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*Implementing an effective ERM program in CellMark*

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## Abstract

The business landscape is never stagnant and faces obstacles constantly, everything from internal challenges to external challenges such as the COVID-19 pandemic, which is why managing risks effectively is crucial for business to succeed. This bachelor's thesis investigates the implementation of an efficient enterprise risk management system and its effect on business performance, and identifies crucial elements that contribute to a successful implementation of ERM. The center of this thesis is CellMark, a multinational corporation operating in the supply chain sector. The COSO ERM framework has been a standardized approach for companies, but challenges such as lack of risk management culture, senior management commitment, siloed approaches, data availability and cultural barriers still remain. For a comprehensive understanding, this paper integrates a literature review, empirical research, financial analysis of CellMark and interviews with the company's managers. CellMark have demonstrated resilience by implementing cost-saving measures, adapting to new market environments and making strategic investments. The company has actively focused on ESG risks to address market and cyber risks, however still faces challenges. This study emphasizes the importance of risk assessment, prioritization, crisis management plans, supplier diversity, and how the implementation of simulation can enhance ERM and provide effective risk analysis and decision-making.

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# 1. Introduction

## 1.1 Who is CellMark?

CellMark, a multinational trading and supply chain management firm, operates globally and serves various industries (CellMark, n.d.). The parent company is CellMark AB that has subsidiaries and has been headquartered in Gothenburg, Sweden, since 1984. The central practices of the operation is sustainability and responsibility with a focus on sourcing, producing, and distributing products in an environmentally conscious manner. CellMark specializes in pulp, paper, packaging, raw materials, and chemicals. Its services to the pulp and paper sector encompass raw material procurement, transportation, storage, and finance, leveraging collaborations with its global network of suppliers and consumers. Within its packaging division, it excels in developing sustainable packaging solutions, covering the entire process from concept to manufacturing and delivery. Furthermore, the company sources and supplies various materials, including, pulp, chemicals, minerals, ingredients, energy, plastics, and recycling, to diverse sectors beyond its core competencies, such as food, healthcare, and industrial chemicals (CellMark, n.d.).

## 1.2 Purpose of the study and research question

In the aftermath of the pandemic, supply chain companies are grappling with unprecedented challenges, including economic volatility, regulatory changes, and disruptions in their supply networks, making enterprise risk management more important than ever. This case study focuses on evaluating the effectiveness of CellMark's enterprise risk management program, specifically its capacity to identify and address emerging risks. The study aims to assess the impact of identified deficiencies in CellMark's risk management system on its financial stability and operational performance. while also providing recommendations to enhance enterprise risk management practices within the supply chain industry.

Consequently, the research intends to improve the risk management program through better risk recognition, mitigation, and assessment and unearth obstacles that may arise throughout the process of implementing the recommended changes to how risks are managed. This thesis aims

to provide suggestions for strengthening the program's ability to detect and prevent threats. Therefore, our research question is:

*“What are the key factors for implementing an effective enterprise risk management program in CellMark, and how can the company ensure ongoing improvement and adaptation to changing risks and market conditions?”*

### 1.3 Challenges CellMark faces in enterprise risk management

As a supply chain company, CellMark faces significant threats in enterprise risk management (ERM), and one of the most difficult tasks is understanding the impact of those hazards (CellMark, 2023). This necessitates an awareness of both internal and external elements that may affect the company's goals and methods. Enterprise risk management holds great importance in the contemporary business landscape due to its ability to identify and address a multitude of obstacles. These obstacles encompass a lack of supportive organizational culture, the intricacy of defining and quantifying risks, resource scarcity, fragmented risk management processes, the imperative to identify and evaluate emerging hazards, the delicate balance between risk-taking and preparedness, the necessity of staying abreast of regulatory changes, and the adoption of technology for streamlined and effective risk management (Global Risk Community, 2019). Consequently, integrating ERM into daily operations and adopting a proactive approach to risk management become crucial imperatives, such as by enhancing ERM awareness and education, embracing a risk-taking mindset, leveraging technology, fostering teamwork, adopting proactive risk detection measures, ensuring compliance with regulatory standards, and making strategic investments in technological solutions (Global Risk Community, 2019).

When considering CellMark, a range of potential challenges within the scope of ERM may arise. These challenges encompass market volatility, regulatory compliance, cybersecurity risks, supply chain disruptions, and changes in customer demand. Another challenge is the risk avoidance measure; it is difficult to come up with effective plans to deal with known threats. Risk avoidance, risk transfer, risk reduction, and risk acceptance are some of the potential responses to be considered (CellMark, 2023).

Once such risks have been identified, it is essential to evaluate their potential effects and prioritize them. CellMark could better prioritize and deploy resources if they knew the relative importance of each risk. Thus, it becomes imperative to conduct regular audits of ERM strategies to ascertain their efficacy in addressing emerging risks and challenges. This practice serves to safeguard business performance, mitigate potential losses, and minimize operational disruptions.

### 1.3 SWOT analysis of CellMark

CellMark has shown promising developments regarding its financial position. Revenue of SEK 31,5 billion in 2021, a growth of 39,4% from the previous year, demonstrates the company's robust financial condition (CellMark Financial Summary 2021, 2022). The company's ability to weather economic storms and maintain steady income streams is a direct result of its strategy of diversification, which has also given it an advantage over rivals. CellMark's ability to trade a range of diversified products, such as pulp, paper, and chemicals, is a result of the firm's well-rounded business strategy, and established a strong presence in its chosen markets thanks to its network of over 50 international locations, more than 30 countries, and homes offices (CellMark Sustainability Report 2022, 2023). Due to its range of products and services and its worldwide network, the company has been given a significant advantage in the market and is becoming less and less vulnerable to changes in one specific sector (CellMark Financial Summary 2021, 2022). Not only has it resulted in increased sales and retained customers, but the company has also established a solid reputation for itself because of its dedication to quality, dependability, and client fulfillment. CellMark's dedication to environmentally responsible business operations is another strength of the company. Supporting social welfare projects, responsible sourcing, and environmental responsibility are examples of actions taken to further gain a competitive advantage (CellMark Sustainability Report 2022, 2023). These sustainable activities may improve the company's brand image while attracting environmentally friendly customers (CellMark Sustainability Report 2022, 2023).

Though CellMark is strong in various areas, it experiences weaknesses in others. One weakness is the company's reliance on a limited number of suppliers, which may affect its capability to provide consistent costs, suppliers, and global trade. Since the company is dependent on global trading, it leaves CellMark sensitive to geographical risks, regulatory changes, and trade

conflicts (CellMark Sustainability Report 2021, 2022). Moreover, a disturbance in international commerce can affect the profitability of a company's operations (CellMark Sustainability Report 2021, 2022). Furthermore, CellMark is vulnerable to financial volatility, which makes them susceptible to fluctuations in commodity prices, which could have an impact on the company's financial performance and profit margins. Hence, the firm may find it difficult to efficiently manage expenses, adapt to changing market conditions, or introduce innovative new goods. Therefore, in order for CellMark to stay successful in the future and stay ahead of the competition in the supply chain sector, they need to address these issues (CellMark Financial Summary 2021, 2022).

Additionally, CellMark has discovered multiple possibilities for growth. Since there is a growing demand for sustainable products, CellMark may leverage its commitment to sustainability to attract new customers (CellMark Sustainability Report 2022, 2023). Latin America and Asia are two growing markets that experience rapid economic development and therefore have high commodity and raw material demand. CellMark could expand into new markets and diversify into new lines of products outside its main commodities, as well as make use of technological advances to maximize its activities, enhance effectiveness, and decrease expenses (CellMark Financial Summary 2021, 2022). The firm's diversification into novel goods and penetration of the developing market could also result in increased profits and market shares. Moreover, by increasing productivity and decreasing costs, digitizing business processes may also give the organization an advantage in the marketplace. These possibilities could potentially set CellMark towards sustained development and prosperity in the logistics industry (CellMark Financial Summary 2021, 2022).

Regarding CellMark's outstanding performance, the immense competition in the supply chain industry is still a threat to the company's profitability and market share (CellMark Financial Summary 2021, 2022). A risk the firm could experience is difficulties expanding into new markets due to a variety of regulatory barriers, including but not limited to environmental constraints and fluctuations in trade tariffs. Another threat to the company's financial performance is a financial crisis; these crises set the whole supply chain industry on its downfall. Companies may focus less on ordering supplies from their suppliers because of economic downturns, which would eventually result in lower demand and put the supply chain industry on

a pedestal (CellMark Financial Summary 2021, 2022). CellMark must prevent legal as well as reputational implications by keeping up with rules and ensuring compliance (CellMark Sustainability Report 2022, 2023).

## 2. Literature review of Enterprise Risk Management

The significance of enterprise risk management (ERM) can be described as a leading paradigm for organizations to identify, evaluate, and manage risks at the enterprise level (Anton and Nucu, 2020). Firms are prompted to implement ERM due to a number of variables, including the potential for financial trouble, poor profit performance, prospects for expansion, and the autonomy of the board of directors. The use of ERM is often seen as a competitive advantage that helps businesses expand (Anton and Nucu, 2020).

Furthermore, the field of risk management is continuously changing and has done so over the past two decades (Gates, 2006). Corporate risk managers' responsibilities do not include not only financial and insurance risks but also operational, reputational, and strategic ones. Managing risks can be difficult, especially for large firms; therefore, frameworks have been developed in a single coordinated and strategic framework (Gates, 2006). It appears that businesses that use ERM effectively may outperform rivals that rely on more traditional methods of risk management. Companies may improve their capacity to implement strategic goals by optimizing the tradeoff between risk and profit through consistent and systematic risk measurement and management. In order to raise the company's capacity for carrying core risks, it must first analyze its appetite for risk, decide the relevance of risks, quantify those risks, and identify solutions to eliminate non-core risks (Gates, 2006). Although the idea behind ERM is simple, putting it into practice may be difficult.

From a historical perspective, ERM and its concept has existed for some time. It was developed in the late 1990s as a reaction to the evolving nature of the risks many businesses faced as a result of factors such as globalization, technological development, and the proliferation of new types of threats (Dickinson, 2001).



ERM’s theoretical underpinnings are based on an all-encompassing and coordinated method of handling risks. It is a new paradigm that calls for a distinct mentality and strategy when it comes to managing risk, rather than merely an extension of old risk management approaches (Dickinson, 2001). The essential steps of the ERM process are recognizing threats, evaluating threats, developing plans, and observing their effectiveness. ERM is considered to have been implemented when risk management is viewed as a key business function and integrated into the organization’s strategy and decision-making processes (Dickinson, 2001). Moreover, a well-executed ERM strategy will involve teamwork and coordination among all relevant parties. One particular framework that is now adopted by enterprises around the world is the COSO ERM framework, which was present in 2004 (Dickinson, 2001).

2.1 COSO ERM Framework

The COSO ERM framework stresses the significance of a unified strategy for handling risks at all organizational levels (Compliance Risk Management, 2020). It helps businesses link their risk management practices with their overarching strategic goals and objectives by providing a standard language and structure for risk management. Organizations can benefit from adopting the COSO ERM framework in several ways, including improved risk identification and management, better decision-making, and increased overall performance and resilience.

**Table 1. The COSO ERM framework consists of five key components:**

Key Components:	Implications:
Governance and culture	This aspect considers the leadership's example in terms of the organization's culture, values, and ethical standards.
Strategy and Objective-Setting	Here, we establish goals for the organization that are both specific and attainable in light of its mission and vision.
Performance	Optimizing performance requires a thorough understanding of the risks that can compromise that success as well as a plan for dealing with those dangers.

Review and Revision	To guarantee that the organization's risk management systems are continually improving, they must be monitored and reviewed on a regular basis.
Information, Communication	This section explains why it is crucial to keep internal and external stakeholders up-to-date with appropriate risk information at all times.

ERM is constantly developing in light of new threats like cyber security along with climate change and will remain a hot topic for businesses in the future as they try to cope with an increasingly uncertain and complicated risk landscape (Dickinson, 2001).

In the realm of supply chain management, stakeholders, suppliers, manufacturers, distributors, and customers play vital roles in each facing their distinct risks (Olson and Desheng Dash Wu, 2020). Consequently, it is argued that an all-encompassing and unified approach to enterprise risk management is crucial in supply chain management. This approach should consider the requirements of interested parties and the risks they encounter.

Supply chain risks such as demand unpredictability, supply interruption, quality difficulties, and regulatory compliance outlines the significance of ERM in supply chain management and enterprise risk management can assist businesses in proactively recognizing, evaluating, and responding to such threats (Olson and Desheng Dash Wu, 2020). The significance of risk assessment, risk identification, risk mitigation and risk monitoring are all highlighted in ERM frameworks that have been introduced, such as COSO ERM framework and ISO 31000 (Olson and Desheng Dash Wu, 2020). An effective ERM strategy would take into account both COSO ERM framework and ISO 31000 plays a vital role in ERM, COSO ERM is mostly utilized in the supply chain.

## 2.2 Why is ERM important in the supply chain industry

Numerous vendors, consumers engaged, and intermediaries in the manufacturing and distribution of services and products have resulted in an intricate and interview-intensive supply chain sector (Manuj and Menter, 2008). Therefore, supply chain operations are exposed to internal and external risks. One major risk the supply chain industry cannot control is disruptions such as natural catastrophes, unstable political conditions, and technical malfunctions that could lead to strained client relationships, cost increases, and delays (Khan and Burned, 2007). COVID-19 has shown the necessity of having strong risk management practices that ensure business continuity, even in the face of unexpected challenges (Assibi, 2022). ERM offers a structured methodology for ranking risks based on their potential to hinder the achievement of a company's goal. This makes ERM important for supply chain enterprises in responding to the pandemic and other disruptive events (Assibi, 2022).

The increasing complexity of the supply chain, with its multiple suppliers and international networks, causes difficulties in detecting and mitigating risks (Khan and Burned, 2007). Effective communication is crucial for business success, and a lack of information can harm a firm. Some businesses are suffering from information asymmetry and inadequate risk assessments because they are hesitant to communicate with their suppliers (Khan and Burned, 2007). Fluctuations in currency values, commodity prices, and interest rates are financial risks that supply chains must manage since they can affect their profitability. Additionally, poor quality is a significant risk that could damage the supply chain in terms of relationships, rework, delays, and services (Khan and Burned, 2007).

As aforementioned, implementing ERM is essential in a firm, however it can be challenging and require an investment of time, resources, and a commitment to improving every aspect of the business (Frasser and Simkins, 2016). The primary challenge is the lack of a risk management culture in an organization. It is crucial that all employees within the company understand the purpose and benefits of ERM for risk management. Without understanding, employees may resist the adoption of ERM, fearing being left behind (Enyinda, 2017). Another essential challenge in implementing ERM is a lack of senior management commitment; it is difficult to prioritize risk management, acquire the necessary resources, and win over stakeholders without

their cooperation (Frasser and Simkins, 2016). To overcome these difficulties, organizations should promote ERM through training and educational initiatives (Enyinda, 2017), actively participate in resource allocation, and apply effective communication (Frasser and Simkins, 2016). A siloed risk management approach is another difficulty many companies face since they handle risk management in silos, where each division is responsible for its own threats. However, this siloed approach to ERM adoption can result in a limited holistic perspective of risks (Frasser and Simkins, 2016). When ERM heavily depends on accurate and up-to-date data to identify, analyze, and manage risks, ensuring data availability and quality can become difficult. Businesses often face obstacles in terms of data quality, availability, and consistency. Therefore, inadequate information can jeopardize decision-making processes and reduce the efficiency of ERM (Enyinda, 2017). The widespread adoption of ERM can also be hindered by cultural barriers. Different cultures may vary in their acceptance of risk and be resistant to change. To successfully implement ERM, it is essential to acknowledge and address these cultural variables (Enyinda, 2017).

Furthermore, ERM facilitates the integration of risk management practices with business goals, increasing the likelihood that the managed risks will have a significant impact on the company. Additionally, ERM enhances transparency and accountability by simplifying effective communication of risks and management strategies to stakeholders, including employees, suppliers, customers, and investors (Curkovic et al., 2013). Open dialogue regarding potential threats and measures to address and mitigate them can increase trust among stakeholders and contribute to a positive brand image (Curkovic et al., 2013).

## 2.4 The future of ERM

After the pandemic, the importance of resilience and flexibility in risk management became evident. Companies are now recognizing the necessity of establishing frameworks and policies that allow them to effectively address threats and challenges. The ability to amend swiftly while maintaining a steady operation has become significant for long-lasting success (Pagach and Wieczorek-Kosmala, 2020). Further, risk assessment will play a pivotal role in the future development of ERM. Post-pandemic, organizations understood a reevaluation of risk assessment procedures was needed. This highlights the importance of considering emerging risks

like pandemics, supply chain disruptions, social and environmental hazards, and cybersecurity threats. Firms may better foresee and respond to threats by including these considerations in their risk management strategies (Pagach and Wieczorek-Kosmala, 2020).

The widespread utilization of digital tools has accelerated the digital transformation of ERM. Harnessing artificial intelligence, automation, and leading analytics can increase a firm's mitigation, analysis, and risk identification capabilities. With digital tools in ERM, businesses can make informed decisions and operate efficiently, thereby gaining a competitive advantage (Pagach and Wieczorek-Kosmala, 2020). Integrated strategy and stakeholder engagement in ERM are crucial for a better ERM in the future. Strategic decision-making should be integrated with risk management practices, along with incorporating stakeholders' concerns and perspectives into the processes, which can only occur by fragmenting silos and encouraging collaboration between the departments. Eventually, this can result in optimized risk mitigation, performance, and building trust between the company and stakeholder (Pagach and Wieczorek-Kosmala, 2020).

Clearly, it is comprehensible that ERM software and data analytics are part of IT solutions that can improve a company's ability to detect, analyze, and monitor hazards in real time (Saeidi et al., 2019). This enables management to make proactive decisions on risk mitigation rather than reacting to issues (Saeidi et al., 2019). Data analytics help examine large volumes of information to recognize patterns, trends, and correlations. Utilizing data analytics and blockchain can improve the visibility of risk in supply chains (Olson and Desheng Dash Wu, 2020). Businesses overall can gain a deeper understanding of potential hazards and make informed choices. This enhances their ability to proactively address threats in a timely manner and improves their preparedness (Saeidi et al., 2019). Therefore the adoption of technology in ERM can result in various benefits, including improved efficiency and performance as automation and streamlining of risk management procedures are made possible through the utilization of IT resources (Saeidi et al., 2019).

## 3. Methodology

This chapter provides an extensive overview of the methodology employed in our study. It contains various aspects, including research design, sampling, data collection, and ethical considerations.

### 3.1 Research design

This exploratory case study employs an in-depth qualitative research strategy, primarily based on semi-structured interviews conducted with supply chain managers and using financial summaries from recent years. The primary focus of the research question revolves around current practices, benefits, and obstacles related to ERM implementation in supply chain management.

The sample for this study consists of 6 managers representing diverse backgrounds in SCM. Thematic analysis is employed to analyze the responses gathered from the interviews, aiming to identify common themes and gain valuable insights. Therefore, the main objective of this research is to contribute to the existing literature on ERM in supply chain management by providing more productive solutions for implementing ERM. The choice of a case study methodology is justified by its ability to offer an in-depth exploration of the phenomenon under investigation, allowing for the collection of detailed and rich information about the application of ERM in supply chain management (Rowley, 2002). Moreover, the case study approach enables the incorporation of multiple data sources, including interviews with managers and financial summaries, which can provide valuable insights into their viewpoints on ERM in supply chain management.

### 3.2 Sampling

This study utilized purposive sampling, specifically targeting managers from various departments involved in supply chain management (SCM) and enterprise risk management (ERM). Purposive sampling is a non-random sampling method that focuses on individuals with expertise and experience in the subject matter of interest (Palinkas et al., 2015).

The selection of managers was based on their roles in mitigating supply chain risks, ensuring a comprehensive understanding of ERM implementation in SCM. By including managers from diverse departments, in conjunction with financial summaries as part of the research methodology, this study captured a broad range of perspectives. Purposive sampling is appropriate since it enables us to gain insights from individuals with unique perspectives by combining the financial summaries, which maximizes the richness of information by selecting respondents with extensive background knowledge, resulting in high-quality and relevant data (DeJonckheere and Vaughn, 2019).

### 3.3 Data collection

Financial summaries provided by CellMark was a crucial source of information for this case study, encompassing data from 2020, 2021, and 2022. The summaries gave financial, operational, and strategic insights, needed for assessing a company's risk profile and identifying emerging enterprise risk management proceedings.

A significant advantage of using financial summaries in case studies was the ability to analyze trends over multiple years and valuable information about the company's performance and risk profile was gathered. For instance, a consistent decline in financial performance over several years may indicate a need for stronger ERM procedures. Comparing the information presented in the yearly summary to a company's stated objectives allowed us to assess the alignment between the risk management framework and corporate goals. This analysis helped to evaluate the adequacy of ERM policies in managing the risks associated with, for example, expanding into new markets.

In addition to the financial summaries, in-depth interviews with selected managers provided essential data for this study. These semi-structured interviews, conducted via technical tools like Zoom, offered flexibility while ensuring focused discussions on research topics. The interviews were centered around the managers' perspectives on applying ERM in supply chain management, the challenges they have faced, and the mitigation measures they have implemented. Semi-structured interviews strike a balance between adaptability and maintaining some consistency, enabling us to ask similar questions to all participants and delve deeper into specific

areas of interest. This approach enhances communication flow and allows individuals to express their thoughts on their own terms while ensuring reliability in data collection.

### 3.4 Ethical Considerations

Throughout the study, ethical concerns are kept in mind. All volunteers are informed about the study's goals, their responsibilities, and how the provided information is used.

Participants' contributions are strictly anonymous. The study is carried out in conformity with the research institution's ethical procedures. Anonymity and secrecy shield participants' identities and guarantee the safety of their personal data (Kaiser, 2009), so they may feel at ease about taking part. This safeguard is critical to ensuring that people feel safe enough to provide true and accurate information. By showing our dedication to ethical standards and preserving the rights of participants, maintaining participants' anonymity and confidentiality in interviews adds credibility to the study (Kaiser, 2009).

## 4. Results

In this section, we are looking into the most important aspects of CellMark's enterprise risk management program and what actions the management have taken to continuously enhance and adapt to new threats and shifting markets.

### 4.1 CellMark's market risk during the pandemic

The financial summary for CellMark for the year 2020 gives an overview of the company's financial performance during the COVID-19 pandemic. The pandemic had a huge influence on the economy of the whole world, including interruptions in supply chains, changes in consumer behavior, and variations in the pricing of commodities and the rates at which currencies are exchanged. As a direct consequence of this, CellMark was subject to a wide variety of market risks, as stated during the interview with the marketing managers (CellMark Financial Summary 2020, 2021).



CellMark's total revenue experienced a decline of SEK 18,75% compared to the previous fiscal year (CellMark Financial Summary 2020, 2021). Reduced sales volumes and pricing for recycled fiber and pulp products were the main causes of the decrease. The shift in consumer behavior brought on by the pandemic, is believed to have been the reason for reduced demand for paper goods, which led to lower sales volumes. The decrease in pricing is most likely attributable to shifts in the prices of commodities, which are susceptible to market risk. The decrease in gross profit margin and fall in revenue were triggered by the changes in demand for paper goods as well as variations in the price of commodities. Although CellMark encountered challenges during the pandemic, the result for 2020 had increased slightly compared to the previous year due to some savings such as travel expenses (CellMark Financial Summary 2020, 2021). While continuing to invest in its business for the long term, the corporation made efforts to save money in order to reduce the risk posed by these factors. In general, what can be gleaned from the summary is that CellMark has the competence and the desire to handle market risks, especially during trying periods like COVID-19 (CellMark Financial Summary 2020, 2021).

CellMark's gross profit margin was 5.8%, a slight decline from 6.1% the previous year. (CellMark Financial Summary 2020, 2021). The interruptions in supply chains during the pandemic were responsible for the increase in expenses associated with logistics and storage. It is probable that increasing demand for transportation and storage services, as well as shortages of raw materials and other suppliers, were the primary contributors to these elevated prices.

According to the salesmen at CellMark, who were interviewed for this bachelor's thesis and expressed their wish to remain anonymous in order to protect confidentiality, an effort was made to enhance its financial performance by implementing cost-saving measures. This was done as a reaction to the difficulties caused by the pandemic. These actions included streamlining operations, cutting discretionary expenditures and lowering employee costs. In times of uncertainty, firms often resort to these kinds of risk reduction tactics in order to better manage market risks.

During the pandemic, CellMark continued to invest in its company. The corporation made a number of strategic investments, such as increasing the size of its recycled fiber business and purchasing controlling ownership in a pulp trading company (CellMark Financial Summary

2021, 2022). These investments are an indication of the company's long-term perspective and its confidence in its capacity to handle market risks in the future.

In 2021, the corporation anticipated serious difficulties because of the COVID-19 pandemic. Despite difficulties, the firm was able to adjust to the new market environment and expand (CellMark Financial Summary 2021, 2022). The continuing pandemic kept market conditions uncertain throughout the year. Supply chain issues and rising raw material prices were two of the company's biggest obstacles. Thanks to its risk management practices and robust network of suppliers and consumers, CellMark was able to reduce the impact of these threats (CellMark Financial Summary 2021, 2022). The business grew through penetrating new markets and developing innovative new offerings, according to the vice presidents of the market department. This helped to compensate for difficulties in other sectors of the company.

Furthermore, the firm was able to weather the pandemic storm because of its robust financial position and cash reserves. Currency and commodity price risks were also hedged using financial hedging procedures (CellMark Financial Summary 2021, 2022). Investments are subject to market risk if their value might decline as a result of changes in macroeconomic circumstances, company trends, or governmental policies (CellMark Financial Summary 2022, 2023).

Looking forward to 2022, the firm's revenue for that year climbed by 36.5 % from the prior year, totaling SEK 43 billion. The results show that CellMark was resilient enough to weather the pandemic's shifting market circumstances and come out on top financially (CellMark Financial Summary 2022, 2023).

CellMark has a "comprehensive risk management program that covers financial, operational, and strategic risks." The ISO 31000 standard for risk management is used as the basis for this program's risk identification, assessment, and management processes (CellMark Financial Summary 2022, 2023). Additionally, the Board of Directors receives monthly updates from the company's risk management staff.

However, the company uses a "value-at-risk" (VaR) strategy to quantify and control its exposure to market risk (CellMark Financial Summary 2021, 2022). VaR is a statistical metric used to forecast the greatest loss that a portfolio of assets might sustain over a certain time frame and

with a specified degree of certainty. CellMark may use this model to calculate its exposure to market risk and implement countermeasures.

On the other hand, looking at cyber risk management is another part of CellMark's enterprise risk management framework. Risks must be recognized, evaluated, and prioritized before controls can be designed and implemented, monitored, and reported on for efficacy (CellMark Financial Summary 2022, 2023). Additionally, the risk management program must be regularly reviewed and updated to account for new threats.

All levels of the company, from the board of directors to individual workers, must participate in order to effectively manage cyber risk. Organizations need to engage in continuous training and education on cyber dangers and trends in order to make their whole infrastructure more resilient to cyber attacks (CellMark Financial Summary 2022, 2023).

CellMark routinely assesses potential threats to its network security. By doing so, the business may pinpoint the most pressing threats, evaluate how they can affect its operations and its stakeholders, and formulate a plan to deal with them. This way, CellMark can make sure its cybersecurity solutions are appropriate for the risks it confronts and are focused on preventing the most serious ones. The company also uses technological measures to deal with cyber hazards (CellMark Financial Summary 2022, 2023).

Antivirus/malware protection, encryption, firewalls, IDS/IPS are included in the arsenal. The goal of implementing these safeguards is to reduce the likelihood of cyberattacks and, if they do occur, mitigate their effects. CellMark also provides its staff with security awareness training to make sure they are alert to and able to recognize cyber threats (CellMark Financial Summary 2022, 2023).

Further, there are administrative measures as well, to mitigate cyber threats. Data categorization, access restrictions, incident response, and business continuity plans are all part of this (CellMark Financial Summary 2022, 2023). These safeguards guarantee that private information is kept safe, that only authorized personnel have access to it, and that the business can successfully react to cyberattacks.

Finally, CellMark routinely assesses its cybersecurity status to check on the efficacy and freshness of its safeguards. This involves keeping up with the most recent threats and vulnerabilities, as well as undertaking penetration testing and vulnerability assessments to find holes in its defenses. This allows CellMark to adapt to the ever-changing cyber threats it confronts while maintaining a high level of security (Cellmark Financial Summary 2022, 2023).

## 4.2 CellMark's ESG Commitment

According to interview-based qualitative research, the company's sustainability reports, and financial summaries from recent years, CellMark is actively focusing on ESG factors. The firm has implemented sustainability initiatives to reduce its environmental impact, promote human rights, and guarantee integrity. These efforts include energy efficiency measures, renewable energy adoption, and sustainable mobility projects. For example, CellMark has reduced its environmental impact by decreasing carbon emissions by 32 percent per ton and water use by 25 percent (CellMark Sustainability Report 2022, 2023). Overall, the organization is committed to achieving carbon neutrality by 2050 and has made investments in electric vehicles and charging infrastructure to minimize pollution. Since CellMark's environmental approach, sustainable services and goods have significantly increased in popularity among customers, as well as attracting employees with shared values (CellMark Sustainability Report 2021, 2022).

While ESG factors have greatly influenced CellMark's reputation, it is important to acknowledge that associated risks could introduce the company to difficulties, including legal and sustainability issues (CellMark Interview, 2023). CellMark has detected eight ESG risks over the years: corruption, supply chain, data privacy, human rights, labor, health and safety, biodiversity, and climate change (CellMark Interview, 2023). However, the company is monitoring and mitigating these risks by utilizing tools and programs and establishing a thorough framework. CellMark also performs audits on its suppliers to see whether they are meeting its sustainability standards by a third-party auditor (CellMark Sustainability Report 2022, 2023).

The company uses a scorecard to evaluate its performance in relation to ESG factors, including carbon emissions, human rights violations, and ensuring business ethics and integrity. The company benchmarks its sustainability policies against competitors and the industry at large to

identify areas for improvement and enhance its commitment to a sustainable future (CellMark Sustainability Report 2022, 2023).

Moreover, CellMark has established various measures regarding ethical and lawful treatment of employees, reflecting its commitment to human rights, but also maintains a strict policy against bribery and corruption. The company has a comprehensive human rights policy that provides guidance to vendors and employees. They are actively conducting background checks on suppliers and business partners to ensure compliance with ethical standards and support human rights organizations such as UN Global Compacts (CellMark Interview, 2023)

### 4.3 What are the challenges that CellMark faces

As previously mentioned, enterprise risk management is an important protection for an organization's supply chain and operations against threats; nonetheless, it also comes with challenges when implementing it. Some of the challenges CellMark faces are:

1. **Lack of employee knowledge and comprehension**

The lack of understanding of ERM's purpose and advantages is one of CellMark's primary obstacles. Employees may exhibit resistance to adopting ERM if they lack a clear understanding of the benefits it brings to risk management (CellMark Financial Summary 2021, 2022).

2. **Identification and evaluation of risks**

CellMark experiences another challenge in implementing ERM related to identifying and evaluating risks, especially emerging threats. Thus, it is important for CellMark to conduct a comprehensive risk assessment process that involves identifying hazards, assessing their likelihood and impact, and prioritizing risk accordingly (CellMark Financial Summary 2022, 2023).

3. **Data availability and quality**

Regarding data availability and quality of its data, it can be difficult for the company to maintain reliability for ERM. If problems with data quality, consistency, and availability

occur, the firm will lack the ability to address, analyze, and manage risks overall, which can have consequences for the organization and affect profitability (CellMark Financial Summary 2021, 2022).

#### **4. Cultural Barriers**

Due to cultural differences, issues with the general implementation of ERM at the company can become a problem. Risk-taking and adaptability may vary from one culture to the next. Hence, ERM implementation requires taking these cultural factors into account to remain successful in the process (CellMark Financial Summary 2021, 2022).

#### **5. Lack of senior management commitment**

A serious challenge for the company could be trying to integrate ERM into already existing systems and procedures; it can be time-consuming and demanding to adapt current practices and organizational structures to ERM requirements. This can also be challenging in relation to senior management in terms of resource acquisition, risk management prioritization, and collaborations among stakeholders (CellMark Financial Summary 2021, 2022).

### **4.4 An ERM outlook for CellMark**

CellMark has demonstrated a growing commitment to sustainability practices and their integration with ERM. This trend is expected to continue in the future, as indicated in the company's sustainability report, and a few of their future goals are involved (CellMark Sustainability Report 2021, 2022).

#### **1. A Better risk management framework**

CellMark prioritizes establishing a robust risk management structure and dedicates its efforts to strengthening its risk evaluation, identification, and mitigation practices. The company is continuously putting effort into improving its risk management strategies and effectively handling risks across all its business operations (CellMark Sustainability Report 2021, 2022).

## **2. Integration of sustainability and risk management**

CellMark is aware of the interconnectedness of risk management and sustainability and strives to align its organizational objectives with ethical and sustainable development goals by incorporating sustainability considerations into risk management practices. This indicates a forthcoming initiative to reconcile sustainability factors with ERM strategy (CellMark Sustainability Report 2021, 2022).

## **3. Collaboration and stakeholder engagement**

CellMark highlights the vitality of stakeholder engagement and collaboration in effective risk management. The company focuses on proactive risk management measures, for instance, working with suppliers, industry partners, and customers as well as communicating with departments. This underscores the significance of collaboration and fostering trust in the future of ERM practices (CellMark Sustainability Report 2021, 2022).

## **4. Continuous improvement**

As for the business overall, CellMark is devoted to continuing to improve various areas. To adapt to changing threats and dynamic business environments, the firm intends to regularly evaluate and optimize its risk management processes. This showcases their forward-thinking approach to ERM, with a focus on constant iteration and refinement (CellMark Sustainability Report 2021, 2022).

However, CellMark is highly dependable today on the IFS enterprise resource planning system (CellMark Interview, 2023). It is a worldwide leader in enterprise software, with a particular focus on ERP, EAM, and FSM (field service management), that aims to simplify and improve fundamental business operations for companies of all sizes and in all sectors. The IFS suite provides capabilities that are standard for today's enterprises. Integrating critical business processes like accounting, purchasing, production, sales, and customer service is made easier with their ERP software (CellMark Interview, 2023). This allows businesses to see their processes from start to finish, better allocate their resources, and make decisions based on difficult facts,

which is CellMark's key to manage risks in the enterprise world. The firm is dedicated to pushing the boundaries of IFS by seeking out novel solutions and implementing state-of-the-art processes on a regular basis. Financial process optimization is a top priority, thus they are always looking for new methods to improve workflow. A broad variety of activities, such as the discovery of more efficient processes, the implementation of cutting-edge automation tools, and the adoption of new technology, all contribute to this constant push for advancement (CellMark Interview, 2023).

Organizational performance is prioritized by the firm, and the management team knows how important it is to have smooth financial operations. They want to use IFS to improve processes across the board in areas including budgeting, accounting, reporting, and cash flow analysis (CellMark Interview, 2023). Eliminating bottlenecks, decreasing the need for human interventions, and speeding up decision-making processes are all goals they want to achieve via the use of best practices and the investigation of new functions inside the IFS system. The business also keeps an eye on developments in the sector and in technology, looking for ways to take advantage of new tools to improve financial processes within the IFS framework.

## 5 Discussion

Through careful observations and a thorough analysis of the gathered data, we can offer an analytical perspective on the significance of enterprise risk management in comprehending and mitigating risks within organizations.

ERM has evolved as a critical strategy for businesses, enabling them to improve efficiency, save costs, reduce risk, and deliver exceptional service to clients. The advantages of implementing ERM procedures extend beyond increased productivity. By applying this concept to CellMark's challenging situation, it becomes evident that the firm needs to enhance its ability to recognize priorities. Such challenges can involve supply chain disruptions leading to increased logistics and storage expenses and a slight decline in gross profit margin (Nocco and Stulz, 2006).

Risk assessment and prioritization are fundamental components of effective ERM, involving a comprehensive analysis of internal and external factors that could pose risks to an organization's



operations, reputation, financial stability, and strategic goals. Identifying risks is straightforward, but the main challenge lies in discussing risks among stakeholders, assessing their probability of occurrence, magnitude of impact, and velocity of materialization. This evaluation process helps organizations determine the significance and priority of each risk, enabling efficient resource allocation and attention to critical areas. CellMark can greatly benefit from implementing mitigation techniques to reduce the impact of high-priority risks. Through prioritizing risks and allocating resources, businesses can focus their efforts on addressing the threats that are most likely to have a significant effect on their goals. As the company continues to face ongoing obstacles posed by the pandemic, recognizing priorities would facilitate ongoing improvement and adaptation to changing risks and market conditions, as the previous studies have shown.

Earlier observations based on CellMark's past experiences indicate that supply chain disruptions can arise from various factors such as natural disasters, political instability, labor strikes, and unanticipated incidents. Additionally, the increasing reliance on technology and digitization exposes supply chains to cybersecurity risks, including cyber attacks that can disrupt operations, compromise sensitive information, or result in financial losses (Pagach and Wieczorek-Kosmala, 2020). In order to effectively address these challenges, it is crucial to develop a crisis management plan, especially considering that market conditions undergo annual changes influenced by factors such as economic fluctuations and technological advancements. This plan should encompass a comprehensive framework for managing crises, including communication procedures, escalation mechanisms, backup sourcing options, and measures to mitigate the impact on operations and clients. CellMark should heavily rely on this plan to ensure preparedness for unexpected events. Furthermore, diversifying and strengthening the supplier base, as suggested by the COSO ERM frameworks, is essential. Depending on a single source for critical supplies leaves the supply chain vulnerable. By diversifying supplier bases and establishing relationships with alternative suppliers, CellMark can minimize the difficulties associated with ongoing risks, reduce dependence on specific regions or countries, and maintain flexibility during disruptions.

As a whole, the organization takes a proactive attitude in driving continual improvement within its financial operations by making smart and inventive use of the capabilities afforded by IFS. Due to the expansive nature of IFS as an ERP system, which exceeds the size of many other

systems such as Microsoft Navision with its more limited data restoring capabilities, CellMark considers managing data to be less hazardous. This is predominantly due to IFS's capacity to manage large data volumes during the data restoration procedure. IFS's large data-restoration capacity enables CellMark to confidently manage and restore vast quantities of data without confronting limitations or jeopardizing data integrity. This expanded capacity, enabling CellMark to manage data with less concern for data loss and system instability (CellMark Interview, 2023). However, In order to increase availability, real-time reporting, and data-driven insights, it is important to investigate more cloud-based solutions, data analytics tools, and mobile apps.

Yet, none of the previously studied literature discusses the significance of implementing simulation for creating scenarios. It seems that CellMark should invest in IT infrastructure to leverage AI and advanced technologies for risk analysis, enabling more accurate and efficient risk evaluations. With the use of simulations, businesses may model and test different scenarios to determine their possible implications and create efficient risk management plans. The complexity of the supply chain can be modeled and simulated, but only if the company uses the right simulation tools. Discrete event simulation and agent-based modeling are only two examples of the many available simulation tools for the supply chain. Specific risk scenarios should be defined and simulated based on the identified risk variables. A supplier interruption, an unexpected increase in demand, or a regional natural calamity might all be simulated. The length, severity, and possible repercussions of each scenario must be specified, and the simulations must be carried out based on the specified situations and models. This would capture variability, and evaluate alternative results, and run many iterations. Key performance indicators (KPIs), including service levels, lead times, inventory costs, and financial implications should be tracked and analyzed, and the data from several what-ifs should be examined to spot patterns and trends.

Therefore, future studies could focus on evaluating the effectiveness of implementing simulation in large-scale supply chain industries. Utilizing ERP software tools like IFS, SAP, and AnyLogic can support the modeling and simulation of supply chain processes, hazard analysis, and performance optimization for organizations operating at a significant scale. Hence, conducting a comprehensive study on the impact of implementing simulation in large-scale supply chain companies is crucial to assessing the return on investment and determining its value.

So far, it is comprehensible that CellMark has the potential to investigate avenues for implementing novel approaches within IFS or other software tools, thereby empowering them to build a comprehensive crisis management framework through simulation capabilities. CellMark can improve its preparedness for managing unanticipated events by simulating multiple crisis scenarios and actively searching out innovative solutions.

## 6. Conclusion

ERM reveals its inherent value in enabling businesses to identify and effectively respond to threats. ERM has become a vital approach due to its numerous advantages, such as heightened productivity, cost reduction, risk mitigation, and better customer delivery. The key factors for an effective enterprise risk management in Cellmark is establishing risk assessment and prioritization. Which CellMark can use to analyze external and internal risk factors that may affect the company's financial stability, strategic goals and reputation. Through risk prioritization CellMark can identify the importance of every risk and determine which risks have the most significant impact on the company's goals, and enable efficient resource allocation along with prioritizing critical areas of focus. Recognizing risks is important and beneficial for supply chain businesses such as CellMark, which frequently encounter disruptions in their supply chain. This allows them to navigate ongoing challenges like the pandemic, improve their operation effectively and adapt to market conditions. Moreover, another factor that plays a significant role in implementing ERM is technology. Addressing cybersecurity concerns associated with increased reliance on technology and digitalization necessitates the formulation of robust crisis management plans and the adoption of supplier diversity practices. Through embracing advanced technology such as artificial intelligence, CellMark can upgrade their overall risks analysis capabilities.

Frameworks like COSO ERM and ISO 31000 have shown success for supply chain companies, including CellMark, especially COSO ERM regarding supply chain. Nonetheless, in order for CellMark to ensure ongoing improvement and adaptation to changing risks and market conditions, it is important to recognize that we are moving towards a digitalized society where technology and the associated risks, particularly after the pandemic, take precedence. While COSO ERM have been effective in the past and still utilized in many companies today by

providing business structure and standard language for risk management, the current business landscape has changed significantly. The pandemic was a turning point for supply chains, emphasizing the importance of ERM and the need for adaptable approaches. CellMark must go beyond relying on old frameworks and instead embrace new strategies that allow them to anticipate and manage unseen risks. Simulation can play a vital role in this regard, as it enables CellMark to detect, analyze, and mitigate risks in a creative manner. By creating realistic scenarios, operations can explore both external as well as internal risks, providing valuable insights for stakeholders, managers, and employees. Simulations can help CellMark manage risks from a different perspective and allow it to understand threats by experiencing them. Not only will it improve the communication between stakeholders and the operation, but it will also precisely prepare the company when similar incidents and disruptions happen. A well-developed study on the effectiveness of simulation in large-scale supply chains would help CellMark determine the return on investment and key performance indicators. Ultimately, by embracing ERM and leveraging technological advancements, can enhance their adaptability and achieve long-term success in risk management while managing evolving risks and discovering new opportunities.

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