

# Interdisciplinary Nexus of Lean Thinking and Strategy: An Exploration in to Psychological Resilience, Cultural Adaptability, and Economic Sustainability

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## ABSTRACT

This research article delves into Lean Thinking and Strategy and incorporates their effects on psychological resilience, cultural adaptability and economic sustainability. This paper offers a current perspective on combining Strategic Management with Lean Thinking through an up-to-date review of literature. It traces the path from Toyota's production system to development of Lean Thinking across various industries with emphasis on waste reduction and continuous improvement. This interplay between Lean Thinking and Strategy is evidenced by the findings which suggest combining them can lead to efficient, customer-centered, agile organizational practices. The study examines how combining Lean Thinking and Strategy can enhance psychological resilience, promote cultural adaptability, as well as ensure economic sustainability. This article's theoretical discussions indicate that there is a positive relationship between these concepts. It is therefore essential to verify this empirically. The study ends with some recommendations for implementation and integration, along with future empirical research to look into similar integration within other organizational contexts.

**Keywords:** Lean thinking, strategic management, psychological resilience, cultural adaptability, economic sustainability

## INTRODUCTION

Modern businesses have a compelling story to tell about how Lean Thinking and strategic management can be combined to develop psychological resilience, cultural adaptability and economic sustainability. The present research aims at evaluating the changing dimensions of these concepts and their combination in order to understand their importance in enhancing organizational performance amidst the ever increasing complexities posed by the global business environment today.

Lean Thinking, as originally conceptualized by Womack and Jones in 1996, has gone beyond its initial waste elimination focus and continuous improvement in manufacturing processes. This way of thinking, which is deeply rooted in the Toyota Production System, has undergone a significant change especially when viewed within the backdrop of 21st century technological and environmental challenges. Lean Thinking can be integrated with green practices to promote the transition to sustainable business models particularly in Small and Medium-sized Enterprises (SMEs) as illustrated by modern scholars like Caldera et al Desha et al Dawes (2019). In addition to enhancing operational efficiency, this integration also makes business practices more environmentally sustainable. Moreover, Lean Thinking's digital evolution as recently highlighted by Pekarcikova et al. (2020) implies that it is no longer a mere application. The inclusion of digital tools and technologies into Lean methodologies have made supply chains have become more visible, streamlined delivery times, optimized material and information flow. Consequently, this

development suggests a wider view of Lean Thinking beyond manufacturing alone; encompassing aspects such as service industries and knowledge work where there is equal need for efficiency and responsiveness.

Strategy plays a pivotal role in the field of business and management. The concept of strategic management, as noted by Tapera (2014) is important in aligning organizational activities with overall goals and objectives. Recently, strategy has been seen by scholars more as dynamic than static process, especially in the digital age. In their explanation, Bittencourt, Alves and Leão (2020) focus on Lean Thinking that triggers Industry 4.0 which changes companies through management, processes, and people. This work shows the importance of strategies that are not only receptive to technology but can also be modified at a faster rate given that the global environment continues to change rapidly. The inculcation of Lean Thinking into strategic management is an emerging field of study. Research in this area, such as that by Amaro, Alves, and Sousa (2019), underlines how this integration can improve the efficiency and effectiveness of organizations. The interdisciplinary approach combines the operational focus of Lean Thinking with the broader, long-term perspective of strategic management. This creates a complete framework necessary for organizational success. In the context of global challenges and technological advancements, organizations need to be agile and adaptable in order to keep up with their competitors.

In today's globalized quickly changing business environment, psychological resilience, cultural adaptability and economic sustainability are significant. These three foundation blocks are being increasingly seen as key determinants of organizational performance. Psychological resilience in particular is essential for organizations to withstand and adapt to challenges and adversities. Similarly, cultural adaptability is crucial in globalization era where organizations have to navigate through diverse cultural landscapes and create inclusive environments. Economic sustainability on the other hand ensures that organizations remain viable over time while making profits grow per needs of different stakeholders.

The objective of this research was to explore current developments in Lean Thinking and Strategic Management with respect to integrating these two concepts into organizational success. The aim of this study is to explain how Lean Thinking has changed over time as well as its essence in terms of strategic management within present business environment. This paper offers valuable insights into the integration between these two concepts and their impact on psychological resilience, cultural adaptability, and economic sustainability so that firms can deal effectively with the complexities inherent in their current business environment.

This research was a comprehensive literature review which combined the existing knowledge in Lean Thinking, Strategy and the three pillars of resilience, adaptability and sustainability. This technique encompassed searching through scholarly articles in order to find, assess and summarize all available literature concerning this subject matter. The selection process involved finding peer reviewed literature from academic databases that dealt with the integration of Lean Thinking and Strategy. These criteria were relevant to topic, recently published, and contributes to understanding about integration of Lean Thinking and strategy.

## **LITERATURE REVIEW**

Recent academic research has been focused on the relationship between Lean Thinking and strategic management, especially in the face of evolving organizational practices and technological advancements. This synthesis of empirical studies provides a comprehensive understanding of the current state and future directions in this interdisciplinary field.

### **Historical Evolution of Lean Thinking**

Lean thinking, which was initially confined to the Toyota Production System (TPS), features a diversity of sectors ranging from service industry, healthcare, and others outside the automotive sector where it began.

In their study, Alvim and Oliveira (2020) delve into the transformation process that was initiated by TPS, previously known as JIT or lean production. Alvim and Oliveira (2020) argue that most companies find it difficult to expand lean philosophy and its concepts beyond manufacturing industries, posing challenges for distribution operations that are critical to customer service success and cost reduction.

The ability to change and adapt Lean Thinking within different operational contexts, as well as marry it with the contemporary technologies, is an evidence of Lean Thinking's evolution. Rossini et al. (2022) for example, focus on integrating Lean Supply Chain Management (LSCM) with Industry 4.0 technologies. This integration implies a paradigm shift where LSCM does not only smoothen operations but also allows organizations to incorporate advanced technologies thus boosting overall operational efficiency. It demonstrates the dynamic nature of Lean Thinking which can change with technological times but still be demanded in various branches of industry. Additionally, Amir (2011) explores the merger of lean agile and demand driven approaches in supply chain management (Hariyani & Mishra, 2022). The flexibility of this mode is reflected by such a combination that enables lean thinking to fit into other administrative supports improving companies' performance globally. In today's fast-paced technology-driven market place, the environment is continually changing; therefore the adaptability of any organization is a must if it has to stay competitive. Besides, Forbes and Ahmed (2010) discuss "Modern Construction: Lean Project Delivery and Integrated Practices" and shows how lean thinking can be applied in construction settings. This adaptation illustrates why Lean Thinking has gained popularity in diverse sectors outside its traditional industry; automotive industry, as it helps enhance productivity and performance across sectors above its scope.

### **Key Principles of Lean Thinking**

The four core principles of Lean Thinking are value stream mapping, flow, pull and continuous improvement which have been used in many sectors to show how relevant and flexible they are. Ariadi et al (2021) explained that a mix of lean and agile supply chain strategies improved the financial performance as suppliers and customers were strategically integrated. This is supported by Singh et al (2019) who showed how lean thinking is utilized in industrial operations through value stream mapping and six sigma concepts. Their research in a factory setting at Northern India reduces time of completing orders, waste materials, and processing time showing the effectiveness of Lean Thinking on operational improvement. Furthermore, other people think that using lean thinking beyond traditional manufacturing applications can be demonstrated through a case study conducted by Bercaw (2011) in health sector. In healthcare processes, this orientation will make them more efficient by reducing any forms of waste. For example according to Zaman and Hosseinabad (2021) using Lean concepts to study real-world clock assembly simulation enabled a significant productivity enhancement through constant improvement in production flow. These varied implementations highlight the universal nature as well as effectiveness of Lean Thinking principles across various fields towards achieving operational excellence or strategic alignment. The significance of value stream mapping, flow, pull and continuous improvement in lean thinking is still upheld in all industries thus making it applicable anywhere thus explaining its purpose as an adaptable approach that makes an organization effective and strategic.

### **Role of Strategy in Organizational Direction**

The direction of organizations is guided by their strategies, particularly in a fast-changing technological environment and dynamic market trends. In this regard, Garcia-Buendia et al. (2022) stress the relevance of Lean Supply Chain Management (LSCM) in dealing with technology uncertainties, leading to better operational performance and competitive advantage. This approach makes companies more effective and flexible in times of rapid technology changes. Additionally, Alomar (2022) stresses the role Artificial Intelligence (AI) plays in optimizing industrial supply chain performance, thus bridging the gap between technology and strategic management perspectives. Incorporating AI into the supply chain results in better capacity planning, high productivity growth rates as well as output levels while ensuring safer working

conditions for employees. Furthermore, Cherono and Keitany (2021) explain the significance of suppliers' choice on the efficiency of the supply chain meaning that it is necessary to have strategic supplier management within an efficient supply chain approach. As a result these perceptions collectively highlight that enterprises had to activate advanced technologies together with efficient supply chains if they were to remain competitive during a rapidly changing business terrain.

### **Psychological Resilience**

Psychological resilience refers to individual and organizational ability to endure, adapt or recover from hardships or stressors. The reason for this is that there are constant threats and changes within the turbulent business environment today. Henceforth, López-López et al.'s study endorses on integrating psychological resilience into Lean Thinking and strategic management for organizational wellbeing and adaptability (2022). In recent empirical findings resilience has been found to be important in terms of organizational effectiveness. For instance, it can be seen that COVID-19 has shown how crucial resilient organizations are to survival. It was observed that firms which were more resilient performed better during the pandemic outbreak (López-López et al., 2022). In response, these organizations had to think differently about their operations and still use the Lean principles to ensure that they remain efficient and effective. The integration of Lean Thinking with strategic management can enhance organizational resilience. Continuous improvement and adaptability are key components of a lean system that enhance an organization's resilience. Notably, Noto and Cosenz (2020) believe that, incorporating system dynamic modeling in Lean Thinking offers a more strategic perspective integrating Lean projects and long-term organizational goals thereby enhancing resilience. This makes it possible for organizations to be able to anticipate and respond accordingly towards adjustments. Therefore, this is a promising avenue where resilience can intersect with Lean thinking and strategic management for enhancement of organisational performance as well as adaptability. According to empirical studies, companies that adopt both psychological resilience and lean thinking tend to be better positioned in addressing changes as well as maintaining performance within a changing business terrain.

### **Cultural Adaptability**

The ability of an organization to adjust and thrive in diverse cultural settings is referred to as cultural adaptability. Organizations need to be culturally agile in order to interact and collaborate across different cultures effectively during the era of globalization. This adaptability is important for organizations in a multicultural and global business environment, so that they can maintain their relevance and effectiveness. The Lean Thinking approach promotes inclusivity and flexibility within an organization through its principles of respect for people and constant improvement. For example, Messaoudene (2019) explains how Lean Thinking can serve as a learning strategy that enhances global development, including cultural adaptability. This aligns with strategic management principles that highlight the significance of cultural agility for meeting organizational objectives in a global context. By combining strategic management and Lean principles, it could potentially lead to betterment of cultural adaptability. Studies indicate that Lean Thinking can be successfully applied across different cultures resulting in improved organizational performance and employee engagement; therefore, it is highly applicable in multinational corporations as well as organizations operating in culturally diverse environments.

### **Economic Sustainability**

Economic sustainability is the ability of an organization to maintain its economic viability over a long-term period that is, being profitable, growing and adding value to all stakeholders. This means in the context of Lean Thinking and Strategy that it requires efficient processes' integration as well as future-oriented strategic planning to ensure the sustainable economic future. There are recent studies on how Lean practices can enhance economic sustainability. In particular, Khalil, Francaviglia and Henry (2019) discuss the

strategic management of grazing grassland systems aimed at conserving or improving organic carbon in soils which exemplifies application of Lean principles for economic sustainability in agriculture. This combination supports long-term financial stability. In addition, Lean Thinking improves operational efficiency as well as profit margins by eliminating wastes and optimizing procedures. On the other hand, strategic planning enables organizations to remain responsive to changes occurring within their respective markets thereby ensuring their long term survival. The mixture of two concepts such as Lean Thinking and Strategic Management has been seen as a powerful tool for achieving economic sustainability. Through this connection, companies are able to react quickly to changing market demands, optimize their available resources usage and ultimately retain their competitive edge in their particular industries.

## FINDINGS AND DISCUSSION

The incorporation of Lean Thinking into strategic decision-making greatly enhances organizational efficiency and customer focus. Caldera, Desha, and Dawes (2019) successfully integrated Lean Thinking with green practices in order to boost operational efficiency and environmental sustainability. Pekarcikova et al. (2020) added that Lean Thinking has evolved digitally, mainly in optimizing supply chain processes and aligning them with strategic goals. Since efficiency and strategic agility are important for success in today's business environment, this form of integration is important. The joining of Lean Thinking with strategy goes beyond mere efficiency; it also means that operating behaviors should be part of wider strategies including sustainability and digital transformation.

Lean Thinking is positively related to Strategy and psychological resilience. Bittencourt, Alves, and Leão (2020) described how Lean Thinking facilitates Industry 4.0 changes in building organizational resilience. Amaro, Alves, and Sousa (2019) pointed out that Lean principles have been integrated into strategic management enhancing psychological resilience within organizational cultures built on the foundation of continuous learning as well as improvement culture. This finding is crucial for managing complexities as well as uncertainties of modern business landscape. The significance of this finding is captured by highlighting the human aspect of Lean Thinking — as more than just methods or techniques but as a philosophy that fosters a culture of continuous learning and improvement necessary for resilience.

Lean principles foster cultural adaptability which is strategically useful. Santhiapillai and Ratnayake (2023) present ideas on integrating lean thinking into a police service's strategic management using A3-based project prioritization together with Hoshin Kanri examples to build cultural adaptability. Adapting to diverse cultures globally has become a competitive advantage because multinational companies cannot operate efficiently without appreciating diversity across cultures within their organizations . Cultural adaptability entails not just understanding and respecting cultural differences but also leveraging these differences to drive innovation, collaboration and organizational growth.

Long-term economic viability is improved through the integration of Lean Thinking with strategic planning. This finding, supported by the literature, indicates that Lean Thinking significantly contributes to the economic sustainability of organizations when aligned with their objectives. Particularly, this integration becomes significant considering the world economic crises and need for sustainable business practices. Lean Thinking minimizes waste and enhances efficient operations leading to profit; on the other hand, strategic planning facilitates reactivity to market changes which ensures long term economic sustainability.

In exploring the broader implications of Lean Thinking in contemporary business practices, additional findings reveal the critical roles of technological integration and the challenges posed by globalization. Pekarcikova et al., (2020) revealed that technology plays a part in improving effectiveness regarding Lean Thinking as well as Strategic Management. Today's lean methodologies are necessarily digital, involving such tools as software systems for tracking material flows around various plants or shop floors along with IT

enabled process control mechanisms such as MES/MOM solutions required to maintain reliability within supply chains, all consequently underscoring technology importance in modern lean applications. Bittencourt et al., (2020) stressed on how globalization impacts upon lean thinking and strategic management. The importance of flexibility and responsibility in corporate strategies is highly important in the context of globalized business, which means that organizations must adopt a new strategy and/or change their operations due to globalization's opportunities and threats.

This just shows that Lean Thinking and strategic management are not static but rather dynamic with many facets. Integration of these ideas will not only improve operating efficiency and strategic congruence but also promote mental fortitude, cultural adjustability, and economic viability within an organization. These findings have great significance for firms that would like to successfully navigate through the intricacies of today's world as it changes its face from time to time.

## **INTEGRATION OF LEAN THINKING: IMPLICATIONS AND RECOMMENDATIONS**

This critical analysis examines the multifaceted impacts of this integration on organizational efficiency, adaptability, and long-term sustainability. It underscores the necessity for businesses to not only adopt Lean methodologies but to intricately weave these principles into the very fabric of their strategic planning and decision-making processes. The section further provides actionable recommendations, guiding organizations on how to effectively align Lean Thinking with their overarching goals and objectives. This approach is pivotal in fostering a culture of continuous improvement, resilience, and agility, enabling businesses to thrive amidst the complexities and dynamic changes of the global market.

- *Enhancing Operational Efficiency and Customer-Centricity:* The strategic integration of Lean Thinking into business operations fundamentally transforms the approach to efficiency and customer service. By focusing on value creation and waste elimination, organizations can significantly enhance their operational processes. This shift not only streamlines operations but also places a heightened emphasis on understanding and meeting customer needs, leading to a more customer-centric business model. To capitalize on this, businesses should embed Lean principles into their strategic planning and operational execution. This involves establishing mechanisms for regular customer feedback, aligning product development and service delivery with customer expectations, and continuously refining processes based on customer insights. The goal is to create a symbiotic relationship where operational efficiency and customer satisfaction reinforce each other.
- *Fostering Organizational Resilience and Continuous Learning:* The adoption of Lean Thinking in strategic management plays a pivotal role in building organizational resilience. This resilience is rooted in a culture of continuous improvement and learning, enabling organizations to adapt swiftly to market changes and internal challenges. It's about creating an environment where employees are encouraged to learn, innovate, and adapt, thereby enhancing the organization's overall resilience. Organizations should foster this environment by implementing training programs focused on Lean methodologies, encouraging cross-functional collaboration, and promoting a mindset of continuous improvement. This approach not only builds resilience but also empowers employees, leading to a more agile and adaptable organization.
- *Cultural Adaptability in a Globalized Business Environment:* In the world of business today which is exposed to globalization, cultural adaptability is a necessity rather than an advantage. Lean Thinking is a flexible approach that can be used to foster cultural adaptability, by promoting flexibility and efficiency. Integrating Lean principles helps organizations navigate cultural differences thereby becoming more effective in diverse countries. To achieve this, businesses should integrate Lean Thinking with their diversity and inclusion strategies. Some of the ways that could be taken include making Lean tools adaptive to different cultures, supporting multi-cultural teams, and designing Lean

initiatives from a perspective of recognizing cultural variations. The purpose is using cultural diversity as a vehicle for creating new ideas and expanding.

- *Ensuring Long-term Economic Sustainability*: To ensure the continuity of business operations for long periods lean thinking has to be aligned strategically with business goals. Thus, lean methodologies form a basis for operational efficiencies through waste elimination activities and process optimization approaches leading to profitability levels in firms which may enhance their economic resistance capabilities. Businesses must employ sustainable lean practices aligned with their long-term strategic objectives. Such initiatives may encompass implementation of waste reduction programs; optimization of resource utilization; continuous evaluation and alignment of strategies with market and environmental developments among others. It is about establishing a lean agile corporation capable of thriving for decades.
- *Leveraging Technological Integration for Enhanced Lean Applications*: Integrating technology into Lean methodologies widens the possibilities for operating improvement. In addition, digital toolkits such as data analytics and automation can increase the effectiveness thus improve visibility across operations resulting in better operational performance. Businesses are supposed to invest in supportive technology that complements and enhances their lean tactics. This might entail the use of high-level data analytics for making better decisions; automating repetitive tasks so as to allocate resources towards more value-added ones; or employing technology to enhance communication channels across an organization.
- *Navigating Globalization Challenges with Flexibility and Responsiveness*: Lately businesses are experiencing globalization that comes with various peculiarities calling for flexible and responsive approaches. Lean Thinking, with its emphasis on efficiency and adaptability, is well-suited to help businesses navigate these challenges. To respond more quickly to changing global market conditions, organizations must adopt flexible strategies. This calls for embracing Lean principles that streamline operations and raise their response levels towards global trends and demands through a continuous reassessment of strategies in relation to the world dynamics.

## CONCLUSION

In contemporary corporate practice, incorporating Lean Thinking into strategic decision-making has become crucial in increasing organizational efficiency and creating customer-oriented policies. The result of this synergy is a more efficient operation and adaptability to the changing market needs. Moreover, this integration greatly contributes to psychological resilience within companies that attracts continuous learning and improvement within the workplace. It also has a big role in cultural adaptability that allows firms to operate better in various cultural settings with ease and speed. Also worth noting is the influence of such incorporation on economic sustainability; Lean Thinking working together with strategic planning guarantees long-term survival amidst volatile worldwide business circumstances. In addition, digital technology enhances the effectiveness of lean approaches by offering increased visibility into operations and optimizing processes. Lastly, meeting challenges brought about by globalization involves emphasizing flexibility and adaptability in both Lean Thinking and Strategic Management thus pointing out the need for organizations to be dynamic even with regards to their surrounding global business environment characterized by rapid change.

*Future Research Directions*: Empirical studies may be needed to verify the theoretical insights made in this paper. Future research could explore how Lean Thinking is integrated into strategy making in different contexts leading to organizational performance and sustainability.

## REFERENCES

1. Alomar, M. (2022). Performance Optimization of Industrial Supply Chain Using Artificial Intelligence. <https://doi.org/10.1155/2022/9306265>

2. Amaro, P., Alves, A., & Sousa, R. (2019). Lean Thinking: A Transversal and Global Management Philosophy to Achieve Sustainability Benefits. In *Lean Engineering for Global Development*. [https://doi.org/10.1007/978-3-030-13515-7\\_1](https://doi.org/10.1007/978-3-030-13515-7_1)
3. Amir, F. (2011). Significance of Lean, Agile and Leagile Decoupling Point in Supply Chain Management. *Journal of Economics and Behavioral Studies*, 3(5). <https://dx.doi.org/10.22610/JEBS.V3I5.282>
4. Ariadi, G., Surachman, Sumiati, & Rohman, F. (2021). The effect of lean and agile supply chain strategy on financial performance with mediating of strategic supplier integration & strategic customer integration: Evidence from bottled drinking-water industry in Indonesia. *Cogent Business & Management*, 8. <https://doi.org/10.1080/23311975.2021.1930500>
5. Barkokébas, B., Khalife, S., Al-Hussein, M., & Hamzeh, F. (2021). A BIM-lean framework for digitalisation of premanufacturing phases in offsite construction. *Engineering, Construction and Architectural Management*. <https://doi.org/10.1108/ECAM-11-2020-0986>
6. Bercaw, R. G. (2011). *Taking Improvement from the Assembly Line to Healthcare: The Application of Lean within the Healthcare Industry*. CRC Press. <https://doi.org/10.1201/b11739>
7. Bittencourt, V., Alves, A., & Leão, C. (2020). Industry 4.0 triggered by Lean Thinking: insights from a systematic literature review. *International Journal of Production Research*, 59, 1496-1510. <https://doi.org/10.1080/00207543.2020.1832274>
8. Caldera, H., Desha, C., & Dawes, L. (2019). Evaluating the enablers and barriers for successful implementation of sustainable business practice in 'lean' SMEs. *Journal of Cleaner Production*. <https://doi.org/10.1016/J.JCLEPRO.2019.01.239>
9. Cheronon, N. N., & Keitany, P. (2021). Effect of the supplier selection on supply chain efficiency in county government of Nandi. <https://doi.org/10.47604/IJSCM.1287>
10. Forbes, L.H., & Ahmed, S.M. (2010). *Modern Construction: Lean Project Delivery and Integrated Practices* (1st ed.). CRC Press. <https://doi.org/10.1201/b10260>
11. Garcia-Buendia, N., Moyano-Fuentes, J., Maqueira, J. M., & Avella, L. (2022). The lean supply chain management response to technology uncertainty: consequences for operational performance and competitiveness. *Journal of Manufacturing Technology Management*. <https://doi.org/10.1108/jmtm-07-2022-0250>
12. Hariyani, D., & Mishra, S. (2022). An analysis of drivers for the adoption of integrated sustainable-green-lean-six sigma-agile manufacturing system (ISGLSAMS) in Indian manufacturing industries. *Benchmarking: An International Journal*. <https://dx.doi.org/10.1108/bij-08-2021-0488>
13. Imricskó, P. (2021). *Lean Thinking Strategy*. [https://doi.org/10.35511/978-963-334-411-8\\_s5\\_imricsko](https://doi.org/10.35511/978-963-334-411-8_s5_imricsko)
14. Iqbal, T., Jajja, M. K., Bhutta, M. K., & Qureshi, S. N. (2020). Lean and agile manufacturing: complementary or competing capabilities? *Journal of Manufacturing Technology Management*, 31, 749-774. <https://doi.org/10.1108/jmtm-04-2019-0165>
15. Khalil, I., Francaviglia, R., & Henry, B. (2019). Strategic Management of Grazing Grassland Systems to Maintain and Increase Organic Carbon in Soils. <https://dx.doi.org/10.5772/INTECHOPEN.84341>
16. Lin, P., Chen, K., Cheng, C.-Y., Su, W., & Lu, L. Y. (2022). The Academic Development Trajectories of the Lean Production Based on Main Path Analysis Method. *Processes*. <https://doi.org/10.3390/pr10081495>
17. López-López, Y. Y. G., Pérez-Martínez, N. G., Bañuelos García, V. H., & García Martínez, F. D. M. (2022). Organizational Resilience: 30 years of intellectual structure and future perspectives. <https://dx.doi.org/10.47909/ijsmc.37>
18. Messaoudene, Z. (2019). Lean Thinking as a Learning Strategy at the Service of Global Development. [https://dx.doi.org/10.1007/978-3-030-13515-7\\_2](https://dx.doi.org/10.1007/978-3-030-13515-7_2)
19. Noto, G., & Cosenz, F. (2020). Introducing a strategic perspective in lean thinking applications through system dynamics modelling: the dynamic Value Stream Map. <https://dx.doi.org/10.1108/BPMJ-03-2020-0104>
20. Pekarcikova, M., Trebuna, P., Kliment, M., & Rosocha, L. (2020). Material Flow Optimization



- through E-Kanban System Simulation. *International Journal of Simulation Modelling*, 19, 243-254. <https://doi.org/10.2507/ijssimm19-2-513>
21. Rossini, M., Powell, D., & Kundu, K. (2022). Lean supply chain management and Industry 4.0: a systematic literature review. *International Journal of Lean Six Sigma*. <https://doi.org/10.1108/ijlss-05-2021-0092>
  22. Santhiapillai, F. P., & Ratnayake, R. (2023). Lean thinking and strategy deployment: adapting Hoshin Kanri and A3-based project prioritization in police services. *The TQM Journal*. <https://doi.org/10.1108/tqm-05-2022-0177>
  23. Singh, J., Singh, H., Singh, A., & Singh, J. (2019). Managing industrial operations by lean thinking using value stream mapping and six sigma in manufacturing unit. *Management Decision*, 57(5), 1205-1224. <https://doi.org/10.1108/md-04-2017-0332>
  24. Tapera, J. (2014). The importance of strategic management to business organizations. *The International Journal's Research Journal of Social Science & Management*, 3(11), 122-131. <http://www.theinternationaljournal.org/>
  25. Tupamahu, K. H. (2022). Complementarity of Management Control Mechanisms in a Lean Organization: The Effect of Consensus on Lean Thinking Strategy. *Journal of Economics, Business, and Accountancy Ventura*, 25(1). <https://doi.org/10.14414/jebav.v25i1.3046>
  26. Zaman, M. A., & Hosseinabad, E. R. (2021). Production flow improvement and value stream mapping in a lean manufacturing world. *Global Journal of Engineering and Technology Advances*, 6(1), 001-009. <https://doi.org/10.30574/GJETA.2021.6.1.0125>