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# Counteracting Forces in Implementation of IS-Enabled Global Business Processes

Møyfrid Kårstad Sannarnes

*University of Agder*, moyfrid.sannarnes@uia.no

Bjorn Erik Munkvold

*Adger University College*, bjorn.e.munkvold@uia.no

Kim Normann Andersen

*Copenhagen Business School*, andersen@cbs.dk

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# COUNTERACTING FORCES IN IMPLEMENTATION OF IS-ENABLED GLOBAL BUSINESS PROCESSES

Sannarnes, Møyfrid Kårstad, University of Agder, Service Box 422, NO-4604 Kristiansand,  
Norway, moyfrid.sannarnes@uia.no

Munkvold, Bjørn Erik, University of Agder, Service Box 422, NO-4604 Kristiansand, Norway,  
bjorn.e.munkvold@uia.no

Andersen, Kim Normann, Copenhagen Business School, Howitzvej 60, DK-2000 Fredriksberg,  
Denmark, andersen@cbs.dk

## Abstract

*The international industry of engineering products and services is characterized by high complexity and competition. Corporations that expand globally have experienced that managing interdependent activities and business processes across several countries requires an effective deployment of advanced information technology. Whereas the literature has described implementation of global information systems as a means to coordinate and control the business processes, empirical studies have shown that introducing a large-scale information systems involves several managerial challenges when organizations are geographically dispersed. This paper studies deployment of a global enterprise system to support evolvement of global business processes. On the basis of a qualitative case study of a multinational corporation implementing an enterprise system across several geographical locations, we identify counteracting forces in the process of global standardization of IS and business processes and discuss how the organization try to manage these forces and challenges therein. The findings suggest that global business processes develop through diverse processes of learning and negotiation between local practices of use and infusion of the global enterprise system.*

*Keywords: Global business processes, Standardization, Enterprise systems, Multinational Corporation*

# 1 INTRODUCTION

The supplier industry of engineering products and services is characterized by high international competition, and success increasingly depends on expanding the global reach of the organization. To support coordination and integration of global business processes and facilitate cross-border collaboration, western firms tend to deploy advanced information technology (Walsham 2001). The resulting business process network needs to evolve dynamically to adapt to continuously changing global and local business conditions. Several authors argue that the global enterprise should balance in a continuous learning and innovation between the local practices and global standardization (e.g. Begley & Boyd 2003).

We use the term global information systems to describe the development, use and management of information systems in a global context. During the last decade many organizations have implemented large-scale enterprise systems (ES), defined as modular information systems that cover key functions of a company and enable integration and coordination of business processes within the company and with business partners (Davenport 1998). Deployment of ES to support cross-border operations in multinational corporations (MNC) is particularly challenging and typically leads to significant changes in organization, technology and business processes (Biehl 2007). Whereas much of the literature has described implementation of global IS as a means to control the processes, empirical studies have shown that introduction of information systems in global organizations often has unintended consequences (Ciborra 2000) and may even lead to less control (Hanseth et al. 2001). Despite a large body of research on ES implementation and use, reviews of this literature show that the majority of these studies are conducted in a domestic context. Most studies attempting to capture differences between different cultures are limited to one or two countries (Moon 2007), and research studies involving a heterogeneous collection of applications and user communities are limited. There is thus a need for more studies on how ES can support cross-border collaboration on business processes. Also, more in-depth research on the effect of competitive environment, business strategy and strategies to resolve misfits in multinational ES environment is asked for (Sheu et al. 2004).

The tension between standardization and customization has been subject for several IS studies. There is an extensive body of research emphasizing the need to adapt to requirements of the local context of use (Davenport 1998). The need for standardization and coordination has been focused in IS management studies in organizations operating internationally (Lehmann & Gallupe 2005). The research question addressed in this paper is how a multinational corporation balances the forces for and against standardization in the process of global IS deployment. We draw upon findings from a qualitative case study in a multinational engineering enterprise headquartered in Northern Europe. The company is part of a global group of organizations providing advanced engineering and construction services and technology products worldwide. The paper explores the evolvement of a global ES that was successively introduced within the global company and its subsidiaries. The study illustrates that introducing and exploiting information systems in a global organization can be seen as a standardization effort, but is always embedded in local situated practices. We use the concept of dialectics of change from Van de Ven and Poole (1995) as a theoretical lens to guide the analysis of the changes and counteracting forces related to global standardization and local adaptation during implementation and post-implementation of the enterprise system.

The paper is structured as follows. The next section discusses the research foundation for global IS and business processes crossing national boundaries. Section three presents an overview of the case research setting, while section four introduces the research approach, data collection and analysis. Findings from the case study on global IS implementation based on analysis of counteracting forces of change are presented in section five. Concluding remarks and implications for further research are presented in the last section.

## 2 RELATED RESEARCH

This section provides a brief overview of research on IS deployment to support development of global business processes. Further, a theoretical lens for analyzing the process of development and change in organizations is presented.

Globalization of business processes implies that different organizational units need to be coordinated and integrated across geographical and organizational boundaries. Control and governance are core issues underlying IT strategies (Hanseth et al. 2001) and global IS research has traditionally focused on the potential of IS for control and coordination, global efficiency and transfer of learning (Lehmann & Gallupe 2005). However, deployment of large-scale, global IS is constrained by an evolving socio-technical installed base of information, systems, artifacts, organizational structures and practices (Rolland 2000). Establishing a global infrastructure plays an important role, by supporting global business processes and facilitating coordination and collaboration across time and space (Walsham 2001). An empirical study of a global IS infrastructure implemented in a maritime company found that it is necessary to strike a balance between global requirements and being local when designing large-scale IS. This study also illustrates the largely invisible costs to achieve a working solution, locally and globally (Rolland & Monteiro 2002).

A conceptual model for global IS suggested by Lehmann (2001) employs a two-dimensional typology consisting of a common core and local variations of the IS. The model suggests that it is impossible to support global organizations with a one-size-fits-all information system. Instead, there is a core of systems compulsory for all users and local systems to provide functionality specific for one or a group of regional subsidiaries. Lehmann and Gallupe (2005) characterize the implementation of a global IS as a territorial force field between the central/global and local, and a functional force field between business and IT.

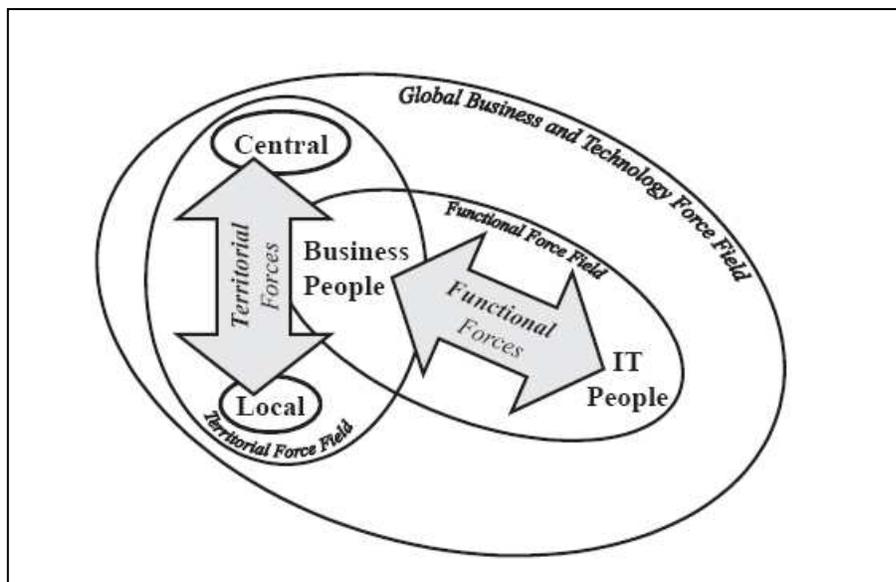


Figure 1. Force field dimensions surrounding a global information system (Source: Lehmann & Gallupe 2005, p. 170).

Enterprise systems represent one category of global IS to support cross-border operations. There have been an increasing number of research studies on ES implementation during the recent years (Lorenzo et al. 2008; Moon, 2007; Sheu et al. 2004). The fit between ES and business processes is regarded critical for

the success of ES implementation (Robey et al. 2002; Soh et al. 2003). Companies that implement ES should thus simultaneously change and improve their business processes to take advantage of new data, but most organizations find it demanding to make process change during implementation (Davenport 2004). ES deployment has been described as a means for increased coordination and control in global organizations by facilitating enterprise-wide integration of information across functional and geographical boundaries. Whereas introducing ES is challenging to any organization, multinational implementation adds new dimensions of complexity due to national, cultural, organizational, and technical differences (Markus et al. 2000; Sheu et al. 2004). Research studies find that changes such as introducing ES often has unintended side-effects in global organizations (Ciborra 2000). For example, a study by Hanseth et al. (2001) illustrates that implementing an ES system to enhance control over a global organization may just as well deliver less control from a managerial perspective.

The majority of previous studies on large-scale ES implementation have adopted a variance approach, typically describing critical success factors or value that companies generate from the ES implementation (e.g. Biehl 2007). Other studies apply a process perspective, focusing on how change develops over time in a sequence of stages (Markus et al. 2000). These stage models match the life cycle motor from Ven de Ven and Poole (1995), who presented four basic “motors” to explain processes of development and change in organizations; life cycle, teleology, dialectic and evolution. The dialectic motor emphasizes colliding forces or contradictory values that compete for domination or control. Organization theories that incorporate “logic of contradiction” have been valuable to explain change in organizations as the result of counteracting forces, those promoting organizational change and those opposing it. Robey et al. (2002) use the dialectic perspective in a comparative analysis of ES implementations in several industrial firms. In their view, the dialectical theory is valuable to situations where two or more parties have opposing views, values and power, while still working towards a common goal. In this paper, dialectics of change is used as a theoretical guidance to explore how global business processes and global IS develop and change during implementation and post-implementation of a global enterprise system. Introduction and development of global IS can be described as change processes, influenced by counteracting forces that promote standards and stability, and forces opposing global standardization but promoting local adaptation and innovation.

### 3 CASE OVERVIEW

The empirical study is conducted in ‘*Eng-Construct*’ (EC), a global group of organizations providing engineering and construction services and technology products worldwide. EC was established in 2004 after an organizational merger by two of the leading organizations within the industry. The multinational corporation headquartered in Northern Europe serves several industries, including oil and gas, and chemicals. It employs approximately 24 000 people in about 30 countries. *TPS* (*‘Tech Product and Services’*) is one of the companies within the EC group. TPS has been in the industry for more than thirty years and delivers high-tech engineering products for drilling rigs, both off-shore and land-based installation. The company has also a large, global support service network to support customers in different countries. During the recent years, the company has experienced a large international growth, which has increased the overall complexity of the organization and has now approximately 2500 employees located at the headquarters and regional offices and subsidiaries in Europe, Asia, Northern and Southern America. The products and services provided by TPS need to be competitive in the global market, leading to a continuous pressure on this and other companies within the EC group to work more effectively and efficiently without compromising on quality and safety. The core global processes of TPS are sales, procurement, supply chain management, engineering, customer service and after sales services.

The EC group initiated a global change program in 2004, aiming to coordinate and standardize strategic information systems and harmonize business processes across organizational and national boundaries. One

part of the program was deployment of global IS to harmonize business processes, globally and locally. An enterprise system, SAP, consisting of application areas or modules such as Finance, Payroll, Knowledge management, Supply chain management and Customer service, was implemented through several waves in companies and subsidiaries within the group. The EC group established a central, large-scale ES implementation project team, with IT/IS personnel from the central organization and a large number of external consultants and project managers. In 2005, TPS started the implementation of the global ES at the headquarters. Since then, it has been rolled-out successively in the subsidiaries over a period of three years, till summer 2008. Other central parts of the global IS are the new corporate Intranet, project system and collaboration applications. The global IS, consisting of global and local applications, serves to support development and improvement of the global business processes. Currently, several new initiatives are thus put into operation in parallel to enhance utilization and reaching the anticipated benefits of the global ES implementation, demonstrating the ongoing need for further improvement in global IS support. These projects address various process improvements related to for instance finance, engineering and supply chain.

## **4 RESEARCH METHOD**

The applied research approach is an interpretive case study, assuming that people create and associate their own subjective meanings as they interact with the world around them. The specific context where the global IS is introduced, the particular business area, and characteristics of the multinational corporation are all considered important elements to focus (Walsham 1995). Previous empirical research on global IS is used to guide the research study, thus iteratively linking theory and data (Eisenhardt 2002).

The data reported in this study is part of a larger research study aiming to explore how global IS and business processes emerge in a global organization. The paper reports from twenty interviews conducted through two phases during fall 2007 and spring 2008. The first phase was a 'screening' consisting of three open interviews with functional managers within human relation (HR), IS/IT and global project management. The aim of these interviews, which lasted up to two hours, was to get more background information about the global company and the specific industry in which it operates, core business processes and strategy for deployment of global IS. Also, key informants for the next rounds of interviews were identified. During the second phase, seventeen interviews lasting from one to two hours were conducted. The interviews were semi-structured, and the informants were encouraged to talk freely about their experiences with and perceived outcome of the global ES implementation related to local and global business processes within their function area, challenges and expectations for future use. The interviews were conducted at the informant's office or in a meeting room. One of the interviews was a group interview. The informants were managers from different business areas in Norway, UK and India, including HR, quality management, IT/IS, procurement and customer service. Also, global process owners, project managers and super users involved in the implementation at four different sites were interviewed. All interviews were recorded and transcribed. In addition, access was given to attend meetings and improvement workshops where notes were taken. Secondary materials such as process models and work-flow diagrams, collected during some of the interviews and on request, provided important contextual information on the process. The analysis of the empirical data proceeded in an iterative way between interpreting interview transcripts, secondary data and notes from meetings (Miles & Huberman 1994). Theory of dialectics of change was used as a 'sensitizing device' to analyze the findings from the empirical study.

## 5 FINDINGS

In this section we present some findings from the case study as counteracting forces for change towards global standardization and cooperation on global business processes.

### 5.1 ES strategy and motivation

Research on success factors of ERP has documented the need of a clear strategy and goals for implementation. Some of the informants from the headquarters explained that the main motivation for implementing the global ES was a need to replace an old legacy system that did not support international expansion in a satisfying way. According to one IS/IT manager, the new global ES was: “.. *a prerequisite for being able to manage a transformation from being a company with some international installations to becoming more global and handle the increasing number of projects and activities globally.*” Another motivation for global standardization was that the company had been through processes of mergers, and there was a need for enhanced integration of operations. A common, global ES was expected to enable integration of work practices and information flow and integrate functionally oriented applications at different business units.

Informants at the local level, who typically were introduced to the implementation project at a later stage, asked for a more clear and articulated strategy from the group, pointing the direction for the change processes. One of the informants from the subsidiary emphasized the need of balancing between a global vision and local practices: “.. *there should be a global vision. And each business unit should try to support that global vision. And well, they may have some specific needs on their own, because their business may be slightly different. But it should still try to meet the global vision. And, again, if we step back down the process, our process owners need to make sure that the process meets both the global and the local needs*”. The informants from the headquarters reported that there was a focus on communication and information during the first phases of implementation. However, the findings illustrate the need of continuous updated information during roll-out to subsidiaries and in post-implementation phase.

### 5.2 Towards global business processes

To support increasing international operations and expansion of the company TPS defined and implemented global business processes that should interconnect previous separate practices across various locations. Some of the managers stated deployment of a global ES was fundamental to manage and enhance global business processes such as customer service and supply chain management. The ES project manager said: “*What we see, is that the quality is not better than how we manage to coordinate our activities, work in a similar way. Without a global IS infrastructure and routines, there are too many alternatives. By implementing enterprise systems such as SAP we get an opportunity to have a common terminology and interface.*”

Some informants experienced that reaching consensus on business processes was challenging at some business areas and organizational units. Establishing the governance model with global business process owners and super users was reported as a critical factor in the process. Dedicated global process owners were appointed during roll-out to subsidiaries and these persons became central in process mapping and modelling and post-implementation activities to harmonize the global business processes. Their involvement as border-crossing facilitators was regarded essential for the success of the implementation, due to their knowledge about the processes and the business. One of the external project managers stated: “*The global process owners are very important for establishing collaboration and development of global processes across geographical locations. The person has profound competence on the particular business process, but should also be a facilitator to ensure that the overall goals are achieved*”. The global process owners filled the role as “translators” between the consultants, who knew how the enterprise system worked technically, and the key users, who had business and local process knowledge. One of the global

process owners emphasized that development and cultivation of global business processes will be an ongoing learning process: *“a job that is started, but by no means completed. By now, it is established in to-be process models, but we still have a way to go...”*.

### **5.3 Configuration of global ES**

The aim was to implement an SAP industry solution. Some of the informants emphasized that this was one of the first times that the organization should adapt to a standard application. Still, a central part of ES implementation is technical configuration to customize the solution to the company needs. One manager at the headquarters said that the organization was not prepared on the dimension of the configuration job. The central project team, consisting mainly of consultants with a Scandinavian background, configured a “SAP light” version that was rolled out at subsidiaries. The configured version was thus very dependent of the consultants’ interpretation of the business needs, globally as well as locally. One of the key users from a subsidiary expressed concern with respect to the configuration and the role of the consultants and the central implementation team: *“At the courses they presented: This is how SAP works. This is not correct, this is how they have **configured** it to work”*. Training of super users on how the ES is configured is thus important for further use of the system.

Another important part of the ES configuration is definition of roles with access to functions and responsibilities, which proved to be a challenging task. The IT/IS manager emphasized that this will be an important, ongoing activity: *“...there has been a walkthrough of the organization’s roles and functions, how we collaborate on business processes. And this deals not only with the system, it is a process that means you have to look at who is responsible for which tasks. And this in many respects has had an ‘upbringing’ effect on the company, centrally as well as locally, to relate to a more structured process”*. Moreover, walkthrough of processes in the standard configured solution revealed local differences, e.g. in employee-management relationship.

Some of the informants raised serious concern with the central goal of providing ‘one-size-fits-all’ solution in a heterogeneous MNC. Particularly one manager at a smaller subsidiary emphasized large costs in implementing and learning a complex ES and few benefits for a smaller unit due to what he described as inflexibility in procedures and inability of the global system to adapt to specific local needs.

### **5.4 Knowledge sharing and learning**

Experiences expressed by informants working with the customer service process illustrate the dialectics between old knowledge embedded in the process, “the way we have always worked”, and the new global ES. The process of learning required unlearning old ways of working, which can be challenging. Training is necessary to increase knowledge about the ES, which in turn is expected to enhance utilization and value realization from the ES investment. As commented by one of the global business owners: *“In SAP, there is so much important information that could be utilized in a better way, for improved decision making - we do not utilize the potential of the system well enough yet”*. There were examples that lack of ES knowledge resulted in “workarounds” where employees found their own way of solving the problems, which again resulted in different work practices. This was explained partly by a need for more training and exercises related to actual work processes. Another explanation was that implementation of “industry best practices” and corresponding routines had not yet been translated into local work practices. Also, knowledge sharing was mentioned as critical for learning and capability transfer. The project manager, for example stated: *“One of the most important barriers to organizational learning is that there is not established well-functioning arenas for knowledge sharing. We certainly need to improve our ability and willingness to share knowledge between the organizational units and between headquarters and subsidiaries”*.

Process knowledge is critical for establishing global business processes. Some initiatives were mentioned as important to overcome lack of process knowledge. Especially at the last rollout in Asia, the global process owners and super users were actively involved at workshops where work processes and use of ES were modelled, discussed and 'negotiated'. Also, written procedures and user guidelines such as "SAP for dummies" for the customer service process available from the Intranet were important for enhancing knowledge of global business processes and improving the processes. Development of e-learning program supporting classroom training is another initiative mentioned.

### **5.5 Cross-cultural and cross-functional communication**

The core activities of the companies are often project driven, and there is a need for cross-border collaborative work. Several of the informants emphasized that cross-functional cooperation and communication is crucial for developing and maintaining global business processes. One of the super users described his as a coach for a team in which everyone has a particular role to play.

Cultural diversity was reported as an important factor in the case. Differences in national culture influenced the process, for example when discussing and modeling new business processes. One of the super users noted: *"In our country, if someone disagrees he or she usually speaks out. This is not necessary the case in other cultures"*. A cultural awareness initiative has been launched in the company for enhancing cross-cultural work. One line manager emphasized that an attitude to information sharing and collaboration cannot be taken for granted: *"There are cultural differences, for example developing an understanding within the organization that we have to share work and knowledge between different countries, locations. That is a new situation for us"*. Moreover, the implementation revealed important differences at the geographical locations. For example, some of the informants described that similar roles could have different authority across different locations, demonstrating that the organizational culture has an effect on definitions of roles.

Managing of the IT consultancy process was reported to be most challenging during the first rollout to smaller subsidiaries as the project team was not familiar with the subsidiary's particular needs and the limited internal project resources. One informant at a subsidiary argued that a more global implementation team should have been established from project start-up.

### **5.6 Change processes on global and local level**

During the implementation project the company experienced changes in roles and responsibilities. The global company has a heterogeneous work force regarding age, and professional and educational background. Technical skill and process knowledge were also critical factors that varied a lot between the different units and locations. The company was not prepared for this challenge, and one of the functional managers commented how the new global ES made work more transparent: *"One of the outcomes of the change was that some of the employees became more clever to do their job, whereas others actually became less competent. Because writing skills etc. became more visible, now people had to do things by themselves. That was an important learning experience"*. Job design, job enlargement and job simplification were activities during this process. An organizational change management (OCM) role was established at the local business units to ensure information, communication and training. The OCM and line managers played important roles in this phase.

At the group level a shared service model was established covering the functional areas of finance, human resources, payroll, time and travel administration. The findings show that this represented a major organizational change that had an effect on the employees' and managers' daily work. The HR manager explained how the new global ES and increased international focus need to be learned and cultivated in TPS, *"a process that will take time in an organization, in which delivering engineering product and services has had a local focus with use of mainly locally developed applications. This is a new situation for us, going from being a locally managed organization with international projects, to becoming an international company"*. Informants from the headquarters and subsidiaries expressed different

experiences with the shared service model. One informant at a smaller subsidiary expressed the view that the shared service model did not support the smaller units well enough.

After the last rollout in May 2008, the company experienced a need to go back and take a fresh look at the implementation and routines established at the head office in light of the experiences and discussions from the local rollouts. Areas such as training at different levels, further development of global business processes with updating of corresponding routines and guidelines were decided. Moreover, TPS has launched several initiatives aiming at continuous improvement of the global IS. One of the initiatives is the establishment of an improvement board. The main objective of the improvement board, which consists of line managers from the different functions and subsidiaries, is to prioritize changes to improve global business processes and global IS. Evaluation of the global ES through user surveys at different locations is another example of improvement initiatives.

## 6 DISCUSSION

In this section we discuss some main challenges and counteracting forces for change related to introducing a global ES in a multinational engineering enterprise. A global ES implementation could be characterized by forces at different levels (Lehmann & Gallupe 2005). In this paper the focus is on the global-local tension. From a central coordination point of view there was a need for standardization of modules, processes and routines. From a local standpoint the global IS should support the local needs and requirements. This tension could be described as a ‘territorial force field’ (Lehmann & Gallupe 2005). Table 1 summarizes key findings from the empirical study regarding counteracting forces promoting and opposing changes to globalization and standardization of IS and business processes. While some of the forces could be described at both the local and central level, the table shows where the force predominately occurred.

	<i>Company level</i>	
	<i>Local level</i>	<i>Central level</i>
Promoting forces	Improved project delivery and control	Economies of scale and scope
	Enhanced customer focus	Increased integration, coordination and control
	Access to accurate information/capabilities	Capability transfer and change management
Opposing forces	Knowledge barriers (global processes, ES functionality)	Knowledge barriers (local processes, roles, practices of use)
	Integration costs, local adaptation, established practices	Integration costs, environmental changes
	Lack of communication	Diversity (national, cultural, organizational)

*Table 1. Implementation of IS-Supported Business Processes: Promoting and Opposing Forces for Global Standardization at Local and Central Level*

We discuss some of the main findings from the study, challenges that were encountered and initiatives to overcome these.

Deployment of global ES and business processes can be understood as a dialectic of learning and knowledge (Robey et al. 2002). The findings illustrate that there is a dialectic between existing

knowledge, embedded in business processes, routines and practices associated with legacy systems and manual routines, and new global business processes and routines supported by the global ES. Based on our findings, we suggest that lack of knowledge is a major barrier to overcome. At the individual, local level, the informants emphasized that there was a lack in knowledge of ES functionality, but also in process knowledge related to assimilation of new work processes. The case demonstrates that moving from being a company with international presence towards global integration is a learning journey by itself, for top managers, functional managers as well as employees. Configuration of a complex ES was another reported knowledge barrier. The ES was configured by the consultants in the project team and the organizations experienced that limited knowledge about the configuration was a limitation for understanding and further exploitation of the enterprise system.

Initiatives undertaken to overcome knowledge barriers are courses at different levels, focusing on practical use of the ES and how local practices are related to the overall global business process. E-learning programs and user guidelines are developed in supplement to classroom training for enhanced global services. The project team and consultants played an important role in bringing in new knowledge and distributing knowledge to different business units in TPS. However, the findings demonstrate that an active involvement of global process owners and super users with process knowledge in workshops and training at subsidiaries was necessary in this process.

Dialectics may also describe the tension between established, country-specific practices across the MNC and requirements for new, common work practices related to global business processes. The heterogeneity of TPS, consisting of geographically dispersed units of different sizes, activities and history, involves many different local practices based on functional areas of expertise. Thus, the findings demonstrate that development of global business processes could be characterized as iterative moulding and shaping processes to fit the needs of the organization. There is a need of infusing global strategies into local practices by communication of goals and strategies, as well as mapping local information and practices of use into global structures. Moreover, introduction of a global enterprise system does not necessarily imply that local practices become standardized across different business units, departments and cultures.

There are counteracting forces between a global ES promoting integration and standardization and the local need for differentiation. The findings illustrate that deployment of the global ES was regarded as a prerequisite for managing increasing global operations, but also adding complexity by introducing technical, organizational and business process changes (Markus & Tanis 2000) at the headquarters and subsidiaries. The system needs to be integrated with existing applications, physical networks, organization, culture and work practices (Hanseth & Lyytinen 2004), illustrating that information systems are always embedded in situated practice of use (Lehmann & Gallupe 2005). During the period, the company has experienced a large growth, and the new system has to 'align-in-action' (Ciborra 1997) with the organization. The findings demonstrate that the need to align and integrate the global ES with the organization and business processes was regarded as particularly challenging and will be an ongoing process due to changes, for example in environmental conditions and mergers and acquisitions. While a stage model for IS implementation (e.g. Markus et al. 2000) seems appropriate for the first phases of the implementation, post-implementation could be characterized as gradual adoption of the ES, consisting of iterations of learning and improvements. Contrary to research treating implementation of ES as distinct stages, we find that implementation of global ES should adopt a long-term perspective and be regarded as long-time improvement and adaptation at different levels.

Establishment of a governance model with global process owners, super users and application managers was regarded essential in the case, both for consensus-making in discussions and modeling of business processes during rollout, ensuring ownership and further development of global IS and global business processes. The improvement board for prioritizing improvements across business units and functions was also reported as an important initiative. Evaluation of the global ES involves an increasing number of stakeholders as the ES is deployed globally.

Introducing a global IS to support global business processes has several implications that need to be discussed to find a balance between the global standards and local adaptation of global information systems and business processes. National and cultural differences such as government regulations, roles and authority need to be dealt with (Sheu et al. 2004). The need for communication of project goals and strategic guidelines seems to have been underestimated when rolling out at subsidiaries and in post-implementation phases of the enterprise system.

## 7 CONCLUSION AND IMPLICATIONS

In this study we have explored counteracting forces in change processes during deployment of an enterprise system in a MNC, in the context of global business process evolution. The in-depth study is conducted in a company operating in the oil and gas industry, based on interpretations of informants from the corporate headquarters and three subsidiaries.

Our findings demonstrate the complexity of introducing a global ES into local work contexts, both at the headquarters and subsidiaries. The multinational company includes local sites and local practices of use. The case has illustrated that deployment of ES to support global business processes in a multinational enterprise can be described as a long-term learning process in which lack of functional ES knowledge and process knowledge related to assimilation of new work processes are major barriers to overcome. Standardization of IS and business processes implies that subsidiaries are often faced with changes imposed rather than designed. Our findings illustrate a need for infusing global strategies into local practices as well as mapping local information and practices of use into global structures. Global process owners and super users at local units and headquarters should play a critical role in these activities, which have been characterized by the informants as a continuous learning and negotiating process. Moreover, ownership and collaboration initiatives on global business processes are essential for value realization of the global ES, including ability and willingness to collaborate and share knowledge and capabilities across national and organizational boundaries.

The paper contributes to the body of global IS research by exploring deployment of enterprise systems in an organization that is geographically dispersed. By examining the phenomenon from the perspective of both headquarters and subsidiaries, the paper has explored counteracting forces at the territorial, functional and cultural levels and discussed how one multinational is dealing with these. These findings thus contribute both to research and practice. The case study explores one MNC in a particular industry over a limited period. The interpretive case study has raised several issues that should be considered in future research on global ES and business processes, and indicates the need for more in-depth research studies on how to improve the process of realizing the intended value of the global IS. The effect of the shared service model on heterogeneous units and processes of local involvement in development of global IS are examples of areas for further research.

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