



CHALMERS

Chalmers Publication Library

The development and evaluation of an Innovation Engine for empowerment and change in healthcare

This document has been downloaded from Chalmers Publication Library (CPL). It is the author's version of a work that was accepted for publication in:

In proceedings of the 18th Int. EurOMA Conference, Cambridge.

Citation for the published paper:

Siverbo, K. ; Eriksson, H. ; Wijk, H. (2011) "The development and evaluation of an Innovation Engine for empowerment and change in healthcare". In proceedings of the 18th Int. EurOMA Conference, Cambridge.

Downloaded from: <http://publications.lib.chalmers.se/publication/148542>

Notice: Changes introduced as a result of publishing processes such as copy-editing and formatting may not be reflected in this document. For a definitive version of this work, please refer to the published source. Please note that access to the published version might require a subscription.

Chalmers Publication Library (CPL) offers the possibility of retrieving research publications produced at Chalmers University of Technology. It covers all types of publications: articles, dissertations, licentiate theses, masters theses, conference papers, reports etc. Since 2006 it is the official tool for Chalmers official publication statistics. To ensure that Chalmers research results are disseminated as widely as possible, an Open Access Policy has been adopted. The CPL service is administrated and maintained by Chalmers Library.

(article starts on next page)

The development and evaluation of an Innovation Engine for empowerment and change in healthcare

*Kristian Siverbo (kristian.siverbo@gmail.com)
Sahlgrenska University Hospital & Centre for Healthcare Improvement (CHI),
Göteborg, Sweden*

*Henrik Eriksson
Centre for Healthcare Improvement (CHI), Quality Sciences,
Chalmers University of Technology, Göteborg, Sweden*

*Helle Wijk
The Sahlgrenska Academy at Göteborg University Institute of
Health and Care Sciences, Göteborg, Sweden*

Abstract

This article describes how an Innovation Engine was developed and used at Sahlgrenska University Hospital to stimulate change and what experience and results it generated. The principles behind the methodology were incremental change, self-assessment, everyone's involvement and learning. The data were collected in interviews and analyzed using a content analysis approach. The strengths, weaknesses, opportunities and threats were analyzed and mapped to context, content, process and output. The evaluation shows that the methodology has advantages concerning involvement and dialogue but needs improvement in terms of information about the project. Examples of how the Innovation Engine can be applied are discussed.

Keywords Change, Empowerment, Healthcare

Introduction

There is a strong focus on the need of change in healthcare from both a patient and a political viewpoint, especially since the landmark report Crossing the Quality Chasm: A New Health System for the 21st Century (Institute of Medicine, 2001). The book identifies six aims for improving healthcare: making healthcare safe, effective, patient-centered, timely, efficient and equitable. However, the healthcare services have been a tricky business to change. The implementation and diffusion of new solutions, rather than their invention, seem to be the vulnerable phase of the change (Adler et al., 2003). In addition, the need for knowledge about the context and process of change in healthcare, in order to make change programs more effective and less time consuming, is urgent (Den Hertog et al., 2005). One problem practitioners in healthcare face is initiating and managing change in a setting in which there are many forces that work to keep the status quo (Adonolfi, 2003).

This article describes an action research project whose goal is to stimulate change in a university hospital environment. The project is part of an EU funded project called

KASK Innovation, which aims to exploit the potential for innovation of the public health sector in Scandinavia, primarily through user-driven and employee-driven innovation. The approach is action oriented and aims at producing both knowledge and change. A well defined process, including a self-assessment model, was developed and labelled the Innovation Engine, with the purpose of stimulating change. Questions raised in the self-assessment models, such as the Malcolm Baldrige National Quality Award (MBNQA) model, were used as catalysis at workshops involving the participants and one of the authors (KS). The purpose of this article is to describe how an Innovation Engine can be used in order to stimulate change and what experience and results it can generate. In particular, the Strengths, Weaknesses, Opportunities and Threats, (SWOT) (Johnson et al., 1989) of the intervention are analyzed and mapped with the use of Pettigrew's strategic change model on context, process and content (Pettigrew, 1987).

The following parts of the article cover a short presentation of how the Innovation Engine was developed. The methodological aspects are described, and the results section consists of one part that gives the results at the healthcare unit that have used the Innovation Engine. The second part of the results presents the participants' opinions about using the Innovation Engine. Finally, some general discussion and conclusions are given with regard to content, context and process, in developing and evaluating a change initiative with the use of an Innovation Engine.

The development of the Innovation Engine

The Innovation Engine was developed primarily on the basis of the pre-understanding of one of the authors (KS) who had been a consultant for twelve years in the area of change management. One particular experience was that change is often initiated from the top and then implemented in or forced upon the organization. The starting point of the Innovation Engine was to turn this upside down and find a way to produce change from the bottom up by utilizing the drive and motivation of the employees. The methodology was taken forward in a continuous dialogue with healthcare professionals and was labeled the Innovation Engine in consensus with the professionals. The label is shared with many other kinds of tools used to stimulate some kind of innovation. A number of different principles to support change were included when the Innovation Engine was developed. The principles were *incremental change*, *self-assessment*, *everyone's involvement* and *learning*.

Incremental change

One goal of the project was to identify improvements that the employees found important and possible to make quickly, i.e. incremental change rather than radical change; see, for example, the work of Imai on why incremental improvements are important (Imai, 1986). One intention here was to support a climate in which employee-driven change is seen as possible, rather than putting too much emphasis on what is actually changed in the beginning or accomplishing radical changes. Ekvall claims that a climate for creativity and change can be described with ten dimensions (freedom, risk taking, idea time, lack of conflicts, debate, trust/openness, dynamism/liveliness, playfulness/humour, challenge and idea support) (Ekvall, 1996). During the intervention, via incremental changes, we tried to support these dimensions and hence such a climate.

Self-assessment

One way to trigger a reflective approach and identify improvement areas is to use self-assessment (Finn & Porter, 1994; van der Wiele et al., 1996). The findings from Conti

suggest that several approaches to self-assessment may be successful as long as they fit the organization, are used continuously and foster participation (Conti, 2002). Moreover, it has been argued that the appropriate follow-up of the self-assessment, the establishment of action plans and their implementation, is highly dependent on the commitment of top and line management (Porter & Tanner, 1996). Many different models have been developed to support self-assessment. The self-assessment that was made during the workshops followed a structure of the MBNQA but was consciously and massively simplified in order to cohere with the purpose, and deliberately kept very open to interpretation. It was considered more crucial to find and use the urge to change than to make sure that the assessment was absolutely correct. Another key issue for choosing the self-assessment approach was that it will make it easier to implement the suggested changes.

Everyone's involvement

An important issue when making improvements is to facilitate the opportunities for all employees to be committed and participate actively in the decision-making and the improvement work (Bergman & Klefsjö, 2010). The principle of everyone's involvement is emphasized in the process of the Innovation Engine, as everyone at the department is invited to participate. When the work group is put together, some of the participants are picked randomly from the group of volunteers, and some are specifically asked to participate, in order to assure a good balance of professions, gender, age and so on. Using this method, everyone has a chance to participate. Another demonstration of everyone's involvement is that the management team should from the start be committed to executing one or more of the resulting action plans. In this way, they partly give up their right to make decisions. This can be seen as a small leap of faith, showing trust in colleagues. Since only a small part of the department is involved in the actual self-assessment, and one overall goal is to affect the climate, it was considered that visibility and dialogue were crucial. Hence, the project plan and the results should be presented to everyone, and the participants should be encouraged to discuss with their colleagues continuously, and specifically when preparing their individual assessment.

Learning

There has to be continuous learning and adapting to be a learning organization (Senge, 1990). One idea in introducing the Innovation Engine was to make it available to all the departments and units at the university hospital. The structure of the self-assessment and the terms used were therefore kept general, in order to make learning from each other possible. Since all the units and departments that run the Innovation Engine will use the same framework, the participating departments can look at each other's results and learn from each other. This works for the actual assessment and for the action plans. Over time, the knowledge base will increase as more and more data are added. The Innovation Engine should be run at each department once or twice a year in order to facilitate continuous learning. Many of the participants should be replaced each time, but some will remain in the group for more than one run in order to be able to relate back to previous discussions.

Process

Based on the principles mentioned above, a total of four phases were considered necessary and were developed and put in a process, i.e. plan project, identify improvements, define actions and prioritize actions (see figure 1).

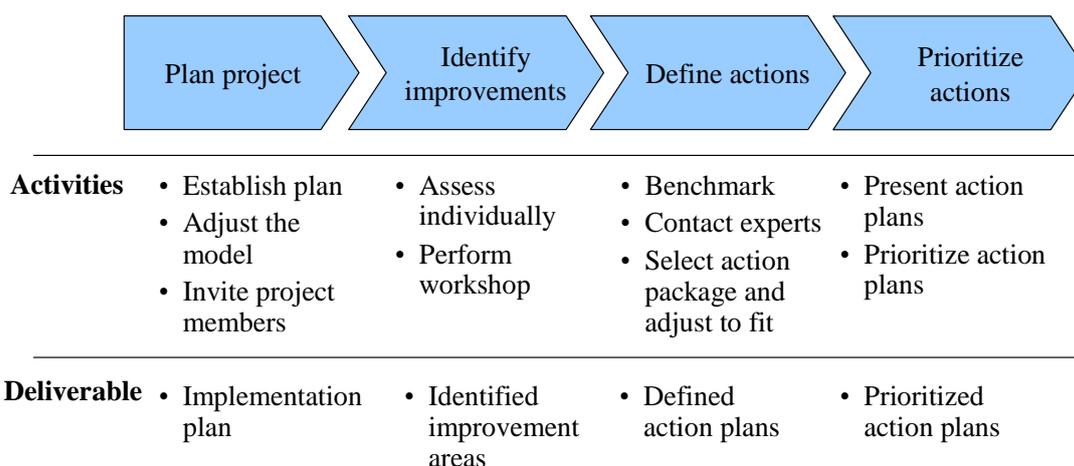


Figure 1 - The Innovation Engine process. The four phases with activities and deliverables.

Methodological aspects

Participatory action research was used in this study with the intention to stimulate a collaborative context with a partnership between the actors involved (Rönnerman et al., 2008). Characteristic for action research projects in general and the aims of this project in particular is the longitudinal spiral of steps with interrelated circles of planning, acting, observing, reflecting and replanning (Kemmis & McTaggart, 2005). The Innovation Engine process was run at the Department of Physiotherapy and Occupational Therapy at Sahlgrenska University Hospital in Sweden. The Department was chosen because of accessibility aspects and that the head of the Department had shown an interest in improving the Department. The Department consists of units at four different sites, and one workshop was held at each site. The purpose of this article is to describe how an Innovation Engine can be used to stimulate change and what experience and results it can generate. Hence, besides presenting the Innovation Engine and the results of using it, we also had the ambition to capture a deeper understanding of the participants' experiences of using the methodology.

Data collection of experiences

The study draws data and analysis from five semi-structured interviews, one person from each site participating in the workshops and the local project manager at the Department. All interviewees were considered key representatives and had been active in the project from its start. They were given oral and written information about the study. All participants who were asked to participate in the interviews accepted the invitation. The interviewees had varied professional backgrounds, being both occupational therapists and physiotherapists. It might be experienced as unpleasant to express negative opinions either to the department or to the interviewer or both. To reduce the effects of this, all participants were reassured that no data could be connected to a single person and that they had the full possibility to withdraw from the study at any time, without explanation. At the interview, the interviewer asked specifically about weaknesses to encourage the interviewee to express criticism. The interviews took place at the unit about a month after the workshops in a room chosen by the interviewee and lasted about one hour each. The audio-taped interviews were conducted by one of the authors (KS), who transcribed two of them verbatim afterwards. The remaining three interviews were transcribed by a professional secretary.

Data analysis of experiences

The data were analyzed using a content analysis approach. The text was read several times by one of the authors (KS) in order to explore the contents and the explicit meaning of the interviewees' experiences. Text relevant to the purpose of the study was marked and extracted as meaning units. The meaning units were identified and condensed by one of the authors (KS), and then coded using a scheme combining SWOT analysis and Pettigrew's classification, which includes the context, content and process dimensions (Pettigrew, 1987). To finalize the analysis, all condensed units with the same coding were grouped into categories (Graneheim & Lundman, 2004). The analysis was carried out by the three authors to reduce any interviewer bias and to interpret the results as objectively as possible. To ensure validity and confirm the findings, the results were presented to staff that also had experience of the Innovation Engine.

Results

Results of using the Innovation Engine

One outcome of this action research project was the results of the four workshops that pointed out the strengths and areas needing improvement. The resulting self-assessment matrices had similarities, e.g. there was a common positive opinion about leadership, but there were also obvious differences. This is only natural, partly because the assessments were made at different sites, and partly because the methodology consciously allows subjectivity. The matrix does not claim to represent an objective truth about the workplace but rather the subjective opinion of the participants as a group. For pedagogical reasons the result from one of the assessments is included (see figure 2).

Customer Focus	Customer Needs	Customer Management	Customer Information	Customer Complaints	Customer Satisfaction
Process Management	Process Design	Process Goals	Knowledge about Processes	Process Problems	Process Improvement
Leadership	Process Responsibilities	Improvement based on customer needs	Business Development Dialogue	Individual Goals and Action Plans	Causal Analysis
Human Resource Focus	Business skills	Action Plans for competence development	Workforce Involvement	Creativity and Innovation	Business Development
Information & Analysis	Information Access	Information Security	Decisions based on facts	Benchmarking	
Strategic Planning	Planning based on external requirements	Planning based on customer requirements	Planning based on business intelligence	Planning based on performance	
Results	Customer-Focused Outcomes	Process Effectiveness Outcomes	Workforce-Focused Outcomes	Financial and Market Outcomes	R&D Outcomes

Figure 2 - Results of a self-assessment workshop. Black areas show potential for improvement and white areas show strengths.

Another result was the action plans derived from the four workshops. The results of the workshops were merged into action plans during a meeting between representatives from the four workshops, the management team and one of the authors (KS). The action plans concerned 1) patient focus, 2) benchmarking and 3) creativity and innovation.

Experiences of using the Innovation Engine

Findings from the analysis of the interviews resulted in 228 meaning units. In addition, it was possible to detect the areas of Pettigrew’s classification in which the interviewees believed one could find the meaning units (see table 1).

Table 1 - Number of meaning units, using SWOT and Pettigrew’s dimensions.

	Context	Content	Process	Output	Total
Strength	12	6	33	11	62
Weakness	11	29	21	11	72
Opportunity	9	19	17	5	50
Threat	13	6	13	12	44
Total	45	60	84	39	228

Furthermore, the grouped and categorized meaning units show 36 categories (see table 2).

Table 2 - Categories concerning the interviewees’ opinions of the intervention.

	Context	Content	Process	Output
Strength	Leadership. Open discussion.	The self-assessment model. The excel tool.	Individual preparation. The workshop. Employee-driven.	Mutual understanding. Inspired participants.
Weakness	Poor motivation. Too much diversity among employees.	Project information. The form used in the individual preparation.	Not evidence-based assessment. Unclear process. Time-consuming.	Biased assessment. Communication of the project.
Opportunity	Climate for involvement. Assigned resources for change.	Clarify the objective of the project. Evaluating specific issues.	Management dialogue. Project publicity. Enhanced teamwork.	The initiatives for change. Climate for change.
Threat	Economic distress. Forced change.	Too subjective assessment. Too narrow focus.	Management interference. Too much compromise. Representation in the workgroup.	Problem orientation. Inexact assessment.

Context

Over the years, the prevalent reason for change within healthcare has been economic distress – or at least there is a strong opinion among the employees that this is the case. This has had the effect that you might be met by scepticism when speaking about change. It is hard to find the motivation to take part in change projects. As expressed by one of the interviewees

*“if creativity is born out of the need to save money,
that is a barrier rather than an opportunity”.*

Another aspect of the context is that the participants in the assessment workshop had different backgrounds, roles and so on. This diversity can present a barrier when trying to reach consensus. However, it can also be viewed as a strength of the context to be able to look at the organization from different angles. Other strengths of the context are trust in the leadership and an open climate for discussion. One comment was that

*”our manager really encourages improvement work and new ideas,
and allows us to try things, learning by doing”.*

Content

The self-assessment model used in the Innovation Engine was viewed by the interviewees as a comprehensive model, but it was difficult to understand without a thorough explanation. It was not until the group discussion in the workshop that the participants fully understood the model. Even though the model puts the spotlight on many important aspects, there is still a risk that the work group will focus too much on what is at the top of their minds. On the other hand, it could be seen as an opportunity to use the model when assessing a specific issue. The excel tool used at the workshop to put together the information was considered very visual and helpful. The project information could be improved to make it easier to understand the purpose of the project and the assessment model. Another important piece of information that should be spread is how much time and effort it takes for each participant. One comment was that

*“there is a risk that if you’re not clear on how much effort it takes,
people will eventually not dare to volunteer for these kinds of projects”*

and that is contradictory to the objective of the project. At some of the sites the invitation to participate in the project was presented at a meeting, and at other sites the invitation came only in emails and on notice boards. A meeting is preferable, which was expressed as

*”I think the information was received well at the sites where they had a meeting,
in addition to email and website”.*

Process

One of the cornerstones of the Innovation Engine is that it is employee-driven, and this is also perceived as one of its major strengths by the interviewees. The starting point that the majority of the workgroup should be from the group of volunteers is supported by the interviewees, even though this does not guarantee a balanced representation in the work group. The interviewees express an ambition to increase their engagement in the project but, on the other hand, there is a feeling that it is too time consuming for the participants. One interviewee expressed that

“maybe it’s time consuming just because it’s new”.

Even though making an individual assessment caused a great deal of frustration, the interviewees felt in retrospect that it was a necessary step to prepare for the workshop; however, the participants were not ready for the effort it took. Clarity about what is expected of the participants and more readily available support during the individual preparation would have reduced the frustration experienced. On the other hand, the workshop was viewed as a positive experience, expressed as

“I personally think it is a way of working that works”.

The assessment is intentionally subjective and open to interpretation, but if the result is too far from facts it might cause a feeling of arbitrariness,

“it was like ‘let’s find some areas’, and we found some, but maybe we could as well have ended up with some other”.

The fruitful discussion with the management team was one of the most rewarding effects, expressed as

“they not only listened, they even found it interesting”.

There is a risk, however, that they interfere too much and suppress the participants’ inspiration, partly owing to their access to information. The result risks becoming too much of a compromise so that the really brilliant ideas might get lost along the way. One of the interviewees said that

“they [the management team] altered the issues to something I maybe didn’t recognize”.

One major opportunity that should be exploited is to improve the publicity about the project. Since one overall goal of the project is to affect the climate for change, communication is crucial before, during and after the project.

Output

The actual hands-on results of the project are three action plans. It is too early to draw any conclusions as to the effectiveness of the actions, and neither is that the purpose of this study. There is also a common feeling among the interviewees that the assessment is probably biased and does not show a true picture of the department. However, that there are action plans is a goal in itself. A strength of the output of the project is the perceived increase in understanding between different work groups, different professions, and between management and the participants.

Since only a fraction of the employees are actively involved in the project, in order to use resources efficiently, the influence on the climate relies heavily on the diffusion of the effects and experiences of the project. In the interviews this is seen as a weakness that has to be improved, cautiously expressed in one interview as

“I think maybe then, it has affected us who participated, but not that much the whole group, maybe”.

The participants agree however that it has been inspiring for them and that it is too early to say whether it will have a positive effect on the department as a whole, in creating a climate for change.

Discussion

Practical and research implications

The top management at the department has said they want to continue with the Innovation Engine, which is a sign that it had practical relevance for them. They have furthermore indicated that they want to integrate the Innovation Engine with the balanced scorecard process. The hospital has also shown an interest in using the Innovation Engine as an auditing tool. This implies that the Innovation Engine could be integrated in both auditing and balanced scorecard processes in healthcare in order to strengthen the empowerment. Another possibility that has been discussed is to apply the

Innovation Engine methodology to a specific process instead of at a department. It is also possible that action plans derived from this initiative will be turned into packaged services, available to other hospital departments that also run Innovation Engine projects and identify similar issues. In this way, the competence and the climate for change at the university hospital can in the long run be stimulated and improved. There are many sub-cultures in a large organization such as Sahlgrenska University Hospital and the possibility to perform employee-driven change varies. In terms of context, it seems that, at the department at which the Innovation Engine was tested, the top management allows and encourages employee-driven change, and the results of the project, perhaps as an effect of the leadership, were rather satisfactory. Most likely, a leadership group that did not support employee-driven change would generate a different outcome. Following the arguments above, one implication is that a prerequisite is that the top management is supportive. This fact could possibly be especially relevant in healthcare since the approach to change is often top-down and employees are not as willing to take actions if the top management is not committed. Another implication is that it is a misuse of resources to work with people that do not want to work for change. The methodology of the Innovation Engine puts a great deal of emphasis on the opportunity for employees to take the initiative to change. We suggest that it is better to choose other change initiatives if these two prerequisites, top management commitment and employee willingness to work for change, are not present.

Methodological considerations

The objective to stimulate collaboration and partnership between the actors involved in this case was partly fulfilled by using participatory action research. Due to the short time frame, however, the ambition to conduct repeated spiral of steps could not be fulfilled (Kemmis & McTaggart, 2005). The semi-structured interviews were found to be a good strategy for capturing the variation in the participants' experience of using the methodology. No one declined to participate, indicating that both this form of data collection and the opportunity to reflect on using the Innovation Engine were appreciated. An alternative would have been to conduct focus group interviews including all the participants or to use a questionnaire. Neither of these strategies was considered needed in this case since the semi-structured interviews generated a rich amount of qualitative data. To give the research trustworthiness, the data collected and the persons invited to participate seemed to be relevant regarding the aim of the study, and represented a similar context and similar circumstances. The data collected were comprehensive and very well suited for subsequent content analysis (Kvale, 2009). By combining SWOT with Pettigrew's classification in the analysis, this study also tries to make a contribution to the methodology in the area. This way to visualize the analysis could be recommended in other research.

Conclusion

It is our intention here to contribute to a better understanding of change in a healthcare setting and to shed light on what kind of issues managers must deal with when they try to stimulate change. Specifically, the purpose of this article is to describe how an Innovation Engine can be used to stimulate change and what experience and results it can generate. One result of the project is the three action plans, concerning patient focus, benchmarking, and creativity and innovation, that were developed and implemented. The results of the evaluation will also contribute to a new and improved Innovation Engine methodology that can be used by practitioners in the future. This article also highlights the need to address not only the content but also the process and

context when initiating change. In contrast to many other change initiatives in healthcare, which are often initiated at the management level or at a political level and implemented in the organization, we have tried a bottom-up approach with empowered employees. Our conclusion is that this empowerment approach is a promising avenue for change in healthcare. In particular, the analysis implies that an open dialogue with managers that unconditionally trust their employees is needed. This can result in inspired employees that can perform changes and, by doing that, also make the climate more tolerant to change. However, one important issue to work on for managers in healthcare is to motivate employees to want to work with change. People who have been subject to too many unwanted and forced changes may have lost their passion to develop and improve. Our wish is that the Innovation Engine can be a useful methodology for making change enjoyable.

Acknowledgements

This project has been funded by KASK Innovation at Sahlgrenska University Hospital.

References

- Adler, P. S., Riley, P., Kwon, Seok-Woo, Singer, J., Le, B., and Satrasala, R. (2003). Performance improvement capacity: Keys to accelerating performance improvement in hospitals. *California Management Review*, 45(2), 12-33.
- Adonolfi, P. (2003). Total quality in public health care: a study of Italian and Irish hospitals. *Total Quality Management*, 14(2), 141-150.
- Bergman, B., and Klefsjö, B. (2010). *Quality, from Customer Needs to Customer Satisfaction*. Lund: Studentlitteratur.
- Conti, T. (2002, 25-27 June 2002). *A road map through the fog of quality and organizational assessments*. Paper presented at the The 7th World Congress for Total Quality Management: Business Excellence. Make it Happen, Verona, Italy.
- Den Hertog, F., Groen, M., and Weehuizen, R. (2005). *Mapping Health Care Innovation: tracing walls and ceilings*.
- Ekvall, G. (1996). Organizational Climate for Creativity and Innovation. *European Journal of Work and Organizational Psychology*, 1996(5(1)), 105-123.
- Finn, M., and Porter, L.J. (1994). TQM Self-assessment in the UK. *The TQM Magazine*, 6(4), 56-61.
- Graneheim, U. H., and Lundman, B. (2004). Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse Education Today*, 2004:24, 105-111.
- Imai, M. (1986). *Kaizen: The Key to Japan's Competitive Success*. New York: Random House.
- Institute of Medicine. (2001). *Crossing the Quality Chasm: A New Health System for the 21st Century*. Washington DC, USA: National Academies Press.
- Johnson, G., Scholes, K. and Sexty, R. W. (1989). *Exploring strategic management*. Scarborough, Ontario: Prentice Hall.
- Kemmis, S., and McTaggart, R. (2005). Participatory action research. Communicative action and the public sphere. In N. K. Denzin & Y. S. Lincoln (Eds.), *The SAGE handbook of qualitative research* (3rd ed., pp. 559-603). Thousand Oaks, Ca.
- Kvale, S. (2009). *The qualitative research interview* (2 ed.). Lund: Studentlitteratur.
- Pettigrew, A. M. (1987). Context and action in the transformation of the firm. *Journal of Management Studies*, 24(6), 649-670.
- Porter, L., and Tanner, S. (1996). *Assessing business excellence. A guide to self-assessment*. Oxford: Butterworth Heinemann.
- Rönnerman, K., Salo, P., and Furu, M. E. (2008). Action research in the Nordic countries. In K. Rönnerman, M. E. Furu & P. Salo (Eds.), *Nurturing praxis. Action research between school and university in a Nordic light* (Vol. 3, pp. 21-37). Rotterdam: Sense Publishers.
- Senge, P. M. (1990). *The Fifth Discipline*. London: Century Business.
- van der Wiele, A., Williams, A. R. T., Dale, B. G., Carter, G., Kolb, F., Luzon, D. M., Schmidt, A. and Wallace, M. (1996). Self-assessment. A study of progress in Europe's leading organizations in quality management practices. *International Journal of Quality and Reliability Management*, 13(1), 84-104.