The critical role of sensei in developing lean leaders

Zanchi Matteo*, Gaiardelli Paolo*, Powell Daryl**

** Department of Management, Information and Production Engineering, University of Bergamo, Viale Marconi 5, 24044 – Dalmine (BG) – Italy (matteo.zanchi@unibg.it, paolo.gaiardelli@unibg.it)*

*** SINTEF Manufacturing AS, Horten, Norway; Norwegian University of Science and Technology, Trondheim, Norway (daryl.powell@sintef.no)*

Abstract: The aim of this paper is to illustrate how lean training initiatives developed through the intervention and support of a sensei can contribute to the development of lean leadership traits in team managers. The study is carried out on a single case study conducted in an Italian SME that recently implemented lean via 10 team managers. The assessment of the leadership was carried out at different stages of the project development, through direct observation and interviews conducted by three scholars and concerned the evaluation of a set leadership skills identified in literature. The results showed that mentoring actions of the sensei increase leadership abilities of people, stimulating them to teach others only when they are promoted with the top management sponsorship and endorsement. On the other hand, the study suggests that people show different propensity to improve their leadership skills, depending on their technical background and personal experiences.

Keywords: Lean Leadership, Continuous Improvement, Coaching, Sensei

1.Introduction

Over the last few years, numerous companies around the world have become interested in the application of lean management methods (Netland and Powell, 2016). Despite several successful experiences, no company in the world has yet achieved the same level of excellence as Toyota, where the concept of lean thinking was born (Liker and Convis, 2012). The difficulties encountered are often due to cultural reasons (Mann, 2009). Indeed, practice and scientific literature have shown that implementing lean management techniques and tools designed to optimize processes are not enough to achieve sustainable success. Instead, the achievement of significant results in the long term is facilitated only when the improvement activities are intended as a tool for personal growth by stimulating learning mechanisms of both managers and employees (Powell and Coughlan, 2020). In such an organizational change process, the role of the manager assumes strategic importance.

A manager is usually a figure able to lead the change, by directing the entire organization in a process of cultural transformation, to unleash the hidden potential of people and use the capacity of the group (Bass and Avolio, 1993). In particular, a team manager plays a fundamental role in managing the involvement of people when it comes to design, plan and implement organisational responses, even when it is not possible to predict any future event. Managers are expected to possess distinctive capabilities, including but not limited to the ability to take immediate decisions, identify and mobilise necessary and adequate resources when needed, establish efficient communication channels, and coordinate members of their organisation. Finally, when we talk about lean leadership, we also refer to those behaviours that promote the development of competences within the whole organisation (Marinelli-Poole et al., 2011).

Very few people are born as leaders. However, according to the lean management view, leadership capabilities can somehow be developed and strengthened, thanks to a different way of approaching work.

Indeed, lean experience suggests that Monozukuri, the art of doing things (well) that characterizes lean companies, can be achieved only through Hitozukuri, the art of making people (well) (Fujio, 2006). In other words, efficient and high-quality flexible processes lead to success only when they are created and managed by trained, capable and enterprising people. This does not simply imply having great experts and process masters, but people who are dedicated to observe, experiment and constantly challenge themselves and the others in order to continuously expand and improve their skills (Liker and Convis, 2012).

Building a lean leader means developing his or her ability to learn and teach, but also to listen and support others, to work as a team defying new horizons, aware that results can only be achieved by taking direct action on the field and by collaborating with other people (Ballé, 2017).

In order to achieve an optimal development in terms of leadership of the people involved, it is often necessary the intervention of a sensei (Balle et al, 2019), a lean expert who knows how to lead the staff towards a continuous evolution by instructing, in the first instance, to the use of methodologies and tools typical of lean and, subsequently, by giving the example on how to internalize and make the

ideology of continuous improvement as their own (Emiliani and Stec, 2004), so that each person can then become example for their colleagues.

Nevertheless, the sole intervention of a sensei is not always sufficient to develop people's leadership skills, as these can be strongly influenced by the organisational context in which managers operate (Wright and Geroy, 2001), and by the personal background and character disposition of each individual (Elnaga and Imran, 2013). There are therefore other factors that may lead people to different results in the development of their leadership skills. Thus, there is a need to understand what these factors are in order to avoid that sensei's actions are rendered in vain.

On these premises, the aim of this paper is to show, through a case of a lean manufacturing implementation project in an Italian SME, what measures have to be taken in the development of lean projects to stimulate team managers to build their leadership skills, leading to a real cultural transformation of the whole company.

This paper is organized as follows. In the next section the research design and methodology are presented. Section 3 reports theoretical background while the case study is presented in Section 4. The main outcomes are described and discussed in section 5. Finally, last section ends the paper with conclusions and future research directions.

2. Research design and methodology

As the aim of this research is to understand to what extent lean thinking principles developed through a sensei and enhanced by the top management might contribute to the development of individual leadership skills, a case study approach was considered the most appropriate research method to follow. In particular, a single case study was selected, as it is recognised the best way to understand how individual characteristics can act as mediator for the development leadership skill, thus avoiding any contextual influence (Dyer and Wilkins, 1991).

The study was conducted adopting a two-step process. In the first stage, a literature review on scientific papers was carried out to underpin the concept of leadership in lean companies. The experience gained during this stage was useful to accumulate the necessary information to come up with a list of factors affecting a lean leader.

The list was then adopted to assess the level of leadership of 10 people operating in the same company and involved in a lean project as team managers. The analysis was carried out by 3 senior researchers with a multi-year experience in lean manufacturing.

Leadership skills of each team manager were assessed by researchers on a 5-point Likert scale (1: very dissatisfied; 5: very satisfied). In particular, the assessment considered the achieved leadership skills in relation to both self-development and that of others. The assessment was carried out by each researcher independently and based on direct observations and semi-structured interviews. Subsequent meetings allowed for the resolution of any discrepancies among the evaluations, thus leading to a common judgement. The assessment was conducted at the beginning and at the end of the project.

3. Literature review

In line with the theme regarding the centrality of people, in organisations implementing lean management, leadership acquires a profoundly different meaning other than the conventional, transactional or situational one (Netland et al., 2019). Not only because it concerns and involves all the levels of the company organisation, starting from the front-line teams up to the top management (Pullin, 2002), but also because it deals with a new way of interpreting the role of a manager. According to Toyota, the team manager is not necessarily a person who possesses charisma, but rather a human being who sees opportunities for improvement in himself and others. Therefore, a lean leader is able to rapidly change by learning from its mistakes and from the others. In summary, leadership in lean organizations assumes a transformational perspective (Keiser, 2012), defined as an influencing action that communicates an operational vision, inspires and motivates towards the achievement of shared outcomes and is most effective at times that are out of the ordinary. Whoever embodies this leadership at company level, displays the ability to take supportive actions aimed at integrating people and systems through a perspective that transcends mere change management, to aim for a collective search of technical innovations. Moreover, in accordance with the principles of the Toyota Way, a manager maintains a clear vision of the company's objectives over time and, by actively participating and collaborating to optimise processes with the help of appropriate tools and methods, it is able to align its personal goals with the company objectives (Rother, 2009).

A lean leader can only be formed through cycles of improvement that address four main perspectives:

- Commitment towards personal development. The greatest capacity of a lean leader is the ability to improve itself and his skills. However, he cannot do it alone, but needs a sensei who continually challenges and leaves space for improvement (Spear, 2004);
- Mentoring and developing others. It is essential for a lean leader to provide training for all the people, not just the best or those relying on it (Bozdogan et al., 2000). For Toyota, the results achieved by followers are the unique measure of a manager's success (Liker and Convis, 2012).
- Support daily improvement. A lean leader must ensure that its teams are able to develop kaizen, either for maintaining operations or processes improvement (Dombrowski and Mielke, 2013). Crucially important is the way a manager proposes kaizen: actually it cannot be imposed, but must be taught and encouraged starting from the shopfloor.
- Aligning the efforts made to implement kaizen with the corporate vision to get ever closer to the final goal (Liker and Convis, 2012).

Consistently, being an effective team manager requires distinctive skills, which are summarised in Table 1.

Table 1: Lean leadership skills

Leadership skills	Description
Active listening	Listening themselves and the co-workers in an appreciative, comprehensive and sincere way, both with regard to proposals and criticisms (Waldman et al., 1998).
Alignment to targets	Define the specific project objectives by aligning them with those of other ongoing projects and the main corporate objective (Poksinska et al., 2013).
Communic-ation	Communicate information correctly, in both form and timing, to the team members (Lakhsman, 2006)
Decision and action	Make decisions slowly through consensus, considering all options and points of view, but implement solutions quickly (Liker, 2004).
Delegation	Assign part of the work to others, according to their relative strengths and weaknesses so that each person is valued according to his abilities, and foster professional growth at the same time (Delbridge, Lowe, and Oliver, 2000).
Empowerment	Increase the number and type of own activities, so as to increase self-responsibilities over time, broadening horizons (Albrecht and Andreetta, 2011).
Logic "out of the box"	Evaluate all possible solutions to a problem, even the most unlikely ones, while avoiding fixed patterns of reasoning, which can be limiting under certain circumstances (Liker, 2004).
Motivation	Motivate people to allow the group to pursue the set objectives, thus enabling the success of the project (Doeleman et al., 2012).
Observation and reflection	Continuous observation to enable a more conscious and coherent reflection on the real causes of a problem (Spear, 2004).
Planning	Plan a project from the macro-phases down to the individual activities carried out by each employee (Dennis, 2006).
Problem analysis	Develop deep insight into a problem, reflecting carefully and persistently until the real causes are understood (Liker, 2004).
Understanding the situation	Understand each situation and weigh your behaviour in accordance with it, managing possible conflict situations (Schein, 2010; Aij et al., 2015).

4. The case study

The study case concerns a company located in Italy, leader in the design, engineering and production of industrial moulds for various sectors. In the second half of 2018, the company decided to undertake some reorganisation projects according to the principles of lean manufacturing in one of its various factories across Europe. Given the size of the project and the top management's desire to involve the entire factory staff (consisting of around 60 production operators and 20 from the technical area), the improvement activity was configured in 10 sub-projects.

For each sub-project a working team was created, coordinated by a manager chosen by the group itself and supervised by a lean management expert, external to the organisation. The overall project coordination remained in charge of the plant manager, who took and declared its total responsibility towards the Board of Directors and the company employees during two official plenary meetings, organised respectively for the project launch and closure.

In compliance with the general objectives, i.e. operational performance improvement and personnel training on lean management, some initiatives were set up to foster the level

of leadership of operators. Firstly, it was decided to train each team manager and his group in a short training course, during which the main lean methodologies and tools were presented. The external expert was then paired with each team manager to instruct and help it in the design and handling of lean planning tools (including A3 sheets and PDCA), and to support it in the organization and management of project meetings and subsequent follow-ups, including the drafting of project documentation, which was made available to everyone in dedicated areas of the shopfloor. As soon as the project team became more proficient in the use of lean management tools and methods, the support of the external expert was gradually reduced. The expert left completely once the group had achieved sufficient decision-making autonomy to even question the rules initially formulated by the expert himself. A dedicated room (Obeya room) was also created for the meetings, held on a daily basis but very short in duration, and was equipped with all the documentation and technical support needed to facilitate dialogue between team members. The room was placed directly in the production area to facilitate direct access to the departments where observations and problem analyses could be carried out. The Obeya room was also used for coordination meetings between the various managers and the Plant Management. In this case as well, the logic adopted was the same as the one used for the meetings of the single projects, but the roles of the managers were inverted from coordinators to team members, while the position of coordinator was now held by the Plant Management. In particular, during these meetings the management emphasised openness to dialogue and constructive criticism, the effort to reconcile different ideas in order to arrive to shared choices and transparent communication on the general project objectives. Furthermore, the meetings provided an opportunity for the management to issue, as the overall project progressed, new and increasingly challenging tasks to the various team managers, pointing out the importance to do so in relation to each one's abilities and predisposition, triggering a shift from mere coordination to the integration (coordination with collaborative qualities) of the team members.

5. Results and discussion

About a year and a half after the start of the project, it was possible to make an assessment of the progress of the leadership skills of each team manager.

As shown in Figure 1, not only did the overall level of leadership improve (+0,83 from 2,62 to 3,45), but all of the leadership perspectives for which the company had expressed a particular interest, demonstrating that team managers were able to challenge themselves with a willing attitude to embrace change in order to improve their own and their staff's skills.

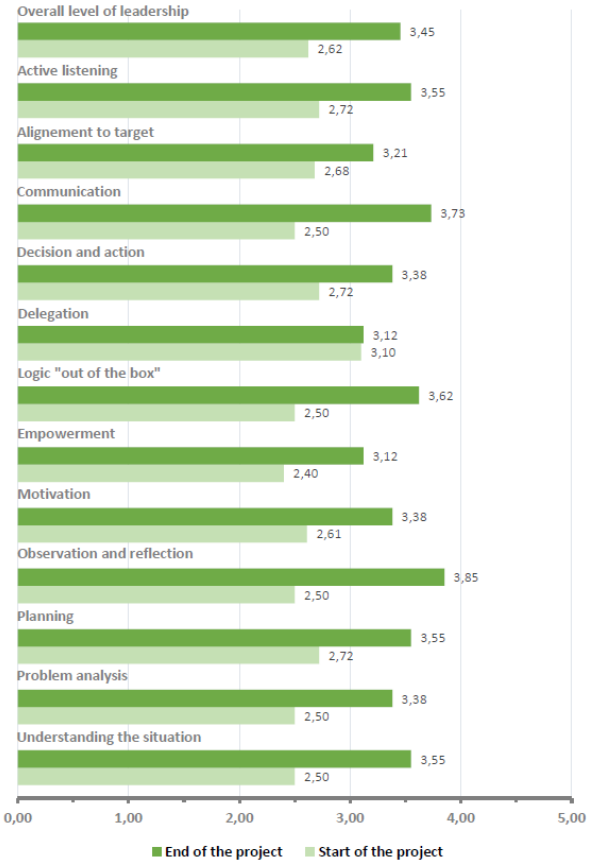

Figure 1: Level of leadership skills at the beginning and end of the project (evaluation of the whole sample)

This has led each manager to become increasingly confident in his own abilities and to see every problem as a stimulus that feeds the process of striving for perfection, and as an opportunity for personal growth. This was possible because the top management proved to be visionary and proactive, supporting every action and respecting every choice (even the wrong ones) of the managers (Van Dyck et al., 2005). This has led to the creation of a calm and relaxed environment, where everyone can freely express their opinions and get involved (Van Dun et al., 2017). Furthermore, top management encouraged participation in decision making, involving each manager in the overall project coordination activities, opening up to dialogue and confrontation. Finally, top management acted by communicating clearly the purpose, objectives, responsibilities and progress of the project. These behaviours stimulated each team manager to do the same within their own team, as shown by the main indicators concerning active listening (+0,83 from 2,72 to 3,55), motivation (+0,77 from 2,61 to 3,38) decision and action (+0.66 from 2,72 to 3,38) and communication (+1.23 from 2,50 to 3,73). This created a ripple effect throughout the organisation, prompting each individual to open up to dialogue and active participation.

In addition to the proactive behaviour of the top management, it is important to emphasise the fundamental role played by the *sensei*, the competent, expert and authoritative figure who worked through daily and repeated action (Aij and Teunissen, 2017) together with each team manager to instruct and encourage to learn the techniques

and tools for process improvement and problem analysis as clearly evidenced by its relevant indicator, which rose from 2,50 to 3,38. Specifically, the sensei acted by helping each team manager to use the various tools directly on the field and in a timely manner, but also to manage time and group dynamics, in order to establish an increasingly open and proactive climate. The adoption of standardised approaches for planning and managing projects (A3 sheets and PDCA), combined with regular and constant organisation of coordination meetings for both individual and general projects, not only fostered a greater capacity of aligning operational actions to targets (+0,53 from 2,68 to 3,21), and planning (+0,83 from 2,72 to 3,55), but further enhanced the propensity to share and dialogue, instilling in managers the kaizen routine and transferring this way of interpreting improvement also to their own team (Tortorella et al., 2019). On the other hand, the adoption of tools for the assignment of tasks and responsibilities, experimented in the general coordination meetings with the management, still did not have the hoped-for effects, namely the boosting of the principle of delegation. The impetus from above was given to encourage the awareness that assigning each person a task also in relation to their distinctive characteristics and personal aspirations, not only facilitates the achievement of better results in less time, but also helps the team manager to get to know the people around him better, encouraging them to get involved and to commit themselves (Rother, 2009; Spear, 2004). Unfortunately, this vision has not yet been interiorized by the team managers and spread to the working groups as reflected in its indicator, which remains effectively unchanged (+0,02 from 3,10 to 3,12). This is probably due to a resistance to change still inherent in the organisation, deriving from past experience characterised by a static managerial model strongly centralised in terms of responsibilities and decisions (Shook, 2010). The routine approach did not only concern the way of dealing with the problem in the logic of the improvement kata, but also with the development of skills (coaching kata). The action taken by the management, in accordance with the *sensei*, of issuing increasingly challenging objectives to each manager, as they achieved sufficient experience to be independent, has proven to be successful for several reasons: not only it has significantly improved managers' empowerment (+1,12 from 2,50 to 3,62), but it has also allowed the company to delegate more and more activities without generating stress among the team managers, creating consensus in a positive process of acceptance of the challenge and increasing difficulties. In addition, it has allowed the dissemination of knowledge in the company, activating a virtuous circuit that has seen the team managers from acceptors of new initiatives to promoters of new challenges for their employees. Finally, the creation of a protected environment where employees feel completely free to express themselves, but equipped with all the necessary tools to support technical discussions, facilitating dialogue by being close to where the problem is generated, in order to observe and address it, has helped each manager and the group to experience the spirit of the gemba more directly (Morgan and Liker, 2006; Nascimento et al., 2018). as shown by the main indicators concerning logic "out of the box" (+0,72 from 2,40 to 3,12), observation and reflection (+1,35 from 2,50 to 3,85) and understanding the situation (+1.05 from 2,50 to 3,55).

Although the data indicate that all managers converge towards an improvement in their leadership skills, the study points out that not all of them pursue the same level of leadership in absolute terms and of variation (Figure 2).

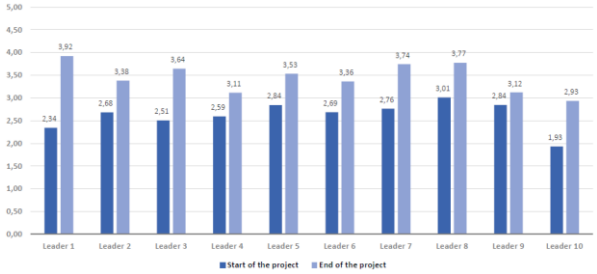

Figure 2: Overall level of leadership at the beginning and end of the project (evaluation per individual manager)

In this respect, past experience and personal characteristics of the individual play a role as either amplifiers or inhibitors to change (Elnaga and Imran, 2013). In particular, the technical background proves to be a driving force and, in line with the theory, the adoption of tools becomes more effective where process experience is combined with a technical competence that allows for a better understanding of what is happening on the field. This is the case for the leaders 1 and 3. Characterised by the highest growth in the level of leadership (+1,58 for leader 1 and +1,11 for leader 3), both of these lean managers belong to the technical department, but have strong experience in production, the former in an external company and the latter internally. Furthermore, it is easier for those who have never participated in past improvement projects that have subsequently failed (as the leaders 1 and 7), or for those who have a strong personal motivation because they want to show their value to colleagues and management, a value that was scarcely recognised by management in the past. This is the case for the leader 10 (which experiences a +1.00 increase from 1,93 to 2,93), who was never considered in the past due to 'his too young age'. Similarly, those who find the project of little impact on their activities, that is, not consistent with the purpose of their work, or who suspect that adopting this approach might in some way call into question their autonomy and independence, are more averse to change and find it harder to acquire leadership skills. For instance, leader 9, who comes from sales department, experienced the lowest leadership growth (from + 2,84 to 3,12) due to his low interest in the project more focused on factory operations. For this reason, it was considered appropriate that, in the continuation of the project, some change management practices not yet implemented should be more clearly carried out, in order to favour personal change, especially of the most adverse ones, such as a clear explanation of the 'good and bad' behaviours expected for the change by the team managers and the company (Van Dun et al., 2017), the introduction of a system of incentives and corrective measures created ad hoc and linked exclusively to the implementation of the change, and the adoption of a competence model aimed to map knowledge and skills needed and possessed and the related gaps, ex ante, at the beginning of the project and at

its end. In line with this last aspect, it emerges the need to develop in the near future not only on-the-job training through sensei, but also one-to-one growth paths aimed at covering the detected competence gaps. Finally, alongside communication of results, which up to now has perhaps been too detached and not always constant, it will be necessary to emphasise the celebratory perspective of the change results, so as to 'freeze' the new practices in new habits and methods, replacing the old ones, in order to proceed to their 'crystallisation' into new principles, values and basic assumptions.

6. Conclusions and further developments

The adoption of lean management principles once again proved to be successful for the improvement of company performance, which does not only concern time, costs and quality, but also new skills and competences acquired by the staff. In the project presented in this article, the operational results obtained were very significant, but we did not want to talk about them because our interest was to highlight the benefits of adopting lean management principles, related to the skills of individuals and especially to the increase of leadership. The case taught us that leadership can be nurtured and enhanced through specific methods aimed at learning and developing his skills. In this respect, the sensei and the company management play an essential role, the former as a guide, methodological support and motivator, the latter as a behavioural example to be emulated. Although, the proposed set of lean management principles does not necessarily imply the full development of leadership capabilities among managers under any circumstances, as each context plays a key role in influencing the benefits arising from the intervention of a lean sensei. In this regard, it would be appropriate to analyse different work fields, so as to understand the cross-sectoral applicability of the mentioned practices. Similarly, we have also learned from this application that the experience and sensitivity of each individual characterises his predisposition to leadership. This is why in every improvement project the continuous presence of the management and a trainer combined with open and transparent communication is not enough, but in order to activate the cultural change, especially of the "resistants", it is necessary to adopt specific actions of change management. In any case, if the management of a company truly adopts lean thinking, thus embracing the logic of continuous improvement, it will not struggle to readjust the leadership development approach, refining it in accordance to the criticalities detected.

References

Aij, K. H., and Teunissen, M. (2017). Lean leadership attributes: a systematic review of the literature. *Journal of health organization and management*. 31 (7/8), pp. 713-729.

Aij, K. H., Visse, M., and Widdershoven, G. A. (2015). Lean leadership: an ethnographic study. *Leadership in Health Services*. 28 (2), pp. 119-134.

Albrecht, S. L., and Andreetta, M. (2011). The influence of empowering leadership, empowerment and engagement on affective commitment and turnover intentions in community health service workers. *Leadership in health services*. 24(3), pp. 228-237.

Ballé, M. (2017). Lean Leadership. In: Netland, T. H. and Powell, D. J. (Eds.). *The Routledge Companion to Lean Management*. Taylor and Francis, New York, pp. 34-43.

Ballé, M., Chartier, N., Coignet, P., Olivencia, S., Powell, D., and Reke, E. (2019). *The Lean Sensei*. Lean Enterprise Institute Inc.

Bass, B. M., and Avolio, B. J. (1993). Transformational leadership and organizational culture. *Public administration quarterly*. pp. 112-121.

Bozdogan, K., Milauskas, R., Mize, J., Nightingale, D., Taneja, A., and Tonaszuck, D. (2000). Transitioning to a Lean Enterprise: A Guide for Leaders. *Volume III, Roadmap Explorations*. p.53.

Delbridge, R., Lowe, J., and Oliver, N. (2000). Shopfloor responsibilities under lean teamworking. *Human relations*. 53(11), pp. 1459-1479.

Dennis, P. (2006). *Getting the right things done: a leader's guide to planning and execution*. Lean Enterprise Institute, New York.

Doeleman, H. J., Ten Have, S., and Ahaus, K. (2012). The moderating role of leadership in the relationship between management control and business excellence. *Total Quality Management & Business Excellence*, 23(5-6), pp. 591-611.

Dombrowski, U., and Mielke, T. J. P. C. (2013). Lean leadership–fundamental principles and their application. *Procedia CIRP*, 7, pp. 569-574.

Dyer Jr, W. G., and Wilkins, A. L. (1991). Better stories, not better constructs, to generate better theory: A rejoinder to Eisenhardt. *Academy of management review*, 16(3), pp. 613-619.

Elnaga, A., and Imran, A. (2013). The effect of training on employee performance. *European journal of Business and Management*. 5(4), pp. 137-147.

Emiliani, M. L., and Stec, D. J. (2005). Leaders lost in transformation. *Leadership & Organization Development Journal*. 26(5), pp. 370-387.

Fujio C. (2006). "Hitozukuri and Monozukuri", a special lecture for the 10th anniversary of Toyota Motor Vietnam. Hanoi, Vietnam, October.

Keiser, J.A. (2012). Leadership and Cultural Change: Necessary Components of a Lean Transformation, *IGLC 2012*. San Diego, CA.

Lakshman, C. (2006). A theory of leadership for quality: Lessons from TQM for leadership theory. *Total Quality Management & Business Excellence*. 17(1), pp. 41-60.

Liker, J. K. (2004). *The Toyota way: 14 management principles from the world's greatest manufacturer*. McGraw-Hill Education.

Liker, J. K., and Convis, G. (2012). *The Toyota Way to Lean Leadership -Achieving and sustaining excellence through leadership development*. McGraw-Hill Education, pp.70-74.

Mann, D. (2009). The missing link: Lean leadership. *Frontiers of health services management*. 26(1), p. 15.

Marinelli-Poole, A., McGilvray, A., and Lynes, D. (2011), "New Zealand health leadership". *Leadership in Health Services*. 24 (4), pp. 255-267.

Morgan, J., and Liker, J. (2006), *The Toyota Product Development System*. Productivity Press, New York.

Nascimento, D., Caiado, R., Tortorella, G., Ivson, P., and Meiriño, M. (2018). Digital Obeya Room: exploring the synergies between BIM and lean for visual construction management. *Innovative infrastructure solutions*. 3(1), pp. 1-10.

Netland, T. H., and Powell, D. J. (2017). A Lean World. In: Netland, T.H. and Powell D.J. (Eds.). *The Routledge Companion to Lean Management*. Taylor and Francis, New York, pp. 465-473.

Netland, T. H., Powell, D. J., and Hines, P. (2019). Demystifying lean leadership. *International Journal of Lean Six Sigma*. 11(3), pp. 543-554.

Poksinska, B., Swartling, D., and Drotz, E. (2013). The daily work of Lean leaders–lessons from manufacturing and healthcare. *Total Quality Management & Business Excellence*. 24(7-8), pp. 886-898.

Powell, D. J., and Coughlan, P. (2020). Rethinking lean supplier development as a learning system. *International Journal of Operations & Production Management*. 40(7-8), pp. 921-943.

Pullin, J. (2002). Blazing a Trail Through Change Management. *Professional Engineering*. 15(17), pp. 40-41.

Rother, M. (2009). Toyota Kata: Managing People for Improvement, Adaptiveness and Superior Results. New York: McGraw Hill.

Schein, E.H. (2010). Three cultures of management: the key to organizational learning. In: Bertagni, B., La Rosa, M. and Salvetti, F. (Eds.). *Glocal Working. Living and Working Across the World with Cultural Intelligence*. FrancoAngeli, pp. 37-58.

Shook, J. (2010). Lean leadership. Balancing process and people.

Spear, S. J. (2004). Learning to lead at Toyota. *Harvard business review*, 82(5), pp. 1-10, 78-91.

Tortorella, G., Cauchick-Miguel, P. A., and Gaiardelli, P. (2019). Hoshin Kanri and A3: a proposal for integrating variability into the policy deployment process. *The TQM Journal*, 31(2), pp. 118-135.

Van Dyck, C., Frese, M., Baer, M., and Sonnentag, S. (2005). Organizational error management culture and its impact on performance: a two-study replication. *Journal of applied psychology*. 90(6), pp. 1228-1240.

Van Dun, D. H., Hicks, J. N., and Wilderom, C. P. (2017). Values and behaviors of effective lean managers: Mixed-methods exploratory research. *European management journal*, 35(2), pp. 174-186.

Waldman, D. A., Lituchy, T., Gopalakrishnan, M., Laframboise, K., Galperin, B., and Kaltsounakis, Z. (1998). A qualitative analysis of leadership and quality improvement. *The Leadership Quarterly*, 9(2), pp. 177-201.

Wright, P., and Geroy, D.G. (2001), "Changing the mindset: the training myth and the need for word-class performance". *International Journal of Human Resource Management*. 12 (4), pp. 586-600.