Association for Information Systems
AIS Electronic Library (AISeL)

ECIS 2006 Proceedings

European Conference on Information Systems (ECIS)

2006

Process change projects: a study of Norwegian practice

J Iden
jon.iden@uib.no

T. Eikebrokk
tom.eikebrokk@hia.no

Dag H. Olsen
Agder University College, Dag.H.Olsen@hia.no

Andreas L. Opdahl
University of Bergen, Andreas.Opdahl@uib.no

PROCESS CHANGE PROJECTS: A STUDY OF NORWEGIAN PRACTICE

Iden, Jon, University of Bergen, Fosswinckels gate 6, P.O.Box 9800, N-5020 Bergen, Norway, Jon.Iden@uib.no

Eikebrokk, Tom Roar, Agder University College, P.O.Box 422, N-4604 Kristiansand, Norway, Tom.Eikebrokk@hia.no

Olsen, Dag H., Agder University College, P.O.Box 422, N-4604 Kristiansand, Norway, Dag.H.Olsen@hia.no

Opdahl, Andreas L., University of Bergen, Fosswinckels gate 6, P.O.Box 9800, N-5020 Bergen, Norway, Andreas.Opdahl@uib.no

Abstract

Process change*, in various incarnations, has been a central topic in the IS field for several decades. This paper presents an overview of Norwegian model-supported process-change practice, based on in-depth interviews of 33 informants, each describing a different process-change effort in one of 30 Norwegian enterprises. The overview focusses on* use of process models*,* present versus future focus*,* ICT as enabler of change*,* participation*,* resistance to change *and* process ownership*. Norwegian practice is then compared with the predominantly North-American process-change literature from a* national-culture perspective*. In particular, we find that stakeholder participation is high in Norwegian process-change projects and that resistance tends to be low, a finding consistent with theory on national-culture differences. The paper presents the first results from a larger project that aims to contribute towards a theory of model-based process change.*

Keywords: *Process change, process modelling, business process management, BPM, process improvement, national culture.*

1 BACKGROUND

Fifteen years ago, Hammer's (1990) seminal paper contributed strongly to the large current interest in process change. Hammer promoted a new and radical alternative, *Business Process Reengineering (BPR)*, to the then prevailing concept, *Total Quality Management (TQM)*, with its focus on evolutionary and continuous practices (Harrington 1991). The interest in process change has spawned several more recent concepts and approaches, like Business Process Management (BPM) and Business Process Change (BPC) (Smith and Fingar 2002, Harmon 2003, Hillier 2005). The borders between these and related concepts are vague, and there is presently no consensus about their most appropriate descriptions. This paper will refer to them all using the general term "process change", which we consider most neutral. When we need to be more specific, we will instead use the specific initialisms TQM, BPR and BPM/BPC.

Despite the importance of process change, there are few empirical studies of practical process change and even fewer theories of process-change practice. As a step towards such a theory, this paper presents an overview of current Norwegian practice, emphasising *use of process models*, *present versus future focus*, *ICT as enabler of change*, *participation*, *resistance to change* and *process ownership*. The overview is based on in-depth interviews of 33 informants, each describing a different process-change effort in one of 30 Norwegian enterprises. It is an early result from a project whose overall aim is to contribute towards a theory of model-based process change.

Changing a process means changing the work practices of the people involved and challenging and changing social relations between stakeholders, e.g., between different workers and groups of workers, between workers and managers and between managers with different interests. We can therefore expect process change to be sensitive to organisational, professional, international and other cultural fields. At the same time, a large part of the most well-known international literature on process change is North-American, in particular from the U.S., or at least written by authors affiliated with the Anglo cultural sphere.[1] This paper therefore uses a national-culture perspective to compare the findings about Norwegian practice with the Anglo-dominated international literature. Hopefully, illuminating the national-culture perspective will help sensitising our contribution to a theory of model-based process change to differences in national culture.

The following Section 2 presents theory of process change and of national culture. Section 3 presents our research method, before Section 4 presents the results, separated into use of process models, present versus future focus, ICT as enabler of change, participation, resistance to change and process ownership, respectively. Section 5 compares the results with the international literature and discusses them from a national-culture perspective. Finally, Section 6 concludes the paper and offers paths for further work.

2 THEORY

2.1 Theory of process change

Total Quality Management (TQM) is an evolutionary and incremental approach to continuous process change. Many articles have discounted TQM for these reasons (e.g., Micklethwait & Wooldridge 1996, Caulkin 1997) and criticised the concept for a one-sided focus on continuous change within existing processes and constraints (Grant, Shani & Krishnan 1994). In contrast, Greene (1993) refers to several examples of radical process change using TQM.

[1]Theories of national culture such as Hofstede's (1997) identify cultural similarities among a group of English-speaking countries that includes the U.K., the U.S., Canada, Australia and New Zealand. We will coin this group the *Anglo* cultural sphere in this paper, sometimes contrasting it with the *Scandinavian* sphere, which also includes Finland and the Netherlands.

Business Process Reengineering (BPR) is a radical, revolutionary and top-management run approach with less focus on existing activities and participation (Yong & Wilkinson 2001). The best known definition of BPR is given in Hammer and Champy (1993): "Reengineering, properly defined, is the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance such as cost, quality, service and speed". The objective in BPR is to depart form existing practice and think radically new in relation to the goals of future competitive ability. In practice, however, BPR projects often do not end up as radical as in the ideal. Hall, Rosenthal and Wade (1993) argue that BPR is often implemented in single functional departments, that genuine top management support is lacking and that the efforts are not sufficiently integrated with other change activities.

One may therefore argue that TQM and BPR in practice involve similar and overlapping aims and approaches, TQM continuously and BPR on an ad-hoc basis. In addition, Grover (1999) has conducted a longitudinal study of a large number of BPR projects, finding that the development has gone from re-engineering to more extensive *process change management*. The new approach is characterized by a broader, more inclusive view of the organisation and on long-term management of processes. Business Process Management (BPM) is the most used term, but Business Process Change (BPC) is also used.

Hammer and Champy (1993) make a number of normative statements about progress towards an ideal work situation. Among these are:

1. Work units change – from functional departments to process teams
2. Jobs change – from simple tasks to multidimensional work
3. People's roles change – from controlled to empowered
4. Job preparation changes – from training to education
5. Focus of performance measures and compensation shifts – from activity to results
6. Advancement criteria change – from performance to ability
7. Values change – from protective to productive
8. Organisational structures change – from hierarchical to flat
9. Executives change – from scorekeepers to leaders

Although the above statements were originally formulated in a BRP context, we agree with Levin and Klev (2002) who consider them consistent with principles from the literature on organisational development. We therefore contend that the above statements apply to process change in general.

2.2 Studies of practical process change

Despite large academic and industrial interest in the various variants of process change, there are relatively few empirical studies of *process-change practice.* Caron, Jarvenpaa and Stoddard (1994) present a longitudinal study of reengineering efforts in an insurance and financial company between 1989 and 1993. They report major payoffs and considerable reengineering success but mention that repeated trials often are necessary to produce the benefits that were expected initially. Harkness, Kettinger and Segars (1996) find that dramatic process improvements and innovation can be achieved by an evolutionary model of organisational learning and information sharing, in contrast to many of the well-published programs for process change. Teng, Fiedler and Grover (1997) report that inter-departmental integration, user influence in IS-project selection and IS-business planning integration influence both process reengineering decisions and BPR-project success. Kueng and Kawalek (1997) interviewed participants in process modelling projects, reporting that process models were considered very useful for facilitating communication between users and IT experts. Kettinger, Teng and Guha (1997) studied 25 different BPR methodologies and interviewed consultants and vendors about their

services and products, suggesting that BPR is not a monolithic concept but a continuum of approaches to process change. Broadbent, Weil and St.Clair (1999) describe a case study in four companies that aimed to understand how IT infrastructure contributes to successful BPR implementation. They report correspondence between IT-infrastructure capability level and ability to implement extensive business-process changes quickly. Sutcliffe (1999) has performed a longitudinal study of eight BPR projects, finding that trust among participants in BPR-projects is a key determinant of success or failure. Larsen and Myers (1997) have carried out a case study of a financial firm in New Zealand, reporting that although short term financial results from BPR projects were spectacular, the long-term implications were worrying because workers' skill levels and morale were reduced.

A few studies have investigated business-process change specifically in a Norwegian setting. Iden (1995) interviewed Norwegian BPR-consultants, finding that they were surprisingly unacquainted with available process-modelling techniques and tools. Moltu, Monteiro and Sørensen (2000) investigated the uptake of BPR in Norway through in-depth interviews with academics and management consultants. They found BPR to be an open-ended and flexible concept, subsuming a variety of different practices. They report that Norwegian process-change projects place less emphasis on radical solutions and fundamental thinking than promoted by the predominantly North-American BPR literature.

2.3 Theory of national culture differences

Theories of national culture such as Hofstede's (1997) identify cultural similarities among a group of English-speaking countries that includes the U.S., the U.K., Canada, Australia and New Zealand. We will call this group the *Anglo* cultural sphere. A large part of the most well-known international literature on process change originates in the *Anglo* cultural sphere or is, at least, written by authors affiliated with it. We will therefore investigate whether observed differences between Norwegian process-change practice and the literature can be understood from a national-culture perspective. As representative of the Anglo cultural sphere we will use the U.S., which dominates the most well-known international literature on process change.

Hofstede (1997) presents four dimensions established through a survey of IBM employees in more than 50 countries. Three dimensions are relevant for us[2]:

- *Power distance:* In small power distance countries, managers and their subordinates are interdependent and emotionally close. In large power distance countries, subordinates are more dependent on their managers and more emotionally distant from them. According to Hofstede (1997, table 2.1), power distance is low in both Norway and the U.S., but even lower in Norway.
- *Collectivism versus individualism:* "*Individualism* pertains to *societies in which the ties between individuals are loose: everyone is expected to look after himself or herself and his or her immediate family. Collectivism* as its opposite pertains to *societies in which people from birth onwards are integrated into strong, cohesive ingroups, which throughout people's lifetime continue to protect them in exchange for unquestioning loyalty*" (Hofstede 1997, p. 51). According to Hofstede (1997, table 3.1), the U.S. is strongly individualist, Norway more moderately so.
- *Femininity versus masculinity:* "*masculinity* pertains to societies in which social gender roles are clearly distinct [...] *femininity* pertains to societies in which social gender roles overlap, i.e., both men and women are supposed to be modest, tender, and concerned with the quality of life" (Hofstede 1997, pp. 82-83). Norway is among the most feminine, the U.S. among the most masculine countries in Hofstede's (1997, table 4.1) survey.

[2]A fourth dimension of Hofstede's (1997), *uncertainty avoidance*, is not considered here because Norway and the U.S. rank close as moderately uncertainty tolerant countries.

Trompenaars and Hampden-Turner (1998) have derived 7 cultural dimensions from a database of employees from 30 companies with departments spanning 50 countries. Trompenaars and Hampden-Turner do not present their findings in an academically rigid and transparent way, so their results must be used with caution. The findings are nevertheless interesting, and we will use 3 of their dimensions in our discussion[3]:

- *Individualism versus communitarianism:* This dimension resembles and corroborates Hofstede's *collectivism versus individualism* dimension (Trompenaars & Hampden-Turner 1998, chapter 5).
- *Relation to time:* People in different cultures pay more or less *attention to the past and to the future* when assessing their present. Also, people in different cultures have longer or shorter *time horizons*. Norwegian culture has a slightly longer time perspective than U.S. culture, but U.S. culture is relatively more future-leaning (Trompenaars & Hampden-Turner 1998, figs. 9.1-9.3).
- *Achievement versus ascription: Achievement-oriented cultures* accord status to its members based on what they have accomplished. *Ascription-oriented cultures* ascribe status to its members "by virtue of age, class, gender, education, and so on" (Trompenaars & Hampden-Turner 1998, p. 105). Both Norwegian and U.S. culture are strongly oriented toward achievement, Norwegian culture even more so than in the U.S (Trompenaars & Hampden-Turner 1998, figs. 8.1 and 8.2).

Jaeger (1986) addresses organisational development in general in relation to Hofstede's (1980) original culture dimensions.[4] Jaeger proposes a set of optimal national-culture conditions for organisational development, shown in table 1. The table also shows Hofstede's (1980) national-culture scores for the U.S. and Scandinavia. According to the table, prevailing cultural values in the U.S. fit poorly with Jaeger's optimal rating. Only the uncertainty avoidance dimension is in line with optimal conditions for organisational development. Of the 40 countries in Hofstede's (1980) original study, only the three Scandinavian countries match Jaeger's optimal rating.

Table 1: *Jaeger's (1986) optimal cultural conditions for organisational development, along with Hofstede's (1980) national-culture scores for the U.S. and Scandinavia.*

	Jaeger's optimal condition	***USA***	***Scandinavia***
Power distance	low	medium	low
Uncertainty avoidance	low	low	low
Masculinity	low	high	low
Individualism	medium	high	medium

For example, *low power distance* makes it easier for people at different levels in an organisation to cooperate effectively when describing, discussing and improving processes. People can interact respectfully based on knowledge and competencies rather than on job descriptions. *Tolerance of uncertainty* is beneficial because it supports a culture for change, for leveraging unanticipated benefits

[3]On the other dimensions of Trompenaars and Hampden-Turner's (1998), Norway and the U.S. are ranked similarly, so these dimensions are not considered further. These other dimensions are: *universal versus particular relationships and rules*, *affective versus neutral feelings and relationships*, *specific versus diffuse involvement* and *controlling or not controlling nature*.

[4]Whereas Jaeger (1986) refers to Hofstede's original work on national culture (Hofstede 1980), our paper is based on Hofstede's (1997) revision of this earlier work.

of the new processes and for rapidly identifying and countering problems that might arise. *Low masculinity* may be beneficial in establishing an atmosphere of cooperation and trust and in bringing out skepticism and fear in order to deal with them more openly and effectively. *High individualism* conflicts with an emphasis on collaboration in process teams, whereas *low individualism* limits the acceptance of individual differences and empowerment, hampering some of the potentially biggest benefits of process change.

3 RESEARCH METHOD

The present paper is part of a larger project that investigates the relationships between *process maturity*, *modelling maturity*, *process-change objectives*, *process-change process*, *process-model artefacts* and *process-change effects*. The aim is to contribute towards a theory of model-based project change. Between December 2004 and September 2005, we conducted in-depth interviews of 34 informants, of which 33 are used in this paper.[5] Each informant described a different process-change effort in one of 30 Norwegian enterprises. Most interviews lasted an hour or a little less. A majority of the interviews were conducted face to face, but a few of the final interviews were conducted by telephone.

This paper focusses on a specific aspect of the larger project: *How are process-change projects carried out in Norway, compared to the predominantly North-American literature.* Hopefully, illuminating this specific aspect will help sensitising our contribution to a theory of model-based process change to differences in national culture. We will focus on:

- *Process modelling:* To what extent do Norwegian process-change projects use process models?
- *Present versus future focus:* To what extent do Norwegian process-change projects develop distinct models of present and of future processes?
- *ICT as enabler of change:* To what extent do Norwegian process-change projects use ICT as an enabler of change in process-change projects?
- *Participation:* To what extent do Norwegian process-change projects involve process participants?
- *Resistance to change:* To what extent do Norwegian process-change projects face organisational resistance?
- *Process ownership:* To what extent do Norwegian process-change projects clearly allocate process ownership?

Each aspect will be compared with the predominantly North-American literature on process change. The theory on national culture differences will be used to discuss the differences we find. When comparing the predominantly North-American literature to Norwegian practice, we will expect differences on issues that are somehow related to *masculinity versus femininity*, where cultural differences are most pronounced. We will also expect less pronounced differences related to *individualism versus collectivism/communitarianism*, related to *power distance* and related to *relation to time*.

4 RESULTS

4.1 Informant and project characteristics

We selected informants that were central in internal process-change projects in their own organisations, typically acting as project facilitators and often involved in quality management in their

[5]The excluded informant was a consultant who facilitated external projects in organisations other than his own. The interview therefore fitted less well in this paper.

enterprises. On average, our informants had worked with process change for 7 years. One of them had 30 years experience with process work and several had between 10 and 20 years of experience. Two informants had only one year of experience.

The projects had a considerable variation in duration, scope and size. The largest projects involved around 200 people, while eight projects had less than ten participants. The longest lasted for 84 months and the shortest one for three months. A majority of the projects lasted between one and two years.

4.2 Use of process models

All the process-change projects used some kind of process model. Most of the projects (26/33) used a swimlane-based process modelling notation. Two used IDEF. Others used a variety of simpler notations. Around half the projects (16/33) used a dedicated modelling tool like ARIS and Metis. The rest (13/33) used a general drawing tool, except for a few projects (4/33) that used simple MS Powerpoint drawings. The projects reported good experiences with using models in process-change projects.

Hence, although all the projects used process models, their levels of sophistication varied widely. Some informants told us that they knew the alternatives well and had chosen modelling technique and tool after thorough evaluation. In other cases, modelling technique and tool were introduced by an external consultant, with little critical internal assessment. Other enterprises had developed and maintained their own modelling techniques, practices and tools.

4.3 Present versus future focus

A majority of the projects (12/33) had only modelled the present situation. Another group (16/33) had made distinct models of both present and future situations. A few (5/33) had only modelled the future situation. Many of the projects that focussed on the present situation were aiming at visualising existing process descriptions in order to communicate them better and assign responsibilities. Several of these projects were developing intranet-based quality systems.

4.4 ICT as enabler of change

Half of the projects (16/33) had used ICT to support their processes. Among these, only 6/33 had used ICT as a driver to realise a new version of the process, e.g., based on technologies such as CRM, workflow, document management systems. The other 10/33 projects instead used ICT to support the present process as is.

4.5 Participation

A large majority of the projects (26/33) had as an explicit objective that a broad variety of stakeholders should participate in the modelling process. Several informants elaborated this with statements such as “this is absolutely necessary”, “it is impossible without it”, “it is a matter of course” and “we involve our employees from day one.” In all the projects, group work played a central role in process modelling. A majority (20/33) had also organised some form of tutoring of the participants.

The analysis of the composition of the project groups confirmed this picture: The objective of participation had to a large extent been realized. However, some informants pointed out that because of time constraints and other high priority tasks, participation was not as extensive as they had wanted. Projects-change projects must, like all projects, compete for resources.

The results indicate that participants in Norwegian process-change projects have a genuine opportunity to influence the design of the new processes and thereby their own work. With one exception, management did not design solutions in conflict with stakeholder interests. (In the one exceptional project, several mid-level managers eventually lost their jobs after radical changes.) In the 3/33 projects where stakeholder participation was not an explicit objective, the task was primarily to develop graphical models of existing quality systems. Small projects groups did the process modelling in these cases. It was stated that this was because of resource constraints, but it can also be interpreted as a desire for central control in these cases.

4.6 Resistance to change

A majority of the projects (22/33) had not expressed any resistance to the process-change effort. An experienced informant, who had worked with process change since the late 1980s, reported that he had never experienced any resistance. Several of the informants reported "positive attitudes", stating that "everyone entered in sympathy" and "people like to participate." Of the projects that had experienced resistance, about half (5) of the remaining 11 reported that resistance had negatively affected project outcome.

Although the informants had experienced positive attitudes from participants, some reported that they had met objections to the use of resources from upper- or medium-level management. The nine informants that reported resistance expressed this as: "Yes, there is resistance against all that is new", "Yes, resistance against standardisation", "Yes, from people without knowledge about process work" and "Yes, top management has been skeptical, they do not see the value." Many informants explained that the skepticism and objections came from people who did not understand the process approach. They also reported that resistance disappeared when people understood what process change was all about. In only one case did resistance lead to a suspended project.

4.7 Process ownership

A clear majority of the projects (28/33) had established process ownership, an increase of 17 from before the project (11/33). Some organisations had assigned process ownership to existing functional leaders, whereas others had placed ownership with people who were not already leaders. Although a majority of the projects thus acknowledged the importance of process ownership, many of them found the practical arrangements challenging. A few informants reported that ownership had become both formalised and realised in practice. Process ownership structure was becoming a supplementary management structure in some of the organisations, although it remained secondary to established functional structures in all the organisations we studied.

5 DISCUSSION

This section will compare our results to the predominantly North-American process-change literature. The subsequent section will then discuss the findings from a national-culture perspective.

5.1 Comparison with the North-American literature

- *Use of process models* was varied in the projects we studied, but all the projects had used some kind of modelling technique and had represented their models electronically. In the latter respect, Norwegian practice matches the literature well.
- *Present versus future focus* was varied in the studied projects, with around half (16/33) of the projects modelling both the present (as is) and envisaged future (to be) situations. A further 12/33 modelled only the present situation, underlining the long tradition of as-is modelling in

the field. It is, however, a bit surprising that only 5/33 projects just modelled future processes, given the strong emphasis in parts of the process-change tradition (BPR in particular) on establishing future processes that break radically with the past. The reason may be that some of the projects focussed on process documentation for purposes like communication, standardisation and quality management purposes in addition to process change. But the informants also indicated that, in many projects, understanding the present situation was seen as a prerequisite for establishing good future processes. Nevertheless, it is also a bit surprising that 12/33 projects consequently did not model the to-be situation at all. The diversity of Norwegian practice in this area reflects the diversity reported in the literature, although the explicit future focus is weaker than expected.

- *ICT as enabler of change* was also varied, with 16/33 of the projects using ICT to support their processes and with only 6/33 of these using ICT to realise a new version of the processes. This diversity reflects the varied recommendations in the literature. It is surprising that so few projects were ICT-driven. A possible explanation is again that many of the projects focussed on process documentation for purposes like communication, standardisation and quality management in addition to process change.
- *Participation* was high in most of the Norwegian projects. This is in line with the strong emphasis in Scandinavian labor-management relations on co-determination, of which one central aspect is that workers should be informed about and be involved in all phases of reorganisation projects. We found no evidence that stakeholders had to leave the projects after the as-is situation had been mapped, as Hammer and Champy (1993) recommend. The workers usually participated in developing the new processes in line with other participants. Several enterprises also have the practice that the project group informs and presents the results en route to get feedback.
- With one exception, *resistance to change* was insubstantial in the projects we studied. This finding supports Smith and Fingar's (2002) proposition that workers no longer object to process redesign. However, some informants mentioned resistance from management, often coupled with mentioning of personnel costs. This may indicate that although management today understands the importance of process change, not all managers see the need for (resource-demanding) broad participation in the change processes.
- *Process ownership* was emphasised in a majority of the projects we studied. This is in line with the literature. However, none of the organisations had reached a stage where the process-based management structure had become strong, or even dominant, when compared to the traditional functional structure, as originally envisaged by Davenport (1993).

5.2 A national-culture perspective

Our findings in Section 5.1 are consistent with the national-culture differences identified in Section 2.2:

- The emphasis on explicit *use of process models* observed in Norwegian practice follows the recommendations in the North-American literature. In the literature we have used on cultural differences, we have not found any differences between Norway and the U.S. that would clearly impact use of process models.
- Regarding *present versus future focus*, the surprisingly weak emphasis on explicit to-be modelling in Norwegian enterprises is consistent with a relatively stronger future focus in the U.S. The inclination towards ongoing quality improvement as opposed to radical change is also consistent with a slightly higher temporal integration in Norway. A focus on the present work practices is also likely to be more inclusive, increasing *participation,* as commented on below.

- The literature we have studied does not seem to offer a clear explanation of why so few Norwegian process change projects focus on *ICT as enabler of change* to support their new processes. Although it is impossible to be conclusive here, we note that a more feminine, lower power-distance and less individualist culture may favour a human-centred approach to process change, whereas a more masculine, higher power-distance and more individualist culture might prefer a control approach, in which ICT often plays a central role.
- The most conclusive finding from the survey — that *participation* is strongly emphasised in Norwegian process-change projects — is consistent with the higher femininity, lower power-distance and lower individualism culture in Norway when compared to the U.S. Focus on participation is also consistent the relatively high *present focus* in Norwegian practice,
- The more feminine, lower power-distance and less individualist Norwegian culture also explains the low *resistance to change* that was observed and why process participants are regularly involved in shaping future processes, contrary to some literature suggestions. Of course, *uncertainty tolerance* is also one of Hofstede's (1997) four dimensions, but one we have not used because it does not distinguish well between Norway and the U.S.
- Well-defined *process ownership* is also common in the projects we studied. Eder-Lange and Rodriguez-Abitia (2004) has hypothesised that strong process ownership is consistent with a less individualist, lower power-distance, more feminine and less uncertainty-avoiding culture, a hypothesis that is consistent with our findings.

5.3 Limitations of the results

The reported results are based on a small number of informants. We deliberately selected informants from organisation we knew had undertaken, or at least were likely to have undertaken, model-based process-change projects. The informants and their organisations therefore do not constitute a random sample. A broader survey might ameliorate these weaknesses.

A major limitation of the paper is the comparison of *actual* (Norwegian) practice with *recommended* practice in the predominantly North-American literature. Most likely, practice in the U.S. is different from the literature recommendations too. A more accurate approach would therefore be to compare Norwegian (or Scandinavian) and U.S. (or Anglo) process-change *practice*. However, we have not found such directly comparable investigations of North-American process-change practice.

We acknowledge that national cultures evolve over time and are not uniform, but we contend that Hofstede's (1997) and Trompenaars and Hampden-Turner's (1998) cultural value assignments give an approximately correct picture of the cultural differences we have experienced between Norway and the U.S. Additional theories exist, such as *grid-group theory* (Grendstad 1999), that can supplement the literature we have used in this overview.

6 CONCLUSION AND FURTHER WORK

The paper has presented an overview of Norwegian model-supported process-change practice. This is an early result from a larger project that aims to contribute towards a theory of model-based process change. The overview was based on in-depth interviews with 33 informants, each describing a different process-change effort in one of 30 Norwegian enterprises. The overview focussed on *use of process models*, *present versus future focus*, *ICT as enabler of change*, *participation*, *resistance to change* and *process ownership*. Norwegian practice was then compared to the predominantly North-American process-change literature from a national-culture perspective. In particular, we found that stakeholder participation was high in Norwegian process-change projects and that resistance tended to be low, a finding consistent with the literature on national culture. Hopefully, illuminating the

national-culture perspective in this way will help sensitising our contribution to a theory of model-based process change to differences in national culture.

The paper sheds light on stakeholder participation and resistance to change and identifies issues for further research. Many Norwegian organisations use a process-oriented approach to meet organisational challenges. Process mapping and redesign are used to document business processes in quality systems, to standardice practice, to increase efficiency and to develop ICT solutions. Norwegian organisations have high levels of stakeholder participation in such projects, and the projects meet little or no resistance. Further work should investigate whether there is a causal link between these two phenomena and how they are related to projects success rates.

The paper is based on two well-known works on national culture differences (Hofstede 1997, Trompenaars & Hampden-Turner 1998). An additional theory that may be used in further work is *grid-group theory* (e.g., Grendstad 1999). The paper is also limited to Norwegian practice and the predominantly North-American literature. In further work, it may be generalised to compare the Scandinavian and Anglo cultural spheres. Extending the work to include more countries and cultural spheres is an obvious further path. Further work should also include more informants, projects and organisations by using a survey approach, possibly supplemented by intensive cross-cultural case studies. Further work should compare actual practice across cultures, instead of comparing practice with literature. The *Process Modelling Success Model* (Sedera, Rosemann & Gable 2002) might inform cross-cultural comparison of *perceived* process-change project success.

References

Broadbent, Marianne, Weill, Peter and St.Clair, Don (1999): The Implications of Information Technology Infrastructure for Business Process Redesign. Management Information Systems Quarterly, Volume 23, No. 2, pp. 159-182.

Caron, J. Raymond, Jarvenpaa, Sirkka L. and Stoddard, Donna B. (1994): Business Reengineering at CIGNA Corporation: Experiences and Lessons Learned From the First Five Years. Management Information Systems Quarterly, Volume 18, No. 3, pp. 233-250.

Caulkin, S. (1997): The great consultancy cop-out, *Management Today*, March, pp. 33-36.

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

Eder-Lange, R. and Rodriguez-Abitia, G. (2004). The Effect of National Culture on the Definition of Process Ownership as a Requirement for Effective Business Process Reengineering. Proc. AMCIS.

Grant, R. M., Shani, R. and Krishnan, R. (1994): TQM's challenge to management theory and practice, *Sloan Management Review*, Winter, pp. 25-35.

Greene, R. (1993): Emergent re-engineering. *Proceedings from the POMS Conference*, Baltimore, USA.

Grendstad, G. (1999): "A Political Cultural Map of Europe: A Survey Approach.". *Geojournal* 47:463-75.

Grover, V. (1999) From Business Reengineering to Business Process Change Management: A Longitudinal Study of Trends and Practices. *IEEE Transactions on Engineering Management*, Vol. 46, No. 1, February, pp. 36-46.

Hall, G., Rosenthal, J. and Wade, J. (1993): How to make re-engineering really work? *Harvard Business Review*, nov-dec., pp. 119-131.

Hammer, M. (1990): Reengineering Work: Don't Automate, Obliterate. *Harvard Business Review*, July-August, pp. 104-112.

Hammer, M. and Champy, J. (1993): *Reengineering the Cooperation: A Manifesto for Business Revolution*. New York, HarperCollins Publishers.

Harkness, Warren L., Kettinger, William J. and Segars, Albert H. (1996): Sustaining Process Improvement and Innovation in the Information Services Function: Lessons Learned at the Bose Corporation. Management Information Systems Quarterly, Volume 20, No. 3, pp. 349-368.

Harmon, (2003): *Business Process Change.* Morgan Kaufman Publishers. San Fransisco.

Harrington, H.J. (1991): *Business Process Improvement. The Breakthrough Strategy for Total Quality, Productivity, and Competitiveness*. New York, McGraw-Hill Inc.

Hillier, C. (2005): BPM, Six Sigma, & the Roar to Process Perfection. *Business Integration Journal,* June, pp. 36-40.

Hofstede, G. (1980): Culture's consequences. Sage, Ca.

Hofstede, G. (1997). Cultures and Organizations. Software of the Mind. 2nd Edition. McGraw-Hill, New York.

Iden, Jon (1995): Business Process Reengineering in Norway: what do professional reengineering consultants say?, Report in information science no. 38, Bergen. Institutt for informasjonsvitenskap, Universitetet i Bergen

Jaeger, A.M. (1986) Organizational Development and National Culture: Where's the fit? *Academy of Management Review*, 11(1), 179-190.

Kettinger, William J., Teng, James T. C. and Guha, Subashish (1997): Business Process Change: A Study of Methodologies, Techniques, and Tools. Management Information Systems Quarterly, Volume 21, No. 1, pp. 55-80.

Kueng, Peter and Kawalek, Peter (1997): Process Models: a help or a burden? Proceedings from Americas Conference on Information Systems, August 15 – 17, Indianapolis, Indiana

Larsen, Melissa A, and Myers, Michael D. (1997): BPR Success or Failure? A Business Process Reengineering Project in the Finacial Services Industry. Proceedings from International Conference on Information Systems, December 16 – 18, Cleveland, Ohio

Levin, M. and Klev, R. (2002): *Forandring som praksis: Læring og utvikling i organisasjoner*. (*Change as praxis: Learning and development in organisations*.) Fagbokforlaget, Bergen..*In Norwegian.*

Micklethwait and Wooldridge, (1996): *The Witch Doctors: What the Management Gurus are Saying, Why it Matters and How to Make Sense of It*, London, Heinemann.

Moltu, B. , Monteiro, E. og Sørensen, K.H. (2000): "BPR is Dead! Long Live the process!" The uptake of BPR in Norway. Precept Working paper No. 9.

Sedera, W., Rosemann, M. and Gable, G. (2002): Measuring Process Modelling Success. Proceedings of the 10th European Conference on Information Systems - ECIS 2002, Ed.: S. Wrycza. Gdansk, Poland, 6-8 June 2002, pp. 331-341.

Smith, Howard and Fingar, Peter (2002): *Business Process Management: The Third Wave.* Meghan-Kiffer Press, Tampa, FL, US.

Sutcliffe, Norma (1999): Impact of Trust on IT Leadership Effectiveness in Business Process Reengineering. An Exploratory, Longitudinal Study. Proceedings from Americas Conference on Information Systems, August 13 - 15 : Milwaukee, Wisconsin.

Teng, James T. C., Fiedler, Kirk D. and Grover, Varun (1997): The Organizational Context of Process Reengineering Project Initiatives. Proceedings from Americas Conference on Information Systems, August 15 – 17, Indianapolis, Indiana.

Trompenaars, F. and Hampden-Turner, C. (1998). Riding the Waves of Culture. Understanding Diversity in Global Business. 2nd Edition. McGraw-Hill, New York.

Yong, J. og Wilkinson, A. (2001): Rethinking total quality management. *Total Quality Management*, 12, 2, pp. 247-258.