

Exploring Lean HRM Practices in the Aerospace Industry

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Lean management is an approach that allows companies to reduce costs and improve quality to achieve significant growth. As such, myriad organizations across many different sectors are deploying resources and effort to implement Lean management principles. However, the adoption of Lean within a company is not straightforward because it is not just a set of tools to be used, but rather a process that requires the active participation and commitment of all the members of the organization, with special emphasis on the employees, as they are the ones doing the actual implementation work. Lean places people at its core, acknowledging their contribution to the company's growth and the fundamental role human resources management (HRM) practices play in the success and sustainability of Lean transformations. However, the relationship between HRM practices and Lean remains largely unexplored in the literature.

Keywords: lean management ; sustainability ; human resource management practices ; continuous improvement ; employee commitment ; aerospace industry

1. Introduction

Although the interest in Lean is ever-increasing across all industries, and the academic and practitioner literature on its implementation is widely available, it is well known that a considerable number of organizations face serious struggles in their quests to successfully incorporate Lean principles. Scholars reported a very poor success rate of Lean implementation (at most 10%), with most companies eventually failing in their attempts and subsequently reverting to more traditional management approaches ^{[1][2]}. Studies investigating this low rate of success indicated that the common root cause of failure is, among other factors, related to the lack of employee commitment ^{[3][4][5]}, which is considered a determinant factor and one of the most challenging to address. It is, therefore, crucial to focus on human resources (HR) and dedicate even more attention to human resource management (HRM) practices that can boost employees' motivation, and thus their commitment to the continuous improvement process, by which an organization can sustainably and progressively improve their products, services, or processes ^[6].

Employee commitment is critically important in the context of Lean because committed employees support organizational change, identify with the organization's culture and values, and defend organizational goals ^{[7][8]}. More importantly, research has shown that committed employees contribute significantly to the success and sustainability of Lean (e.g., ^{[9][10]}), and consequently HRM practices can play a fundamental role in achieving and maintaining employee commitment. In fact, establishing HRM practices that are strategically focused on employee commitment is likely to increase the level of involvement of employees in the Lean project ^{[11][12]}.

2. Lean Culture

Lean management is Toyota Motor Corporation's managerial system, which many companies have been trying to replicate for more than three decades ^[13], as it provides several effective tools and practices for achieving business excellence ^[14]. Its main objective is to eliminate all non-value-added activities without compromising quality or delivery times ^{[15][16]}.

Lean culture is an organizational culture referring to a set of shared beliefs, values, and assumptions based on eliminating waste and fostering continuous improvement ^[17]. The introduction of Lean culture implies a new way of thinking and doing things so that all personnel must focus on making constant improvement efforts to enhance organizational performance. All members of the company, including employees, managers, and leaders, must be involved and support each other to achieve this objective. There should be no rivalry since all members work for a common goal ^[18]. Managers and employees should work as a team by exploiting each other's strengths. Moreover, Oláh et al. ^[18] argued that it is imperative in a Lean context to guide and develop employees to make them more productive and engaged.

Through using Lean principles and tools on a day-to-day basis, companies can gradually change the mindset of their workers to focus on daily improvements. Among the widely used Lean tools, the researchers find the 5S tool (sort, stabilize, shine, standardize, sustain), which is a series of activities for eliminating wastes that contribute to errors, defects, and injuries in the workplace, while enabling employees to continually improve the workplace [19][20][21]. Plan-Do-Check-Act (PDCA) is another tool used to operationalize continuous improvement. It is a four-step cyclical process that can be synthesized as follows: Plan (study the current situation and develop solutions for improvement), Do (deploy the pilot measures on a trial basis), Check (examine the effect of changes to verify if the desired result is achieved), and Action (standardize on a permanent basis) [19][20][22]. With regard to Lean principles and to the respect for people particularly, all employees are respected, irrespective of their role and position within the organization, and are encouraged to contribute ideas to improve productivity, efficiency, and safety in their daily tasks [23][24]. Therefore, with the integration of these tools and principles, a Lean culture can progressively emerge within the company and become a sustained habit. Nevertheless, in addition to the continuous improvement process, a successful Lean culture also requires an emphasis on respect for people, HRM, a long-term vision, a certain level of patience, a shared vision of organizational goals, and a well-thought-out upfront planning [25][26][27]. These elements must be taken into consideration before and during the environment's transformation to anticipate any possible issues that may arise in the Lean implementation.

Overall, a successful Lean culture refers to a work environment that is attentive and responsive to both technical and social components [28]. The technical dimension comprises tools, equipment, and processes, whereas the social dimension encompasses people and their interrelationships [29]. In this work environment: (1) all workers are encouraged to participate in improvement projects and undergo training to understand Lean methods, and (2) leaders adopt a participative style to promote open and proactive attitudes from all staff [30].

3. The Human Aspect of Lean

A Lean company is an organization that recognizes people as its most valuable resource because of their unique and irreplaceable contribution in creating value [31][32]. In fact, the aspect that distinguishes Toyota from other organizations is its unique production system, which integrates people with its technical system [33]. However, the academic literature has devoted most of its attention to the adoption of Lean tools while largely overlooking the social dimension [34][35][36]. Only recently have some researchers started to recognize the important contribution of the human aspect, including the role of employees and the way they influence the adoption of Lean [37]. This has led to perceiving Lean as a sociotechnical system, that is, not only a process-oriented strategy but also a people-based system [37].

An appropriate environment that can support the Lean journey requires the commitment and active participation of employees [38]. In this research, employee commitment refers to the affective dimension of organizational commitment, and is defined as the employee's emotional attachment to, identification with, and involvement in the organization [39]. Angelis et al. [9] found that among the different forms of commitment (i.e., affective, continuous, and normative), affective commitment is the only one related to Lean. This is because affectively committed employees are willing to be part of the organization in such a way that they adhere to its management system and support change and organizational goals [39][40][41].

Several authors argued that genuine continuous improvement can only be achieved through employee commitment since employees are the ones responsible for this improvement, its establishment, and sustainability [30][31][42]. To achieve such commitment, employees must understand the company's goals and the objective of Lean improvements, have been trained in the requisite tools and techniques, and have some decision-making latitude to be motivated to continually pursue improvement efforts [43]. Leaders need to accompany workers in the transformation by providing them with the necessary resources and fostering their sense of belonging to the company. If employees feel unsupported, they will revert to their old work habits, leading to an eventual failure of the improvement process [43]. Leaders who create supportive structures, provide constructive feedback, allocate time, and treat workers fairly might catalyze the change and achieve better implementation [44].

4. HRM Practices in the Lean Context

Given that HR are a source of competitive advantage, HRM practices play a key part in a company's transformation. When changes in business function are not accompanied by changes in HRM practices, transition to Lean is likely to fail [45]. There is a wide spectrum of HRM practices that can get employees to support organizational goals. However, not all HRM practices are related to Lean. Bonavia and Marin-Garcia [46] highlighted the practices of training and job security. Forza [47] reported training, recruitment, compensation, and promotion. Olivella et al. [48] synthesized a set of common work organization practices in Lean companies, namely: continuous training and learning, teamwork, participation and

empowerment, and compensation and rewards. Martínez-Jurado et al. [49] also proposed some key management factors for the adoption of Lean: training, communication, rewards, job design, and work organization.

Although there is no consensus on which HRM practices should be adopted in the context of Lean, training and employee participation appear to be important components of the Lean system [50].

Due to the absence of a definite and precise list regarding which HRM practices to consider in the Lean context, researchers advise managers not to rely solely on the literature to select the HRM practices to implement in their organization [51][52], but also consider their appropriateness to the organizational context [51], since the effectiveness of HRM practices largely depends on their alignment with the values and the context in which the organization is operating [53][54]. Several studies conducted in different countries demonstrated that the proper choice of HRM practices allows for effective people management, which in turn allows for better organizational performance. HRM practices foster collaborative employee behaviors [37], remove barriers to organizational improvement [55], and improve employee buy-in to Lean [56].

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