

Research on Influencing Factors and Countermeasures of Risk Control of State-Owned Enterprises under the Background of Big Data

Fengyan Wang, Ziyu Hou*, Ronaldo Juanatas, Jasmin Niguidula

Technical University of the Philippines, Maynila, Philippines

*Corresponding author: Ziyu Hou, 2279573107@qq.com

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Abstract: This study explores the risk control and response strategies of state-owned enterprises in the context of big data. Global economic uncertainty poses new challenges to state-owned enterprises, necessitating innovative risk management approaches. This article proposes response strategies from four key aspects: establishing a proactive risk management culture, building a foundation in technology and data, conducting big data-driven risk analysis, and implementing predictive analysis and real-time monitoring. State-owned enterprises can foster a proactive risk management culture by cultivating employee risk awareness, demonstrating leadership, and establishing transparency and open communication. Additionally, data integration and analysis, leveraging the latest technology, are crucial factors that can help companies better identify risks and opportunities.

Keywords: State-owned enterprises; Risk management; Big data; Risk control

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1. Introduction

State-owned enterprises have always played a crucial role in the national economy. However, in the context of the new era, they now confront uncertain global economic challenges. Specifically, the global epidemic has adversely affected economic growth, amplifying risk uncertainty. This section aims to explore how state-owned enterprises can enhance risk control in the big data era to align with the high-quality development goals of central enterprises in this new era.

2. Application of big data technology in the risk control of state-owned enterprises

2.1. The impact of big data on risk control

Big data technology supports state-owned enterprises amidst the current severe global economic situation. It provides more timely and comprehensive data, enabling state-owned enterprises to identify, assess, and manage risks more accurately^[1]. By offering a deeper understanding of market trends, customer needs, and competitor

actions, big data technology assists companies in formulating risk control strategies ^[2]. The introduction of this new technology equips state-owned enterprises with essential tools for better understanding and responding to risks.

2.2. Application of big data in the risk control of state-owned enterprises

Big data furnishes state-owned enterprises with robust supply chain management tools. By monitoring the entire supply chain in real time, companies can more effectively manage inventory and demand, thereby reducing supply chain risk ^[3]. Real-time data analysis and optimization contribute to reducing inventory backlog, enhancing delivery efficiency, and lowering operating costs.

Moreover, big data technology provides state-owned enterprises with more accurate market risk prediction capabilities. Businesses can gain a better understanding of market dynamics by analyzing trends, competitor actions, and customer needs ^[4]. This enables companies to adjust strategies quickly, adapting to market changes and minimizing market risks. Accurate market risk prediction helps enterprises maintain a competitive advantage in a highly dynamic market.

In addition, big data plays a pivotal role in financial risk management. Companies can monitor their financial health through real-time data analytics, including revenue, costs, and profits ^[5]. This helps ensure financial soundness and early detection of potential financial risks. Simultaneously, big data technology assists companies in developing more effective financial strategies, encompassing cost control and profit maximization.

3. Factors influencing risk control of state-owned enterprises

3.1. Risk management culture

3.1.1. Establishing risk awareness

The core of a proactive risk management culture lies in ensuring that all employees are aware. State-owned enterprises should instill the importance of risk awareness through training and education programs, enabling employees to identify and understand risks and proactively report potential risks at work.

3.1.2. Demonstration by leadership

Leadership plays a key role in establishing a proactive risk management culture. Senior leaders should set an example by actively participating in risk management and viewing risks as opportunities rather than threats. This means that leadership should support risk management measures and actively participate in the risk identification and response process. They should encourage employees to ask questions, propose solutions, and feel safe sharing risk information. Leadership support and active engagement help employees better understand the strategic importance of risk management, sending a strong message that risk management is an important task across the organization and everyone has a responsibility.

3.1.3. Establish transparency and open communication

Building a proactive risk management culture requires open and transparent communication channels. State-owned enterprises should establish mechanisms to encourage employees to actively report risks and make suggestions for improvement while properly handling these reports. Transparent communication can be achieved through various means, including anonymous feedback channels, regular risk meetings, and information-sharing platforms. This helps prevent risk information from being withheld or misinterpreted. Employees should understand that their reports are welcomed, not punished. In addition, state-owned enterprises

can also establish reward mechanisms to encourage employees to actively participate in risk management, such as rewarding employees who make suggestions that help reduce risks.

3.2. Technology and data foundation

3.2.1. Data integration and analysis

State-owned enterprises must establish a robust data foundation, including data collection, integration, and analysis capabilities. In the era of big data, data is no longer limited to a specific department or business process but is scattered throughout the organization. Therefore, data integration becomes critical. State-owned enterprises should adopt big data technology and advanced analysis tools to obtain data from various departments and business processes, achieving a comprehensive data view. This helps in identifying risks and opportunities more effectively. Companies can obtain more comprehensive and timely data through data integration to better understand their internal operations and external markets.

Data analysis is also a critical step. Big data technology enables state-owned enterprises to conduct advanced data analysis to discover patterns and trends hidden in massive amounts of data. This includes using data mining, machine learning, and predictive analytics. Through these technologies, state-owned enterprises can more accurately assess risks, identify potential problems, and formulate corresponding risk control strategies.

3.2.2. Leverage the latest technology

State-owned enterprises should fully leverage the latest technologies, including artificial intelligence (AI), machine learning, and automation tools, to improve the efficiency of risk control. These technologies have enormous potential to automate risk analysis, reduce human error, speed up decision-making, and provide more accurate results.

AI technology can analyze large amounts of data, automatically detect anomalies, predict risk events, and propose countermeasures. For example, AI can be used to automatically identify financial anomalies, detect fraud, and automate customer service and support. Machine learning algorithms can analyze historical data, identify patterns, and be used for risk prediction. State-owned enterprises can apply machine learning to predict market trends, supply chain issues, and employee behavior. Automation tools can be used to monitor and enforce risk control measures, such as automated transaction monitoring and supply chain inventory management.

Combining these latest technologies, state-owned enterprises can process large amounts of data more efficiently, reduce the cost of risk control, and provide more accurate risk predictions. This will help state-owned enterprises better adapt to the changing business environment, protect their interests, and improve their competitiveness.

3.3. External environmental factors

3.3.1. International situation

The uncertainty of the international situation profoundly impacts the risk control of state-owned enterprises. Enterprises should pay close attention to international political and economic events and formulate response strategies, including diversified supply chains and market adaptability strategies, to mitigate the impact of international situations on business.

3.3.2. Market competition

The intensity of market competition is also crucial in risk control. State-owned enterprises need to regularly

evaluate competitors' strategies and market shares and adjust their strategies according to changes in the competitive environment ^[6]. This may include product innovation, pricing strategies, and realignment of market positioning, among others.

3.3.3. Laws and regulations changes

Changes in laws and regulations may profoundly impact the risk control of state-owned enterprises. Businesses must establish a legal affairs department or seek legal advice to ensure their business activities comply with the latest regulations and legal requirements ^[7]. Additionally, companies need to establish compliance training and monitoring mechanisms to ensure employees comply with relevant regulations.

4. Risk control strategies for state-owned enterprises

4.1. Establish a proactive risk management culture

In state-owned enterprises, establishing a proactive risk management culture is paramount. This involves various measures, including developing employee risk awareness, modeling leadership, and establishing transparent and open communication channels.

4.1.1. Cultivating employee risk awareness

Cultivating employee risk awareness forms the foundation of a proactive risk management culture. Through regular training and education programs, state-owned enterprises should ensure that all employees understand the core concepts of risk management ^[8]. This includes different types of risks, such as market, supply chain, and financial risks. Employees need to learn how to proactively identify these risks and know how to report potential risks.

4.1.2. Leadership as key to establishing a positive risk management culture

Leadership plays a key role in establishing a positive risk management culture. Senior leaders should serve as positive risk management role models, viewing risks as opportunities rather than threats. They should be actively involved in risk management and communicate its strategic importance to the organization ^[9]. Leadership support and active involvement help employees better understand the strategic importance of risk management.

4.1.3. Establishing transparency and open communication channels

Establishing transparency and open communication channels are crucial components of a proactive risk management culture. State-owned enterprises should establish mechanisms to encourage employees to actively report risks and make suggestions for improvement while properly handling these reports. Transparent communication helps prevent risk information from being withheld or misinterpreted. Employees need to know they can raise concerns about potential risks without fear of consequences. This open culture will help detect and respond to risks early, thereby reducing the impact of potential risks.

4.2. Predictive analysis and real-time monitoring

4.2.1. Predictive analysis

State-owned enterprises can use big data technology to conduct predictive analysis, more accurately predicting future risks. This involves building machine learning models and algorithms that enable businesses to predict market trends, changes in customer demand, and potential supply chain issues. Businesses can gain deep

insights and better understand how different factors are related by analyzing big data sets. For example, companies can use machine learning to analyze historical sales data, market trends, and competitor strategies to generate predictive models, helping companies predict future market demand and formulate corresponding production and supply chain plans to reduce potential market risks.

4.2.2. Real-time monitoring

Real-time monitoring is another important strategy that state-owned enterprises should adopt. Companies can continuously monitor market, supply chain, and financial data changes by establishing real-time monitoring systems. When the system detects anomalies, it can automatically send out alerts, helping companies take quick action to mitigate the impact of potential risks. This real-time monitoring covers internal and external data, such as market news, changes in policies and regulations, etc., to fully understand the risk situation. For example, in supply chain management, companies can establish real-time monitoring systems to monitor data on each supply chain link, such as transportation time, inventory levels, supplier performance, etc. If the system detects any anomalies in the supply chain, it can immediately send out alerts, helping businesses take steps to prevent or respond to potential supply chain risks.

4.3. Build technology and data foundation

4.3.1. Data integration and analysis are crucial

State-owned enterprises need to establish a strong data foundation, including data collection, integration, and analysis capabilities. Big data technology and advanced analysis tools will become powerful tools for state-owned enterprises to obtain data from various departments and business processes to achieve a comprehensive data view. This helps to identify risks and opportunities better. For example, by integrating data from various departments, companies can more accurately understand market trends, customer needs, competitor strategies, and other information, providing more information support for risk management.

4.3.2. Fully leverage the latest technology

It is crucial for state-owned enterprises to fully leverage the latest technology. This includes adopting cutting-edge technologies such as AI, machine learning, and automation tools. These technologies can automate the risk analysis process, reduce human error, speed up decision-making, and provide more accurate results. For example, machine learning algorithms can analyze large amounts of data to help companies better predict market trends, changes in customer demand, and supply chain issues. Automated tools can speed up the generation of risk reports, allowing businesses to react faster. State-owned enterprises should continue to pay attention to and adopt these latest technologies to improve the efficiency and accuracy of their risk control.

4.4. Risk education and training

4.4.1. Employee risk awareness training

Developing employee risk awareness is critical in building a proactive risk management culture. State-owned enterprises should implement risk awareness training programs for all employees to ensure that they understand the core concepts of risk management, can identify different types of risks, and have the ability to report potential risks proactively. These training programs can take many forms, including face-to-face training, online courses, and training materials to ensure employees fully understand the importance of risk management. These measures help ensure that employees can adapt to uncertain environments and effectively respond to risks, enhancing state-owned enterprises' overall risk control and management level.

4.4.2. Continuing education

Risk management continues to evolve, and state-owned enterprises should encourage ongoing employee education. This includes attending training courses, seminars, and workshops to maintain awareness of emerging risks and best practices. Enterprises can establish online learning platforms so employees can obtain the latest risk management knowledge anytime.

5. Conclusion

Through comprehensive risk control strategies, state-owned enterprises can enhance their ability to respond to risks, improve international competitiveness, and achieve high-quality development goals. These strategies will enable businesses to remain agile and competitive, mitigating the adverse impact of potential risks in an ever-changing environment.

Disclosure statement

The authors declare no conflict of interest.

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