

# The Key Challenges of Organization to Adopt Lean or green practices: A Systematic Literature Review

Nissa Syifa Puspani

DOI: <https://doi.org/10.37178/ca-c.23.1.269>

---

**Nissa Syifa Puspani**, Faculty of Behavioral, Management and Social Sciences Faculty, University of Twente, The Netherlands, Faculty of Engineering, Widyatama University, Indonesia  
Email: [nissa.syifa@widyatama.ac.id](mailto:nissa.syifa@widyatama.ac.id)

---

## Abstract

*The logistics organization are motivated to improve performance in order to rose the performance and improve organizational performance, especially in terms of effective processes (Wallenburg et al., 2010). Lean management, a derivative of the Toyota Production System, has been trusted and proven to support an organization in improving performance. Meanwhile, each organization's different needs and characteristics will lead to further adoption and adaptation in improving work performance and also environment effect. In order to answer this gap, the author purpose the systematic literature review (SLR) by [1] were carried out. Through the process analysis of articles, the paper determines the key challenges of organization towards lean or green practices and the key point in lean management.*

**Keywords:** Lean and green management, Organizational performance, Systematic Literature Review

## Introduction

Nowadays, lean is one of the tools to boost and improve an organization's progress, both in terms of performance and process performanc [2]. The strong market interest in adding value to each business process is something that the company needs to pay attention to in enhancing the brand image. The lean thinking is a process to increase the productivity proses business through the eliminated waste [3-6] pointed that an organization business that implemented lean will stay longer and improve the quality of process without waste.

Lean and green implemented in organizational in many sectors increased due to global market demand[7]. Furthermore, several organizations saw that lean could also booster the pro-environmental point of view in a way to achieve goals of brand company. In line with [8]that lean or green or both implementing together will achieve the big value of the performance. [Womack and Jones \[9\], \[10, 11\]](#) the company who focus on eliminate waste has a positive impact on organizational performance and increase the compliment of the voice of customer in business[5] However, many key points of lean adoption successful need to observe in order to make a successful improvement. The indication of the key successful of lean or green practices come up with the research question are follow:

*RQ1. What are the characteristics of lean or green organizational logistic company?*

*RQ2. How the lean or green linked to the successful improvement in organizational logistic company?*

The purpose of this research is to find the gap what the lean and green key point issue to achieve the main goals of the performance organization. What the indicate that company in somehow increase the capability of process with the lean as a problem solving or green as insightful demand of market that necessary to added. In this paper there are several sections to explore the systematic literature review [2, 8, 12-14] first section is indicated what the key purpose of the research that come with research question before. Second section is explored what the previous theoretical debated. The third section is exploring the research methods. And the section number four and five is proved the finding analysis and number six is present the result, the last number seven and eight is explore the theory implication, practical and last is what is the answer for the paper will provides towards research question.

### **Overview theory**

#### ***Lean management***

After World War II Japanese companies collapse due to limitation of resources and infrastructure. In other hand the Toyota come up with the ability to change the future with efficiency and eliminate waste [10, 15] mention that before lean booming in the business management, ISO was the one indicator to improve the business process. Yet, [16] added with lean the company will increase the profit income.

#### ***Lean and green management***

[17], found the companies are successful in implementing lean, but there are also some companies that are not successful in getting results from lean adoption, it is the main attraction of the writer to learn more about why they unsuccessful to maintain the results of lean adoption? From the point of view of integrated management lean, basically lean has no influence in the environment. Currently, there is seminal articles interesting in developing lean management with environmental sustainability [8, 18]. [19] [4, 20] mention that besides having lean management has an influence on better results for the company, the company also wants to have activities that social responsibility in environment.

### **Methodology**

According to [21], the section of number three are explanation and justified the articles. The selecting criteria conducted during systematic overview methods. The author creates the query in order to explore the research gap as follow "efficiency" OR "value stream mapping" OR "VSM" OR "Value Stream Mapping" OR "total quality management" OR "TQM" OR "Six Sigma" OR "lean tool" OR "lean" OR "eliminate waste" AND ("organization" OR "organization" and "green" OR "pro-environment" OR "zero emission". With this query the result is 98 articles that was shown in the data. The data base the author used are from Scopus, web of Science, Jstore.

The exclusion criteria develop during the analysis toward extend the catch the main gap of focus in this purpose if the article (see Table 1.), the criteria are followed:

Table 1

## Criteria table selection

Criteria	Purpose
<i>Inclusive criteria</i>	
Paper written in English	Most relative to found in science journal
Papers published in both academic and trade journals Papers study	Recognize to related in the aim of this research
Lean or green practical issue	Focused on lean and or green to more detail analysis
Paper focus on organization performance	More detail as we as the main issue

After following the steps of criteria, the result of the specific journal found 17 articles (see Table 2.) have specific concert to lean and or green implementation for the organizational performance.

Table 2

## The main articles and journal review

No.	Authors	Title	Year	Source
1	[22]	Lean, green practices and process innovation: A model for green supply chain performance	2018	International Journal of Production Economics
2	[23]	Criteria and practices for lean and green performance assessment: Systematic review and conceptual framework	2019	Journal of Cleaner Production
3	[24]	Modelling green and lean supply chains: An eco-efficiency perspective	2017	Resources, Conservation and Recycling
4	[25]	Lean and green in the transport and logistics sector - a case study of simultaneous deployment	2016	Journal of Planning and Production Control
5	[13]	An investigation on lean-green implementation practices in Indian SMEs using analytical hierarchy process (AHP) approach	2016	Journal of Cleaner Production
6	[26].	Green as the new Lean: how to use Lean practices as a catalyst to greening your supply chain	2013	Journal of Cleaner Production
7	[18]	Lean Management, Supply Chain Management and Sustainability: A Literature Review	2014	Journal of Cleaner Production
8	[27]	Is lean synergistic with sustainable supply chain? An empirical investigation from emerging economy	2018	Resources, Conservation & Recycling
9	[28]	Lean/Green integration focused on waste reduction techniques	2016	Journal of Cleaner Production
10	[16]	Ranking of drivers for integrated lean-green manufacturing for Indian	2018	Journal of Cleaner Production

		manufacturing SMEs		
11	[25]	Simulation based assessment of lean and green strategies in manufacturing Systems	2015	The 22nd CIRP conference on Life Cycle Engineering
12	[3]	Green or lean? A supply chain approach to sustainable performance	2019	Journal of Cleaner Production
13	[29]	Towards Sustainability Through Green, Lean and Six Sigma Integration at Service Industry: Review and Framework	2018	Technological and Economic Development of Economy
14	[28]	Applying the green Embedded lean production model in developing countries: A case study of china	2017	Environmental Development
15	[30]	Integrating the environmental and social sustainability pillars into the lean and agile supply chain management paradigms: A literature review and future research directions	2018	Journal of Cleaner Production
16	[20].	Can lean lead to green? Assessment of radial tyre manufacturing processes using system dynamics modelling	2018	Computers and Operations Research
17	[31]	A model for Lean and Green integration and monitoring for the coffee sector	2018	Computers and Electronics in Agriculture

### Literature analysis

#### *Descriptive analysis of the characteristic lean or green practices in organization*

Lean is provided for the quality improvements that emphasize the achieved by the voice of customer demanding [3]. [10] mention that to found the right value is using lean thinking. Same as lean management some article showed that the green principle can improve the performance of logistic management [22, 24, 26] have the same understanding that green affected on supply chain management. Lean and green practice adoption is considered by some as the preferable approach for logistics companies to take up this challenge [25]. Some studies showed a negative impact of lean practices on employees' job satisfaction, workload, and stress [23, 32].

In line with several articles, [20] lean possibility increase green performance in dynamic modeling performance organization. Seem [29] have the same point of view, that with those or both collaboration will learning to adopt and coordination toward performance activity organization. The main characteristic in lean or even green practices is the organization have the same aims to achieve the goal of organization. For instant, [13] who investigate implementation practical before actual implemented.

#### *The link of lean or green successful to organization performance*

Achievement on lean or green practical in organization are provide the company to active hearing voice of customer, meanwhile the customer will provide the brand of organization increasingly. The provide active to intents towards customer also build trust capability inside organization, which mean lean positively engage the organizational to achieve main focus of quality. In several articles as mention in [28] by applying lean and or green the ability of improve the organization performance in line with the result achievement. Not only togetherness achieve some goals, in

some company who not mention green in some point of view increase the capability toward environment, to sum up lean implementation also provide company organization to be more pro-environment and effectiveness [31]

### Limitation and future research

The addition of inclusion criteria is a limitation of this systematic research. The number of measures will add diversity to the research area and implications area. However, this addition will undoubtedly widen the gap between studies. Therefore, it is also essential to add the type of research that will be explored, whether it is only limited to the organization or the company's performance capabilities. This will add to the analysis and expand the analysis criteria without having a sizeable unfocused gap.

Suggestions for further research are further research on the company's internal organizational factors or individual analysis. Lean and/or green performance will also be measured from each personal organization that runs it. Of course, performance improvement remains the primary benchmark in future research.

### Reference

1. Tranfield, D., D. Denyer, and P. Smart, *Towards a methodology for developing evidence-informed management knowledge by means of systematic review*. British journal of management, 2003. **14**(3): p. 207-222.
2. Alkhoraif, A., H. Rashid, and P. McLaughlin, *Lean implementation in small and medium enterprises: Literature review*. *Operations Research Perspectives*, 6. . 2019 DOI: <https://doi.org/10.1016/j.orp.2018.100089>.
3. Hines, P. and D. Taylor, *Going lean*. Cardiff, UK: Lean Enterprise Research Centre Cardiff Business School, 2000. **1**: p. 528-534.
4. Hines, P.A. and P.G. Found, *G. and Harrison, R.(2008) Staying Lean*. Thriving, not Just Surviving. Lean Enterprise Research Centre, Cardiff University, Cardiff, UK. **3**: p. 26-32.
5. Wu, H. *The Lean manufacture research in environment of the supply chain of modern industry engineering*. IEEE DOI: <https://doi.org/10.1109/ICIEEM.2009.5344586>.
6. Alfayad, F.S., *The Impact of Bank Performance Towards Technology and Marketing Strategy on Omni-Channel Adoption in Saudi Banking Sector*. Cuadernos de Economía, 2021. **44**(124): p. 33-41.
7. Cherrafi, A., et al., *Lean, green practices and process innovation: A model for green supply chain performance*. International Journal of Production Economics, 2018. **206**: p. 79-92 DOI: <https://doi.org/10.1016/j.ijpe.2018.09.031>.
8. Dieste, M., et al., *The relationship between lean and environmental performance: Practices and measures*. Journal of Cleaner Production, 2019. **224**: p. 120-131 DOI: <https://doi.org/10.1016/j.jclepro.2019.03.243>.
9. Womack, J.P. and D.T. Jones, *Lean Thinking: Banish Waste and Create Wealth in Your Corporation*. Banish waste and create wealth in your corporation. 2003, New York: Simon & Schuster Inc.
10. Wu, C. and D. Barnes, *An integrated model for green partner selection and supply chain construction*. Journal of Cleaner Production, 2016. **112**: p. 2114-2132 DOI: <https://doi.org/10.1016/j.jclepro.2015.02.023>.
11. Anugrah, Y.R. and W. Dianawati, *Corporate Social Responsibility (CSR) Disclosure, Earnings Response Coefficient (ERC), and the Chance to Grow*. Cuadernos de Economía, 2020. **43**(123): p. 382-390.
12. Danese, P., V. Manfè, and P. Romano, *A systematic literature review on recent lean research: state-of-the-art and future directions*. International Journal of Management Reviews, 2018. **20**(2): p. 579-605 DOI: <https://doi.org/10.1111/ijmr.12156>.
13. Thanki, S., K. Govindan, and J. Thakkar, *An investigation on lean-green implementation practices in Indian SMEs using analytical hierarchy process (AHP) approach*. Journal of Cleaner Production, 2016. **135**: p. 284-298 DOI: <https://doi.org/10.1016/j.jclepro.2016.06.105>.
14. Arau, J.H., *The economic-financial crises of contemporary capitalism*. Cuadernos de Economía, 2020. **43**(123): p. 359-381 DOI: <https://doi.org/10.32826/cude.v43i123.302>.

15. Kitazawa, S. and J. Sarkis, *The relationship between ISO 14001 and continuous source reduction programs*. International Journal of Operations & Production Management, 2000: p. 13-18 DOI: <https://doi.org/10.1108/01443570010304279>.
16. Gordon, P., *Lean and green: profit for your workplace and the environment*. Vol. 12-18. 2001: Berrett-Koehler Publishers.
17. Mollenkopf, D., et al., *Green, lean, and global supply chains*. International Journal of Physical Distribution & Logistics Management, 40(1-2), 14-41. . 2010 DOI: <https://doi.org/10.1108/09600031011018028>.
18. Mason, R., P. Nieuwenhuis, and D. Simons, *Lean and green supply chain mapping: adapting a lean management tool to the needs of industrial ecology*. Progress in Industrial Ecology, An International Journal, 2008. 5(4): p. 302-324 DOI: <https://doi.org/10.1504/PIE.2008.021921>.
19. Arrieta, A.A., *Professionals don't always play minimax: evidence from Latin American soccer leagues*. Cuadernos de Economía, 2020. 43(123): p. 305-324 DOI: <https://doi.org/10.32826/cude.v43i123.191>.
20. Gupta, V., G. Narayanamurthy, and P. Acharya, *Lean-green performance assessment of radial tyre manufacturing process: A system dynamics modelling approach*. Computers & Operations Research, 2017. 89: p. 284-306 DOI: <https://doi.org/10.1016/j.cor.2017.03.015>.
21. Tranfield, D., D. Denyer, and P. Smart, *Towards a methodology for developing evidence-informed management knowledge by means of systematic review*. British journal of management, 14(3), 207-222. 2003 DOI: <https://doi.org/10.1111/1467-8551.00375>.
22. Cherrafi, A., et al., *A framework for the integration of Green and Lean Six Sigma for superior sustainability performance*. International Journal of Production Research, 2017. 55(15): p. 4481-4515 DOI: <https://doi.org/10.1080/00207543.2016.1266406>.
23. Farias, L.M.S., et al., *An ANP-based approach for lean and green performance assessment. Resources, conservation and recycling*, 2019. 143: p. 77-89 DOI: <https://doi.org/10.1016/j.resconrec.2018.12.004>.
24. Carvalho, H., S.G. Azevedo, and V. Cruz-Machado, *Supply chain performance management: lean and green paradigms*. International Journal of Business Performance and Supply Chain Modelling, 2010. 2(3-4): p. 304-333 DOI: <https://doi.org/10.1504/IJBPSM.2010.036204>.
25. Garza-Reyes, J.A., et al., *Lean and green in the transport and logistics sector—a case study of simultaneous deployment*. Production Planning & Control, 2016. 27(15): p. 1221-1232.
26. Dües, C.M., K.H. Tan, and M. Lim, *Green as the new Lean: how to use Lean practices as a catalyst to greening your supply chain*. Journal of cleaner production, 2013. 40: p. 93-100 DOI: <https://doi.org/10.1016/j.jclepro.2011.12.023>.
27. Jakhari, S.K., H. Rathore, and S.K. Mangla, *Is lean synergistic with sustainable supply chain? An empirical investigation from emerging economy*. Resources, Conservation and Recycling, 2018. 139: p. 262-269.
28. Fercoq, A., S. Lamouri, and V. Carbone, *Lean/Green integration focused on waste reduction techniques*. Journal of Cleaner production, 2016. 137: p. 567-578 DOI: <https://doi.org/10.1016/j.jclepro.2016.07.107>.
29. Caiado, R., et al., *Towards sustainability through green, lean and six sigma integration at service industry: Review and framework*. Technological and Economic Development of Economy, 2018. 24(4): p. 1659-1678 DOI: <https://doi.org/10.3846/tede.2018.3119>.
30. Ciccullo, F., et al., *Integrating the environmental and social sustainability pillars into the lean and agile supply chain management paradigms: A literature review and future research directions*. Journal of cleaner production, 2018. 172: p. 2336-2350.
31. Rees, L. and S. Kopelman, *Logics and logistics for future research: appropriately interpreting the emotional landscape of multicultural negotiation*. Negotiation and Conflict Management Research, 2019. 12(2): p. 131-145 DOI: <https://doi.org/10.1111/ncmr.12152>.
32. Magnani, F., V. Carbone, and V. Moatti. *The human dimension of lean: a literature review*. Taylor & Francis DOI: <https://doi.org/10.1080/16258312.2019.1570653>.