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Process Analysis in an Academic Environment

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Abstract

Process improvement is frequently discussed and is being implemented in both industry and other organizations, but the results of these efforts have not always been satisfactory. The purpose of this article is to explore the limitations of and potential for process oriented improvement in an academic environment, based on experience from Chalmers University of Technology.

It was found, as could be expected, that process oriented improvement can work in a university setting. The improvement projects chosen concern administrative processes, hence they should not be very different from processes in other types of organizations. While the improvement methodology required some training and experience, the real challenge was linked to the existing organization and barriers within its social system, political power structure and culture. In order to overcome barriers, the importance of *contact* between project members and key stakeholders is emphasized.

1. Introduction

Is process analysis a viable improvement tool in an academic environment? Can it be used as an instrument for supporting personnel development? And can it be used to design more adequate specifications for IT support? These were questions that started the *Process Analysis at Chalmers Project, PAC*, in the autumn of 1998. The aim of the PAC project was both to train employees in process analysis and to conduct two pilot projects in order to accumulate experience that could be applied to any future improvement activities at Chalmers. The pilot projects were chosen to deal with existing problem areas. One project, *The ED project*, concerned the administrative support process to the development of researchers, specifically, from their application to a doctoral program until they finished their Ph.D. The second pilot project, *The RP project*, concerned the hiring of personnel, from the identification of a need to the start of a new job.

The focus in this paper is a comparative analysis that aims at understanding the flow and barriers in the projects in order to identify the limitations and potential for process oriented improvement in an academic environment.

Data on the PAC projects comes from various sources and were collected by different methods - from observations, while actively participating as facilitators, by scrutinizing documentation and listening to presentations by the project groups, and through interviews. Before an analysis is given of the projects it is important to describe the researchers' view of process oriented improvement since this influences the way in which referenced theory is chosen, as well as the interpretation of the data.

2. Process oriented improvement

A foundation for this paper is the perspective that process orientation is a matter of viewing reality as an open system. Thus a part of an organization is interconnected to other parts within or outside the organization. Janov (1994) states that an effort to change one part of an organization can be impossible or be disturbed due to inertia from other parts of the system. Process analysis aims at understanding a system or parts of it in order to improve it.

A number of authors describe process oriented approaches, e. g. Rummler & Brache (1990), Harrington (1991), Camp (1989), Hammer & Champy (1993) and Davenport (1993). These approaches can be divided into three basic categories: process analysis, benchmarking and process reengineering, and each have their advantages and weaknesses (Alänge 1996). Several authors have also pointed out the difficulties in the implementation of process improvement programs, for instance Davenport (1996) and Hammer (1996). Initiatives for process improvement often result in process maps. However, these maps are most often filed away, or extensive plans are developed from them, but no recognized improvement activities are carried out. Why? Commenting upon frequent reasons for failures in change projects, Tichy (1983) emphasizes the need of seeing a change process from different perspectives simultaneously in order to increase the success rate. In line with Tichy's notion, Alänge (1992) developed a framework according to which change can be analyzed and must be simultaneously supported along technical, social, political and cultural dimensions. According to Kotter (1998) the change process goes through a series of phases that, in total, usually require a considerable length of time. Skipping steps only creates the illusion of speed and never produces a satisfying result. How is it possible to avoid skipping important steps and making critical mistakes? Research and experience have shown that the stages in the experience cycle (Scheinberg & Alänge, 2000), also

called the energy cycle, describe a full cycle of work. The experience cycle originates from Gestalt therapy (Perls, Hefferline & Goodman 1951 in Clarkson & Mackewn 1993) and illustrates how change takes place in stages while an individual is completing a full experience. The application of this cycle was later extended to include change in families, in groups and also in organisations (Kepner 1980, Nevis 1987, Clarkson 1989, Scheinberg 1995). A schematic description of the experience cycle is shown in Figure 1.

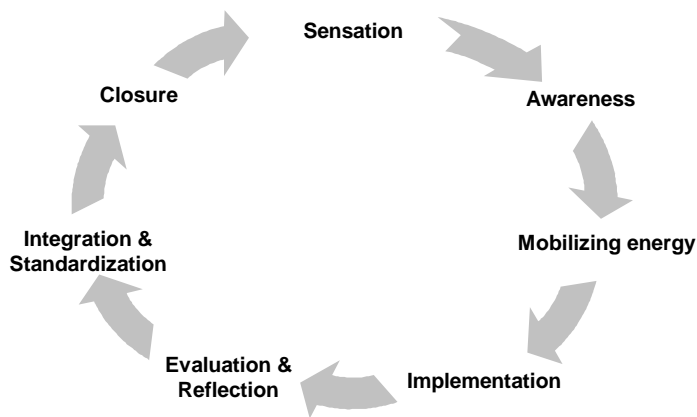


Figure 1: The Experience Cycle (a modified version of Scheinberg & Alänge 2000)

The model is based upon the notion that, to start an action, energy is needed and must be mobilized in order to take action. And when the action or task is completed, the energy instead can be withdrawn from the first task and then be used for other tasks. This flow of energy is better pictured in a circular rather than in a linear, step by step description. Analogous to Lewin (1948) the model emphasizes the need to prepare for change – unfreezing – and the importance of reducing energy and stabilizing the implemented change – refreezing. The experience cycle can be used to evaluate and reflect upon improvement projects (Scheinberg 1995), which is the case in this study. It can also be used as a planning tool for smaller improvement activities as well as for large scale change projects (Scheinberg et al. 2001).

According to the cycle (Scheinberg 1995), before an improvement initiative can be introduced, a *sensation* of the existence of a problem or an opportunity must arise. In the case of a problem, for

instance, there is a need to take notice that a problem or potential problem exists. Once you have acknowledged the problem, it is important to become aware of the problem. Such *awareness* of the problem can be reached by data collection and by the use of tools for analyses. Such tools can include process mapping, QFD, FMEA, the seven quality tools or the seven management tools. However, before advancing from the awareness of the problem to taking actions to solve the problem, there is a need to *mobilize the energy* and access the resources needed to take action for example, to identify the stakeholders and the needed resources, including the right project members. The time frame, roles and responsibilities, project goals and measurements should be decided upon at this stage as well. If key stake holders were involved early and no one was left behind, the *implementation* or realization of the planned improvements is well prepared, is based on facts and is ready to be tackled. To be able to know what has been accomplished, it is important to *evaluate* the outcome of a project in relation to the project goals. And, in order to be able to improve the way projects are being conducted, it is essential to *reflect* on the work process. Next comes the *integration* of what was learned – how we can make use of, or *standardise*, the project results. At this stage it is even possible to decide whether to diffuse the results to a wider audience. Finally, there is a time for *closure*, to celebrate if we have been successful or to mourn if our results were not good. The main point during this last phase is to take a moment to reduce the focus on the project and to free resources for new assignments.

When working in a project group it is essential that all members feel and are in agreement that a certain stage has been accomplished and hence that it is time to move to the next stage. At the specific moment of agreement, *contact* occurs between the members. This form of agreement can be formally written or verbally agreed upon, but there can also be a more subtle form of agreement, such as eye contact between the participants. It is the responsibility of the project leader to make sure that all participants are in contact, i.e. agree that the work has been done and that they are ready to continue to the next step. A comparative analysis of the pilot projects is made below, according to the experience cycle.

3. Comparative analysis

Both pilot projects aimed at improving administrative support processes, but the initial concerns, or *sensations* experienced, were different in character. The RP project was started because there

was a perception that the recruitment process was dysfunctional. In parallel, an alternative interpretation existed among some stakeholders that the problems were mainly a result of the fact that personnel in the recruitment process did not follow issued instructions. This difference in interpretation of the perceived underlying problem in combination with the fact that one of the key stakeholders did not take part in the initial analysis created problems in the RP project. The ED project, on the other hand, started as a result of a need to achieve more efficient and effective administrative routines. The personnel shared a sense of double work between the central administration and the school level. An important difference in this and the RP project was that no presumption existed as to what caused the problems. The focus of the ED project was to find an appropriate improvement project and learn more about process oriented improvement.

A common understanding or *awareness* of a problem or opportunity can be reached by collecting facts and holding a dialogue. An opportunity to clarify viewpoints and reach an understanding of differences in opinion can serve as a basis for further joint action. Some key stakeholders in the RP project did not participate in this kind of dialogue, which aggravated the difference in opinion on the scope and led to greater conflict between the different interest groups. Hence, there was a clear lack of contact or common understanding between key stakeholders. In contrast, in the ED project, early involvement created excellent contact among stakeholders.

The differences experienced thus far in the sub-projects had led the projects into different situations, which were enhanced during the time that the projects were *mobilizing energy* - planning for the implementation of improvements. The project leader and project members of the RP project were very enthusiastic and involved in collecting missing facts. The lack of a shared goal and view on process improvement however led to criticism of the project. While the RP project advanced rather quickly and had to change its project leader for family reasons the ED project had a dyadic leadership and slowly evolved through an organic process in search of a concrete and limited project. In this search for a suitable project, key stakeholders were involved and shared common defined goal. A common contact between key stakeholders was achieved before moving on to the implementation of the project.

Although differences still existed between the key stakeholders who were part of the recruitment process, the *implementation* of the RP project was initialised. Communication through e-mail helped the project group to progress throughout the project. The results of the first detailed analysis of the advertising sub-process and the suggested improvements could probably have developed into a limited success story. While the RP project members were enthusiastic and felt great joy in working cross-functionally, the lack of agreement and a common understanding of the problem between key stakeholders had a negative impact on the momentum of the project. Add to this that other important assignments stopped the project for two months. The project eventually came to a total standstill. One reason for this was a lack of understanding of process oriented improvement. The leaders of the ED project also received negative comments on suggestions and experienced obstacles in their work, but their shared leadership provided stability to the project. The dyad leadership continuously generated a forward force. If one of the project leaders had a temporary heavy workload, the project could still take steps forward. Frequent, prepared short work sessions, of a maximum of two hours and assignments between the sessions carried through the implementation. The importance of implementing through frequent prepared meetings, with assignments and communication between the meetings, was emphasised by several of the participants in the two sub-projects.

In the overall PAC project, *evaluation and reflection* have been woven into the implementation of the two pilot projects. Time has been taken in both pilot projects to evaluate the outcome of the work done so far and to reflect on the work process, i.e. the way the project has been conducted. In addition, participants from both projects shared experiences and presented results achieved up to that time in December 1998 and March 1999. These sessions can be seen as part of a continuous reflection in the ED project, where the two leaders regularly reflected on the experiences in their own dyad, in the small working group and together with the facilitators. This created stability and a continuous learning process during the implementation phase in the ED project. On the other hand, the RP –project, as said above, had to change its project leader. The first project leader wrote down her views on what worked well and what needed improvement. These reflections were then submitted to the second project leader, who used them as a basis for her presentation at the first sharing meeting. The second phase started with a standstill because the new project leaders lacked time. After finishing her other assignment, the second project

leader continued the work with great joy. Criticism and judgements, however, largely due to the lack of contact in the previous stages of the work, pushed the project to a total standstill. In June 1999 the situation was analysed and learning from the ED project influenced a redesign of the project. The project leadership was transferred to the school level from the Central Administration. However, primarily because of competing priorities at the school in charge, there was a low momentum and little was gained.

As the problems in the recruitment process were still not solved, the rector decided to make a reorganisation and start a new "RP project" in March 2000 (18 months after the first RP project was initiated). The design of the new project reflects some of the learning that was gained from mistakes made in the original RP project. This time, the key stakeholders from the Central Administration were involved from the start, in a steering committee together with a Dean, who had a strong interest in creating a well functioning recruitment process. In addition, a dyad project leadership was formed with trusted co-workers of both key stakeholders. One of these project leaders also had experience from participation in the earlier, successful ED project. This new RP project finally became a success.

As mentioned in the introduction, the aim of the PAC project was both to train people in process analysis work and to conduct pilot projects in order to accumulate experience and integrate learning that could have a positive impact on future improvement work. If the integrated knowledge were diffused on a wider scale at Chalmers, a *standardised* way of approaching process improvements could be achieved. Interviews show that persons involved in the PAC project view the process oriented approach used as very powerful and as an inspiring and fun way of improving their work. Several of the interviewees enthusiastically described how they had started to view things differently, and some were now involved in using the approach on other issues. Thus one result of the PAC project is in fact that, among the personnel involved, the process improvement approach has been integrated into their "tool-box". On a sub-project level both sub-projects show obvious signs of integrated knowledge and standardisation. A new standardised way of advertising was developed at an early stage in the RP project. In the ED project several improvements in administrative support to doctoral students have been standardised and are now also being diffused to other parts of Chalmers. For instance, the School of Technology and Management is planning an improvement project based on the experience

gained and improvements made in the ED project. The contact between members of the two projects has also led to a diffusion of ideas and integrated knowledge. For example, an attempt to create a dyadic leadership was made and all key stakeholders were involved in the subsequently started improvement project for the recruitment of personnel.

Projects that are started but never completed, regardless of whether they are successes or failures, remain a burden for the members of the organisation in the form of “unfinished business” (Scheinberg 1999). It first seemed that the RP project would not reach any final *closure*, which could create obstacles for future improvements. However, since powerful members of the organisation, including the rector, felt a continued strong need to improve the recruitment of professors and set up a new project which turned out to be successful a closure on an organizational level might have been accomplished. This might not fully be true for the individuals who initially brought their enthusiasm and skill to the RP project, as there has been no joint closure of the RP project and no time to jointly sum the experiences. However, interviews with some participants indicate that strong trust developed in the process improvement approach and that they do not perceive their work as totally meaningless, as there has been an effect on the recruitment process. These perceptions have contributed to at least a partial, although individually based, closure of the RP project.

Successive work through the stages and excellent contact in each stage has led the ED project into a stage of closure. Actions have been decided upon and a common conclusion among several of the participants was that it was probably good that it took a long time since personal changes take time. The interviewees also enthusiastically described that new areas for improvement are in focus. Some of the interviewees described the work as a great joy and that it did not take energy to work in this way, but rather that it provided energy.

It is obvious that the work process in both projects has had to overcome various barriers. It is also clear that the flow has been positively affected by various factors. Using the analysis as a base, the flow and barriers to improvements will be further discussed below.

4. Discussion - the flow and the barriers

The empirical analysis has shown that the flow in the work process of the pilot projects has frequently been disrupted by different kinds of barriers. How can the factors that influence flow in the work process, i.e. the barriers and the facilitators of change, be understood?

The flow was interrupted at many different stages in both pilot projects, starting early, at the transition from the initial sensation to the awareness stage. This interruption was different in character in the two cases. In the ED project one block was temporarily and mainly an effect of a lack of experience in using the mapping technique combined with concern about how a perceived “chaos” of yellow “post-its” could possibly turn into order. Another and stronger block had nothing directly to do with the work at hand or the methodology used, but was instead a direct effect of the lack of communication and understanding between the Central Administration and the school level representatives. An effect was that, in a number of the early meetings, considerable time was spent on discussing issues of misunderstanding. Although this latter block was independent of the process analysis task, it nevertheless was an important issue for the participants to bring up in the working group - and this opportunity for discussion had a strong positive influence on the continued workflow. This example points to the need of conducting an analysis in an open system perspective and frequently also on different system levels. In addition, there is a need to comprehend that the barriers experienced may originate in qualitatively different systems such as the technical, social, political or cultural systems.

Technical problems may become a more complex dilemma if not properly addressed. For instance, work that takes a great deal of time because of inefficient software may slow the momentum and wear down enthusiasm. This might lead to confusion, negative attitudes or conflicts between members of the project group or with stakeholders surrounding the group. The critique of the RP project at one of the sharing meetings may stand as an example of a technical problem that turned into a problem of a social nature. At this point, actions such as providing greater resources, changing the structure of the project or changing the approach of the work might be fruitful. However, the critique could also be a symptom of already existing social, political or cultural problems, which are being expressed in terms of perceived technical problems. If the critique at the sharing meeting was a result of an underlying political power

struggle between different points of view, then actions such as those mentioned above are not effective. The problems are less tangible and more difficult to solve.

A situation that is even more complex to analyse is that in which there are different cultural values and basic assumptions about human behaviour that underlie an identified problem. These values and assumptions can for example influence mutual trust and respect and affect how individuals are treated. Hamed & Micconet (1999) showed that basic assumptions and cultural values may be in direct conflict with the requirements for process improvement according to a bottom-up approach, i.e. where employees are being empowered to improve their own process. Swedish national values do not create any barriers as they go hand in hand with the basic requirements for empowerment, i.e. trust and a belief that humans want to do good if given the opportunity (Miconnet & Alänge, 2000). In organisations, however, different kinds of professional sub-cultures can develop that go against these values. For example, although Chalmers is a private university, its background is the state university system, with its “civil servant culture”, i.e. a professional administrative culture that has developed over many years. This professional group played the role of the state’s extended arm to govern the functioning of the universities and ensure that all things function according to set rules. Such a civil servant sub-culture takes part of its pride from being able to translate rules and regulations from the government in order to direct and instruct the departments of the university, i.e. instead of having a customer and service focus, this sub-culture easily becomes dominated by its control focus. Hence, from the perspective of this sub-culture, the delegation of improvement work and empowerment of employees in the work process to develop and implement new solutions is not totally natural, i.e. this conflict with the sub-culture values can contribute to block an improvement process based on a bottom-up approach. The extent to which such a sub-culture would hamper development would be difficult to discern, however, as the arguments would be expressed in technical language – not efficient etc.

The pilot projects have amply demonstrated that a lack of contact - and shared view of the problem – between key stakeholders and project members can severely hamper improvement processes. It seems as though individuals actively involved in mapping processes and finding areas for improvement become very involved and inspired, and feel that they can have an

influence and bring about change. In the words of one interviewee: “This has been the most fun and interesting work I have done at Chalmers – I would be happy to be included in a new project”.

Several examples of good contact creating steps can be identified in the projects. An example in the RP project is that, after each meeting, minutes of the meeting were distributed directly after the meeting. In the ED project the dyadic leadership and regular meetings with the work group, clear assignments and follow-ups complemented with meetings with the facilitators aided the creation of contact.

A number of examples of not being in contact can also be identified – rushing to the next step or leaving some individuals behind – where the opportunities for energising the work were diminished. There is especially a risk that key persons who do not directly participate in the nitty-gritty work of mapping processes will never develop an understanding of the improvement logic and the methodology and may hence block the improvement work. This demonstrates the importance of involving and training all key persons in the methodology and change approach in order to avoid this kind of block, which depend primarily on ignorance. However, viewing change processes as only technical and social engineering problems is to simplify a complex process far too much: there is a need to analyse the situation from the perspective of political power and the underlying culture as well.

Social pressure created in the initial work might have a positive effect on the resource management if the key stakeholders are managers with formal power. Resource management is an important issue since a potential barrier is a lack of time and other assets due to other assignments or priorities. To prevent blocks, there is a need to allocate enough time to build up a shared feeling among the stakeholders concerning the current state and what needs to be changed.

5. Conclusions

The experience at Chalmers shows that process oriented improvement can work in a university setting – which could be expected. The improvement projects chosen concern administrative processes and hence are not very different from processes in any other type of organisation. Neither are the barriers and stumbles experienced unique to the academic environment – similar blocks can be found in other organisations as well. In addition, several of these barriers are not

unique to process oriented work – they can be encountered in all kinds of changes involving human beings in organisations. Thus, while we can conclude that improvement work in administrative processes in an academic environment bear many similarities to process improvement in other organisations, there are some important lessons that can be drawn from this study.

A bottom-up approach to process improvement, involving persons from all different steps in the process being analysed, is an efficient means of creating an arena for communication, which helps in developing a more holistic view of a process. The basic idea of making processes visible is not difficult to grasp – but the level of detail needed for specific analyses can at times cause frustration in an action oriented world. In our cases, we started by creating manual maps and then gradually built process descriptions, maps and linked documents, which could be put on the Chalmers Intranet. While the specific mapping technique required some training and testing to become an efficient way of visualising processes, the real challenge was in another area and was complex. Consequently, an analysis at different system levels was needed – individual, dyad, group, department, school and university, as well as from a qualitatively different perspective – technical, social, political and cultural.

The comparative analysis showed that the real challenge of succeeding in conducting process improvement is closely linked to the existing organisation with its social system, political power and culture – and the specific barriers are frequently found on other system levels than the specific improvement project and its participants. Seemingly basic factors, such as not involving key stakeholders and neglecting to view issues from different perspectives, in combination with a civil servant culture and defensive routines, can have a very strong negative influence on the flow and outcome of a project. On the other hand, the presence of an interested high level customer and of simultaneous strong project leadership, are factors that can have a strong influence on the possibility of success. As concerns the flow of a project and how to overcome potential barriers the importance of “contact” before moving on to the next stage must be emphasised. This holds, regardless of whether it concerns the first important “sensation” step of making sure that everyone is experiencing a need of becoming aware or of defining a problem, or whether it concerns later steps in the cycle of experience. Without a moment of contact before moving on to

the next stage in a project, there is a risk that members lose interest, do not feel involved or are working on a totally different agenda than the rest of the group. Keeping track of this is an important task for the project leader, and it might be an advantage to initially have the support of a process facilitator.

References

Alänge, S. (1992): Total Quality Management as a Tool for Organizational Change - The case of Motorola, *CIM Working Papers*, WP 1992-01

Alänge, Sverker (1996): Processanalys, benchmarking och reengineering - de spelar kompletterande roller, *CIM Working Papers*, WP 1996:01

Camp, Robert (1989): *Benchmarking – The Search for Industry-Best Practices that Lead to Superior Performance*. ASQC Quality Press, Milwaukee, WI

Clarkson, P. (1989): *Gestalt Counselling in Action*. Sage Publications, London

Clarkson, P. & Mackewn J. (1993): *Fritz Perls*. Sage Publications, London

Davenport, T.H. (1993): *Process Innovation – Reengineering Work through Information Technology*. Harvard Business School Press, Boston, MA

Davenport, T.H. (1996): The Fad that forgot the people, *The Fast Company*, No.1, 1996

Hammed, K. & Miconnet, P. (1998): Global Diffusion of Best Practices – an analysis of the Impact of National Cultures at Ericsson Radio Systems AB, *Master Thesis MoP 98:6*, Chalmers University of Technology, Göteborg

Hammer, M. (1996): *Beyond Reengineering: How the Process-Centered Organization is Changing our Work and our Lives*. Harper Business, New York

Hammer, M.; Champy, J. (1993): *Reengineering the Corporation – A Manifesto for Business Revolution*. Nicholas Brealey Publ., London

Harrington, H.J. (1991): *Business Process Improvement*. McGraw-Hill, New York

Janov, J. (1994): *The Inventive Organization*. Jossey-Bass Publishers, San Francisco, CA

Lewin, K. (1948): “Group Decisions and Social Change”, pp. 330-341 in Newcomb, T.M. and Hartley, E.L. eds.

Kotter, J. P. (1996): *Leading Change*. Harvard Business School Press, Boston, MA

Miconnet, P.; Alänge, S. (2000): *Soft Institutions and the Diffusion of Management Innovations across Borders*. Paper presented at the ISSWOV conference on work values in Jerusalem, June 26-28 2000

Nevis, E.C. (1987): *Organizational Consulting - A Gestalt Approach*. Gardner Press, New York

Perls, F.S., R.F. Hefferline and P. Goodman (1951): *Gestalt Therapy: Excitement and Growth in the Human Personality*. republished in 1993, Penguin, London

Rummler, G. A.; Brache, A.P. (1990): *Improving Performance: How to Manage the White Space on the Organization Chart*. Jossey-Bass, San Francisco

Scheinberg, S. (1995): *The Evaluation of Projects according to the Experience Cycle*. Recomate AB, Göteborg

Scheinberg, S.; Alänge, S. (2000): The Experience Cycle in Action, Working Paper

Scheinberg, S. et al. (2001): *Breaking Down the Potemkin Facade – A Large Scale Change Program in Russia*. (forthcoming)

Tichy, N. (1983): *Managing Strategic Change*. Wiley