

University of Groningen

Lean leadership

van Elp, Bianca; Roemeling, Oskar; Aij, Kjeld

Published in:
Health Services Management Research

DOI:
[10.1177%2F09514848211001688](https://doi.org/10.1177%2F09514848211001688)

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version
Publisher's PDF, also known as Version of record

Publication date:
2022

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):

van Elp, B., Roemeling, O., & Aij, K. (2022). Lean leadership: Towards continuous improvement capability in healthcare. *Health Services Management Research*, 35(1), 7-15 .
<https://doi.org/10.1177%2F09514848211001688>

Copyright

Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

The publication may also be distributed here under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license. More information can be found on the University of Groningen website: <https://www.rug.nl/library/open-access/self-archiving-pure/taverne-amendment>.

Take-down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Downloaded from the University of Groningen/UMCG research database (Pure): <http://www.rug.nl/research/portal>. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.

Lean leadership: Towards continuous improvement capability in healthcare

Health Services Management Research
2022, Vol. 35(1) 7–15
© The Author(s) 2021
Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/09514848211001688
journals.sagepub.com/home/hsm



Bianca van Elp¹, Oskar Roemeling¹  and Kjeld Harald Aij²

Abstract

This research focuses on the role of leadership styles during Lean Management (LM) initiatives in healthcare environments. Specifically, this study examined the role of leadership styles in the development of Continuous Improvement (CI) capability of teams. The empirical evidence was collected by applying a multiple-case design, and consisted of interviews, observations, and documentation. These data sources were used to develop case studies, and to identify leadership behaviours supportive of LM. Through qualitative case analysis, the influence of leadership styles on CI capability was determined. The results show that a hybrid leadership style is associated with higher levels of CI capability, and that the duration of a LM program in itself does not dictate maturity. A mix of both transactional and transformational leadership styles seems a necessary condition for teams to reach higher levels of CI capability. Based on these findings, this paper provides a framework to structure thinking on LM and leadership styles, and concludes with supporting propositions. The current outcomes imply that leaders should be sensitive towards their adopted leadership style, and should adopt a leadership style that combines both transformational as well as transactional elements, when leading LM teams.

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Keywords

continuous improvement, healthcare, Kaizen, leadership, lean management

Background

Healthcare organizations adopt Lean Management (LM) principles to facilitate strategic change, and to continuously improve quality and reduce costs.^{1,2} LM focuses on streamlining processes by eliminating waste and variation.^{2–4} LM improves the organization's performance through increased productivity, clinical quality, cost efficiency, patient and staff safety and satisfaction, and better financial results.² In short, LM is an important strategy for healthcare providers to improve their organization.

A cornerstone of LM is Continuous Improvement (CI), an ongoing process of change to improve performance.⁵ Moreover, small scale improvements are also part of a CI approach, and can quickly results in significant gains.⁶ In this study, we consider CI a capability, which is the ability to 'gain strategic advantage by extending involvement in innovation to a significant proportion of its members'.^{7(p.1142)} CI capability can be assessed through the maturity of the continuous improvement activities, and this study adopts the earlier developed CI Capability Model to assess maturity.⁸

The CI capability Model identifies five levels of CI maturity, which are gained as teams develop their continuous improvement activities: level 1) pre-CI interest, i.e. natural/background interest, in which efforts are ad hoc; level 2) structured CI, in which formal attempts to create and sustain CI can be seen; level 3) goal-oriented CI, directed at company goals and objectives; level 4) proactive CI, largely driven by individuals and groups; and level 5) full CI capability, in which CI is the dominant way of life.⁸ Hence, the fifth level is where a CI approach is most successful, and has become embedded in the organizational culture.

¹Faculty of Economics and Business, University of Groningen, Groningen, Netherlands

²Erasmus Medical Center, Rotterdam, Netherlands

Corresponding author:

Oskar Roemeling, Faculty of Economics and Business, University of Groningen, Nettelbosje 2, Groningen 9700 AV, Netherlands.
Email: o.p.roemeling@rug.nl

An important ingredient for CI capability is the role of management: leaders share responsibility for problem solving with team members, and leadership is considered an integral part of LM.⁹ We expect leadership to have an important role in the development of CI capability as leadership construes the conditions under which employees can focus on CI activities.¹⁰ However, our understanding of the role of leadership styles and its impact on LM and its relations with CI capability is limited. Indeed, soft aspects, such as leadership, have received limited attention in LM research, and especially leader behaviours are warranted more attention.^{11,12}

When thinking of leadership, the concepts of transformational and transactional leadership come to mind. Transformational leaders inspire others to buy-into their vision to pursue best outcomes, and go beyond self-interest. Transactional leadership is based on extrinsic rewards, and can be described as a “give and take” relationship, instead of a relationship build on intrinsic motivation.^{13–15} In this research, we follow the ideas on the various dimensions of transformational and transactional leadership.

We distinguish between four dimensions of transformational leadership, these are idealised influence, inspirational motivation, intellectual stimulation, and individualised consideration.¹³ Idealised influence is achieved by role models who build trust and influence others to be more like themselves. Through inspirational motivation, leaders inspire others to approach their work with confidence, courage, and sense of purpose. Leaders providing intellectual stimulation foster creativity, new ideas, and critical thinking. They involve others in decision-making and encourage solution identification. Finally, individualised consideration is the ability to respond to each person’s needs, desires, capabilities, and circumstances.¹³ For transactional leadership we distinguish between two dimensions, extrinsic rewards, and management by exception.¹³ Leaders who use contingent rewards set clear expectations for others and provide rewards when they are met. In management by exception, leaders focus on identifying and handling cases that deviate from established norms.¹³

Most leadership behaviours by LM leaders are deemed transformational in nature, and the transformational leadership style has been associated with self-leadership behaviour.^{15–17} When we consider mature LM teams, we identify the importance of being internally motivated to perform CI activities, and being able to lead themselves during CI activities. In other words, it seems self-leadership might be a requirement of mature LM teams, that is, teams with a high level of CI capability.¹⁸ In turn, this would make transformational leaders appear an excellent fit for a LM environment, stimulating team members creativity, and sharing decision making latitude. However, research suggests that

the implementation of LM is most successful when leaders blend transformational and transactional leadership styles.¹⁷

Ultimately, the role of leadership style in LM and the development of CI capability is unclear. Previous research states the importance of leadership during LM, yet the role of leadership in CI capability is underdeveloped.^{11,12} This paper aims to contribute to a better understanding of LM, focusing on the various dimensions of leadership, and aiming to identify suitable leader behaviours in healthcare teams. We are especially interested in actions or behaviours of LM leaders during their daily CI efforts, and to investigate this issue further we formulated the following research question: what is the role of leadership in achieving continuous improvement capability in healthcare?

Methods

This study focuses on improvement activities and the role of leaders in a healthcare organization (fictitiously named *Reside & Care*) in the Netherlands, known for their successful implementation of LM. This research was conducted with the explicit permission of the case site, and all the respondents signed an informed consent. This study did not require an ethical statement.

In this research, we adopt a multiple case approach with embedded units.¹⁹ Interviews, observations, and secondary data in the form of documentation were used to develop case studies to identify the role of leadership in care teams that varied in CI capability.

Reside & Care can be considered an illustration of an exemplary case.²⁰ The organization has ample experience with LM and CI. Moreover, respondents at *Reside & Care* work in compact teams which makes the role of leadership more prevalent, as there are clear opportunities for the team leaders and members to interact. The specific case allows us to study care teams in a LM healthcare context.

In *Reside & Care* we adopted a purposive sampling strategy where we identified the key informants in the organization. Here, we focused on LM experience and leadership tasks for the managers. The team members are considered to be typical of team members in *Reside & Care* with differences in LM experience but comparable educational backgrounds. For this study we selected eight care teams, five managers oversaw the various teams, and two managers were responsible for multiple teams. The team sizes vary between seven and ten members. In our research we treated each team as an individual case. Teams were comprised of care attendants, these care attendants should be considered health staff but do not focus on providing treatment as would be provided by say specialized nurses or physicians. Instead, the attendants assist the elderly with their

Table 1. Overview of interviewees.

Respondent	Job	Team
Rachel	District manager	District
Simon	LM consultant	District
Becky	Manager	Team 04 & Team 06
Samantha	Care attendant	Team 04
Linda	Care attendant	Team 06
Mary	Manager	Team 02 & Team 05
Richard	Care attendant	Team 02
Rosa	Care attendant	Team 02
Anna	Care attendant	Team 05
Arthur	Manager	Team 01
Wendy	Care attendant	Team 01
James	Manager	Team 07
Paula	Care attendant	Team 07
Lauren	Manager	Team 03 & Team 08
Carrie	Care attendant	Team 03
Fiona	Care attendant	Team 03
Bernadette	Care attendant	Team 08
Total number of participants 17, names are fictitious.		

daily tasks, distribute medicine, and assist with personal hygiene, etc. For a complete overview of respondents, see Table 1.

A total of 17 anonymised semi-structured interviews took place to gather ideas and experiences, suitable to the exploratory nature of the study.²¹ Moreover, with 17 interviews this study adheres to the commonly suggested minimum of at least 12 interviews in order to reach saturation. Separate interview protocols were developed for team members and managers, using both open-ended questions and questions based on the MLQ 5X scale.^{22,23}

Leadership behaviours were categorised as either being mostly transformational or transactional using a five-point scale. Before finalising the interview protocols, these were discussed with a case site representative to ensure a good fit between interview questions and participant knowledge.²⁴ All participants signed an informed consent before participating in the study, and checked their interview transcript for accuracy.²⁵

We complemented and triangulated our interview findings with information obtained from observations during team meetings, where we adopted the complete observant approach.²⁶ The observations were conducted by researcher BvE, and during the observations we used an observation sheet (Appendix 1, translated from Dutch). Finally, secondary data in the form of documentation was obtained from Reside & Care relating to their LM program. These documents consisted of improvement-form templates, management reports and newsletters and were used to obtain a better understanding of the LM activities at the case site.

Interviews were coded and analysed using both deductive and inductive codes derived from answers

and observational results. The initial codes were combined, and pattern matching was used to increase internal validity. Within-case analyses were performed for each team, followed by cross-case analysis between all teams.

Results

LM and CI at Reside & Care

In this section, we provide an overview of adoption of the LM program at Reside & Care. We shortly describe the background of LM at Reside & Care, and we focus on the understanding of LM of the Reside & Care employees. Reside & Care started their LM program with top-level management commitment under the name “*Improve*”, and the program was focused on adding value and achieving clients’ desired outcomes. “*Improve*” is an institution wide program, and was piloted in three of the eight studied teams included in this study (Team 01, Team 02, and Team 03). In most teams, the use of LM tools and elements of the “*Improve*” program were explained in meetings during the implementation phase.

Managers and employees said they felt the “*Improve*” implementation was initiated top-down. One manager commented: ‘*Well, I did initiate a lot of the projects myself (...), and I do have a lot of projects going on with other employees to see what needs to happen.*’ [Becky]. Employees’ familiarity with LM tools varied. One participant from Team 08 commented ‘*I have never used it*’, in response to a poster showing quality aspects, while a Team 07 employee said, ‘*We use the Kaizen board, and the quality poster*’.

Despite conflicting perceptions, Reside & Care employees generally understood that LM was part of their regular work, and important in achieving the company vision. Still, most front-line workers had never heard of the term LM, and few recognized the program name “*Improve*”. Managers were aware that most employees were unfamiliar with LM terminology. Of the 17 participants in our study, four stated that LM or CI were labels for the efforts they made to improve every day, which was seen as ‘*an essential part of management*’ [Paula].

When asked whether organizational goals could be achieved with the program “*Improve*”, participants emphasised the need for correct and universal use of LM to achieve better performance. Most participants stated that “*Improve*” was beneficial to patients and their families, by enhancing the autonomy and living environment, and by providing increased levels of contact with family members. Table 2 provides a concise overview of the various aspects of the LM program adoption at Reside & Care.

Table 2. Concise overview of LM adoption at Reside & Care.

Aspect of LM adoption	Approach in Reside & Care
Implementation	Top-down with top management level support
Implementation strategy	Pilot sites, then broader implementation
LM objectives	Increase customer value, achieve customer desired outcomes
LM in practice	Adoption of LM tools, such as Kaizen board

CI capability of teams

To establish the CI capability of each team, we determined the maturity of the various teams using the CI capability Model.⁷ The research team combined information from both interviews and observations on six maturity indicators: 1) when the team started using CI principles, 2) integration of CI, 3) learning behaviours, 4) short- and long-term benefits, 5) the team's problem-solving processes, and 6) how the team monitored improvement. Through a process of discussion aimed at consensus we evaluated team performance and placed them in a maturity level. Whilst there is an obvious subjective component to each level, it does allow us to compare the various teams in terms of maturity.

Table 3 summarises our findings, and shows the final assessment of the CI maturity of each team.

Whilst the level of CI capability differed notably between teams, we found no pattern explaining differences in CI capability from a time perspective. Teams that began implementation early (2012, Team 01, Team 02, and Team 03) did not clearly outperform teams that adopted LM later (2013, Team 04 and Team 05, and 2015, Team 06, Team 07, and Team 08). For all teams, most participants stated that they 'engaged in conversation' during team meetings using mutual feedback and other LM problem-solving techniques. Hence, teams were typified by similar problem-solving processes, and experience over time did not seem to mandate maturity. Next, we turned our attention towards the role of leadership.

Leadership styles

Managers' transformational and transactional leadership behaviours varied. Behaviours of James related strongest to a transformational style, and behaviours of Becky aligned most with a transactional leadership style. Lauren, Mary and Arthur were typified by a hybrid approach where aspects of both leadership styles were clearly present. However, these hybrid

Table 3. CI maturity of the teams.

Team	LM experience in years	Level					CI maturity
		1	2	3	4	5	
Team 01	5			3			Goal-oriented CI
		<i>Explanation:</i> Pilot location, structure of <i>Improve</i> is not fully implemented, label <i>Improve</i> is unknown but the tools are known, structural problem-solving					
Team 02	5		2				Structured CI
		<i>Explanation:</i> Pilot location, different managers in short time frame, barely familiar with every tool, not everyone at the location is informed, structural problem-solving					
Team 03	5				4		Proactive CI
		<i>Explanation:</i> Pilot location, CI is integrated, familiarity with <i>Improve</i> and every tool, progressiveness, structural problem-solving					
Team 04	4			3			Goal-oriented CI
		<i>Explanation:</i> CI can be more integrated, label <i>Improve</i> is unknown but the tools are known, use of tools increases, structural problem-solving					
Team 05	4				4		Proactive CI
		<i>Explanation:</i> CI is integrated, every tool is being used, employees know how to use it, not everyone knows the term, structural problem-solving					
Team 06	2		2				Structured CI
		<i>Explanation:</i> CI can be more integrated, label <i>Improve</i> is unknown and not every tool is used, structural problem-solving					
Team 07	2			3			Goal-oriented CI
		<i>Explanation:</i> CI is integrated, familiarity with <i>Improve</i> and almost every tool, progressiveness and future-oriented, structural problem-solving					
Team 08	2		2				Structured CI
		<i>Explanation:</i> Familiarity with structure, but not with every tool, sometimes miscommunication within team, structural problem-solving					

Table 4. Leadership styles of Reside & Care managers.

Manager	Pronounced leadership style	Less pronounced leadership style	Typified by behaviours...
Becky	Transactional		Direct, open, confronting, say what you see, asks many questions, customer-oriented, impose conditions, contingent reward, action-oriented, overseeing
Lauren	Transactional	Transformational	Direct, action-oriented, asks many questions, taking decisions, apodictic, involvement, contingent reward, overseeing, connector
Mary	Transactional	Transformational	Action-oriented, listens, asks questions, contingent reward, passive management by exception, being proud, self-confidence
Arthur	Transformational	Transactional	Focus on feeling good, asks an open attitude, listens, learn from mistakes, facilitates, cooperation at the work floor, action-oriented, contingent reward
James	Transformational		Use of metaphors, involvement, enthusiastic, future-oriented, good atmosphere, being a role model, personal attention, customer- and care-oriented

approach managers appeared to have a prevalent or prominent style emphasising one of the possible leadership styles. Table 4 shows a summary of leadership behaviours of the managers, and is further substantiated in the next section.

Transformational leadership behaviours

We first analysed responses for leadership behaviours that aligned with the transformational leadership principles of idealised influence, inspirational motivation, intellectual stimulation, and individualised consideration. Here, we identify behaviours and actions that are supportive of these principles, and supported the LM approach.

Idealised influence. Managers stated their commitment to acting as role models; however, there was important variation in behaviours and actions they adopted to achieve this status. The managers' behaviours and actions were typified by: communication, involvement, take it (LM) seriously, positive imaging, determine frameworks, and the approach of people. One team member (Wendy) stated her manager would often cooperate on the work floor, this could be considered teaching behaviour or taking a teacher role, as mentioned by 12 of 17 participants.

Inspirational motivation. When we asked participants whether they felt inspired and motivated to work based on the "Improve" approach, the following behaviours and actions were identified: listening, give confidence, directness, convey enthusiasm, and show intrinsic motivation. Findings during the observations of team meetings of Team 01 and Team 07 included: facilitation, listening, and stimulating the conversation. Notably, the manager of Team 07 frequently used metaphors to inspire employees. For instance, the manager compared

problem-solving approaches with using a screwdriver to remove a rear-view mirror. This symbolises looking ahead at new possibilities, and avoids looking back at what had gone wrong in the past. Managers with good listening skills helped to inspire and motivate employees, a team member of Team 01 shared: '*[Manager] gives you the feeling that you are listened to; that you are understood*' [Wendy].

Intellectual stimulation. Participants shared that they felt inspired and motivated to work based on the "Improve" approach, when managers showed the following behaviours and actions: an open attitude, stimulating team members to adopt critical thinking, conversations to convey the sense of urgency for change, and stimulate new ideas and responses. The open attitude especially stimulated openness and creativity, and helped with idea sharing.

Individualised consideration. Participants indicated that facilitation and personal attention (listening) were the two leadership behaviours most important for creating a supportive work environment with individualised consideration. A team member from Team 02 observed: '*[Manager] listens to us and takes action*' [Anna]. A participant from Team 03 commented that she felt comfortable raising concerns with her manager, because '*[Manager] can serve as a critical assessor to see whether it can be done better*' [Fiona].

Transactional leadership behaviours

During observations at team meetings, managers (Becky, Lauren, and Mary) demonstrated behaviours that were classified as targeting, overseeing, and rewarding, characteristic of a transactional leadership style. In addition, we analysed responses for leadership behaviours that aligned with the transactional leadership

principles of contingent reward and management by expectation. Here, we identify behaviours and actions that are supportive of these principles, and supported the LM approach.

Contingent reward. Participants shared that appreciation or rewards, for completing improvements, were common place. Managers showed the following behaviours and actions: verbal praise, positive gestures, and more freedom or autonomy in the job. However, here we should note that in some teams (Team 02, Team 05, and Team 07) completing CI projects were considered a normal *'part of everyone's job'* [Mary], and not something that should receive additional praise.

Management by expectation. Interviews and observations suggest that managers engaged in both active and passive management by expectation. Active leadership behaviours and actions included engaging in conversation as a problem-solving technique. Moreover, managers tend to also display passive leadership behaviours, intervening only when a problem arose and first allowing employees to address issues on their own. For instance, one employee of Team 08 shared: *'(...) our team developed a card system (...), and we put these in each other's mailboxes to share issues that had emerged'* [Carrie].

CI capability of the teams

In our study, we could not classify any of the teams as being fully mature in the LM approach, i.e. having full CI capability. However, neither did we encounter teams that showed no CI capability. Team 03 and Team 05 were classified as being mature (Level 4), showing a proactive CI approach. Lauren and Mary were responsible for these teams and demonstrated a hybrid leadership style.

Team 01, Team 04 and Team 07 were classified as Level 3, indicating a goal-oriented CI approach. These teams are managed by Becky, Arthur, and James. These managers are typified by a single leadership style (Becky and James), and a hybrid leadership style (Arthur).

Team 02, Team 06, and Team 08 were classified as being Level 2, showing a structured CI approach. These managers are typified by a single leadership style (Becky), and a hybrid leadership style (Lauren and Mary).

Interestingly, Lauren and Mary are responsible for multiple teams, and these teams differ in their maturity. Here, we witness that Team 02 of Mary, that had long term exposure to LM (started 2012), does not outperform a team (Team 05) that started their LM efforts later (started 2013). However, we witness a reversed outcome for Lauren, where Team 08 (started 2015) is more mature in its LM approach than Team 03 (started

2012). Hence, experience over time does not seem to dictate LM maturity or higher levels of CI capability. However, leadership style in itself does also not entirely explain the obtained maturity level.

Ultimately, none of the teams that had a leader typified by a single leadership style reached a level of maturity beyond Level 3, i.e. a goal oriented CI approach. Interestingly, a hybrid leadership style in itself does not entirely ensure LM success or CI capability, as we also witness teams that are less mature with a hybrid leadership style in place. However, the most mature teams in our research are typified by a hybrid approach, where a blend of a transactional and transformational leadership styles are applied.

Discussion

In this study, we were interested in LM, and the role of leadership styles, and suitable leader behaviours. Based on our results, we argue that combined transactional and transformational leadership behaviours appear to promote the CI capability of teams in healthcare. In our study, we did not witness teams with a maturity level of four or higher, when they were managed with one leadership style. In turn, this leads us to believe that a hybrid leadership style is a necessary, yet not sufficient, condition for high CI capability.

From previous research, we expected that the longer team members worked with LM principles, the more mature their LM approach would become.⁸ Or in other words, experience over time should translate to a higher level of CI capability. However, our results do not support these initial ideas. Our findings do not show a linkage between duration of the LM implementation and CI capability of teams. It seems that simply the duration and exposure to a LM approach, does not guarantee higher CI capability.

Earlier work that focused on LM and maturity showed that as teams mature in their LM approach, these teams show higher levels of second-order problem-solving.²⁷ In other words, as maturity grew so did the CI capability of the nursing teams. Furthermore, the authors show that leaders invested in the development of self-managing teams, i.e. provide new responsibilities for employees. Here, we witness findings that are in line with our results, and relate to behaviours linked to intellectual stimulation.

Our findings suggest that a hybrid leadership style, consisting of a balanced application of both transactional and transformational leadership behaviours, is an important ingredient in fostering CI capability. This agrees with previous work that showed combined transactional and transformational leadership styles are most effective in leading organisational change.^{28,29} However, our findings do challenge the common notion that

especially transformational leadership is beneficial in a LM setting.¹⁶ Instead, our findings suggest that it is the combination of both styles that leads to the highest levels of CI capability, and a single style is not as successful.

Interestingly, we did not classify any of the teams as having full CI capability. High CI capability requires high levels of experimentation, plus widely distributed learning behaviours.³⁰ Perhaps, the process of experimentation and adopting learning behaviours requires more than time, experience and a hybrid leadership style. Moreover, these behaviours also need to become part of an organizational culture, and whilst this is obviously something a leader can facilitate; it is not necessarily something a leader can enforce. Another explanation relates to the impact of leadership style itself, other factors besides leadership style might be important to reach high levels of CI capability.

Proposing a framework

Based on our findings, we propose a framework (Figure 1) to structure thinking on CI capabilities in LM efforts, and the roles of leadership. The framework shows the identified behaviours related to the principles of both transformational and transactional leadership. These behaviours should be applied in conjunction to form the hybrid leadership style, and support the team in developing its CI capability.

Here, we argue that a high level of CI capability is more likely when managers are successful in blending different leadership styles, creating a hybrid leadership

style. Our framework leads us to the following propositions:

Proposition 1: A hybrid leadership style is more likely to result in more effective LM efforts, which in turn result in higher levels of CI capability.

Proposition 2: A leader of a team with a high level of CI capability is more likely to engage in both transactional and transformational leadership behaviours.

The provided framework and its supporting propositions form the major theoretical contributions of this research. The framework can be used to structure thinking in future studies, and it provides a starting point for a more focused theory related to CI capability in LM environments. In addition, this study has implications for organizations looking to adopt LM, and for the functioning LM teams. The insights provided in this study could facilitate management decisions in support of a hybrid leadership style within a team or organisational LM context. Moreover, during the assessment of new and existing managers, focusing on the application and development of hybrid leadership styles may be used in recruitment, promotion, and training, and could be used to determine the *fit* of a manager for a specific assignment.

Limitations and future research

As all research, our study is typified by some limitations. Obviously, the qualitative nature of the study does not allow us to infer the effect strength of a hybrid leadership style. However, we are able to show the associated behaviours, which have a positive contribution towards

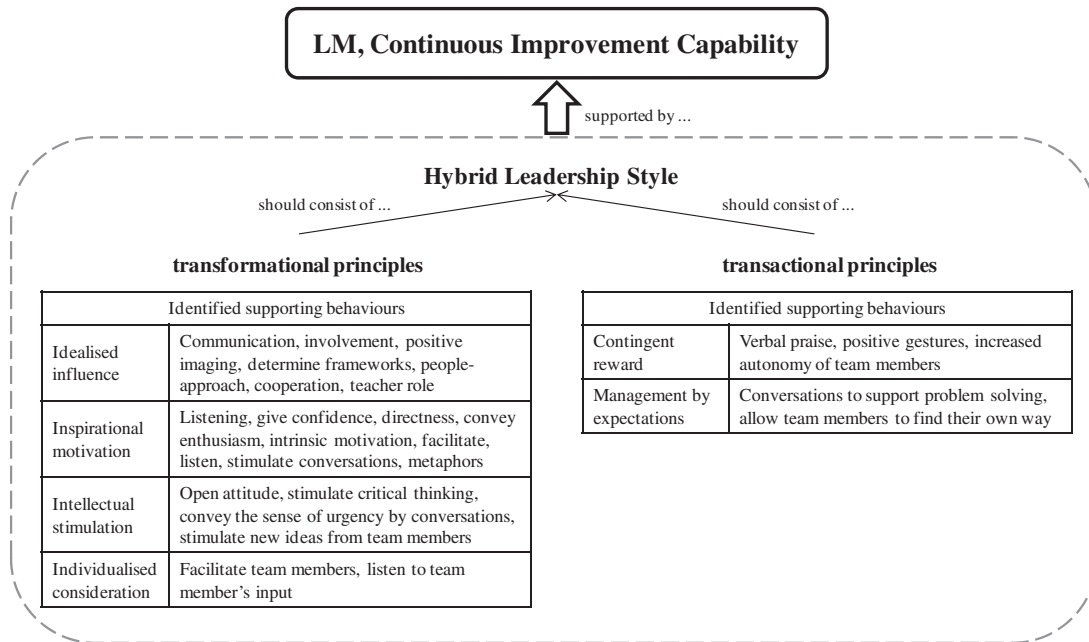


Figure 1. Proposed framework.

CI capabilities. In addition, whilst we are able to show associated behaviours, we do not intend to claim this list is exhaustive. It is very well possible that the behaviours identified in our research are a subset of a larger group of behaviours that typify a hybrid leadership style. Moreover, when we consider that we were unable to identify a team that reached full LM maturity, it is plausible that other aspects – next to leadership – have a role in the development of CI capability.

For future studies, we recommend to focus on the identified behaviours and try to identify if more behaviours belong to the hybrid style. Furthermore, future work could aim to identify the ideal balance of transformational and transactional behaviours or actions for teams to reach higher levels of CI capability. In addition, future studies could attempt to establish if the identified behaviours are typified by a hierarchy, perhaps some specific behaviours are more important compared to others. Ultimately, when a set of behaviours typical for the hybrid leadership style has been established, more quantitative work could aim to show the strength of the relationships.

Conclusions

This study adds to understanding of leadership behaviours that are supportive for LM, and CI capability of healthcare teams. Identifying the role of a hybrid leadership approach in LM is important considering the popularity of LM in healthcare. Moreover, LM methodologies have been closely aligned with transformational leadership styles. Yet, current results indicate that applying a single leadership style might not be as effective as a hybrid approach. Hence, we argue for a balanced approach where both transformational and transactional principles and behaviours are combined.

Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

ORCID iD

Oskar Roemeling  <https://orcid.org/0000-0003-1417-1129>

References

1. Tsisis P and Bruce-Barrett C. Organizational change through lean thinking. *Health Serv Manage Res* 2008; 21: 192–198.
2. D'Andreamatteo A, Ianni L, Lega F, et al. Lean in healthcare: a comprehensive review. *Health Policy* 2015; 119: 1197–1209.
3. Antonacci G, Reed JE, Lennox L, et al. The use of process mapping in healthcare quality improvement projects. *Health Serv Manage Res* 2018; 31: 74–84.
4. Mazzocato P, Savage C, Brommels M, et al. Lean thinking in healthcare: a realist review of the literature. *Qual Saf Health Care* 2010; 19: 376–382.
5. Womack JP, Jones DT and Roos D. *The machine that changed the world*. New York, NY: Rawson Associates, 1990.
6. Moore C and Buchanan DA. Sweat the small stuff: a case study of small-scale change processes and consequences in acute care. *Health Serv Manage Res* 2013; 26: 9–17.
7. Caffyn S. Development of a continuous improvement self-assessment tool. *Int J Oper Prod Manage* 1999; 19: 1138–1153.
8. Bessant J, Caffyn S and Gallagher M. An evolutionary model of continuous improvement behaviour. *Technovation* 2001; 21: 67–77.
9. Dahlgaard JJ and Dahlgaard-Park SM. Lean production, six sigma quality, TQM and company culture. *TQM Magazine* 2006; 18: 263–281.
10. Anand G, Ward PT, Tatikonda MV, et al. Dynamic capabilities through continuous improvement infrastructure. *J Operat Manage* 2009; 27: 444–461.
11. Poksinska B. The current state of lean implementation in health care: literature review. *Qual Manag Health Care* 2010; 19: 319–329.
12. Radnor Z and Boaden R. Lean in public services – panacea or paradox? *Public Money Manage* 2008; 28: 3–7.
13. Bass BM and Avolio BJ. *Transformational leadership: improving organizational effectiveness*. Thousand Oaks, CA: SAGE, 1994.
14. Bass BM. Two decades of research and development in transformational leadership. *Eur J Work Organiz Psychol* 1999; 8: 9–32.
15. Sun W, Xu A and Shang Y. Transformational leadership, team climate, and team performance within the NPD team: evidence from China. *Asia Pac J Manag* 2014; 31: 127–147.
16. Poksinska B, Swartling D and Drotz E. The daily work of lean leaders – lessons from manufacturing and healthcare. *Total Quality Manage* 2013; 24: 886–898.
17. Andressen P, Konradt U and Neck CP. The relation between self-leadership and transformational leadership: competing models and the moderating role of virtuality. *J Leadership Organiz Stud* 2012; 19: 68–82.
18. Biswas S. Impact of psychological climate & transformational leadership on employee performance. *Indian J Ind Relat* 2012; 48: 105–119.
19. Baxter P and Jack S. Qualitative case study methodology: study design and implementation for novice researchers. *Qual Rep* 2008; 3(4):5 44–59.
20. Yin RK. *Applications of case study research*. Thousand Oaks, CA: SAGE, 2003.
21. Cooper DR and Schindler P. *Business research methods*. New York: McGraw Hill, 2008.

22. Dabke D. Impact of leader's emotional intelligence and transformational behavior on perceived leadership effectiveness: a multiple source view. *Bus Perspect Res* 2016; 4: 27–40.
23. McCann J. Leadership in the apparel manufacturing environment: an analysis based on the multi-factor leadership questionnaire. *SAM Adv Manage J* 2008; 73: 20–30.
24. Miles MB and Huberman AM. *Qualitative data analysis*. Thousand Oaks, CA: SAGE, 1994.
25. Braster J. *De kern van casestudy's [the core of case studies]*. Assen: Van Gorcum, 2000.
26. Van der Sande JP. *Gedragsobservatie [behavioural observation]*. Groningen: Martinus Nijhoff, 1999.
27. Bijl A, Ahaus K, Ruël G, et al. Role of lean leadership in the lean maturity – second-order problem-solving relationship: a mixed methods study. *BMJ Open* 2019; 9: e026737.
28. Erskine J, Hunter DJ, Small A, et al. Leadership and transformational change in healthcare organisations: a qualitative analysis of the North East transformation system. *Health Serv Manage Res* 2013; 26: 29–37.
29. Wang G, Oh I-S, Courtright SH, et al. Transformational leadership and performance across criteria and levels: a meta-analytic review of 25 years of research. *Group Organiz Manage* 2011; 36: 223–270.
30. Bessant J, Burnell J, Harding R, et al. Helping industry towards continuous improvement. *Industry Higher Educ* 1992; 6: 185–189.

Appendix I. Checklist observations

Name observer: BvE

Observation of: [name of manager]

Date: Place: Time: Duration:

Explanation/Notes

What kind of role does the manager have during the meeting?

Transformational: supportive, listening, stimulating (more on the background)

Transactional: goal-oriented, monitoring, rewarding (more on the foreground)

Is the manager mainly speaking or the team members?

How does the manager react to the team members?

Transformational: convincing, gives space and support

Transactional: goal-oriented, rewarding, more "drastic"

How often do they talk about continuous improvement?

Why are they talking about continuous improvement or related projects?

How often do they talk about continuous improvement?

How does the manager facilitate talking about continuous improvement?

Does the manager bring it up himself?

Or does a team member starts about it?

Other observations (ambiance, setting, etc)
