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Large-scale Global IT Transformation: An Insider's Account

ACADEMIC DISSERTATION

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Abstract

Information technology (IT) advances and Information Systems (IS) research have substantially underpinned organizational change in business organizations. Organizational change has been largely researched; however, organizational change of IT itself, especially from the middle management point of view, has not been a mainstream research topic. IS research has focused on research topics which will advantage large corporations' driven global organizational transformation processes. IS researchers have often taken a technocratic and managerial organization structure development approach. In spite of the fact that global organizational transformation has brought about economic progress, it has been shown that organizational change initiatives may fail to reach their stated objectives.

This dissertation presents a comprehensive IT transformation narrative within the context of a manufacturing company. A participatory researcher, IT manager perspective is introduced. The study will explore the IT transformation process from a local, functional, and decentralized IT organization to a global, process-oriented, and centralized IT organization. A richer understanding of IT transformation as a more complex concept than IT restructuring is discussed. The research methodology is a theory testing and theory building single case study within the context of a large-scale global organization.

The findings of this study support the view that IT transformation processes must be analysed and discussed with a focus not only on the phases of implementation of change, but also include the pre-change phase where the arena is set, as well as the post-change phase where the success and sustainability of the IT transformation unfolds. First, the case description identifies the major phases of a large-scale IT transformation process from a functional and decentralized IT organization into a process-oriented centralized IT organization in the context of the case organization. Second, in this study a prescriptive method of IT transformation is developed from the presented case description. Third, refinements to the positive theory are introduced on the basis of realization experiences. Fourth, many earlier studies have mainly focused on how IT is aligned with business instead of how IT and business are aligned with each other. This case study provides evidence for the conclusion that one-sided, IT-driven restructuring in business relationship management may have an effect on the success of business and IT partnership realization. Fifth, change impact evaluation within the context of the case study organization is presented. In this dissertation novel insights into large-scale organizational IT transformations are revealed and submissions for further research and implementation of complex organizational change initiatives are introduced.

Keywords: IT transformation, radical change, organizational change, business and IT alignment, globalization, case study research

Acknowledgements

In 2002 I accepted an offer to lead an integration project for two mill IT departments within one of the world's leading manufacturing companies in its industry. It was the first organizational restructuring project where I was responsible as project manager. The project objectives related to reorganizing the division of work, changing reporting structures and downsizing were significant; however, the means were rather humane and the implementation time was a generous three years. In the following year, 2003, a companywide IT organizational review was conducted by an assigned international consultant company. At that time I realized the importance of the demand for radical change in companywide IT operations and the in-house IT function in general.

A desire for knowledge to understand more profoundly IT change initiatives and intrinsic opposition prompted me in 2004 to contact Professor Emeritus Pertti Järvinen, who was arranging a doctoral Information Systems (IS) seminar in the Department of Computer and Information Sciences at the University of Tampere. Pertti kindly advised me to join the doctoral seminar with a research plan. In August 2004 I presented my first research plan in the doctoral IS seminar. Amazing encouragement, motivation and strict guidance inspired me through the years. I cannot stress enough the spirit of the seminars and the quality of the intellectual comments and proposals made by my student colleagues in seminar discussions. I would like to acknowledge my debt to Pertti, my colleagues at the Tampere University dissertation seminar over the years, whose comments in seminar discussions and encouragement helped me to continue to sharpen my thinking on my research topic.

For me, the research process has been a long and educational exploration into a new dimension of the academic world. I express my sincere gratitude to Pertti for his patient guidance and motivation. In 2005, my thinking on the research topic sharpened enough to approach ongoing radical large-scale global IT transformation in the case company. I started to make entries in a research diary concerning my IT transformation narrative in May 2005 and finished at the end of 2006. At the same time, in May 2005, I accepted a new global assignment in the case company to establish a global centre of competence as part of that global IT transformation programme. This dissertation is a story about IT transformation from a participatory perspective.

From the beginning of 2008 I have been working in a global business transformation programme. As a responsible programme director, my work is involved in another transformation. A different perspective and challenges have also enlightened my ways of thinking about the earlier IT transformation narrative.

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Abbreviations

AIS	Association for Information Systems
CEO	Chief Executive Officer
CIO	Chief Information Officer
CoC	Centre of Competence
CoEs	Centres of Excellence
EBSCOhost	EBSCOhost Online Research Databases
ERP	Enterprise Resource Planning
HR	Human Resources
IMF	International Monetary Fund
IS	Information Systems
IT	Information Technology
ITIL	Information Technology Infrastructure Library
MBA	Master of Business Administration
RBV	Resource-Based View
RM	Relationship Management
SLA	Service Level Agreement
WTO	World Trade Organization

1. Introduction to the research topic

Generally speaking, business unit managers appreciate local IT services as flexible and responsive to local business needs. However, from the central management perspective, local flexibility has led to sub-optimized IT systems implementation and fragmented maintenance and support services in large corporations. As a result, central management executives have initiated IT functions change programmes in order to achieve cost efficiency, internal and external economies of scale, global synergies, improved compatibility, and increased fluent information flow between units by transferring knowledge, exploiting best practices, and optimizing management and organization. Managing change is becoming increasingly important in business. Luftman and Kempaiah (2008) documented "Manage change" as one of the major IT management issues in their formal survey on key management concerns.

1.1   Related research

The contribution of IS resources in gaining competitive advantage has been recognized in earlier studies. Barney (1991, 2001) discussed a Resource-Based View (RBV) of the firm and the link between resources and competitive advantage. He divided the resources into three categories: physical capital resources (including technology), human capital resources, and organizational capital resources. Barney (1991, p. 101) defined human capital resources as the following: "Human capital resources include the training, experience, judgement, intelligence, relationships, and insight of *individual* managers and workers in a firm." Barney explained that companies have the potential for sustained competitive advantage if a firm resource has four attributes: 1) it is valuable, 2) it is rare, 3) it is imperfectly imitable, and 4) there are no equivalent substitutes.

Resource-Based View has been widely discussed in IS research. Sanchez and Heene (1997) situated RBV among the other strategic management theories and introduced a movement to build a theory of competence-based strategic management as more relevant to practice. Sanchez and Heene suggested that increasing polarization and fragmentation of traditional strategy theory has limited its applicability in practice. Wade and Hulland (2004) suggested extensions to RBV by presenting a typology of IS resources and emphasizing both IS resources' complementarity and moderating effects on firm performance. Wade and Hulland argued that IS resources rarely have an influence on sustained competitive advantage and proposed that only those IS resources that are inimitable, non-

substitutable, and imperfectly mobile have an effect on competitiveness over the longer term. Piccoli and Ives (2005) discussed the sustainability of IT-dependent competitive advantage, the barriers to the erosion of competitive advantage for strategic IT-dependent initiatives, and suggested that there are opportunities for using IT to enable sustained competitive advantage through IT-dependent strategic initiatives. The importance of business strategy and IS strategy alignment has been discussed in various IS studies (Henderson and Venkatraman 1993; Sabherwal and Chan 2001; Sabherwal et al., 2001; and Hirschheim et al., 2006). Since the link between IS resources and competitive advantage has been identified, the importance of IS organizational structuring can be discussed.

Organizational change in the context of Information Systems (IS) research has been widely discussed (Markus and Robey 1988, Van de Ven and Poole 1995, Huy 2001, Markus 2004). Buchanan (2003) discussed the methodological implications arising from competing narratives of an organizational change process and suggested that there is no one authentic "true" narrative of change. Benamati and Lederer (2001) discussed how IT organizations cope with rapid IT change and give four strategic steps on how to cope better with the change: 1) assess the severity of recent problems due to IT change, 2) identify coping mechanisms that might have avoided or reduced the problems, 3) anticipate future problems due to IT change, and 4) implement coping mechanisms that will avoid or reduce future problems. Tsoukas and Chia (2002) argued in a conceptual-analytical research article that change is the normal condition of organizational life. Engeström (2003) referred to a historical framework for a reintegration of organization, work, and learning, supposing that from the historical point of view we can see everything better. Markus and Benjamin (1997) defined the magic bullet theory of information technology and organizational change, with IT changing people and organizations through empowerment.

The concept of success in the context of design or implementation is a quantitative and a qualitative concept. DeLone and McLean (1992) developed their model to identify factors contributing to Information Systems success and updated the model ten years later with minor refinements (DeLone and McLean 2003). The following six dimensions were presented: 1) Systems quality, 2) Information quality, 3) Service quality, 4) Use, 5) User satisfaction, and 6) Net benefits. Petter et al. (2008) mentioned as examples of variables measuring net benefits improved decision making, improved productivity, increased sales, cost reductions, improved profits, market efficiency, customer welfare, creation of jobs, and economic development. Interpretation of IS success has not always been unambiguous. Porra et al. (2005) suggest that different interpretive lenses may show either success or failure for the IT function. By utilizing a multi-methodological approach, Bartis and Mitev (2008) explored how the acceptance of a new software project was interpreted differently within an organization and suggest that what is regarded as a success for one can be seen as failure for another. Pentland and Feldman (2008) used the example of a failed package software implementation. The design was a success but implementation failed as the system was not utilized. Pentland and Feldman emphasized the difference between artefacts such as software and actions. People are not following the same rules. They explained organizational routines that involve people as a "live" routine and "dead" routines as artefacts, concluding that

live organizational routines are not machines but routines having a life of their own and that the managers are designing artefacts, not routines.

Large-scale IT transformation programmes require proper change management (Kudray and Kleiner 1997, Orlikowski and Hofman 1997). Companies have identified the threat of change resistance. Sirkin et al. (2005) emphasized the four key factors for change management success: 1) the duration of time or time between reviews and milestones, 2) the project team's performance integrity, 3) the commitment of top management and affected personnel, and 4) the effort over usual work is needed. Change management (Nah and Lau 2001; Umble et al., 2002) and a good communications plan (Nah and Lau 2001) are also commonly mentioned as critical success factors in ensuring a successful Enterprise Resource Planning (ERP) implementation, which is also an extensive IT-related change project.

A process-oriented IT function is defined in this study as a centralized internal IT service delivery organization, structured on the basis of the main business processes and internal IT processes. Centralized here means concentrated administrative power in a central authority. Henderson and Venkatraman (1993) reported that one analytical methodology reflecting a service level alignment perspective is service-level contracting. The Service Level Agreement (SLA) concept (Fitsilis 2006), which was implemented in the case study company, is a formal IT service delivery concept specified originally by the Information Technology Infrastructure Library (ITIL). Peppard (2003) suggested that managing IT as a portfolio of services can improve the contribution of IT to business performance. The implementation of a process-oriented IT service function will evidently affect internal customer relationships and the distribution of work (Järvinen 1980), since an IT organization focuses merely on IT processes and not business processes. In that case, IT champions can facilitate the transformation process from IT-driven systems user support (IT personnel give the end user support) to business-driven end user support (trained business personnel give the end user support). Beath (1991, p. 355) described IT champions as "managers who actively and vigorously promote their personal vision for using information technology, pushing the project over or around approval and implementation hurdles. They often risk their reputations in order to ensure the innovation's success."

This dissertation introduces a manufacturing company IT transformation narrative. The objectives of this study are: 1) to describe the case study company's large-scale IT transformation change process, 2) to develop a prescriptive method for the large-scale IT transformation process, 3) to evaluate business partner organization implementation in the case study company, and 4) to evaluate the change impact of IT centralization in the case study company. The organizational change of IT itself from a decentralized IT organization to a centralized IT organization, especially from the middle management point of view, has not been a mainstream research topic. The structuring of organizations (Mintzberg and Quinn 1996) and IT (Brown and Magill 1994, Peak and Azadmanesh 1997, and Weill and Ross 2005) is in general discussed but the IT transformation process has not received special attention. It appears that companies are most reluctant to admit external academics to examine their radical change programmes since they tend to secure the change process and the success of the change programme cannot be guaranteed in advance. Additionally, a considerable number of human-related issues

are triggered by organizational restructuring. Nonetheless, some compelling case studies on IS restructuring have been published (Sutherland and Remenyi 1995; Harkness et al., 1996; Clark et al., 1997; Cross et al., 1997; Roepke et al., 2000; Porra et al., 2005; Porra et al., 2006; and Vaast and Levina 2006). The notion of IT transformation is more complex than the IT restructuring that is discussed by Porra and other scholars, and different from the change processes that are connected to the introduction of new information systems into an organization. IT transformation is the action of changing the form of IT and business processes—a complete change in character.

1.2   Research contributions to IS and to practice

The research questions in this study concern the unexplored topic of the IT transformation process from a local, functional, and decentralized IT organization to a global, process-oriented, and centralized IT organization. This dissertation complements the issue of IT restructuring from the middle management perspective and introduces new knowledge on the implementation process to enable us to better understand the large-scale IT transformation process and improve it by exploring the following important questions: 1) What are the identified major phases of the large-scale IT transformation change process in the context of the case study organization? 2) What would be a suitable method for a large-scale IT transformation change process? 3) What were the factors affecting the success of business partner organization in the context of case study organization? 4) What is the change impact of IT centralization in the context of the case study organization? The unit of analysis in this study is the IT function of an international manufacturing company. As a research methodology, I have applied a theory testing and theory building single case study.

Polanyi et al. (2001) have questioned market economy assumptions that human beings behave in such a way as to achieve maximum economic gains. This study will explore the free market economy assumption of IT personnel considered as a commodity in the context of the case study organization. Two other theoretical lenses have been adopted to observe the case from different viewpoints and build a structural understanding of the data. Van de Ven and Poole (1995) presented a framework on generic process theories of organizational development and change based on an extensive multidisciplinary literature review. Huy (2001) has outlined different generic change intervention theories to explain the change process. The application of dialectical theory, life cycle theory, and teleological theory (Van de Ven and Poole 1995) and commanding intervention, engineering intervention, teaching intervention, and socializing intervention (Huy 2001) theories primarily support the given propositions; however, adaptation of commanding and teaching intervention theories also provide evidence of diverse conclusions. The research results suggest an avenue for further research into the organizational change of IT.

In this dissertation, the IT transformation case study description is presented, its positive theory, and a prescriptive theory on the IT transformation process is developed. Furthermore, the new IT organization model implementation is

evaluated, and the change impact of IT transformation on business and IT processes is presented. The new IT organization model implementation evaluation suggests a more holistic process approach to IT transformation.

The dissertation has been organized starting from Chapter 1, Introduction to the research topic. Chapter 2 considers globalization in the context of the IT function, the connection of the globalization process and information technology advances and earlier expressed criticism on the globalization process as a free market economy phenomenon are discussed. Chapter 3 introduces the case study company's old IT organization structure as a decentralized and fragmented IT function. The old organization's ways of working are exemplified through a business unit's IT function. The new IT organization's structure as a centralized process-oriented IT organization is presented. Chapter 4 introduces the case study research method and discusses the research question. Chapter 5 focuses on the transformation of the case study company's IT function and analysis of the case evidence. The revolutionary idea of IT as a business process partner is presented. The organizational transformation is discussed primarily from a global application management services point of view. In Chapter 6, The IT transformation case data analysis, the IT transformation is explored, the case description is presented, the prescriptive IT transformation method is developed, the new IT organization model implementation is evaluated, and the change impact of IT transformation on business and IT processes is presented. Chapter 7 discusses the theoretical and practical implications and limitations of the research. Finally, Chapter 8 provides the dissertation's conclusions. The participatory researcher view adopted here is that of a global Centre of Competence (CoC) manager's view. From that perspective, I realized the change programme as a manager of manufacturing systems global CoC with personnel on three continents, in eight countries, and in more than twenty different locations.

2. Globalization in the context of the IT function

Globalization and technology have been major drivers of change in large corporations during the last decade, with the role of IT being essential in change strategy implementation. IT organizations have also changed dramatically, having themselves gone through the process of change. IS research results have been fundamental for many large companies reforming their global business and IT strategies. More IS research has been triggered by the process of globalization. The transformation process from the nation-state economy to the global economy has been enabled or even forced by IT advances. Globalization as a free market economy phenomenon in the context of IS research is not always explicitly expressed. As a consequence, at the beginning of this dissertation, globalization in the context of the IT function is discussed.

2.1 The connection between the globalization process and information technology advances

Akmanligil and Palvia (2004, pp. 45–46) state: "In order to compete, companies have to exploit their advantages. Globalization brings forth the challenge of coordinating their activities on a worldwide basis, mostly through using IT." Technology has changed the economy and old structures. Nation-states' structures and regulations have faced new challenges. Ohmae (2005, pp. 46 and 47) states: "The economy is no longer closed in a country, nor is the world an assembly of the autonomous and independent nation-states, a model most of them have assumed as underlying structure of economy." Furthermore, "In the borderless world, an excessive money supply by the central bank can slip out of the country if there are no attractive opportunities within the nation." As an advocate of globalization, Ohmae (2005, p. 92) even anticipates the waning importance of the nation-state and the increasing importance of regions: "The ongoing development of the global economy will lead to an inevitable undermining of the nation-state in favour of the region." When global economics weaken national governments, it inevitably weakens democracy, and at the same time it strengthens the power of large corporations. "Weaken the nation-state through the idea of *inevitable* international forces and you cannot help weakening your democracy," Saul (2005, p. 140).

Doz et al. (2001) introduced a new paradigm of globalization. They call the concept "metanational". To the metanational concept, globalization, instead of projecting a home grown formula, is a search for building advantage by learning from the world. However, practitioners have also experienced challenges in

implementing global organizations. The threat is the emergence of the "global debating society" where networking and consultation undermines efficient decision making. New responsibilities challenge the management of extreme and complex process-oriented organizations in geographically dispersed international companies. These are the challenges of global organization implementation. Finally, the metanational concept is just a new model for companies to benefit from globalization. Friedman (2006) discusses in his bestselling book "The World is Flat" personal computers, the Internet, software, outsourcing, and off-shoring as among the ten main forces that have 'flattened' the world and created new business opportunities for developing countries.

2.2   Criticism on the globalization process

Criticism on the globalization process has been expressed, for example, by Saul and Stiglitz. Saul (2005) expresses the general disturbing failures of globalization, outlining that most of the international exchange movements are mere speculation and that more of today's trade is simply internal movements in corporations based on cheap transportation and labour. Saul (2005, p. 30) writes "A quarter to a half of today's trade involves transnational corporations moving pieces around inside each of their own international structures. Why? Transport is cheap and so is labour. But if you move transport costs up through the price of oil and improve wages, even a small amount – for example, in China and India – most of the cost advantages are gone."

Saul charges globalization overstatements of the determinism of technology and the superiority of rational management systems. He states bluntly that the central perception of globalization is to see civilization through economics only. As a practitioner, I have been implementing globalization as it underpins best practices, and which is very much discussed in Information Systems (IS) research from an economic and efficiency point of view. Wareham and Gerrits (1999) examined a group of business best practice cases and showed how these prescriptions can become quite problematic and complex when transferring knowledge across organizations, industries, institutional environments, and cultures—that is, the practice cannot be transferred as such but its main ideas can be learned and utilized. As an academic researcher who, as a practitioner, is experiencing the side effects of globalization, I have considered the responsibility of academic IS researchers. Do we support a one-sided technocratic approach to globalization or should we question more the economic transformation and also consider other perspectives, such as the social and ethical? Saul addresses work conditions in developing countries and states that they are comparable to working conditions of the Western working class in the nineteenth and early twentieth century. He addresses the depressing vision of recent development compromising quality, continuity, and services.

Even business culture has become homogenous. International corporations implement identical business structures and IT solutions. Ohmae (2005) emphasizes the importance of different platforms like "a global business culture", welcoming the phenomenon of an emerging global business class. However, business executives are not only talking the same language but they are also implementing identical

standardized business solutions. Ridderstråle and Nordström (2003) write about standardized MBAs and identical recipes for success. When the business culture mindset is becoming even more homogenous, it will evidently limit the use of alternative innovative solutions. In large corporations, business executives launch standardized corporate-wide solutions which are in many cases supported by external consultants who bring with them business best practice initiatives. Business divisions, corporate functions, and business units are forced to implement the given solutions. Middle management is becoming more and more an implementer rather than a decision maker. Feasibility studies result in expected results and are conducted to ensure middle management commitment. Saul (2005) is concerned about growing expert influence, arguing that specialists, consultants, and technocrats are not natural leaders and their methodologies tend to be narrow and linear. Alternatively, Maula (2001) presented an external, consultant-supported organizational transformation process as a success story. In my professional life, I have witnessed the power of external consultants in various global projects. Unfortunately, the implementation of technocratic, economically justified solutions all too often cause social and human problems which are left to be handled by business middle management and the local community.

Stiglitz (2005) states that globalization has not been able to reduce poverty and ensure stability. He addresses critics of globalization by accusing Western countries of hypocrisy, pushing poor countries to eliminate their trade barriers while at the same time preventing developing countries from exporting agricultural products. He states explicitly that globalization is driven by international corporations. Large corporations always act according to their own economic interests. Global corporations may prepare social and ethical responsibility statements but they will always primarily act to ensure shareholder value. Hamel (2008, p. 92) states "Most companies strive to maximize shareholder wealth – a goal that is inadequate in many respects. As an emotional catalyst, wealth maximization lacks the power to fully mobilize human energies. It's an insufficient defence when people question the legitimacy of corporate power. And it's not specific or compelling enough to spur renewal. For these reasons, tomorrow's management practices must focus on the achievement of socially significant and noble goals."

Stiglitz (2005) also raises the issue of missing global governance in the globalization process. There are international organizations which are mainly responsible for governing the process: the International Monetary Fund (IMF), the World Bank, and the World Trade Organization (WTO). Stiglitz (2005, pp. 12–13) points out that in the IMF only one country, the United States, has an effective veto. Furthermore, he states "The most dramatic change in these institutions occurred in the 1980s, the era when Ronald Reagan and Margaret Thatcher preached free market ideology in the United States and United Kingdom. The IMF and World Bank became the new missionary institutions, through which these ideas were pushed on the reluctant poor countries that often badly needed their loans and grants." Stiglitz (2005) describes the current system as global governance without global government, operated by economic interest groups, leaving many of those who are affected almost voiceless. The call for global governance in the context of the globalization process is also problematic since it can lead to the implementation of another unfair ideology and would evidently limit international diversity. Do we as academic IS researchers promote market driven globalization? Have we

profoundly studied arguments for globalization and have we studied the social side effects of simplistic and technocratic IS research utilization? Have we searched for respectable alternatives for short-term advantages which might threaten local social structures? What are the IS researcher's social responsibilities? Off-shoring and near-shoring are examples of IS research topics implementation which might promote shareholder value creation but can also have dramatic social consequences.

The globalization process calls for discussion on free market economy regulation. The market economy does not function in the same way in the global economy as it does in a regulated nation-state economy. In the global economy international corporations can manipulate national governments. In Polanyi et al. (2001) is the idea that a self-adjusting economy implies a stark utopia. If a self-adjusting economy never works, who should regulate the global market economy? There is no democratic regulation mechanism. IT advantages and IS research have underpinned the process of an unregulated global market economy. IS research has significantly supported mainstream economic thinking. Polanyi et al. (2001) question market economy assumptions that human beings behave in such a way as to achieve maximum economic gains. They argue that labour, land, and money cannot be defined as commodities. They explain labour as a technical term for human activities, land as another name for nature which cannot be produced, and money as a token for purchasing power.

2.3   Commoditization of IT

Today, we discuss the commoditization of IT (Carr 2003). IT infrastructure, information systems, and IT personnel are seen as commodities that can be traded on the market. The concept of IT infrastructure has been widely discussed (Duncan 1995; Star and Ruhleder 1996; Broadbent et al., 1996). IT infrastructure was defined by Broadbent et al. (1999, p. 159) "IT infrastructure is the base foundation of the IT portfolio, which is shared throughout the firm in the form of reliable services, and is usually coordinated by the IS group. IT infrastructure capability includes both the technical and managerial expertise required to provide reliable physical services and extensive electronic connectivity within and outside the firm." Byrd and Turner (2001) explored the relationship between flexible IT infrastructure and competitive advantage and Sääksjärvi (2000) outlined the importance of the IT infrastructure role to IS effectiveness in the context of strategic alignment (Henderson and Venkatraman, 1993).

The commoditization of IT has also enabled companies to consider the outsourcing of non-core IT operations. Prahalad and Hamel (1990, p. 82) defined core competencies in the following way: "Core competencies are the collective learning in the organization, especially how to coordinate diverse production skills and integrate multiple streams of technologies." Holsapple and Joshi (2001) discussed the classes of organizational knowledge resources. The degree of importance defines the significance of knowledge in value generation relative to ensuring an organization's competitiveness (core vs. non-core). Outsourcing has been largely discussed in IS research. King and Malhotra (2000, p. 323) defined outsourcing as follows: "Outsourcing implies the use of external agents to perform

an organizational activity." Lacity and Willcocks (1998, p. 370) defined selective outsourcing as "the decision to source selected IT functions from external provider(s) while still providing between 20% and 80% of the IT budget internally. The strategy may include single or multiple vendors." Loh and Venkatraman (1992) discussed the adoption of outsourcing, Loh (1994) proposed a framework for governing the IT function, especially IT outsourcing. Lacity and Hirschheim (1994) studied outsourcing expectations realized in practice and insourcing as an alternative IT sourcing solution (Hirschheim and Lacity 2000). Currie and Seltsikas (2001) focused on the application service provider role in IT outsourcing. Lee et al. (2004) discussed outsourcing strategies and explained outsourcing choices as an alternative to available resources to increase the value of IT and to meet corporate objectives. Unfortunately, those corporate objectives reflect in many cases only cost saving requirements. Jarvenpaa et al. (2005) studied IT outsourcing and innovation. Wang et al. (2008) explored the business value of IT outsourcing, and Veltri et al. (2008) discussed information systems back-sourcing. Furthermore, outplacement is defined here as a contracted employee transfer from customer organization to supplier organization with customer commitment to purchase employee services for a defined period.

Off-shoring is a typical phenomenon related to information technology development (Hagel and Brown 2005). King and Torkzadeh (2008, p. 207) proposed "inter-country outsourcing" as the most accurate definition for off-shoring. Off-shoring and near-shoring decisions are explained with cost savings and skill differentials. In this study, near-shoring is defined as off-shoring operations closer to home, and in-house near-shoring is defined as in-house inter-country operations. I have closely followed the development of an in-house near-shoring case and the uncertainty it has created among affected personnel. The pursuit of personnel cost savings by off-shoring and near-shoring initiatives has unfortunate side effects, such as job insecurity and loss of skills and opportunities. Knowledge transfer and knowledge sharing best practices are conducted in these change programmes. Oshri et al. (2007) identified eight practices for managing dispersed expertise. The first four practices are related to the challenge of absorbing expertise from the client to the service provider: 1) implement an organizational structure that is a mirror image of the client's structure, 2) implement a knowledge transfer methodology, 3) implement a knowledge retention methodology, and 4) monitor expertise development and retention at project and organizational levels. The other four practices are more related to the service provider's internal activities and are not within the scope of this study. Carlile (2004) discussed managing knowledge sharing across boundaries. Van Baalen et al. (2005) explored knowledge sharing via knowledge portals, and Oshri et al. (2006) knowledge transfer between projects. Bansler and Havn (2004) discussed the role of network effects in relation to the systems for knowledge sharing, and outline a theoretical perspective on the implementation of knowledge repositories in organizations.

The globalization process has influenced IS development in recent years and has triggered a lot of new IS research. Globalization has also complicated IS development as Akmanligil and Palvia (2004) have argued. In IS research, there is a large number of compelling research topics on the social consequences of globalization from the IS research perspective. So far, globalization within the context of the IT function in general has been discussed. The next chapters discuss

how the IT function's provision of expeditious business changes—to be easy to do business with and be effective—generated a reappraisal of IT services as commodities, the implementation of selective outsourcing, and in-house near-shoring initiatives in the case study company.

3. The case description

In this case study, a multinational company IT transformation was examined. The case study company, called here MultiMills, is one of the world's leading manufacturing companies in its field of industry, with production units in several countries. In early 2004, MultiMills was organized into different business divisions and into a central cross-divisional support function. Historically, the business divisions were established as primarily manufacturing divisions, and the size of the business divisions varied greatly. Cross-divisional support functions, such as cross-divisional IT, were centrally organized and support all business divisions. The centralization of operations varied in different business divisions from the centralization of operations to fairly independent business units. The business unit organization and structure mirrored to the IT organization and structure. The number of employees at MultiMills at the end of 2004 was 33,000.

3.1 The old IT organization structure

At the beginning of the new millennium the company's IT organization was recognized by MultiMills' cross-divisional IT strategy review team as a complex, decentralized, and fragmented IT organization (Figure 3.1). The divisional IT organizations were on different maturity levels. The lack of customer focus and leveraging shared services were identified. The transparency of global costs and performance were perceived as inadequate. IT personnel were spread across 14 countries and 58 locations. To improve internal business integration, customer focus, and business efficiency, a radical IT transformation project was proposed by the IT strategy review team. The intention of the process was to change the IT organization and IT functions from technology-oriented and scattered IT functions into a business-driven, global IT function supporting a global, process-oriented business organization.

Figure 3.1 An exemplary business unit IT structure
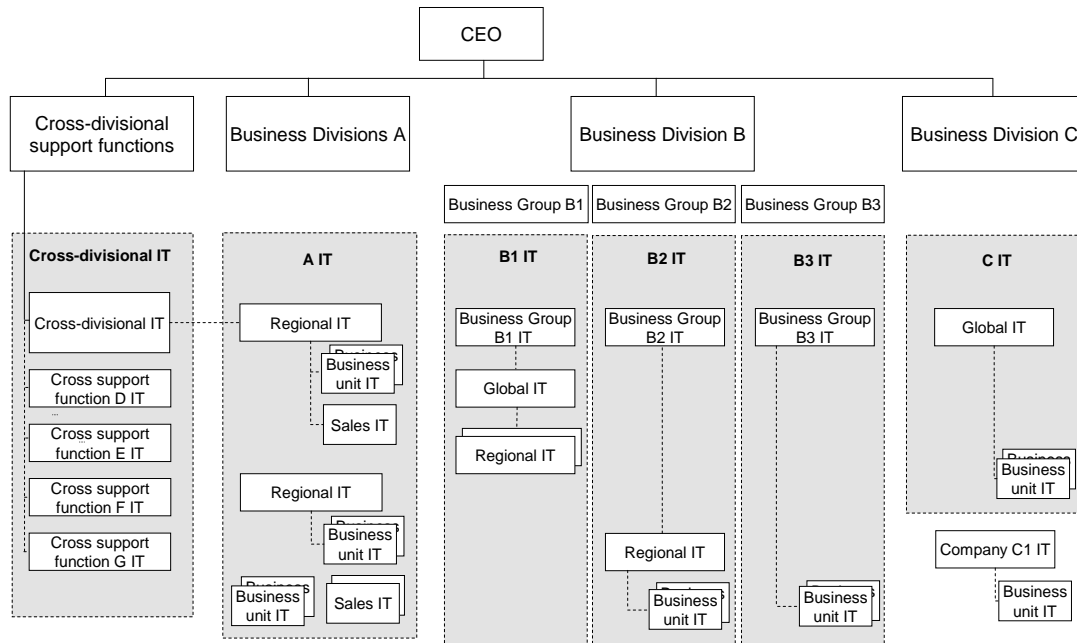
3.2   Business unit IT

Before the IT transformation project was launched, local business unit IT managers mastered all local IT operations within the business unit, including workstation management, local area network management, local server management, service delivery management, local user support management, local application management, and 24/7 IT duty management. The business unit local IT managers were reporting directly to the business unit management (Figure 3.2). The business unit IT was locally managed and was a fairly independent expert organization. The group IT strategy, global solutions, and global network were centrally managed but the local business unit always had some flexibility to adapt global processes and solutions. My observations as a former local business unit IT manager indicated that the local flexibility had led to sub-optimized IT systems implementation, maintenance, and support.

  IT strategy review interviews indicated that the business unit managers perceived the local IT service as generally good and domestic. The local IT personnel were considered business-oriented, flexible, multi-skilled, and able to provide services in the local language. On the other hand, the business unit perception of group IT was poor and distant. Group IT was perceived as difficult to understand, slow to deliver, and a barrier to rather than an enabler of business. As IT expenses were not clearly

linked with business improvements, group IT was also perceived as expensive. My observations indicated that the IT transformation design created considerable uncertainty within the business unit IT as the local IT organization was broken down into global infrastructure management and global application management. At the same time, when the new organization was launched, the local business unit IT manager assignments were terminated.

Figure 3.2 An exemplary business unit IT structure
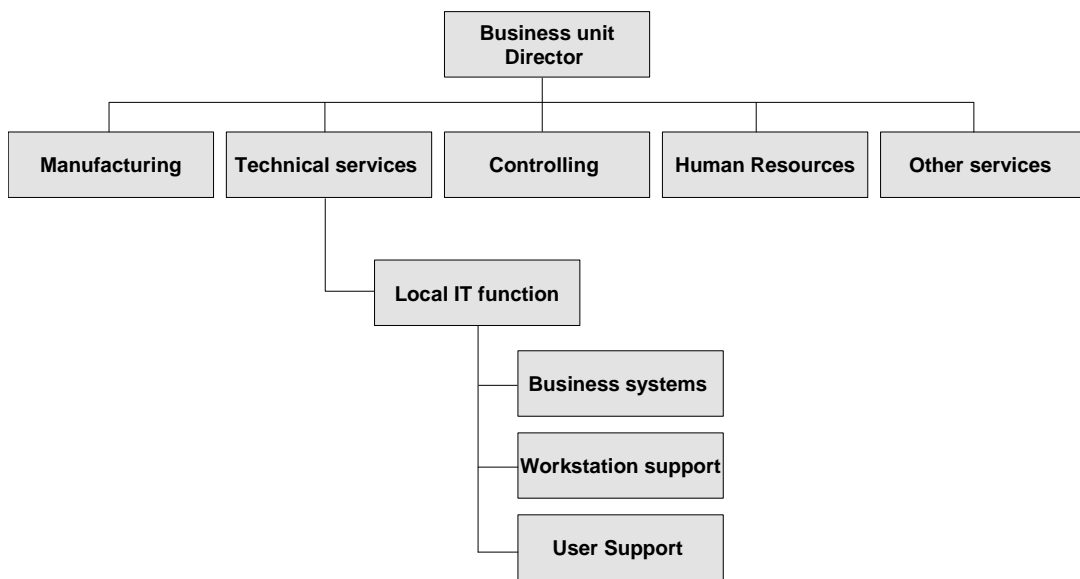
3.3 The new IT organization structure

A radical IT transformation project was started by MultiMills' top management in May 2004 to enable expeditious business changes when needed, and to improve the IT service offering and business efficiency. Alternative divisional and global process-oriented organizational approaches were outlined. The preparation team was expanded at the time of re-planning to ensure a diversity of views. The IT transformation project recommended major changes on the basis of a global process-oriented organizational approach, which was finally accepted by the business management, despite contradictory divisional views. The intention of the process was to change the IT organization and IT functions from being technology-oriented and scattered IT into a business-driven and global IT function supporting the global business process approach. Global IT function is defined here as integrated global IT with one Head of IT to whom all IT employees, as part of global IT, report. All the old IT functions were bundled within one global geographically dispersed IT organization.

A master plan for the IT transformation project implementation and monitoring was created. The IT transformation project was supported by an external

international consultant company. The project was led by the new Chief Information Officer (CIO). My role was as implementing manager of the manufacturing systems global CoC with personnel on three continents, in eight countries, and in more than twenty different locations.

A business process partner organization was introduced to ensure better business and IT alignment. A global strategic IT management organization was established. Global IT infrastructure services were restructured, local infrastructure services were recommended but the reporting structure was changed to global IT. Internal application management services, development, and maintenance of global, business specific applications as well as supporting platforms and technologies were organized into twelve globally managed centres of competence. Manufacturing process automation services have been historically excluded from IT services. A permanent business process partner organization was also introduced. Figure 3.3 shows the new IT organization structure and then in more detail each of the entities is explained: Strategic IT management, IT controlling, Infrastructure management, Application management, and Business process partner organization. The main building blocks were Infrastructure management, Application management, and the Business process partner organization. The process model was explained to push cross-divisional integration and harmonization and to promote process-oriented working and thinking. Shared IT departments were reasoned to enable synergies across divisions and to reduce management overheads. All application development was concentrated in global centres of competence.

Figure 3.3 The new IT organization structure
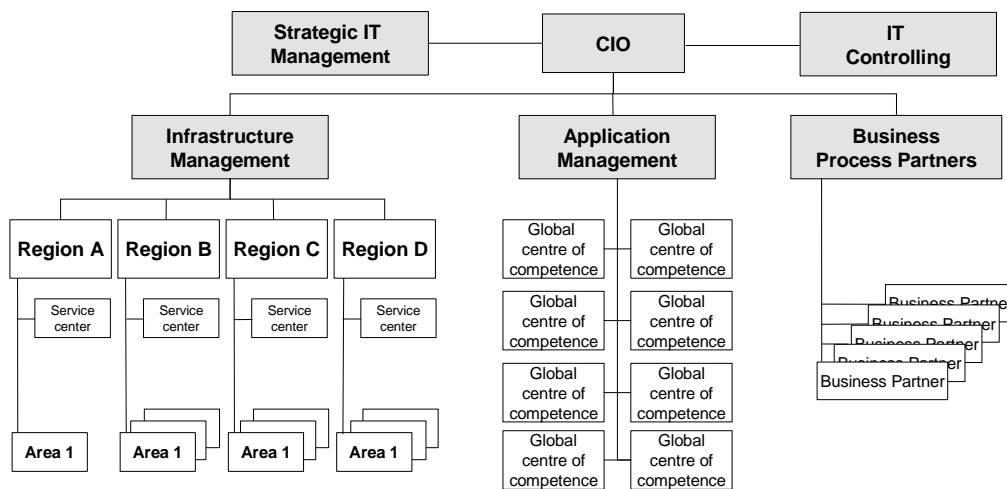
3.3.1 Strategic IT management

Strategic IT management was established as part of the new IT to be responsible for the company IT strategy and architecture planning, IT security consulting, and IT processes, as well as IT quality management. Strategic resource and competence management and IT compliance were also included in the strategic IT management responsibilities. A small virtual team with high profile senior managers was organized close to the IT and business community. The director of Strategic IT management, as a member of the IT management team, reported to the CIO.

3.3.2 IT controlling

IT controlling was established to perform internal cost and service budgeting and cost control structures and monitoring practices. Implementation of purchasing processes for external services and other administrational service processes were planned. The director of IT controlling reported to the CIO.

3.3.3 Infrastructure management

Infrastructure management was divided into four regional service delivery organizations and global shared services. The global infrastructure services were provided by regional service centres. The regional Infrastructure management was responsible for regional service delivery to internal customers. The local Infrastructure management service delivery was organized under the local area IT managers. Infrastructure management services were centrally reorganized. User support and data centre operations were provided by three centres according to the "follow-the-sun" principle. IT infrastructure management is defined here as management of communication network services, management of messaging services, management of servers and storage services, workstation management services, group-wide new technology services, and IT support services.

3.3.4 Application management

Application management, application management services, application development, maintenance and support, and external application management service sourcing and governance were integrated into twelve globally and centrally managed, permanent centres of competence. Nine of the centres of competence were organized by application area, such as finance, and three by technology or methodology, such as a collaboration tools centre of competence. Application management personnel were mainly scattered in local business units. After the IT transformation, specific local business solutions were not necessarily supported by dedicated Application management personnel in all business units.

3.3.5   Business process partner organization

The new business process partner organization was established and it was organized on the basis of the main business processes, reflecting application area based centres of competence organization. Business process partners were process experts in IT organization who were proactively enabling process and application harmonization of different businesses. Business process partnership is defined here as business process partnership management: internal customer relationship management, IT communication and marketing—including business specific IT opportunities—and IT service level management. The business process partner organization's role was to represent the internal IT service organization as a single entity to the customer. The business process partner organization prioritized and communicated business requirements and selected the project portfolio for the Application management and Infrastructure management. The business process partner personnel were named as business process partners and business process partner managers. The business process partner role was seen as an account manager's role and business process partner's role.

3.3.6 Global IT projects management

A separate global IT project management organization was established to complete unfinished global IT projects and handle the management of further global IT projects. The idea of a global IT project management organization was not presented in the original IT organizational design and therefore it is not shown in the new IT organization structure (Figure 3.3).

3.3.7   Global support services

MultiMills' global human resources function and global sourcing function supported global IT with dedicated service partners in their responsibility area. Global support services were globally and centrally managed and geographically centralized or dispersed services. Global human resources and global sourcing service partners reported directly to their functional heads and are therefore not presented in the new IT organization structure (Figure 3.3). IT had to plan new working structures and processes for IT-related global support services in co-ordination with global support services.

3.4   The IT transformation timeline overview

The IT transformation programme started in May 2004 with change initiative and external partner selection. The IT strategy review was completed in June 2004, and the new IT strategy, including design of the future IT organization and IT transformation programme implementation plan, was developed between July and

December 2004. The implementation preparation—leadership assessment and appointments of IT directors and next level IT managers—lasted from January to May 2005. The period from May 2004 to May 2005 is called the prior to change phase. The actual IT transformation project was implemented between June 2005 and September 2006, including implementation and transition phases. The implementation phase involved IT personnel competence assessment, transition planning from the old IT organization to the new IT organization, new IT position recruitments, and workers' council negotiations on the implementation of the IT organizational transition and selective outsourcing project. The transition phase involved the announcement of the new IT organization, task handover from the functional old IT organization to the new process-oriented IT organization, workers' council negotiations on the implementation of the IT organizational transition, outsourcing transition, and near-shoring analysis. October to December 2006 was the time of organizational optimization to refine the new IT organization structure and the new ways of working. From January 2007 to September 2008 the new organization was operational until dissatisfaction and consequent restructuring and dismantling of the business process partner organization in October 2008. The period from June 2005 to September 2008 is called IT transformation, and the period from October 2008 to February 2009 is called the post change phase. Table 3.1 summarizes the main phases of MultiMills' IT transformation.

Table 3.1 MultiMills' IT transformation timeline overview

Phase	Period of time	Phase description
Prior to change phase		
1. Change initiative	May 2004	Initiate the change Partner selection
2. IT strategy review	June 2004	IT Strategy review
3. IT strategy development	July–December 2004	IT organizational design Implementation plan
4. Implementation preparation	January–May 2005	Leadership assessment IT management appointments
IT transformation		
5. Implementation	June 2005–January 2006	Personal assessment Recruitment process Employee negotiations Outsourcing case
6. Organizational transition	February–September 2006	Announcement of new organization Task handover project Employee negotiations Outsourcing transition Near-shoring analysis
7. Optimization	October–December 2006	IT optimization
8. Harvest	January 2007–September 2008	Harvest
Post change phase		
9. New restructuring	October 2008–February 2009	New restructuring of IT

4. The case study research method

In this chapter the research problem under study is repeated, and thereafter the research method is presented. Finally, the data gathering techniques are introduced.

4.1 Research problem

When starting this dissertation, I was interested in exploring why the globalization process challenges working organizational structures so strongly, and what are the factors beyond the organizational transformation. When focusing my thinking on these topics, I decided to concentrate on a discussion of the concept of success. I contemplated the quantitative economic success factors, the critical success factors of an implementation project, and the factors affecting the success of an organizational transformation. The concept of success in the context of a design and its implementation is constantly discussed. The success is a quantitative and a qualitative concept. In this study, the unexplored design and implementation of IT transformation from a functional and decentralized IT organization to a global process-oriented centralized IT organization is discussed. The main research questions explored here are:

1) What are the identified major phases of a large-scale IT transformation change process in the context of the case study organization?

2) What would be a suitable method for a large-scale IT transformation change process?

3) What were the factors affecting the business partner organization's implementation success in the context of the case study organization?

4) What is the change impact of IT centralization in the context of the case study organization?

MultiMills' IT function is the research domain where the IT transformation process from a local, functional IT organization to a global, process-oriented IT organization is explored (Figure 4.1).

Figure 4.1 IT transformation at MultiMills
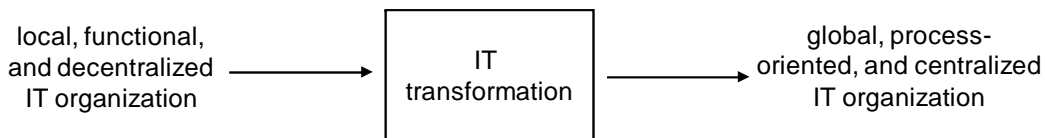
The IT transformation process is evaluated on the basis of the studies of Kerola and Järvinen (1975) on the eight main functions of a firm, and Agarwal and Sambamurthy's (2002) eight processes of the IT function. The following identified processes are applied: 1) IT management, 2) IT infrastructure, 3) IT application management, 4) relationship management, 5) IT strategic planning, 6) human resources management, 7) financial management, and 8) sourcing management. Kerola and Järvinen's and Agarwal and Sambamurthy's classifications were selected as general classifications which were not as well-known at MultiMills as the ITIL classification.

4.2   Research method

A theory testing and theory building single case study was chosen as the research method since MultiMills' IT transformation process represents a change process where I, as a researcher, have a unique insider's view. The case study research method has been discussed by Eisenhardt (1989), Lee (1989), Klein and Myers (1999), Yin (2003), Järvinen (2004), Eisenhardt and Graebner (2007). Lee and Hubona (2009) discussed the scientific basis for rigour in information systems research and called for the application of formal logic in scientific reasoning. Two fundamental principles of logic to be followed are the logic of modus ponens and logic of modus tollens. Modus ponens and modus tollens are forms of syllogistic reasoning. Lee and Hubona suggest that the rigour and relevance of information systems research may be better achieved by attending to: 1) the issue of a common scientific basis, 2) the issue of the fallacy of affirming the consequent, and 3) the issue of the summative validity. The issue of a common scientific basis relates to the application of modus tollens to empirically test the theory. The issue of the fallacy of affirming the consequent in reasoning relates to accepting a theory as true. The issue of the summative validity relates to the result or the product of theory. If the evidence is consistent with the theory, then it holds summative validity.

Pragmatic generality, a term defined by Ramiller and Pentland (2009), answers "how" questions and emphasizes narratives about actors, actions, and artefacts. Stories are compelling, useful, and help to understand relationships between events. My view here is from a participatory researcher and manufacturing systems global CoC manager's view. I was one of MultiMills' middle managers who was realizing the change programme. I was also a reference person in the to-be design of IT transformation and I was conducting an IT personnel assessment. As an IT manager, I was realizing the IT transformation plan as an operative actor. As a reference person, my role was marginal, more observer than actor, and I did not affect in

practice the "to-be" IT organization design. I was conducting MultiMills' IT personnel assessment as an active partner. In this study, I reviewed MultiMills' IT transformation in general as an inside observer.

My research approach is twofold: first, I apply three different theoretical lenses to outline the case plainly. I derive hypotheses on each theory category and explore the case data on the basis of these hypotheses. Second, a positive theory on the case study description is presented and a new prescriptive method on the IT transformation process from a decentralized to centralized organization is developed. I also evaluate the new IT organization model implementation and change impact of IT centralization in the context of the case study organization.

Table 4.1 Research diary data entry classification

Phase		Activity	Chapter
1.	Initial research plan	Definition of the initial research plan.	Chapter 1
2.	Preliminary literature review	Preliminary literature review.	Chapters 1 and 2
3.	Case and research method selection	Selection of the single study research method.	Chapter 4
4.	Data gathering techniques	Decision on research diary entry and collection of MultiMills' IT transformation related material.	Chapter 4
5.	Field study	Research diary entry and collection of MultiMills' IT transformation related material.	Chapters 3 and 5
6.	Description and evaluation of the case	The description and evaluation of the case organization change process.	Chapters 3 and 5
7.	The case data analysis	Theory testing, description of positive theory, development of prescriptive theory, and evaluation of the case.	Chapter 6
8.	Literature review	Review on similar case studies.	Chapters 1, 2, and 6
9.	Discussion	Discussion on the study.	Chapter 7
10.	Closure	Ending the study.	Chapter 8

The research process proceeded as follows. In Phase 1, Initial research plan, I presented the research plan including the research problem and initial research question. In Phase 2, Preliminary literature review, I reviewed the IS research related literature. In Phase 3, Case and research method selection, I decided to explore MultiMills' IT transformation implementation as a single case study since, as a researcher, I had an insider view but little control over contemporary real-life events (Yin 2003). In Phase 4, Data gathering techniques, I followed received advice and decided to start documenting a research diary daily and the collection of other IT transformation related materials. The research diary is the principal documentation of my research. It is a participatory view on the exemplary IT transformation from a functional local IT organization to a centralized, process-oriented global IT organization. In Phase 5, Field study, the research diary was written from the 2 May 2005 until 22 December 2006, and the documentation was supplemented with the overall IT transformation communication material. Phase 6, Description and evaluation of the case, was performed by describing the change process. In Phase 7, the case analysis, I tested the selected theories, described a positive theory on the change process, developed a new prescriptive theory, and evaluated the new organization model implementation and the change impact. In Phase 8, Literature review, I reviewed former literature on similar case studies. In

Phase 9, I discussed the scientific and practical implications and research limitations. In Phase 10, I concluded my case study.

4.3   Data gathering

At the beginning of May 2005 I started to document a daily research diary. Until the end of December 2006, I recorded observations on MultiMills' IT transformation by making subjective entries on daily events, emails, work documents, information session feedback replies, company internal news bulletins, change management feedback replies, Chief Information Officer (CIO) information session material, and other IT transformation related material. The research diary is the principal documentation in my research. It is a participatory view on the exemplary radical IT transformation. The research diary is written mainly from a manufacturing systems global CoC point of view. The research diary contains 356 daily entries, which I have classified (Table 4.2). The classification is composed according to the principal daily subject.

Table 4.2 Research diary data entry classification

Classification	Period of time	Classification	Number of focus day entries in the research diary
Overall IT organization implementation	May 2005–January 2006	Overall IT organization implementation	59
Entries related to personnel (e.g. employee negotiations)	May 2005–January 2006	Entries related to personnel (e.g. employee negotiations)	38
Training	May 2005–January 2006	Training	12
CoC establishment	May 2005–January 2006	CoC establishment	21
CoC restructuring	July–November 2006	CoC restructuring	3
Recruitments	May 2005–December 2006	Recruitments	30
Change management	May 2005–December 2006	Change management	8
Administration	May 2005–December 2006	Administration	38
Other activities	May 2005–December 2006	Other activities	26
Outsourcing	February–December 2006	Outsourcing	2
Task handover	February–December 2006	Task handover	8
Entries related to personnel (e.g. employee negotiations)	February–December 2006	Entries related to personnel (e.g. employee negotiations)	3
Overall IT organization operations	February–December 2006	Overall IT organization operations	8
CoC on boarding	February–December 2006	CoC on boarding	40
CoC operations	February–December 2006	CoC operations	60

5. MultiMills' IT transformation

This chapter describes the change of MultiMills' IT organization. Firstly, recruitments are discussed, resource pre-allocation and resource allocation processes are explained, the restructuring methods are presented, implementation of manufacturing systems global CoC is reviewed, the business process partner organization is outlined, the global user support is discussed, knowledge transfer project is reviewed, and finally the IT transformation results are analyzed. The following is based on my research diary records and personal observations. This presentation can be considered as a first description and evaluation of the change process, its tentative theory.

5.1   Resource allocation to the new IT organization

MultiMills was employing external management consultants for IT management recruitments. All the relevant internal candidates were evaluated by the management consultants. The CIO, the IT management team positions, and the third level management positions were filled on the basis of external personal management performance evaluations. The rest of the IT personnel were pre-allocated to the new IT organization and manager and team leader positions were opened internally for all applicants. The recruitment process starting from the CIO and proceeding level by level consumed a considerable amount of time. Each director or manager interviewed their organization's applicants with HR assistance and made recruitment selections. Former IT directors were either chosen for new positions or transferred to the business organization. Many of the managers, who were neglected in the selection process, sought new challenges in the business organization or from other companies. Organizational levels were limited to a maximum of six to keep the organization flat and the number of managers limited. In my view, the six level organizational recruitment process was a laborious and time consuming exercise. I shall refer to the timeline overview, Table 3.1, Phases 4 and 5.

5.2   Resource pre-allocation to the new IT organization

At the time of the IT organization design, the IT personnel competence assessment was executed. IT personnel, fourth level managers, team leaders, and solution experts were pre-allocated to the new IT organization. Pre-allocation was mainly performed between the applications management organization and the infrastructure management organization, which were the two largest building blocks of the new IT

organization. The idea of pre-allocation was to analyze current human assets within IT and pre-allocate them to the new organization structure, and also collect essential information about each IT person. The pre-allocation at MultiMills was given to three regional working groups (Europe, America, and Asia Pacific). The pre-allocation process was planned to be performed by different working groups and local business unit IT managers. Telephone conferencing services were proposed to be used unless difficult situations made face-to-face meetings necessary.

A privacy protection issue during the pre-allocation process was raised within the IT management team. The IT management team was concerned about the correctness and legitimacy of the pre-allocation. Finally, it was decided by the IT management team that all IT personnel be asked to make their self-assessment. The agreement on self-assessment data content created the second issue. Different countries have different legislation on personal data gathering. Due to legal issues, a confined self-assessment questionnaire was launched. Before sending out the questionnaire, the pre-allocation project contacted all regional Human Resources (HR) departments to ensure the legal correctness of the procedure.

The personal data collection of more than 700 IT people was a considerable project. Self-assessment created a large number of questions among the IT personnel. People were concerned about how their self-assessment data would be used and whether it was to their advantage to emphasize infrastructure management or application management knowledge. In France, nobody allocated themselves into the manufacturing systems global CoC since they supposed that by assessing themselves into the infrastructure management organization they could keep their positions in France. This reasoning was recorded in my research diary as a note for discussions between myself and former business unit IT managers. Based on the self-assessments, all IT personnel were pre-allocated to the new IT organization structure at MultiMills. I shall refer to the timeline overview in order to help the reader locate a particular action in the schedule, Table 3.1, Phase 5.

5.3   Resource allocation workshop

At the beginning of the IT transformation process the head of business functions and resources decided on new IT transformation objectives. The CIO was reporting to the head of business functions and resources. The new integrated headcount objectives were presented and the number of IT locations was reduced. The new integrated headcount objectives and location planning provoked considerable confusion; even among the new IT management team. To solve the resource allocation issues, a common IT management workshop was arranged. Based on the new headcount objectives and the IT transformation plan, it was obvious that there were not enough positions for all IT personnel in the new organization.

The CIO invited the IT management team and the new responsible IT managers to a joint workshop to discuss the organizational IT transformation, organization explanation, location planning, and headcount sizing. In the workshop every responsible manager presented their new organization, explanation of the organization structure, headcount sizing, and location planning. All presentations

were discussed and challenged in cross-functional small groups. Finally, all IT personnel were allocated to the new organization structure on the basis of the self-assessment data. In cases of conflict the responsible IT managers discussed a resolution. If consensus was not found between the IT managers, the case was escalated to IT management team discussions and decision. I shall refer to the timeline overview in order to help the reader locate a particular action in the schedule, Table 3.1, Phase 5.

5.4   Restructuring methods

MultiMills introduced different concurrent restructuring methods: an employee negotiation plan to downsize the IT organization, a redundant human resources plan, a selective outsourcing plan, a near-shoring plan, and an IT location plan. The location plan created lot of concern among the IT management and IT personnel. Additionally, outplacement management services were applied. Below, each restructuring method is introduced in order to explain the challenges encountered in the IT transformation.

5.4.1   Employee negotiation plan to downsize the IT organization

Due to significant restructuring, employee negotiations to downsize the IT organization were conducted regionally according to each country's national legislation. The IT management team experienced new challenges in keeping the global IT transformation project aligned when local requirements where expressed. The German workers' council (Betriebstrat) had demands concerning personnel data protection and procedural issues. The Finnish employee unions were more concerned about the legal procedures to be fulfilled. Unexpected actions by employee unions delayed the planned restructuring implementation. The IT transformation project was the first company-wide restructuring project at MultiMills and was consequently also a great learning exercise for the company.

Employee representatives expected a transparent master plan explaining the IT transformation business case, the most recent organization charts, the headcount and location planning per unit, the location plan, the business case, generic job profiles, change per location, group profiles, and an overview of all positions. The presentation material for employee negotiations was not fully prepared and was later partly built up on the basis of the employee representatives' requirements. In some of the locations, the employee negotiations were conducted in a tense atmosphere when former colleagues were placed on opposite sides of the table to agree on a pre-planned headcount reduction implementation. Employee reactions at the time of the employee negotiations clearly indicated that the attitude of IT personnel radically changed against MultiMills, as recorded in my research diary. In my opinion, IT personnel perceived that they were no longer a human asset or a success factor but a cost factor. My observations indicate that the IT personnel reaction was universal, except for the expanding Chinese business. I shall refer to the timeline overview in order to help the reader locate a particular action in the schedule, Table 3.1, Phase 5.

5.4.2 Redundant human resources management plan

Immediately after the resource allocation to the new process-oriented organization, the redundant human resources management process was started by the IT management team. The project sought to avoid the emergence of shadow organization, even though job rotation in the business line organization was, in some cases, promoted. The redundant human resource plan was based on a detailed knowledge transfer schedule. MultiMills promoted early retirement plans and also supported outplacement planning. My observations indicate that there was an effort to keep the number of direct layoffs as low as possible in the circumstances. I shall refer to the timeline overview in order to help the reader locate a particular action in the schedule, Table 3.1, Phase 6.

5.4.3 Selective outsourcing plan

When MultiMills announced the IT transformation, a selective outsourcing plan of activities concerning 30–40 people was also announced. The scope of the outsourcing at MultiMills was not directly communicated and this created unnecessary uncertainty among the affected IT personnel. As far as I could see, the IT personnel were mostly concerned about their location in case of possible outsourcing. In general, at the time of the outsourcing process, more information was expected by the IT personnel. From the very beginning the IT management team had decided to communicate all the major plans they had on the IT transformation. To my mind, communication was honest and open but it also created unnecessary concerns among the IT personnel when the IT management team was not able to communicate the final implementation plans.

In the later phase of the IT transformation, October 2006, outsourcing of one global CoC was announced, which led later to the IT offshore outsourcing. In my view, the challenge for MultiMills was that the IT management team did not establish a strong supplier governance structure in the very beginning. Later, the company started to establish a corresponding team for the outsourced team. The in-house team was established in the near-shore location, which created extraordinary challenges. My observations indicate that as the onsite personnel were a part of the outsourcing deal, the knowledge transfer to onsite provider staff was not an issue, but the later off-shoring caused a rapid loss of expertise for the service provider. An initiative to build an in-house governance structure for outsourced services was launched and implemented after the off-shoring realization at MultiMills. I shall refer to the timeline overview, Table 3.1, Phases 5 and 6.

5.4.4 Near-shoring plan

A rough near-shoring plan to move some of MultiMills IT operations to Eastern Europe was also introduced as a part of the IT transformation project. The near-shoring plan at MultiMills meant establishing an in-house IT centre in Eastern Europe where selected application management and infrastructure management

functions were planned to be transferred. My observations indicate that the ambiguous near-shoring plan created considerable confusion even among the IT management team. The business case and the payback reasoning were questioned by the specialists, as documented in my research diary. As far as I could see, the worst aspect for the IT personnel was the uncertainty triggered by the unfinished near-shoring plan. Later on, the IT management team realized that they had been too open in communicating the near-shoring strategy without a detailed implementation plan. I shall refer to the timeline overview, Table 3.1, Phases 5 and 6.

5.4.5   IT location plan

The old functional IT organization was scattered throughout many locations on the basis of the company's historical development, and as a result of various mergers and acquisitions. From the head office perspective the "as-is" situation was not rational. The IT management team planned to centralize the IT activities to a few IT hub locations. The plan was rational but the IT management team experienced considerable disagreement on location planning. My observations indicate that the IT personnel were very committed to local communities and were reluctant to move to the new hub locations for family and housing reasons. To my mind, in this specific area, the IT transformation implementation was not fully successful and the IT management team had to consider a retention plan for selected IT experts. The implementation of the location plan was not followed and it was implicitly put aside. I shall refer to the timeline overview, Table 3.1, Phases 5 and 6.

5.4.6   Outplacement management

MultiMills considered outplacement of IT personnel as one restructuring method. As a manager of manufacturing systems global CoC, I negotiated an outplacement agreement with one of MultiMills' main suppliers. Both companies became convinced that the agreement was a win-win deal. My observations indicate that regardless of MultiMills' employee reluctance about the outplacement plan, it was afterwards perceived as a positive change. I shall refer to the timeline overview in order to help the reader locate a particular action into the schedule, Table 3.1, Phase 6.

5.5   IT transformation in the context of a global Centre of Competence

This section discusses manufacturing systems global CoC structuring. Implementation of a global CoC with personnel in three continents, eight countries, and more than twenty different locations is presented. Global application management services—application development, maintenance and support, and external application management service sourcing and governance—were integrated

into a globally managed but geographically dispersed permanent CoC. The manufacturing systems global CoC was organized by application area and was one of the twelve centres of competence at MultiMills. My role was the realization of global CoC as a responsible manager.

5.5.1 Establishing the manufacturing systems global Centre of Competence

On 1 May 2005, global centres of competence became effective. The IT management team did not give any organizational model on how the new CoC managers should structure their organizational design. According to the project guidelines, as a manager of a global manufacturing CoC, I outlined four different alternative organizational models: a regional, business division specific, business process oriented, and major supplier specific organization structure. Secondly, I established an international business division's working group, to discuss, design, and make a proposal on the organizational structure. The working group was built up of different business, regional, and cultural backgrounds within the leading business division. I and one of my new colleagues decided bilaterally to meet on a regular basis to enable the smooth integration of application management personnel into the new organization in their spheres of responsibility.

Telephone conferencing services and a Web conferencing application were used in the planning phase for international working group meetings. The meetings were easy to organize and did not require extra travel time. Even though the meetings were well prepared and arranged, I noted that it was very difficult to ensure that every working group member had an opportunity to express their points of view and concerns. I also observed some uncertainty among the working group members and hidden expressions of opinions. To ensure that every member had the possibility to express their point of view, I contacted every working group member afterwards separately by phone. A collaboration software tool was also applied to share information, presentations, work meeting agendas, minutes of the meetings, and discussions.

As a manager of a global CoC, I started simultaneous discussions with managers of the global infrastructure organization. The objective of these discussions was two-fold: first to clarify undefined roles and responsibilities between the global infrastructure management and the manufacturing systems global CoC, and secondly, to manage the infrastructure management oriented personnel transfer from local business units' IT organization to the global infrastructure management organization. As a manager of a global CoC, I also met French, German, and Finnish business unit IT managers separately to discuss the manufacturing systems global CoC objectives and the IT personnel self-assessment process. Some of the business unit IT managers presented their concerns on a number of locally scattered process dedicated resources in the new IT organization.

To ensure local flexibility and trouble-free continuous service at local business units while establishing a global cross-divisional and business process-oriented organization, I primarily focused on building new organization and reporting

structures. The organizational guidelines were at a high level and more focused on global processes and structures than the local responsibilities. There were some undefined local responsibility issues between the infrastructure management and the application management. Also, the role of a new business process partner organization created a number of concerns. I decided to recommend a global business process-oriented structure having a firm major supplier division focus. In the second half of 2006 the CoC was restructured to follow a regional structure. Some of the decentralized legacy systems' supporting functions were transferred from other centres of competence to the manufacturing systems global CoC.

One initial idea of the global process-oriented IT organization was to consolidate all the business divisions' application management operations into global business process-oriented centres of competence with a focus on application management service delivery. Traditionally, a business unit's functional IT organization has supported business operations. Local needs often bypassed global synergies. I observed that the new division of labour between business and IT created a number of concerns within the business units. Further, the smaller business divisions demonstrated divisional parochialism and claimed their businesses were different and so their IT application services were organized into dedicated centres of competence. I shall refer to the timeline overview, Table 3.1, Phases 5 and 6.

After the IT transformation project completion, I still had some of the old responsibilities from my former employment as there was no knowledge transfer completion due to the missing counterpart. On 12 September 2006, I wrote in my research diary: "*I was asked concerning SOX to inform IT security instructions. I was not happy to do this after almost one and a half year in the new position but these responsibilities were not transferred. I did reply back but faced once again a attitude 'it's not big deal, why not to do it'. I replied we will clarify the issue locally.*"[1] For me, the situation was partly frustrating and partly comical but it was only marginal from the global IT transformation perspective. My perceptions concerning frustration are documented in the research diary.

5.5.2 Business unit 24/7 IT systems support services

Historically, many business units had their working 24/7 IT systems support practices to ensure the non-stop availability of critical systems. The virtual 24/7 IT systems support organization was usually built up from local IT personnel and advanced local business personnel. To ensure service continuity, I proposed to the IT management team that the manufacturing systems global CoC would take 24/7 IT systems support ownership. The unacknowledged 24/7 IT systems support services included multi-skill application support, infrastructure support, and business operation tasks. The process-oriented IT organization did not explicitly support the multi-skill-based 24/7 IT service concept. The number of requests was also limited and did not encourage establishing separate IT support teams. I shall refer to the timeline overview in order to help the reader locate a particular action in the schedule, Table 3.1, Phase 6.

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[1] *Note that the quotation is unrevised and unedited.*

5.6   The implementation of the business process partner organization

When the new IT organization structure was presented, the business process partner organization was introduced as a leading edge change to meet the future demands of the process-oriented matrix organization. According to the IT transformation project recommendations, the business process partner organization was seen as an improved cooperation model to meet changing business requirements. Because of the new idea of business process partnership, the roles and responsibilities between the business process partner organization and the application management were partly unclear. The announcements of the business process partner organization were delayed compared to the other operational structures and therefore confused the new responsible IT managers.

The division of the IT organization into the infrastructure management, the application management, the business process partner organization, and the strategic IT management was presented as a state of the art organization structure. The business process partner organization was the key element in the structure. The establishment of the business process partner organization required new business counterparts. IT responsible persons were nominated to the business organizations because of the global IT transformation, even though the business organization transformation was not under the scope of the formal IT transformation. The business organization had to commit and adapt to the IT transformation changes. There was a lot of discussion between the new IT organization and business organization on the business process partner role at the beginning of the IT transformation. First of all, the business process partner role was explained as an account management role, but very soon the role of business process partner was adopted. To my mind, the business process partners could easily adopt an account management role but challenges emerged with the more demanding business process partner role. The business process partners had no daily-based contacts to all business units in their new assignment. The number of business process partner positions was found lacking compared to the demand. My observations indicate that the business process partner inability to take on the full role of the business process partner created occasional tension between the application management organization and the business process partners.

The new IT was supposed to act as an internal service delivery organization. The service between IT and business was defined by a formal Service Level Agreements (SLA). In the SLA, which was agreed between a local business representative and a business process partner and formally undersigned, all the internal IT services and service levels were defined. The challenge for the new IT managers in charge was that they could not guarantee the services with the new personnel and legacy IT solutions. In the old IT organization the service level was dependent on the local internal resources and their goodwill and no formal agreements were necessary. My observations indicate that when the formal SLA was written, the local business unit managers tended to ensure the best service level they could get, even better than in the past. When the service level definition was not dependent on internal invoicing, the SLA tended to cover a better service level than IT could deliver. At the beginning of the IT transformation process, SLAs were sent to the new IT managers

in charge but some of the IT managers refused to sign them as they could not guarantee the service level with the available resources. In the end, the IT directors signed all SLAs.

The second challenge with SLAs was that the external service provider contracts were not aligned with the SLA process. The internal SLA guaranteed a formal service level to the internal business customer but the aligned external SLA was not required due to economic attributes. See Table 3.1, Phases 5 and 6. The failures of process-oriented business partnership realization lead to the dismantling of the structural business process partner organization later in the post change new restructuring phase (Table 3.1).

5.7   Global user support

After the IT transformation, global user support was extended to also cover the local 24/7 user support. Manufacturing systems 24/7 IT duty issues were excluded from the service offering and were handled by the global CoC. In my view, the internal challenge with the global helpdesk was that there was no global support service processes agreed at the beginning of the implementation. The definition of global support service processes and the global helpdesk tool implementation took much more time than expected in the plan. In fact, from the customer point of view, the implementation of the new tool was badly delayed. My observations indicate that the business organization and IT were not ready to implement radically different user support processes. End users had become familiar with their local IT contacts and they tended to pursue old practices.

The key user concept was defined to segregate the IT support services and the business user support services. The key user role corresponds to the IT champion role, except that key users were not necessarily managers. In every application area a key user network was established to support end users in user support services. The key users were selected from among experienced end users and were asked to assist other end users in daily user support services. Key user training was conducted by IT. End users were supposed to contact key users in problem situations and, if the key user was not able to solve the problem, they contacted a second level helpdesk. Key users were also given access to a service support tool to enter direct requests to the helpdesk.

The idea of the key user concept was heavily criticised by the business and local IT personnel. The concept was seen as an attempt to transfer IT tasks from IT to business. The IT personnel criticised the concept on the basis of their experiences of a bureaucratic and distant service. The IT personnel were concerned about their own jobs as they were afraid that the business organization would take over their jobs. IT was also questioning the business line organization's ability to pursue the key user role. The implementation of the key user network was finally delayed due to the unpreparedness of the business organization. See Table 3.1, Phases 5 and 6.

5.8 Change management and communication

MultiMills' new IT management team realized that large-scale organizational change requires proper centralized change management planning and active communication concerning the change. This section discusses the change management and communication activities which were performed at the time of MultiMills' IT transformation. First, I introduce a temporal change management organization and further different change management and communication activities.

5.8.1 Change management and communication activities

A dedicated global temporal change management and communication team was established at the beginning IT transformation project by the project management team. The change management and communication team worked actively from September 2005 until June 2006. The task of the team was to manage global change management challenges and support and monitor overall change management activities. In my view, MultiMills prepared for possible change resistance carefully and professionally. The change and communication team assisted in different change management activities: arranging regular change management workshops, assessment of training needs for the new IT managers to lead the change, outplacement administration services, team on-boarding activities such as team building and team organization, assistance in handling local site visits, coaching on how to conduct employee talks, team kick-off meeting support, and monitoring of change activities. Table 5.1 summarizes the implemented change management activities.

Table 5.1 Change management activities

Change management activity	Description
Change management workshops	Change management workshops for IT managers
Training assessment	Assessment of training needs for new IT managers to lead the change
Outplacement	Outplacement administration services support
Team on-boarding	Team on-boarding material preparation and assistance
Local site visits	Local site visit material preparation and assistance
Employee talks coaching	Coaching on how to conduct employee talks
Face to face team kick-off	Face to face team kick-off meetings support
Team change monitor	Monitoring team change activities

Communication activities were conducted to promote and explain the upcoming changes. The change management and communication team arranged a collaborative tool for the IT personnel questions and the IT management team answers, an information package for the new IT managers on frequently asked questions, the CIO regular information sessions for the IT personnel, the IT management team briefings for key business sponsors, IT announcements when needed, different intranet publications on the change programme status, press

releases to external interest groups, communication for key suppliers on the change, communication on the IT management roles and responsibilities, and local IT information sessions. Table 5.2 summarizes the communication activities. Below is a more detailed discussion of some of the most important implemented change and communication activities.

Table 5.2 Communication activities

Communication activity	Description
Questions and answers	Collaborative IT management team replies to IT personnel
Information packages	Information package for IT managers and anticipated frequently asked questions
CIO information sessions	CIO status information sessions on IT transformation
Key sponsor discussions	Briefings for key sponsors on IT transformation status by IT management team Expectation management Feedback collection Support for and acceptance of changes
IT announcements	IT announcements on new organization
Intranet publications	Intranet publications
Press releases	Proactive press releases
Key supplier communication	Key supplier communication
IT management roles and responsibilities	IT management roles and responsibilities communication
Local information sessions	Local information sessions

5.8.2   Change management workshops

The global change management and communication team organized thirteen change management workshops for the new responsible IT managers during the IT transformation project. The change management workshops began on 4 October 2005 and the last workshop was held on 19 June 2006. The workshops were planned well in advance, using telephone conferencing services and a Web conferencing application. The meetings included an IT management team update, the status of the IT transformation, guidelines for the next steps and the feedback sessions. The overall IT transformation schedule was continuously reviewed and fine-tuning to the master plan was communicated.

My observations indicated that the change management workshops' content varied at the later stage of the IT transformation and it was difficult to maintain change agents' interest in the change management workshops. Middle managers already knew the status of their responsibility area and they tended to focus on their day-to-day activities. See Table 3.1, Phases 5 and 6.

5.8.3   Coaching on how to conduct employee talks

MultiMills arranged human resources support for the new IT manager on how to handle difficult personnel issues. Even external consultants were used to assist in how to communicate lay-offs. MultiMills made a huge effort to support the IT

transformation appropriately from the human perspective. To my mind, the instruction of centrally directed human resource management was overly theoretical and far from being a practical implementation. My observations indicated that the change management implementation created a number of concerns among the implementers and the central human resources management. See Table 3.1, Phase 5.

5.8.4 Face-to-face team kick-off meetings

When the new organization was set up, all the new IT managers were asked by the IT management team to meet their new teams. I met all the new IT managers in a two-day face-to-face meeting in Central Europe. I also invited the director of IT application management to the meeting to give the IT management team guidelines for the global CoC organization. The manufacturing systems global CoC management team agreed on twice-a-year face-to-face meeting practices. Travelling on a regular basis from China and US was considered too time consuming for the new IT managers. Instead, monthly reporting and bi-weekly telephone conference practices were agreed. The use of the collaborative software tool was arranged for status report documentation and for collaborative team related information.

As a manager of manufacturing systems global CoC, I visited all the business units to meet all teams and the business unit management team members. The objective of these meetings was to become familiar with our own teams and to give information on the new administrative practices and reporting structure, and to inform the local business unit management team about the new IT roles and responsibilities. All IT managers were also asked to meet their teams on a regular basis, at least every second month, and to arrange team telephone conferences at least every second week.

As a new manager of global CoC, it was essential for me to meet all my new personnel. I recognized that I could not be a credible manager among the global CoC personnel and in the eyes of business units' management teams without personally knowing all personnel and all the business units. In China, the presence of the manager of a global CoC was even more important than in the Western world. I recognized that if I was not visiting China on a regular basis, I did not exist there as a directing manager. Regular travel and presence was expected by the Chinese team for good co-operation and job performance. The Chinese team's IT know-how was adequate but cultural differences between the Chinese team and Western teams were significant and occasionally harmed co-operation.

Meeting new team members was a challenge for the global CoC managers. I had not met most of the new team members and most of the business unit locations were also new to me. The global human resources organization promoted a different kind of method for trust building and showing a desire for co-operation. I started meetings with a specific ice-breaker exercise. The teams were activated in the first meeting so that they had to make their own presentations on their business unit locations and personnel, and in most of these cases a team dinner was arranged. In the team meetings I always had the initiative but I had to use my organizational power tactfully. In the business introduction meetings, I was always at a

disadvantage because the global IT had dismantled working, locally steered, and appreciated IT structures. I had to introduce the new organization structure and the new working and reporting structures sensitively and co-operatively. See Table 3.1, Phase 5.

5.8.5   Chief Information Officer's information sessions

The Chief Information Officer (CIO) arranged regular information sessions for all IT personnel on the IT transformation project's status and next steps. The information sessions were held as telephone conferences assisted by a Web conferencing application. In my opinion, the CIO was straightforward when communicating the pre-planned strategy, and well-prepared plans were published for all IT personnel.

My observations indicated that the information sessions were perceived as remarkably informative at the beginning of the IT transformation process. However, the information sessions were also experienced as abrupt when the IT personnel were not prepared for negative news: downsizing, near-shoring, and outsourcing. Subsequently, when all the new plans were presented, the information sessions became factual status reviews and praising of the project teams' achievements and the interest of the IT personnel diminished gradually. Everyone in IT already knew the status and the ramifications from their perspective and information sessions did not clarify the foreseeable next phases. See Table 3.1, Phases 5, 6, and 7.

5.8.6   Questions and answers platform

The IT management team arranged a special questions and answers platform where the IT personnel were able to anonymously express direct questions to the IT management team on the IT transformation. The questions were collected and answers were published on MultiMills' intranet on a regular basis. The IT personnel occasionally expressed very direct and challenging questions. However, all questions were answered factually and carefully by the IT management team. As far as I could see, the questions and answers procedure was perceived as mainly positively by the IT personnel. See Table 3.1, Phases 5.and 6.

5.8.7   IT management team local information sessions

The IT management team organized separate information sessions for the local business units in order to directly communicate about the IT business contacts concerning the IT transformation reasoning, the status of the IT transformation, and the next steps. The master plan for the IT transformation was presented to the local business management teams by the IT management team members. The documented feedback from the business units was positive and constructive but concerns were also expressed, especially on the IT roles and responsibilities. Concerns were

expressed about both the relationship between business and IT and the distribution of work. See Table 3.1, Phase 5.

Regardless of the harnessed change management efforts, MultiMills was not able in all cases to change the beliefs of individual's on the benefits of the centralized global IT organization. To my mind, the IT transformation change communication was not always well perceived when the IT personnel did not explicitly share the IT management team's reasoning.

5.9   The knowledge transfer project

The knowledge transfer project was an IT transformation subproject which was centrally reviewed on regular basis. The knowledge transfer project, named as the task handover project, was a practical implementation of a prominent knowledge transfer realization. In the "as-is" situation, IT was, in principal, functionally and locally organized. Most of the IT personnel were generalists with application management and infrastructure management knowledge. There were very few experts in the organization who had specialized in a certain application or infrastructure. Most of the local IT personnel had excellent local business knowledge and some infrastructure knowledge and specialized application knowledge. The local business unit IT was a generalist organization. In the new process-oriented organization, the infrastructure management was organized as a combination of a global organization and regional service delivery organization. The application management was organized on the basis of global business processes such as human resources, supply chain management, manufacturing, and finance and controlling. The main issue with the organization structure was that in many business areas the business itself and the supporting applications were not globally organized but they were scattered local business organizations supported by local IT solutions.

In order to implement and activate the new organization at full speed, the IT transformation project launched a very strict, centrally-controlled knowledge transfer project. All the IT tasks were recorded by the receiving new IT organization and a knowledge transfer plan, including a challenging schedule, was created. Every new IT manager was responsible for reporting, on a regular basis, the progress of his or her knowledge transfer project. If a single task was not transferred on time, the task received special attention and the IT manager in charge had to prepare a special report on the progress. In cases where knowledge transfer was planned for a person leaving the company, the knowledge transfer plan was also reviewed with special care. In some cases the personnel transfer schedule was re-planned on the basis of the knowledge transfer process. My observations support the conclusion that the new IT managers quickly realized that reporting a completed knowledge transfer was more comfortable for them than reporting delayed uncompleted tasks which created extra work for them and their teams and led to central surveillance of their activities. See Table 3.1, Phase 6. The next discusses general IT transformation project challenges which were observed at the time of project realization.

5.10 IT transformation project management challenges

MultiMills selected a global centralized approach to run the IT transformation process and hired an international consultant company to facilitate the process. In some cases the change activities were even directed by external consultants. In these cases the external consultants were directly assigned to the CIO. The global human resources organization also assisted in all human resources related issues. The progress of the IT transformation was centrally controlled and monitored in weekly status meetings. The business stakeholders and the IT personnel were informed about the IT transformation achievements on a regular basis.

The IT transformation from a local, functional organization to a global, process-oriented organization is a drastic change process for a large-scale international company. The number of practical, administrative, and legal tasks to be executed is extensive. Differences in time zones, cultures, and country-specific legislation create extraordinary challenges for the planning and implementation of the change. My observations support the conclusion that resistance to change, personal uncertainty, and frustration were not only experienced among the affected IT personnel but also among those who were executing the IT transformation. However, as soon as new positions were confirmed, the IT personnel immediately started to focus on their new responsibilities rather than the uncertainty issues.

At the time of the crucial new organization build up there were many simultaneous activities planned for completion by the new middle managers. On 24 March 2006, I wrote in my research diary the following: "*I have been very busy for certain time and I have had to work at home. It's very difficult to implement a new organization when there are lot of concurrent projects going on. The SOX project is number one priority. According to that we are implementing formal new RFC process, Incident management process and User management process. At the same time we have to update all the documentation accordingly. ..implementation requires formal task handover to be planned and implemented at the same time with team implementation. Above all are the day-to-day activities projects and managing downsizing. Sometimes I feel tired and so lonely.*"[2] All the activities were centrally managed and monitored, different project streams directed the new IT managers with detailed action plans and deadlines. In my opinion, the consultant driven planning and implementation was perceived by the new IT managers as nothing more than consultant jargon rather than tangible human hands-on implementation. The IT transformation project was implemented with parallel centrally progressing and strictly planned and monitored subprojects.

After the huge changes within two years of the IT transformation—the implementation of the new processes–there were still open challenges. Implementing a global organization as such was already a very challenging commission. The function of a process-oriented IT organization called for well functioning support processes. Even though the global human resources organization and the global sourcing organization were established and functioning, I observed many day-to-day challenges with these supporting global functions at the

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[2] *Note that the quotation is unrevised and unedited.*

time of the IT transformation project. As far as I could see, the global human resource organization could not respond to quick changes in the IT transformation implementation. Globally instructed human resources related guidelines had to be adjusted according to local business requirements and national legislation which, on the other hand, made the IT transformation implementation very laborious. The supporting global sourcing organization was also unable to respond to the global IT contracting expectations and it had to strengthen its organization at the time of the IT transformation project.

5.11 Evaluation of the success of the IT transformation

My observations support the conclusion that the approach of the CIO towards the IT transformation was logical and straightforward. All the implementation actions were applied as much as possible and according to the given master plan. Changes to the plan were expressed only because of external imperatives or practical impossibilities. It was of the utmost importance to the IT management team that they were able to implement a straightforward programme on schedule and achieve the given objectives. The IT transformation project time schedule was adjusted at the time of the project, but it does not detract from the project's success in achieving the given objectives. The organizational change at MultiMills' IT function was so drastic that it took two years to complete. After the project, the IT management team reported tangible personnel cost savings; however, we can also debate the short-term costs, low productivity, and loss of know-how. From the social and ethical perspective the dismantling of functioning social structures and the creation of unnecessary insecurity can also be debated.

My observations indicate that the IT personnel perceived the IT transformation process as centrally steered, distant, and technocratic. The process could be seen as slow from the individual IT employee's perspective, but, in general, the IT transformation was carried out in good time. To my mind, a holistic human approach and fairness were important for the IT personnel; therefore, the success of the project can be debated. From the local business unit perspective, the success of the IT transformation can also be challenged, but even with shortcomings in local implementation, the IT transformation process should be assessed as a global change process and, as such, it was, in my view, straightforward and many of the given objectives were reached according to schedule.

In this study I have observed MultiMills' IT transformation mainly from a managerial, middle management insider's perspective. As far as I could see, the executors of the IT transformation process, the middle managers, perceived the IT transformation process also as centrally steered, slow, and technocratic. For the IT managers, the possibilities to influence the process were very limited because objectives and implementation schedules were given.

In the following I have measured the sustainability of the change and the economic benefits (based on cost savings) per process as success attributes of the IT organizational change (Table 5.3). The success of the change process can also be measured using other measurements. Measuring the quality of the change process

requires a definition of the quality attributes (e.g. availability and response time). Service quality and user satisfaction were measured at MultiMills with user surveys; however, I have decided to measure the sustainability of the change and the economic benefits as characterizing success attributes. The sustainability of the change is here defined as organizational structuring which is sustained with minor modifications after the change process. The sustainability of the change is measured here as a failure if the organizational structuring was dismantled within the change process or after the change process even though the transformation was functional and the change was implemented. I have measured the success of the change using tangible attributes, the sustainability of the change, and the economic benefits. The economic benefits are evaluated only at the IT organization level as one entity and are directed to the IT management team. Qualitative user satisfaction surveys were conducted at MultiMills after the IT transformation. In general, the surveys indicated poor user satisfaction towards MultiMills IT after the IT transformation. However, I have decided to not analyse qualitative user satisfaction in this research.

Table 5.3 Success of the IT transformation

Process	Sustainability of the change	Economic benefits
IT Management team	Failure	Success
Business process partner organization	Failure	Not available
IT Infrastructure management	Partly successful	Not available
IT Application management	Partly successful	Not available
IT controlling	Partly successful	Not available
Strategic IT management	Success	Not available
Human Resource (HR) management	Success	Not available
Sourcing management	Success	Not available

The implementation of the IT management team structure and the business process partner structure were not sustainable as those were dismantled after the change and are considered as failures. The IT infrastructure management structure required organizational changes and is considered as partly successful. Furthermore, the implementation of the application management outsourcing governance structure was not sustainable and, as a result, IT application management is considered as partly successful. IT controlling required major adjustment in internal processes and is considered as partly successful. Strategic IT management, human resources management, and the sourcing management as global services were internally criticized but were sustainable. The global IT project management organization was established to complete unfinished global IT projects and management of further global IT projects. The idea of a global IT project management organization was not presented in the original IT organizational design and the implemented structure was later dismantled. As the establishment and dismantling of the global IT projects organization indicate issues other than design issues, it is not reviewed in this study.

6. IT transformation case study data analysis

This chapter will first discuss three different theory categories: free market economy assumptions in the context of the case study company IT transformation as a prominent globalization process phenomenon (Polanyi et al., 2001); process theories of organizational development and change (Van de Ven and Poole 1995); and change intervention theories (Huy 2001). These are the first theoretical lenses which were applied to outline the case study plainly. Below, hypotheses on each theory category are derived and the accumulated case study data is explored. The IT transformation process is here divided into three different phases to facilitate analysis: the prior to change design phase, the primary change implementation phase, and the post change phase, redesign. Next, a positive theory of the case study description is presented and a new prescriptive method on an IT transformation process from a decentralized to centralized organization is developed. The new IT organization model implementation and change impact of IT centralization at MultiMills are evaluated. Furthermore, previous studies on IT restructuring are reviewed, as are the single case study critics and a summary of the results are presented.

6.1 Exploring IT transformation as a global free market economy phenomenon

The strategic significance of IT has been discussed in the context of IS research. Porter and Millar (1985) has explained that information technology has an effect on competitive advantage in lowering costs or enhancing differentiation. MultiMills' IT transformation programme implementation suggests that lowering costs was one of the major drivers for the IT transformation. The IT organization was considered as an internal service provider and IT services as internal services, partly as commodities. Carr (2003 and 2005) has claimed that IT itself has become a commodity, its strategic importance has diminished and it is shifting from being an asset to an expense that can be purchased. Furthermore, Davenport (2005) has discussed the coming commoditization of business processes and anticipated that standardization and commoditization of processes will lead to massive outsourcing.

Referring to the Polanyi et al. (2001) thesis, I deliberately use his theoretical lenses to explain globalization from the perspective of MultiMills' IT transformation (Table 6.1). The extremist assumes that the IT personnel, the IT infrastructure, and the information systems are commodities which can be traded on the market. Polanyi et al. have argued that labour, land, and money cannot be

defined as commodities. They make a distinction between commodities and fictitious commodities. "Commodities are here empirically defined as objects produced for sale on the market" (Polanyi et al., 2001, p. 75). And furthermore: "The commodity description of labour, land and money is fictitious" and "For the alleged commodity 'labour power' cannot be shoved out, used indiscriminately, or even left unused, without affecting also the human individual who happens to be the bearer of this peculiar commodity" (Polanyi at al., 2001, p. 76). They explain labour as a technical term for human activities, land as another name for nature which cannot be produced, and money as a token for purchasing power.

Table 6.1 Free market economy adoption versus regulated nation-state economy adoption

	Free market economy assumptions followed	Regulated nation-state market economy assumption followed
IT personnel	IT personnel considered as commodities by global companies Outsourcing and near-shoring considered as an opportunity motivated by cost savings Low threshold for downsizing in general Change management and communication considered as an instrument of prescribed normative change	IT personnel considered as commodities by global companies but labour legislation nationally regulated Outsourcing and near-shoring considered as an opportunity motivated by cost savings Thresholds for downsizing differ - e.g. Finland/Germany Change management and communication considered as a constructive participative tool
IT infrastructure	IT infrastructure considered as a commodity - streamlining - economies of scale Low threshold for movements Change management and communication considered as an instrument of prescribed change	IT infrastructure considered as a commodity but regulated - streamlining - economies of scale Low threshold for movements Change management and communication considered merely as a constructive tool
Information systems	Information systems considered as commodities - streamlining - economies of scale - industrialization of services Low threshold for movements Change management and communication considered as an instrument of prescribed change	Information systems considered as commodities but regulated - streamlining - economies of scale - industrialization of services Low threshold for movements Change management and communication considered merely as a constructive tool

Here the IT transformation from the local, functional, and decentralized IT organization to the global, process-oriented IT organization, including the prior to change design phase, the primary change implementation phase and the post change phase, redesign, is explored. From the free market economy assumptions considering labour as a commodity, the following hypothesis is derived:

Hypothesis 1

Free market economy assumptions considering IT personnel (labour) as a commodity was adapted by MultiMills. The globalization process is considered by the business management as an instrument of IT change implementation.

The free market economy assumes labour (IT personnel) is a commodity. Before the IT transformation the IT personnel at MultiMills perceived themselves as valuable

human assets but the change in the situation (downsizing as a part of the IT transformation) changed their attitude towards the company. The change of attitude was observed in employee negotiations (Section 5.4.1) by me as an employer representative.

Even though MultiMills followed the national employee regulations in the implementation of restructuring methods (described in Section 5.4), it should be said that MultiMills regarded its own personnel according to free market economy assumptions. From the IT management team point of view, the free market economy assumptions did not function uninterrupted in a divergently regulated system, and the IT management team had to unpleasantly follow the national regulations. Implementation of the employee negotiation plan (Sub section 5.4.1) shows explicitly that the IT management team had not prepared for delays in this area. The outsourcing plan created considerable confusion but it was completed according to the master plan. The near-shoring case not only created a lot of confusion but also a loss of know-how. The near-shoring case reasoning was not generally accepted by the IT personnel. Considering the IT infrastructure and the information systems services as a commodity was not strongly challenged by the IT personnel.

The observations on the restructuring methods implementation (Section 5.4) suggest that the principal motive for MultiMills to start the IT transformation was to streamline its IT function to achieve cost efficiency (Porter and Millar 1985), even though organizational integration and streamlining, customer focus, and service improvements were emphasized as project goals. Regardless of the IT personnel views, MultiMills' IT management team did aim to downsize, relocate, and transfer the IT personnel (commodity) due to economic imperatives of a mature industry rather than the quest for superior competitive advantage. The Chinese exception does not falsify the hypothesis of the IT personnel being considered as a commodity. The Chinese IT personnel were considered, like others, as commodities by the IT management team, but the Chinese IT personnel were not concerned as they were living in the middle of an expanding economic region full of opportunities outside of MultiMills. My case study supports Hypothesis 1, that MultiMills considered the IT personnel as commodity.

In line with Polanyi et al. (2001) there are other researchers who have considered IT and its use. Swanson (1994) proposed three types of IS innovations: 1) innovations restricted to the IS function—1a) administration of IS or 1b) technical IS tasks; 2) innovations supporting administration of the business; and 3) innovations embedded in the core technologies of the business—three sub-types of innovations are related to 3a) process, 3b) product and services, and 3c) external integration. Lyytinen and Rose (2003) defined a model of disruptive IT innovation and distinguished three types of IT innovations and their interactions, systems development innovations, service innovations, and IT base innovations by extending Swanson's innovation types. MultiMills' IT transformation represents innovation restricted to administration of the IS function and technical IS tasks by streamlining and rationalizing service processes to gain significant IT cost reductions. Innovations embedded in the core technologies of the business were affected as all IT services were transferred from business units to a centralized IT function, and the business organization had to reconsider and establish their end user support and IT relationship management processes. Järvinen (1980) has also noted that the division

of labour generates non-productive additional tasks and thereby additional costs. At MultiMills, from the IT transformation emerged additional key user and help desk operations. The additional tasks can be considered partly non-productive, especially when end user support requests were registered into two different systems, local and global, or merely to comply with the rules.

6.2   Exploring IT transformation as organizational development and change

Van de Ven and Poole (1995) have identified four theories explaining organizational change: life cycle theory, teleological theory, dialectical theory, and evolutionary theory. These theories differ in four dimensions: cycle of change, motor of change, unit of change, and mode of change (Figure 6.1). The mode of change divides the theories into prescribed and constructive, whether the mode is prescribed development or constructive, often discontinuous and unpredictable. The unit of change divides the theories into single entity change and multiple entity changes. This section derives three different hypotheses from the three prominent change theories in order to explain the different views on the IT transformation. The evolutionary theory is not utilized here.

Figure 6.1 Process theories of organizational development and change
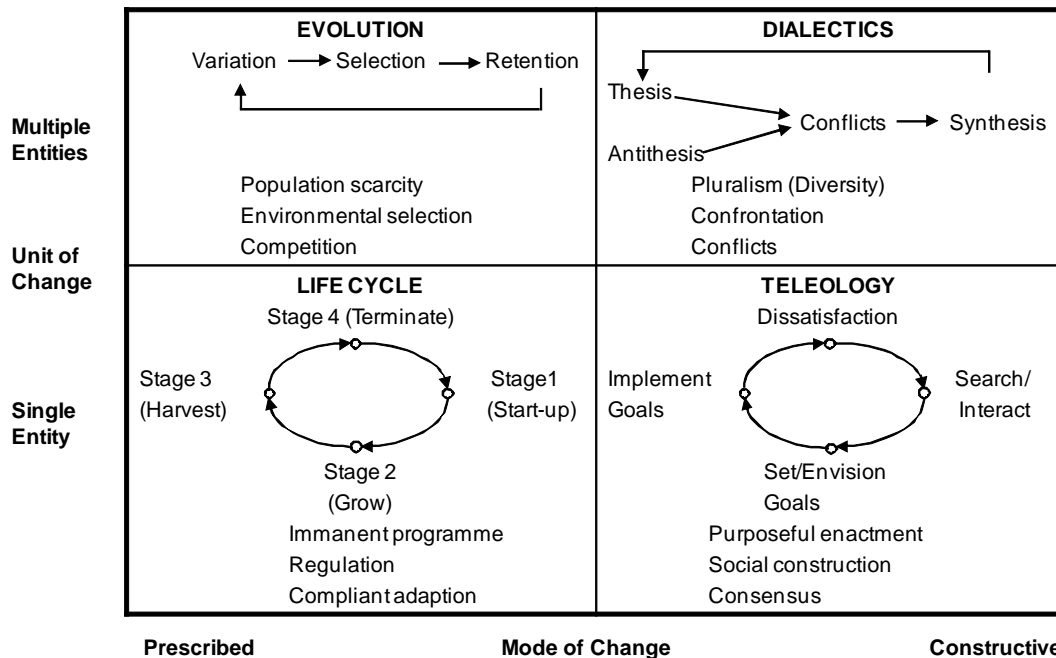
The change process was chronologically divided into three different phases: the prior to the change phase, the primary change phase, and the post-change phase. In the prior to the change phase, the new IT strategy was developed. The primary change phase included implementation, organizational transition, and optimization

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phases. The post change phase was the new restructuring and termination phase when the permanent business process partner structure was dismantled. The chronological division was conducted to contribute the following theoretical exploration. The selected prominent theories are: 1) the dialectical theory in the prior to the change and the post-change phases, 2) the life cycle theory in the primary change phase, and 3) the teleological theory in the complete IT transformation process.

In Table 6.2 the adaptation of the three Van de Ven and Poole (1995) theories as theoretical lenses to explore the change process is summarized. The dialectical theory explains organizational change as a struggle between organizational values. The dialectical theory was selected as two competing organizational values: divisional and central were identified. The life cycle theory explains organizational development as organic growth. The teleological theory explains the change development as a purposeful action towards a goal or an end state. The evolutionary theory explains change as progression of variation, selection, and retention among many organizational entities. As the evolutionary theory operates in multiple entities it was ruled out of exploration in all the phases. This theoretical framework has been employed for heuristic reformulation.

Table 6.2 Summary of the adapted development theories

	Prior to the change	**IT transformation**	**Post-change**
Life cycle theory	Not applicable. Unit of change is single entity and mode of change is not prescribed.	*Cycle of change:* Well defined and structured primary IT transformation implementation *Motor of change:* Centrally monitored and controlled adaptation *Unit of change:* Case study company internal IT organization *Mode of change:* Centrally planned IT transformation implementation project	Not applicable. Unit of change is single entity and mode of change is not prescribed.
Dialectical theory	*Cycle of change:* Centralized power bloc gain sufficient power over divisions *Motor of change:* Confrontation between global and local synergies *Unit of change:* Alternative organizational scenarios *Mode of change:* New structure and new ways of working	Not applicable. Unit of change is multiple entities and mode of change is prescribed.	*Cycle of change:* Contradictory business values gain sufficient power over the centralized power *Motor of change:* Confrontation between technocratic approach and customer service approach *Unit of change:* Alternative organizational and service emphasis *Mode of change:* New organizational structure and new ways of working
Teleological Theory	*Cycle of change:* Purposeful reconstruction of IT organization *Motor of change:* Purposeful reconstruction of IT organization within the company *Unit of change:* Case study company internal IT operations *Mode of change:* A novel leading edge organizational design	*Cycle of change:* Purposeful reconstruction of IT organization *Motor of change:* Purposeful reconstruction of IT organization within the company *Unit of change:* Case study company internal IT organization *Mode of change:* New organization structure and new ways of working	*Cycle of change:* Purposeful reconstruction of IT organization *Motor of change:* Purposeful reconstruction of IT organization service orientation *Unit of change:* Case study company internal IT organization *Mode of change:* Fine-tuned organizational structure and fine-tuned ways of working
Evolutionary Theory	Not applicable. Unit of change is multiple entities.	Not applicable. Unit of change is multiple entities.	Not applicable. Unit of change is multiple entities.

Van de Ven and Poole (1995, p. 526) identified limitations in all applied development theories. "In the dialectical model, the origin of the antithesis is obscure, as is the source of dissatisfaction in the teleological model, and the processes that trigger start-up and termination in the life-cycle model."

6.2.1   Exploring IT transformation as a dialectical process

The dialectical theory explains organizational change as a struggle between organizational values. The change will happen when sufficient power is gained to

challenge and restructure the current state. Here the prior to change design phase of the IT transformation is explored. The following hypothesis is derived from the dialectical theory:

Hypothesis 2a

The emergence of opposing values challenged the existing IT organizational state and triggered the change process at MultiMills.

The dialectical theory explains the struggle between the divisional values and the values of centralization at MultiMills. The prediction of a central power bloc gaining sufficient power over the divisional power bloc was observed as a competition between advocates of alternative organizational structures in the prior to change phase. When the central power bloc gained the sufficient power to challenge the divisional values, the global process-oriented approach emerged as dominant and the IT personnel became obligated to the central IT organization. A confrontation between local and divisional customer focus and agility and global synergies, mostly economic and efficiency-related, was observed.

As presented in the case study description (Chapter 3), MultiMills' old IT organization was, at the beginning of new millennium, recognized as a complex, decentralized, and fragmented IT organization. Divisional IT organizations were at different maturity levels. The lack of customer focus and leveraging shared IT services between divisions and business units were identified. The transparency of global IT costs and performance were perceived as inadequate. To improve business efficiency a radical IT transformation project was started in May 2004. The intention of the process was to change the IT organization and the IT functions from being technology-oriented and scattered IT to a business-driven, global IT function supporting the global business process approach. The IT transformation project was supported by an external international consultant company. The IT transformation project recommended major changes which were finally accepted by the business executives.

In the prior to the IT transformation phase the major divisions' business and IT representatives described the "as-is" IT organization and alternative scenarios for the "to-be" IT organization structure. The struggle between the divisional values and the central values was confronted. The centralized power bloc presented their thesis and the divisional power bloc their antithesis. When the dominance of the centralized power bloc became evident, the conflict was absorbed and a synthesis was the result. When the IT transformation project was launched and the effective change process started, the opposing power blocs did not any longer explicitly compete and unlike in the prior to the change, a prescribed single entity change process was presented. My case study provides evidence for the conclusion that when emerging opposing values gain sufficient power, the yielding values will become obligated to the dominant values. The case study evidence also confirms that expanding the preparation team did not change the process.

In the post-change phase, the pendulum swung in the other direction, the confronting values gain sufficient power and advocates of the original change process have to yield. New people take the lead and the permanent business process

partner organization, which was presented as a leading edge change to meet the demands of the future process-oriented matrix organization, was dismantled. Coughlan et al. (2005) call business and IT alignment programmes that deal with communication problems Relationship Management (RM) and question the establishment of a mere additional organizational layer as a resolution to the business and IT relationship. In MultiMills' IT transformation post-change phase, the new CIO communicated that the business feedback suggested improvements in cooperation between the IT and business organizations, and he promoted a new structural solution. My case study supports Hypothesis 2a.

6.2.2   Exploring IT transformation through life cycle theory

The life cycle theory (Figure 6.1) explains organizational development. The motor of change is within the unit itself and the progress of the change will move the unit from a given state to the pre-described end state. Here the primary change implementation phase of the IT transformation from a local, functional, and decentralized IT organization to a global, process-oriented IT organization is explored. From the life cycle theory the following hypothesis is derived:

Hypothesis 2b

MultiMills' IT transformation programme realization was a prescribed, well defined and predictable organizational development programme.

The life cycle theory describes the IT transformation process as an organizational development and change process. The prediction of a well defined and structured implementation phase was observed. The IT transformation start-up from the manufacturing systems global CoC point of view is documented, the grow phase, as the building of the new organizational structure, and the harvest phase, as the application of the organizational routines until the IT transformation was formally finished, are all explicitly identifiable in the case study observations. The building of the manufacturing systems global CoC is a prominent grow phase example.

The IT transformation project was organized into centrally steered subprojects: the personal assessment, organizational restructuring, the knowledge transfer project, redundant human resources management, employee negotiations, outsourcing, near-shoring, and change and communication management.

The knowledge transfer subproject exemplifies the centrally controlled and monitored approach where a radical large-scale change process is divided into smaller, temporally controllable phases. In order to implement and activate the new organization at full speed, the IT transformation project launched a very aggressive knowledge transfer project. All IT tasks were recorded by the receiving new IT organization and the knowledge transfer plan, including a challenging schedule, was created. Every new IT manager was responsible for reporting on a regular basis the progress of his or her knowledge transfer project. If a single task was not transferred on time, the task received special attention, and the IT manager in charge had to make a special report on the progress. In cases where the knowledge transfer was

planned for a person leaving the company, the knowledge transfer plan was also reviewed with special care. In some cases personnel transfers were re-planned on the basis of the knowledge transfer process. The case study provides evidence for the conclusion that organizational restructuring is considered as a prescribed industrialized implementation project. So how does this long development of the new process-oriented organization translate to the IT personnel? It must be remembered that any people transfer, downsizing, and relocation involved was enabled by the very same IT personnel who were designing and implementing IT advantages within MultiMills which enabled these actions. Yet it was not they who were to benefit from these IT advantages. The case study supports Hypothesis 2b.

6.2.3 Exploring IT transformation through teleology

The teleological theory (Figure 6.1) explains change development as a purposeful action towards a goal or an end state. Teleology does not prescribe a sequence of well planned phases. The teleological theory operates on a single entity. Contrary to life cycle theory, here the IT transformation from local, functional, and decentralized IT organization to a global, process-oriented IT organization, including the prior to change design phase, the primary change implementation phase and the post change phase, redesign, is explored. From the teleological theory the following hypothesis is derived:

Hypothesis 2c

The change of MultiMills' IT organization was a purposeful organizational development towards centralism, control, and economic efficiency.

The sequence of the change in the case under study is well described in its historical processes of change: search/interact and set/envision goals–the prior to the change phase, set/envision goals and implement goal–the IT transformation and new restructuring–the post change phase, consequently the teleological exploration consists of all three sequential phases of the case unlike in the life cycle theory and dialectical theory. The case study provides evidence for the conclusion that organizational development, not simplified restructuring, is considered as a purposeful cycle of goal formulation (Process-oriented global IT organization design), implementation (IT transition project), evaluation (formal and informal customer feedback), and modification of goals (pendulum swing). The case study explains organizational development as a cycle of purposeful events towards the goal (centralism, control, and economic efficiency), not as a recurrent cycle. The case study supports Hypothesis 2c.

6.3 Exploring IT transformation as a change intervention

Huy (2001) has studied the change process from the manager's perspective and proposes the following four ideal types of change intervention approaches. The types are commanding (to change formal structures), engineering (to change work processes), teaching (to change beliefs), and socialization (to change social relationships) (see Table 6.3). In the table, the content of change is divided into tangible and intangible, and another dimension divides the content of change into episodic radical change and continuous change. In this section, five hypotheses from Huy's propositions are derived and the case to explain different intervention views is explored.

Table 6.3 Content of change and associated change intervention ideal types

Tangibleness of content / Emphasis of change literature	Episodic change	Continuous change
Tangible	Formal structures (changed through *commanding*)	Work processes (changed through *engineering*)
Intangible	Beliefs (changed through *teaching*)	Social relationships (changed through *socializing*)

The change process was chronologically divided into the three different phases: the prior to the change phase, the change process, and the post-change phase. The chronological division was conducted to contribute the following theoretical exploration. The selected prominent theories are: 1) the engineering intervention theory in the prior to the change phase, 2) the commanding intervention in the actual change and post-change phases, and 3) the teaching and socializing intervention within the actual change phase.

6.3.1 Commanding intervention to change IT organization

The commanding intervention theory, in a certain way, explains development and change in organizations. Proposition of commanding intervention being effective in changing formal structures and when the change agent gains fast economic benefit was observed at MultiMills. The commanding intervention was practiced after the assignment of the new CIO.

Huy's proposition 1

"*The commanding intervention approach is likely to be relatively effective at changing formal structures and is likely to be used when change agents' purpose is to produce fast improvement in the firm's economic performance or when they value a quantitative conception of time and entrainment by factors outside the organization and a time perspective that favors the near term.*"

The following hypothesis is derived:

Hypothesis 3

The commanding intervention is likely to be effective in changing a decentralized IT organization to a centralized process-oriented IT organization and when the change agent gains expeditious economic benefits or when they value a quantitative conception of time and entrainment by factors outside the organization and a time perspective that favours the near term.

The commanding intervention was applied to MultiMills' IT transformation. The major driver was to change formal structures fast and to gain significant cost savings, which were also reported after the IT transformation. In the post IT transformation phase the commanding intervention was applied to gain expeditious change in service performance.

MultiMills' IT transformation process is a typical application of a commanding intervention approach. The metaphor of organization, a mechanical clock operated by the IT management team, and the IT personnel as tightly coupled parts widely describe MultiMills' IT organization. The adaptation of the ideal organizational state in MultiMills' IT transformation demonstrate, that the process-oriented organization structures are well positioned to achieve superior economic performance. The superior economic performance in this case study is considered as an internal service provider economic performance as explained earlier in connection with the description of the new IT organization structure (Section 3.3). The intervention theory indicates adaptation of competitive analysis: strategic planning and repositioning, a top-down approach, imposed and comprehensive organizational change. Porter (2008) explains in more detail the competitive forces that shape business strategy. The case study supports, as described in section 5.5, a radical top-down change based on business best practices. The role of change agents was the role of commander moderated by a global change management and communication organization, as explained in Section 5.8. Typical change actions were centrally monitored and controlled. Downsizing and near-shoring were considered as instruments of a deterministic change process. The headcount reduction was centrally planned and monitored.

The change tactic was definitely power coercive but the manifestations of power were refrained from when possible. The change agents were the IT management team members, the CIO and his direct subordinates, and their management team members. The change agents were assisted by the external consultants, as described in Section 5.10 in connection with the description of the IT transformation project management challenges. In the post change phase the change tactic also indicates a firm power coercive. A certain phase of the case study supports the commanding intervention theory Hypothesis 3.

6.3.2 Engineering intervention to change IT processes

The engineering intervention relates to the change of work processes. The prediction of the engineering intervention was observed at the time of MultiMills' "as-is" process description and the design of the "to-be" process description.

Huy's proposition 2

"The engineering intervention approach is likely to be relatively effective at changing work processes and is likely to be used when change agents' purpose is to produce moderately fast improvement in the firm's economic performance or when agents value a quantitative conception of time and a time perspective that favors the medium term."

The following hypothesis is derived:

Hypothesis 4

The engineering intervention is likely to be effective when re-engineering IT processes and change agents want to gain moderately fast economic improvements.

The engineering intervention was applied in the prior to the change phase to re-engineer the IT processes. The pre-planning project organized workshops to re-design the IT processes and structures. The case study provides evidence for the conclusion that the principal motivation to re-engineer IT processes at MultiMills was the belief that a process-oriented approach would enable the streamlining of the organizational structures, as explained in Section 3.3 in connection with the description of the new IT organization structure.

The engineering intervention approach in the prior to the change phase follows the given engineering intervention assumptions. The metaphor of organization as a machine organization or thinkers versus doers is visible when the MultiMills' design for IT transformation is discussed. The analysts (thinkers) designed alternative process-oriented organizational scenarios for the IT personnel (doers or workers). The organization structure was envisioned as a machine which can be adjusted to improve its performance. The ideal organizational state was considered as a leading edge organization with high-productivity, fewer IT personnel, and efficient work processes, derived from textbook exercises, to achieve superior economic performance. The engineering intervention theory suggests work process analysis, reengineering, and quality management. At MultiMills an "as-is" analysis and a "to-be" redesign were conducted. The role of the change agent as an analyst can be supported by the case study. The IT managers and the business counter partners redesigned the IT processes as analysts. The typical change actions at MultiMills were the design of the new organization structure and the new reporting structure. At MultiMills the change tactic followed the normative, re-educative tactic, and the advantages of the new organization were emphasized when explaining the decision need. The change agents consulted external consultants when transferring knowledge of the new design to the preparation team. The case study supports the engineering intervention theory Hypothesis 4.

6.3.3 Teaching intervention to change beliefs

The teaching intervention relates to the change of beliefs. The prediction that teaching intervention was likely to be effective at changing beliefs and the change agent could not change organizational capabilities were observed at MultiMills by documenting IT personnel reactions and resistance to change.

Huy's proposition 3

"The teaching intervention approach is likely to be relatively effective at changing beliefs and is likely to be used when change agents' purpose is to develop the firm's organizational capabilities or when agents value qualitative inner time as a conception of time and a time perspective that favors a moderately long term."

The following hypothesis is derived:

Hypothesis 5

The teaching intervention is likely to be effective at changing beliefs on benefits and the efficiency of the centralized IT organization and change agent succeeds in changing organizational capabilities.

The teaching intervention approach was applied at MultiMills in the change and communication project as described in Section 5.8. Change agents harnessed in convincing middle managers and IT personnel in general to believe in the expediency of the new process-oriented centralized organization compared to the old local, functional, and decentralized organization. The local and divisional IT personnel were taught that IT systems services can be managed by more cost efficient and professional means with a process-oriented centralized organization without dedicated local or divisional IT personnel and a permanent physical presence at the business units. The implementation of the process-oriented business partner organization as a temporary change into a state of the art organization, as described in Section 5.6, exemplifies the need for teaching intervention.

The teaching intervention and the socializing intervention approaches were separate portions in this study and were applied and discussed in discrete cases. In the change management and communication the teaching intervention approach was applied. The metaphor for the organization is a psychic prison where the members are well-meaning but cognitively deficient. The change management and communication was a unilateral process and the IT personnel considered it prescribed and biased. The goal, a community of responsible and mindful IT personnel learning in an open environment and with an adaptiveness to uncertainty, was identified but the achievement of the goal could not be absolutely verified in this case study. The one-sided change management process did not encourage innovativeness and adaptation of uncertainty as explained in Section 5.8.

The teaching intervention theory, exposing shared tacit assumptions and taken-for-granted cause-effect relationships in beliefs and behaviours was pursued but not always well perceived as the IT personnel did not explicitly share the IT management team's reasoning. The near-shoring case was a prime example of

divergent views where the teaching intervention could not create an open climate for learning (as see in Sub section 5.4.4). The role of change agent as a teacher and philosopher-psychologist could be identified but the role of change agent remained as distant and exterior (as described in Section 5.8). To my mind, the change agents' actions— to probe, reveal, and teach—were axiomatic and the process was rigid and straightforward. The empirical rational change tactic was to execute; however, the adaptation at MultiMills and the sensitivity to diversity was not always appropriate. Typical examples are the communication of a company-wide employee negotiation where the adaptation of the process in some business units failed because of national legislation, and the sensitiveness to the change management implementation of the near-shoring case within the IT management team. External process consultants were consulted at MultiMills, as in the downsizing exercise where an external company was consulted on how to handle lay-offs (reported in section 5.8.3). The change agents' attitude was reviewed after the change management and communication sessions using an interactive questionnaire. In the manufacturing systems global CoC the teaching intervention failed in those cases where the personnel realized that the global approach was for them a personal disadvantage. In the US, two persons transferred to other local companies as they did not believe in their future at MultiMills' global IT, even though they were offered attractive positions in the new IT.

The case study provides evidence for the conclusion that a one-sided change management and communication process does not necessarily change individual beliefs. The perception of one-sided change management and communication in this context is related to the given beliefs (one sided, top down) not to mutual communication (questions versus answers). Furthermore, the case study provides evidence for the conclusion that the beliefs on the benefits and efficiency of a centralized IT organization cannot be necessarily changed if real life empirical development and personal interests do not support it. The case study does not support the teaching intervention theory Hypothesis 5.

6.3.4   Socializing intervention to change social relationships

The socializing intervention is related to the change in social relationships. The prediction of the socializing intervention is likely to be effective at changing social relationships and when change agent succeeds in changing organizational capabilities.

Huy's proposition 4

"The socializing intervention approach is likely to be relatively effective at changing social relationships and is likely to be used when change agents' purpose is to develop the firm's organizational capabilities or when agents value qualitative social time as a conception of time and a time perspective that favors the long term."

The following hypothesis is derived:

Hypothesis 6

The socializing intervention is likely to be relatively effective at changing social relationships in IT transformation and when change agent succeeds in developing organizational capabilities.

The socializing intervention was applied at MultiMills when familiarizing new global process-oriented teams. Organizing socializing events was encouraged and support material was delivered to the operating middle managers by the centralized change management and communication team. Central monitoring and steering of socializing events was loose.

The socializing intervention was conducted in MultiMills' IT transformation when familiarizing the new teams with the new managers and the new team members (reported in Sub section 5.8.4). The metaphor of the organization as an organism or an organic open system was considered as an unrelated entity. A nominally democratic community of workgroups learning together innovatively and adaptable to uncertainties was the objective organizational state of the IT transformation team building process. The intervention theory, participative experiential learning and redesign around social-technical principles were practised. From the new managers' point of view, the exercise was a knowledge sharing and capture operation. The new managers were harnessed to the facilitator role. When the overall change process was rigid and distant, the team building activities were emphatic and close. The change tactic was empirical and normative but it was applied and self-monitored by every individual manager. The change agents at MultiMills were not ordinary IT personnel but well trained IT managers. From the manager of manufacturing systems global CoC point of view the familiarizing and team building succeeded well in the meetings where a socializing evening event was arranged. The team members familiarized themselves with their new colleagues and established new formal and informal work relationships. The evening event did not happen in one of the teams and in that team the familiarizing with the new managers partly failed. Socializing intervention activities continued after the IT transformation as regular activities, meetings, and social activities. The case study provides evidence for the conclusion that socializing intervention enables the improvement of team spirit and a sense of solidarity. The case study supports the socializing intervention theory Hypothesis 6.

6.3.5   Starting change with commanding intervention

Huy's proposition 5

"Starting large-scale change with commanding is likely to be effective in organizations that traditionally accept hierarchical authority, when the company has slack, and when change agents' power is concentrated. Commanding is likely to result in little resistance if it is done with benevolence, has a clear business logic that is acceptable to employees, and is done in a short time. Commanding has to be

followed with other intervention approaches to repair the social fabric of the organization and improve work processes."

The following hypothesis is derived:

Hypothesis 7

Starting large-scale IT organizational transformation with commanding intervention is likely to be effective in hierarchical, authoritarian organizations when the change agent's power is concentrated. Commanding is likely to result in little resistance if it is done with benevolence, has a clear business logic that is acceptable to employees, and is done in a short time. Commanding has to be followed with other intervention approaches to repair the social fabric of the organization and improve work processes.

MultiMills was conservative and hierarchical at the time of the IT transformation and the change agent's power was concentrated. Commanding was done benevolently in a short time and commanding was followed with a socializing approach and the optimization phase. The IT management team also communicated clear business reasoning for the IT transformation. However, more than a little resistance resulted. The resistance was unequalled in the IT function, even though the change agents worked tactfully.

The engineering intervention, practised prior to the IT transformation phase, was reversed to the commanding intervention after the assignment of the new CIO. All IT personnel were obligated to the new CIO. The IT personnel from the local IT, the divisional IT, and the central group IT were competing for the new IT management positions. After the nomination process the new managers, and also those who had concerns about the centralised global process-oriented IT, became advocates of the new organizational structure.

The case study does not support the commanding intervention Hypothesis 7. An unexpected and abrupt resistance to change was evidenced at MultiMills when the IT personnel considered their positions uncertain at the time of the employee negotiations. The case study provides evidence for the conclusion that even though MultiMills was hierarchical and authoritarian and the change agent's power was concentrated, the IT personnel addressed direct resistance even though commanding was done benevolently and clear business logic was presented. What is central in understanding MultiMills' change resistance manifestation is the change of the IT personnel position in the company. When the employee negotiations were launched, the IT personnel became subject to change. The IT personnel did not perceive themselves as any longer completely obligated to the new management team and they demonstrated direct resistance. The case study does not support the commanding intervention theory Hypothesis 7 because of the direct resistance that emerged. As a result, the commanding intervention Hypothesis 7 is falsified.

Table 6.4 summarizes the non-temporal assumptions of change intervention. Huy (2001) emphasizes that the success of change implementation requires an understanding of each intervention approach and its local social-temporal context. As the engineering intervention operates with reengineering and redesign, therefore

all other rival intervention theories are ruled out. The commanding intervention in the actual change and post-change phases was operated by the top management and rules out the other intervention theories. The teaching and socializing interventions were adopted within the actual change phase and no rival theories are presented here.

Table 6.4 Non-temporal assumptions of change intervention ideal types (Huy 2001)

Non-temporal assumptions	Commanding intervention	Engineering intervention	Teaching intervention	Socializing intervention
Metaphor of organization	• Mechanical clock • Top management as operators; others are tightly coupled parts	• Machine organization • Thinkers (analysts) versus doers workers	• Psychic prison • Members are well meaning but cognitively deficient	• Organism • Organic open system
Analytical frameworks or diagnostic models	• Strategic management • Strategic implementation	• Scientific management • Quality management • Process re-engineering	Cognition-focused organizational development action research principles	• Social-technical systems • Empowering self-modification • Social learning theory
Goals or ideal organizational state	Portfolio of business units structurally well positioned in given industries to achieve superior economic performance	High-productivity, efficient work processes to achieve superior economic performance	Community of responsible and mindful individuals learning in an open climate; innovative and adaptive to uncertain environments	Democratic community of semiautonomous workgroups learning continuously; innovative and adaptive to uncertain environments
Intervention theory	Competitive analysis; strategic planning and repositioning; top-down, imposed comprehensive organizational change	Work process analysis, redesign and re-engineering, and quality management	Exposing shared tacit assumptions and taken-for-granted cause-effect relationships in organizational beliefs and behaviours	Participative experiential learning and workplace redesign around social-technical principles
Role of change agents	Commander	Analyst	Teacher; philosopher-psychologist	Facilitator; role model
Typical change actions	Demand strict compliance, eliminate (downsize, outsource, divest)	Analyze, design work systems, and develop task-based skills	Probe, reveal, teach	Facilitate empathize, self-monitor
Chance tactic	Power coercive	Normative re-educative	Empirical rational	Empirical normative
Typical identity of main change agents	Top executives, with analysis aided by external consultants	Work design analysts; external consultants can transfer knowledge to employees	Outsider process consultants and action researchers	Ordinary organization members

Each of the four intervention approaches has its limitations as identified by Huy and summarized in Table 6.5.

Table 6.5 Limitations of each intervention approach for realizing large-scale change (Huy 2001)

Intervention ideal type	Potential limitations of intervention approach enacted in isolation
Commanding	Could create covert resentment and resistance. Seldom leads to lasting, deep change in beliefs and values
Teaching	Cognitive change does not always lead to sustained behavioural change. Individualistic cognitive change seldom leads to corporate-wide strategic realization.
Engineering	Reinforces autonomy and parochialism of business units at the expense of corporate-wide integration and cooperation. Successful pilot site experiments rarely spread, for their very success generates defensiveness and rejection by other business units claiming they are different.
Socializing	Too much socializing could create a splintered, anarchic organization. Groups work at cross-purposes and fight one another with little clear collective focus. Danger that informal groups indulging in experimental learning may narrow competence and creativity, limit the range of options considered, and tend towards inertia.

MultiMills' IT transformation partly indicates the summarized potential limitations of the commanding intervention approach. The implementation of the IT transformation created explicit resentment, but also a covert resentment which could be discovered only by a trusted insider. The IT transformation lead to a permanent organization change in beliefs of the benefits of the centralized process-oriented IT organization and also beliefs in extreme centralized power and later again the reappearance of the local service owners. The commanding intervention in the post-change phase indicates the emergence of a new covert resentment, but the permanence of the change remains to be verified in the future.

The prior to the change phase clearly indicates the limitations of engineering intervention approach: the emergence of parochialism, as shown in Sub section 5.5.1 in connection with establishing the manufacturing systems global CoC. The smaller business divisions expressed explicit defensiveness and emphasized the uniqueness of their business processes and systems.

The application of the teaching intervention approach was discussed in the context of change and communication management (Section 5.8). The case study indicates the limitations of the teaching intervention, that change and communication management, even as professional and benevolent it was, did not lead to sustained behavioural change. The middle managers reported correct progress in the IT transformation implementation but in practice they pursued the old ways of working. Regardless of the magnitude of change, the old ways of working were applied when it was rational to do so from the performance point of view, and no management control was organized even though realizing it was not according to the new ways of working.

The socializing intervention was followed to support the commanding intervention in familiarizing the new teams. Too much socializing and the danger that informal groups may pursue narrow competence and creativity and tend towards inertia were not observed in this study.

All the presented theories look at the question of the meaning of the recent historical organizational events. All events resulted according to a prescribed logical programme or as a sequence of events towards a purposeful end state. We must not

only understand the events, but in the light of the case study we can learn how to work with these events.

6.4 Positive theory of IT transformation process case study description

Present below are the implemented IT organizational change process phases from a decentralized IT organization to a centralized process-oriented IT organization as a case study description positive theory. Seth and Thomas (1994, p. 183) described a positive focus of theorizing as that "which aims to describe what is, rather than to prescribe what should be done". The change process proceeded as follows. MultiMills' IT transformation programme started with a formal change initiation. A cross-divisional governance structure was established for IT transformation decision making. External partners brought valuable business experience from the other business companies IT transformation initiatives to the MultiMills' IT management members. Integrity and reliability were characteristics of the external partner, which were essential for successful IT transformation programme facilitation. A review of the current long-term business and IT strategies started with the "as-is" analysis. An understanding of the long-term business strategy was important to align the new IT strategy and implementation plan with the business strategy.

An external leadership assessment enabled unbiased and professional assessment of new IT management requirements. Assignment of the change programme head was the first assignment conducted in the project. The change programme head was nominated as the CIO of the company. The next appointments were the IT management team and the second level IT managers. The participation of superiors in the recruitment process was experienced as vital. The programme management office was established to support and coordinate temporal subprojects and administrative project management activities. Exemplary temporal subprojects were the personnel self assessment, the task handover project, employee negotiations, and change management and communication as described in Chapter 5.

The IT personnel assessment enabled the new IT management team to design the new IT staffing on the basis of personnel competencies and change readiness. The IT personnel assessment was coordinated with national workers' councils to avoid unnecessary concerns. Open communication was required from the project to reveal the intention of the personnel assessment and because of personal data security. National workers' councils expected pre-aligned IT transformation plans with the national legislation and the introduction of the overall programme master plan. The new IT personnel recruitments also required close co-operation with national workers' councils, especially when the IT personnel were obligated to apply for their current positions or in case of relocation. Outsourcing and off-shoring required forward planning, partner assessment, partner selection, and contracting. In-house off-shoring and near-shoring presupposed forward planning, location assessments, location selection, contracting of premises, and other legal arrangements.

Implementation of all personnel-related activities required special attention. A location consolidation plan was presented but it was not implemented because of IT personnel change resistance. Employment of the new IT personnel called for time and care. Integrity and dignity in redundant human resources management activities implementation, including outplacement solutions, early retirement management, and company social packages, were essential. Knowledge transfer, called task handover, enabled the smooth transition from functional decentralized IT to process-oriented centralized IT. Outsourcing and off-shoring transition required the establishment of concurrent internal governance processes and organization. In-house off-shoring transition expected international recruitments and internal task handover. Incremental restructuring of user support processes and IT champions' network implementation were conducted at the same time as the IT transformation. Finally, the implemented processes and IT organizational structure were optimized. This large-scale global IT transformation was implemented within the planned time schedule without major disturbances. Unexpected positive outcomes were experienced. Table 6.6 summarizes the case study description as a positive method, how the change programme was implemented. Prior to the change and IT transition phases as presented in Table 3.1 are specified here.

Table 6.6 Case study description

Phase	Description
1. Organizational design	
1.1. Initiation of change	Initiation of change
1.2. Change programme governance structure	Establishment of a cross-divisional change programme governance structure
1.3. Selection and employment of external partner	External partners brought valuable business experience to IT transformation, which was unique for the customer
1.4. "As-is" analysis	Review of the current IT strategy
1.5. The new IT strategy	The new strategy development including new organizational design and implementation plan
1.6. Leadership assessment	Internal leadership assessment for the new key IT management positions
1.7. Assignment of change programme head	Assignment of change programme head
1.8. Employment of new IT management team	Employment of new IT management team and operative middle managers
2. Organizational transition	
2.1. Establishment of change programme office	Establishment of temporal change programme office, including internal programme manager and change management team to plan, coordinate, and monitor change implementation
2.2. IT personnel assessment	IT personnel competence assessment aligned with national workers' councils and change readiness assessment.
2.3. Workers' council negotiations	National workers' council negotiation on IT transformation initiatives
2.4. Recruitment process	The new IT positions recruitments aligned with national workers' councils.
2.5. Selective outsourcing and in-house near-shoring	Planning and implementation of selective outsourcing and in-house near-shoring options
2.6. Location plan	Location consolidation planning.
2.7. Employment of new IT	Employment of new IT
3. Organizational transformation and optimization	
3.1. Redundant management	Planning and implementation of redundant human resources management including outplacement solutions, early retirement management, and company social packages
3.2. Knowledge transfer	Knowledge transfer from the functional decentralized organization to centralized process-oriented organization
3.3. Outsourcing transition	Establishment of outsourcing governance processes and organization
3.4. In-house near-shoring transformation	Knowledge transfer from the functional decentralized organization to in-house near-shoring organization
3.5. Business partner management	Implementation of business partner management (IT) and IT counterpart (business) structures
3.6. IT user support implementation	Design and implementation of IT user support processes and structures and IT champions network
3.7. Process optimization	Optimization of new processes and structures

6.5 Prescriptive method for new IT organization model implementation

The following presents recommendations for refinements to the IT transformation process on the basis of the realization experiences. A large-scale international manufacturing company's internal IT transformation will obviously affect business processes and the business organization. A smooth business transition requires the business organization's commitment. As a result, the establishment of an extensive cross-functional change programme and governance focusing on holistic process transformation, not only a process of restructuring from IT restructuring perspective, is recommended. See reference (1) in prescriptive method Table 6.7. The change programme head's abilities in the CIO position can be tested during the change programme. Therefore it is recommended that executives consider prospective nomination to the position of CIO as change programme head.

The following recommendations for the project management office, including the following permanent project teams, are based on various realization experiences at MultiMills: 1) dedicated internal programme planning and tracking to take care on project scheduling and monitoring, and to ensure better overall cross-project coordination, and to avoid overburdening of the new middle managers as described in Section 5.10; 2) contract management and scope changes team to manage internal and external contracts and possible programme scope changes to enable the programme management team to focus on management issues; 3) resource management and controlling team for project resource management and financial control to flexibly respond to unexpected resource needs, and to supervise transparently overall project costs; 4) quality and risk management team for project quality and risk management and risk reporting to ensure transparent quality control and risk assessment; and 5) change management and communication team for change management and change communication. Radical change initiatives require proper change management and communication. However, if there are too many communication activities, overemphasizing the change project achievements may lead to disinterest. Therefore, considerate change communication is recommended. See reference (2) in prescriptive method Table 6.7. Furthermore, it is recommended that implementation of sourcing options, outsourcing and off-shoring and re-location plans are aligned with the company's long-term business strategy to the ensure sustainability of the change. The dismantling of business critical multi-skill tasks is recommended, with special nurturing to guarantee trouble-free business continuity.

The advantages of the business partner model are apparent; however, the organizational best practices (Wareham and Gerrits 1999) are still immature. The findings of this study indicate implementation challenges exactly in customer integration: business partnership management and service level management and the call for research on alternative deployment models and a more holistic organizational change implementation approach rather than a change of mere IT function. General explicit description of responsibilities in internal and external IT service management and sensitive and incremental implementation to ensure undisturbed transition to the IT service level management mobilization is recommended. The successful implementation of business process partnership

requires reciprocal commitment from the business and IT organizations, therefore, collaborative implementation is recommended. See reference (3) in prescriptive method Table 6.7. The implementation of a process-oriented IT organization evidently leads to specialization of IT processes. The IT organization's focus on the IT processes presupposes that the business organization performs business operations at the customer interface. As a result, business-driven, sensitive, and incremental user support processes and an IT champions' network implementation is recommended. See reference (4) in prescriptive method Table 6.7. The success of large-scale IT organizational change initiatives in terms of sustainability and benefit realization materialize over the long-term, so it is recommended that the success of IT transformation is discussed from the perspective of an extended time, not only the time of the change (Porra et al. 2006). Table 6.7 summarizes the prescriptive method on IT transformation from a decentralized IT organization to a centralized process-oriented IT organization. The three main phases are sequential. The tasks within the main phases can be realized partly parallel; however, all three tasks need to be carefully considered. The baseline case study description, which was presented in Table 6.6, was already a state of the art method. The new improved method refines and emphasizes the amendments on the basis of the realization experiences rather than change the proven method. It is hoped that the above detailed and easy to adapt process-oriented IT organization implementation method and results, which are new, contribute to further IS research.

Table 6.7 Prescriptive method for IT transformation from a decentralized IT organization to a centralized process-oriented IT organization

Phase	Description
1. Organizational design 1.1. Initiation of change	Initiation of change
1.2. (1) Change programme governance structure	*Establishment of a cross-functional change programme governance, including all internal IT customer stakeholders, is essential to ensure a smooth transition*
1.3. Selection and employment of external partner	External partners bring valuable business experience to IT transformation initiatives, which are unique for the customer
1.4. "As-is" analysis	Review of the current IT strategy
1.5. The new IT strategy	The new strategy development, including new organizational design and implementation plan
1.6. Leadership assessment	Internal leadership assessment for the new key IT management positions
1.7. Assignment of change programme head	Assignment of change programme head
1.8. Employment of new IT management team	Employment of new IT management team and operative middle managers

2. Organizational transition
2.1. (2) Establishment of permanent dedicated internal change programme office
    2.1.1. Programme planning and tracking
    2.1.2. Contract management and scope changes
    2.1.3. Resource management and controlling
    2.1.4. Quality and risk management
    2.1.5. Considerate change management and communication
	Establishment of permanent dedicated internal central programme office to plan, coordinate, and monitor change implementation, internal and external contract management, manage project scope changes, resource management and cost controlling, quality and risk management, and change management and communication.

2.2. IT personnel assessment	IT personnel competence assessment aligned with national workers' councils and change readiness assessment.
2.3. Workers' council negotiations	National workers' council negotiation on IT transformation initiatives
2.4. Recruitment process	The new IT positions recruitments aligned with national workers' councils.
2.5. Selective outsourcing and in-house near-shoring	Planning and implementation of sourcing options. Recommended that sourcing options are aligned with the long-term business strategy.
2.6. Location plan	Implementation of location consolidation. Recommended that the location plan is aligned with the long-term business strategy.
2.7. Employment of new IT	Employment of new IT

3.	**Organizational transformation and optimization**	
	3.1. Redundant management	Planning and implementation of redundant human resources management, including outplacement solutions, early retirement management, and company social packages
	3.2. Knowledge transfer	Knowledge transfer from the functional decentralized organization to the centralized process-oriented organization
	3.3. Outsourcing	Establishment of possible outsourcing governance processes and organization
	3.4. Off-shoring	Establishment of possible off-shoring governance processes and organization
	3.5. In-house off-shoring	Knowledge transfer from the functional decentralized organization to possible in-house off-shoring organization
	3.6. *(3) Concurrent business partner management and IT counterpart implementation*	*Implementation of business partner management (IT) and IT counterpart (business) structures*
	3.7. *(4) IT user support and IT champions' network implementation*	*Implementation of IT user support processes and structures concurrently with IT champions' network implementation*
	3.8. Process optimization	Optimization of new processes and structures

6.6 Evaluation of the new business and IT alignment organization model implementation

Below, the new IT organization model implementation in the context of business and IT alignment is evaluated. The IT transformation project presented the strategic alignment model adaptation (Henderson and Venkatraman 1993) as a leading edge idea. MultiMills focused on building an IS service organization; IS being a strategic integrator of business strategies similar to the service level alignment perspective. In the strategic alignment model (Figure 6.2), the idea presented by Henderson and Venkatraman (1993), two types of business and IT integration are specified: 1) strategic integration between business and IT strategies at the external level, and 2) operational integration at the internal level. In the first two relationships, the business strategy is the driver, and in the other two, the IT strategy is the enabler. The four types of alignment perspectives are: 1) strategy execution, 2) technology transformation, 3) competitive potential, and 4) service level. Table 6.8 shows how the strategic alignment differentiates from the traditional linkage of an internal IT and business organization in four characteristics: 1) the focus of information systems and technology, 2) management objectives, 3) IS executive roles, and 4) the criteria for performance assessment. In the strategic alignment model, the focus of IS and technology is not only the internal but also the external IT marketplace, the management objectives focus on achieving business objectives not only business requirements, IS executive roles are multiple instead of line leadership, and performance assessment is based on multiple criteria, not only on cost and service considerations.

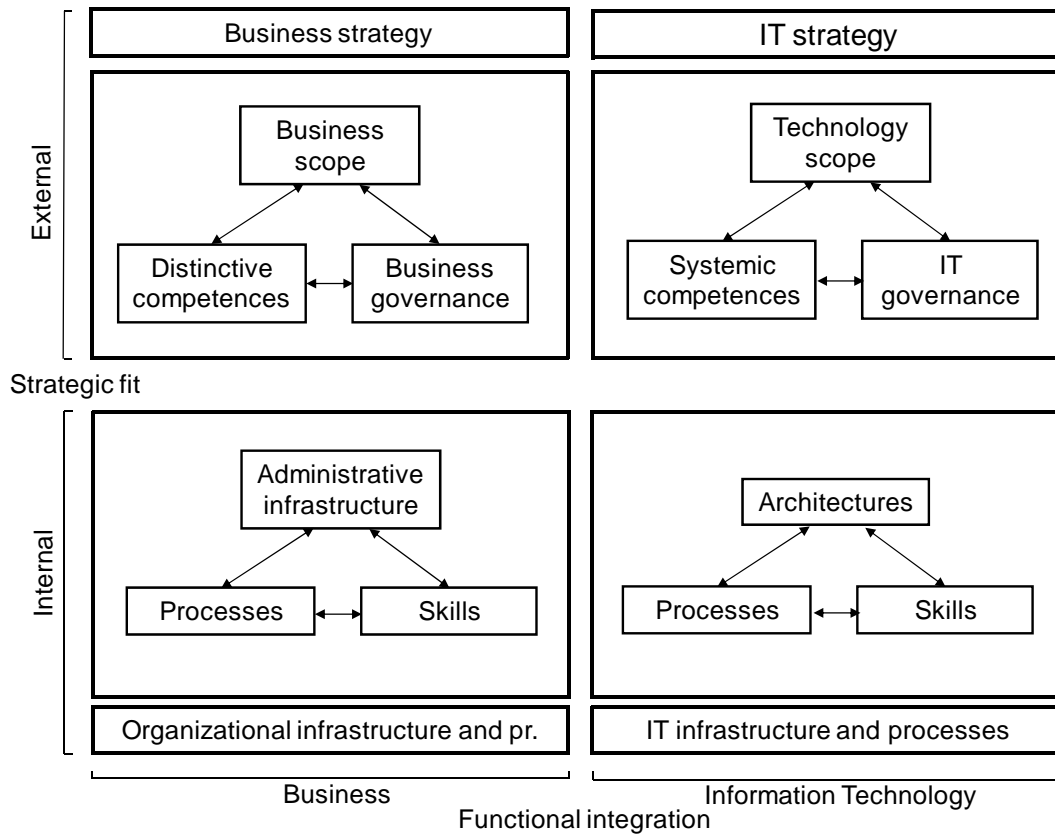**Figure 6.2 Strategic alignment model (Henderson and Venkatraman 1993)**

Table 6.8 Differentiating strategic alignment from traditional views on linkage (Henderson and Venkatraman 1993)

Characteristics	Traditional linkage	Strategic alignment
Dominant focus of information systems and technology	Internal IS function and organization	Internal IS function and organization *and* external IT marketplace
Management objectives	Ensuring that IS activities are linked to business requirements	Selecting appropriate alignment perspectives for achieving business objectives
IS executive roles	Line leadership and IS functional support	Multiple executive roles for line and IS managers
Dominant criteria for performance assessment	Cost and service considerations	Multiple criteria

MultiMills established a permanent process-oriented business partner organization to meet changing business requirements and align IT activities with business objectives. Agarwal and Sambamurthy (2002) presented three different organizational models (Table 6.9) on how leading edge companies have designed their IT function: 1) the Partner Model focuses on making IT an active partner in business innovation, 2) the Platform Model emphasizes providing IT resources for innovation and global research, and 3) the Scalable Model seeks flexibility by leveraging sourcing to tap innovation outside the firm. MultiMills' IT transformation reflects the Partner Model implementation; however, the implementation followed a business process-oriented organization structure and did not emphasize divisional characteristics.

The implementation of a business process partner organization as described in Section 5.6 explains the emergence of new roles, the business partner role in IT, and an IT responsible role in business organization. The IT organization's focus on IT service processes created a new division of labour between the IT and business organizations. The internal IT function and the external IT marketplace were considered from the process perspective. The implementation of the SLA concept explains the internal service level alignment perspective and issues related to internal formal service contracting as described earlier in Section 5.6. The failure of the business partnership realization led later to the dismantling of the structural business process partner organization (Section 5.6). The business process was immature and consequently the geographically dispersed CoC organization as described in Section 5.5 partly explains the business process partnership challenges.

MultiMills did pursue the centralization of application development activities over the long term but was not successful in location strategy implementation because of IT personnel resistance to the move. The process-oriented business partner organization was in this specific business process area serving functional business organizations which were supported by a centrally managed but geographically dispersed global CoC organization. A virtually centralized

organization of IT resources enabled global prioritization of development activities. On the other hand, the functional organization of business activities and local IT solutions produced a problem for global business process-oriented partnership. The evaluation of the new IT organization model implementation is a unique insight into a real life IT alignment model implementation with an explanation of reconstructive actions.

Table 6.9 Features of three organizational models

	Partner Model	*Platform Model*	*Scalable Model*
Strategic positioning of IT	IT is an active partner in business innovation	IT provides the assets, services, and resources for business innovation across the enterprise	IT provides flexible and scalable resources for the business
Distinguishing characteristics of the model	• Business leadership in IT innovation through divisional information officers • Corporate IT catalyzes innovation through strategic consulting • Explicit focus on three types of costs (business application costs, infrastructure costs, utility costs) • Dual matrix reporting	• Corporate IT as the factory: delivery of scalable, seamless, and flexible infrastructure (enterprise-wide platform and capabilities) • Business ownership of IT innovation (senior executives in business units, dotted line relationship with CIO) • Account managers as liaisons between IT and business units	• Centralized IT organization for leveragability (cross-unit asset utilization, centres of excellence structures for human capital) • Strong IT presence in business units • Multisourcing arrangements • Scaling for variable resource needs
Where does this model Work?	• A need to promote business innovation through IT • Business executives lack a deep understanding of IT • Organizations with multiple related businesses • Strong IT leadership with a history of trust and credibility	• Global businesses in multiple lines of business (unique IT needs across units) • Strong level of IT knowledge among business managers (high tech sectors)	• Global businesses in related lines of business • Cyclical industries

6.7 IT centralization change impact evaluation in the context of the case study organization

To evaluate the change impact at MultiMills, the change impact model of IT centralization on the IT and business processes is developed below. Kerola and Järvinen (1975) presented eight main functions of the firm, and Agarwal and Sambamurthy (2002) eight processes of the IT function. Firstly, Kerola and Järvinen's eight main functions of the firm as a framework to classify MultiMills' IT processes are utilized. The main functions of the firm are defined as follows: γ function relates to the company total management, λ function relates to physical resources such as IT facilities and technical management, ε function relates to human resources, φ function relates to financial resources, ι function relates to data and knowledge resources, α function relates to the acquisition of raw materials for

production processes in IT, π function relates to the production of the final outcomes, and μ function relates to marketing (Table 6.10). Secondly, I compare Agarwal and Sambamurthy´s value-creating processes to MultiMills' IT processes (Table 6.11), and finally the change impact model of the IT centralization at MultiMills is presented (Table 6.12). Agarwal and Sambamurthy's value-creating processes are: 1) infrastructure management; 2) human capital management; 3) relationship management, including partnering with internal clients, external vendors, and business peers; 4) value innovation, such as strategic analysis of IT-based business opportunities, customer relationships, and business partner networks; 5) solution delivery, including analysis of business needs for IT, delivery of applications either through internal development, internal contracting or packaged software; 6) service provisioning of utilities such as data centres, helpdesks, and desktop management; 7) enterprise-wide strategic planning; and 8) financial management.

Table 6.10 Subfunctions of the firm and IT processes at MultiMills

Functions of the firm (Kerola and Järvinen)	IT processes	Description
γ Management	IT management and strategic planning	IT management and organization structure
λ Physical	Infrastructure management services (Swanson's type 1a innovation)	IT facilities and technical maintenance and support
ε Employees	Human Resource (HR) management (Swanson's type 1a innovation)	Human Resource (HR) management services
φ Financial	IT controlling (Swanson's type 1a innovation)	Financial IT management services
ι Information	Infrastructure management (Swanson's type 1a innovation)	Data management services
α Acquisition	IT sourcing management	IT sourcing management services
π Production	Infrastructure management and application management (Swanson's type 1b innovation)	Infrastructure management and application management services
μ Marketing	Business process partnership management	Business process partnership management

In my view, Kerola and Järvinen (1975) presented an extensive view of the firm's main functions. The view does not contain relations between the functions and does not consider how the functions are organized. I define here business process partnership management more extensively than marketing, as business process partnership management: internal customer relationship management, IT communication and marketing, including business specific IT opportunities, and IT service level management.

Table 6.11 Value-creating processes and IT processes at MultiMills

IT processes (Agarwal Sambamurthy)	IT processes	Description
Infrastructure management	Infrastructure management	Infrastructure technologies including data bases
Human capital management	Human Resource (HR) management	Acquiring, developing, and retaining IT personnel
Relationship management	Business process partnership management	Partnering internal clients, vendors, and stakeholders
Value innovation	Business process partnership management	Strategic analysis of IT-enabled business opportunities
Solution delivery	Application management	Application management service delivery
Services provisioning	Infrastructure management	Provisioning of data centre services, helpdesks, and workstation management
Strategic planning	Strategic planning	Strategic IT planning
Financial management	IT controlling	Service level agreements, IT service budgeting, and tracking

Agarwal and Sambamurthy presented value creating processes in IT but did not identify IT management and IT sourcing management as value-creating IT processes. In this case study, IT sourcing management is a global subprocess; however, it is identified as one of the main IT support processes. From Kerola and Järvinen's and Agarwal and Sambamurthy's classification comparison, it is concluded that the acquisition of IT services, physical IT facilities' technical maintenance, and information management are not identified by Agarwal and Sambamurthy as value-creating processes.

From the above classifications, the following case study company IT process classification for evaluating the change impact per process is derived (Table 6.12). The central IT management was organized as a globally centralized but geographically dispersed organization, which was responsible for all internal IT operations. The IT transformation reduced management overheads, as explained in Section 3.3. The IT infrastructure management was integrated in a global centralized organization, as described in Sub section 3.3.3. The IT application management was centralized into global centres of competence (Sub section 3.3.4). Streamlining of operations, downsizing, selective outsourcing, and in-house near-shoring enabled MultiMills to build the new IT infrastructure management and the new IT application management on the basis of the current business needs, as explained in Section 5.4. Selective outsourcing of one global CoC suggests that outsourcing was implemented to eliminate a troublesome function (Lacity and Hirschheim 1994). A process-oriented business partnership was established by streamlining customer relationship management processes and by centralization of customer relationship management, as described in connection with the business partner organization implementation in Section 5.6. MultiMills' strategic IT management was centralized into one global organization (Sub section 3.3.1). The IT human resource services were centralized from the functions to the global human resources organization (Sub section 3.3.7). The centralized IT control was established as explained in Sub section 3.3.2. Centralization of the global IT sourcing operations changed the division of labour between IT and functions, which had formerly managed IT sourcing and IT contracting (Sub section 3.3.7). I do not define information here as process but data management embedded in infrastructure management services.

The IT transformation is evaluated as per the main processes. The evaluation indicates division of labour changes within the IT organization in all the main IT processes: IT management, infrastructure management, application management, and strategic IT planning. Changes between IT and other functions in relationship management and all support functions are identified. The division of labour changes between the IT organization and the internal customer organization, as identified in the case study IT transformation description, are shown in the change impact in business organization column (Table 6.12).

The implementation of the new global IT management structure created the need for a global IT governance structure. The implementation of the process-oriented service organization (IT infrastructure management and IT application management) required the establishment of global user support processes and IT champions' network implementation, as explained in Section 5.7. The formal IT responsible role emerged in the business organization as a counterpart to business process partners in customer relationship management and service level management (Section 5.6). Additionally, a cross-divisional business governance structure was created for cross-divisional project portfolio management. Global human resources management, IT controlling, and global sourcing management were globally integrated global functions.

Table 6.12 Change impact model of centralized IT processes and customer interface processes

IT processes	Description	Change impact in IT	Change impact in business organization
Management (γ)	IT management and, organization structure	• Streamlining • Centralization	• IT governance
Infrastructure management (π, λ) (Agarwal and Sambamurthy)	IT Information Technology management services	• Streamlining • Centralization • Downsizing • Selective outsourcing • In-house near-shoring	• Emergence of IT champions • User support service processes
Application management (π, ι) (Agarwal and Sambamurthy)	IT application management services	• Streamlining • Centralized centres of competence • Downsizing • Selective outsourcing • In-house near-shoring	• Emergence of IT champions • User support service processes
Business process partnership management (μ) (Agarwal and Sambamurthy)	Business process partnership management	• Streamlining • Centralization	• Emergence of formal IT responsible roles • Project portfolio management
Strategic IT planning (γ) (Agarwal and Sambamurthy)	Strategic IT planning	• Streamlining • Centralization	• No
Global Human Resource (HR) management (ε) (Agarwal and Sambamurthy)	IT HR management services through global HR function	• Division of labour change between IT and functions	• Business integration
IT controlling (φ) (Agarwal and Sambamurthy	Financial IT management	• Streamlining • Centralization	• Business integration
Global sourcing management (α)	IT sourcing management services through global sourcing function	• Division of labour change between IT and functions	• Business integration

The IT transformation from a decentralized functional IT organization to a centralized process-oriented organization does not only affect IT processes but also substantially affects business processes. The change impact in the business organization relates to the division of labour between the business organization and the IT infrastructure management, the IT application management, and the business process partnership management. The implementation of the business process partner organization triggers a need for formal IT responsible roles in the business organization, cross-divisional project portfolio management governance structures, IT champions' network implementation in the business organization, and the implementation of formal user support processes. The change implementation at the customer interface calls for a business-driven change approach, not only an IT-driven IT transformation which promotes changes at the customer interface.

Kerola and Järvinen (1975) presented an extensive view of the firm's main functions, as described above; however, their intention was not to consider how the functions are organized. Agarwal and Sambamurthy (2002) presented eight processes of the IT function. I present an IT process organization perspective which is extended with the internal customer interface processes, not only relationships to the customer processes. Many earlier studies have focused on how IT is aligned with business instead of how IT and business are aligned with each other. Therefore, this study introduces a topical perspective for further discussion on business and IT alignment (Luftman and Kempaiah 2007, De Haes and Van Grembergen 2009). Change impact evaluation of centralized IT processes and customer interface processes show that process-oriented centralized global IT implementation irrevocably affects customer business processes and the business organization.

6.8   Previous studies on IT restructuring

Previous case studies on IT restructuring are reviewed below in order to outline what is available in the IS research literature on the centralization of IT and what are the possible identified similarities with the MultiMills IT transformation. Large-scale organizational change of IT itself from a decentralized IT organization to a centralized IT organization from the middle management perspective has not been a mainstream IS research topic. However, there are some compelling studies where restructuring of IT has been explored. Sutherland and Remenyi (1995) reported in their case study a major restructuring of an IS department. The researchers reported on the power of external consultants in the restructuring process and change resistance created by unhealthy groups, referred to as gangs, exerting considerable peer pressure. Sutherland and Remenyi reported on the introduction of Service Level Agreements (SLAs) in the context of transforming IT from being a cost centre to a profit centre, but they do not define SLA as a concept. In my case study I similarly explored the power of external consultants, change resistance, and the implementation of SLAs, but I did not identify the emergence of gangs.

MultiMills' IT transformation was a radical and expeditious formal change initiative. By way of contrast, Harkness et al. (1996) reported on an evolutionary process-based organizational transformation at Bose Corporation and proposed

process improvements through inter-functional partnering and information sharing outside of the formal hierarchy.

As described in connection with MultiMills' permanent global CoC organization based on application area, technology or methodology (Section 3.3.4), Clark et al. (1997) introduced skill-based "centres of excellence" (CoEs) implementation, where skill centres are defined as "semi-permanent teams of technical specialist, or people trained in a specific IT skill" (Clark et al., 1997, p. 432). Account managers are also introduced as partnering with business clients, like the business process partners at MultiMills. The case is reported as a radical change and three challenges are identified: 1) employee anxiety, 2) the value of account management and coaching, and 3) the account manager as one point of contact. A project-based design of applications development responsibilities is presented. Clark et al. (1997) recommended not underestimating employee and customer anxieties and reported greater client concerns than anticipated. My research findings generally support those research results; however, I explored not only employee anxiety but also change resistance and concerns about customer relationships.

MultiMills' IT transformation was a radical expeditious two-year large-scale IT function restructuring. Likewise Cross et al. (1997, pp. 416–417) reported on British Petroleum's more than six-year Company IT function transformation and identified six characteristics of radical change in the IT function: 1) "Be part of a wider transformation", 2) "Set early and demanding goals", 3) "Externalize the transformation programme", 4) "Create a spirit of breaking the mould", 5) "Build a strong CEO-CIO relationship", and 6) "Develop and employ teamwork". In my case study, I have identified the need of being part of wider transformation programme, especially when implementing customer relationship management (Section 5.6). A set of demanding goals and using external consultants were reported in Section 5.10 in connection with project management challenges.

This case study provides evidence for the conclusion that individual beliefs cannot be changed in all cases if real life observations do not support management reasoning (Section 5.8). This case study also suggests that the success of a large-scale IT transformation is discussed from the perspective of an extended period of time, not only the time of the change (Section 5.10). Roepke et al. (2000) reported on the transformation of IT from a back-office support role to a strategic business partner at 3M, a large manufacturing firm. The following four general guidelines were offered (Roepke et al., pp. 348–349): 1) "The alignment of individual needs and values with organizational goals is an essential component of recruitment and retention success." 2) "It is imperative that a vision for the IT human resource be articulated and communicated." 3) "Successful initiatives for transforming the IT workforce involve systemic, multiple, pervasive efforts to implement change in both IT managers and IT professionals through brief, focused, persistent activities over time." 4) "Transforming people in IT takes a multi-year commitment." Surprisingly, Roepke et al. recommended the alignment of individual needs and values with organizational goals as I report that beliefs cannot be easily changed. Aulin (1982) distinguished cognitive beliefs as expressing the actual state of the world and values as a conception of what the world ought to be. The alignment of individual needs and values with organizational goals refers to the success of recruitment and retention; changing beliefs relates here more to the success of retention. The view

that transforming people in IT takes a multi-year commitment is not contradictory with my case study; however, MultiMills achieved an expeditious and radical change and a multi-year commitment was not pursued.

I have presented a short historical narrative of MultiMills' IT transformation and I have suggested that the success of the IT transformation should be measured from the perspective of an extended period of time. Porra et al. (2005) presented a history of the Texaco corporate IT function decentralization and how the IT function failed in the eyes of top management and business units. Porra et al. (2006) suggest that IT function success or failure is dependent on perspective.

This case study suggests that MultiMills pursued an expeditious economic benefit realization and therefore the radical IT transformation implementation approach was executed. However, the implementation failures in customer relationship management indicate the need for incremental implementation at the customer interface (Section 5.6). Vaast and Levina (2006) presented a longitudinal interpretative case study on organizational redesign in an IT department. The researchers emphasized the dangers of a well-aligned, perfectly implemented organizational design and recommended slow and incremental change implementation. The expeditious benefit realization expectations in my case study do not support the recommendation of slow change implementation but call for reconsideration of the incremental business partnership implementation.

In summary, the MultiMills IT case findings support previous research findings on: 1) the power of external consultants in the restructuring process, 2) the emergence of change resistance, 3) the value of account management, 4) the recommendation of being part of a wider transformation, 5) externalizing the transformation programme, 6) the IT transformation time frame, and 7) success and failure being dependent on perspective. The MultiMills IT case findings did not support: 1) the emergence of gangs, 2) evolutionary process improvements through partnering and information sharing, and 3) the recommendation of slow change implementation.

6.9   Discussion of single case study criticism

The scientific rigour of this case study in the context of the validity and reliability of the research results should be discussed. Lee (1989) explored how to respond to the problems involved in the study of a single case and proposed resolutions for each problem with the framework of a natural science model. Lee and Hubona (2009) suggested building on a common scientific basis to identify the fallacy of affirming the consequent in scientific reasoning and emphasizing the summative validity of the theory as a product. By affirming these three issues the qualitative case study will better achieve rigour and relevance in information systems research.

In this case study, theory testing was built on a common scientific basis by testing predictions (e.g. IT personnel changing their attitude towards MultiMills) and the fallacy of affirming the consequent was identified by not concluding any theory as true. My participatory researcher observations on the IT directors' and IT

managers' conception of the IT transformation do not indicate contradictory views on the findings above. Multiple cases were not demonstrated for affirming theories as true. Lee and Hubona claimed that the requirement of involving multiple sites or multiple cases to prove a theory in case study research is mistaken because such reasoning assumes the fallacy of confirming the consequent.

Burton-Jones (2009) discussed method bias as the difference between measured score and trait score. Sources of method bias are knowledge bias and rating bias. Knowledge bias is related to a rater's lack of knowledge of the trait score. Rating bias is bias from the rater's unwillingness to provide a best estimate of the trait score. Unfortunately, no sufficient strategy exists for minimizing knowledge bias, and no single study can address method bias fully. MultiMills' IT personnel self-assessment as an applied method, as explained in Section 5.2, is also a problematic method associated with method bias.

6.10 Summary of the results

In summary of the results, this chapter first analysed IT transformation as a free market economy phenomenon, also showing that the application of three different development and change hypotheses were supported and change intervention hypotheses were derived and supported with two exceptions. Second, a positive theory on the case study description was presented and a new prescriptive method on IT transformation process from a decentralized to a centralized organization was developed. The new IT organization model implementation and change impact of IT centralization in the case study organization was evaluated. Furthermore, previous studies on IT restructuring were reviewed and single case study criticism was discussed. A summary of the results is presented in Table 6.13.

Table 6.13 Summary of the results

Result		Description
1.	IT transformation as a global free market economy phenomenon. (Section 6.1)	Free market economy assumptions considering IT personnel as a commodity is supported.
2.	Dialectical theory, life cycle theory, and teleological theory testing. (Section 6.2)	Dialectical theory, life cycle theory, and teleological theory assumptions are supported.
3.	Change intervention theory testing. (Section 6.3)	Change intervention theory hypotheses are supported with two exceptions.
4.	The IT transformation case description. (Chapter 5, Section 6.4, Tables 3.1 and 6.6)	The IT transformation case study description in the context of the case organization, its positive theory.
5.	The prescriptive method on the IT transformation process from a decentralized to a centralized organization. (Section 6.5 and Table 6.7)	A prescriptive method on the IT transformation process from a decentralized to a centralized organization.
6.	The evaluation of the new IT organization model implementation. (Section 6.6)	The evaluation of the new IT organization model implementation.
7.	IT centralization change impact evaluation in the context of the case study organization. (Section 5.7 and Table 6.12)	IT centralization change impact evaluation in the context of the case study organization.

7. Discussion and implications

This study has explored a unique IT transformation process in the context of the case study organization. In this chapter, the study's contributions to research in the field, to practice, and the identified research limitations are discussed.

7.1 Implications for research in the field

The principal contributions of this study are the novel results related to the centralization of a large-scale global IT organization. A literature review to identify similar studies was conducted. This review was assisted by a search of four electronic libraries using "organizational change" and "transformation" as keywords (EBSCO Host, AIS Electronic Library, ScienceDirect, and Palgrave Macmillan). Porra et al. (2005, 2006) presented the history of Texaco's corporate IT function and its decentralization to business units, and called for more recorded history of the IT function in general. *I have presented a description and evaluation of a contrary, in many parts successful, IT transformation process in the context of the case study organization—its tentative theory. The case study description's positive theory is abstracted in Table 6.6. A new prescriptive method on the IT transformation process from a decentralized to a centralized organization was developed from the positive theory and presented in Table 6.7. I evaluated the new IT organization model implementation in the context of the case study organization's business and IT alignment and the change impact in the case organization. I developed and presented the change impact model of IT centralization to IT and business processes in the context of the case study organization.* Consequently, I have offered novel insights for further research by outlining a large-scale IT transformation process which is based on a proven practical concept. I have demonstrated what the IT transformation from a decentralized IT organization to a centralized process-oriented IT organization is, and presented the major phases of the IT transformation process.

Additionally, as I have already demonstrated, the thesis on the free market economy assumption that considers IT personnel as a commodity was supported by the case study (Polanyi 2001). Also, in this case study, three of Van de Ven and Poole (1995) process theories of organization development and change were applied in order to explore IT organizational change. The application of these theories in this research supports the derived hypotheses.

The non-temporal assumptions of change intervention ideal types presented by Huy (2001) were also applied. The given hypotheses are supported with two exceptions. Firstly, the hypothesis of *starting a large-scale IT organizational*

transformation with commanding intervention is likely to be effective in hierarchical, authoritarian organizations when the change agent's power is concentrated. Commanding is likely to result in little resistance if it is done with benevolence, has a clear business logic that is acceptable to employees, and is done in a short time. Commanding has to be followed with other intervention approaches to repair the social fabric of the organization and improve work processes. My case study provides evidence for the conclusion that even though MultiMills was hierarchical and authoritarian, and the change agent's power was concentrated, the IT personnel offered direct resistance. An unexpected and abrupt resistance to change was evidenced at MultiMills when the IT personnel considered their positions as uncertain at the time of the employee negotiations. What is central in understanding MultiMills' change resistance manifestation is the change of the IT personnel position in the company. When the employee negotiations were launched, the IT personnel became subject to change. The IT personnel did not perceive themselves any longer as completely obligated to the new IT management team, and they demonstrated this through direct resistance. Another possible explanation for the IT personnel's abrupt behaviour is that MultiMills was perceived as a very secure employer, with the IT personnel also having other family members working at MultiMills.

I offer the following refined proposition: *Starting a large-scale IT organizational transformation with commanding intervention is likely to be effective in hierarchical, authoritarian organizations when the change agent's power is concentrated. Commanding is likely to result in little resistance since employees are completely obligated to the change agent and if it is done with benevolence, has a clear business logic that is acceptable to employees, and is done in a short time. Commanding has to be followed with other intervention approaches to repair the social fabric of the organization and improve work processes.*

Secondly, the application of teaching intervention did not support the earlier theory assumptions. This research indicates that it is difficult or even impossible to change IT personnel beliefs if real life observations do not support IT management team reasoning. One explanation for the IT personnel behaviour might be that MultiMills' business units are mainly in rural areas and the personnel are rooted in the local communities and do not generally value centralization initiatives. The second explanation might be that the change was implemented abruptly and MultiMills did not focus enough on the economic bonuses. Future research could focus on the level of necessity to change IT personnel beliefs in the context of IT organizational change to influence the success of the change process and when the effort to change beliefs is dispensable regarding the success of implementation. I offer the following refined proposition: *The teaching intervention is likely to be effective at changing beliefs on benefits and the efficiency of the centralized IT organization and when the real life observations support the IT management team reasoning and change agent achieves change in the organizational abilities.*

In this section I have presented the major results of this study. By presenting the IT transformation process in the context of the case study company as a more complex concept than IT restructuring this research has contributed to a richer understanding of IT transformation. Section 6.8 presents the results with reference to previous research.

7.2   Implications for practice

This study has explored organizational change within a real life development. This dissertation presents a unique comprehensive IT transformation narrative in a large-scale organization. The presented research results benefit Chief Information Officers who are planning large-scale change initiatives and practitioners implementing IT transformation programmes. I recommend challenging deterministic, managerial, free market economy, implicit and explicit assumptions and views. The management motive and pursuit of purely economic benefits and linear organizational efficiency may trigger unexpected side effects in a complex real life environment, and significantly delay expected benefit realization. The behaviour of IT personnel, who have traditionally been driving business organization change and are now subject to that change, is not easily predictable.

A radical organizational transformation from a local, functional, and decentralized organization to a global, process-oriented, and centralized organization in an international company is a drastic change process. Only practical, administrative, and legal tasks to be executed are already extensive. Differences in time zones, cultures, and national legislation create extraordinary challenges for planning and implementation. To manage the change process and achieve the expected cost savings, I recommend a strict, centrally managed and monitored project implementation which is aligned with the business strategy. Change management and communication management at the time of the change is essential; however, I recommend not overemphasizing these activities.

Identification of minor research findings, such as service level agreement inflation as a consequence of centralization, declining IT personnel interest in CIO information sessions when the focus has turned from future plans to factual status reviews, and going from a local to a global process-oriented organization challenging the culture of local generalists having to move towards a culture of centralized specialists can also benefit practitioners.

The advantages of the business process partner model are apparent; however, the organizational best practices are immature and call for innovative adaptation of alternative alignment models in companies. Based on this case study, I recommend a holistic incremental approach for innovative business process partner organization implementation, concurrently with customer organization transformation. The new prescriptive IT transformation method and the change impact model enable practitioners to outline large-scale IT transformation initiatives. Finally, the presented prescriptive method on IT transformation from a decentralized IT organization to a centralized process-oriented IT organization can be applied by practitioners as a normative method.

7.3   Limitations of the research and further studies

The limitations of this study are readily acknowledged. This is a participatory, theory testing and theory building single case study. The scientific rigour of the

applied research methodology is discussed in this dissertation. I am also aware of the challenges related to the participatory views. As an insider, I have had access to formal and informal sources. I have had an advantage to see behind the scenes, and I have also closely recognized expressions of covert resentment. However, my preconceptions may be biased and I might have presupposed to know more than I actually do without relevant questioning. The missing complementary views, such as those of business executives, the IT management team, and IT personnel, can be argued; however, this dissertation does not aim for an all-inclusive view. A multidisciplinary research team could be gathered to study the diverse organizational change impacts of the IT function.

The empirical material was gathered from research diary entries and MultiMills' internal publications. The material includes a considerable amount of personal and company confidential data and is therefore not published. The findings in this study are reliable and authentic. Various discussions with MultiMills' IT directors, IT managers, IT personnel, and business managers support the findings of the study. Other observers might have different interpretations on the documented events or might emphasize different views but the researcher observations are factually and temporally valid observations on the case under study. MultiMills decided to perform an IT personnel competence evaluation as a self-assessment. The self-assessment results can be challenged, evidence on purpose-oriented self-assessment in entries was identified; however, under the circumstances, the results were largely accepted by the IT management team and the IT personnel. An academic external research team could study a similar case of organizational IT transformations.

My interpretation of the events under study is relative, tentative, and provisional for the given moment. While events are taking place, it is often quite difficult, if not impossible, to understand the meaning of those events and learn from them if we do not distance ourselves from those events and observe them again at a later date. In view of the ambiguity of the organizational change, every interpretation is always debatable. I have purposely over-simplified and generalized the free market economy propositions to explore MultiMills' IT transformation process. I am fully aware of real life implementations diversity and complexity. I have also applied only three of four process theories of organizational development and change: life cycle theory, dialectical theory, and teleological theory. The evolutional theory is excluded in this study. I explored the change process phases as an ideal type phenomenon, not as composites of simultaneous ideal type phenomenon. The applied approach can be challenged, even the theoretical framework can be argued to be overly reductionist. The limitations of each intervention approach for realizing a large-scale change have been presented separately in this study. The insider's view did not indicate the limitations of the socializing intervention approach, but we need to discover that too much socializing was not experienced in the case study and that the external views were not explored in this dissertation.

The IT process view on the organizational transformation framework was presented to analyze IT organizational change from a decentralized IT organization to a centralized IT organization. This simple framework reveals the diversity of the IT function change. The presented theory is tentative and calls for further development. One avenue for further research is to study the success of multiple large-scale IT organizational change programmes and develop new theoretical

frameworks to describe the change of the IT function to enable us to better understand large-scale IT organizational change and also to define different mainstream key concepts (e.g. off-shoring and near-shoring).

The research observations support the view that different national legislation may affect IT management decisions. A compelling further research topic would be to study how different national legislation affects decision makers in large-scale international IT transformation initiatives where the benefits of centralization, outsourcing, and off-shoring are discussed.

8. Conclusions

This study has presented a comprehensive IT transformation narrative from a participatory researcher, middle manager point of view. Consequently, an exceptional and, in many parts successful, large-scale change description deserves to be published. MultiMills' IT transformation process from a decentralized IT organization to a centralized IT organization was explored through different theoretical lenses, and a new model was presented. The discussion indicates that the IT transformation was considered by MultiMills' business management as a deterministic change initiative. The business management motive refers to the pursuit for centralized power, superior organizational efficiency, and economic advantages. The IT personnel were considered as commodities.

The applied theories reformulate a theoretical framework to describe the organizational change process at MultiMills. I explain how a strict centrally managed and monitored project implementation is essential for successful change implementation. Four change intervention approach applications were also discussed. The case suggests that the theory assumptions can be supported except for the commanding intervention application regarding the emergence of little change resistance, and the teaching intervention application to change IT personnel beliefs in superiority of a centralized IT organization have concluded antithetical implications. I considered the possible explanations and refined propositions.

The principal contributions of this study are the novel results related to the IT centralization process. I present a description and evaluation of the change process in the context of a case study organization—a tentative theory. A large-scale IT transformation requires extensive cross-functional change programme governance and concurrent IT and business transformation at the customer interface. I suggest a new prescriptive method on the IT transformation process from a decentralized IT organization to a centralized IT organization. I evaluated the new IT organization model implementation in the context of the case study organization business and IT alignment and the change impact in the case study organization. Furthermore, I developed and presented the change impact model of IT centralization to IT and business processes in the context of the case study organization.

The straightforward planning and implementation of change affected positively on the success of IT transformation benefit realization. However, the organizational change in some of the main processes was not long-lasting. The findings of the study indicate challenges in the implementation of customer relationship processes. Based on the study, a holistic view of IT organizational change, including customer relationship processes, is recommended. A sensitive and incremental change implementation approach in customer relationship processes is also recommended. MultiMills' IT case can contribute greatly to the work of CIOs when they prepare, realize, and lead large-scale IT transformation programmes.

Finally, the assessment on the success of MultiMills' IT transformation process is relative, tentative, and provisional. In view of the ambiguity of the organizational change, every interpretation is always debatable and relative to the moment. However, we must not only explore these events in the light of this case study, we can also learn how to work with similar change initiatives.

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