The impact and value of information system audit enterprises risk management influencing quality assurance and system optimization—a touch from supply chain domains

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ARTICLE INFO	ABSTRACT
	The industries significantly rely on information technology for effective operations; however, there are hazards like data breaches and system breakdowns. Information system audits are essential to reducing these risks, ensuring quality control, and optimizing the system. These audits evaluate gaps in controls, non-compliance concerns, and vulnerabilities, allowing for the installation of efficient risk mitigation measures. Information system audits are essential for locating and reducing hazards related to an organization's information systems. Vulnerabilities, threats, and control flaws can be found through routine audits, which then allows for the deployment of the necessary controls and risk-reduction measures. Additionally, audits support quality assurance by assessing data reliability, accuracy, and completeness, as well as system performance, regulatory compliance, and industry best practices. The deployment of remedial steps to improve data integrity and system reliability is made possible by their assistance in assisting organizations in identifying gaps and flaws. Information system audits also aid system optimization by revealing details about the functionality and performance of the system. An extensive evaluation of the literature and case study analysis was used to perform the research. For the analysis of this research, a sequential mixed technique (qualitative and quantitative) study was conducted. Delphi questionnaires were used twice to conduct the study. It encompasses organizations and entities involved in various aspects including but not limited to logistics companies, freight carriers, shipping and distribution firms, public transportation agencies, and supply chain service providers. Data from the semi-structured interviews for the qualitative study were collected via a Delphi survey, and 14 nodes and six themes were then generated. Audits assist organizations in identifying areas for improvement and informing decisions about system upgrades or alterations by analyzing system utilization, response times, resource allocation, and scalability. The results of this study highlight the importance of information system audits in assuring the prosperity, effectiveness, and resilience of businesses engaged in supply chain operations. Organizations can attain a greater level of enterprise risk management, quality assurance, and system optimization, which will improve supply chain operations in general, by managing risks, improving data quality, and optimizing system performance. **Keywords:** Information System Audits, Quality Assurance, System Optimization, Enterprise Risk Management, Supply Chain.

INTRODUCTION

Data is structured processed, refined, and, most crucially, applied context and meaning in order to provide information. When managed and processed properly, information may assist the creation of intellectual capital, which is the foundation for innovation and progress. Information is used daily to inform and guide individual and organizational decision-making processes. As a result, information is a valuable and trade able organizational asset that can be extensively shared, disseminated, and repurposed with little loss of value. Nowadays, companies are frequently purchased and sold based

on their intelligence (Buchanan & Gibb, 2007).The role and purpose of audits in the broader quality management movement are hot topics of discussion as the twenty-first century comes to a close.

There are concerns about the effectiveness of audits for quality improvement, the requirement for third-party audits to externally register quality systems, and the integration of quality with financial, environmental, and health and safety audits. Despite the fact that everyone appears to agree that audits should be used as a tool for continuous improvement (Karapetrovic& Willborn, 2001). Intuitively, the word "risk" connotes uncertainty and financial loss. It is essential to look into the causes of risk because uncertainty is one of the most significant elements of risk. The risk management approach also requires measuring and disclosing the prospective returns and losses connected to those returns. Risk management operations have a role in this situation in producing a distribution estimate of potential possibilities rather than a point estimation. In the fields of finance, economics, and strategic management, risk is frequently referred to as performance variance. Risk refers to fluctuation in corporate outcomes or performance that cannot be foreseen, whether using the variance understanding or the negative variation understanding (Yilmaz & Flouris, 2017).

The phrase "risk management" refers to a series of managerial and analytical tasks with the goal of developing a response to the inherent doubts involved in managing multifaceted organizations and capital assets. Regardless of the level at which risk is managed, these organizations concur that the four main steps in the risk management process are identification, analysis, response, and management. However, a risk's characteristics and the degree at which it should be managed determine the precise management technique and level that should be used (Hallowell, Molenaar, & Fortunato, 2013). Risk management and business continuity are parts of integrated management systems, including the business environment. The importance of crisis management, risk management connected with continuity management has now been shown as a subject way of building enterprise resilience, given to adverse effects and changes of the environment (Buganová, Mošková, & Šimíčková, 2021). Energy modeling needs a substantial amount of modeler judgment due to the complexity of the modeled system and the difficulty to validate model outputs. Depending on one's point of view, this makes energy modeling a hybrid of art and science or a skill that is neither art nor science. There are numerous models and methodological approaches that have been tailored to address different kinds of topics, each with its own advantages and disadvantages. Different energy model types have been distinguished by a number of previous efforts (DeCarolis et al., 2017). In the broadest sense, supply chain supply chain supply chain aims to develop any good or service to develop legally separate businesses working together to increase the overall competitiveness of the supply chain Contains. When choosing a partner, the partner's future ability to increase the competitiveness of the supply chain should be taken into account, not just the current costs. It is important to have a good organizational culture and dedication for the purposes of the supply chain. A potential partner can provide special information about the production process or product development (Stadtler, 2015).

Based on the problem statement and gaps of the study discussed, the research questions are given below:

1. What are the main weaknesses and weaknesses of control in the transportation industry's information system? And how can they be effectively reduced through information system audits?

2. What significant risks do transportation organizations face in the current market scenario? And what strategies should be prioritized in enterprise risk management to ensure business continuity and flexibility?

3. How can quality ashore methods be improved to improve consumer satisfaction, operational performance, and safety in the transportation industry?

4. What are the major opportunities to improve the system in the transportation sector? And how can technological advances are taken advantage of to increase transportation operations and resource distribution?

LITERATURE REVIEW

The need of creating a fit between business strategy and information technology strategy has been emphasized in numerous studies. However, many businesses struggle to create alignment, and until recently, there haven't been many studies on the topic, particularly on the variables that affect alignment in small and medium-sized businesses. Numerous studies have looked at how contingency considerations and the architecture of accounting information systems connect, according to reviews of the accounting and information systems literature (Ismail & King, 2007). Popular conceptions of information systems security governance tend to downplay the importance of human performer and concerns pertaining to the administration of public inside the organization. They also point out that the perspective of information systems security governance employed in earlier study "does not allow incorporating the importance of the audit process of systems and management of security details at operational level of business process" (Steinbart, Raschke, Gal, & Dilla, 2012). The study considers elements that affect whether auditors use the audit support system in a way that uses them from audit firms. Expected, including auditors, audit teams and audit companies. The main technological tool used by audit firms to manage, facilitate, and support audit work is called an audit support system. These systems are marketed by audit firms as being necessary for facilitating and completing high-quality financial statement audits. The standard of audited financial returns may fall if the auditors do not use the audit support system properly. Which will have a detrimental effect on stakeholders who rely on this information to guide their economic decisions (Dowling, 2009). One of the most important concerns in corporate management is recognized as enterprise risk management.

The integrated process of identifying, analyzing, and accepting or reducing uncertainty in investment decision-making is called enterprise risk management. Financial operations, industrial organization, package pricing in five business sectors, supply chain and operations management.

And the leading enterprise risk management research in disaster operations management is presented in this special issue (Wu, Olson, & Birge, 2011). For the past thirty years, external quality assurance has been a booming industry. The interests of various stakeholders are involved. We will gain a deeper understanding of why external quality assurance has stood the test of time and why external quality assurance systems, despite being by their very nature an intrusion from the outside, should be welcomed rather than feared or rejected. Investments must be made responsibly by policymakers and financing organizations. Since resources are frequently scarce, setting priorities is necessary. There is no fairer or better basis for doing it than by quality. Because of this, numerous governments have established, funded, or supported quality assurance organizations. Even when investments are made, constant oversight and evaluation are required to ensure accountability (Cheung & Tsui, 2010). Many academics have thought about the forward-flow of resources in supply chains. In this analysis, we take into account both forward and backward material flows. In the reverse material flow, used goods that have been donated by customers are delivered to a facility for refurbishment, where they are held, remade, and then shipped for retail sales. Because returns are more variable than demands in terms of quantity, quality, and timing, and because valuation and determining inventory holding costs for returns are difficult, managing closed loop supply chains is substantially more difficult than managing standard forward supply chains. Demands and returns are correlated, which adds another level of complexity (Giri & Sharma, 2015). In order to focus on systems, auditors must improve their vision and expertise. The strict and mostly artificial boundaries of compliance audits must be broken. It seems to reason that auditors have a firm understanding of the idea and reality of a system if they are required to concentrate on the management system and establish, through an audit, both its conformity to audit criteria and any potential changes. Furthermore, in order to carry out the audit correctly and dependably, the auditors must view every audit as a system.

The systems approach will assist auditors and all other audit participants in resolving current audit result inconsistencies and numerous other issues (Karapetrovic & Willborn, 2001). The exploration, construction, and financial structures are the audited objects according to engineering and geological analysis. Report information, design plans, technical and financial decisions, activities on various engineering inquiry phases, measurements of engineering defense, and risk reduction are the topics. Data accessing is the audit's main focus. However, there are differences in the supporting data while conducting an engineering and geological audit. Its quality and content are different. The accuracy of the engineering and geological data depends on the right selection of the exploration strategy. Additionally, it was determined by the type, quantity, and timing of the works that were completed. The engineering and geological investigations' quality is determined by the high quality of the supporting data. The system that will control the engineering and geological work approach is proposed in this article. It appears to assist in delivering the necessary quality level (Nikulina, Gorobtsov, & Pendin, 2017). Since the early days of finance research, when it was believed to be irrelevant in a perfect market, risk management has been a hotly contested subject.

As businesses implement enterprise risk management initiatives and academics in accounting and finance start to look into their efficacy and argument. These studies aid in understanding the factors that influence organizations' risk hedging decisions and offer theoretical support for the relationship between risk management and firm value (McShane, Nair, & Rustambekov, 2011). The traditional method of risk management is a silo methodology, where one risk is managed at a time without taking into account how they are interconnected. Enterprise risk management, on the other hand, entails assessing, quantifying, funding, and managing risk at the organizational level. A comprehensive strategy to risk management is used. The importance of organizational benefits of risk management for businesses is emphasized by enterprise risk management (Grace, Leverty, Phillips, & Shimpi, 2015).
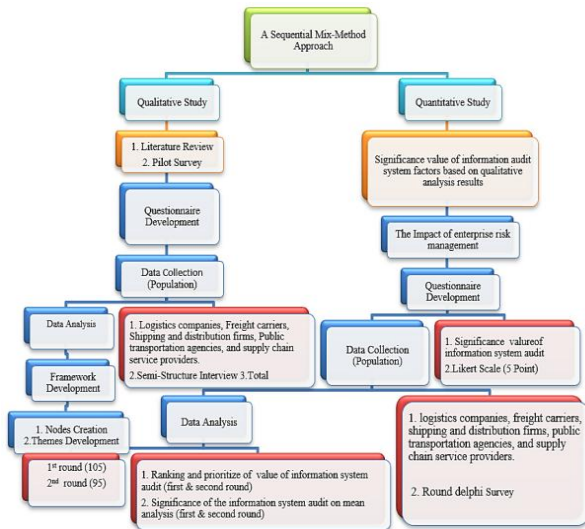
METHODOLOGY

To get beyond the single design's limitations, the study design presented in this section uses both a qualitative approach and quantitative methods (i.e. a Delphi survey). By using narrative techniques, the data (i.e. semi-structured interviews) was gathered from the targeted population. After screening raw data using qualitative analysis, 14 nodes were extracted. Later, the importance level of identified components (themes) was evaluated and prioritized using quantitative techniques (two-round Delphi survey). **Figure 1** shows the structure of this study that how divided the study into two parts (qualitative and quantitative). Using this method, statistical tools and nodes were generated from the data that had been recorded on audiotapes. Expert advice was also a key theme chosen. The themes that were found were used once more for quantitative analysis.

Still, at this time, a five-point Likert scale questionnaire was created to collect information from the target population, such as logistics companies, freight carriers, shipping and distribution firms, public transportation agencies, and supply chain service providers. There are 25 main open-ended questions of the instrument (questionnaire) used for the semi-structured interviews. Using the pilot survey, the experts in the transportation industry validated these open-ended questions. There were each area of transportation has one station. **Table 1** below represents the eight areas and 8 stations.

Table 1. Transport in Beijing

Stations	Areas	Stations	Areas
Ring Roads	Area 1	Beijing Suburban Railway	Area 5
Expressways	Area 2	Taxi	Area 6
China National Highways	Area 3	Trains	Area 7
Beijing Subways	Area 4	Railways	Area 8

Figure 1. The Research Methodology Adopted for the Study

A total of 105 replies were gathered in the initial round. The distribution of the respondents and their range of experiences are shown in **Table 2**. In the initial round postal mail (printed instruments) and in-person meetings were used to collect the data. To obtain more accurate findings, the respondents' identities were kept a secret from one another. The round was repeated until a consensus was reached, at which point the respondents were informed of the desired statistical results. The initial round of data collection was done. To determine whether the responder groups had reached a consensus or not, the data gathered from the first round were statistically analyzed. Using the online survey, the mean score for the second round was determined and presented to the respondents. The responders were given the option to keep or modify their initial grading, and this decision was left up to them. However, for this round, the replies dropped to 95, as indicated in **Table 2** with their distribution being made up of China. When the respondent group reached an agreement, the Delphisurvey was terminated. The following part contains the analysis of the data's findings.

Table 2. Group-wise Distribution of the Respondents for Two Rounds of the Delphi Survey

Distribution of Respondents	Road Networks	Urban Public Transportation	Intercity Transportation
1 year	12(11)	10(9)	7(6)
3 years	10(10)	5(4)	6(5)
5 years	10(9)	10(9)	6(5)
7 years	13(13)	10(9)	6(5)
Total (105 for the first round and 95 for the second round)	45(43)	35(31)	25(21)

Note: Digits in brackets "()"shows the respondents of the second round in Delphi survey.

Materials and Methods

This study identifies two different forms of analysis: (i) Qualitative analysis, including the establishment of nodes, themes and factors, and the importance of information audit systems; (ii) Quantitative analysis, including data marketing and reliability, classification and priority average scoring information audit system factors.

Qualitative Method

Table 3 lists the 14 nodes and their distribution throughout the several stations of areas.

Table 3. Significance Value of Information System Audit (Semi-Factors)

Information System Audit	Areas							
	1	2	3	4	5	6	7	8
Involves a systematic evaluation of an organization's information systems.	✓				✓	✓	✓	
Effectiveness, security, and compliance of this system.			✓			✓		
Assessing hardware, software, networks, data management, and security protocols.		✓		✓				✓
Mitigate risks related to unauthorized access, data breaches, system failures, and compliance violations.		✓	✓		✓		✓	
Provides valuable insights for decision-making, system optimization, and continuous improvement.	✓			✓		✓		
Involves implementing strategies such as robust safety protocols, security measures, contingency plans, and compliance.	✓		✓		✓			✓

Information System Audit	Areas							
	1	2	3	4	5	6	7	8
Ensures compliance with regulations, enhances customer satisfaction, improves operational efficiency, and promotes safety.				✓		✓	✓	
Encompasses various aspects such as vehicle maintenance, driver training, route planning, customer service, and regulatory compliance.		✓		✓		✓	✓	
Improves inventory management and distribution, leading to faster.		✓	✓		✓		✓	
Monitoring performance metrics and leveraging data-driven decision-making aids	✓			✓		✓		
Movement of goods and information from suppliers to customers.	✓		✓		✓			✓
Includes supplier management and inventory management.		✓		✓				✓
Efficient supply chain management optimizes procurement, production, and distribution.		✓	✓		✓		✓	
Enabling seamless coordination and collaboration among supply chain stakeholders.	✓				✓		✓	

The interviewee of the audit team 1, 5, and 7 involve a systematic evaluation of an organization's information systems.The interviewee from transportation industry 3 and 6 discussed the effectiveness, security, and compliance of this system. The interviewee from industry 2, 4, and 8 noticed that audit team assessing hardware, software, networks, data management, and security protocols. The interviewees (2, 3, 5, and 7) discussed the Mitigate risks related to unauthorized access, data breaches, system failures, and compliance violations. The valuable insights for decision making, system optimization and continuous improvementwere discussed by the interviewee (1, 4, and 6). There is involvement in implementing strategies such as robust safety protocols, security measures, contingency plans, and compliance discussed by the interviewee of transportation industry 1, 3, 5 and 8. Ensures compliance with regulations, enhances customer satisfaction, improves operational efficiency, and promotes safety were noticed by the interviewee 4, 6, and 7. Interviewees 2, 4, 6, and 7 revealed the need forvarious aspects such as vehicle maintenance, driver training, route planning, customer service, and regulatory complianceduring the interview. Interviewees (1, 4, and 6) revealed that system optimization team isproviding Improves inventory management and distribution, leading to faster. Interviewees 1, 5, and 7 discussed monitoring performance metrics and leveraging data-driven decision-making aids. Movement of goods and information from suppliers to customers discussed by interviewees 1, 3, 5, and 8. The interviewee of 2, 3, 5, and 7 mentioned the efficient supply chain management optimizes procurement, production, distribution. Enabling seamless coordination and collaboration among supply chain stakeholders was also identified by the interviewee of transportation industry 1, 5, and 7.

Development of an Information Audit System Framework for Narrative Studies

Six themes (audit team nodes) were developed from these significant nodes (semi-factors) which were the most prevalent in all eight interviews. They were created once nodes were discovered. The following are these six key themes or factors:

1. Assessing hardware, software, networks, data management, and security protocols.

2. Improves inventory management and distribution, leading to faster service.

3. Efficient supply chain management optimizes procurement, production, and distribution.

4. Movement of goods and information from suppliers to customers.

5. Includes supplier management, inventory management.

6. Involves implementing strategies such as robust safety protocols, security measures, contingency plans, and compliance.

Developing a framework is the last step in the qualitative approach to data interpretation. **Figure 2** represents the factors and their relationship.
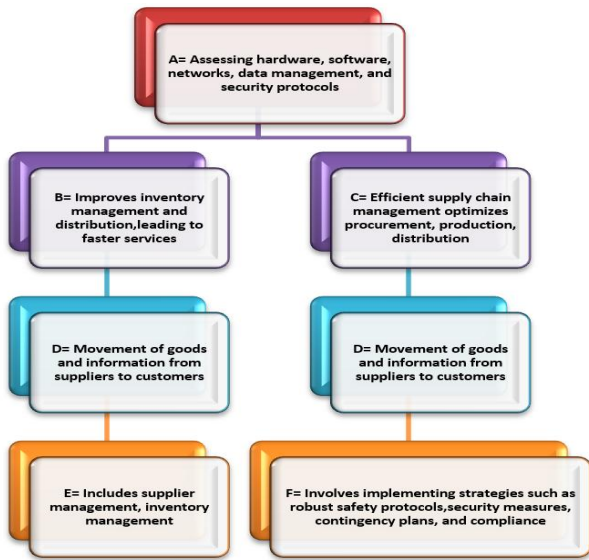
Figure 2. The Developed Framework of Transportation Industry Factors

Quantitative Method

Normality & reliability test: Smart PLS (SEM) and Microsoft excel were used to collect and analyze the data.The Shapiro-Wilk normality test was used to determine whether the data were normally distributed or not. The results show that less than 0.05 (p<0.05) was the significant value that was found for both rounds of the Delphi survey of all the components. In this case, more research necessitates the non-parametric test.

Ranking Based on the Mean Score

Additionally, groups of respondents were asked to list and rank the information transportation industry factors on a scale of 1 to 5, with 1 denoting strongly agreement and 5 denoting strongly disagreement. Based on their mean, the variables were calculated and arranged from strongly agree to strongly disagree. Based on the mean ratings for all respondents and each respondent group, six criteria in total were rated (**Table 4 and Table 5**). **Table 4** displays the order of the components of the transportation industry variables in the first round. The respondents chose the factor assessing hardware, software, networks, data management, and security protocols mean (2.943), which was placed first based on their mean, as something they strongly agreed with. Similarly to this, Improves inventory management and distribution, leading to faster services were chosen as important (mean 2.700) based on their significance. According to the respondents' mean (2.930), the factor rewards that depend on performance were evaluated as being important (first). The elements of team cohesiveness related to greater team success are ranked seventh on average (2.613). With a mean score of 2.685, respondents employed more positive coaching techniques as a medium for knowledge transmission in second place in the second round of the Delphi survey. Employed more positive coaching techniques role as a medium for knowledge transmission placed fourth in the first round of the survey (mean 2.752) and third in the second round (mean 2.895). Similar to this, according to their unified significance level, the respondents ranked the "factor" to the ability to reinterpret stress sixth (mean 2.882) and thought it was extremely important.

Table 4. The First Round of Delphi Survey

Factors	All Groups		Road Networks		Urban Public Transportation		Intercity Transportation	
	M	R	M	R	M	R	M	R
A	2.700	5	2.555	8	2.450	8	3.095	3
B	2.930	3	3.100	1	2.550	6	3.140	1
C	2.613	7	2.735	5	2.480	7	2.625	6
D	2.610	8	2.605	6	2.600	4	2.625	6
E	2.772	4	2.950	2	2.750	3	2.615	8
F	2.685	6	2.760	4	2.595	5	2.700	5
Samples	105		45		35		25	
Cronbach's Alpha	0.804		0.771		0.762		0.769	

Note: M=Mean; R=Rank. ⬦ presents consensus between road networks and urban public transportation. ⬦ presents consensus between road networks and intercity transportation. ⬦ presents consensus between road networks and intercity transportation. ⬦ presents consensus between urban public transportation and intercity transportation.

Table 5. The Second Round of Delphi Survey

Factors	All Groups		Road Networks		Urban Public Transportation		Intercity Transportation	
	M	R	M	R	M	R	M	R
A	2.600	8	2.550	7	2.620	7	2.630	8
B	2.752	5	2.775	5	2.520	8	2.960	5
C	2.865	4	2.805	4	2.690	5	3.100	2
D	3.003	1	2.855	3	3.120	1	3.035	3
E	2.895	2	2.740	6	2.805	3	3.140	1

Factors	All Groups		Road Networks		Urban Public Transportation		Intercity Transportation	
	M	R	M	R	M	R	M	R
F	2.882	3	2.900	1	2.725	4	3.020	4
Samples	95		43		31		21	
Cronbach's Alpha	0.806		0.762		0.702		0.756	

Note: M=Mean; R=Rank. ⬦ presents consensus between road networks and urban public transportation. ⬦ presents consensus between road networks and intercity transportation. ⬦ presents consensus between road networks and intercity transportation. ⬦ presents consensus between urban public transportation and intercity transportation.

Based on their mean score following the second round of the Delphi survey, all of the information system audit team criteria were ranked. The findings also indicate that the factors' significance level has increased as indicated by their mean score changing from "agree" to "neutral". Other factors have a significance level based on the mean score assessing hardware, software, networks, data management, and security protocols (significance as neutral) in both rounds, sport skill development and performance (significance as neutral) in the first-round round and (significance as agree) in the second round, and "Improves inventory management and distribution, leading to faster service" (significance as neutral) is in both rounds of the Delphi survey. No factor had a grade of less than 2.5 in this survey, and each factor had a sizable amount of neutral or agrees. It can be claimed that all of the involvements implement strategies such as robust safety protocols, security measures, contingency plans, and compliance (**Table 6**).

Table 6. The Significance Level of Information System Audit Factors

1st Round				2nd Round			
Factors	M	R	S	Factors	M	R	S
A	2.943	1	Neutral	A	2.600	8	Neutral
B	2.700	5	Neutral	B	2.752	5	Agree
C	2.930	3	Neutral	C	2.865	4	Neutral
D	2.613	7	Neutral	D	3.003	1	Neutral
E	2.610	8	Neutral	E	2.895	2	Neutral
F	2.685	6	Neutral	F	2.882	3	Neutral

Note: M=Mean; R=Rank; S=Significance and agree showing more significance from the 1st round to the 2nd round.

DISCUSSION

In the context of the transportation business, the discussion of this study goes deeply into the impact and usefulness of information system audit, enterprise risk management, quality assurance, and system optimization. These ideas are essential for guaranteeing the efficient running and ongoing development of transport services (Abramović & Šipuš, 2020). According to the results, information system audits are crucial for locating vulnerabilities and flaws in the transportation organization's information systems (Hallowell et al., 2013; Yilmaz & Flouris, 2017). Companies may improve the accuracy, integrity, and security of their data by doing routine audits, reducing the risks of unauthorized access, data breaches, and compliance violations (Paape & Speklé, 2012). This helps establish confidence with clients, business associates, and regulatory bodies. In order to proactively identify and manage risks particular to the transportation sector, enterprise risk management is essential (Zahari Wan Yusoff & Ismail, 2008). The debate demonstrates that there are numerous potential sources of risk in this industry, including operational disruptions, regulatory compliance, safety concerns, security threats, and financial uncertainty (Silkina & Kashnik, 2022). Transportation organizations may identify, evaluate, and prioritize risks by putting strong risk management systems into place. This improves decision-making, safety results, and overall resilience (Arena, Arnaboldi, & Azzone, 2010; Liang, Wu, Deng, & Lv, 2022). In order to satisfy customer expectations and guarantee the effectiveness of transportation operations, quality assurance procedures are essential. The conversation emphasizes how crucial it is to set standards, measure performance, carry out inspections, give training, and promote a continuous improvement culture (Hagan, 2015; Martínez-Zarzuelo, Rodríguez-Mantilla, & Fernández-Díaz, 2022; Panadea, Handayani, & Pinem, 2017). Customer satisfaction, operational efficiency, safety outcomes, and a strong reputation in the transportation sector are all improved by effective quality assurance (Cheung & Tsui, 2010; Egert, Dederer, & Fukkink, 2020; Loureiro & González, 2008). A key component of raising the general performance of transportation networks is system optimization. The debate demonstrates that major tactics for increasing operational effectiveness and cutting costs include optimizing routes, streamlining processes, utilizing technology, and maximizing resource utilization (Arora & Wang, 2005; Zhu, Liu, Han, & Lee, 2020; Zupančič, Filipič, & Gams, 2020). Transportation organizations can increase service dependability, cut down on travel times, and better allocate resources by putting system optimization

strategies in place. The connection between these ideas and their combined effect on the transport sector are highlighted in the discussion. The importance of incorporating enterprise risk management, quality assurance, and system optimization practices into transportation organizations' daily operations is emphasized (Buchanan & Gibb, 2007; Muliawan, Green, & Robb, 2009; Schlossberg, 2006). The conversation as a whole emphasizes how important these ideas are to success and sustainability in the transportation sector. It offers useful insights for transportation organizations to comprehend and put into practice effective risk management, quality assurance, and operational optimization techniques in a dynamic and competitive environment (Pham & Kim, 2019; Saunila, Nasiri, Ukko, & Rantala, 2019; Wijethilake, 2017).

The study has found this study delves into the impact and value of information system audit, enterprise risk management, quality assurance, and system optimization in the context of the transportation industry. Semi-structured interviews and a Delphi survey were both a part of this concept, playing a crucial role in ensuring the smooth operation and continuous improvement of transportation services that used a mixed-method approach. The targeted group (road networks, urban public transportation and intercity transportation) was surveyed to get qualitative data using semi-structured interviews that incorporated the narrative technique. The qualitative analysis produced a total of 14 nodes, which were then prioritized according to their importance using a two-round Delphi survey (quantitative approach) of the targeted demographic (China). The qualitative data were eliminated and subjected to statistical analysis with the assistance of statistical tools, which led to the extraction of all six components for the information audit system. The Delphi survey (quantitative analysis) was carried out to see whether China respondents agreed.

To strike a balance between the great customer service at least inventory investment, and the often perceived targets as competitive goals of low unit cost. Supply chain management aims to harmonize customer needs with the flow of suppliers' content. Each organization should have a premium on the formation and management of a supply chain that is an efficient company (Stevens, 1989). The production of the process made by the supply chain should be tested and tested according to a set of standards to meet the objectives. The values of the process parameter should be maintained within the default limit and should be mostly permanent to be regulated. Comparison of planned and real parameter values will make it possible to enhance performance or rearrange the monitored value with the target value. Once this is done, the parameter values can be changed through multiple reaction processes (Gunasekaran, Patel, & McGaughey, 2004). Lack of coordination between different risk management departments results in failure when each risk class is organized into separate silo. Proponents of enterprise risk management say by combining decision-making in all risk classes. Businesses can avoid duplication of risk management costs by taking advantage of natural hedges. Businesses that practice enterprise risk management should be able to better understand the overall risk involved in various trade efforts. They should now have a more objective basis for allocating resources, which increases capital efficiency and returns to equity (Hoyt & Liebenberg, 2011). An analysis of bus routes, stops and timetables in Hobart created a public transport network. The network model was similar to the model used for transit and multimodal network planning in most cities. Supply quality was assessed by looking at public transport schedules to classify access to specific travel purposes, such as impossible, poor, medium, or to be good. The difference in needs was known when the number of people living in poverty in a settlement was high. And the difference in need was identified when a settlement was reached (Currie, 2004).

CONCLUSION

The study discovered that China moving the significance of information system audit, enterprise risk management, quality assurance, and system optimization places a high focus on the development of the industries. Using the narrative technique (semi-structured interviews), 14 nodes (semi-factors) were ultimately generated from the target population (logistics companies, freight carriers, shipping and distribution firms, public transportation agencies, and supply chain service providers). Additionally, these identified nodes were corrected and then screened out to extract the themes (major factors). The consensus between road networks, urban public transportation and intercity transportation was put to the test using the Delphi technique (quantitative analysis). Beijing, China places a stronger emphasis on integrating these practices so that the sector can benefit from better operational effectiveness, increased safety, decreased costs, and increased customer happiness. The report also emphasizes how the development of road networks, urban public transport, and intercity travel is necessary to ensure a minimum level of beneficial outcomes. The industries face particular difficulties, such as supply chain complexity, safety risks, and operational disruptions. Organizations can find weaknesses in their information systems, reduce risks, and guarantee their dependability and security by undertaking information system audits. Enterprise risk management gives transport businesses the ability to proactively access risks and manage them, improving decision-making and ensuring the continuity of services. Meeting client expectations, enhancing operational effectiveness, and upholding a strong reputation within the industry are all made possible by quality assurance practices. By maximizing resource allocation and utilizing technology, system optimization improves the efficiency and performance networks. This might boost auditors' efficiency. As IT-savvy auditors are more equipped to manage risks and collaborate with their peers, they can also contribute to teams becoming more cohesive. This can lead to higher team performance, stronger bonds, and better teamwork. The review of the literature and the case studies are the study's main sources of support. The case studies have restrictions on things like sample size, representativeness, and general ability, but the literature review provides a thorough understanding of the topic. Due to its specific focus on the selected country, this study may not provide a

comprehensive understanding of information system audit in other industries and geographical regions. Delphi approach, which was used in this study, also entails a group of experts reaching an agreement. This study emphasizes the significance of these ideas and how they are interconnected in order to promote success and sustainability in the transport sector, despite these constraints. The research paper seeks the impact and value of the information system audit in system optimization within enterprise risk management, quality ashore, and supply chain domains. The introduction emphasizes the importance of the subject and outlines the basic research question. This article includes case studies and experimental evidence to support claims made and provides examples of real-world information system audits in supply chain operations be able to. This includes a section on recommendations for future work and further research, outlining possible areas to enhance the topic of future search and research. Overall, the purpose of the study is to cooperate in understanding how the information system affects the methods of the audit supply chain and for decision-making and action in organizations offers insight.

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