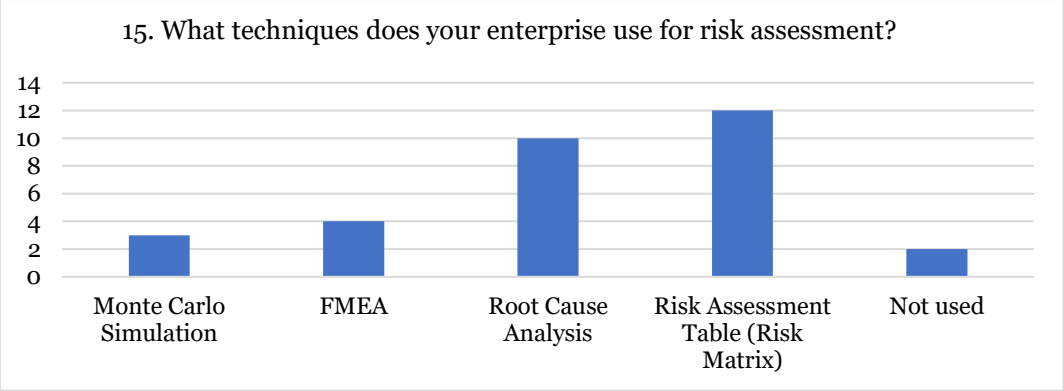

Figure 16. Risk assessment techniques used

(Source: Survey Link, 2024)

The data in Figure 17 also shows that there is a difference in the frequency of conducting risk assessments between companies. 38.1% of enterprises in the survey conducted monthly risk assessment, followed by 23.8% of enterprises assessed risk on a quarterly basis. Weekly risk assessment accounted for 19%. There are 14.3% of enterprises that only carry out assessments when the risk is far away, the remaining 4.8% of enterprises do not take this step. Besides businesses that are actively implementing risk management, there are also businesses that are quite unaware of the benefits of periodic risk assessment. However, some businesses are limited in terms of human resources, making it impossible for businesses to carry out regular risk assessments. In addition, the biggest reason may be the lack of a methodical risk assessment process in the business. Figure 17, most businesses still realize the importance of the risk assessment step when the voting rates of "Very Important" and "Important" account for a large proportion of 47.6% and 42.9%, respectively.

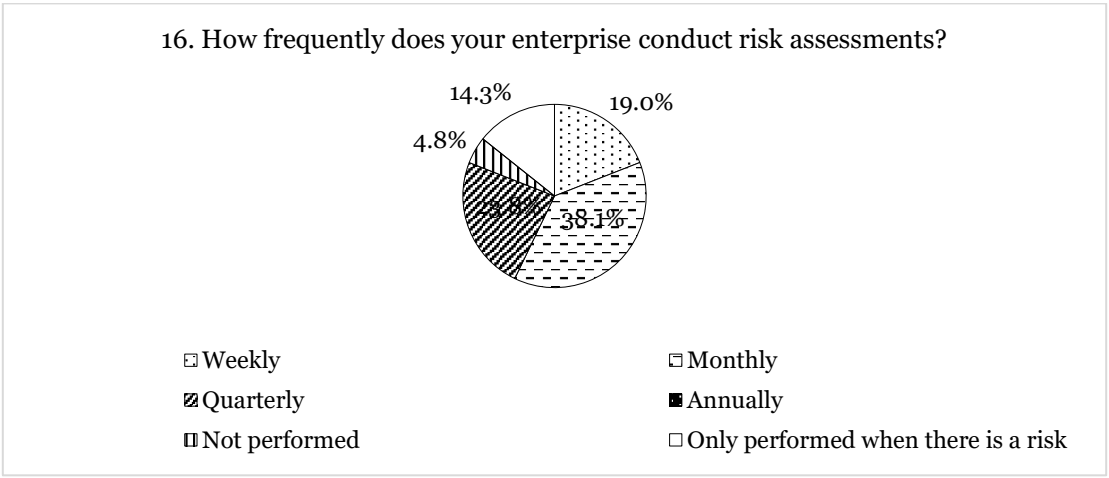

Figure 17. Frequency of risk assessments conducted by enterprises

(Source: Survey Link, 2024)

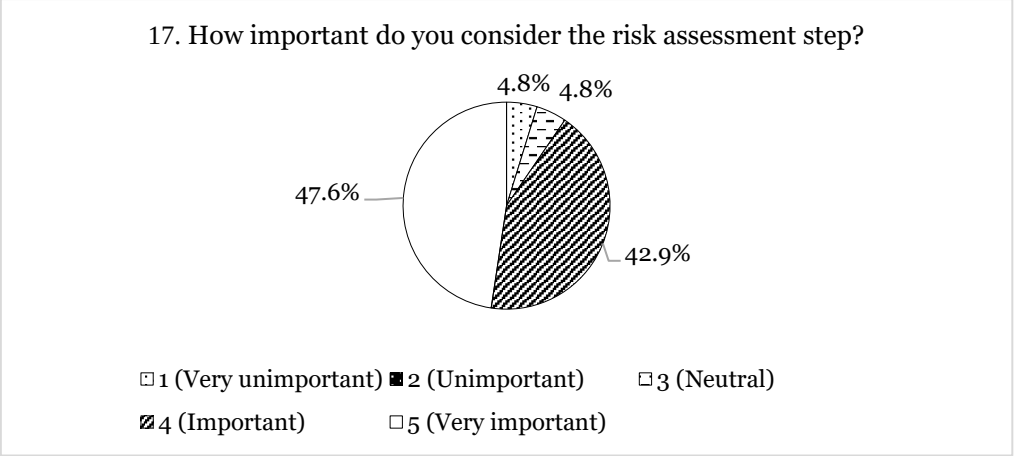

Figure 18. Importance of the risk assessment step

(Source: Survey Link, 2024)

Handling risks

In the open-ended question about the most serious risks for businesses that need to be prioritized, the most common answer is the risk of lost goods and risks related to time issues such as delivery delays or long processing times. Each business will have different ways of coping/reacting to different types of risks. According to the survey, when risks occur, there are quite a few businesses that choose to take measures to reduce the probability of risks and minimize or limit the consequences. Another way to respond to risks that many businesses also choose is to make a contingency plan for risks. Not all risks can be dealt with thoroughly, so there are businesses that choose to adapt to these risks (Figure 19).

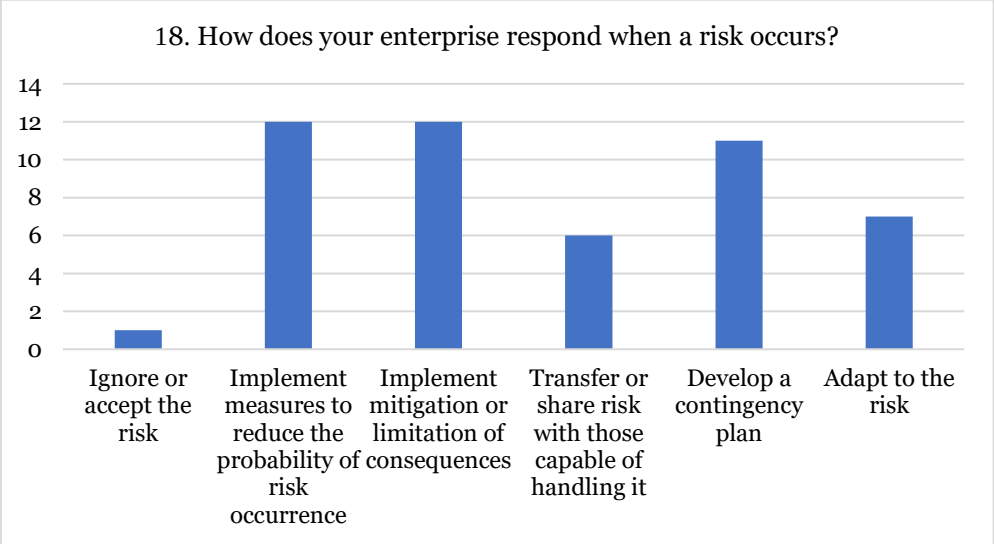

Figure 19. Enterprise responses when risks occur

(Source: Survey Link, 2024)

Based on the survey on risk management, Figure 19 shows that businesses use quite a variety of tools or technologies to apply for this step. The most popular are still manual management tools such as Excel and Checklist used by many businesses. At the same time, other tools/technologies such as TMS transportation management software, real-time tracking systems (GPS, RFID) are also quite commonly used. For the SOP process, there are 5 enterprises applying this method, this is a process developed separately for each enterprise, mainly applied in foreign enterprises but has not been disseminated in Vietnamese enterprises.

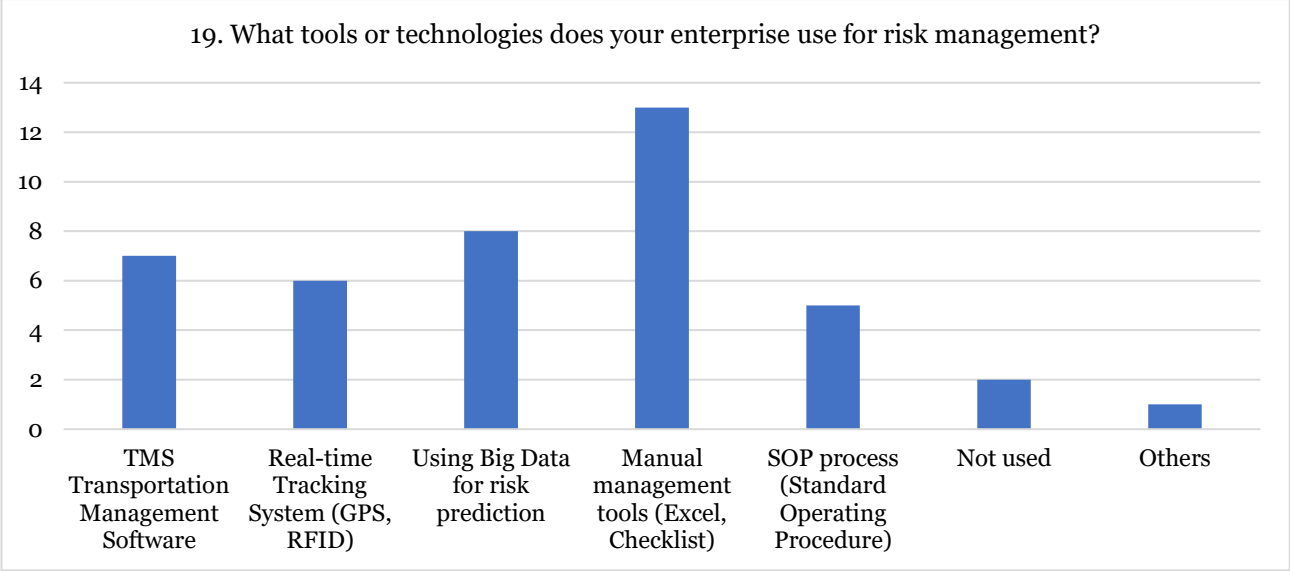

Figure 20. Risk management methods used by enterprises

(Source: Survey Link, 2024)

Regarding employees' self-assessment of the current risk management process of enterprises, the results obtained by nearly half of the answers were that the management process was effective enough (47.6%), indicating that many businesses have not optimized this work. However, there are also 38.1% of employees who think that the level of handling of their business is effective. The rate of evaluation is very effective, accounting for only 9.5%, but it also shows that these businesses are doing a very good job of risk management. It is worth noting that there are also a small number of employees who frankly admit that this process of the company is currently ineffective. The reason is that the risk management process has not been standardized and implemented synchronously. In addition, many businesses have not applied modern technologies to support risk monitoring and analysis. The lack of a specific strategy is also one of the reasons why businesses have not been able to improve the efficiency of risk management (Figure 21).

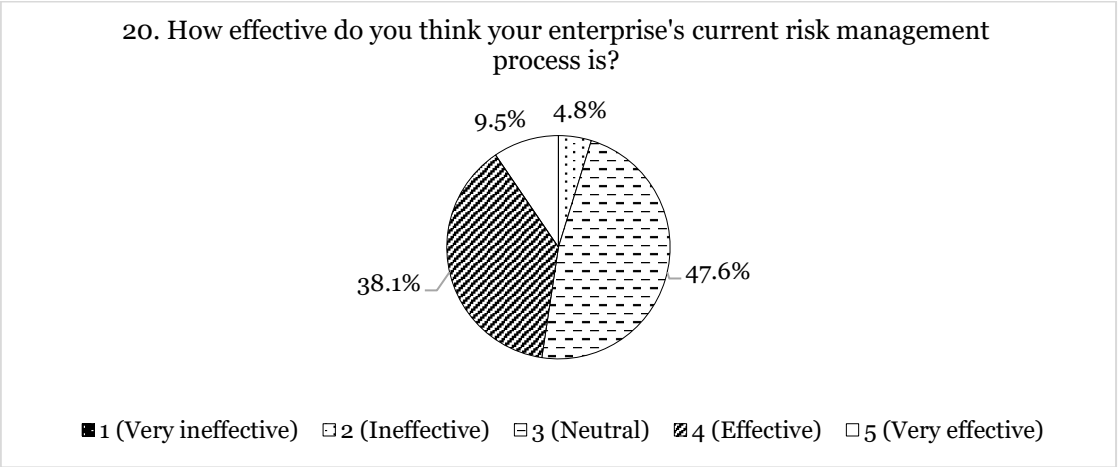

Figure 21. Effectiveness of current risk management processes in enterprises

(Source: Survey Link, 2024)

Some company managers expect the company to review its workflow more frequently. For businesses that do not have a specific process for risk management, the management also expects the company to build this process to ensure minimal possible risks in delivery activities, thereby improving business efficiency and customer retention.

CONCLUSIONS

Air freight forwarding services play an important role in connecting Vietnam and countries around the world. In the process of delivery, there are countless risks that can occur, the study has explored risk management at several logistics' enterprises in Vietnam, thereby identifying common risks such as internal risks (operational, technical, personnel risks, etc financial) and external risks (market, legal, security, weather risks...). Some proposed solutions to improve the efficiency of risk management, including applying modern technology in implementing delivery activities, training quality personnel, optimizing operational processes and strengthening cooperation with partners in the supply chain. In the context of the increasingly deep integration and development of the logistics industry, the risk management process in air freight forwarding needs to continue to be researched and improved. Some important directions in the future include the application of digital technology and artificial intelligence in risk management, the development of risk management models according to international standards, strengthening cooperation between logistics enterprises and airlines and state management agencies to build a more comprehensive risk control system, etc researching and proposing policies to support businesses.

In general, effective risk management will help businesses minimize losses, and at the same time contribute to improving service quality, building reputation and promoting the sustainable development of the aviation logistics industry in Vietnam. In the process of conducting the study, there are also certain limitations such as the scope of the topic only revolving around risks in air freight forwarding services. Due to time and resource limitations, the study only focused on a small number of typical enterprises operating in this field in Vietnam. These limitations also open opportunities for further research to expand the scope and improve the applicability of research results in practice.

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APPENDIX

Servey Questionnaire
I. GENERAL INFORMATION ABOUT THE ENTERPRISE
1. What type of enterprise do you work for? – Domestic Enterprises – Joint Venture Enterprises – 100% Foreign-Owned Enterprises
2. What market does your enterprise primarily serve? – Domestic – International – Both Markets
3. How does your enterprise communicate risk-related information between relevant departments? – Through regular internal meetings – Via email or work management tools – Both methods – No clear process
4. Does your enterprise have a dedicated risk management department or personnel? – Yes, a dedicated department – Yes, assigned personnel – No, but under consideration – No, and no plans for implementation
II. RISK IDENTIFICATION
5. What types of risks does your enterprise frequently encounter in air freight forwarding? (Multiple selections allowed) – Errors in order processing leading to delivery delays – Lack of personnel for order processing – Damage to cargo handling equipment (conveyor belts, packaging) – Airport congestion/lack of storage space – Changes in national legal policies – Terrorism, cyber attacks – Lost cargo – Uncompetitive rates – Late customer payments – Others
6. What techniques does your enterprise use to identify risks? – Brainstorming – Checklist – Scenario Analysis – Environmental Risk Assessment – "What if"-Structure (SWIFT) – Cause-and-effect analysis – FMEA-Failure mode and effects analysis – Consequence/Probability Matrix – Event Tree Analysis
7. How important do you consider the risk identification step? – 1 (Very unimportant) – 2 (Unimportant) – 3 (Neutral) – 4 (Important) – 5 (Very important)
III. RISK ANALYSIS
8. In your opinion, what are the causes of risks in the air freight forwarding process? – Environmental changes – Unpredictable events

Servey Questionnaire
– Geopolitical conflicts – Economic sanctions and airspace closures (cargo planes unable to fly over Russia and war zones, increasing costs, etc.) – High operating costs – Large-scale disease outbreaks – Inadequate infrastructure – Inconsistent communication between departments
9. How likely are the risks to occur in your freight forwarding operations? – 1 (Impossible) – 2 (Unlikely) – 3 (Possible) – 4 (Highly likely) – 5 (Very likely)
10. How severe are the risks when they occur – 1 (Very Not Serious) – 2 (Not Serious) – 3 (Neutral) – 4 (Serious) – 5 (Very Serious)
11. What techniques does your enterprise use for risk analysis? – HAZOP – Environmental Risk Assesment – Fault Tree Analysis – Event Tree Analysis – Root Cause Analysis – FMEA-Failure Mode and Effects Analysis – Business Impact Analysis – Consequence/Probability Matrix – No technique used
12. How important do you consider the risk analysis step? – 1 (Very unimportant) – 2 (Unimportant) – 3 (Neutral) – 4 (Important) – 5 (Very important)
IV. RISK ASSESSMENT
13. What criteria does your enterprise use to assess risks? – Probability of risk occurrence – Severity of risk – Both criteria above
14. What are the consequences of risks in air freight forwarding? – Puts price pressure on customers, reducing demand for services – Customers are dissatisfied – Order compensation – Longer processing time for goods – Puts financial pressure on businesses
15. What techniques does your enterprise use for risk assessment? – Monte Carlo Simulation – FMEA – Root Cause Analysis – Risk Assessment Table (Risk Matrix) – Not used
16. How frequently does your enterprise conduct risk assessments? – Weekly – Monthly

Servey Questionnaire
– Quarterly – Annually – Not performed – Only performed when there is a risk
17. How important do you consider the risk assessment step? – 1 (Very unimportant) – 2 (Unimportant) – 3 (Neutral) – 4 (Important) – 5 (Very important)
V. RISK TREATMENT
18. How does your enterprise respond when a risk occurs? – Ignore or accept the risk – Implement measures to reduce the probability of risk occurrence – Implement mitigation or limitation of consequences – Transfer or share risk with those capable of handling it – Develop a contingency plan – Adapt to the risk
19. What tools or technologies does your enterprise use for risk management? – TMS Transportation Management Software – Real-time Tracking System (GPS, RFID) – Using Big Data for risk prediction – Manual management tools (Excel, Checklist) – SOP process (Standard Operating Procedure) – Not used – Others
20. How effective do you think your enterprise's current risk management process is? – 1 (Very ineffective) – 2 (Ineffective) – 3 (Neutral) – 4 (Effective) – 5 (Very effective)