sustainability

MDPI

Article

Exploring Lean HRM Practices in the Aerospace Industry

Amal Benkarim * and Daniel Imbeau

Department of Mathematics and Industrial Engineering, Polytechnique Montreal, Montreal, QC H3T 1J4, Canada; daniel.imbeau@polymtl.ca
* Correspondence: amal.benkarim@polymtl.ca

Abstract: 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. The purpose of this work is therefore to investigate the challenges and contributions of HRM practices in a Lean company, and identify those practices that are required for successful and sustainable Lean implementations. Based on a sample of thirty employees (15 production and 15 office workers) of a Canadian aerospace company who participated in our interviews, we performed a qualitative analysis to identify prominent HRM practices. We found seven HRM practices that are of major importance in the context of Lean (i.e., job security, communication, fairness, supervisor/manager support, training, occupational health and safety, and respect). Our findings show that these practices are equally relevant to both production and office workers, and suggest that managers play a decisive role in implementing these practices, and in providing the right environment to effectively promote workforce commitment.

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

Citation: Benkarim, A.; Imbeau, D. Exploring Lean HRM Practices in the Aerospace Industry. *Sustainability* **2022**, *14*, 5208. https://doi.org/10.3390/su14095208

Academic Editor: Huseyin Arasli

Received: 17 March 2022
Accepted: 24 April 2022
Published: 26 April 2022

1. Introduction

Lean management is an approach that allows companies to reduce costs and improve quality to achieve significant growth [1,2]. 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 [3] 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.

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 [4,5]. 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 [6–8], 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 [9].

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 [10,11]. More importantly, research has shown

that committed employees contribute significantly to the success and sustainability of Lean (e.g., [12,13]), 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 [14,15].

Implementing a new management approach such as Lean requires changes within the company, including modifications in the production system, organizational structure, and HRM practices in order to align with the new business philosophy. Although it is conceded that change and adaptation of HRM practices are necessary requirements to organizational change, they have rarely been explicitly addressed in Lean studies. The few works that investigated the putative associations between HRM practices and Lean identified several practices that may pave the way towards a successful Lean transformation [16–18]. Although promising, these practices vary from one study to another, yielding no consensus on the practices that should be considered to facilitate the Lean transition. Additionally, some works on Lean do highlight the importance of HRM practices but then move to immediately focus solely on the technical aspects. The aim of the present study is therefore to explore the HRM practices that promote HR commitment for a successful and sustainable Lean transformation in the aerospace industry. The remainder of the paper is organized as follows. Section 2 provides a succinct literature review of Lean, HR, and HRM practices. Section 3 describes the data collection process and methodology used in our study. Section 4 presents our results, highlighting a set of HRM practices to be considered in the context of Lean, followed by a thorough discussion of our findings in Section 5. Finally, Section 6 provides conclusions.

2. Literature Review

2.1. Lean Culture

Lean management is Toyota Motor Corporation's managerial system, which many companies have been trying to replicate for more than three decades [19], as it provides several effective tools and practices for achieving business excellence [20]. Its main objective is to eliminate all non-value-added activities without compromising quality or delivery times [21,22].

Lean culture is an organizational culture referring to a set of shared beliefs, values, and assumptions based on eliminating waste and fostering continuous improvement [23]. 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 [24]. Managers and employees should work as a team by exploiting each other's strengths. Moreover, Oláh et al. [24] 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, we 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 [25–27]. 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) [25,26,28]. 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 [29,30]. There-

fore, 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 [31–33]. 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 [34]. The technical dimension comprises tools, equipment, and processes, whereas the social dimension encompasses people and their interrelationships [35]. 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 [36].

2.2. 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 [37,38]. In fact, the aspect that distinguishes Toyota from other organizations is its unique production system, which integrates people with its technical system [39]. However, the academic literature has devoted most of its attention to the adoption of Lean tools while largely overlooking the social dimension [40–42]. 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 [43]. This has led to perceiving Lean as a sociotechnical system, that is, not only a process-oriented strategy but also a people-based system [43].

An appropriate environment that can support the Lean journey requires the commitment and active participation of employees [44]. In this study, 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 [45]. Angelis et al. [12] 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 [45–47].

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 [36,37,48]. 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 [49]. 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 [49]. Leaders who create supportive structures, provide constructive feedback, allocate time, and treat workers fairly might catalyze the change and achieve better implementation [50].

2.3. 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 [51]. 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 [16] highlighted the practices of training and job security. Forza [17] reported training, recruitment, compensation, and promotion. Olivella et al. [52] 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. [18] 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 [53].

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 [54,55], but also consider their appropriateness to the organizational context [54], since the effectiveness of HRM practices largely depends on their alignment with the values and the context in which the organization is operating [56,57]. 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 [43], remove barriers to organizational improvement [58], and improve employee buy-in to Lean [59].

3. Research Method

Given that the aim of this work was to explore the HRM practices that promote employee commitment in Lean settings, a qualitative approach was deemed appropriate. This approach has been widely used to study HRM practices in Lean across several sectors [53,59].

3.1. Sample

The sample used for this research comprised 30 employees working in a Canadian aerospace company. According to Deslauriers [60] and Thomson [61], a sample size of thirty is recommended and considered sufficient when using a qualitative approach. The rationale for interviewing employees was two-fold: (1) they are the most important component for the success and sustainability of Lean, and (2) the organization under study is increasingly interested in improving its employees' commitment to its recently implemented company-wide Lean program.

Of the thirty employees, fifteen were office workers and the remaining fifteen were production workers. Seven of them were females, and twenty-three were males. The age of the participants ranged from 26 to 58 years, and the range of working experience was between 2 and 30 years.

3.2. Data Collection

Data were collected using individual semi-structured interviews to allow participants to express themselves freely, and thus allow researchers to gather a large number of ideas about the phenomenon under study [62]. The interviews were conducted face-to-face in the company offices in January 2020. Each interview lasted approximately 60 min and was audio-recorded with the participant's permission. Although participants were free to withdraw at any time, no interview was interrupted nor terminated prematurely.

3.3. Interviews

The interview guide was developed using the funnel approach [63], which involves asking a series of questions, starting with general and open-ended questions, and then progressively using more specific and closed questions. The purpose of the first questions was, among other things, to find out the participants' opinions on employee commitment in Lean and to make sure that the interviewees referred to Lean culture in the same way as the researchers: Do you know what Lean means? Would you describe the Lean project that you are experiencing in the organization? How do you participate in the Lean project (your involvement, role)? Do you think it is possible to improve the level of employee commitment in a Lean program? If so, how do you think this is possible? If

not, why not? These open-ended questions allowed for maximum data collection since they were designed to generate narrative responses, which entails development from the respondent [62]. General questions were asked at the beginning to grant participants the freedom to express their opinions and help them become acclimated to the atmosphere of the discussion [63]. These first questions were followed immediately by more specific questions centered on the HRM practices that can promote employee commitment in Lean. For each HRM practice, we asked participants to provide explanations and examples of real-life situations within the organization.

Table 1 compiles the practices considered in this work, along with the corresponding sources from which the questions were extracted. For brevity, only three questions were selected for each practice, and they were reformulated to better reflect the context of our study.

Table 1. HRM practices and their sources.

HRM Practice	Source
Respect	Blader and Tyler [64]
Occupational health and safety	Durand et al. [65]
Communication	Dennis [66]
Training	Holgado Tello et al. [67]
Empowerment	Roller [68]
Recognition	Siegrist [69]
Decision-making latitude	Karasek [70]
Job security	Oldham et al. [71]
Fairness	Sauley and Bedeian [72]
Supervisor/manager support	Eisenberger et al. [73]

We also prepared a list of HRM practices along with their corresponding definitions to ensure that our interviewees had a common understanding of the concepts discussed. A summarized and more concise version of these definitions is presented in the Results section for each HRM practice.

The interview guide was pre-tested with employees of the company where we conducted the interviews, and readjusted accordingly to avoid comprehension issues regarding the terms used, and to ensure that the questions and concepts were clear to our participants.

Throughout the interviews, the interviewer sought to understand and identify which HRM practices the participants believed to be most effective in promoting their commitment to Lean. Participants were encouraged to communicate their insights and opinions openly and freely. In some cases, questions were not asked in the same order set out in the interview guide but were adapted according to the participants' responses to ensure the fluidity of the discussion. However, the interview guide served as a reference to verify and ensure that all themes were covered and that no questions were omitted.

3.4. Data Analysis

Data analysis followed the three coding stages proposed by Strauss and Corbin [74]. At first, we used open coding by breaking down the data into distinct units and created initial broad codes to label them. As a result, 16 codes were generated including communication, training, personal support, information exchange, occupational safety, and health (OSH), professional support, and recognition. Corbière and Larivière [75] pointed out that it is evident that many codes typically emerge at this stage. We then used axial coding to establish links between these broad codes, which entailed combining the codes with same meaning to obtain combinations such as communication–information exchange and professional support–personal support. This technique reduced the number of codes to 11. Lastly,

we performed selective coding to determine the final codes. Some codes were removed (e.g., recognition and remote working) because they were cited by very few participants. Others were renamed to be more consistent with the information they represented. As an example, "professional support–personal support" was renamed "supervisor/manager support." Thus, we ended up with seven final codes. Table 2 reports the outcomes of these different coding levels.

Table 2. Coding levels and identified practices.

	Coding					
	Open		Axial		Selective	
Practices	1	Communication	1	Communication–Information exchange-Visibility	1	Communication
	2	Information exchange				
	3	Visibility				
	4	Professional respect	2	Professional respect–Personal respect	2	Respect
	5	Personal respect				
	6	OHS	3	OHS–Psychological health	3	OHS
	7	Psychological health				
	8	Professional support	4	Professional support–Personal support	4	Supervisor/manager support
	9	Personal support				
	10	Job security	5	Job security	5	Job security
	11	Training	6	Training	6	Training
	12	Fairness	7	Fairness	7	Fairness
	13	Recognition	8	Recognition		
	14	Empowerment	9	Empowerment		
	15	Decision-making latitude	10	Decision-making latitude		
	16	Remote working	11	Remote working		

4. Results

As a result of the qualitative analysis, we found seven HRM practices that may be of major interest in the context of Lean. These practices ranged from job security and communication to training and respect. In the following paragraphs, we assess the contribution of each of the identified practices to employee commitment and evaluate their relevance for Lean companies.

1. Job security: It is an employee's assurance or confidence that they will keep their current job for as long as they wish [76]. All interviewees agreed that job security is paramount to their commitment to the continuous improvement process. One participant explained it as follows: "it is easy to be committed when you are sure that your job will last for many years". Conversely, interviewees reported that the lack of job security may harm their commitment since they may feel unstable and insecure. Job insecurity often results in employees looking for another job, which prevents them from being fully committed to the company's continuous improvement process. In words of one respondent: "employees who are afraid of losing their job and who feel unstable about their future may be worried and may want to look elsewhere." In this way, respondents recognized job security as necessary to foster their participation in continuous improvement initiatives.

2. Communication: It refers to the process of sharing ideas, information, and messages with others in a particular time and place [77]. Communication is the second theme reported by our respondents after job security. This HRM practice was deemed by twenty-nine of the respondents to be an essential practice for the commitment to Lean: "communication is important for commitment," "communication is the key." According to the respondents, although management communication is important for commitment, it is also valuable to listen to employees. When employees know that their opinions are heard, their motivation to participate in continuous improvement activities increases. In contrast, participants indicated that not being heard diminishes their degree of commitment and creates a feeling of detachment from the company. They also reported that the content and clarity of the information exchanged are as important as the communication itself: "communication is important, but it also depends on the information provided," "when the information is clear, it is easier to be committed." When analyzing this practice through the lens of workers' daily routines, we found an important dichotomy between office and production workers. Office workers confirmed that they must attend daily morning meetings to discuss work-related matters: "Daily Morning Meetings (DMM) are mandatory in our company," "during the DMM, we review all the problems and situations we face during the day." Production workers, in contrast, are not required to participate in morning meetings: "I don't participate in morning meetings", but they can easily communicate with their supervisors if need be: "he is an ear that is there to listen to us and help us." Although they use different communication approaches, both office and production employees emphasized the role of communication in facilitating their commitment in Lean.
3. Fairness: It refers to the fair treatment of human beings in a workplace free from arbitrary decisions, discrimination, and favoritism [78]. Fairness was among the most important practices for Lean according to our participants. Respondents underlined this practice by stating: "I think it is important in all companies and in all spheres that everyone is treated fairly." They mainly evoked the notion of fairness with respect to their colleagues: "if you perceive that at the same level of employment others have better prospects or conditions than you, you will certainly be uncommitted." Respondents reported that unfairness can create friction that may negatively affect their commitment: "unfairness can create commitment problems", "unfairness can cause friction and employees will feel less committed." Overall, fairness seems to be an important practice to prevent conflict in the workplace and hence improve employee commitment.
4. Supervisor/manager support: It denotes the support provided by supervisors and/or managers to their employees. It is defined generally as the extent to which supervisors/managers care about their employee's well-being and value their employee's contribution to the organization [79]. The importance of supervisor/manager support for the self-involvement in Lean was indicated by 27 of the 30 respondents. They focused on support provided by the leader: "if the leader doesn't support his employees, this can affect their commitment enormously," "leaders have to support us to be committed; otherwise, it is demotivating." Respondents believed that the lack of support can hinder their commitment. According to one respondent: "if we feel unsupported, there will be no incentive to be committed to the Lean process." Moreover, interviewees pointed out the existence of a positive connection between support and performance, such that the more supported, the better they will perform and, therefore, the more committed they will be to the Lean project. Quoting one participant: "I think having support makes you perform better, and if you perform better, you are more committed."
5. Training: It is defined as a planned learning experience designed to bring about permanent changes in an individual's knowledge, attitudes, or skills [80]. Training is increasingly recognized as one of the best HRM practices [81]. In the context of Lean, training is considered as a long-term ongoing process that allows creating a

different mindset focused on the need for change (Martínez-Jurado et al., 2013). The indispensable utility of this HRM practice to embrace change and adapt to new work methods was noted by twenty-six interviewees. Furthermore, they favored individual training (i.e., adapted to the employee's needs) over collective training (i.e., given to a group of employees who need to develop the same skill): "I think one-on-one training is more useful." Regarding the relationship between training and employee commitment, participants were convinced of the positive impact of the former on the latter: "training makes you skilled, and feeling skilled makes you committed," "I think that all kinds of training are useful and will definitely increase commitment." Furthermore, respondents pointed out that to become committed to Lean culture, it is imperative to understand its purpose and functioning by answering questions such as: What exactly is Lean? Why is the company adopting Lean? As one respondent put it: "I think the main point is education on Lean." Providing answers to these and other related questions is the first step in helping employees understand what they are involved in and figure out how they can participate.

6. Occupational health and safety (OHS): It is defined as the science of the anticipation, recognition, evaluation, and control of hazards arising in or from the workplace that can impair the health and well-being of workers, taking into account the possible impact on the surrounding communities and the general environment [82]. Interviewees emphasized that safe work environments encourage them to work efficiently, whereas unsafe environments may inhibit their commitment: "if employees feel unsafe working here, they will find it difficult to commit." Additionally, they made a direct connection between OHS and their commitment to continuous improvement process: "I would say that there is a link between OHS and commitment because if managers care about our well-being, it is because they want us to be committed." The absence of OHS may have adverse consequences: "the lack of OHS may eventually have an impact on commitment, again only a negative impact." Although OHS was deemed important by both employee categories, production workers devoted special attention to the need for a safe workplace: "if we don't feel safe doing the work, I don't think we are going to be that committed." Office workers also acknowledged that OHS is far more critical for production workers since they are exposed to more potential hazards: "even if OHS affects me much less in the office, it is still essential to my commitment. But I am sure that if I were a production employee, I would be more affected, and if I had my life put at risk, I am sure that I would be much less committed." Respondents, therefore, agreed that OHS is another necessary practice in the context of Lean.
7. Respect: It refers to evaluations by people of their standing and acceptance within their group (it is an intragroup evaluative judgment) [64]. Respect is one of the practices that was determined to be important for a genuine commitment in the Lean journey. Twenty-five participants articulated that respect goes hand-in-hand with their commitment level: "without respect, there will be no commitment"; "if employees are not respected by their colleagues or supervisor, they will certainly not be committed." Interviewees believed that respectful workplaces promote employee productivity and commitment, whereas a lack of respect may lead to misunderstandings, tensions, and even conflicts. This can reduce their level of commitment and sense of belonging in the team and in the company in general.

5. Discussion

Although the advantages of Lean are well known and largely undisputed, its successful implementation is more challenging. This is where HR play a critical role in Lean and where HRM practices can potentially determine the fate of the Lean journey within a company. Nonetheless, the interactions between Lean and HRM practices are seldom studied in the literature and poorly understood by both researchers and practitioners. It is at this intersection that our study is situated. Specifically, we analyzed the contribution

of different HRM practices to lead to the successful implementation of Lean. First, we reviewed the literature on Lean, focusing on its human dimension and the role HRM practices play in its transformation. We found that HRM practices are a fundamental means to increasing employee commitment in Lean. We then set out to identify the most important HRM practices following the three-step process proposed by Strauss and Corbin (1998). Our results highlighted seven practices perceived as key in the Lean context, namely: job security, communication, fairness, supervisor/manager support, training, OHS, and respect. These practices were consistently found to provide employees with the motivation to be committed to the continuous improvement process.

Job security, a commonly used practice in Lean companies [16], was unanimously highlighted by our interviewees. They believed that full commitment can only be achieved if they are confident about their job security. This practice is important because if employees do not perceive job security, they may be reluctant to engage in problem-solving [83]. Furthermore, job security facilitates the creation of favorable work environments where employees are motivated to participate in efficiency-building processes and continuous improvement initiatives [84].

The literature confirms the existence of a positive association between job security and employee commitment (e.g., [85–87]). This association can be explained by the fact that employees who are assured of keeping their job in the future are more likely to be attached to the organization [86]. In contrast, employees who perceive a threat to their job security may become less committed to the organization and eventually decide to quit the job [85,86], as employees are willing to stay in an environment that provides satisfaction rather than instability [86].

Participants also highlighted the important role of communication in their commitment to Lean. This practice is strongly related to the effectiveness of continuous improvement activities [88]. Clear communication leads to greater employee participation, increased efficiency in problem solving, improved performance, and stronger relationships [50]. Several authors emphasized the important role of clear communication for employee commitment. For example, Kakakhel et al. [89] pointed out that clear communication promotes employee commitment since they know better what the organization expects of them. Wang [90] suggested that employee commitment may be strengthened by clear communication about organizational activities, objectives, and intentions. More importantly, an effective communication fostering employee commitment is imperative for successful Lean transformations [91]. Our results were in accordance with the literature and further showed that communication is important across different employee categories, even though they may use different communication approaches. Office workers have daily morning meetings, whereas production workers are not generally required to attend meetings, but they may communicate with their manager at any time if it is needed. Although there are several ways to establish good communication within the organization (e.g., feedback, social events, emails), interviewees identified morning meetings and the possibility to ask for help as the main communication factors that facilitated their commitment to the continuous improvement process. In essence, both employee categories believed that good and steady communication ensures better alignment with the company's vision and proper functioning.

Furthermore, respondents recognized fairness as an effective practice that allows them to be committed to the continuous improvement process and remain motivated throughout this process. Fairness was markedly important for our participants vis-à-vis their coworkers. Employees' perception of fairness and the way they are treated may greatly affect their desire to work hard on the organization's behalf [92]. Adopting fair treatment of employees will more likely increase their willingness to be involved in Lean projects and participate in continuous improvement initiatives [12,93]. Angelis et al. [12] reported a positive association between fairness and affective commitment, which drives employees to identify with the company and become involved in the Lean project, and Alkhoraif and McLaughlin [36] identified fairness as a catalyst for Lean in organizations.

Marksberry [94] noted that fair treatment is particularly important when employees are experiencing changes in their organization because when employees are poorly or unfairly treated, they tend to be less committed and resist change. Although each employee may have a different reaction towards change, supervisors must adopt a fair approach when making decisions that may impact an employee's work area [94].

Evidence shows that supervisor and manager support play a vital role in any change program [95]. Although our interviewees paid more attention to leaders, managers should also provide support to employees. Indeed, the lack of support from supervisors and management is a commonly reported obstacle towards successful Lean implementation [28]. Supervisors can show support by being more present through daily meetings for instance, and by acting as role models to illustrate the desired behaviors for the Lean implementation, and managers can be supportive by devoting time to oversee the implementation process and provide employees with the necessary resources to facilitate their commitment [50,91]. Supported employees tend to value their organization and be more committed to its objectives such that they work hard to achieve them [96]. From this perspective, Ferreira [97] pointed out that employees receiving help and support from their supervisors/managers show a higher level of commitment towards the organization, which likely facilitates the transition to Lean.

Another important practice to recognize is training, which was deemed necessary by most interviewees to embrace change. Training is widely regarded as one of the best HRM practices [81]. Martínez-Jurado et al. [18] emphasized the ability of training to create a mindset focused on the need for change. Their findings showed that training and communication constitute key elements that should be incorporated at all company levels to facilitate the transition to and sustainability of Lean. In our study we found that participants were convinced of the positive impact of training on their commitment. Several authors found a positive correlation between these two concepts and reported that training should be an integral element in organizations seeking to enhance employee commitment [98–100]. Training is intended to improve the skills, abilities, and knowledge of employees to perform better in their organization. This consequently leads to an eventual increase in their confidence, motivation, and commitment [101,102]. Finally, we also found that participants were more inclined towards individual rather than collective forms of training.

The health of employees and the safety of their work environments were found to be of critical concern to our participants. OHS is considered an important practice in continuous improvement projects [103,104]. The application of a health and safety program in the Lean context has multiple benefits for both the employee and the company. Healthy employees tend to be more motivated and committed, experience greater job satisfaction, and contribute to higher quality products and services [82]. Incorporating safety principles in the work environment further helps in increasing product quality and employee efficiency [105], and in reducing waste, including the time lost due to absenteeism, and the cost of compensating for workplace injuries, among others [106]. Managers who prioritize OHS matters are thus on the right track to eliminate many forms of waste and achieve a successful Lean implementation [107].

As we noted with communication, OHS is another practice that was perceived differently by office and production employees. The latter placed more emphasis on OHS, which was expected given that they are exposed to a wider range of health and safety related risks compared to office workers. As expected, they emphasized the role of supervisors in ensuring the application of safety rules. Suárez-Albanchez et al. [108] found that the implementation of occupational health and safety policies has a positive impact on employee commitment. The authors also noted that these policies should not only be implemented in the workplace, but also be instilled in workers to increase their commitment. In our study, workers were aware of their responsibilities, the importance of reporting hazards, and the necessity of their involvement in determining solutions to eliminate the associated risks.

Lastly, respect emerged as an effective practice to promote employee commitment in a Lean context. The concept of respect is a pivotal feature of Lean philosophy [22]. Respect for employees can be manifested in many ways, including respect for their ideas, efforts, and contributions [109]. When employees feel that their efforts are not acknowledged, they may become discouraged and have their commitment fail. Employees' commitment along with their creativity are the main sources of continuous improvement and operational excellence [110]. Hence, Lean managers should consistently demonstrate respect for employees, e.g., by visiting them regularly and encouraging their participation in improving the workplace and work-related processes.

The seven HRM practices identified in our study have never been reported in a single study, but rather appeared in different research works examining management practices across distinct sectors and industries. For instance, fairness was studied by Angelis et al. [12], and training and job security were reported by Bonavia and Marin-Garcia [16]. It is obvious that there is no definitive list of HRM practices to be implemented across all Lean organizations. The choice of these practices may depend on the company's sector and context. The practices identified in our study were based on employees of an aerospace company. Organizations operating in the same sector usually share the same external and internal contingencies, and, therefore, presumably require similar personnel management practices. Nonetheless, although the adoption of these practices by companies in the same sector may require little adjustment, their generalization calls for future work to identify the adjustments required to adapt them to other contexts.

5.1. Contributions

The literature on HRM in the context of Lean is scarce, and even more for aerospace companies. To our knowledge, Martínez-Jurado et al. [18] is the only work to address the role of HRM practices in the aerospace sector. The research conducted in this study is therefore relevant for both researchers and practitioners. Researchers can build on our findings to explore the contribution of these practices to their specific fields. Both our data and findings give researchers the opportunity to investigate management practices in Lean companies operating in the aerospace sector. In fact, the collection of qualitative data represents another strength of this study. During the individual interviews, many participants provided rich and relevant information related to our research topic through some of the open-ended questions. The analysis of this information helped us understand the participants' perceptions and enrich the interpretation of the results. Another interesting characteristic of our sample is that our interviews were carried out not only with production employees, as is in the case of most studies, but we also included office employees, given that Lean is an approach that applies to all levels and functions of the organization to improve the system in its entirety [111]. It is thus important for researchers to seek to diversify their samples (e.g., including workers at different levels) to better test the suitability of HRM practices across different environments and worker categories. In our study, the heterogeneity of our sample allowed us to validate the usefulness of the selected HRM practices across different employee categories (office and production). Although here we focused on practices that are generally important to workers from both categories, there were differences in the perception of some practices: communication was more important for office than production workers, and vice versa for OHS. A promising line of future work is to investigate in more depth the differences between office and production workers. It is worth noting that some of the HRM practices that were studied in our work (e.g., fairness and respect) may be also considered organizational values rather than pure HRM practices. Another interesting line of future work is to explore the inter-relationships between HRM practices, values, attitudes, and behaviors, and their contributions to employee commitment towards Lean.

Our findings also provide valuable guidance for Lean leaders and managers to support the transition and long-term sustainability of Lean initiatives within their organizations. Our results may help managers understand the importance of HRM practices in developing

their employees' commitment to the continuous improvement process. Our interviewees pointed out the role of the managers in the proper implementation of multiple HRM practices such as training, communication, and respect. When adequately implemented, these HRM practices can potentially lead to a successful transition to Lean.

5.2. Limitations

Our research is not without limitations. First, our study is cross-sectional, as respondents were only interviewed once. Since HRM practices may evolve and change over time, follow-up interviews may be required to provide insight into whether the perception of the preferred practices varies over time, i.e., which ones remain the same, and which ones need adaptation. There may be needed throughout the entire Lean journey but require adjustments to be adapted to each Lean stage. A longitudinal study would be more appropriate to shed light on these open issues. Second, the external validity of our findings may be impacted by the small size and specificity of our sample. However, it is worth mentioning that even though all participants in this study were employees of a Canadian aerospace company, they had different demographics (e.g., age and gender) and years of experience.

6. Conclusions

This work investigated several HRM practices often reported in the Lean-related literature and identified those that are likely to contribute most to the successful implementation and sustainability of Lean. These practices were identified based on employees of an aerospace company, a sector in which this kind of research is practically absent. Our findings also highlighted the decisive role managers play in the implementation of these practices, and in providing the adequate environment to foster workforce commitment. Overall, by studying the interactions between HRM practices and Lean, a highly underexplored topic, this research improves our understanding of the necessity of these practices in Lean implementations, and provides valuable information to help practitioners pick the practices that best motivate their employees to adhere to the company's Lean culture.

Author Contributions: Conceptualization, A.B. and D.I.; methodology, A.B. and D.I.; formal analysis, A.B.; Investigation, A.B.; data curation, A.B. and D.I.; writing—original draft preparation, A.B.; writing—review and editing, A.B. and D.I.; supervision, D.I. All authors have read and agreed to the published version of the manuscript.

Funding: No funding was received for this research.

Institutional Review Board Statement: Ethic Committee Name: POLYTECHNIQUE MONTRÉAL. Approval Code: CER-1920-40.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: Not applicable.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Liker, J.K.; Morgan, J.M. The Toyota way in services: The case of lean product development. *Acad. Manag. Perspect.* **2006**, *20*, 5–20. [CrossRef]
2. Sisson, J.; Elshennawy, A.K. Achieving success with Lean: An analysis of key factors in Lean transformation at Toyota and beyond. *Int. J. Lean Six Sigma* **2015**, *6*, 263–280. [CrossRef]
3. Madsen, D.Ø.; Berg, T.; Stenheim, T.; Moum, J.V.; Bordewich, I.O.; Storsveen, M. The Long-term Sustainability of Lean as a Management Practice: Survey Evidence on Diffusion and Use of the Concept in Norway in the Period 2015–2017. *Sustainability* **2019**, *11*, 3120. [CrossRef]
4. Jadhav, J.R.; Mantha, S.S.; Rane, S.B. Exploring barriers in lean implementation. *Int. J. Lean Six Sigma* **2014**, *5*, 122–148. [CrossRef]
5. Zhang, L.; Narkhede, B.E.; Chaple, A.P. Evaluating lean manufacturing barriers: An interpretive process. *J. Manuf. Technol. Manag.* **2017**, *28*, 1086–1114. [CrossRef]
6. Ingaldi, M.; Dziuba, S.T.; Cierniak-Emerych, A. Analysis of problems during implementation of Lean Manufacturing elements. In Proceedings of the MATECWeb of Conferences, Amsterdam, The Netherlands, 27–29 November 2018; EDP Sciences: Les Ulis, France, 2018; Volume 183, p. 01004.

7. Rose, A.; Ab Rashid, M.; Mohamed, N.N.; Ahmad, H. Similarities of lean manufacturing approaches implementation in SMEs towards the success: Case study in the automotive component industry. In Proceedings of the MATEC Web of Conferences, Amsterdam, The Netherlands, 23–25 March 2016; EDP Sciences: Les Ulis, France, 2016; Volume 87, p. 02024.
8. Salonitis, K.; Tsinopoulos, C. Drivers and barriers of lean implementation in the Greek manufacturing sector. *Procedia CIRP* **2016**, *57*, 189–194. [CrossRef]
9. Kariuki, B.M.; Mburu, D.K. Role of Lean manufacturing on organization competitiveness. *Ind. Eng. Lett.* **2013**, *3*, 81–82.
10. Scott-Ladd, B.; Travaglione, A.; Marshall, V. Causal inferences between participation in decision making, task attributes, work effort, rewards, job satisfaction and commitment. *Leadersh. Organ. Dev. J.* **2006**, *27*, 399–414. [CrossRef]
11. Johnson, R.E.; Chang, C.-H. "I" is to continuance as "We" is to affective: The relevance of the self-concept for organizational commitment. *J. Organ. Behav.* **2006**, *27*, 549–570. [CrossRef]
12. Angelis, J.; Conti, R.; Cooper, C.L.; Gill, C. Building a high-commitment lean culture. *J. Manuf. Technol. Manag.* **2011**, *22*, 569–586. [CrossRef]
13. Hines, P. How to create and sustain a lean culture. *Dev. Learn. Organ. Int. J.* **2010**, *24*, 24. [CrossRef]
14. Lamba, S.; Choudhary, N. Impact of HRM practices on organizational commitment of employees. *Int. J. Adv. Res. Technol.* **2013**, *2*, 407–423.
15. Lee, J.; Sohn, Y.W.; Kim, M.; Kwon, S.; Park, I.-J. Relative Importance of Human Resource Practices on Affective Commitment and Turnover Intention in South Korea and United States. *Front. Psychol.* **2018**, *9*, 669. [CrossRef]
16. Bonavia, T.; Marin-Garcia, J.A. Integrating human resource management into lean production and their impact on organizational performance. *Int. J. Manpow.* **2011**, *32*, 923–938. [CrossRef]
17. Forza, C. Work organization in lean production and traditional plants: What are the differences? *Int. J. Oper. Prod. Manag.* **1996**, *16*, 42–62. [CrossRef]
18. Martínez-Jurado, P.J.; Moyano-Fuentes, J.; Gómez, P.J. HR management during lean production adoption. *Manag. Decis.* **2013**, *51*, 742–760. [CrossRef]
19. Zarbo, R.J. Creating and sustaining a lean culture of continuous process improvement. *Am. J. Clin. Pathol.* **2012**, *138*, 321–326. [CrossRef]
20. Albliwi, S.A.; Antony, J.; halim Lim, S.A. A systematic review of Lean Six Sigma for the manufacturing industry. *Bus. Process Manag. J.* **2015**, *21*, 665–691. [CrossRef]
21. El-Khalil, R. Lean manufacturing alignment with respect to performance metrics multinational corporations case study. *Int. J. Lean Six Sigma* **2020**. [CrossRef]
22. Liker, J.K.; Hoseus, M. *Toyota Culture: The Heart and Soul of the Toyota Way*, 1st ed.; McGraw-Hill Education: New York, NY, USA, 2008; p. 562. ISBN 9780071492171.
23. Osman, A.A.; Nordin, N.; Abd Rahman, M.F. Measuring Lean Culture: Designing a Research Instrument. *J. Mod. Manuf. Syst. Technol.* **2021**, *5*, 7–17. [CrossRef]
24. Oláh, J.; Szolnok, Á.; Nagy, G.; Lengyel, P.; Popp, J. The Impact of Lean Thinking on Workforce Motivation: A Success Factor at LEGO Manufacturing Ltd. *J. Compet.* **2017**, *9*, 93–109. [CrossRef]
25. Liker, J.K. *Le Modèle Toyota: 14 Principes qui Feront la Réussite de Votre Entreprise*; Pearson Education: Paris, France, 2009; ISBN 9782744073908.
26. Dombrowski, U.; Mielke, T. Lean Leadership—Fundamental Principles and their Application. *Procedia CIRP* **2013**, *7*, 569–574. [CrossRef]
27. Coetzee, R.; Van Der Merwe, K.; Van Dyk, L. Lean implementation strategies: How are the toyota way principles addressed? *S. Afr. J. Ind. Eng.* **2016**, *27*, 79–91. [CrossRef]
28. Lodgaard, E.; Ingvaldsen, J.A.; Gamme, I.; Aschehoug, S. Barriers to Lean Implementation: Perceptions of Top Managers, Middle Managers and Workers. *Procedia CIRP* **2016**, *57*, 595–600. [CrossRef]
29. McMahon, T. A Lean Journey. Available online: http://www.aleanjourney.com/2014/06/10-ways-to-show-respect-for-people.html (accessed on 17 February 2022).
30. Salah, D.; Sayed, M.M. Improving the Organizational Lean Culture by Using Critical Lean Culture Criteria Model. In *International Conference on Aerospace Sciences and Aviation Technology*; The Military Technical College: Cairo, Egypt, 2015.
31. Ahmad, S.A.S. Culture and lean manufacturing: Towards a holistic framework. *Aust. J. Basic Appl. Sci.* **2013**, *7*, 334–338.
32. Benkarim, A.; Imbeau, D. Organizational Commitment and Lean Sustainability: Literature Review and Directions for Future Research. *Sustainability* **2021**, *13*, 3357. [CrossRef]
33. Grove, A.L.; Meredith, J.O.; Macintyre, M.; Angelis, J.; Neailey, K. UK health visiting: Challenges faced during lean implementation. *Leadersh. Health Serv.* **2010**, *23*, 204–218. [CrossRef]
34. Salentijn, W.; Beijer, S.; Antony, J. Exploring the dark side of Lean: A systematic review of the lean factors that influence social outcomes. *TQM J.* **2021**, *33*, 1469–1483. [CrossRef]
35. Hadid, W.; Mansouri, S.A.; Gallear, D. Is lean service promising? A socio-technical perspective. *Int. J. Oper. Prod. Manag.* **2016**, *36*, 618–642. [CrossRef]
36. Alkhoraif, A.; McLaughlin, P. Organisational culture that inhibit the lean implementation. In Proceedings of the European Business & Management Conference 2016, Brighton, UK, 7–10 July 2016; pp. 39–58.

37. Dibia, I.K.; Onuh, S. Lean revolution and the human resource aspects. In Proceedings of the World Congress on Engineering, London, UK, 30 June–2 July 2010.
38. Karekatti, C. Lean Human Resources. In *Lean Tools in Apparel Manufacturing*; Woodhead Publishing: Duxford, UK, 2021; pp. 331–353.
39. Jayamaha, N.P.; Wagner, J.P.; Grigg, N.P.; Campbell-Allen, N.M.; Harvie, W. Testing a theoretical model underlying the 'Toyota Way'–an empirical study involving a large global sample of Toyota facilities. *Int. J. Prod. Res.* **2014**, *52*, 4332–4350. [CrossRef]
40. Taylor, A.; Taylor, M.; McSweeney, A. Towards greater understanding of success and survival of lean systems. *Int. J. Prod. Res.* **2013**, *51*, 6607–6630. [CrossRef]
41. Varela, L.; Araújo, A.; Ávila, P.; Castro, H.; Putnik, G. Evaluation of the Relation between Lean Manufacturing, Industry 4.0, and Sustainability. *Sustainability* **2019**, *11*, 1439. [CrossRef]
42. Hines, P.; Taylor, D.; Walsh, A. The Lean journey: Have we got it wrong? *Total. Qual. Manag. Bus. Excel.* **2020**, *31*, 389–406. [CrossRef]
43. Magnani, F.; Carbone, V.; Moatti, V. The human dimension of lean: A literature review. *Supply Chain Forum Int. J.* **2019**, *20*, 132–144. [CrossRef]
44. Al-Najem, M.; Dhakal, H.; Bennett, N. The role of culture and leadership in lean transformation: A review and assessment model. *Int. J. Lean Think.* **2012**, *3*, 119–138.
45. Meyer, J.P.; Allen, N.J. A three-component conceptualization of organizational commitment. *Hum. Resour. Manag. Rev.* **1991**, *1*, 61–89. [CrossRef]
46. Morin, J.H.; Ralyté, J.; Snene, M. Exploring Services Science. In Proceedings of the First International Conference, IESS 2010, Geneva, Switzerland, 17–19 February 2010.
47. Cohen, A. Commitment before and after: An evaluation and reconceptualization of organizational commitment. *Hum. Resour. Manag. Rev.* **2007**, *17*, 336–354. [CrossRef]
48. De Menezes, L.M.; Wood, S.; Gelade, G. The integration of human resource and operation management practices and its link with performance: A longitudinal latent class study. *J. Oper. Manag.* **2010**, *28*, 455–471. [CrossRef]
49. Ahmad, S.A.S.; Wan, K.; Wan, I. Lean manufacturing, culture, lean culture. *J. Bus. Manag.* **2017**, *1*, 6–14.
50. Aij, K.H.; Teunissen, M. Lean leadership attributes: A systematic review of the literature. *J. Health Organ. Manag.* **2017**, *31*, 713–729. [CrossRef]
51. Wickramasinghe, V.; Wickramasinghe, G. Effects of HRM practices, lean production practices and lean duration on performance. *Int. J. Hum. Resour. Manag.* **2020**, *31*, 1467–1512. [CrossRef]
52. Olivella, J.; Cuatrecasas, L.; Gavilan, N. Work organisation practices for lean production. *J. Manuf. Technol. Manag.* **2008**, *19*, 798–811. [CrossRef]
53. Gao, S.; Low, S.P. Toyota Way style human resource management in large Chinese construction firms: A qualitative study. *Int. J. Constr. Manag.* **2015**, *15*, 17–32. [CrossRef]
54. Heinzen, M.; Höflinger, N. People in lean product development: The impact of human resource practices on development performance. *Int. J. Prod. Dev.* **2017**, *22*, 38–64. [CrossRef]
55. Boselie, P.; Dietz, G.; Boon, C. Commonalities and contradictions in HRM and performance research. *Hum. Resour. Manag. J.* **2005**, *15*, 67–94. [CrossRef]
56. Aumann, K.A.; Ostroff, C. Multi-level fit: An integrative framework for understanding HRM practices in cross-cultural contexts. *Multi-Level Issues Soc. Syst.* **2006**, *5*, 13–79. [CrossRef]
57. Paauwe, J.; Boon, C. Strategic HRM: A Critical Review. In *Human Resource Management*, 2nd ed.; Routledge: London, UK, 2018; pp. 49–73.
58. Alkhaldi, R.Z.; Abdallah, A.B. Lean management and operational performance in health care: Implications for business performance in private hospitals. *Int. J. Product. Perform. Manag.* **2019**, *69*, 1–21. [CrossRef]
59. Zirar, A.A. Towards an Understanding of the HRM Bundle for Lean Service in the UK. Ph.D. Thesis, Loughborough University, Leicestershire, UK, 2018.
60. Deslauriers, J.-P. *Recherche Qualitative: Guide Pratique*, 1st ed.; McGraw-Hill: Montréal, CA, USA, 1991; p. 142.
61. Thomson, S.B. Grounded Theory-Sample Size. *J. Adm. Gov.* **2011**, *5*, 45–52.
62. Van Campenhoudt, L.; Marquet, J.; Quivy, R. *Manuel de Recherche en Sciences Sociales*, 5th ed.; Dunod: Paris, France, 2017; ISBN 978-2-10-076541-6.
63. Oppenheim, A.N. *Questionnaire Design, Interviewing and Attitude Measurement*; Continuum: New York, NY, USA, 1992.
64. Blader, S.L.; Tyler, T.R. Testing and extending the group engagement model: Linkages between social identity, procedural justice, economic outcomes, and extrarole behavior. *J. Appl. Psychol.* **2009**, *94*, 445. [CrossRef]
65. Durand, M.J.; Vachon, B.; Hong, Q.N.; Imbeau, D.; Amick, B.C., III; Loisel, P. The cross-cultural adaptation of the work role functioning questionnaire in Canadian French. *Int. J. Rehabil. Res.* **2004**, *27*, 261–268. [CrossRef]
66. Dennis, H.S. A theoretical and Empirical Study of Managerial Communication Climate in Complex Organizations. Ph.D. Thesis, Purdue University, West Lafayette, IN, USA, 1974.
67. Holgado Tello, F.P.; Chacon Moscoso, S.; Barbero Garcia, I.; Sanduvete Chaves, S. Training satisfaction rating scale: Development of a measurement model using polychoric correlations. *Eur. J. Psychol. Assess.* **2006**, *22*, 268–279. [CrossRef]
68. Roller, W.K. Measuring empowerment: The perception of empowerment instrument (PEI). *Pfeiffer Annu.* **1999**, *34*, 2–12.

69. Siegrist, J. Adverse health effects of high-effort/low-reward conditions. *J. Occup. Health Psychol.* **1996**, *1*, 27–41. [CrossRef] [PubMed]
70. Karasek, R. *Job Content Questionnaire User's Guide*; Department of Work Environment, University of Massachusetts: Lowell, MA, USA, 1985.
71. Oldham, G.R.; Kulik, C.T.; Stepina, L.P.; Ambrose, M.L. Relations between situational factors and the comparative referents used by employees. *Acad. Manag. J.* **1986**, *29*, 599–608. [CrossRef]
72. Sauley, K.S.; Bedeian, A.G. Equity sensitivity: Construction of a measure and examination of its psychometric properties. *J. Manag.* **2000**, *26*, 885–910. [CrossRef]
73. Eisenberger, R.; Huntington, R.; Hutchison, S.; Sowa, D. Perceived organizational support. *J. Appl. Psychol.* **1986**, *71*, 500–507. [CrossRef]
74. Strauss, A.; Corbin, J. *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*, 2nd ed.; Sage Publications: Thousand Oaks, CA, USA, 1998.
75. Corbière, M.; Larivière, N. *Méthodes Qualitatives, Quantitatives et Mixtes dans la Recherche en Sciences Humaines, Sociales et de la Santé*, 2nd ed.; PUQ: Montreal, QC, CA, 2014; ISBN 978-2760540118.
76. Lucky, E.L.; Minai, M.S.; Rahman, H.A. Impact of job security on the organizational performance in a multiethnic environment. *Res. J. Bus. Manag.* **2013**, *7*, 64–70. [CrossRef]
77. Mallett-Hamer, B.; University of Wisconsin-Stout, Menomonie, WI, USA. Personal communication, 2005.
78. Meltz, N. Industrial Relations: Balancing Efficiency and Equity. In *Theories and Concepts in Comparative Industrial Relations*; Barbash, J., Barbash, K., Eds.; University of South Carolina Press: Columbia, SC, USA, 1989; pp. 109–113.
79. Krishnan, T.R.; Liew, S.A.; Koon, V.Y. The effect of human resource management (HRM) practices in service-oriented organizational citizenship behaviour (OCB): Case of telecommunications and internet service providers in Malaysia. *Asian Soc. Sci.* **2017**, *13*, 67–81. [CrossRef]
80. Campbell, J.P. Personnel training and development. *Annu. Rev. Psychol.* **1971**, *22*, 565–602. [CrossRef]
81. Chew, J.; Chan, C.C. Human resource practices, organizational commitment and intention to stay. *Int. J. Manpow.* **2008**, *29*, 503–522. [CrossRef]
82. Alli, B.O. *Fundamental Principles of Occupational Health and Safety*, 2nd ed.; International Labour Organization: Geneva, Switzerland, 2008; ISBN 978-92-2-120454-1.
83. Nahm, A.Y.; Lauver, K.J.; Keyes, J.P. The role of workers' trust and perceived benefits in lean implementation success. *Int. J. Bus. Excell.* **2012**, *5*, 463–484. [CrossRef]
84. Signoretti, A.; Sacchetti, S. Lean HRM practices in work integration social enterprises: Moving towards social lean production. Evidence from Italian case studies. *Ann. Public Coop. Econ.* **2020**, *91*, 545–563. [CrossRef]
85. Akpan, C.P. Job security and job satisfaction as determinants of organizational commitment among university teachers in cross river state, Nigeria. *Br. J. Educ.* **2013**, *1*, 82–93.
86. Ramay, I.M. Antecedents of organizational commitment of banking sector employees in Pakistan. *Serb. J. Manag.* **2012**, *7*, 89–102.
87. Iverson, R.D. Employee acceptance of organizational change: The role of organizational commitment. *Int. J. Hum. Resour. Manag.* **1996**, *7*, 122–149. [CrossRef]
88. Choi, T.Y.; Liker, J.K. Bringing Japanese Continuous Improvement Approaches to U.S. Manufacturing: The Roles of Process Orientation and Communications. *Decis. Sci.* **1995**, *26*, 589–620. [CrossRef]
89. Kakakhel, S.J.; Khan, A.; Gul, S.; Jehangir, M. Impact of organizational communication on organization commitment and job satisfaction: Assessing the moderating role of physical work environment. *J. Appl. Environ. Biol. Sci.* **2015**, *5*, 313–321.
90. Wang, Y. The Role of Communication in Enhancing Employees' Organizational Commitment: Exploring the Relationship between Social-Emotional-Oriented Communication, Work-Oriented Communication and Organizational Commitment in China. Master's Thesis, Uppsala University, Uppsala, Sweden, 2011.
91. Worley, J.; Doolen, T. The role of communication and management support in a lean manufacturing implementation. *Manag. Decis.* **2006**, *44*, 228–245. [CrossRef]
92. Hassan, S. Does fair treatment in the workplace matter? An assessment of organizational fairness and employee outcomes in government. *Am. Rev. Public Adm.* **2013**, *43*, 539–557. [CrossRef]
93. Swartling, D.; Poksinska, B.; Research, B. Management initiation of continuous improvement from a motivational perspective. *J. Appl. Econ. Bus. Res.* **2013**, *3*, 81–94.
94. Marksberry, P. *The Modern Theory of the Toyota Production System: A Systems Inquiry of the World's Most Emulated and Profitable Management System*, 1st ed.; Productivity Press: Boca Raton, FL, USA, 2012; p. 451. [CrossRef]
95. Hao, M.J.; Yazdanifard, R. How effective leadership can facilitate change in organizations through improvement and innovation. *Glob. J. Manag. Bus. Res.* **2015**, *15*, 1–6.
96. Alkahtani, A.H. Investigating factors that influence employees' turnover intention: A review of existing empirical works. *Int. J. Bus. Manag.* **2015**, *10*, 152. [CrossRef]
97. Ferreira, M.M.F. Organizational commitment and supervisor support, perception of procedural fairness, tenure in the hospital: The mediating effect of work-life balance-study in nurses. *Clin. Nurs. Stud.* **2014**, *3*, 17. [CrossRef]

98. Zehra, N. Training & development barometer for effective transformation of organizational commitment and overall performance in banking sectors of KPK, Pakistan: Qualitative study of workforce of bank of Khyber. *Int. J. Acad. Res. Bus. Soc. Sci.* **2016**, *6*. Available online: https://mpra.ub.uni-muenchen.de/73881/ (accessed on 16 March 2022).
99. Muhammad, S.; Afridi, F.K.; Ali, M.W.; Shah, W.U.; Alasan, I.I. Effect Of Training on Employee Commitment: Mediating Role of Job Satisfaction. *Pak. J. Soc. Educ. Lang. (PJSEL)* **2021**, *7*, 28–37.
100. Ocen, E.; Francis, K.; Angundaru, G. The role of training in building employee commitment: The mediating effect of job satisfaction. *Eur. J. Train. Dev.* **2017**, *41*, 742–757. [CrossRef]
101. Halawi, A.; Haydar, N. Effects of Training on Employee Performance: A Case Study of Bonjus and Khatib & Alami Companies. *Int. Humanit. Stud.* **2018**, *5*, 24–45.
102. Ashar, M.; Ghafoor, M.; Munir, E.; Hafeez, S. The impact of perceptions of training on employee commitment and turnover intention: Evidence from Pakistan. *Int. J. Hum. Resour. Stud.* **2013**, *3*, 74. [CrossRef]
103. Hafey, R. *Lean Safety: Transforming Your Safety Culture with Lean Management*; Productivity Press: Boca Raton, FL, USA, 2009; ISBN 9781439816431.
104. Imbeau, D.; Aubry, K.; Chiasson, M.-È. *Suivi du Déploiement d'un Programme d'Amélioration Continue Augmenté d'un Volet SST/Ergonomie dans une Entreprise Manufacturière au Québec: Recherche-Action 2003–2010*; École Polytechnique de Montréal: Montreal, QC, Canada, 2012.
105. Abbassinia, M.; Kalatpour, O.; Motamedzadeh, M.; Soltanian, A.; Mohammadfam, I. The application of lean production in reducing human error and improving response in emergencies: A case study in a petrochemical industry. *Iran J. Ergon.* **2020**, *8*, 39–49. Available online: http://journal.iehfs.ir/article-1-705-en.html (accessed on 16 March 2022). [CrossRef]
106. Jilcha, K.; Kitaw, D. Lean influence on occupational safety and health in manufacturing industries. *Glob. J. Res. Eng.* **2016**, *16*, 1–10.
107. Cirjaliu, B.; Draghici, A. Ergonomic issues in lean manufacturing. *Procedia. Soc. Behav. Sci.* **2016**, *221*, 105–110. [CrossRef]
108. Suárez-Albanchez, J.; Blazquez-Resino, J.J.; Gutierrez-Broncano, S.; Jimenez-Estevez, P. Occupational health and safety, organisational commitment, and turnover intention in the Spanish IT consultancy sector. *Int. J. Environ. Res. Public Health* **2021**, *18*, 5658. [CrossRef]
109. Cardon, N.; Bribiescas, F. Respect for people: The forgotten principle in lean manufacturing implementation. *Eur. Sci. J.* **2015**, *11*, 45–61.
110. Romero, D.; Gaiardelli, P.; Wuest, T.; Powell, D.; Thürer, M. New Forms of Gemba Walks and Their Digital Tools in the Digital Lean Manufacturing World. In Proceedings of the IFIP International Conference on Advances in Production Management Systems, Novi Sad, Serbia, 30 August–3 September 2020.
111. Emiliani, B.; Stec, D.J.; Grasso, L.; Stodder, J. *Better Thinking, Better Results: Case Study and Analysis of an Enterprise-Wide Lean Transformation*, 2nd ed.; Center for Lean Business Management: Kensington, CT, USA, 2007; p. 313. ISBN 0972259120.