

Sustainability and development of Lean implementations

Jörgen EKLUND^{1,2}, Agneta HALVARSSON¹, Henrik KOCK¹, Pernilla LINDSKOG^{1,2}
and Lennart SVENSSON¹

¹*Helix Vinn Excellence Centre, Linköping University, Linköping, Sweden, and*

²*Unit of Ergonomics, KTH, Royal Institute of Technology, Stockholm, Sweden*

Abstract. Lean production has become a major change strategy in Swedish public organizations. The aim of this paper was to identify factors that support or counteract sustainability and development of Lean implementations in public organizations. In an interactive research project including interviews and questionnaires, seven public organizations were followed during a three year period. Some factors supported and other factors counteracted sustainability and development of Lean. In conclusion, lack of sustained change was to a large extent due to replacement of the top managers in five of the organizations and introduction of another change philosophy, low political and managerial ownership and financial problems.

Keywords. Organizational change, Public sector, Management, Interactive research

1. Introduction

Many reports from change programs confirm the difficulty in reaching the goals (Beer and Nohria, 2000). This is regardless of the change strategy used. Today, the predominant change concept is Lean Production (Lean). There are several reports that many of the Lean implementations are not reaching their goals (Spear and Bowen, 1999; Emiliani, 2006). On the other hand there are other reports of promising results (de Souza and Pidd, 2011; Mazzocato et al., 2010).

Another aspect is the sustainability of such changes. The word sustainability is in this paper used in a meaning close to maintenance or endurance. In the context of organizational change, it can be defined as the ability to uphold the new patterns of organizing work without falling back to the previous patterns. Such change has in other words resulted in a new way of organizing work that lasts for a long time. However, this view is static, since it does not consider that changes and developments take place more or less all the time, and that a balance is needed between change and stability. Therefore, the term sustainable development better captures the dynamic aspect of the concept as we see it today. The concept of sustainable development can be defined in different ways. One way is to see development as a continuous process of change which never stops, in other words a sustained process of change (Brännmark and Benn, 2012). Another way is the definition from the Bruntland commission to " *meet the needs of the present without compromising the ability of future generations to meet their own needs*" (SOU 2004). Here, sustainable development refers to a holistic view of the needs of humans and societies from ecological, economical and social perspectives. The economic perspective means considerations to having an effective and efficient organization. The social perspective means considerations to the humans and employees working in the organization, which includes working

environment.

The working life tradition in the Scandinavian countries is much influenced by the sociotechnical philosophy and its strive to combine efficiency and effectiveness of the organization with good working conditions for the employees. By doing this, the philosophy and the way of organizing work will get the support of the most important stakeholders, namely management/owners and employees. Support from the most important stakeholders increases the sustainability of the organization and the philosophy according to which it runs (Eklund, 1998).

Lean implementations have spread from industry to many other branches in Sweden, including the public sector. In particular, politically controlled organizations have started to introduce Lean during the last decade, and this includes a large number of hospitals and municipalities. Some of these organizations have largely worked on their own with implementing Lean, and other organizations have been part of a change program. However, there is no general definition of Lean, and criteria for what may be considered a Lean implementation are vague (Langstrand, 2012). Furthermore implementations in Sweden and other Scandinavian countries seem to be different in several respects compared to those in countries where the sociotechnical influence is not present.

In another model that describes sustainability, Halvarsson and Öhman Sandberg (2009) described that all the factors: active ownership, leadership support, strategic control, competent management, involved employees and influential customers, are needed for sustainability of organizational change.

The aim of this paper was to identify factors that support or counteract sustainability of Lean inspired changes in public organizations.

2. Methods

The authors of this paper performed an interactive research project, in which the implementation of Lean in fifteen units within seven organizations was followed and evaluated. Data were collected using several methods in fifteen longitudinal case studies of Lean implementation in three hospitals and four municipalities. In total, 146 semi-structured interviews were performed. The interviews included structured questions about the work, job roles, communication, descriptions of and attitudes towards Lean and consequences of Lean. In addition, follow-up questions were asked around issues of particular interest. Further, a web based questionnaire was sent out in December 2011 and was repeated in January 2013. The questionnaire included questions about Lean, organizational development and clarity, presence of leaders' participation, leadership and steering of the lean implementation, work environment, work in general and health. It was based on previously published and validated questionnaires to a large extent in addition to some questions specifically designed for this study. The first survey was answered by 1 381 employees and managers from five of the seven organizations included (response rate 65 %). The follow up survey was answered by 1 139 (response rate 51 %), of which 894 respondents answered both questionnaires. Further, nine analysis seminars were held with the participating organizations and the researchers participated in five meetings with the consultant network. In addition, telephone interviews were held with the seven contact persons for the Lean implementations in the participating organizations for updates of the progress of the Lean implementation. The research is still ongoing.

3. Results

3.1 An active ownership

Perhaps the most important result from this study was that a long term active ownership from top management and politicians in the on-going Lean implementation process is one of the most important preconditions for sustainability. In five of the participating organizations, the top managers were changed, and the new top managers did not continue the Lean change process, since they had a different strategy or replaced Lean with another concept. In these organizations, frustration grew among the employees, especially those that previously had been working hard with the implementation. They lost their motivation to continue working with organizational change, and several of them chose to change jobs to another organization. Many of the employees perceived deteriorating work conditions. When these new top managers did not persist in organizing work according to the Lean philosophy, this was of course an example of non-sustainable organizational change. In these organizations, clarity deteriorated and role ambiguity increased. However, in the organizations that continued their implementation of Lean, the employees expressed significantly better job satisfaction, better working conditions, less stress and they were in support of the change.

3.2 A partnership approach

A partnership between the labour market parties in the organizations, where all stakeholders show interest and are active in taking part in the Lean implementation, seemed to have a positive effect on sustained Lean activities. There seemed to be more focus on employee participation and the partnership strengthened the legitimacy and the sustainability of the changes. Coaches and educators could support and emphasize the partnership. Implementation of Lean often has more support from the central unions than from the local unions. Union participation in the organizations was also in many cases limited and passive. In the cases where the unions had an active role, sustainability improved.

3.3 Sociotechnical influence

In several of the participating organizations, there was a strong sociotechnical influence, in terms of a strive for high employee participation, group work, high job decision latitude, low hierarchies, a strive for variable and broad work content. This was paired with continuous improvement, visualization, recurrent steering meetings, value flow analyses and 5S. In total, the use of Lean principles and tools was limited, and one reason for that was that Lean had only been introduced a few years ago. However, this combination of sociotechnical concepts and Lean concepts was perceived positive by the employees, as well as by management. As long as Lean was used in this way and got support from the important stakeholders, the sustainability of the organizational change was supported, (i. e. the ability to sustain change processes without compromising future ventures was supported).

3.4 The content and goal of Lean

The most common goals behind the introduction of Lean were economic savings, less usage of resources and improved service. It was only in exceptions that improved working conditions were included in the aims of what the organizations hoped to obtain with Lean. It seemed as if those organizations that emphasized only savings, and especially if they had a short term perspective on this, created worse working conditions. Such a situation was of course not fruitful for employee support of Lean and thereby not supporting sustainability of the change.

3.5 Participation in continuous improvement

The continuous improvement activities were among the most appreciated aspects of Lean. When participation in continuous improvement activities were directed towards the different problems people perceived in their jobs, this created stronger commitment from the employees. The effects were smoother processes, fewer disturbances, better quality and better work environment as well as better motivation. Sustainability was supported both through the positive attitude to working this way and also through the results that improved working conditions as well as organizational performance.

3.6 Use of consultants

Consultants are often needed in order to bring in knowledge about Lean into organizations when they start to introduce Lean. However, in some cases too much reliance on external consultants in combination with passive management, restricted the development of management Lean competence, and could result in a lack of trust and legitimacy for management. A further problem was competence drainage when the consultants left the organization. Sustainability was consequently supported when consultants were used as management support as long as needed, but not for taking responsibility of running the change processes.

3.7 Value base

Values and a value base is a corner stone within Lean. One example of this is the concept "Respect for the individual". However, concepts only become catch words if only used in pamphlets and in the organizational rhetoric. Some organizations had group activities about their value base, e.g. experiences of respectful and non-respectful ways of meeting colleagues and how they viewed respectfulness. In exercises, the employees came to conclusions of their value base and how to understand it. This seemed to give positive effects on commitment and sustainability in these organizations.

3.8 Partial implementations

Lean was often introduced in parts of the organizations, which often gave conflicting priorities and limited support from other parts of the organization, e.g. other departments of the organization or support functions such as HR. In these cases, bottle necks and imbalances were created as well as difficulties to coordinate activities between departments and to obtain improvements in the whole organization. It also generated tensions within the organizations. Further, only limited parts of Lean were introduced, most often some Lean tools, and some educational efforts. These kinds of partial implementations counteracted sustainability.

3.9 A long term or short term focus

A financial system with an emphasis on short term economic results in combination with plans for savings and reduced manning was present in several of the organizations. Resources were used for following up and evaluating these short-term results rather than long term improvement of the processes that generate results in relation to the organization's long-term strategies. It was difficult for the employees to see whether Lean was the cause of reduced manning or if there were other causes. The short term focus was present in a majority of the participating organizations. Consequently, a long term focus was closely related to sustainability of the Lean implementation, which is not surprising since the Lean philosophy assumes a long term perspective.

3. Discussion and Conclusions

This paper has followed the implementation of Lean in seven organizations during three years. The results showed that in five of these seven organizations, the Lean concept was more or less abandoned as a concept in the organizations. Consequently, implementations of Lean in the public sector run several risks of not being sustainable. The most important risks seen in the seven organizations were change of the top manager and lacking ownership. Further, partial implementations, a short term view and a focus on economic savings were other factors that counteracted sustainability. Among factors that supported sustainability were an active ownership from management and politicians, a partnership between management, employees and unions. Further, the combination of some sociotechnical and Lean principles, such as continuous improvement, in combination with humanistic values seemed to contribute to better working conditions and thereby a better support from the employees. A positive attitude to the organizational changes from management and employees seemed to contribute to improved sustainability.

References

- Beer, M., & Nohria, N. (2000). Cracking the code of change, *Harvard Business Review*, 78(3), 133-141.
- Brännmark, M., & Benn, S. (2012). A proposed model for evaluating the sustainability of continuous change programmes. *Journal of Change Management*, 12(2), 231-245.
- de Souza, L. B., & Pidd, M. (2011). Exploring the barriers to lean health care implementation. *Public Money & Management*, 31(1), 59-66.
- Eklund, J. (1998). Work conditions and company strategies. In P. Vink, E. Koningsveld & S. Dhondt (Eds.), *Human Factors in Organizational Design and Management - IV* (pp 263-268). North-Holland, Amsterdam.
- Emiliani, M.L. (2006). Origins of lean management in America: The role of Connecticut businesses, *Journal of Management History*, 12(2), 167 – 184.
- Halvarsson, A. & Öhman Sandberg, A. (2009). Hur teori kan bidra till lärande - interaktiv forskning i nationella utvecklingsprogram. I L. Svensson, G. Brulin, S. Jansson & K. Sjöberg, *Lärande utvärdering genom följeforskning*. Lund: Studentlitteratur.
- Langstrand, J. (2012). Exploring organizational translation. A case study of changes toward Lean Production. (PhD thesis, Quality Technology and Management. Department of Management and Engineering. Linköping University).
- Mazzocato, P., Savage, C., Brommels, M., Aronsson, H., & Thor, J. (2010). Lean thinking in healthcare: a realist review of the literature. *Quality and Safety in Health Care*, 19(5), 376-382.
- SOU (2004). Att lära för hållbar utveckling. Stockholm, 2004:104.
- Spear, S., & Bowen, H. K. (1999). Decoding the DNA of the Toyota production system. *Harvard Business Review*, 77, 96-108.