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Template Management in a Large ERP Environment:

Case Study YIT

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ABSTRACT

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The objective of this thesis is to study how template management should be done in a large ERP environment. The case company, YIT is a leading European service company in building systems, construction services and services for industry. The company has created a European template solution which is used in implementing, maintaining and supporting the ERP system. This research aims to study what changes would be required in the template management process in order to be able to serve the business organization better in their search for meeting the strategic goals of profitable growth, efficiency and harmonized processes.

Prior research has found development need in an interaction process between business organization users who present the needs and requirements for system changes and people who decide upon these changes and implement them to the existing system. The research method in this study is qualitative. Data was collected mainly through semi-structured interviews in the case company and 14 representatives from the business and IT organizations were interviewed.

The findings of this study indicate that communication and cooperation between the business and Group IT organizations need improvements. One of my suggestions for improvements is to create an own organizational position for IT Change Manager. In addition, the role of the business process ownership should be a full time position.

Further study is needed to study how the improvement suggestions presented in the present study were implemented and with what results. The case study analysis and the main findings are regarded as confidential information. The case study analysis and the main findings are written in the Appendices which are not published in the Library database.

Key words: template, template management, enterprise resource planning, ERP, business process.

1 INTRODUCTION

1.1 Motivation and background

Doing business in today's business environment is more global than ever before and globalization is one of the reasons why enterprise systems are implemented in organizations. Enterprise systems allow companies to closely monitor their operations without boundaries. (Davenport 2000, 20.)

Enterprise systems are designed to improve competitiveness by providing organizations the ability to generate accurate and on-time information throughout the enterprise and its supply chain (Umble & Umble 2002, 26). According to Rao (2000, 81), the objectives of enterprise resource planning systems include providing support for all variations of best business practices, enabling implementation of these practices with a view towards enhancing productivity, and empowering the customer to modify the implemented business processes to suit their needs.

ERP systems are designed to solve the problem of data fragmentation in large business organizations. All big companies collect, generate and store large amounts of data. The data are kept in many different computer systems which are housed in different business units, regions or offices. These computer systems, also referred to as legacy systems, are an invaluable support for a certain business function; however, all different legacy systems combined create one of the biggest drags of business productivity and performance. (Davenport 1998, 2.) Being able to use data from one, global system facilitates data analyzing and decision making.

Implementing an ERP system is challenging as it requires big investments of money, time, and expertise and involves technical challenges. Rolling out ERP systems have failed as is the case with Mobil Europe, Dell Computer, Applied Materials and Dow Chemical, to name a few examples. The main reason for implementation failures are not the technical challenges faced during the implementation projects. Companies implementing an ERP system have faced business problems that have caused implementations to fail. Companies have not had a clear understanding of the business impact of installing an ERP system and the system has conflicted with business logic. (Davenport 1998, 2.) It may not have been clear for the companies implementing an

ERP system what kind of changes are required e.g. in the business processes. According to Umble & Umble (2002, 26, 27) and Helo (2008, 1046), the major problems of ERP implementation are not technological issues such as compatibility and standardization but incompatible business processes, project mismanagement, unrealistic expectations, top management commitment, resistance to change, inadequate education and training, and organizational culture. A new ERP system brings changes to the working methods and therefore, lack of change management creates problems in ERP implementation.

The case company, Yleinen Insinööritoimisto (later referred to as YIT), is present in 14 countries in Europe and the company has been expanding its operations into new markets in the recent years. The company's strategy defines common processes as one of the cornerstones of the whole strategy and, therefore, one enterprise resource planning (later referred to as ERP) system that will be used in all countries where the company is present, is important. Implementing, maintaining and supporting one, common ERP system can be challenging as the system affects the whole organization and not just one department.

The title of this Master's Thesis project is "Template management in a large ERP environment: Case study YIT". The objective of the study is to find improvement suggestions for the ERP template management process by trying to find answers to the research questions, such as "What does template and template management mean in YIT?" and "How to control the development of ERP environment at YIT?" The rest of the research questions will be discussed in section 1.2.

My motivation for doing this Master's Thesis project comes from my personal participation in the ERP template management process. My job includes participation in the template management process as a member of the team which manages the template. I am involved in implementing, managing and supporting the ERP system in YIT Information Services Ltd. as System Specialist at SAP Competence Center. My job includes ensuring that the agreed ERP template is followed when implementing the ERP system in roll-out projects in YIT as well as managing the changes to the template coming from the ERP maintenance and support. My area of responsibility covers procurement process in the ERP system. Therefore, I should be able to do direct observations of the template management process. I want to find out the problem areas in the template management process and suggest recommendations for improvements.

Finding improvement recommendations would help also me in my daily work, but more importantly, my employer.

YIT Information Services Oy is a subsidiary of YIT which provides responsive, cost-effective and value-adding business IT solutions and services to the business units of YIT. YIT is a leading European service company in building systems, construction services and services for industry. The company builds, develops and maintains quality living environments in the Nordic countries, Russia, the Baltic countries and Central Europe. The history of YIT dates back to 1912 when YIT was established in Finland. Over the years, the company has grown and become an international company. In 2009 the revenue amounted to 3,452 million EUR and the company's share is listed on NASDAQ OMX Helsinki. The company's business segments in 2009 were Building and Industrial Systems, Construction Services Finland and International Construction Services. (YIT 2009.)

YIT Building and Industrial Systems launched YES Program (=YIT Enterprise System) at the beginning of year 2007. The target of the YES Program was to find common processes and tools for YIT which support the given strategic targets, i.e. profitable growth, efficiency and harmonized processes. One of the targets, to find common tools for YIT, included finding an ERP system that can be used in all YIT countries and that supports the company's strategic targets. SAP system was chosen as the ERP solution for YIT.

Template is defined as "a form, mold, or pattern used as guide to making something" (TechTarget 2010). In the case company and hence in this work a template is a definition of processes and solution of how the core business processes as well as the supportive processes are carried out in the ERP system. A core business process is central to business functioning and relates directly to external customers and a supportive process often has an internal customer and is the back-up of a core business process (Earl 1994, 7).

The ERP system implementation in YIT is divided into several phases and the first phase has been concluded. Phase one included Nordic template definition for finance and controlling and local implementation projects of SAP Finance platform in all Building and Industrial Systems subsidiaries in the Nordic countries. Since phase one,

finance and controlling template has been enlarged to group level, i.e. SAP will be implemented in all group companies in their finance and controlling operations. In phase two, SAP will be taken into use in the operative processes of YIT Building and Industrial Systems in the European countries, i.e. the Nordic and Central European countries. Phase two includes both template definition and implementation projects. The business areas affected are project and services which include ad hoc services and planned services. Additionally, processes that support the main business processes of project and services are included in phase two. The supporting processes are human resources, master data, procurement and sales. Further phases of the YES program include implementing the ERP system in Construction Services Finland business segment and other development projects.

The main reasons for implementing a group wide ERP system is to have common processes, reporting and master data which includes vendors, materials, customers, buildings and equipment. The implementation project is still on-going. Figure 1 (Hamunen 2010) shows the schedule of SAP implementation in YIT. SAP is not only implemented in Building and Industrial Systems business segment but also in Construction Services Finland. The implementation in the Construction Services Finland business segment includes finance and controlling platform.

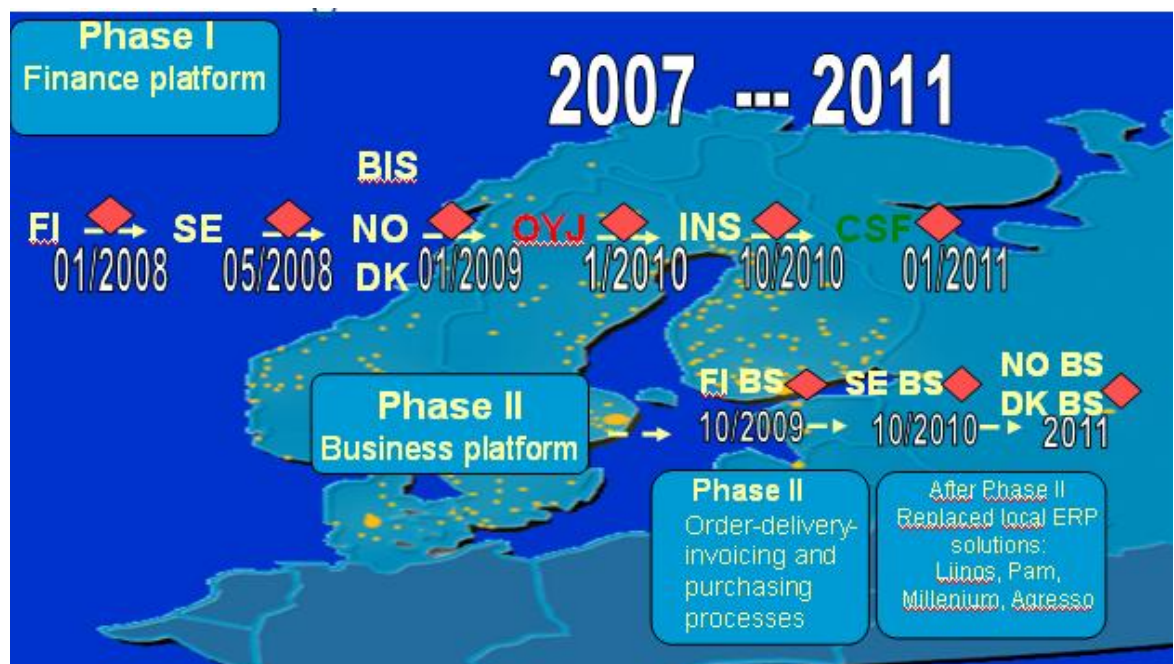


Figure 1. SAP implementation schedule (Hamunen 2010)

The company's strategy defines that there needs to be common processes, common master data and common reports in all YIT companies. On the basis of the company strategy, an operating model has been defined and based on the operating model, the European Template definition project has been carried out. The template contains the description of how the company's common core processes are connected to SAP functionalities. The European template includes the selected core processes. These processes are shown in Figure 2 (Hamunen 2010). The selected core processes which are included in the process scope are Sell Solution and Perform Project and Service.



Figure 2. Process scope of European Template (Hamunen 2010)

The defined European template is a frozen definition of processes and solution of how the core processes as well as the supportive processes are carried out in the ERP system. During the template definition project, representatives of operational processes from the Nordic countries with the support of Business IT have examined the SAP best practice ways of conducting the company's processes and what kind of changes have to be made to the best practices in order to be able to carry out the operations as needed. The decisions of how SAP is set-up in each process have been defined in the template and changes during the implementation projects to the template cannot be done without strong arguments. The European template solution includes one common solution for operation model, tool and organization.

The template management plays a crucial role in the ERP implementation project. Each country has had their own operative systems and, therefore, implementing, maintaining and supporting a global, one system in all countries is challenging. The following problem areas of the ERP template management can be defined:

1. There has not been one common way of operating between the countries and no cooperation between the countries. YIT has been expanding to new countries through acquisitions and expansion has been done country by country.
2. There has not been common organization.
3. There has not been one common ERP system for all countries.
4. There have not been common processes and no real process owners who would take the responsibility of common processes.

1.2 Research topic and research questions

The topic of this thesis is template management in a large ERP environment. More specifically, this work is researching how YIT Information Services should implement, maintain and support the European template solution concerning the chosen ERP system in all the YIT countries where the one, global ERP system has been decided to be implemented, maintained and supported. A general question to be asked is as follows: What changes would be required in the template management process in order to successfully implement, maintain and support the ERP system? Deriving from the general question put forward above, the following research questions are defined:

1. What does template and template management mean and why should template and template management be used in YIT?

Template management in YIT is a relatively new way of working and therefore, it is relevant to study and explain what template management means and if the people involved in the template management have a clear understanding of what the template management means. The purpose is to find out how YIT Information Services is able to respond to business needs through the template management and how YIT Information Services is able to guarantee the template development. Also, the purpose of this study is to explain why the template management should be used in YIT.

2. What should be the process of template development, implementation, and support in YIT?

The template management concerning the ERP implementation, development and support has a current process and the purpose is to find out if the current process works as the people participating in the template management would like it to work, and if it needs improvements. Moreover, one aspect of the research question two is to study how YIT Information Services is able to support the different roles of the business during the ERP implementation, development and support through the template management. Additionally, another aspect of the research question two is to study how development issues could be raised proactively through the template management as well as who is responsible for raising development issues. At the project phase, the changes to the template are controlled but the changes resulting from development and support are not that well controlled. The changes concerned are business process changes and the ERP system needs to be modified to match the changes. How could these changes be controlled better? This question will be researched in question number two.

3. What should be the role of business process owners in the template management in YIT?

Business process owners have a role in the template management and question number three studies whether the current role is sufficient or whether it should be changed.

It is important for YIT information services organization to find answers to these questions in order to be able to serve business organization better in their search for meeting the strategic goals of profitable growth, efficiency and harmonized processes.

1.3 Research methods

The theoretical part of this thesis includes reviewing relevant literature and utilizing already existing research made on the subject. Previous research helps in developing sharper and more insightful questions about the topic than what could be done without studying previous research. Theory development part of the thesis project is an essential step in the whole process and it needs to be done before the collection of any case study data (Yin 2003, 23).

The research methodology used in this thesis is a single case study method. Yin (2003) states that case study is a preferred strategy when one needs to find answers to “how” or “why” questions. Additionally, the case study method allows a researcher to retain the holistic and meaningful characteristics of real-life events – such as individual life cycles, organizational and managerial processes, neighborhood change, international relations, and the maturation of industries (Yin 2003, 2). Also, Schramm (1971 cited in Yin 2003, 2) points out that “case study tries to illuminate a decision or set of decisions: why they were taken, how they were implemented, and with what result”. Therefore, the case study method is a relevant method to be used in this thesis as it will study the current ERP template management process, how it is managed at the moment and what could be done better.

The case company, YIT Information Services, has chosen the template management process as the method which is applied in implementation, management and support of the chosen ERP system and this decision is not contended in this work. Consequently, one assumption in this research is that the template management process should be used in implementation, management and support of the ERP system in YIT Information Services. Also, it is assumed that the template management process enables YIT organization to work more efficiently.

Case study method uses many of the same techniques as a history study but it adds two sources of evidence which are not usually included in a historical study: direct observation of the events which are being studied and interviews of the persons who are involved in the events. Case study method’s strength lies in its ability to deal with documents, interviews and observations. (Yin 2003, 7, 8.) I will include also direct observations of the template management.

Definition of an interview study by Daniels & Cannice (2004, 185) is one where conversations either in person or by phone provide the base for data and findings. Daniels & Cannice (2004, 186, 187) continue that interview-based studies are appropriate in international business research in three situations: firstly, in exploratory and theory building studies, secondly, when there is small population of possible respondents, and thirdly, interviews give researchers the possibility of developing a deeper rapport with informants that what can be done with written questionnaires. Especially the second and third situation is applicable in this work as the population of

this study is small, 14 persons, and it is necessary to get honest and accurate responses which might not be possible with questionnaires. Reliable and accurate responses are needed in order to be able to make suggestions for improvements in the template management process.

To converse intelligently about the interview subject with the respondents, it is necessary to familiarize oneself thoroughly about the subject (Daniels & Cannice 2004, 192). As mentioned in Section 1.1, my own participation in the template management process helps in being able to discuss about the research subject. However, I will need to broaden my knowledge base about the research subject prior to the interviews. The interview questions will be semi-structured in their nature, i.e. I will have a group or groups of questions with me in the interviews. This will help me to ensure that all topic areas will be covered in the interviews.

Interviews may not provide all the necessary information needed for this research and therefore, it is necessary to include literature review about the research questions in the study. Additionally, internal company documentation about the research topic will be reviewed and included in the present research. Company documentation will be accessed via confidential company intranet pages. Part of the obtained information needs to remain confidential and hence, confidential information will be included in appendices which will not be published.

1.4 The findings of the thesis in brief

The main findings of the present study indicate that the current way of how the template management has been organized, is not the most efficient one. The decision making in the template management often takes a too long time and the decisions are not always communicated to the persons who need to be aware of the decisions.

In compliance with the case company's instructions, the case study analysis and the main findings are regarded as confidential information. Deriving from this requirement, the case study analysis and the main findings are written in Appendix 1 and Appendix 2 respectively and they are not published through the Library databases of Kemi-Tornio University of Applied Sciences.

1.5 Structure of the thesis

Chapter two presents the theoretical framework of this study. The concept of ERP systems is discussed first, followed by a description of the ERP template management in YIT and ERP implementation and post-implementation phases. Subsequently, the second chapter presents the current ERP template management process in YIT and the role of the IT organization and the business process owners in the process.

In Appendix 1 the case is described. Appendix 2 starts with a SWOT analysis of the template management process continuing with the findings of this thesis. Appendix 3 presents the interview form and two interview transcripts are attached in Appendices 4 and 5. The Appendices 1 - 5 are considered confidential information and are not published in the KTUAS Library database.

2 THEORETICAL FRAMEWORK

This chapter begins with a description of an ERP system followed by a presentation of ERP template management, ERP implementation methods, ERP post-implementation phase and the linking of them to the case company. The chapter is concluded with a description of the current template management process in the case company.

2.1 Enterprise Resource Planning systems

Clemmons and Simmon (2001) define ERP as a term used to describe business software that is multifunctional in scope, integrated in nature, and modular in structure. On the basis of the definition presented above, it can be said that an ERP system is a system that is used in various functions of a business, e.g. in finance and controlling, procurement and sales. Additionally, as the definition says, an ERP system is integrated in nature, i.e. different modules, e.g. finance and controlling, purchasing, are integrated with one another. Changes in one module can affect another module through integration and, therefore, changes in one module need to be considered in the integrated module as well. Therefore, good control of changes to the system is needed.

Clemmons & Simmon (2001, 207 - 208) state that in order to benefit from ERP implementation, organizations often need to standardize their processes. They further state that in order to achieve benefits from ERP implementation, organizations have to create process and data standards. This means that e.g. material numbering and file and field sizes are unified within a multinational company. This is applicable in YIT's case also. Processes have needed to be standardized and common guidelines for data creation have been established.

Standardization leads to increased flexibility and having one, common and logically structured information technology platform globally, companies can better adapt to business environment changes (Davenport 2000, 23). Common processes have been defined as one of the most important part of the company strategy in YIT and that is also a reason for YIT to have one, global enterprise system. Also, to create and maintain a common template based on which the business processes are carried out in the ERP system has been a reason in YIT to implement a global ERP system.

A study of 44 Finnish companies by Laukkanen & Sarpola & Hallikainen (2007) shows that there are differences in how small, medium and large companies adopt ERP systems. Small companies face more knowledge problems than medium and large companies. Medium-sized companies consider business development as an important reason for ERP adoption. Large companies have challenges in managing the changes that arise from implementing an ERP system. YIT belongs to the group of large companies with over 23,000 employees. A large company is defined having more than 250 employees, a medium-sized company has 50 to 250 employees and a small company has less than 50 employees (European Commission 2010).

Figure 3 (Aaltonen 2010) presents the different templates in YIT. Currently, there are three different templates: one for master data, one for finance, and one for Building and Industrial Systems business segment at the European level. Master data, finance and reporting have been defined as common at the global level in YIT. In practice this means that different companies in YIT using the one, global ERP system have e.g. only one vendor number for the same vendor as opposed to having different vendor numbers in each company. The Building and Industrial Systems business segment template includes common processes and solution for the service and project businesses at the European level.

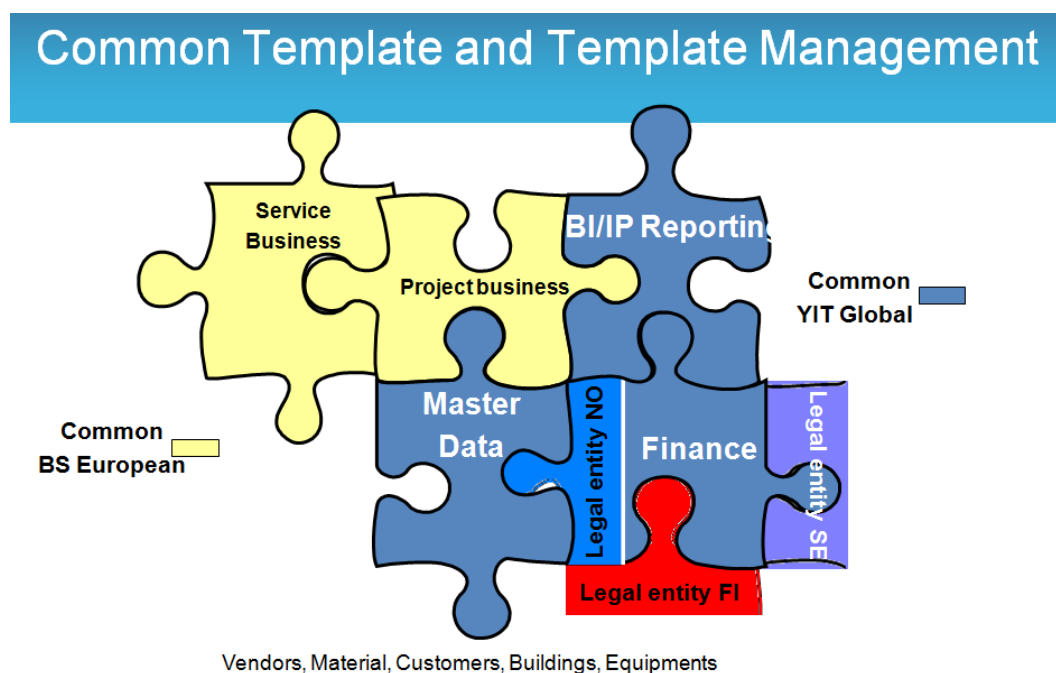


Figure 3. Different templates in YIT (Aaltonen 2010)

Ample research has been carried out on ERP implementation success factors and some of the critical success factors identified in earlier research (Bing & Sharma & Godlai 1999; Holland & Light & Gibson 1999; Ehie & Madsen 2005; Gargeya & Brady 2005) are change management program and culture, business process reengineering, effective project management, effective communication and top management support. These factors are worth looking into also in YIT as ERP implementation projects are ongoing. However, focusing only on implementation success factors is not the only aspect in this thesis as the ERP template management in YIT covers the whole lifecycle of an ERP system, i.e. further development of the system that is in production use and the support of the system. The objective of this Master's thesis is to find factors that aid YIT Information Services in supporting the business processes and further development of them through the ERP template management.

2.1.1 ERP life cycle

The ERP template management in YIT does not concentrate only on the implementation project phase. The implementation project phase is according to Markus and Tanis (2000, 190 - 195) the second phase in an ERP life cycle. The first, third and fourth ERP life cycle phases according to Markus and Tanis (2000, 190 - 195) are chartering, shakedown, and onward and upward. The chartering phase includes decisions on selecting the ERP software, implementation partner and project planning and scheduling. As was pointed out in Chapter 1.1, the chartering phase in YIT was carried out in 2007. The implementation project phase in an ERP life cycle consists of system configuration and rollout. The implementation project phase in YIT started in 2007 when the first implementation projects were started and it is going on now. The third phase, shakedown, is the period of time from an ERP system implementation until normal operation has been reached. This phase can be said to have started in YIT in Finland in 2008 when the ERP system was launched in the finance and controlling operations in the Building and Industrial Systems business segment. As there will be a number of ERP implementations in YIT in the coming years, the shakedown phase will be a common phase in the ERP life cycle in YIT. The fourth phase, onward and upward, refers to continuous maintenance and enhancement of the ERP system and business processes to fit the business needs of the organization. One of the key activities in the onward and upward phase is continuous business improvement.

2.1.2 Different organizational and national cultures and ERP

Previous research (Soh & Kien & Tay-Yap 2000, 51; Krumbholz & Maiden 2001, 185, 186) indicates that when ERP systems are implemented in companies with different organizational and national cultures, failure to adapt ERP systems to meet the differences lead to projects that are late and expensive. Evidence has been found for an association between ERP implementation problems and organizational culture. In Europe a successful implementation of a multi-national ERP solution is difficult because companies have different national cultures which influence their organizational cultures. (Krumbholz & Maiden 2001, 185, 186.) Also, previous research shows that national culture might have an effect on ERP implementation (Soh & Kien & Tay-Yap 2000, 51). Hofstede (1991, 5) defines national culture as “the collective programming of the mind which distinguishes the members of one group or category of people from another. Culture is learned, not inherited. It derives from one’s social environment, not from one’s genes.” Organizational culture is defined as “a pattern of basic assumptions-invented, discovered or developed by a given group as it learns to cope with its problems of external adaptation and internal integration – that has worked well enough to be considered valid and therefore to be taught to new members as the correct way to perceive, think and feel in relation to those problems” (Schein 2004, 17).

Hofstede (1991, 14, 28, 51, 82, 110) writes that national- and organizational culture differences can be detected using a set of dimensions. Based on his extensive empirical studies, he provides four dimensions that differentiate between national cultures: power distance, individualism-collectivism, masculinity-femininity, and uncertainty avoidance. Power distance refers to the extent to which the less powerful members of organizations accept and expect that power is distributed equally. Individualism and its opposite, collectivism, refer to the degree to which individuals are integrated into groups. In individualism the ties between individuals are loose, and in collectivism there are strong ties already from the birth. Masculinity and its opposite, femininity, refer to the distribution of roles between the genders. Uncertainty avoidance deals with a society’s tolerance for uncertainty and ambiguity. It indicates to what extent a culture programs its members to feel either uncomfortable or comfortable.

By comparing the cultural dimensions of Finland, which is the home country of YIT, with Norway’s and Germany’s cultural dimensions using Hofstede’s (1991, 28, 51, 82,

110) set of dimensions, some differences can be notified. Both Norway and Germany are among the biggest countries in terms of the number of employees in YIT (YIT 2010a). The one, global ERP system will be implemented in Norway and presumably also in Germany. Hence, the ERP template management in YIT will concern Norway and most likely Germany. Figure 4 (Hofstede 2009) shows the cultural dimensions between Finland and Norway, and Finland and Germany.

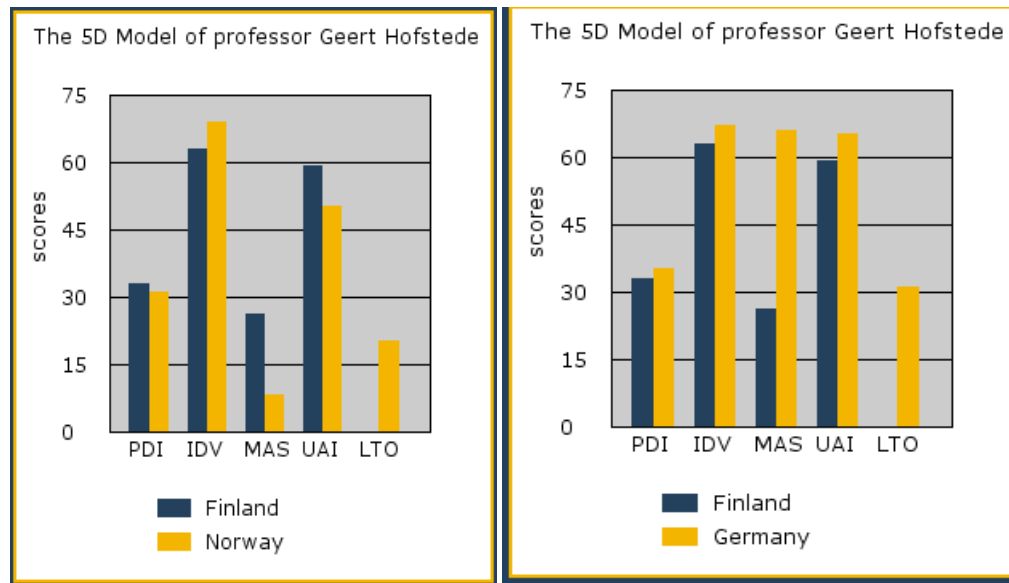


Figure 4. Cultural dimensions (Hofstede 2009)

As can be noticed from the figure, there are no big differences between Finland and Norway in power distance and individualism. The same applies between Finland and Germany. However, there are some differences in masculinity and uncertainty avoidance between Finland and Norway. Norway is very low in masculinity. The comparison between Finland and Germany shows quite substantial difference in masculinity. Germany is a more masculine culture than Finland. In other words, Norway is a very feminine culture. In a feminine culture conflicts are preferably resolved by compromise and negotiation and a feminine manager differs from a masculine manager (Hofstede 1991, 82). A masculine manager is assertive, decisive and aggressive and a lonely decision-maker whereas a feminine manager is less visible and is accustomed to seeking consensus (Hofstede 1991, 82). These cultural dimensions should be considered by YIT managers in Finland when the template management concerning the ERP implementation, development and support expands to these countries.

Cultural differences regarding management style and organizational hierarchy between Finland and Germany have been found in previous research. A study by Tossavainen (2005, 159) about ERP implementation in a Finnish multinational company found differences in how Finnish and German system end-users answered questions presented to them by implementation project team. The German end-users neglected all questions and directed the project team members to ask the questions from management level. This kind of behavior was, however, not noted in Finland. This evidence supports the suggestion presented in the previous sub-chapter that the cultural differences should be considered by YIT managers when expanding the template management to include e.g. Germany.

ERP implementation problems can be faced when a company implements an ERP system in multiple sites and these problems need to be resolved before initiating the implementation. Implementing an ERP system across many countries with national differences costs more, takes more time and ends up in failure more often than when implementing an ERP in only one site. The reasons for failure are, for example, organizational issues such as organizational conflicts and politics. National differences such as culture, management style, regulations, and customs affect the way of doing business and these issues need to be considered in a multi-site ERP implementation. (Umble & Umble 2002, 30.)

A study (Sheu & Chae & Yang 2004, 362, 367) comprising of six ERP implementation cases from different countries and continents includes companies that were all multinational companies having facilities in several countries, all companies had a clear, long-term vision and all companies had been implementing ERP for two or more years. One of the companies included in that study, Norsk Hydro, had started an ERP implementation project with high focus on centrally defined and standardized solutions. Decentralization and local solutions were not accepted when the implementation project started. However, Norsk Hydro had to change this plan quite soon after the project started due to all business units in different countries had separate ways of doing business which were caused by different business processes and local requirements. Norsk Hydro had to eventually allow localized solutions and decentralized ERP implementations. (Sheu et al. 2004, 362, 367.)

In YIT, the template management's one purpose is to avoid the situation of ERP implementation at Norsk Hydro, localized solutions and decentralized implementations. However, one of the challenges of the template management in YIT is the fact that the company has been growing into a multinational company through acquisitions and the acquired companies have had their own business processes and ways of doing business.

The number of mergers and acquisition has increased in recent years as they provide growth potential for businesses. However, mergers and acquisitions can also lead to failure and failure can be a result of difficulties in integrating various information systems of different companies. In order for a merger and acquisition to yield the expected benefits, successful systems integration is a prerequisite. In the worst case, merged companies cannot run their daily business operations. (Sankar & Rau 2006, 9.) YIT has been expanding to new regions through acquisitions and this was the case also when the company expanded its operations in the Building and Industrial Systems business segment to Sweden, Norway, Denmark, the Baltic countries and Russia in 2003 (YIT Corporation 2009a). Expansion to Central Europe happened in 2008 when YIT bought MCE AG's building system service business in Germany, Austria, Poland, the Czech Republic, Hungary and Romania (YIT Corporation 2009b). The Central European market share was further strengthened in August 2010 when the company acquired the entire business operations of Caverion GmbH, a company that provides building systems services in Central Europe (YIT Corporation 2009c). The acquired companies have been conducting business each in their own way and, therefore, it might be challenging to standardize the processes to the extent that it is possible to implement and use the one ERP system.

The client organization needs to decide whether or not to standardize or allow each site to customize the system. The advantages of standardization are simplified interfaces between different parts of the organization, the possibility to move people and products between different sites with minimal disruption and consolidating data between different parts of the organization with ease. However, if the company implementing an ERP system in multiple sites decides to allow customization at each site, it may provide possibilities for more effective and efficient operation at each site. (Umble & Umble 2002, 30.)

In the case company, allowing customization at each site has been decided to be kept to a minimum in order to have common processes across the entire company. However, local customization needs to be done due to e.g. legal requirements. The template management at the case company oversees that local customizations which are not in line with the European template decisions are not carried out. However, certain local customization due to e.g. aforesaid legal requirements is allowed. According to the observations made by the author of this thesis, the definition of what is a local change request and a European template change request is not always clear. There are problems in how to identify local and template level change requests and who has the best knowledge to decide upon them. The template management in YIT might become more challenging when the use of the templates expands to new business areas, such as the finance and controlling implementation in the Construction Services Finland business segment. Already now, decision making in the template management takes a lot of time. Therefore, suggestions on how to improve the template management process will be needed.

2.2 ERP template management

The ERP template management in YIT includes managing the changes to the system that are raised through end user service. Managing an ERP environment includes service management. After implementing an ERP system, a support organization is created to provide support in system related issues. Global standards for IT service management have been created and they are known as Information Technology Infrastructure Library (ITIL) which have their origin in British Standard for IT service management. Commercial and governmental practitioners worldwide have contributed in creating the standards and they are used nowadays in many world's leading businesses. (Fitsilis 2006, 186.) By following the ITIL global standards businesses get guidance on how to manage the IT infrastructure in order to provide IT services that are in line with business strategies and goals. ITIL includes the experience of companies and governmental practitioners worldwide on how to manage IT services in the best way to meet the business expectations. (DuMoulin & Turbitt 2007, 5.) ITIL global standards are applied in YIT IT.

ITIL has two key processes around which it is organized: service support and service delivery. According to Fitsilis (2006, 186) service support has six key processes:

- **Configuration management.** It provides a logical model of the infrastructure, on which the service is delivered, by identifying, controlling, maintaining and verifying the versions of all components.
- **Change management.** It is the process of moving from one defined service state to another. More specifically, change management is the discipline of making changes to system hardware, software and documentation in a planned and systematic fashion. Change management is responsible for ensuring changes are evaluated, approved, controlled, tracked and implemented safely without side effects to the quality of the service itself.
- **Release management.** It undertakes the planning, design, building, configuration and testing of hardware and software to create a set of release components for a live environment.
- **Incident management.** Any event which is not part of the standard operation of a service and which causes or may cause an interruption to, or a reduction in, the quality of that service. Incident management's primary objective is to restore normal service operation as quickly as possible and minimize the adverse impact on business operation.
- **Problem management.** It aims at reducing both the number and severity of incidents and problems within business and to proactively prevent recurrence of incidents and problems.
- **Service desk.** It describes the processes related to help desk organization. Key functions of service desk include receipt and resolution of service requests, technical guidance, communication, etc. Service desk acts as the central point of contact between users and IT. (Fitsilis 2006, 186.)

The second key process, service delivery, has a focus on what service the business requires from the service provider. Service delivery has five processes which are service level management, financial management, capacity management, continuity management and availability management. (Fitsilis 2006, 187.)

According to a survey that focuses on questions about the use of ITIL best practices in service management in SAP environments, IT organizations are implementing ITIL best

practices to become more efficient, standardize processes and better align IT to the business. Efficiency comes from change management process that optimizes the time needed for change assessment and approval as well as reduces the time needed for change approval meetings by large numbers of people. One of the key problems that the businesses included in the survey identify is the adoption of common processes. By adopting ITIL practices, the respondents had been able to standardize processes. (DuMoulin & Turbitt 2007, 2, 7, 8.)

Competence centers are presented in the literature as important for ERP software maintenance, for example updating process tables according to the business changes. Also, competence centers are an important resource for user education, support, and to suggest and promote business process improvements. (Eriksen & Axline & Markus & Drucker 1999, 776.)

A competence center is defined as a service organization providing professionals, industry experience, and tools that deliver appropriate and measured solutions during an ERP life cycle (Granebrink & Révay 2005, 1551). The role of YIT Competence Centre during implementation, development and support is to find out the best ERP solution for the business needs according to the agreed European template and country specific requirements. The Competence Centre also supports planning and implementing of testing and education. The implementation country's business organization performs the actual ERP system testing as the business organization representatives know the business processes. Also, taking care of customer needs and development requests after implementation and go-live is one of the responsibility areas of the YIT Competence Centre. Additionally, providing support for country organizations' key users is one of the main tasks of the Competence Centre. (YIT 2008.) YIT Competence Centre consists of individuals who have knowledge and expertise of a certain module of the ERP system. These modules are e.g. project system, customer service, finance and controlling, procurement and sales. YIT Competence Centre belongs to the YIT Group IT organization.

During the ERP maintenance phase the role of the Competence Centre includes providing support for the key users and managing development requests, as mentioned in the previous paragraph. In addition to these, the role includes further development of the implemented solution. The development is based on agreed strategy and processes

which have the purpose of improving the implemented solution and implement new features and properties. Furthermore, the Competence Centre's role is to supervise the agreed European template with the purpose of developing the system according to agreed blueprints. (YIT 2008.)

According to the observations made by the writer of this thesis, the YIT Competence Centre does not have a proactive role in suggesting business improvements. Business process improvements are mainly carried out by the business process owners who many times present ideas for further business process development. The role of the YIT Competence Centre is to find out the best ERP solution that meets the requirements of the business. However, the YIT Competence Centre's role could be more proactive in suggesting business process improvements. The reason for this is the fact that the YIT Competence Centre has knowledge about the ERP system and how business processes can be carried out in the system. On the other hand, business process owners are responsible for the processes and any improvements in them. The second research question defined in Chapter 1 is addressing this issue.

2.3 ERP implementation methods

Davenport (2000, 5) points out that implementing an ERP system probably involves the biggest technological change most organizations have ever undergone. This is relevant also for YIT. However, more effort has been needed especially from the business organization in order to have the business processes standardized. In YIT, implementing a global, one ERP system replaces the use of many information systems, such as Liinos, Pam, Millennium and Agresso. The information systems organization, and maybe more importantly, the business organizations in YIT have needed to learn the new ERP system which is being implemented currently. The company has acquired knowledge about the system by employing personnel having experience about the ERP system and by purchasing services from ERP vendors.

One of the most important issues in an enterprise system implementation project is to decide about the implementation method, whether to implement everything at once or one by one. The implementation methods are presented in Figure 5 (Davenport 2000, 173).

IMPLEMENTATION OPTIONS

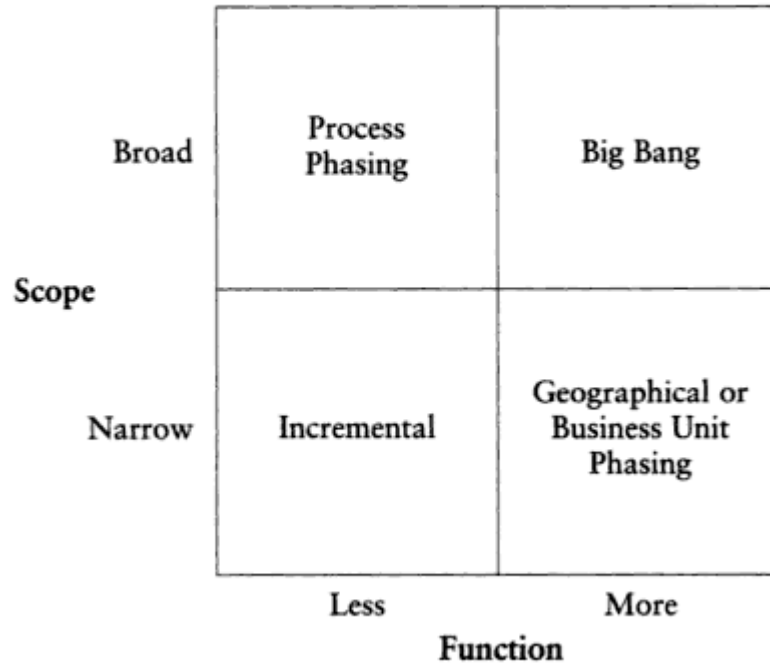


Figure 5. ERP implementation options (Davenport 2000)

The two extreme methods are incremental and big-bang approaches. In the incremental method the system and business changes are implemented in small pieces, whereas in the big-bang approach everything is implemented at once. A phased roll-out model lies in between the two previously mentioned methods. In a phased-roll out method some functionality can be implemented on a broad scope or full functionality on a narrow scope. Fully incremental methods take long time and are expensive. The phased-out method is a more suitable method in many cases as it is a compromise between implementation speed and the difficulty that lies in undertaking the changes that implementing an ERP system requires. The phasing can be done in three different dimensions: geographical phasing, process phasing and business unit phasing. In geographical phasing the idea is to implement the system in the most important locations first, or the least important ones if there are implementation risks the company is worried about. In process phasing the most important business processes are implemented first and the rest of the processes later. For example, a company can implement a financial module before other modules. However, a negative aspect of this method is that the overall purpose and value of the system is defeated. In the third phasing dimension, business unit phasing, implementation is carried out in one business

unit before others. Implementation can be done e.g. in a business unit not central to core business. (Davenport 2000, 173 – 175.)

In YIT, the implementation has been done using the phased-out method and the two first dimensions of it: geographical and process phasing. One of the most important reasons for using the phased-out method has been the lack of resources. With the available resources it would not have been possible to use the big-bang approach. The phased-out method has been found less risky than the other implementation methods as well as less dependent on the people involved (Vathanophas 2007, 439). The phased-out method has also other clear advantages: it gives the organization time to get used to the system, it gives time for configuring the system the way the business needs, and it allows time for testing and training (Davenport 2000, 176).

2.4. ERP post-implementation phase

Section 1 in Chapter 2 presented the different phases in an ERP lifecycle. The last two phases in an ERP lifecycle, shakedown, and onward and upward, can be called also as routinization and infusion, as defined by Law & Chen & Wu (2010, 298). These two last stages are the post-implementation phases in an ERP lifecycle. The post-implementation phase has remained mostly under-researched but the importance of post-implementation issues should not be underestimated. Such issues are ongoing requirements, change management, user support, and maintenance and upgrade of ERP systems. (Law et al. 2010, 298.)

Previous research has found an important factor that might be relevant also in YIT's template management process. The factor is clearly defined roles and responsibilities of business process owners (Law et. al. 2010, 306). Research (Law et. al. 2010, 306) has shown that this factor has contributed to the operation and execution of maintenance and support activities during post-implementation phase. Section 2.5.2 presents the current role of the business process owners in the template management in YIT.

Previous research has notified that changes or upgrades to an ERP system which is in production use have been shown to cause problems. In a study by Häkkinen & Hilmola (2008, 295) about life after ERP implementation, the addition of new organizational

units and implementation of new releases causes already solved problems to reappear. Problems may be a result of lack of understanding of how the system works and structural interdependencies of the system. Problems can also originate from constant changes made to the system which are a result of customizations based on local requirements. Local customizations are not always beneficial for the rest of the company. (Häkkinen & Hilmola 2008, 295, 296.)

In YIT, local customizations have been done and will be done during the ERP system lifecycle and, therefore, it is important to look into how the interaction process between business organization users who present the needs and requirements for system changes and people who decide upon these changes and implement them to the existing system could be improved. This process development has been notified e.g. in Häkkinen & Hilmola (2008) and Bernroider (2008) as an issue that needs further studying.

2.5 The current template management process

The high-level operating model of the current template management in YIT is shown in Figure 6 (Hamunen 2010).

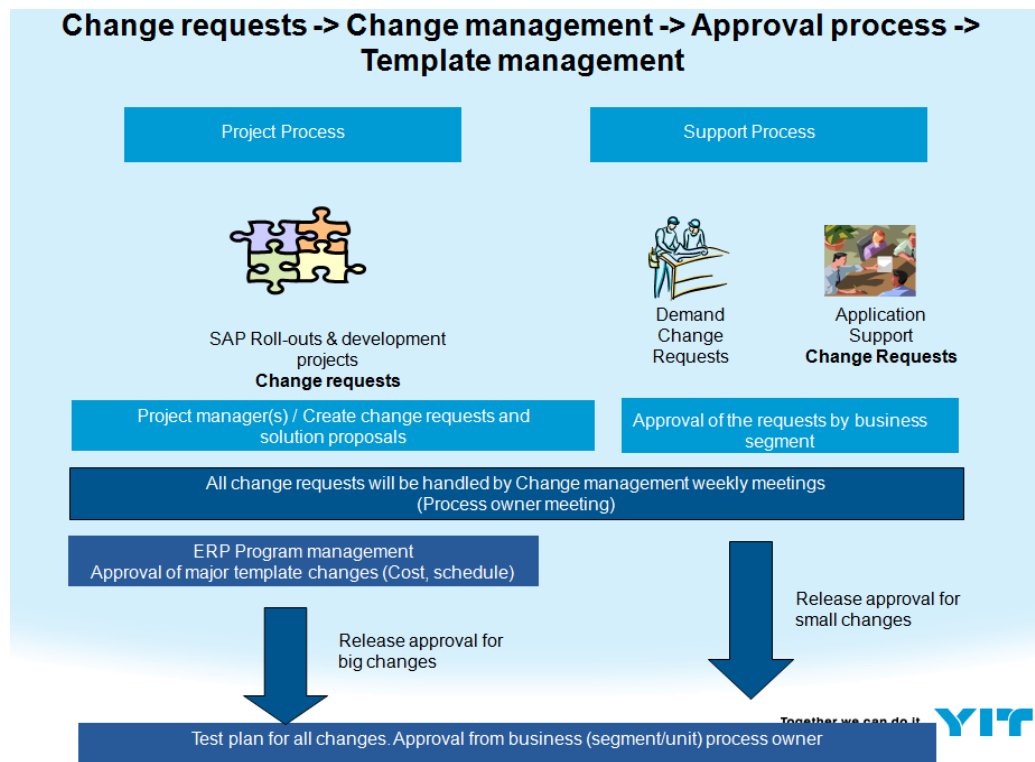


Figure 6. High-level operating model (Hamunen 2010)

Change request to the current ERP template solution arise from two different processes, project process and support process. Change request coming from the project process are changes arising from ERP roll-out projects and development projects. Changes in project process are, for example, local requirements notified during implementation project which have an effect on the template solution. Change requests are issued by the business project manager and they are handled in change management weekly meetings also called as process owner meetings. In case the change request has a bigger impact on the template solution in terms of content, cost and schedule, the change request undergoes an approval also in the ERP program management. Additionally, a change request can arise from support process, i.e. change requests to the template solution that are issued during the production use of the ERP system. These change requests are subject to the same approval process as change requests coming from the project process. Change requests originating from the support process are either demand change requests or application support change requests. A demand change request is a bigger development issue than an issue coming through application support, however, smaller than a change request identified in the project process.

Organizing the template management process requires an input from several different persons from both the business organization and Group IT organization. Project managers from the business organization and Group IT organization are involved in the template management process. A project manager from the business organization is responsible for bringing the change requests to the template management during the project phase and overseeing that the change is tested and accepted by the business. On the other hand, a project manager from the Group IT organization during the project phase is responsible for securing the delivery of change requests from ERP vendors. Additionally, a project manager from the Group IT organization during the shakedown and onward and upward phase is responsible for delivering the change requests to the template management.

2.5.1 The role of the IT organization in the template management process

An in-house IT organization can have several roles during enterprise system implementation and maintenance. One is not to have a role at all which is the least desirable role. The opposite of not having a role at all is to outsource all IT work to

outsiders and this can pose problems to an IT organization in the form of a lifetime dependence on outsiders. However, the role of an IT organization in many companies implementing, maintaining and supporting ERP systems is to be part of a mixed group of people which includes people from business functions and external consultants in addition to people from an in-house IT organization. The role of information technology people can be many; it can e.g. include configuration role and technical specialist role responsible for designing the IT architecture. (Davenport 2000, 189.)

The role of the YIT Group IT organization in the ERP system implementation, maintenance and support is the last one described in this chapter. People from the business functions are involved for example as process owners, key users and super users. External consultants are part of the group and their role is to do the configurations to the system and provide the best knowledge about the system.

In a post implementation review of ERP systems in a large Fortune 500 manufacturing corporation operating globally and a medium-sized company operating in Europe, the post implementation phase led to changes in organizational power relations. In the first of the two companies the IT department gained more power over business user departments due to the fact that the IT department did have individuals with technical expertise as well as process expertise. In the second company which participated in the post implementation review, the IT department had gained expertise through ERP implementations and was able to shift away from being mostly a back office group to one that was involved in a wider range of core business activities. (Nicolaou 2004, 43.)

Similar issues are notified in a study of six large Danish companies regarding the impact of the ERP implementation and use. The IT departments gained more business skills and ability to link IT and business issues. Also, the organizational power of the IT department was enhanced considerably. (Rikhardsson & Kræmmergaard 2006, 42.) The role of the IT organization in the template management process in YIT is to implement the changes which the business requires and not take part in decision making concerning the business process changes. However, the IT organization in YIT is gaining more knowledge and expertise about the ERP system as the use of the system expands to new countries and also, the knowledge of business processes grows. Hence, it can be asked whether the role of the IT organization should be changed to be more participatory in business process decision making.

The YIT Competence Center members are part of the Group IT organization. The Competence Center members are responsible for checking the cost of implementing a change request to the ERP system as well as the impact of the change to the business process in the ERP system. The Competence Center members also provide knowledge about the ERP system to the business process owners, e.g. in terms of executing a process improvement in the ERP system. Moreover, the Competence Center members are responsible for implementing the approved changes in the ERP system together with ERP vendors. The Competence Center members are not, however, included in all of the template management teams. For example, the Building and Industrial Systems ERP template management does not have representatives from the Competence Center.

2.5.2 The role of the business process owners in the template management process

Business process is defined as a collection of actions, tasks or steps that need to be executed in order to achieve the targets of a company or organization. Business processes consist of operational processes such as purchasing and sales, and administrative and supportive processes such as accounting and human resource management. (Kim & Choi & Park 2010.)

In YIT, each of the business processes has an owner, a person from the business organization who is responsible for the operations in his or her responsibility area. A process owner is an individual who has the ultimate responsibility and authority over the operations of a certain process and should be extremely knowledgeable about the process (Boyle 1995, 29). In YIT, the business process owners are the key persons in the template management process who decide what kind of changes will be allowed to the template. The business process owners also initiate changes and improvements in the processes. As mentioned in Section 2 in Chapter 1, one objective of this Master's thesis is to study whether the current role of the business process owners in the template management process is sufficient or does it require some changes.

The organizational status of the business process owners who are represented in the template management in YIT is high. Many of them are Vice Presidents in their business area and are members of the company management team. As the process owners' position in the company is high, they are not participating to a very large extent

in the daily management of business routines and, therefore, do not perhaps always have the best knowledge of the business processes. This is, however, an assumption at this point. The data gathering phase through interviews should provide more information whether the current business process owners are the correct persons to make decisions in the template management process or should there be some other persons in addition to or instead of the current representatives. An additional representative in the template management process could be for example a process manager who knows the business process to the detail.

The current template management teams do not include representatives from each country which are part of the common template solution. This is the case for example in the Building and Industrial Systems ERP template management. The team consists of business process owners and they do not represent their country but take care of the overall business process development.

3 CASE STUDY ANALYSIS

In this chapter the interviews and the interviewees will be described. Additionally, the results of the interviews and analysis of them will be presented. In compliance with the case company's instructions, the case study analysis is regarded as confidential information. Deriving from this requirement, the case study analysis is written in Appendix 1 and it is not published through the Library databases of Kemi-Tornio University of Applied Sciences.

4 MAIN FINDINGS

This chapter describes the main findings of this thesis. Additionally, a SWOT analysis of the template management process is put forward. Furthermore, improvement suggestions for the template management process are presented.

In compliance with the case company's instructions, the main findings are regarded as confidential information. Deriving from this requirement, the main findings are written in Appendix 2 and it is not published through the Library databases of Kemi-Tornio University of Applied Sciences.

5 CONCLUSIONS

This Master's thesis studied ERP template management process in one large multinational company. The study found areas which need improvements and a suggestion for future study would be to research how the suggestions for improvements put forward in the present study were implemented and with what results.

The call for more communication and cooperation between the business and Group IT organization was presented as one area of improvement. It would be interesting to find out if the suggestions of how to improve the communication and cooperation were adopted and what the outcome was.

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