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Leading with Lean: A Review of Literature on Lean Leadership

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Abstract

Waste is a deterrent to the organisation's growth in many forms. Lean leadership is a managerial philosophy that discourages any form of waste and strives to achieve zero waste in a systematic way. However, the scope and operation of lean leadership are way more than only waste reduction. The adaptation, execution and implementation of lean philosophy depend on the lean leadership. A lean leader establishes a course of action and increases organisational capacity to address problems at their source (Byrne & Womack, 2013). Lean leadership encompasses certain characteristics, values, and behaviours that contribute to leading the followers and ensuring desired performance for the organisation as a whole. This study attempts to understand the competencies, characteristics, values, behaviours and principles of lean leadership across the organisations. It aims to examine and evaluate the existing body of literature, identify key themes, theories and gaps, and provide a comprehensive understanding of the current state of knowledge on lean leadership. The study adopts a desk research approach and conducts a critical analysis of the available literature on lean leadership to formulate research questions, and objectives and gather necessary information. By synthesising and analysing existing research, theories and empirical evidence, this study offers understandings into the characteristics, behaviours, values of lean leadership on various organisational outcomes. The study finds that lean leadership displays a distinct set of values, behaviour and principles. It provides individuals with valuable tools, methodologies and insights to drive efficiency, engage employees, improve customer satisfaction, and achieve sustainable success in today's dynamic and competitive business environment. The study also asserts that lean leadership evolves within the framework of transformational leadership. The results of this study will supplement the industry and existing knowledge base by providing a wider comprehension of lean leadership in a generalised form.

Keywords: Lean, Lean Leadership, Leadership Values, Leadership Behaviours, Leadership Competencies

Introduction

Lean refers to a management philosophy (Bhashin & Burcher, 2004) and methodology that originated from the Toyota Production System (TPS). It is concentrated on waste reduction, efficiency enhancement and maximising customer value. The word "waste" is used to classify non-value-added operations, and strategies to eliminate this waste are sought in order to become more resourceful (Pearson, 2019). Lean is a much-desired phenomenon in order to obtain zero waste. Every employee is urged to find and get rid of waste in their work processes in a lean organisation, whether it is additional inventory, pointless transportation, flaws, overproduction, waiting times, or extra motion. It is concentrated on enhancing processes and a product's complete value stream, as well as removing waste, imperfections and overburden to increase value for customers (Scherrer-Rathje et al., 2009; Womack, 2006; Aij & Rapsaniotis, 2017). However, it has been created to improve operational excellence by taking into account quality, speed and cost (Holweg, 2007). Organisations

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can gain better quality, reduced costs, faster lead times and more customer satisfaction by removing waste and streamlining operations.

Lean was first introduced by Henry Ford's process improvement techniques (Womack & Jones, 1996), which the engineers of Toyota Motor Company further enhanced between 1949 and 1975, giving rise to the Toyota Production System. The TPS was deemed a best practice by MIT researchers, who also gave this method of operation the name "Lean" (Krafcik, 1988; Womack et al., 1990). Lean has two basic interpretations, or translations, according to Pettersen (2009), and these are called "toolbox Lean" and "Lean thinking." It is possible to characterise Toolbox Lean as being inwardly directed and preoccupied with a variety of "waste reduction tools." While adopting a strategic and system-wide view, lean thinking is more externally focused. Lean, according to Tom Ehrenfeld of the Lean Enterprise Institute (2013), is a methodical way to produce more (products and services) of higher quality by completely engaging the workers in a planned and established manner of problem-solving. Additionally, lean is a methodology that emphasises respect for people and fosters a workforce as a team; it is more than a collection of tools (Vlahos, 2022). It includes fundamental business management and organisation principles that can put any organisation on the road to growth and improvement (Lander & Liker, 2007). Lean development must therefore be viewed as a management strategy (Emiliani, 2006), needing the support and involvement of top management as well as a fundamentally distinct set of leadership behaviour (Emiliani & Emiliani, 2013).

Arguably, lean is the ideology that supports and guides the tools (Seddon, 2005). To ensure that ideology, it is essential to cultivate leaders who embody the system entirely with a distinct vision (Liker & Meier, 2006; Hines et al., 2000). Leadership in a lean organisation makes sure that every employee is completely involved in daily improvement initiatives and is fully engaged (Dombrowski & Mielke, 2013). Lean leadership is essential to ensuring employee engagement in an effective and sustainable lean program (Schouteten & Lauche, 2018; Achanga et al., 2006; Dombrowski & Mielke, 2013; Poksinska et al., 2013; Liker, 2004). It also necessitates a leader's commitment. Lean projects commonly fail if leaders struggle to comprehend and articulate the inclination for organisational transformation (Al-Balushi et al., 2014; Toussaint, 2015). Further, leadership is the area where the lean movement has the greatest capability gap and the main reason why many lean programs fail (Liker & Convis, 2012). Employee participation and knowledge laid the foundation for lean leadership, and it is undoubtedly a crucial success element for boosting employee engagement in systems of continuous improvement (Dombrowski & Mielke, 2013; Grewan, 2019). Therefore, a lean organisation should look for leaders who have a level of self-efficacy that promotes a culture of problem-solving and continuous development (Sterling & Boxall, 2013). Manufacturing, healthcare, services, software development and other fields and sectors can all benefit from lean leadership. To increase productivity and effectiveness across the board, it places a strong emphasis on employee involvement, a culture of continuous development and problem-solving.

Background of the Study

As the competition amongst organisations grows over time (Alsmadi et al., 2012), more and more effective tools and strategies are needed to get a competitive advantage. With effective lean management, it might be possible to achieve (Usmani et al., 2019). By removing waste from practices and limiting waste in the process, lean is seen as having the competitive advantage (Vijaya, 2015). Many organisations all across the world have recently shown interest in applying lean management techniques (Netland & Powell, 2017/2016). No organisation in the world has yet attained the same level of excellence as Toyota, where the idea of lean thinking was created, in spite of several successful instances (Liker & Convis, 2012). In fact, using tools and techniques for lean management to optimise operations has not been sufficient for long-term success, as demonstrated by scientific research and practice (Zanchi et al., 2021). Lean leadership and techniques must therefore be deliberately aligned with the organisation's strategic goals, values and vision for effective lean implementation to take place at all organisational levels (Aij & Rapsaniotis, 2017). However, the majority of organisations struggle to comprehend the lean concept as a management strategy that necessitates particular specialised leadership behaviours in addition to senior management commitment and participation (Emiliani et al., 2007). Successful lean implementation depends on a

progressive environment. As Mann in 2009 has shown, senior management's ability to support success in an environment accounts for 80% of lean implementation. Even though unsuccessful Lean initiatives are frequently attributed to lean design at lower levels of the organisation, this only serves to highlight the significance of managerial expertise and support. In reality, failing Lean initiatives are more frequently attributed to altered, weakened, or non-existent support from senior management. However, when improvement activities are designed to be a tool for personal growth by encouraging both leaders' and followers' learning mechanisms, meaningful outcomes will be achieved over the long run (Powell & Coughlan, 2020). The leadership role takes strategic importance in such an organisational change process (Zanchi et al., 2021). Researchers acknowledge that senior management commitment to "lean production" is essential, as well as that leadership may bring breakthroughs towards lean and its sustainability (Found & Harvey, 2006; Waters & Bevan, 2005; Fine et al., 2008; Wilderom et al., 2008). Therefore, an effort has been made to understand lean leadership and its related values, concepts, characteristics, abilities, and behaviours in order to increase knowledge. By offering a critical analysis, the study seeks to fill in any gaps in the body of knowledge about lean leadership. It will give a thorough review, point out areas of study where there is a lack of evidence, and help close those gaps. Also included are best practices, difficulties and insights for the successful use of lean leadership.

Research Question

The under mentioned research questions have been developed in order to define the objective and establish the direction of the study.

- What are the key characteristics and behaviours that effective lean leadership demonstrates?
- What are the values and principles contributing to emergence of lean leadership?

Objectives of the Study

In line with the research questions and finding necessary information, the study relies on the following objectives:

- To explore the lean leadership and its key principles and practices.
- To identify the key characteristics and behaviours that contribute to effective lean leadership.

Methodology

The study adopts a desk research design to collect and interpret the information. Desk research involves gathering and analysing information from publicly accessible sources that was obtained for another reason and is available for additional study (Hutton & Smorfitt, 2009; Saunders et al., 2019; Kumar, 2019/2018). It is the process of looking for existing information in the public domain. It is most frequently familiarised with secondary data analysis or literature reviews. In order to synthesise, summarise, or write up existing material, a literature review is a way to get an overview of the published materials on a particular issue (Guerin et al., 2018). The present study formulates two research questions and two associated research objectives. Based on the research question, relevant topics related to the study have been identified. In that case, explicitly "lean" and "lean leadership" key words are used to search the documents in various databases and online platforms. A significant number of research articles and book chapters are acquired and gathered using the aforementioned sources. However, only the relevant papers authored by well-known scholars with a significant number of citations are taken into consideration from the collected materials to use for the study. All of the information has been examined in light of the research's objectives in order to interpret and draw valid conclusions. In that situation, the research' patterns, themes and trends are examined. Finally, based on the analysis and discussion, conclusions and implications are made.

Literature Review

A literature review is a crucial part of the study, serving to support the goals of the research by providing background knowledge (Bruce, 1994). According to Arshed and Danson (2015), a literature review's objective is to inform researchers about the field and make them conscious of the literature before they apply a claim or argument. It is evident that lean leadership has gained paramount importance in the academic discourse. In the following section the study highlights the notable literature review on lean leadership.

Table 1: Notable Literature Review on Lean Leadership

Study	*Methodology*	*Focus*	*Contributions*	*Limitations*	*Authors & Years*
A Literature Review of Lean Leadership Attributes	Literature Review	Healthcare	It is one of the first attempts to do a literature review on lean leadership with the aim of analyzing the essential skills of leaders in the healthcare industry. Six lean leadership competencies are now included in the study: self-development, a continuous improvement culture, going to the Gemba, coaching employees, communication skills, and motivating skills.	Focused only on healthcare industry	Aij et al. (2015)
Lean leadership: an ethnographic study	Auto-ethnography	Healthcare	The study makes an effort to concentrate on leadership behaviours and added the qualitative dimensions of leadership, including moral convictions, respect for others, modesty, vision and interpersonal relationships. It is based on the writers' own first-hand encounters with a Dutch university hospital.	Specific to single study area	Aij et al. (2015)
Lean leadership attributes: A systematic review of the literature	Systematic review of the literature	Healthcare	Using the conceptual model of lean leadership presented by Dombrowski and Mielke (2013), a similar conceptual framework for lean leadership in the healthcare industry was created.	Specific industry focus	Aij and Teunissen (2017)
Leadership requirements for Lean versus servant leadership in health care: a systematic review of the literature	Systematic review of the literature	Healthcare	While the lean leadership and transformational leadership ideologies share many characteristics, they also diverge significantly in terms of their historical contexts, underlying assumptions, personality traits and methods. The study came to the conclusion that servant leadership might be a beneficial technique in health care organisations for inspiring and developing staff members to become effective Lean leaders. It did this by applying Russell and Stone's leadership paradigm.	Specific industry focus	Aij and Rapsaniotis (2017)
Lean Leadership Practices - A Literature Review	Literature Review	Not specified	A thorough and practical leadership model for organisations that are prepared to make the switch to a lean business system is urgently needed, according to the literature.	Requires further exploration	Ashtiani et al. (2017)
Lean Leadership as a Tool to Minimize the Impact of Uncertainty on Individual and Organizational Attitudes and Behaviour: A Meta-Analysis	Meta-Analysis	Not specified	The study, which focused specifically on lean behaviours, offered insights on optimal behaviours and leadership traits for lean leaders in times of economic upheaval.	Focused only quantitative studies	Kutbi (2018)

Study	Methodology	Focus	Contributions	Limitations	Authors & Years
Lean leadership behaviours in healthcare organizations: A systematic literature review	Systematic literature review	Healthcare	With the exception of the fact that relationships are given greater importance than tasks in the early stages of lean, most leadership behaviours in the healthcare sector are similar to those in the industrial sector. This study compares and contrasts the context-dependent behaviours of leaders at various lean maturity levels and hierarchical levels.	Evaluated operational and tactical leadership	de Almeida et al. (2018)
Leadership behaviours during lean healthcare implementation: a review and longitudinal study	Review and longitudinal study (Mixed method study)	Healthcare	The literature review identified a number of links between effective lean leader practices in healthcare and manufacturing, demonstrating the adaptability of these behaviours to institutions other than manufacturing.	Focused only on healthcare industry	Tortorella et al. (2020)
Lean leadership: a bibliometric analysis	Bibliometric analysis	Not specified	The manufacturing and supply chain sector, where issues like sustainability, agile manufacturing and digitalization are becoming more and more important, small and medium-sized businesses, where Lean concepts are frequently linked to Six Sigma ideas, the civil construction industry, where there is a pressing need for organizational and cultural change, and health organizations were among the significant thematic clusters identified by the study.	Data has been sourced from only one database	Santos et al. (2023)

Source: Author's compilation.

It is evident from a review of prior studies that the majority of studies have concentrated on the execution of lean principles within the healthcare industry, specifically with lean competencies. However, there is room for exploration in examining the larger concept of lean leadership and its implications for Human Resource Competencies. This critical review will attempt to address this gap by examining the characteristics, traits and values of lean leadership in relation to the leadership competencies. It aims to shed light on how lean leadership contributes to improved lean practices and organisational performance in lean implementation efforts across a range of industries by exploring this particular subject.

Discussion

Concept of Lean Leadership

Lean leadership, a key component of the Lean philosophy, focuses on inspiring and enabling teams to fully adopt Lean principles. Lean leadership is defined by Dombrowski and Mielke (2013) as a deliberate approach to the long-term deployment and ongoing enhancement of the lean manufacturing process. In another way, lean leadership is the style of leadership practiced at Toyota Motor Corporation (Liker & Convis, 2011/2012). Additionally, it can be viewed as a strategy for sustaining and enhancing worker performance in lean manufacturing processes (Alefari et al., 2017). It highlights the collaboration between staff members and leaders in their shared goal of excellence and further attempts to establish a continuous improvement culture where each employee is motivated, engaged and actively involved in the quest for excellence. Customer-focused processes are required on all occasions, and long-term leadership and staff development are both necessary. Further, a leader needs a strategy that combines the resources and people skills to effectively manage his followers (Holmemo et al., 2022). Lean leaders generate positive change, improve operational performance and create value for both the organisation and its customers by embracing the lean principles and empowering their team members. It serves as a bridge between the concept and the practical tools people use on a daily basis, such as 5S, Value stream mapping, A3 problem-solving and Toyota Kata continuous improvement (Shahriar et al., 2022). Lean leaders are facilitators who establish the plan, put together the team, help employees hone their skills, give the company a purpose and values and secure its continued existence (Aij & Rapsaniotis, 2017; Van Aartsengel & Kurtoglu, 2013). Implementing lean tools makes up just twenty percent of the work required for lean transformations and the remaining eighty percent of the effort goes towards influencing leaders' practices and behaviours, which in turn affects their thinking (Mann, 2009). In order to develop production, employees' attitudes and behaviours must be influenced by the lean leader (Halling & Renström, 2014). It is a well-known procedure that when a leader does something for their team, they will return the favour (Elvnäs, 2017). Lean leadership therefore concentrates on developing a culture of continuous improvement, waste reduction and employee empowerment inside an organization. It entails incorporating lean thinking principles into leadership techniques and promoting a culture of cooperation, education and problem-solving.

Characteristics of Lean Manager

Lean management, according to Aij and Rapsaniotis (2017), has specific traits including self-improvement, other people's development, humility, transparency, listening, responsibility, credibility, inspiration, modelling, personal work observation, engagement, improvement, creation of a vision, setting of goals, and removal of obstacles.

Characteristics of a Lean Leader

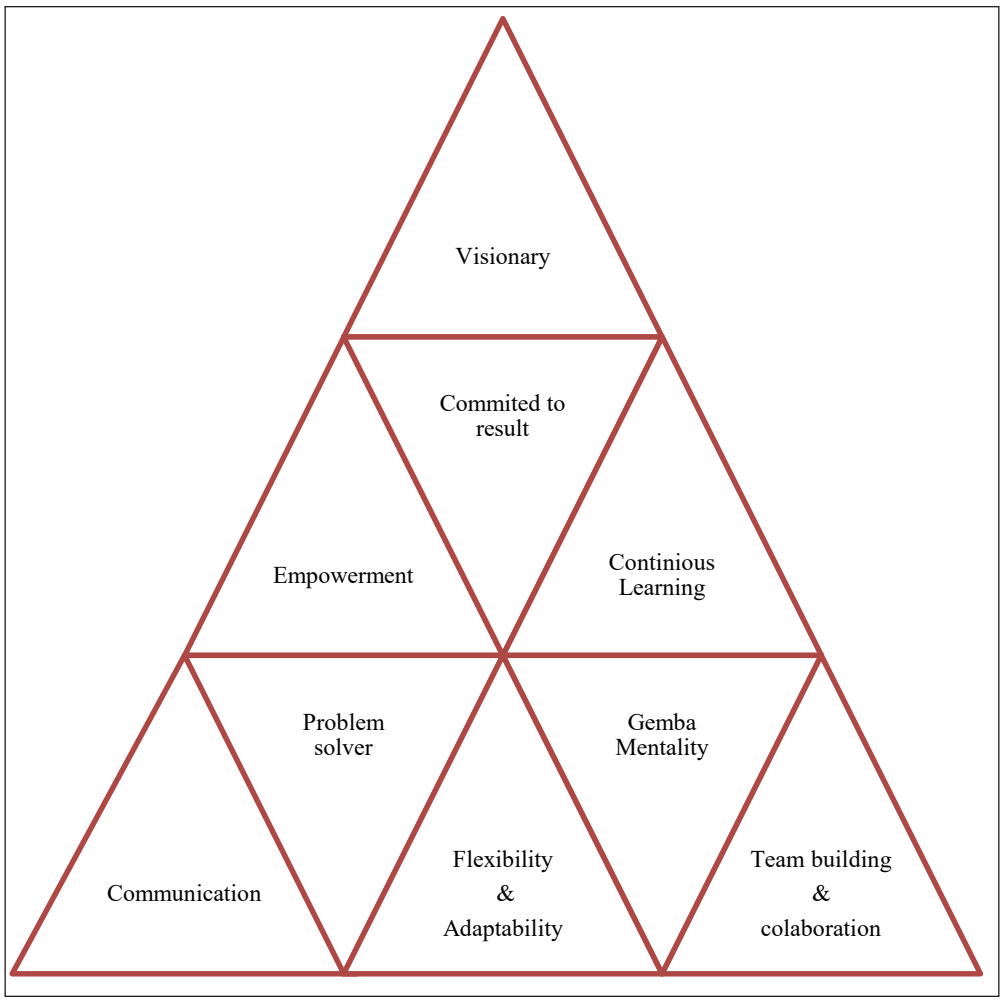
To promote successful lean leadership practices and to facilitate future study, Van Dun et al. (2017) identified five qualities to increase the effectiveness of lean middle management. The following are the qualities:

- Effective lean leaders like to uphold the virtues of self-transcendence and adaptability.
- They are less likely to espouse virtues of conservation and self-enhancement.
- They exhibit positive relationship-orientated behaviours such as active listening and agreement rather than counterproductive task or change-orientated behaviours like providing negative feedback or defending their positions.
- Exhibit more relationally focused behaviours than middle managers who are not lean.

- Positive, relationship-focused behaviours are more likely to be displayed by people who value self-transcendence and are adaptable.

Attributes of Lean Leadership

Renowned authors, scholars and researchers around the world contribute to portraying the image of lean leadership. While all types of leadership have some commonalities and perform a variety of tasks, lean leadership stands out for having a number of unique qualities that make it more significant than other types of leadership. A lean leader has a clear vision, strong communication, inspires continuous improvement, empowers teams, fosters a culture of learning, excels in problem-solving, adapts to change, engages in Gemba, results-oriented, sets goals, holds himself accountable and celebrates achievements while driving further improvements. (Liker, 2004; Mann, 2010; Eddy et al., 2015; Womack, 2011; Womack & Jones, 1997; Ballé & Ballé, 2011; Bercaw, 2013; Plenert, 2011; George et al., 2004; Ries, 2011; Brenig-Jones & Dowdall, 2018; Bicheno & Holweg, 2008; Stoller, 2015). These attributes collectively enable lean leaders to cultivate a culture of ongoing development, drive change and achieve sustainable results.

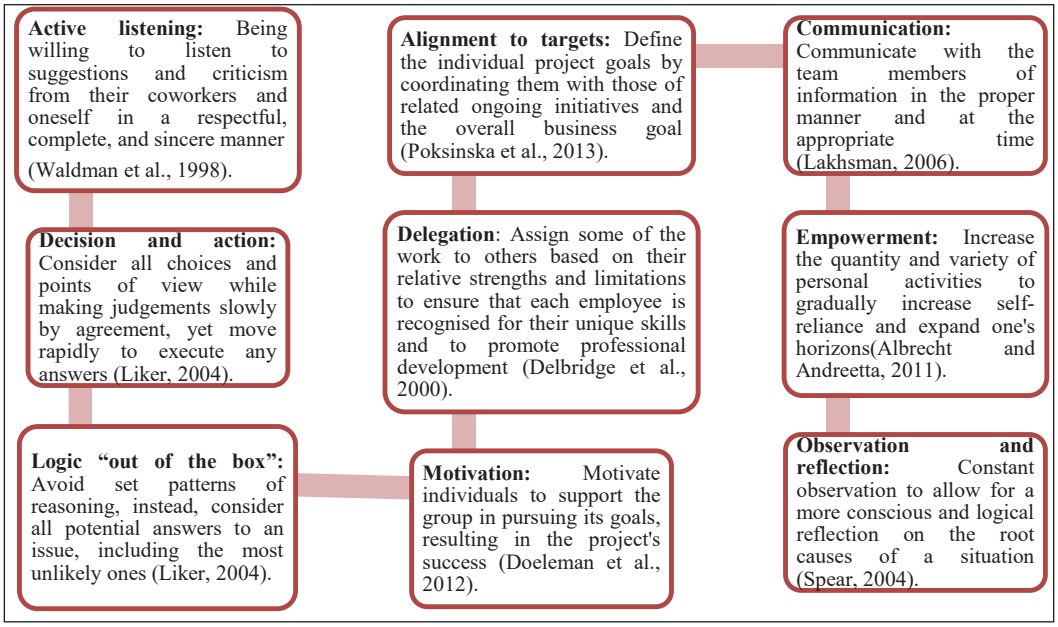


Source: Authors' Own elaboration.

Fig. 1: Lean Leadership Attributes

Skills of a Lean Leader

Being an effective team leader requires distinctive skills (Zanchi et al., 2021).

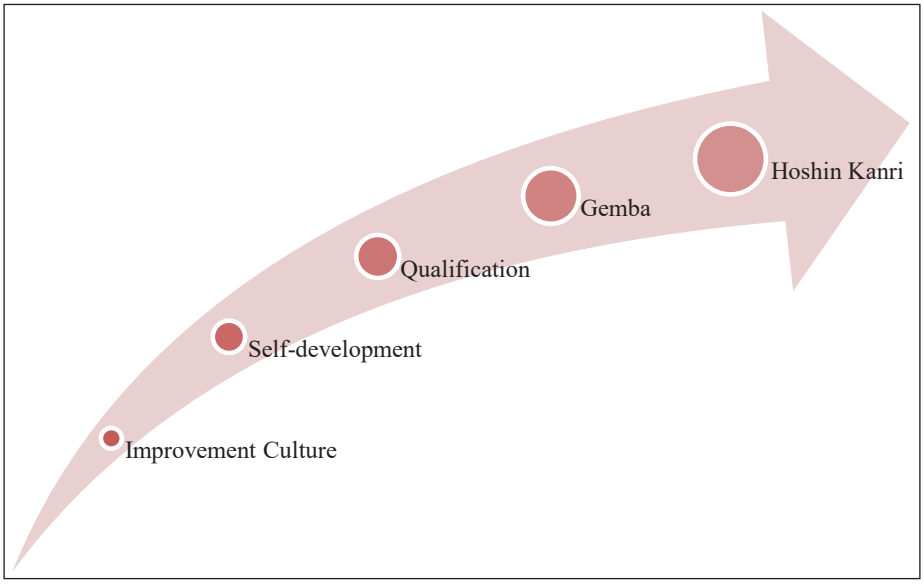


Source: Author's compilation.

Fig. 2: Skills of a Lean Leader

Principles of Lean Leadership

Lean principles serve as the leader's "blue book," directing them to keep everyone on board and achieve desired results. Organisational leaders apply lean principles to enhance workflow, lower costs and improve quality for any improvement areas in the value stream procedure, the organisation, or anything else that has a negative impact on company costs (Wackerbarth et al., 2015; Jadhav et al., 2014). Dombrowski and Mielke (2013) proposed a framework for Lean leadership that includes five core values: "improvement culture, self-development, staff qualification, Gemba, and Hoshin Kanri". The framework is comparable to the Likert and Convis (2012) leadership framework, which contains four phases and is seen by them as being the most crucial to the leadership of Toyota. In order to execute lean successfully and sustainably, the principles have been highlighted as being crucial.



Source: Autor's compilation based on Dombrowski & Mielke, 2013.

Fig. 3: Lean Leadership Principles

Improvement Culture

An organisational mind-set that continually looks for better ways to accomplish things is represented by an improvement culture. It promotes an atmosphere where adaptation, innovation and continual learning are valued, resulting in positive change and progress across the entire organisation. Lean culture aspires to excellence and believes that failure presents an opportunity to grow (Dombrowski & Mielke, 2013). It includes all attitudes and actions that foster a constant quest for excellence. Lean leaders should use the following four components in the process of improving the culture: "task identity, feedback, autonomy, belief in improvement, and honesty" (Caldwell, 2014). Giving positive feedback is one approach for transforming culture because it will be perceived as the proper course of action and assimilated into the group's identity (Schein & Scheiner, 2017). Additionally, shop floor employees likely know the most about a process's flaws and failures, according to Dombrowski and Mielke (2013), but they require management support to continue improvement efforts across all levels and processes. Lean leaders, therefore, need to adopt the employee's concepts and assist in putting them into practice. According to Schein and Scheiner's (2017) opinions, applying thoughts may be seen as a positive evaluation of proposals for advancement, which could impact the culture of the group. Leaders can smoothly execute lean and consequently foster an improvement culture if they have access to sufficient independence, information, assistance, resources and opportunities for professional growth (Goodridge et al., 2015).

Self-Development

In the context of Lean principles, self-development becomes an essential aspect of continuous improvement. Lean empowers people to take charge of their own development, promoting a culture of learning and skill development to support organisational excellence. The need for new leadership skills and the need for lean leaders serving as role models are two basic principles for self-improvement (Dombrowski & Mielke, 2013). The following characteristics are linked to self-development: demonstrating curiosity, making resources available, emotional intelligence, visualising greatness, being conscious of position and enhancing capabilities (Marinelli-Poole et al., 2011). However, Trenkner (2016) claims that a lean leader's obligation is to ensure the personal growth required to maintain their leadership abilities. Additionally, Liker and Meier (2006) noted that before being elevated to a higher position at Toyota, a large number of leaders started their professional lives on the shop floor. As a result, promotions typically take a long time, giving employees a chance to learn a lot about the company. They claim that Toyota does not consider a manager's role to be limited to carrying out tasks and having outstanding interpersonal skills. This is supported by Trenkner (2016), who claims that Toyota likes humble, responsible team players and open-minded individuals and does not look for charm in its leaders. Effective leaders who consistently display their abilities at work are highly valued. In accordance with Goodridge and colleagues (2015), lean leaders are expected to lead by example. According to Mann (2010), learning Lean through Gemba walks necessitates patience and the ability to deal with frustration because the process takes time.

Qualification

A qualification in lean principles gives individuals the information and skills they need to successfully execute lean approaches. They can use it to find inefficiencies, cut waste and take control of lean transformations for better organisational performance. According to Dombrowski and Mielke (2013), long-term employee development and ongoing learning are two essential principles for an employee's capacity to coach and develop others. This principle deals with how a leader's subordinate develops. The most critical component of a firm, from a Lean perspective, is improving people (Wittenberg, 1994). A lean leader's job is to motivate and encourage their team members to grow (Trenkner, 2016). The process of coaching others is crucial for a Lean leader since people must also be continuously developed in order for processes to be continuously improved (Dombrowski & Mielke, 2013; Goodridge et al., 2015). According to Liker and Convis (2012) and Liker and Hoseus (2008), it is the shop-floor employees who carry out the value-

adding job, and leaders should support them. The most effective leaders are those who value, encourage and thrive on helping others gain more independence and develop within their roles (Byrne & Womack, 2013; Elvnäs, 2017). Further, Liker and Ballé (2013) stated that work standards, reporting anomalies, taking part in group problem-solving projects and making suggestions as well as putting them into practice themselves are the four things that lean leaders need to coach their followers. Employees who are qualified are more equipped to take part in continuous improvement, problem resolution and other lean initiatives. To help build regular routines and create a sustainable environment for continual progress, a coach should lead this process.

Gemba

In Lean principles, Gemba refers to the practice of going to the actual workplace to observe and understand processes and problems first-hand. Gemba helps organisations gather insightful information, encourage employee involvement and make decisions that will lead to continuous development. Gemba is a Japanese word that literally translates to "real place" and is used to describe the context in which value-added procedures are carried out (Liebengood et al., 2013). The term "Gemba" relates to the idea that lean leaders must be aware of what goes on in the trenches and comprehend the issues and procedures that affect their staff. The fourth principle of Dombrowski and Mielke's lean leadership framework is that a leader must go where value originates. Managing the shop floor and making decisions based on expertise are two essential values for Gemba (Dombrowski & Mielke, 2013). Further, according to Byrne and Womack (2013), a Lean leader ought to promote the crucial processes through regular key performance indicator (KPI) assessments and daily Gemba walks. Coworkers are more likely to trust leaders who are knowledgeable about their work practices and realities, and it is also simpler for them to make decisions for the organisation (Elvnäs, 2017). The culture is influenced by leaders' presence on the shop floor (Kaplan et al., 2014), and it also communicates to employees that their tasks come first in the leader's schedule (Goodridge et al., 2015). A lean leader should base their decisions accordingly on information that has been personally verified at the worksite (Trenkner, 2016). As stated by Dombrowski and Mielke (2013), lean leaders should routinely visit the shop floor to fully comprehend the processes and formulate sound judgements. The easiest ways to motivate someone, according to Elvnäs (2017), is to pay attention on a regular basis, follow up, and evaluate the work that has been done. Every day, time should be allocated up to go to the Gemba, where a leader can acknowledge an employee's efforts and respond to enquiries (Aij & Teunissen, 2017). Lean leaders conform the five "golden gemba rules" when a challenge emerges: "go to the gemba; check; take emergency actions: identify the root cause and standardise" (Dombrowski & Mielke, 2013).

Hoshin Kanri

Hoshin Kanri is a strategic planning process that connects organisational goals with doable activities. It is a crucial part of the Lean principles. As a result, all organisational levels are empowered to contribute to realising a shared vision of success and continuous enhancement. It is a management approach that integrates objectives and strategies into daily activities, aligns plans and objectives across all levels and functions, and monitors development to promote learning. The relationships between the mission, strategies, objectives and goals serve as the Hoshin Kanri system's cornerstone (Grant, 2021). The theories and practices of comprehensive quality management and lean manufacturing are its foundations (Nicholas, 2016). By uniting all teams to work together towards a common strategic goal, it uses a systematic approach to improvement. Despite the fact that each team's immediate objective is different, they all cooperate to achieve the same long-term goal. Lean leaders formulate enduring objectives and strategies.

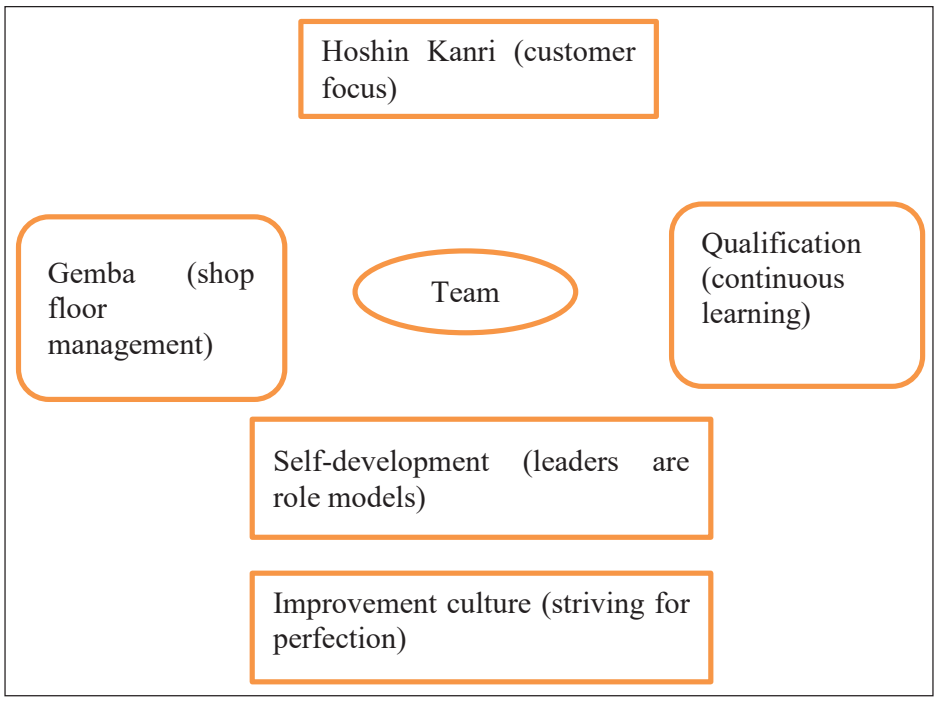
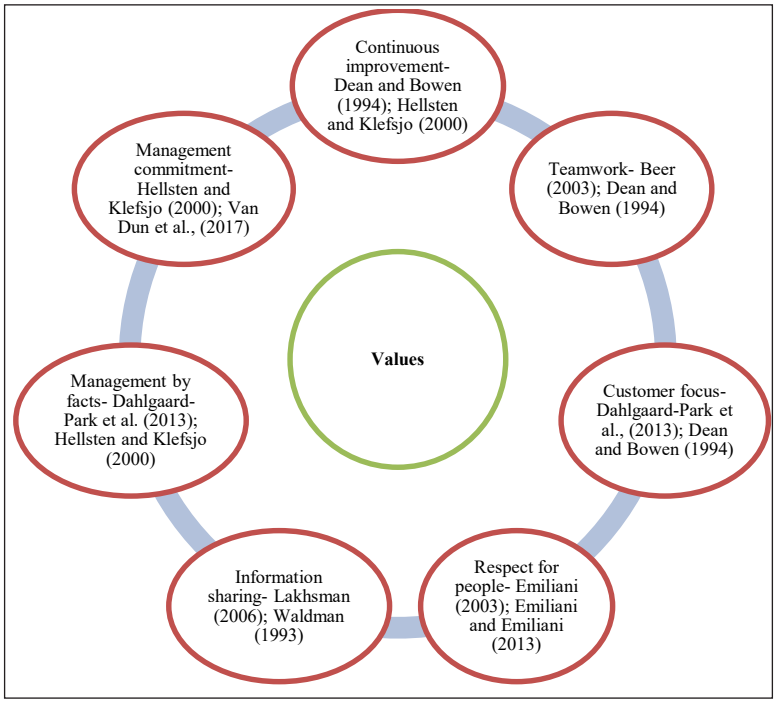


Fig. 4: Lean Leadership Model of Dombrowski and Mielke (2013)

Behaviours and Values of a Lean Leader

The behaviours and values of a lean leader are not just a set of guidelines or principles; they form the bedrock of a transformative leadership approach. The distinctive mentality, behaviours and values that lean leader's exhibit motivate their employees to embrace continuous improvement and bring about long-lasting transformation. Lean leaders inspire organisational excellence, encourage innovation and ultimately deliver extraordinary value to consumers by establishing a culture of respect, empowerment and cooperation. The following discussion will examine the essential traits and principles of a lean leader and how they influence the success of lean efforts. Szabo et al. (2001) defined Leader "behaviours" are explicit, discernible verbal and nonverbal interactions between supervisors and their subordinates within an organisational context. Lean leadership attributes serve as a roadmap for lean leaders, enabling them to modify their actions to have the desired consequences on their workforce and business operations (Aij & Teunissen, 2017). They further stressed that it demands a comprehensive transformation in management style and organisational culture, necessitating that leaders acquire new abilities, attitudes and behaviours (Aij & Rapsaniotis, 2017). Numerous qualities were found to be necessary for a leader to successfully lead an organisation on its lean path. The need for strong leadership in lean transformations is emphasised in numerous research studies. The importance of leaders in directing organisational transformation in the direction of lean principles was emphasised by Mann (2009). Highly capable employees frequently receive promotions to leadership positions, according to Liker and Convis (2012). Using several case studies, Waldman et al. (1998) found characteristics of good lean leaders, such as a commitment to teamwork, continuous improvement, a customer-centred approach and high standards for both the products and the processes. Participative, delegating and motivating leadership styles, according to Pamfilie et al. (2012), are advantageous in lean organisations. Van Dun et al. (2017) noted activities that lean leaders involve staff in, celebrate successes with them, coach teams, share information about and do on-site visits to the production floor. In terms of their work and relationship orientation, Tortorella et al. (2018) examined the behaviours of lean leaders. Task-orientated behaviours emphasise high resource, employee, process and goods/service quality efficiencies, whereas relationship focused behaviours support the wellbeing of employees and progressive work atmospheres (Yukl et al., 2002). Effective lean leaders can demonstrate people-orientated behaviours, such as intense

listening and supporting employees' ideas, by upholding self-transcendent work principles like trustworthiness, sincerity, involvement and collaboration (Van Dun & Wilderom, 2016). Successful Lean leaders have been described as having attributes including being empowered, credibility, humility, transparency and respect for others (Clark et al., 2013). According to Mike Denison (1999), a specialist in the Toyota Production System, contributed nine lean leadership behaviours as mentioned by (Orr, 2005): "teaches and engages workgroups; respect for people; process focused; offers support and recognition; sets an example; implements policy and objectives; committed to standards; long-term vision and principles; and supports the change process."



Source: Author's compilation.

Fig. 5: Lean Leadership Values

Lean leadership Behaviours

A relentless pursuit of continuous improvement and a strong respect for people define lean leadership behaviours. Lean leaders encourage a culture of cooperation, innovation and responsibility by actively engaging with their teams and setting an example for others to follow. They demonstrate the Gemba mentality by visiting the actual workplace to better understand the difficulties and potential for development. They encourage their staff to take initiative, try new things and learn from mistakes by adopting a data-driven and problem-solving approach. Lean leadership practices foster a healthy and fruitful work atmosphere that promotes productivity, creativity and long-term growth. The previous studies reveal the following behaviours of lean leaders.

Table 2: Different Lean Leadership Behaviour

Behaviour	*Contributed By*	*Behaviour*	*Contributed By*
Organising and managing	Mann (2009); Nwabueze (2011)	Engaging employees	Lakhsman (2006); Larsson and Vinberg (2010)
Self-improvement commitment	Emiliani (1998); Liker and Convis (2012)	Celebrating and recognizing success	Harvey (2006)
Objectives and vision development	Laohavichien et al. (2011); Oakland (2011)	Designing and coaching teams	Lakhsman (2006); Liker and Convis (2012)

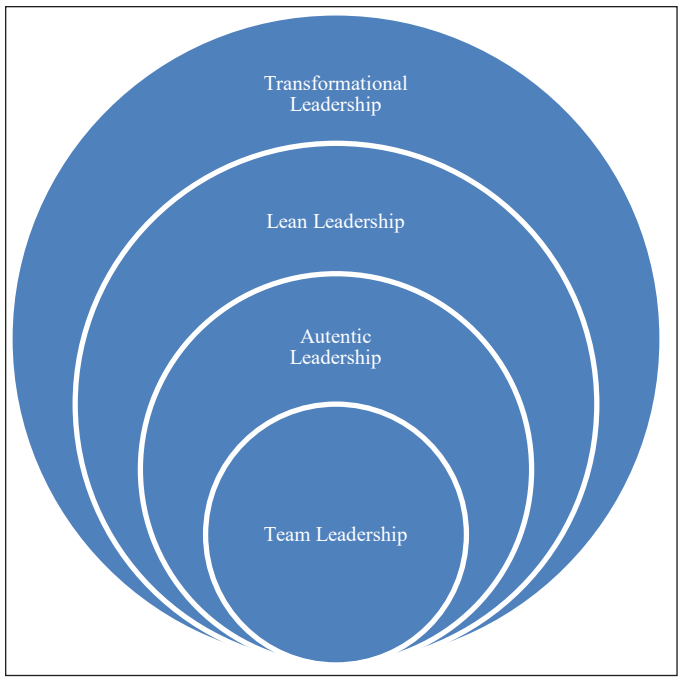
Behaviour	Contributed By	Behaviour	Contributed By
Intellectual stimulation	Doeleman et al. (2012); Laohavichien et al. (2011)	Getting and giving information	Larsson and Vinberg (2010); Poksinska et al. (2013)
Listening to employees	Emiliani (1998); Nwabueze (2011)	Visiting the work floor	Emiliani (2003); Larsson and Vinberg (2010)
Long-term orientation	Emiliani (1998); Nwabueze (2011)	Building trust	Emiliani (1998); Sosik and Dionne (1997)
Indicatively use lean	Emiliani (1998); Mann (2009)	Supporting daily continuous improvement	Liker and Convis (2012); Waldman et al. (1998); Sosik and Dionne (1997); Waldman (1993)
Creating concise strategies	Oakland (2011); Larsson and Vinberg (2010)	Experimenting	Lakhsman (2006); Waldman (1993)
Individual consideration	Waldman (1993); Doeleman et al. (2012)	Monitoring and evaluating	Harvey (2006)

Source: Author's compilation.

Nevertheless, further research is still needed to better understand the specific ideal leadership behaviours throughout the different lean implementation phases (Camuffo & Gerli, 2018).

Theoretical Comprehension

The importance of leadership has been emphasised extensively in the field of quality management (Laureani & Antony, 2017). Despite this, there has not been much research on the qualities or leadership styles that are employed to execute lean. It is more centred on team leadership, which required authentic leaders in senior management (Ashtiani et al., 2017). Nevertheless, Poksinska et al. (2013) note, that a variety of leadership behaviours exhibited by lean managers might be regarded as a transformative leadership style. As change agents, transformational leaders create, communicate and demonstrate a vision for their team or organisation while motivating employees to share that goal (Burns, 1978). Thus, transformational leadership and lean leadership philosophies have converged (Santos et al., 2023). The idea of transformative leadership proposes four principles for advancement in leadership, including two linked to the use of counselling and creative stimulation in coaching and learning (Bijl et al., 2019; Holmemo et al., 2022). Additionally, Kutbi (2018) a lean leader must have a Tayloristic tendency with a transformative leadership style. Lean literature emphasises the transformational viewpoint, which states that leaders should create and advance a vision and act as change agents to adopt Lean practices throughout the business (Yukl, 2006; Oon et al., 2021). According to Hunter et al. (2007), a leader's actions have a substantial influence on followers, influencing how they perceive the world and behave. Alternatively, followers look for consistent leadership that has an impact on them personally (Oon et al., 2021). The sale of a strategic vision for change is best accomplished through transformational leadership, and the Lean leader needs to adopt a system thinking mindset for this to be fully representative of the needs of the organisation (Vera & Crossan, 2004). Therefore, lean management and transformational leadership frequently complement one another by emphasising a visionary approach and coaching to support learning and change. Lean leaders are viewed as transformational change agents who communicate and advance a vision for Lean practices across the organisation. The effective implementation of strategic visions for organisational change is made possible by the integration of transformational leadership principles into lean management.



Source: Author's compilation.

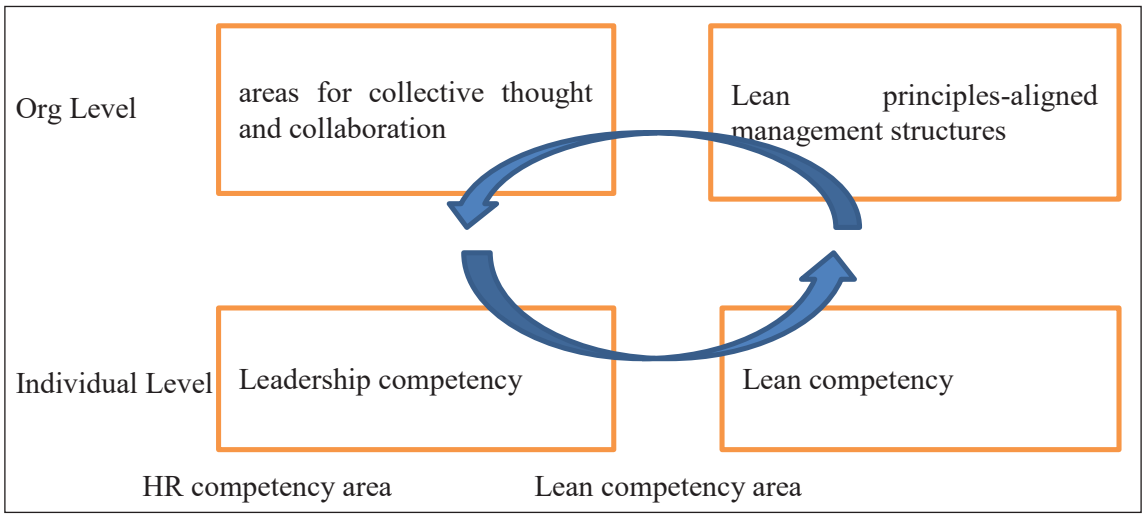
Fig. 6: Theoretical Comprehension

Developing Lean Leadership

For organisations looking to prosper in a competitive and dynamic business environment, developing lean leadership is an essential task. Continuous improvement, waste reduction and a customer-centric mind-set are all aspects of lean leadership. Organisations may develop skilled Lean leaders who drive organisational change and long-term success by building a culture of learning, empowerment and adaptation. An increasing amount of research demonstrates that systemic modification and competent leadership are indispensable to catalyse and withstand the transformation in a lean development project (Aij & Teunissen, 2017). Therefore, even though this may be where most businesses begin, simply installing "lean tools" is insufficient. The creation of lean leaders thus looks to be a constant daily effort, a stable employment and development trajectory within the executive hierarchy (Ingvaldsen & Benders, 2016). But as noted by Holmemo and colleagues (2018), organisations in the West are not constructed as Toyota and therefore cannot imitate Toyota's attainment by adopting their methods. Despite the possibility that hierarchy-based coaching is a typically successful tactic (Rother, 2009), According to Gilpin Jackson and David Bushe (2007), internal or external leadership development programs will likely be the main source of training for Western organisations. Furthermore, organisations must move through three maturity stages of tool-based, system-based and cultural change in Lean growth, where managerial and leadership participation and action are crucial (Hines et al., 2018). Additionally, an action research project that incorporated best practices for knowledge transfer showed that front-line managers may engage staff in ongoing improvement projects by using lean concepts (Sisson, 2019). The lean literature goes beyond Toyota's recommended pursuit of a comprehensive and holistic method of leadership that encompassed both "hard" tools and quantifiable benefit cost and speed as well as "soft" practices and traits like commitment and quality of life (Danese et al., 2018). Lean should encourage modest, relation-orientated, exploratory and development-focused leaders: therefore, managers' attitudes, behaviours and competences should be in line (Emiliani, 2003). It appears that everyone agrees that practicing lean leadership benefits from guiding, assisting, being noticeable and present, being clear and consistent and being visible and attentive (Laureani & Antony, 2017). Furthermore, van Dun et al. (2017) asserted that effective operational leaders require advanced interactive abilities, including intense listening and motivating improvement. However, Tortorella et al. (2018) discovered that task-focused is crucial for successfully running lean organisations.

Additionally, Liker and Convis (2012) outlined four recommendations for leadership that are lean in the Toyota way: (1) become self-aware of specific lean principles, and (2) mentor and develop others, (3) Encourage everyday improvement; (4) develop a vision and set objectives. Womack (2008) stated that every organisation needs to address the 3Ps. "purpose, processes, and people" in a contemporary lecture on lean leadership. He thinks that the reasons why most organisations struggle are that the purpose, the processes and the people are not totally engaged. He believes that the managers and leaders of lean organisations are accountable for these. It is well known that lean transformations need increased leadership capability (Netland et al., 2019). However, Holmemo et al. (2022) discovered that the organisation's current organisational culture, structures and procedures work against the managers' implementation of new leadership competencies. As a result, the research also

recommended that businesses adopt a comprehensive, multifaceted strategy for cultivating lean leadership. As a result, Holmemo et al. (2022) suggested a cohesive model for creating lean leadership in which organisations operate along two magnitudes. First, along a competency dimension, lean training ought to be connected to general leadership training. Second, on an organisational level, efforts to remove structural and cultural impediments should be combined with spaces for group reflection and alignment for individual development.

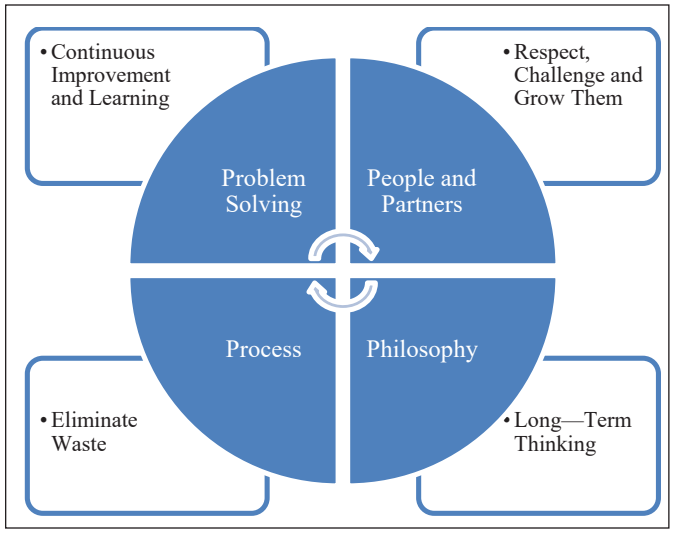


Source: Holmemo et al., 2022.

Fig. 7: Developing Corporate Lean Leadership

The 4P's

Lean principles are built on the 4P models, also referred to as the Toyota 4P model. They cover philosophy, process, people and problem-solving, emphasising a comprehensive strategy for organisational excellence through waste reduction and ongoing development.



Source: Liker, 2004.

Fig. 8: 4P Model

It should be noted that lean leadership places a strong emphasis on collaboration between staff members and leaders in order to achieve excellence (Trenkner, 2016). Lean leadership is also concerned with all four Ps and offers strategies for the permanent execution and constant development of the Lean Production System. Therefore, leaders must learn a particular set of skills and competences in order to practice lean leadership. Organisations should engage in leadership development initiatives that emphasise teamwork, communication and problem-solving techniques. Lean efforts can be sustained, and an organisational culture of continuous improvement can be established by building a pipeline of lean leaders.

Pre-Requisite of Lean Leadership

Lean leadership may be applied to any type of organisation, but the degree to which it is successful depends on the organisation. For manufacturing organisations to successfully integrate lean principles and add value to their organisations, a transformation process is necessary (Amer & Shaw, 2014). This transformation process contains leadership paradoxes. However, behaviours

of lean leaders can be applied in settings outside of manufacturing. Therefore, leaders must exhibit a set of relationship- and task-orientated behaviours in order to adopt lean (Tortorella et al., 2020). Engagement of the leadership and the development of an organisational lean culture are related (Vlahos, 2022). Additionally, there has been a successful correlation between lean adoption and leadership empowerment (VanAssen, 2018). During the lean transformation, leadership styles can affect how well employees perform (Alefari et al., 2020). In addition, effective leadership fosters collaboration with subordinates, employee empowerment and promotion, leadership support and a culture of continuous learning (Aij et al., 2015; 2013). These are the essential leadership traits that contribute to the success of lean. Additionally, the research identified two leadership behaviours—directing and communicative—as factors in the success of lean (Gelei et al., 2015). Combining aspects of transformational leadership, lean leadership inspires and motivates workers towards a common goal. By increasing accountability and engagement, it gives employees more authority over decision-making. Agile leadership promotes a continuous improvement culture by reducing waste, fostering creativity and assisting with skill development. Aligning plans, rules and procedures inside an organisation with basic principles is crucial. The need for data-driven decision making is emphasised, where leaders create useful metrics to monitor progress and make wise choices based on reliable information. As a result, it is essential to seek out a positive organisational culture, effective management support and a continuous learning environment in order to encourage and have an impact over the development of lean leadership.

Conclusion and Implications

Lean leadership is not a recent development; rather, it has become essential for effective organisational performance. By creating a strategy, incorporating everyone on the board, and moving in the same direction, it considers the best use of organisational resources. According to the study, lean leadership develops its own suitability regardless of the type of organisation, but it requires organisational preparedness to accept it. Lean leadership has several qualities, values, traits, behaviours and concepts with other leadership philosophies. Both the lean manufacturing competencies and the leader's personal competencies are included in the qualities. The concept is heavily influenced by transformational leadership theories that emphasise top-down approaches and effective communication of vision, values and principles. Therefore, in order to inspire followers to carry out the organisational goal and achieve targeted performance, lean leadership requires an honest and sincere exhibition of the leader's personal qualities. It is obvious that lean leaders need to encourage behaviour that is both task- and relationship-focused, which calls for the application of organisational values and leadership concepts. Since it is a leader-follower journey towards personal and organisational success, the leader must have a specific set of talents, abilities, values and behaviours that can set them apart from the competition. The leader must also create an environment that fosters improvement, offer a learning environment, coach and motivate personnel and more to ensure that the followers are ready. In order to support the lean leadership journey, followers must likewise be motivated to keep learning and growing.

Implications

According to the study, more research is required to examine particular facets of lean leadership, such as its effects on employee engagement, the contribution of leadership approaches in the adoption of lean, and its effects on organisational culture. For researchers to effectively capture the long-term effects of lean leadership, they must use rigorous methodology, such as strong study designs and reliable measuring tools. They also must include longitudinal studies. Additionally, comparing organisations or industries with varying degrees of lean leadership implementation would offer insightful information about contextual considerations and best practices, supporting organisations in tailoring lean concepts to their particular situations.

In an industrial setting, leadership development programs should put an emphasis on giving leaders the skills they need to effectively drive lean initiatives, promote a culture of continuous improvement and provide employees with more autonomy. These courses ought to cover change management, problem-solving techniques and lean principles. Lean thinking should be incorporated into organisations' processes, systems and structures to remove obstacles to change and support the continuous

improvement culture. Employee empowerment and engagement in lean efforts is essential since it promotes their participation in problem-solving and values their contributions to ongoing improvement. In order to foster cross-functional collaboration, communicate lessons learnt and use collective learning for driving lean efforts, collaboration and knowledge sharing inside organisations should be encouraged.

By taking into account these implications, both academics and professionals in the business world may increase our understanding of lean leadership and help it be successfully implemented, enhancing organisational performance, employee satisfaction and consumer value.

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