

Movers and Shakers: Leadership Attributes for a Successful Lean Manufacturing Implementation

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Abstract

Purpose: This study aims to investigate the leadership attributes for successful lean manufacturing implementation.

Design/methodology/approach: This study employed a case study in European automotive manufacturing plants through a series of interviews with six informants from four countries. The six informants represent each subgroup from the job responsibilities.

Findings: The result comprises four main lean leadership attributes for successful lean manufacturing implementation. First, management commitment, involvement, and engagement, followed by management mission and vision. In addition, management coaching and effective communication were highlighted as important attributes of lean leaders.

Research limitations/implications: Further studies could extend this study using a mixed-method approach. Applying both methods will contribute significantly to providing a holistic view, providing a breadth and depth to understanding phenomena that neither qualitative nor quantitative research approaches alone could support.

Practical implications: This study contributes to expanding the boundary of the existing literature and contributes to the body of knowledge while providing insights to practitioners in tailoring strategies to strategize the roadmap, ensuring the implementation is ongoing by integrating the leadership role to reap the maximum benefit of lean implementation.

Originality/value: Although several studies presented positive relationships of leaders and the characteristics, skills, and behaviors of leaders that facilitate lean success from a case study, this study examines the leadership attributes from various contexts to facilitate a deeper comparative analysis.

Keywords: Lean Leadership, Lean Manufacturing, Lean Success, Leadership Attributes

Introduction

Many businesses have adapted lean manufacturing implementation (LM) to increase competitiveness as they have battled to remain profitable during the economic recession (Okita, Akuku, Musau, & Onyango, 2021). LM implementation is a prominent philosophy

essential for business survival. Many businesses worldwide utilize LM to improve and increase their overall manufacturing performance (Abidin, Leman, Yusof, & Ismail, 2022; Ruben, Vinodh, & Asokan, 2019). Lean is a management philosophy that strongly emphasizes reducing lead times by continuously eliminating waste and focusing on activities that provide value to reduce manufacturing costs (Abidin et al., 2022; Kie, Hassan, Aripin, & Yunus, 2019; Loh & Lau, 2018). The lean idea grew from a production efficiency method to a management philosophy that reduces waste across the value chain (Qureshi et al., 2022). Any method or practice that results in customers refusing to pay is considered waste (Yadav, Jain, Mittal, Panwar, & Sharma, 2019).

According to these definitions, LM is a method to enhance production efficiency by expanding activities that provide value to the customer while decreasing waste in operations (Khan, Ali, & Sajid, 2022). LM implementation provides numerous lean tools and approaches for successful implementation to help organizations achieve a competitive edge (De Silva & Seneviratne, 2022). The core of leadership is the capability to inspire and influence the collective efforts of subordinates to adapt to new transformative changes necessary for the organization's strategy and striving toward company objectives (Sahoo, 2020; Vance, 2017). Lean leadership is defined by convictions, dispositions, and abilities demonstrating respect for people, motivating others, restricting organizational politics, assuring effective resource usage, and reducing errors in pursuing company vision (Balzer, Brodke, & Kizhakethalackal, 2015). Leaders may substantially affect the efficacy of LM implementation by encouraging, coaching, and sharing ideas with their team members, all of which are necessary for successful LM implementation (Burawat, 2019). LM implementation implies a shift in leadership attitude and action that influences employees, eventually transforming their behavior and changing the organizational culture (Alkhoraf, McLaughlin, & Rashid, 2019).

Previous studies have focused on the leadership characteristics, skills, behaviors, and abilities that facilitate LM success (Connor & Cormican, 2021; Tortorella, Fettermann, Fogliatto, Kumar, & Jurburg, 2021). The interest in this research is sparked by a proposal by Connor and Cormican (2021) to make a valuable contribution by examining the leadership attributes from various contexts to facilitate a deeper comparative analysis. In addition, other companies might not easily replicate Toyota Production System (TPS) approach as each organizational culture and leadership style may differ from Toyota (Tortorella et al., 2021). This encourages this research to investigate the attributes of lean leadership in a wider range of European automotive manufacturing companies in several areas worldwide (i.e., India, Malaysia, Indonesia, and Vietnam). In addition, this study involved several levels of hierarchical levels that lead to some intriguing results (Connor & Cormican, 2021). The theoretical and empirical data presented in this study will aid academicians and practitioners in deciding the best road forward to develop the leadership strategies and reap the full potential of LM. In practice, the findings of this study will give several recommendations to lean practitioners to assist them in having a better grasp of lean leadership for a successful LM. The literatures were discussed in this paper. Following that, the qualitative data analysis and discussion were addressed. Finally, the implications findings, limitations, and future research ideas will be presented.

Literature Review

Lean Leadership

Customer value is critical in LM processes. The customer decides if an action offers value. In most situations, the customer pays for a product's proper operation but not for the form and proper running of a manufacturing facility (Yadav et al., 2019). According to this, leadership can never be value-adding. The lean leader is not the one who adds value to the product, but the shop floor workers are in charge of adding value to the final product. Lean leaders must comprehend that they must establish the structure and framework required to generate outstanding value. The leader is the coach who designs the plan, assembles the team, and focuses on the team's abilities for a successful LM implementation (Dumitrascu, 2014; Super, 2020). Lean leadership is a process that has to be constantly developed, and it does not replace or complete a LM deployment. Lean leadership bridges the gap between the lean toolbox and the organization that uses lean concepts to learn and develop a LM implementation (Tortorella et al., 2021).

Lean leadership focuses on leadership personnel but equally applies to all other operational relationships since shop floor employees must initiate continuous improvement. Lean leadership should be based on lean ideology and long-term thinking (Protzman, Whiton, & Kerpchar, 2022). Consequently, leaders and employees can grow sustainably over the long term. An often quoted quote from Toyota describes this matter felicitously; before we build cars, we build people (Kvasova, 2013). These requirements define lean leadership as a systematic approach to the long-term use and ongoing development of LM implementation. It talks about how leaders and employees work together to achieve excellence. All procedures must be customer focused, and the relationship between leaders and employees must be developed over the long term (Moldoveanu & Narayandas, 2019). Every person in a lean organization is expected to actively contribute to daily improvement projects (Knapic, Rusjan, & Bozic, 2022).

Lean projects fail when leaders cannot understand and communicate the need for systemic change or manage by process rather than outcome (Connor & Cormican, 2021). To implement lean thinking, a culture where people are empowered and encouraged to make changes must be created. Leadership is the process through which one person sets the objective or direction for one or more other individuals and helps them advance skillfully and thoroughly (Walker & Qian, 2022). Leaders are rather different from one another, and even when they are similar, the similarities are not always clear. Simply put, there is no universal recipe for good leadership and no shortcut to be a great leader. When implementing LM, organizations always undergo change, which makes leadership more crucial. Continuous improvement involves ongoing process improvements, typically gradual and not perceived as transformative (Protzman et al., 2022). However, when organizational structure changes, lean presents significant or transformative changes which necessitate a change in leadership and culture, which is challenging to accomplish and sustain (Tortorella et al., 2021).

Lean Manufacturing Implementation

Lean is a management philosophy that incorporates several management practices. Its basic tenet is that various management strategies cooperate to generate a high-quality product swiftly in response to customer demand with minimal to no waste (Shah & Ward, 2003; Shah & Ward, 2007). LM is converted into numerous LM methods and tools on a management level, such as just-in-time, total productive maintenance, and total quality production. The fundamental goal of implementing LM is to develop a streamlined process flow that produces precisely what the customer wants at the right time and in the appropriate quantity (Kamble,

Gunasekaran, & Dhone, 2020). There are several definitions of LM, and some researchers propose definitions unique to manufacturing processes. In contrast, others use a broader term that may be applied to a wide range of sectors. This study defines LM as a systematic method to enhance production system efficiency by increasing value-added activities and eliminating waste in manufacturing processes (Loh & Lau, 2018).

All actions that contribute to the transfer of a product from raw material to finished product, such as design, order taking, and physical production, are included in the value stream (Womack, Jones, & Roos, 2007). Any unnecessary action that does not bring customer value is considered waste. LM is typically associated with reduced inventory, faster manufacturing times, improved quality, greater flexibility, and increased customer satisfaction (De Silva & Seneviratne, 2022). Although LM can increase organizational performance, there are certain challenges. It may be challenging to persuade managers and employees to think and act in unfamiliar ways. Employees may resist LM planning or struggle to understand new customer value and waste concepts (Tran, Pham, & Bui, 2020). It may also be challenging to handle external relationships with customers and suppliers efficiently. For instance, smaller quantities of parts or subassemblies required for pull manufacturing may be unavailable from suppliers. Customers may be unable to place predictable orders, leading the company to stockpile inventory to satisfy demand (Nawanir, Fernando, & Lim, 2021). Despite the difficulties in managing the obstacles, LM has been implemented in many industries because of its great benefit (Grigg, Goodyer, & Frater, 2020).

Methodology

This topic fits qualitative approaches, particularly for an exploratory case study. A case study gives advantages that quantitative research methodologies cannot provide when delving into the how and why of a sequence of occurrences (Piekkari & Welch, 2018). Qualitative data enables the researcher to investigate complex interactions between variables in their natural situation more thoroughly. It can be difficult to capture the intricate interactions between persons and various variables in quantitative research using typical instruments such as surveys. The current study obtained data for the qualitative data collection using interviews, as interviews are a useful data source in comprehending the social environment. The interview questions were open-ended and intended to steer the conversation rather than impose a specific path of inquiry. A semi-structured interview also allows for two ways to communicate, allowing researchers to understand more about the phenomena in depth (Kallio, Pietilä, Johnson, & Kangasniemi, 2016). The spiral approach outlined by Creswell (2014) was employed to analyze the data. The analysis spiral comprises four steps, managing the data, then reading and taking notes. Subsequently, the data will be described, categorized, and interpreted. Finally, the data will be displayed and visualized. In contrast to following a planned linear path, spiral analysis encourages the researcher to go in analytical circles.

For this purpose, a case company was selected. The selected case company is an automotive manufacturing company. The case company was selected as it has several locations worldwide to investigate various contexts to facilitate a deeper comparative analysis. In addition, an automotive company was selected as LM originated from the automotive field to emulate the great success of TPS (Arlinghaus & Knizkov, 2020). To collect the data, an interview was conducted as the interview is a useful data source for understanding the social context. The company has four locations (i.e., India, Malaysia, Indonesia, and Vietnam), and the quota sampling method was used in choosing the participants to be interviewed to reflect

each subgroup's characteristics (Creswell, 2014). The saturation criterion was attained with a total of six informants. The informants were chosen to represent different hierarchy levels, in which two informants were lean specialists, two were from the production team, one from the quality team, and one from the supply chain team. The interview was conducted virtually, individually and in group focus discussion based on the country. An interview protocol or guide was prepared following a suggestion from Creswell (2014). The interview protocol is a type of qualitative data collection in which the researcher interviews the participants and obtains information from them.

Research Findings

In general, all informants believe that LM implementation is strengthened by lean leadership, and having a great lean leader is essential for success in LM implementation. Furthermore, the informants agreed that leaders must play a role in ensuring the tremendous success of LM implementation by delivering their best commitment, participating in LM activities, and leading employees toward the correct goal and vision. Leaders must also share their experience and understanding of LM activities with employees who have participated in LM activities. This will assist in increasing employee motivation. Leaders must also convey to employees the advantages and disadvantages of embracing LM. It is anticipated that doing so will clear up any confusion and steer employees in the right direction. Based on the findings from the case study through the interview approach, four main thematic were developed, namely; (1) management commitment, involvement, and engagement, (2) management mission and vision, (3) Management coaching and exchanging ideas with the employees, and (4) effective communication. Each of the themes will be discussed in the next section.

Theme 1: Management Commitment, Involvement, and Engagement

All respondents agreed that leaders must contribute to the success of lean implementation by giving their best commitment. Lean experts from Vietnam and Indonesia mentioned that the commitment of the employees and suppliers is crucial to the company's success and that effective lean leaders promote employee and supplier participation in implementing lean. Similarly, the production team has mentioned the same feedback. According to the production team from India, best practice activities are being used to encourage employee participation, and the leaders must involve and give the best commitment to encourage employee participation. The production team from Indonesia emphasized that management, employees, and suppliers must be committed to a lean journey to be successful. The respondent from the quality team in Malaysia added that the organization's culture is shaped by its leaders and employees. Similarly, the logistic team from Malaysia noted several actions plans to be completed, including the development of the culture, organizational commitment, involvement, and engagement.

Theme 2: Management vision and mission

Half of the respondents mentioned management vision and mission as one of the characteristics of lean leaders for successful lean manufacturing implementation. An Indonesian lean expert concurred that leaders must play a part in guaranteeing the success of lean implementation by giving their best commitment, taking part in lean activities, and directing staff toward the proper goal and vision. In addition, the Malaysian quality team mentioned that managers should explain to staff members the objective and vision of the lean

implementation, as this will help to clarify matters and properly point them. Similarly, the Indian production team stated that having leaders with a clear vision will help with strategic planning and help manufacturers succeed in their lean path.

Theme 3: Management coaching and exchanging ideas with the employees

Almost all of the respondents indicated management coaching and idea sharing with the staff to help the implementation of lean manufacturing. It was explained by a lean expert from Vietnam that leaders who coach and exchange ideas with their staff will have a big impact on the success of lean implementation. The respondent from India explained that lean leaders must promote, inspire, and coach the staff to ensure the effective use of resources and minimize waste. The production team from Indonesia added that leaders must show gratitude to the workers who have offered their ideas, or it would demoralize them. The quality team stated that lean leaders must also share their expertise and experience lean and inform the workforce of the advantages and gains associated with its implementation.

Theme 4: Effective communication

Responding from Indonesia and Malaysia reported effective communication as an attribute in being a good coach and mentor. According to the production team from Malaysia, communication is important for a leader to communicate to the employees and inform them about the benefits and gains of implementing lean. With a clear understanding, the employee will be motivated to share their thoughts and contribute to the success of the company. In addition, a lean expert from Indonesia described that communication could be done in various ways, and the best way to communicate is through gemba walk. Leaders can communicate about lean and its benefit on the shopfloor where the value is created.

Discussion

This study investigates the attributes of lean leadership for a successful lean manufacturing implementation from a case study in a European automotive manufacturer in several plants in India, Malaysia, Indonesia, and Vietnam. The semi-structured interviews were conducted from different hierarchical levels to answer this research objective. Four main thematic were developed, presenting the key characteristics of lean leadership for successful lean manufacturing implementation. Employees are more likely to be engaged when their leaders practice empowering leadership, and engaged employees are more likely to feel psychologically empowered and devoted to the firm (Alotaibi, Amin, & Winterton, 2020). Leaders' ability to make people feel heard greatly impacted employee engagement, and high engagement was associated with beneficial process changes. When leaders support and encourage employees, they improve the flow of communication across the firm (Netland, Powell, & Hines, 2019). The informant explained that the involvement of leaders is important to the success of LM implementation. Participating actively in executing any LM improvement activity is one of the simplest ways for leaders to demonstrate their commitment. When an issue arises that requires solutions, the leader should go to the production floor and evaluate the problem at the operational level and, if possible, make suggestions for improvement measures. This demonstrates a willingness to assist and solve problems in a real-world setting. Hence, this concludes that leadership support is one of the most important strategies for a successful LM deployment. A strong leader in a transformational organization should oversee and lead LM implementation strategies. Full

agreement and commitment from top management are essential, especially in the early phases of implementation, to set the platform for a successful long-term implementation of LM. The informants also concurred that leadership engagement and commitment to LM implementation include gemba activities. In general, gemba activity will help leaders achieve greater goal alignment and increase solving speed. As a result, managers will experience what is happening in the gemba and be able to support the shop floor workers. To motivate employees to participate actively in this journey, the ideal settings for LM dispersion must be created, and management must be accountable for encouraging both physical and emotional commitment. Accordingly, leaders must ensure that employees act on improvement ideas by putting them into practice. The informants agree that improvements are more likely to last if it is participated by the employees because they feel empowered and involved. Even though the improvements were small and did not result in cost savings, it is still preferable if the leaders express their appreciation to the employee.

Leaders envision excellence and success as more likely to accomplish great results. Successful leaders are symbolized like the athletes who anticipate reaching the finish line and having a bright future. They develop and express a common vision for the future that inspires, concentrates, and provides a feeling of purpose and value (Rawashdeh, Elayan, Shamout, & Saleh, 2020). Self-management refers to the ability to maintain awareness of individual conduct, ideas, and feelings and determine how the individual presents themselves to others. Leadership requires vision and forward-thinking, as LM implementation is a long-term project approach. According to the informants, participation of top management in LM initiatives guarantees that changes are effectively put into practice and ensures the initiatives are following the company's vision and goal. The move is, therefore, appropriate and advantageous to the mission and profitability of the company. The informant also mentioned that a successful LM implementation depends on several aspects, one of which is leadership. It is important because the leaders must explain, direct, and demonstrate the organization's goal and vision. With the aid of a good strategic plan and, most crucially, a clear vision, the firms will be able to continue implementing LM to achieve its full potential of LM implementation. Additionally, it was highlighted how the transformation toward LM demands a visionary leader. LM implementation will succeed, and firms will attain manufacturing excellence with LM. It will, however, backfire on the company if it is not properly implemented. As a result, without visionary leadership thinking behind it, LM deployment is worthless.

Previous research specifically stated that lean leadership employs the function of a sensei or mentor as a coach, providing feedback on the development of new behaviours, increasing emerging leaders' self-awareness, and sharing related expertise (Seidel, Saurin, Tortorella, & Marodin, 2019). Extended communication or individual coaching can develop emotional intelligence between the leader and the employee. According to the informants, lean leaders understand their employees and consider it part of their mission to teach them to develop their problem-solving abilities rather than giving orders or transferring responsibilities. They accomplish this by stepping into the shop floor to coach them in person. Lean leaders acknowledge that they may lack the knowledge needed to do the work at hand, but they can help the person in questioning to analyze the problem, formulate solutions, and put them into practice. Furthermore, the informants said LM translated into action to coach and inspire their subordinates. One of the most direct ways to coach is during gemba genchi genbutsu, where two-way communication happens, and leaders can communicate to the employees and coach as needed. Coaching helps deliver correct information, inspires employees, and indirectly

raises their morale and motivation. Furthermore, leaders must continue to strengthen their LM capabilities via self-development, external consulting companies specializing in LM, or external training for leaders to coach their subordinates. By improving lean skills, the leader can continually obtain a better understanding while implementing it and simultaneously create a learning environment that supports lean culture and eventually multiplies it to the subordinates. Lean leaders must share their knowledge and experience with others and educate staff on the benefits and gains of LM implementation. A clear understanding will motivate employees to share their ideas and contribute to the organization's success.

Both verbal and nonverbal communication is essential for employee integration and building trust on the front lines. The leader uses communication in the gemba framework to communicate with employees and identify process problems and faults (Loh & Lau, 2018). Communication in hoshin kanri is defined by the traits of contact, explanation, concision, and clarity. These characteristics help the leader to create contact, improve performance, hold employees accountable, and build and maintain relationships. Communication enables the leader to add value to the customer while sharing information and ideas across hierarchical structures. According to the informants, top management must use an effective communication channel to guarantee that the LM implementation is well understood, implemented, and sustained over time. There are several ways to communicate with the employee. It can be done individually through direct communication during gemba or informal communication. Accordingly, formal communication can also be done through town halls and email. However, according to one of the informants, if top management does not understand and understand the benefits of LM implementation, it will not be easy to apply and explain to the employee. In addition, the informants mentioned that clear communication by the management had a big impact on lean success. With clear communication, employees understood and could steer their daily job according to the company target. Effective communication is an important factor in being a good coach and mentor. Having effective communication will eventually have a big impact on the company's success. The informant mentioned that effective communication is important in being a good coach and mentor. LM requires clear communication between all value streams. In addition, the communication must also be extended to the suppliers. Suppliers are an important factor in a successful LM implementation as LM has to be implemented holistically, as a corporate-wide effort, and one reason for failing in sustaining when the LM implementation is not extended widely to the rest of the organization.

CONCLUSION AND IMPLICATIONS

The study has contributed to the existing knowledge in identifying leadership attributes of a successful LM. From the exploratory study of a case study, the evidence does support the proposition that management support plays a strong role in a LM implementation through four main attributes, which are; (1) management commitment, involvement, and engagement, (2) management mission and vision, (3) Management coaching and exchanging ideas with the employees, and (4) effective communication. This study offers several significant contributions to researchers and practitioners. The study provides valuable management implications. From a practical standpoint, this current study will be able to make several recommendations to lean practitioners for them to gain more profound knowledge and better equip them in strategizing the roadmap for LM, ensuring the implementation is ongoing and integrating the role of leadership with the proposed attributes to reap the maximum benefit of LM as a strategy to achieve a competitive advantage.

This study has several limitations that were discovered during the research process. For a more comprehensive study, these constraints should be addressed in the future. To begin with, further studies could extend this study using a mixed-method approach. Applying both methods will contribute significantly to providing a holistic view, providing a breadth and depth to understanding phenomena that neither qualitative nor quantitative research approaches alone could support to answer the research questions (Creswell, 2014). In addition, future studies can integrate the lean culture in identifying the leadership attributes of leadership toward a successful LM implementation. It is because lean culture is highly correlated with individuals, and organizational culture impacts organizational performance since it is influenced by individual behavior.

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