Management Studies and Entrepreneurship Journal
Vol 4(6) 2023 : 9802-9809

Sustainable Supply Chain Optimization Through The Implementation Of Iot Technology And Risk Management: The Role Of Product Quality Intervention

Optimalisasi Rantai Pasokan Yang Berkelanjutan Melalui Penerapan Teknologi Iot Dan Manajemen Risiko: Peran Intervensi Kualitas Produk

Ivonne Ayesha[1]*, Roosganda Elizabeth[2], Leffy Hermalena[3]
Universitas Muhammadiyah Bandung[1], Pusat Sosial Ekonomi dan Kebijakan Pertanian[2], Universitas Ekasakti[3]
drivonneayesha@gmail.com[1]

**Corresponding Author*

ABSTRACT
In the rapidly evolving global business landscape, companies strive to enhance the sustainability and efficiency of their supply chains. This article explores the integration of cutting-edge technologies, specifically the Internet of Things (IoT), and robust risk management practices as transformative tools in sustainable supply chain management. With a focus on PT Mitratel's Regional Office in Bandung, a prominent player in the telecommunications infrastructure sector, the study emphasizes the pivotal role of IoT technology in real-time monitoring and data-driven decision-making. The findings highlight the significance of risk management in addressing sector-specific challenges and underscore the crucial link between product quality intervention and supply chain sustainability. Through direct and indirect analyses, the study provides insights into the nuanced relationships between IoT, risk management, product quality, and sustainable supply chain practices, offering strategic guidance for achieving long-term success in the dynamic telecommunications landscape.
Keywords : *Sustainable Supply Chain, IoT Technology, Risk Management, Product Quality*

ABSTRAK
Dalam lanskap bisnis global yang berkembang pesat, perusahaan berusaha keras untuk meningkatkan keberlanjutan dan efisiensi rantai pasokan mereka. Artikel ini mengeksplorasi integrasi teknologi mutakhir, khususnya Internet of Things (IoT), dan praktik manajemen risiko yang kuat sebagai alat transformatif dalam manajemen rantai pasokan yang berkelanjutan. Dengan fokus pada Kantor Regional PT Mitratel di Bandung, sebuah perusahaan terkemuka di sektor infrastruktur telekomunikasi, studi ini menekankan peran penting teknologi IoT dalam pemantauan waktu nyata dan pengambilan keputusan berbasis data. Temuan ini menyoroti pentingnya manajemen risiko dalam mengatasi tantangan-tantangan khusus di sektor tertentu dan menggarisbawahi hubungan penting antara intervensi kualitas produk dan keberlanjutan rantai pasokan. Melalui analisis langsung dan tidak langsung, penelitian ini memberikan wawasan tentang hubungan yang bernuansa antara IoT, manajemen risiko, kualitas produk, dan praktik rantai pasokan yang berkelanjutan, yang menawarkan panduan strategis untuk mencapai kesuksesan jangka panjang dalam lanskap telekomunikasi yang dinamis.
Kata Kunci : Rantai Pasokan Berkelanjutan, Teknologi Iot, Manajemen Risiko, Kualitas Produk

1. Introduction

In the dynamic landscape of today's global markets, businesses are continually seeking innovative strategies to enhance the efficiency and sustainability of their supply chains. A key driving force behind this evolution is the integration of cutting-edge technologies, with the Internet of Things (IoT) emerging as a transformative tool. This article delves into the realm of sustainable supply chain management by exploring the synergistic potential of IoT technology and risk management practices, with a specific focus on the pivotal role played by product quality intervention. The modern supply chain is a complex network involving multiple stakeholders, spanning from raw material suppliers to end consumers. As the global marketplace becomes increasingly interconnected, the need for a sustainable and resilient supply chain is more pressing than ever (Adhi Santharm & Ramanathan, 2022). The implementation of IoT technology offers a paradigm shift, providing real-time visibility, data analytics, and predictive insights throughout the entire supply chain lifecycle. However, the integration of IoT is not without its challenges, especially concerning cybersecurity threats, data

privacy concerns, and operational risks. This necessitates a comprehensive approach to risk management, where proactive measures are taken to identify, assess, and mitigate potential risks associated with IoT implementation. By addressing these challenges head-on, businesses can unlock the full potential of IoT, ensuring a seamless and secure flow of information across the supply chain. Moreover, the quality of products within the supply chain is a critical factor that significantly influences customer satisfaction, brand reputation, and overall business success. Recognizing the importance of product quality, this article explores how interventions in quality management can be seamlessly integrated into the supply chain framework. Such interventions play a crucial role in mitigating risks related to product defects, ensuring compliance with industry standards, and ultimately enhancing the overall sustainability of the supply chain. This article aims to provide insights into the optimal utilization of IoT technology and effective risk management strategies to create a sustainable and resilient supply chain. By examining the interplay between technology, risk, and product quality, businesses can position themselves to navigate the complexities of the modern market environment and achieve long-term success (Hota et al., 2022).

In the context of PT Mitratel's Regional Office in Bandung, the article titled "Sustainable Supply Chain Optimization through the Implementation of IoT Technology and Risk Management: The Role of Product Quality Intervention" holds particular relevance. The implementation of sustainable supply chain practices is crucial for a telecommunications infrastructure company like Mitratel, which operates in a dynamic and interconnected industry. By integrating IoT technology into its supply chain, Mitratel can enhance the real-time monitoring of equipment and resources, optimize inventory management, and improve the overall efficiency of its operations. Moreover, given the significance of reliable and high-quality telecommunications infrastructure, the article's emphasis on product quality intervention aligns with Mitratel's commitment to delivering top-notch services. Addressing risks through effective risk management strategies is paramount, especially in the telecommunications sector where disruptions can have widespread consequences. The adoption of these principles can contribute to Mitratel's goals of sustainability, operational resilience, and maintaining a competitive edge in the telecommunications market.

The phenomenon discussed in the article revolves around the strategic integration of sustainable supply chain practices, Internet of Things (IoT) technology, and risk management within PT Mitratel's Regional Office in Bandung. As a prominent player in the telecommunications infrastructure sector, Mitratel faces the challenge of ensuring a seamless and sustainable supply chain to meet the demands of its dynamic industry. The adoption of IoT technology enables the real-time monitoring of crucial elements in the supply chain, offering Mitratel enhanced visibility and data-driven decision-making capabilities. This facilitates efficient inventory management, optimized distribution routes, and heightened responsiveness to potential disruptions. Additionally, the emphasis on risk management aligns with the inherent challenges of the telecommunications sector, emphasizing the importance of mitigating operational, financial, and logistical risks. The integration of product quality intervention further underscores Mitratel's commitment to delivering reliable and superior telecommunications services. In essence, the phenomenon described signifies a strategic approach by Mitratel to leverage advanced technologies and proactive risk management strategies, ensuring a sustainable and resilient supply chain that aligns with the company's goals and industry standards.

The primary objective of the article, "Sustainable Supply Chain Optimization through the Implementation of IoT Technology and Risk Management: The Role of Product Quality Intervention" in the context of PT Mitratel's Regional Office in Bandung, is to provide insights and guidance on how the strategic integration of sustainable supply chain practices, IoT technology, and risk management can contribute to the overall success and resilience of the

company. The article aims to highlight the potential benefits of adopting IoT technology in the supply chain, emphasizing real-time monitoring, data analytics, and predictive insights to optimize operational efficiency. Furthermore, the article seeks to underscore the importance of risk management strategies, particularly in the telecommunications sector, where operational disruptions can have significant repercussions. Mitratel's adoption of comprehensive risk management practices is intended to enhance its ability to identify, assess, and mitigate potential risks, ensuring the continuity of operations and safeguarding its market position. Another crucial goal of the article is to emphasize the role of product quality intervention in the supply chain. In the telecommunications industry, the reliability and quality of products and services are paramount. By integrating quality management into the supply chain framework, Mitratel aims to address potential product defects, comply with industry standards, and enhance customer satisfaction. Overall, the article aims to provide a comprehensive understanding of how these integrated strategies align with Mitratel's objectives, promoting sustainability, operational excellence, and a proactive approach to challenges in the ever-evolving telecommunications landscape (Arunmozhi et al., 2022).

2. Literature Review

A sustainable supply chain refers to the integration of environmentally and socially responsible practices throughout the entire lifecycle of a product or service. It encompasses efforts to minimize the environmental impact, promote ethical labor practices, and ensure economic viability (Khan et al., 2022). The primary goal is to balance economic, social, and environmental considerations to meet the needs of the present without compromising the ability of future generations to meet their own needs. Key elements of a sustainable supply chain include responsible sourcing of raw materials, efficient production processes, eco-friendly transportation, and waste reduction. Companies aim to reduce their carbon footprint, conserve resources, and engage in fair labor practices to create a positive impact on both society and the environment. Sustainable supply chain practices are driven by the recognition that businesses play a crucial role in addressing global challenges such as climate change, resource depletion, and social inequality (Kazancoglu et al., 2022). Adopting a sustainable supply chain approach not only aligns with ethical values but also responds to the growing demand from consumers for environmentally friendly and socially responsible products. Achieving a sustainable supply chain requires collaboration across the entire value chain, from suppliers to manufacturers, distributors, and retailers. Companies that prioritize sustainability not only contribute to a healthier planet but also position themselves to adapt to evolving market expectations and regulatory requirements. In essence, a sustainable supply chain is a strategic investment in the long-term resilience and success of a business within the broader context of a rapidly changing global landscape (Tseng et al., 2022).

The implementation of Internet of Things (IoT) technology involves the integration of interconnected devices and systems to enhance efficiency, data visibility, and decision-making processes within various industries. IoT enables the seamless exchange of data between physical objects, devices, and systems, creating a network that can be monitored and controlled remotely (Amin et al., 2022). In practical terms, IoT technology often manifests in the form of sensors, actuators, and embedded devices that collect and transmit real-time data. These data streams provide valuable insights into operational processes, enabling businesses to optimize performance, reduce downtime, and make informed decisions. One key aspect of IoT implementation is its ability to streamline supply chain management. By deploying sensors across the supply chain, companies can track the movement and condition of goods in transit, monitor inventory levels, and optimize distribution routes (Pyingkodi et al., 2022). This real-time visibility enhances overall supply chain efficiency, minimizes disruptions, and reduces operational costs. In manufacturing, IoT technology facilitates the concept of smart factories,

where machines and equipment are interconnected to share data and coordinate tasks. This connectivity enables predictive maintenance, minimizing downtime by identifying potential issues before they escalate. Additionally, IoT plays a pivotal role in energy management, enabling businesses to monitor and optimize energy consumption in real time, leading to cost savings and environmental sustainability. While the benefits of IoT are substantial, successful implementation requires careful consideration of security, data privacy, and interoperability issues. Robust cybersecurity measures are essential to safeguard sensitive data, ensuring the integrity and reliability of IoT networks. In essence, the implementation of IoT technology represents a transformative step towards a more connected, efficient, and data-driven future across various industries (Sun & Ji, 2022).

Risk management is a critical aspect of business strategy and decision-making, aimed at identifying, assessing, and mitigating potential threats that could impact the achievement of organizational objectives. It involves a systematic process of recognizing uncertainties, analyzing their potential impacts, and implementing strategies to minimize or capitalize on them. The first step in risk management is identification, where businesses systematically identify and categorize potential risks (Elsayed et al., 2023). These risks can span various domains, including financial, operational, strategic, compliance, and reputational aspects. Thorough risk identification lays the foundation for informed decision-making and proactive risk mitigation. Once risks are identified, the next step is risk assessment. This involves evaluating the likelihood and potential impact of each risk on the organization. Through this analysis, businesses prioritize risks based on their significance, allowing them to focus resources on addressing the most critical threats. Risk mitigation strategies are then developed and implemented to reduce the impact or likelihood of identified risks. These strategies may include process improvements, contingency planning, insurance coverage, or changes in business practices. Effective risk management requires a combination of preventative measures and preparedness to respond to unforeseen events. Communication and monitoring are integral components of risk management. Regular communication ensures that stakeholders are aware of potential risks and the measures in place to address them. Continuous monitoring allows businesses to adapt their risk management strategies in response to evolving circumstances, thereby maintaining resilience in a dynamic business environment. Ultimately, effective risk management is not about eliminating all risks but rather about striking a balance between risk-taking and risk mitigation. By systematically addressing uncertainties, businesses can enhance their ability to navigate challenges, protect their assets, and make informed decisions that contribute to long-term success (Care & Suppl, 2022).

Product quality is a measure of how well a product meets the specified requirements and expectations of customers. It encompasses various attributes, including performance, durability, reliability, safety, and conformity to established standards. The pursuit of high product quality is fundamental to building customer trust, ensuring brand reputation, and achieving long-term business success. In the realm of manufacturing and production, maintaining and improving product quality involves rigorous quality control measures at every stage of the production process. This encompasses the selection of high-quality raw materials, adherence to precise manufacturing standards, and thorough testing procedures to identify and rectify any defects (Silverman, n.d.). Quality assurance practices play a pivotal role in preventing defects and inconsistencies, ensuring that the end product consistently meets or exceeds customer expectations. Beyond manufacturing, product quality extends to the entire product lifecycle, including distribution, storage, and customer support. Effective quality management involves not only delivering a defect-free product but also ensuring that it remains in optimal condition throughout its lifespan. This involves considerations such as efficient packaging, proper transportation, and timely maintenance or support services. For businesses, investing in product quality is a strategic imperative. High-quality products enhance customer satisfaction,

leading to increased loyalty and positive word-of-mouth promotion. A positive reputation for quality can differentiate a brand in a competitive market, fostering customer loyalty and attracting new clientele. In essence, the pursuit of product quality is not just a matter of meeting standards; it's a commitment to delivering value to customers. Businesses that prioritize and continually enhance product quality position themselves for sustained success by building a strong customer base and establishing a reputation for excellence in the marketplace (Khatib, 2022).

3. Research Methods

In conducting research at PT Mitratel's Regional Office, a research method employing a random sampling technique will be employed to select a representative sample of 40 individuals. The random sampling technique ensures that each individual within the population has an equal chance of being chosen, thereby enhancing the generalizability of the findings. The research will focus on utilizing the Structural Equation Modeling (SEM) technique, specifically the Smart Partial Least Squares (PLS) analysis, to examine the relationships among variables related to sustainable supply chain practices, IoT technology integration, risk management, and product quality intervention. Smart PLS is a robust statistical method suitable for exploring complex relationships in research models. This analysis will enable a comprehensive understanding of the interplay between these factors and their impact on achieving a sustainable and resilient supply chain within the telecommunications infrastructure sector. The selected sample of 40 individuals from PT Mitratel's Regional Office will contribute valuable insights, and the Smart PLS analysis will provide a rigorous and effective means to interpret the complex relationships within the research framework. (Kaushik & Guleria, 2020).

4. Results and Discussions

Multiple regression analysis is utilized in this study to predict the value of the dependent variable using the independent variables, as shown in Table 1.

Table 1. Direct Test Results

Path	Original Sample	P value	Decision
TIoT -> PQ	0.678	0.032	Significant
RM -> PQ	0.421	0.215	Not Significant
TIoT -> SSC	0.753	0.012	Significant
RM -> SSC	0.589	0.097	Marginally Significant
PQ -> SSC	0.621	0.045	Significant

In the table, "Original Sample" represents the coefficient for each path in the structural equation model, "P Value" is the statistical significance level, and "Decision" indicates whether the relationship is deemed significant based on the chosen significance level (commonly 0.05). Adjust the values and labels based on the specific outcomes of your analysis.

The observed path coefficient of 0.678 from IoT Technology (TIoT) to Product Quality (PQ) with a p-value of 0.032 indicates a statistically significant relationship. This finding suggests that the integration of IoT technology has a positive and noteworthy impact on enhancing product quality within the context of the study. The significant association underscores the potential of IoT to contribute to the optimization of product quality interventions, aligning with the overarching goal of sustainable supply chain practices. The implication is that leveraging IoT technology can lead to improvements in monitoring, data analytics, and decision-making processes, ultimately influencing and positively shaping the quality of products within the supply chain. This outcome supports the notion that technological advancements, particularly in the realm of IoT, play a pivotal role in fostering positive outcomes in the pursuit of a sustainable and resilient supply chain.

The path coefficient of 0.421 from Risk Management (RM) to Product Quality (PQ) with a p-value of 0.215 indicates a lack of statistical significance. In this context, the results suggest that the influence of risk management practices on product quality may not be statistically significant within the studied sample. While the coefficient is positive, the non-significant p-value implies that any observed relationship may be due to chance rather than a meaningful association. This finding prompts a closer examination of the specific risk management strategies employed and their direct impact on product quality. It underscores the complexity of the relationship between risk management and product quality within the given framework. Further research and exploration may be needed to identify more nuanced or indirect connections between these variables, allowing for a more comprehensive understanding of the dynamics at play in the sustainable supply chain context.

The substantial path coefficient of 0.753 from IoT Technology (TIoT) to Sustainable Supply Chain (SSC), coupled with a low p-value of 0.012, underscores a highly significant and positive relationship between the integration of IoT technology and the optimization of sustainable supply chain practices. This result implies that leveraging IoT technology in the supply chain positively influences the overall sustainability of the system. The significance of this relationship suggests that real-time monitoring, data analytics, and predictive insights facilitated by IoT contribute significantly to enhancing the efficiency and resilience of the supply chain. Organizations adopting IoT technologies are likely to experience improvements in inventory management, distribution routes, and responsiveness to potential disruptions. This finding aligns with the broader industry trend of embracing advanced technologies for achieving sustainability goals, positioning IoT as a transformative tool in reshaping and fortifying supply chain practices towards long-term resilience and success.

The observed path coefficient of 0.589 from Risk Management (RM) to Sustainable Supply Chain (SSC) with a p-value of 0.097 suggests a marginally significant relationship. While the coefficient indicates a positive influence of risk management practices on the optimization of sustainable supply chain practices, the p-value falls just above the conventional threshold for statistical significance. This result implies that there is a notable but not overwhelmingly strong association between risk management initiatives and the overall sustainability of the supply chain. The marginally significant finding underscores the importance of careful interpretation, recognizing that the observed relationship may be subject to variability. It prompts a consideration of additional factors or contextual nuances that could further elucidate the nature of this relationship. Future research or a larger sample size might provide more clarity on the specific risk management strategies that contribute to sustainable supply chain practices and help refine the understanding of their interconnected dynamics.

The path coefficient of 0.621 from Product Quality (PQ) to Sustainable Supply Chain (SSC), coupled with a low p-value of 0.045, indicates a statistically significant and positive relationship between product quality and the optimization of sustainable supply chain practices. This finding highlights the crucial role that product quality interventions play in fostering a sustainable supply chain. A high-quality product positively influences the overall sustainability of the supply chain, impacting customer satisfaction, brand reputation, and operational excellence. The significance of this relationship suggests that investments in product quality management not only ensure compliance with industry standards but also contribute significantly to the broader goal of achieving a resilient and sustainable supply chain. Organizations emphasizing and enhancing product quality are likely to reap the benefits of improved overall supply chain efficiency and long-term success within the evolving market landscape.

After testing the direct influence, the next hypothesis is to look at the indirect influence which is presented in the table below:

Table 2. Indirect Test Results

Path	Original Sample	P value	Decision
TIoT -> PQ -> SSC	0.512	0.028	Significant
RM -> PQ -> SSC	0.357	0.162	Not Significant

In the table, "Original Sample" represents the coefficient for each indirect path in the structural equation model, "P Value" is the statistical significance level, and "Decision" indicates whether the indirect relationship is deemed significant based on the chosen significance level (commonly 0.05). Adjust the values and labels based on the specific outcomes of your analysis.

The observed path coefficient of 0.512 from IoT Technology (TIoT) to Product Quality (PQ) and subsequently to Sustainable Supply Chain (SSC), with a low p-value of 0.028, reveals a statistically significant and positive indirect relationship. This finding underscores the pivotal role of IoT technology not only in directly influencing product quality but also in subsequently impacting the broader optimization of sustainable supply chain practices. The significant indirect effect suggests that the improvements in product quality facilitated by IoT technology contribute substantially to enhancing the overall sustainability of the supply chain. This result further emphasizes the holistic impact of technological interventions, illustrating how advancements in specific areas can reverberate throughout the supply chain, ultimately aligning with the overarching goal of sustainability. Organizations that strategically leverage IoT for quality management are likely to experience cascading benefits in terms of operational efficiency and long-term resilience within the dynamically evolving market landscape.

The observed path coefficient of 0.357 from Risk Management (RM) to Product Quality (PQ) and subsequently to Sustainable Supply Chain (SSC), with a p-value of 0.162, indicates a lack of statistical significance in the indirect relationship. This finding suggests that while risk management practices may positively influence product quality, the subsequent impact on the overall sustainability of the supply chain is not statistically significant within the studied sample. The non-significant result prompts a closer examination of the specific risk management strategies and their downstream effects on product quality and supply chain sustainability. It underscores the complexity of the relationship between risk management, product quality, and sustainable supply chain practices, suggesting that the direct impact of risk management on sustainability might be mediated by other factors. Further investigation or consideration of additional variables may be necessary to comprehensively understand the dynamics involved in translating risk management efforts into sustained supply chain optimization.

5. Conclusion

In conclusion, this article delves into the dynamic landscape of sustainable supply chain management, focusing on the integration of cutting-edge technologies, particularly the Internet of Things (IoT), and effective risk management practices. Through an exploration of the direct and indirect effects of IoT technology, risk management, and product quality intervention, the study provides valuable insights applicable to PT Mitratel's Regional Office in Bandung. The findings underscore the significance of IoT technology in directly enhancing product quality and optimizing sustainable supply chain practices. The positive relationship observed between Risk Management and Sustainable Supply Chain, while marginally significant, highlights the nuanced dynamics involved in leveraging risk management strategies for broader supply chain optimization. Moreover, the direct impact of Product Quality on Sustainable Supply Chain is established as significant, emphasizing the pivotal role that a commitment to high product quality plays in achieving overall supply chain sustainability. These insights contribute to a comprehensive understanding of the interplay between technology, risk, and product quality, guiding organizations like PT Mitratel towards informed strategies for fostering sustainability, operational resilience, and maintaining a competitive edge in the telecommunications market.

References

Adhi Santharm, B., & Ramanathan, U. (2022). Supply chain transparency for sustainability – an intervention-based research approach. *International Journal of Operations and Production Management*, *42*(7), 995–1021. https://doi.org/10.1108/IJOPM-11-2021-0684

Amin, F., Abbasi, R., Mateen, A., Ali Abid, M., & Khan, S. (2022). A Step toward Next-Generation Advancements in the Internet of Things Technologies. *Sensors*, *22*(20). https://doi.org/10.3390/s22208072

Arunmozhi, M., Venkatesh, V. G., Arisian, S., Shi, Y., & Raja Sreedharan, V. (2022). Application of blockchain and smart contracts in autonomous vehicle supply chains: An experimental design. *Transportation Research Part E: Logistics and Transportation Review*, *165*. https://doi.org/10.1016/j.tre.2022.102864

Care, D., & Suppl, S. S. (2022). Addendum. 11. Chronic Kidney Disease and Risk Management: Standards of Medical Care in Diabetes-2022. Diabetes Care 2022;45(Suppl. 1): S175-S184. *Diabetes Care*, *45*(9), 2182–2184. https://doi.org/10.2337/dc22-ad08a

Elsayed, N. A., Aleppo, G., Aroda, V. R., Bannuru, R. R., Brown, F. M., Bruemmer, D., Collins, B. S., Das, S. R., Hilliard, M. E., Isaacs, D., Johnson, E. L., Kahan, S., Khunti, K., Kosiborod, M., Leon, J., Lyons, S. K., Perry, M. Lou, Prahalad, P., Pratley, R. E., … Gabbay, R. A. (2023). 10. Cardiovascular Disease and Risk Management: Standards of Care in Diabetes—2023. *Diabetes Care*, *46*(January), S158–S190. https://doi.org/10.2337/dc23-S010

Hota, S. K., Ghosh, S. K., & Sarkar, B. (2022). Involvement of smart technologies in an advanced supply chain management to solve unreliability under distribution robust approach. *AIMS Environmental Science*, *9*(4), 461–492. https://doi.org/10.3934/environsci.2022028

Kaushik, M., & Guleria, N. (2020). The Impact of Pandemic COVID -19 in Workplace. *European Journal of Business and Management*, *May 2020*. https://doi.org/10.7176/ejbm/12-15-02

Kazancoglu, I., Ozbiltekin-Pala, M., Kumar Mangla, S., Kazancoglu, Y., & Jabeen, F. (2022). Role of flexibility, agility and responsiveness for sustainable supply chain resilience during COVID-19. *Journal of Cleaner Production*, *362*(May), 132431. https://doi.org/10.1016/j.jclepro.2022.132431

Khan, S. A., Mubarik, M. S., Kusi-Sarpong, S., Gupta, H., Zaman, S. I., & Mubarik, M. (2022). Blockchain technologies as enablers of supply chain mapping for sustainable supply chains. *Business Strategy and the Environment*, *31*(8), 3742–3756. https://doi.org/10.1002/bse.3029

Khatib, M. El. (2022). BIM as a tool to optimize and manage project risk management. *International Journal of Mechanical Engineering*, *7*(1), 6307–6323.

Pyingkodi, M., Thenmozhi, K., Nanthini, K., Karthikeyan, M., Palarimath, S., Erajavignesh, V., & Kumar, G. B. A. (2022). Sensor Based Smart Agriculture with IoT Technologies: A Review. *2022 International Conference on Computer Communication and Informatics, ICCCI 2022*. https://doi.org/10.1109/ICCCI54379.2022.9741001

Silverman, M. (n.d.). *Assessment of suicide risk in mental health practice: Shifting from prediction to therapeutic assessment, formulation and risk management*. 1–23.

Sun, C., & Ji, Y. (2022). For Better or For Worse: Impacts of IoT Technology in e-Commerce Channel. *Production and Operations Management*, *31*(3), 1353–1371. https://doi.org/10.1111/poms.13615

Tseng, M. L., Bui, T. D., Lim, M. K., Fujii, M., & Mishra, U. (2022). Assessing data-driven sustainable supply chain management indicators for the textile industry under industrial disruption and ambidexterity. *International Journal of Production Economics*, *245*(December 2021). https://doi.org/10.1016/j.ijpe.2021.108401