
Risk Management Practices in Construction: China Experience

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doi.org/10.51505/ijaemr.2024.9512

URL: <http://dx.doi.org/10.51505/ijaemr.2024.9512>

Received: Oct 14, 2024

Accepted: Oct 17, 2024

Online Published: Oct 24, 2024

Abstract

The purpose of this paper is to talk about how risk is managed in the building industry and rate how well it works in dealing with changes in China's economy, markets, and policies. There are many risks in the construction business, such as those related to safety, meeting deadlines, quality, money, and following the rules. The article reviews the practical application of these risk management areas and explores how they affect project quality, cost control and corporate competitiveness. The study shows that with the diversification of project contract forms and the increasing complexity of large-scale projects, construction companies need to implement comprehensive risk management strategies to cope with these challenges. Effective risk management not only helps to ensure the smooth implementation of projects, but also enhances the competitiveness and efficiency of enterprises in the market. (Wang, 2023)

Keywords: Risk Management, Construction industry, Practices

1. Introduction

1.1 Explore Importance of Risk Management Practices in the Construction Industry

In China, the research background of risk management practices in the construction industry is complex and profound.(Liu,2023) With the development of economic construction and the deepening reform of the construction system, the contracting methods of engineering projects have become diversified, modern large-scale engineering construction has become more complex, and the risks faced by construction companies have become increasingly prominent.(Xue,2010). Especially in recent years, the intensification of real estate market regulation, the reduction of newly started projects, and the fluctuations in building material prices caused by the global economic downturn have further aggravated the risk challenges of construction companies. (Xue,2010)In addition, the frequent occurrence of construction quality and safety accidents, the implementation of new specifications and standards, and the strengthening of quality and safety supervision by relevant government departments have also prompted risk management to become an important link that construction companies cannot ignore. Therefore, researching and practicing effective risk management strategies is of great significance to ensure project quality, reduce the construction risk accident rate, improve project

delays, control costs, and increase corporate competitiveness and customer satisfaction(Chen,2020). For years, the construction and building-materials industries were the largest of their kind in the entire world and played an important role in fueling China's growth. (Liu,2023). The construction industry in China has always been a pillar enterprise for the national economy, and it is one of the focuses on infrastructure construction and real estate development. (Xue,2010). According to data in 2023, the total output value of China's construction industry will reach approximately 3 trillion yuan (about 4.5 trillion US dollars). This scale has made China a leader in the global construction industry, accounting for 50 % of the global construction market. The investment of China construction industry is concentrated in two main areas: infrastructure construction and real estate development. In recent years, the Chinese government has added investment in infrastructure, especially such as high-speed rail, highways, ports and airport projects. These projects promote the sustainable development of the industry. The construction of infrastructure will be about 25 trillion yuan, including key areas such as transportation, energy and reservoir projects. In 2023, China's Real Estate Development Investment will be about 13.29 trillion yuan. The Chinese government's expenditure in the construction industry covers various regions, including urbanization, public facilities, and rural rejuvenation. In 2022, government infrastructure expenditures accounted for about 15 % of national fiscal expenditures, equivalent to 7 trillion yuan. China's construction industry is a labor-intensive industry with many employees. According to statistics, 2023. The total number of employees in China's construction industry is approximately 53 million. These workers include people of all skill levels, from construction workers on construction sites to project management and engineering design personnel. The size and distribution of an industry's workforce is also an important factor in discussions about safety and risk management, particularly when dealing with risks in workplace safety, occupational health and more. (Wang,2023). The success or failure of project management, which revolves around the complexity and dynamism of the construction industry, in view of this needs to be treated with care, having identified hazards been properly assessed and effectively managed. Risk is greatly significant in construction and it forms a fundamental part of the project management system. It will not only affect the project safety, quality, cost and progress of some key factors but also affect the economic interests of the enterprise, social reputation and even survival and development. (Hai & Xing, 2024).

Nowdays, as construction industry developing rapidly, Project scope gradually expanding, technical difficulty is growing and Construction environment becoming more complex, we have good reason to take engineering management seriously. In this context, uncertainties during the construction process have increased significantly and the importance of risk management has become increasingly important.

1.2 Risk Characteristics of Construction Industry

Safety is the cornerstone of construction projects. Any safety accident may cause immeasurable losses to the project. Safety risk management aims to improve the safety awareness of all employees by establishing and improving a safety management system, strengthening safety education and training for personnel, enriching the corporate culture through multi-party

education and publicity, strictly implementing various rules and regulations. Establish a safety production feedback system for employees, achieve timely self-examination, adopt advanced safety technical means, ensure the safety of construction personnel and construction sites, reduce losses in all aspects of the project, control and manage risks in a timely manner to achieve the final project goals.(Huang,2024). Specifically, it includes formulating detailed production safety plans, regular safety hazard inspections, corrections, and implementing emergency rescue plans to prevent accidents and damage, and ensure the stable progress of construction activities (Liu,2022).Common risks in construction projects. It will not only increase project costs, but also affect the delivery time of subsequent projects and even the entire project (Liu et al.,2007). Schedule risks include delay risks from relevant parties, the social environment, and the natural environment during the project implementation stage. There are also different types of risks throughout the whole life cycle of the project. The construction stage is the most important part of the project formation process because it faces the most uncertainty. The completion of a construction project is closely linked to how well it produces. So, a hidden risk of delays would automatically show up in the form of them never getting the project finished. If you cannot grasp the risk of delay schedule — then more likely than not, this will impede on project implementation. Limited Scope for Realizing that the Threat of Late Schedules Often Hampers Delivery of the Project. Can not really grasp that the time table delay risk is usually blocking the realization of project. If you do not fully understand the risk of the schedule, it will usually hinder the implementation of the project. The current timetable risk management method is based on risk recognition, assessment and timetable optimization, but it is still impossible to ensure that the severity and scope of delay are controlled. Naturally, then, this is where the stage of timetable risk management still has room for enhancement. We should not only carry out the recognition and assessment of risks, but also grasp the study of risk transmission and expansion effects in the investigation of timetable risk to promote the improvement of engineering overall risk management system.(Wang,2023)

The risk of project quality management refers to the possibility of loss of project quality or failure to achieve the expected goals in the construction project due to the uncertainty of various types. These uncertainty includes human-oriented factors, natural factors, technical factors, and other aspects, which may affect the quality goals of construction projects. Engineering quality management risks can generally be divided into three categories: technical risks, economic risks, and management risks. Technical risks mainly refer to technical difficulties or technical problems that may arise in the process of designing, constructing and operating engineering projects. Management risks are mainly reflected in project management capabilities and project execution capabilities.(Li,2024)

Construction project management financial management is an important part of, the direct impact on the economic benefits of the projects. Financial risk management requires the project manager to strictly control costs and arrange cash flow during the project implementation process to prevent overruns and capital shortages.(HU.2012). Specific measures include formulating detailed financial budget plans to clarify the standards and approval procedures for

various expenses; strengthen cost accounting and analysis, timely discover and correct cost deviations; optimize the capital distribution structure and improve capital use efficiency; Establish a risk warning mechanism to prevent and respond to possible financial risks in advance. By doing so, we can ensure the financial stability of the project in place and thus provide a solid backing for all projects to run smoothly (Zhang,2024).

Compliance is an important component of construction project management that cannot be ignored. Compliance risk management requires the project team to strictly abide by national laws, regulations, industry standards and approval requirements throughout the project process to ensure that the project operates legally and compliantly(Gu & Lei,2005). Specific measures include strengthening the study and dissemination of legal knowledge and regulations, and raising the compliance awareness of all staff. The State Council has promulgated administrative regulations such as “the Safety Production Licensing System”,“ the Regulations on the Administration of Safety Production in Construction Projects”, “the Regulations on Registered Architects”, “the Regulations on the Administration of Surveying and Designing of Construction Projects”, and “the Regulations on the Administration of the Quality of Construction Projects”. The competent authorities of the State Council have promulgated departmental rules and regulations such as “the Implementing Rules of the Regulations on Registered Architects”, "the Provisions on the Administration of the Qualifications of Construction Enterprises", "the Provisions on the Administration of the Qualifications of Construction Engineering Survey and Design Enterprises", " the Provisions on the Administration of the Qualifications of Engineering Supervision Enterprises", " the Measures for the Administration of Quality Inspection of Construction Works", and "the Provisions on the Administration of Foreign-Invested Construction Engineering Service Enterprises". In addition, according to the actual situation of the province and the "Architectural Law" and other laws and other laws and other laws and other laws, there are some local rules and regulations, such as Guangdong Province, which forms Guangdong architecture in 2007. Engineering survey and design management regulations (Tan,2010). Clarify the responsibilities and processes of compliance management; strengthen communication and coordination with government regulatory agencies to maintain policy trends and regulatory requirements. It also regularly conducts compliance review and evaluation to determine and correct compliance issues. Through the implementation of these measures, the risk of stagnation due to unsatisfactory projects is effectively avoided, which is conducive to the development of better and better companies. (Li& Luo, 2021).

All in all, risk management in construction is a systematic project, which requires project managers to make comprehensive consideration and carefully deployment from multiple dimensions. There are ways to make management of safety risks, building period risks, quality risks, financial risks, and compliance risks much better. This will also make management of all construction projects much better overall. changed to make sure that the project goals are met correctly (Wu, 2024).

2. Risk Management

In the field of modern project management, risk management, as a key link to ensure the successful implementation of a project, has become increasingly complex and multi-dimensional. Risk management is not only related to the stability and sustainability of the project itself, but also has a profound impact on the company's strategic goals and market competitiveness.

Safety risk management is the cornerstone of project management. It is related to the safety of life, property, and project reputation. Effective safety risk management can reduce the probability of accidents and provide a stable environment for construction period and quality management.

Construction period risk management focuses on ensuring that the project is completed on time and avoiding the cost increase and opportunity loss caused by time delays. It requires the project team to arrange resources and optimize the construction process under the safety management framework to reduce the negative impact on quality and financial goals (Liu et al., 2024).

Quality risk management emphasizes strict control of the quality of project results to ensure that products or services meet established standards and customer needs. High quality is not only a sign of project success, but also a key factor in reducing subsequent maintenance costs, improving customer satisfaction and brand image. At the same time, good quality management can reduce rework and delays caused by quality problems, thereby indirectly promoting the realization of construction period and financial goals (Ayodeji et al., 2024). Financial risk management is about the raising, allocation, and monitoring of project funds to ensure the economic feasibility and sustainability of the project. It requires project managers to predict and control costs, avoid financial risks, and provide solid financial support for the smooth implementation of the project while fully considering safety, construction period, and quality requirements (Bezaket et al., 2024).

Compliance risk management cannot be ignored. It runs through the entire life cycle of the project and involves compliance with laws, regulations, industry standards and internal corporate rules and regulations. Compliance is not only related to the legality of the project, but also affects the company's reputation and social responsibility. The effective implementation of compliance risk management can reduce the risks of fines, lawsuits and project interruptions caused by illegal and irregular behaviors, and provide legal protection for the safety, construction period, quality, and financial management of the project (Diet et al., 2024). In summary, the five independent variables of safety risk management, construction period risk management, quality risk management, financial risk management and compliance risk management complement each other and together constitute a comprehensive system of project risk management. They influence and restrict each other, requiring project managers to adopt systematic and forward-looking risk management strategies in a complex and changing environment to optimize project goals.

2.1 Security risk management

Safety risk management, or SRM for short, is an important part of managing building projects. Its main goal is to find, evaluate, control, and keep an eye on the things that could put workers' health and safety at risk(Charles et al., 2024).

SRM uses system methods to ensure construction activities in a safe environment to prevent accidents and protect workers' lives and health.(Giovanni et al., 2024).

2.1.1 China Security Risk Management Practice

In China, the practice of security risk management is a complex and systematic project that runs through all areas of social and economic development, especially in key industries such as construction, transportation, energy and information technology. With rising economic levels and accelerating urbanization, the issue of security risks is attracting more and more attention from all sectors and has become one of the major constraints to sustainable development. (Qin. 2024).In the construction field, the practice of safety risk management covers the entire process, from project planning, design, construction to operation.

In the meantime, entitled management of visiting safety risk has been strongly advocated by government and legislation concerning legalizing and standardizing work safety has been successively introduced in order to provide a strong system warranty for work safety control. At the same time, enterprises are encouraged to adopt advanced safety risk management technologies and methods to improve risk management levels and ensure stable and healthy economic and social development. (Wu & Wang. 2023).

Firstly, my country's practice of safety risk management is a multi-dimensional and multi-level systematic project, mainly involving the joint action of the government enterprises and individuals, under the premise of creating an optimistic atmosphere for promoting mass participation in all walks of life.

2.2 Risk management during construction period

Attendant with construction project management is risk management. It seeks to recognize, analyze, answer and obey varied risks during construction of a project. in real life to stay away from the failure finished in planned deadline and maintain quality as well as operational financial (Leo. 2022).

During the construction of engineering construction projects, there are a variety of uncertainties that may lead to an increase in completion time and costs, it is necessary to establish scientific risk identification, assessment, respond measures and monitoring processes for how to manage such risks—construction period risk management. These uncertainties include, but are not limited to, technical difficulties, material supply delays, labor shortages, weather changes, cost overruns, safety incidents and policy changes. By implementing effective risk management strategies, project managers can minimize the negative effects of these risks on achieving project objectives .

2.2.1 Risk management practices during the construction period in China

In China, risk management practices during construction are a big part of making sure that engineering projects go smoothly and that people and property are safe. Project managers can lessen the negative effects of these risks on meeting project goals by using good risk management strategies(F Suryani,2019).

In summary, my country's construction risk management practices are constantly improving and developing, providing a strong guarantee for the smooth progress of engineering projects.

2.3 *Quality Risk Management*

Risk management that is good is a planned process. It covers the whole life cycle of a product, from research and development to exports to the market. Its goal is to find, assess, control, and assess different risks that could harm the quality of the product (Restemeyer, et al.2024).

Management measures combined with science and technology methods to discover, forecast & evaluate the potential endangerment of production process & taking relevant control to ensure that the product reach standard requirement, this is quality risk management This process puts the performance, quality of the product and also covers production process, supply chain management, personnel operations and other part. The foundation of quality risk management is in prevention and mitigation. Through forward-looking and retrospective analysis, risks are controlled within an acceptable range, thereby ensuring the sustainable development and market competitiveness of the enterprise (Kang.2024).

2.3.1 Quality Risk Management Practices in China

In China, quality risk management practices have become an important part of corporate management and development, especially in the manufacturing, service, and emerging technology fields. With the intensification of market competition and the continuous improvement of consumer demand, quality has become the lifeline of corporate survival and development

To effectively deal with quality risks, Chinese companies have established a comprehensive quality management system to ensure the stable and reliable quality of products and services by identifying, evaluating, monitoring, and responding to potential quality risks. We use quality risk management for buying raw materials, keeping an eye on the production process, inspecting finished goods, and providing service after the sale

At the same time, the government has also stepped up its oversight and guidance work for quality risk management by putting out a number of laws, rules, and standards that businesses must carefully follow. If they don't, they will face harsh punishments. Businesses are also urged to use cutting edge quality management tools and techniques, like Six Sigma and lean production, to boost the quality of their work.

In general, China's quality risk management practices are constantly improving and developing, providing strong support for enterprises to enhance their competitiveness and win market trust. In the future, with the advancement of technology and the further upgrading of consumer demand, quality risk management will become more important, and companies need to continue to innovate and improve to adapt to new market environments and challenges.

2.4 Financial Risk Management

Financial Risk Management is a set of management tasks that businesses and financial institutions do when they invest and run money to find, assess, monitor, and control different types of financial risks that could happen. The goal is to lower the chance of losing money and increase profits.

2.4.1 Financial Risk Management Practices in China

In the practice of financial risk management in China, enterprises are faced with a complex and changing economic environment, including many uncertain factors such as market fluctuations, policy adjustments, and capital flows. In response to these challenges, Chinese enterprises have gradually built a complete financial risk management system (Hu, 2012).

Enterprises focus on identifying potential financial risks from the source and formulate corresponding risk prevention and control strategies through in-depth analysis of internal operating conditions and the external market environment. At the same time, modern information technology is used to set up an early warning system for financial risks that checks and rates risk levels in real time so that businesses can react quickly to changes in the market and lower the chances of financial risks happening. Businesses have also gained a lot of knowledge in managing financial risk. By setting up and improving internal control systems, making financial management and supervision stronger, and making sure that financial information is real and correct. At the same time, financial tools are used to spread out and protect against risks. Enterprises can lower their financial risks in a number of ways, such as by getting insurance and derivative financial instruments like futures and options. (Liu et al, 2022) .

In order to do this, China's approach to financial risk management has been very successful, and businesses are growing steadily. When Chinese companies handle their financial risks, they will come up with new ideas and improve their methods over time. This will help businesses stay successful as the market economy grows and the financial market keeps getting better.

2.5 Compliance Risk Management

Compliance risk management is a methodical process that requires businesses or financial institutions to set up a good compliance management system, make sure everyone knows their compliance duties, and create and enforce compliance policies, procedures, and standards in order to find and evaluate compliance risks and take the necessary control measures to lower these risks. Compliance risks include, but are not limited to, the chance of breaking laws and rules, going against business standards, and going against company rules. Through compliance

risk management, enterprises or financial institutions can ensure that they operate in compliance with the legal framework, avoid potential legal risks and financial losses, and maintain the reputation and brand image of the enterprise (He,2023).

2.5.1 Compliance Risk Management Practices in China

In China's business environment, compliance risk management has become an indispensable part of corporate operations. With the continuous improvement of the legal and regulatory system and the strengthening of supervision, companies are facing increasingly stringent compliance requirements. In order to ensure that their business is legal and compliant, Chinese companies have actively adopted a series of compliance risk management practices(Gu & Lei,2005).

Companies put a lot of effort into creating a compliance culture. They make the idea of compliance part of the company culture and make it a rule for workers to follow. Compliance awareness among workers is raised through training, publicity, and other means to make sure that all employees understand and follow the laws, rules, and internal policies that apply to them. Companies establish and improve compliance management systems, clarify compliance management responsibilities and processes, and ensure that compliance work has rules to follow and is traceable. At the same time, special compliance departments or positions are set up to supervise and manage the company's compliance affairs and promptly discover and correct violations. Companies also strengthen communication and cooperation with regulatory agencies, keep abreast of the latest regulatory policies and requirements, and ensure that corporate business always meets regulatory standards. At the same time, they actively participate in the activities of industry self-regulatory organizations to jointly promote the improvement of industry compliance levels. (Ma,2021)

To sum up, China's compliance risk management practices are always getting better, which is a strong promise for businesses to run smoothly. While the legal and regulatory system keeps getting better and oversight gets tighter, Chinese companies will focus more on efficiency and new ideas in their compliance risk management in the future.

2.6 Environmental Risk Management

Environmental Risk Management (ERM) is an indispensable component of modern construction project management. It aims to identify, evaluate, control, and monitor various risk factors that may threaten the environment to ensure the safety and sustainable development of the ecological environment. ERM uses a systematic approach to ensure that construction and operation activities are conducted under environmentally friendly conditions, prevent pollution accidents, and protect the health of the ecosystem and human well-being (Lan, et al. 2022).

2.6.1 China's Environmental Risk Management Practice

In China, environmental risk management practice is a systematic and complex project that runs through all aspects of economic construction, especially in industries such as construction, energy, transportation, and agriculture. In the process of promoting industrialisation and

urbanisation in China with drastic increasing speed, the environmental problems have become more and more serious. At present, environmental risk management has gradually entered the core part of promoting sustainable development and advancing the construction of ecological civilization (Qian, 2023).

Environmental risk management in the construction sector has a role throughout the project process, including planning and design stages, before carrying out construction activities up until handover to operational stage and eventual disposal of waste. When formulating project plans, enterprises need to include environmental impact assessment (EIA) and monitor, warn and deal with potential environmental risks through various means. Enterprises can effectively reduce the possibility of environmental pollution by establishing a sound environmental management system. At the same time, the implementation of clean production technology and green construction plans will help reduce resource waste and pollutant emissions. In addition, employee environmental awareness and skills training are important means to ensure the effective implementation of environmental risk control (Weiet al.,2020).Laws and rules should be made for environmental risk control, according to the Chinese government. Setting up laws like the Environmental Protection Law and related rules (like the Regulations on Environmental Protection Management of Construction Projects) is one way to make sure that environmental risk management in businesses is legal. The government must not only conduct strict environmental audits on enterprises, but also prompt companies to apply the advanced technologies of environment risk assessment, such as big data monitoring and Internet of Things technology; in order to identify and balance the environmental risks more precisely. The government, enterprises and the public can indeed join hands on effective environmental risk management. The government has also been strengthening supervision and providing technical support to enterprises. Enterprises improve their environmental protection technology level under the guidance of the government. The public actively participates and supervises, forming a good atmosphere of multi-party collaboration and joint governance. (Weiet al.,2020)

In summary, China's environmental risk management practice is a multi-level and multi-dimensional systematic project. Through continuous improvement of laws and regulations, technological innovation, and joint efforts of all sectors of society, environmental risk management not only ensures the safety of the ecological environment, but also lays a solid foundation for the sustainable development of the economy and society.

2.7 Supply Chain Risk Management

Supply Chain Risk Management (SCRM) is a big part of modern business management. Its goal is to find, assess, control, and keep an eye on different risk factors that could hurt the supply chain's stability and efficiency. To make sure that all the links in the supply chain stay smooth and work well in a changing environment, SCRM uses a methodical approach that stops interruptions and delays and supports businesses' long-term growth and market competitiveness.

2.7.1 Supply Chain Risk Management Practice in China

In China, supply chain risk management is also a big and organised project that is mostly used in the most important industries, like medicine, retail, manufacturing, and transportation. The world economy is growing faster, and Chinese companies are facing more risks in their supply chains. When there are problems in the global supply chain, changes in the prices of raw materials, trade disputes, and public health situations, supply chain risk issues become more important (Wang, 2008).

Businesses in the building and industrial sectors need to set up a full supply chain risk management system that includes choosing suppliers, buying materials, making things, and distributing them. Businesses can quickly find possible risks and take steps to lower the damage caused by supply chain disruptions by using risk assessment, real-time tracking, and early warning systems. Businesses must also lower their supply chain's reliance on and vulnerability by using diversified supply chain strategies. These include finding backup sources, improving inventory management, and encouraging production to happen locally (Zhou et al., 2023). Or the Chinese government has also giving active support to standardization and legalization of supply chain risk management particularly in strategic industry areas, policy, laws and regulations have been successively issued reimbursing concession-holders with legal barriers of Supply chain security. For instance, documents like “Small and Medium-sized Enterprises Promotion Law” and “Supply Chain Innovation And Application Implementation Plan” explicitly define the necessity of strengthening supply chain security on a legal level, which encourages enterprises to deploy modern IT tools including but not limited to blockchain, IoT and big data analytics for better supply chain transparency and risk mitigation. In terms of promoting supply chain finance, the government has also made great efforts to enable companies to be more capable of tackling capital shortage and financial risks. In order to successfully implement supply chain risk management in China, the support and cooperation of enterprises, government entities and suppliers are indispensable. Enterprises respond to risks by improving internal management capabilities and adopting advanced technical means. Suppliers need to improve their compliance and stability, and the government provides guarantees and support for supply chain management through policies and regulations. (Dong, 2023)

To sum up, China's supply chain risk management practice is a multi-dimensional and multi-level system engineering. While coping with the risk that may face hundreds of thousands of enterprises, supply chain risk management through a joint effort from government-enterprises and suppliers and extensive use of modern technology could ensure stable operation in single enterprise level as well as common upstream downstream development among the industrial chain, thus improving both resistance to possible risks and sustainable development for economic system at large orientation.

2.8 Human Resource Risk Management

Human Resource Risk Management, or HRRM, is an important part of running a business. It finds, rates, controls, and keeps an eye on the different risks that could happen during the hiring,

keeping, and training process. HRRM is a methodical way of running a business that helps companies deal with the many challenges that come up in human resources in a market that is changing very quickly and continue to grow and be competitive (Sun, 2002).

2.8.1 Practice of Human Resource Risk Management in China

In China, human resource risk management practices have become increasingly important with the rapid economic development and industrial transformation and upgrading. Human resource risks include not only traditional issues such as high employee turnover, talent shortage and salary management, but also legal compliance, labor disputes, corporate culture conflicts and other complex factors. Especially in highly competitive industries such as high-tech, manufacturing, and financial services, the human resource risks faced by enterprises are more prominent (Liu, 2024).

In enterprise practice, human resource risk management runs through all aspects of recruitment, training, performance evaluation, and employee relationship management. Enterprises need to build a comprehensive talent risk management system to understand and predict sources of human risk through regular risk assessment and monitoring. For example, companies should formulate reasonable employee recruitment and incentive mechanisms to reduce staff turnover. In addition, companies can also improve employees' skills and loyalty through employee training and career development planning to reduce the risk of talent loss. At the same time, a sound salary and welfare system should be established to ensure employees' work enthusiasm and satisfaction, and effectively reduce the risk of labor disputes and employee resignation caused by salary dissatisfaction (Li, 2023).

Standardising and legalising human resource risk management is something that the Chinese government has worked hard to do. They have passed a number of laws and rules, such as the Labour Law and the Labour Contract Law, to protect businesses' human resource management. Businesses must follow these rules when it comes to things like signing labour contracts, protecting workers' rights, making sure the workplace is safe and healthy, and so on. The government also encourages businesses to set up and improve human resource management systems to help them deal with the complicated job market and make their total risk resistance higher. In China, businesses must not only follow through with human resource risk management, but they also need help from outside sources, like government oversight and the help of third-party service companies. Businesses can better handle human resource risks when they work together with professionals from outside the company and use professional advising, headhunting, and training institutions outside the company. At the same time, as technology improves, businesses are using tools like big data and artificial intelligence more and more to manage talent and predict risks. This has made human resource management more scientific and dependable. (Yang, 2023)

In summary, China's human resource risk management practice is a complex, multi-level system engineering that requires the cooperation of enterprises, governments, and third-party

institutions. Through systematic and legalized management mechanisms and the application of modern technology, human resource risk management can not only effectively reduce common problems such as staff turnover and labor disputes, but also promote the continuous growth of enterprises in the competition for talents and promote the stability and healthy development of the entire economy.

2.9 Technology Risk Management

Technology Risk Management (TRM) is an important part of modern enterprise management. It identifies, evaluates, controls, and monitors various risks that may occur during technology application and development. TRM uses a systematic approach to ensure that enterprises can effectively respond to technology risks in a rapidly developing technology environment, reduce technology failures, data leakage, technology obsolescence and other problems, and thus ensure the core competitiveness and sustainable development of enterprises

2.9.1 Technology Risk Management Practices in China

In China, technology risk management practices have become a key link in promoting the steady development of various industries, especially in the fields of information technology, energy, and manufacturing. With the acceleration of scientific and technological progress and digital transformation, the breadth and complexity of technology applications are constantly increasing, and the technology risks faced by enterprises are becoming more diverse and severe, covering technological innovation failures, network security vulnerabilities, data privacy issues, and excessive technology dependence (Fan,2024).

For example, business research and development, production, and operation and maintenance are all parts of technology risk management in real life. Businesses must first set up a good technology risk management system and do a full technology risk review to find possible technology failures or weaknesses and take steps to stop them. Also, because technology changes and updates so quickly, businesses need to keep a close eye on new technologies and be ready to deal with possible technological threats quickly through systems that watch and warn of risks on a regular basis. To lower the risk of hacker attacks and data leaks, for example, businesses need to improve network security for information systems and network infrastructure by using encryption and identity authentication, among other technical tools (Qian, 2023). For example, the "Cybersecurity Law," "Data Security Law," and "Personal Information Protection Law" are just a few of the technology-related laws and rules that the Chinese government has put out to make technology risk management legal and standardised. These rules give businesses a strong institutional guarantee for managing technology risks, especially when it comes to network security and data privacy. Businesses have been pushed even more to improve their technology risk management by the government's rules and regulations. In addition, the government helps businesses deal with technology risks by encouraging the growth of their own innovation capabilities and funding research and development in this area. There is a greater need for technology risk management in areas like artificial intelligence, 5G, and bitcoin that are still developing. (Liu, 2017). Putting technology risk management into place successfully depends on

more than just how businesses are run. It also depends on how well they work together with outside partners, suppliers, and government agencies. Businesses can get better technical help and risk prevention and control tools by working together with third-party technology service providers more closely. At the same time, businesses can better predict and manage technology risks by using tools like big data and artificial intelligence. Through policy guidance and financial help, the government also makes the outside world a good place for technology risk management to get better. (Shang.2020)

To sum up, China's approach to technology risk management is a complicated system building that involves many levels. With technology always getting better and competition in every industry getting tougher, businesses need to get better at managing technology risks. They can do this by constantly developing new technologies, having a good risk management system, and getting help from the government. This will make sure they can compete in the technology-driven market and help the economy grow in the long term

3. Conclusion and Prospects

Safety risk management is one of the most important parts of project management. The company should set up a full safety risk management system that includes risk assessment, monitoring, early warning, and emergency response. They should also improve the safety training for workers and employees to make them more aware of safety issues and keep workers and the construction site safe. To strictly control the results of a project and make sure that goods or services meet established standards and customer needs, quality risk management is a must. This lowers the cost of future upkeep, makes customers happier, and boosts the brand's image. Getting project funds together, allocating them, and keeping an eye on them are the most important parts of financial risk management. For the project to go smoothly, project managers should plan for and keep an eye on costs, stay away from financial risks, and make sure there is steady financial support. It is important to control project risks throughout the whole process of running the project. Businesses need to make sure that their activities follow all applicable laws and rules, as well as industry standards and their own internal policies. This lowers the chances of getting fined, sued, or having a project delayed. As much as possible, environmental risk management tries to keep project actions from hurting the environment. To protect environments and people's health and to stop pollution, businesses should use building and running their businesses in ways that are good for the environment. A big part of supply chain risk management is making sure that the chain works well and steadily in a changing world. Businesses should set up a full risk management system to make sure that all the links in the supply chain work smoothly and that there are no delays or breaks. It's very important for businesses to use organised ways to handle different types of risks when dealing with human resources, like hiring, scheduling, and training. This will help keep human resources growing and competitive as well as dealing with technological risks like system failures, data leaks, and cost overruns. In the process of applying and developing technology, this can help businesses stay competitive and grow in the long term. In summary, project risk management is a multidimensional system engineering that requires project managers to adopt systematic, forward-looking strategies in a complex and changing

environment to optimize project objectives and ensure successful implementation

Acknowledgments

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