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When time is not a constraint: Role of HR and Change Management in an ICT implementation for a small company

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Abstract

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This study answers to questions regarding the implementation of ICT tools and especially seeks to understand the process from the stakeholder's point of view. The underlying research question of the study is: what linkages are there between strategy, project management, human resources, communication and change management.

The result were collected with participant observation and the findings show that in this particular case 60% of the success factors in the ICT implementation were human resources and change management related. By taking premeditated and integrated steps concerning employee engagement, training, communication and most importantly readiness measurements, the project was a success, delivered on time and with no resistance to change.

In the end, the findings resulted into a framework, which combines the five elements and which can be used in any change situation across the borders. The framework is not problem-free as one of the findings was that a single project manager cannot take care of the project's total scope, if people are properly noticed. It is advisable that overall ICT implementations have a technical lead and another project manager for the change, which increases the costs of implementation projects.

Keywords
Human resource development, change management, ICT implementation, project management

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List of abbreviations:

AR Action Research; research method

CEO Chief Executive Officer; title

CRM Customer Relationship Management; in this case a module in ERP

EDI Electronical Data Interphase; a way to transfer data from a system to another

IT tool Information and Technology tool; a term for computer software

PMBOK Project Management Body Of Knowledge; project management theory

RACI Responsible, Accountable, Consult, Inform; different roles in communications

ROI Return On Investment; a measurement in project management

ERP system Enterprise Resource Planning system; a software for total enterprise management

ICT Information and Communication Technology; a field of technology

SEPA Single European Payment Area; Term for European banking district

SME Small and Medium sized Enterprise; a term for organizations with 1-250 employees and revenue less than 50 million

1 Introduction

This case study was done in a small company going through a mixture of ICT (Information and Communication Technology) implementations affecting all the tools they use for their daily tasks. Usually an implementation project consist of pre-study, planning and kick-off, implementation and testing, transition and completion and the staff and the users, are involved from the testing onwards (Sofigate 2010). However, this project environment was unique and challenging, because the staff relies heavily on their tools and the ability to use them. In fact, the systems are the bases of their skills and knowledge; the staff consisted of people good at using the tools but who didn't have high educational degrees. This environment creates unusual dynamics for an ICT implementation as it is affecting the foundations of peoples' ability to work. There was a chance that the resistance for change would be massive, which is why the project's emphasis was eventually on human resources and change management issues.

This study identifies critical human resource and change management factors and their relationship with project management. The aim was to reduce the overall throughput/implementation time and the total costs of the projects by taking the people into considerations and making them want the change so much, that they themselves will not let anything stand in their way. This was achieved by taking premeditated steps concerning employee engagement, training, communication and most importantly readiness measurements. As a result, I can conclude that 60% (appendix 1) of the success factors in an ICT implementation are human resources and change management related and that a single project manager cannot take care of the project's total scope, when people are properly noticed. One of the consequences of the suggested framework is that the project organization has to have at least two project managers or the responsibilities have to be otherwise divided.

This case study complements current literature and understanding about the importance of training (McCole, Morrow, Ponsonby& Kelly 2001), the role of human resource development (ibid.) and people in project management (Toor 2008) and also brings together the dimensions of Change Management theories (Kotter 1996; Luecke

2003; Todnem By 2005), human resources (Beardwell & Claydon 2010) and current best practices of Project Management (CC Pace Systems 2003-2011; IGC 2009; Project Management Institute 2008; Sofigate 2010). On top of these; the study sheds light on the importance of strategic planning, which should lead the decision making (Versteeg & Bouwman 2006; Sofigate 2010).

The findings show that human resources and change management procedures should be synchronized and that the integration should be driven by the organizational readiness for change and a common strategic vision. This changes the approach of project management from a technically led entity to a process of organizational value creation. This approach can be applied across borders, because it is not bind to any cultural characteristics. On the contrary, this approach takes people into consideration as they are instead of trying to standardize the implementation process. This feature requires more time than the commonly used Big Bang –implementation method.

This study excludes those project management processes, which do not have a human resources dimension, even though those steps are important ingredients of a successful implementation. The study also does not take group or individual psychological features into consideration but concentrates merely on the way people react, when human resources and change management is used to run a technical project. The psychological and subjective reasons behind the reactions are not analyzed as those are not a part of the study's scope. The results were validated with an interview with a professional from the target company. In this study the case study and the target company are not the same.

1.1 The study

The study is made in a small Finnish company, so the findings are best suited for companies struggling with the same issues. The suggested framework derived from the study is, however, applicable for companies in any sizes as it is targeted to improve the quality of the implementation process itself. Hence, it is unrelated to the size or the internationalization of the company. The approach of the study is inductive as it aims to gain an in-depth understanding of people's behavior and feelings within the imple-

mentation process. The implementation process should always include features from project and change management and communication but their integration, relationship and emphasis has not yet been determined. The study aims at determining whether organizational change management and human resource theories can in fact influence the overall success of the implementation and lower the overall costs and/or shorten the throughput time. The data is qualitative and the case study methodology follows that of participatory observation. As the case study is focusing on contemporary events happening in a particular company the findings are not as such applicable to other situations (Amaratunga, Baldry, Sarshar & Newton 2002) but the suggested framework is. In order to validate the findings, I conducted an interview in the target company in order to see, whether other cases have benefited from the same elements similarly. If yes, the findings are generalizable and we have been able to prove the power of Human Resources and Change Management in ICT implementation projects. All of these are characteristics of an inductive research within the realism paradigm. (Saunders, Lewis & Thornhill 2009) To validate the suggested frameworks value even further, more testing should be done, but due to time constraints, these tests are not a part of this study.

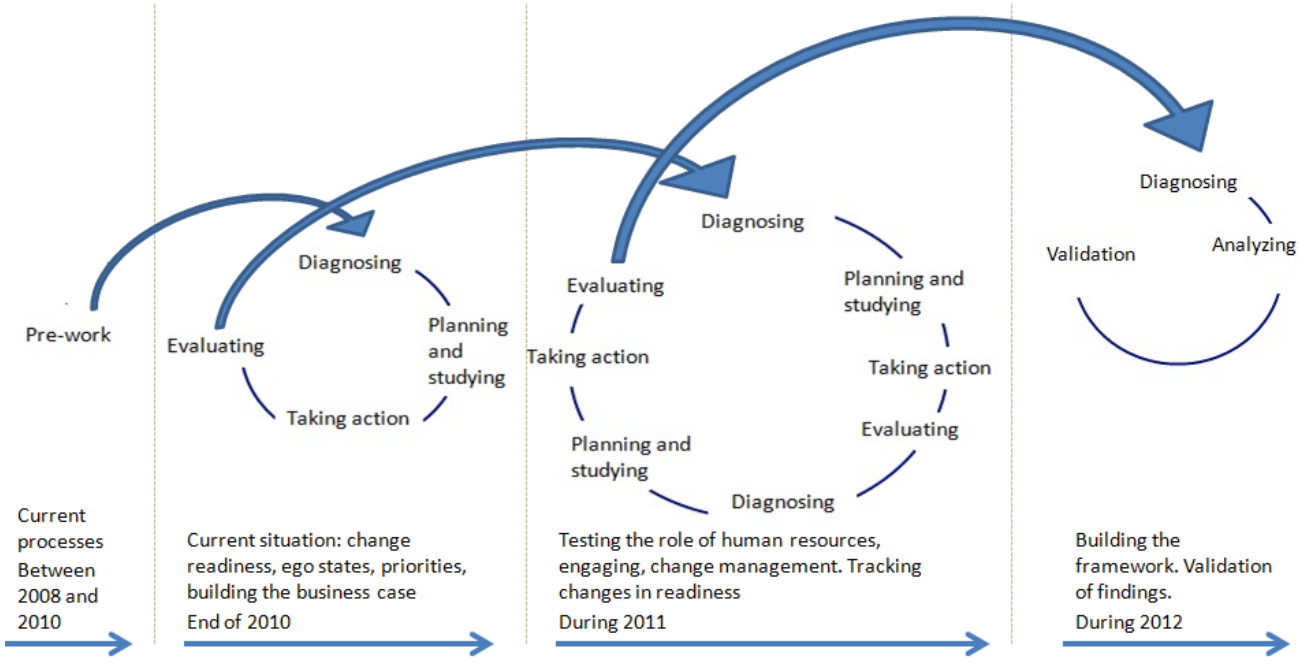


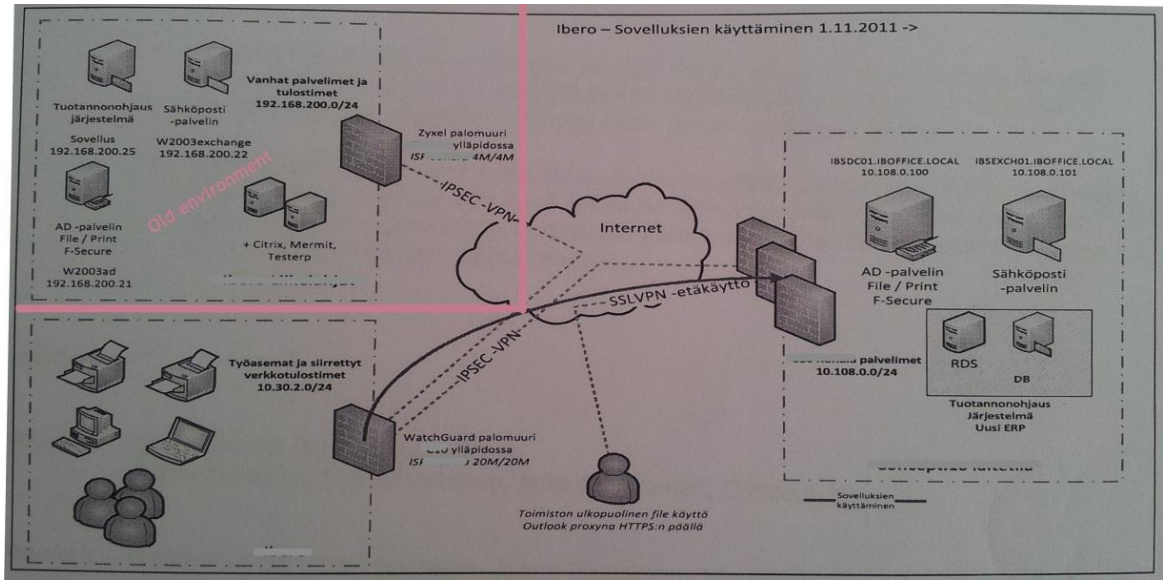
Figure 1: Process of the study

The underlining research question is can obstacles in the implementations of ICT tools be resolved by engaging people. An ICT implementation can fail for numerous reasons, projects are prolonged and budgets are exceeded, thus I wanted to know, if there is a link between strategic decision making, communication, human resources, change management and project management phases. In my own experience, implementation projects are run as ICT projects with clear beginnings and end-dates and they are considered successful when the technical processes are finalized. As an end-result the employees, who are then left with the new tools, are often forgotten and the true return on investment is left uncovered. In my opinion the true return on investment comes from renewed processes, which help the employees to be more productive, innovative and happy with their work. Failure in ensuring those leads to frustration and sometimes even hatred towards ICT tools and especially implementation projects. My motivation for the study comes from the need to help companies to improve their employee satisfaction during these projects thus affecting the true outcome of the implementation.

1.2 The case study company

The case study was made for a small Finnish wholesale company importing goods mainly from the Far East countries and selling to the central businesses in grocery and clothing businesses in Finland, The Baltics and Russia. Due to the customer requirements the need to comply with efficient technological and logistical tools and processes is a must and the company CEO often said that these ICT implementations have made their success possible. The information between the Case Study Company and customers flows mainly via Electronical Data Interchanges (EDIs) and the ERP (Enterprise Resource Planning) system needs to be able to manage the messages. The ERP system used by the company is Digia Enterprise and the customers use mainly SAP. In the beginning of the case project the ERP was running on its own server at the company's site and e-mails were on the same servers. The servers were 7 and 5 years old, out of warranties and rapidly running out of memory space. In addition their technical characteristics were from the year 2000 and the staff was not able to use, for example, mobile e-mails.

During the project the Exchange server for e-mails, as well as the ERP server were outsourced and their operating systems updated to the 2010 versions. At the same time Office 2003 was updated to 2010. The main issues, which was the ERP update from version 4.0 to 4.6 was thus extended to cover all of the tools used by the whole staff.



Source: Project documentation (classified)

Figure 2: Changes in the technical environment at the case company

The company employs approximately 25 people at the office and two area managers traveling around Finland and unable to log into the ERP due to missing mobile solutions. Most of the staff has been working there for tens of years and the company culture and underlying values and assumptions run deep. To further enhance the effects of the assumptions and values, the staff is not highly trained. They have been promoted to positions in director or managerial levels based on good behavior and activeness but they do not have formal training from universities or other upper level institutions. This environment is really difficult for any technological change, because the people's ability to do their job depends on their ability to use the tools they've been given and they rely on the inputs and outputs from the ERP system. The processes of the company are not designed based on best practices from the business point of view but from the ERP system point of view. In this kind of environment, the change of a button's place on a screen causes an immediate negative reaction from the person using the computer.

We have now concluded that the company relies heavily on technological processes and interchanges and this is the bases of their success. On the other hand their technical environment was not up to the task or date. At the same time, the staff is as good as their tools and systems, because their professionalism is based on them. This set-up is really good for a study of an implementation from the employees' point of view: the staff is working with their hearts and emotions, and people tell openly, how they feel. The immediate reactions are true and not clouded by theoretical knowledge on the subject. Even if this kind of working environment has its problems, it was an ideal environment for the study.

1.3 Researcher's background

This is my first case study and the first time for building a new theoretical and working framework. However, I do have experience in extensive Action Research covering every function of the case study company and from Appreciative Inquiry and Knowing-Doing-Gap as project work. I have also 4 years of experience of practical process and business development.

My strengths as a researcher are in analytical thinking and, on the other hand, creativity in interpreting the findings. I have previously worked as a demand planner and a controller both of which feed on quantitative analytics and continuous improvement. In light of the study, most of my experience comes from the ICT implementation projects themselves. Before the case study project, I had worked on various roles from an employee to main user and project manager on the following implementations:

1. ERP: ASW (2003)
2. ERP module: ASW Inventory Control (2005)
3. ERP module: SAP Advanced Planner and Optimizer (2006)
4. Extranet (2010)
5. Connexor data mining tool (2011)

Most of these implementations did not go as planned, which is why I wanted to build a new framework, which would take the users into consideration. The projects may have

been run according to project management procedures but my experience is that the end users, for whom the implementations are made, feel left outside and/or unheard. At least my enthusiasms could have been used to strengthen the project's progress every time.

1.4 The target company: Sofigate

The findings of the study will be applied by Sofigate, which is a leading ICT management and development company. Unlike most other ICT companies, Sofigate is not concentrating on selling, marketing and implementing a certain tool or system but focuses on holistic services and solutions in fields of strategy, projects, services and sourcing.

Sofigate employs over a hundred employees in Otaniemi and have offices in Tampere and Oulu as well. The company is also growing into international markets and the new human resources and Change Management framework will help in creating an internationally uniformed way to manage implementations.

The employees at Sofigate are highly trained experts with many years of experience in ICT or business management. The person working closely in the validation of the concluding framework, Ms. Salmi, has extensive experience in different organizations such as 12 years in project management, 4 years in knowledge management and 5 years as head of information services. Sofigate is currently penetrating the SME –market with a new Hybrid Service®, which means that the processes and governance methods they have used with the large companies may not apply. This study and the findings will help the company maintain its good track record and customer satisfaction with the smaller companies. With this study I aim to share my knowledge with my new co-workers.

The ICT Standard for Management

In addition to providing a wide variety of services, Sofigate has developed a widely known and used ICT Standard for Management. The standard is free to use and tar-

geted for anyone responsible for ICT management or anything related. The guide is available in print but also on-line at www.ictstandard.org. The Standard is being reviewed and improved continuously by a review group on the Standard Forum and the findings of my study are aimed to be an addition to it. The Standard consists of four functions aligned together and the findings of my study are aimed to deepen the understanding in human resources and Change Management issues related to Project Management, but it also has strong links to Strategy and Governance.

Source: (ICT Standard Forum)

Figure 3: Four functions in The ICT Standard for Management

2 Needs and objectives

The idea for the study comes from a common need in SMEs: IT tools are not properly implemented and utilized, which creates frustration and scarcity of new implementations. The case study company is one of these companies and the basic problems laid in the lack of ICT strategy, understanding of business architecture and how IT should be used to support different business functions. Often, as also in the case study company, the IT manager is missing completely and employees try to manage on their own. Even if there is an IT manager, his or hers role is rarely to lead innovations and change but merely to buy the tools and help in their set-up. Luckily, companies like Sofigate can provide overall and holistic aid in these issues, but in the case of the case study company, this kind of aid was not even considered. There are numerous reasons for this ranging from costs to availability for SMEs, but in the case study company the reason was total lack of trust towards any ICT professionals.

This kind of environment feeds frustration towards any ICT tool as their implementation is not taken far enough, the reasons for the implementations are not strategically justified and/or communicated properly and the projects are somewhat clouded by fear. Simultaneously the return of investment remains low or not calculated at all (ISO/IEC 2008) and the tools are not utilized to their full capacity. The result of this is a question of who is waging the tail: ICT or people (Ruponen 2010) and in utter anger towards the tools (Järjestelmäpainajainen 2010).

The effects can be seen even in work satisfaction surveys. In the latest one from the case study company the outcome was that people would be 20% more efficient, if they had the working tools and/or more training in utilizing them. The dilemma arises when the directors and managers do not believe in the investments as the projects have failed too many times. This may result in lack of funding for the projects, which is what almost happened in the case study project. Even though, these thoughts are not generalizable, they are backed up by for example Accenture's director Hakala, who stated that the role of IT managers is quickly changing from the traditional IT to managing innovations and change. (Hakala 2010) He says that when these tools are imple-

mented companies needs to think the whole structure of their operations. It is my experience that failure to do so creates only costs and the benefits of the new tools get buried under the frustration.

With the lack of good and innovative IT managers the SMEs will inevitably fall behind in progress (McCole, Morrow, Ponsonby & Kelly 2001). This will create more problems, as they will have trouble employing people, who are more and more used to, for example, mobile tools and consider them basic requirements. My study will work as an IT manager's guide in overcoming the common obstacles and how to make the most of the implementation thus, maybe, lowering the fence for future implementations. The suggested framework will shed light on the critical success factors from the employees' point of view.

3 Research problems and questions

When starting the study, I knew from my own experience, and from the discussions with everyone I knew, that most ICT implementations cause grief to the people involved as stakeholders. However, I did not know how to overcome the issues. The first thing was to identify problems, which significantly affect the overall outcome of the implementations. The reasons could be anything from an IT manager without the proper skills to manage the change, the strategy of the company not being in line with the chosen tool or the rigidity of the other tools and their incapability to form an automatic interface with the new tool. Most theories and standards indicate that it is because the emphasis of these projects is usually on IT, technology or scheduling aspects (Sofigate 2010; ISO/IEC 2008) rather than in business. Hence, I did not want to concentrate on project management alone, because I knew that that is not the main problem amongst the employees. I was able to identify, that the main issues were that the stakeholders felt like they had no say in the process and their concerns were not addressed. Based on theories and literature, I started to look for answers from human resources, talent and change management and started to build a new framework, which would intertwine these with Project Management disciplines.

Based on the literature I studied there is a relationship between a company's overall business strategy and their way of implementing ICT tools. In their paper, Business architecture: A new paradigm to relate business strategy to ICT Versteeg and Bouwman talk mainly about outsourcing ICT but the same theories can be applied to other ICT related improvements as well. According to them business architecture can play a significant role in translating the more overall business strategy to the ICT-domain and thus the way the whole organization is designed. They also go on saying that there are differences in the level at which the business processes are linked to the IT-functions/data and that that defines how jointly the ICT-supply is used. (Versteeg & Bouwman 2006) Taking this into consideration, the problem of the implementations may also lay in how widely they are jointly utilized. Tools designed for individual tasks may result in a jungle of programs with limited number of user and thus lower return on investment.

As it has become clear, there is no single reason to the failures of implementing ICT tools, I have to conclude that the issue cannot be solved simply by publishing guidelines to proper change management or project procedures. The aim of my study is, thus, to find linkages between strategy, project management, human resources, communication and change management and in the process finding answers to other smaller questions as well.

Table 1: Research questions in themes

Theme	Question
Main question	1. Is there a link between strategy, project management, human resources, communication and change management and which role to they play in the success of a successful ICT implementation?
Human Resources	2. How to embed employee engagement and organizational development in the original project plan or should they be?
Change Management	3. What is the role of an appropriate Change Management theory, or does it not matter? Do all of them work in all conditions?
Strategy, Human Resources	4. Who are the people or stakeholders, who need to be committed to the project and what kind of roles should each of them have?
Communication	5. What is the value of communication strategy? Is open and free communication good or should there be a structure?
Project Management	6. What is the basic knowledge and level of planning that must occur before the project starts?

Looking at those questions from the purchasers' point of view creates a good overall picture on how the tools should be implemented and how to make the most of them. In the end, the findings are generalizable in all companies of all sizes and locations. The study was done while learning new theories and implementing a new ERP at the same time, which made a fertile ground for a new and innovative approach.

4 Methodology and methods

A constructive approach action research within the realism paradigm is the method best suited for the purpose of this study. Realism is a scientific approach designed to develop new knowledge, but which admits that insufficiencies in the data and observations will affect the interpretation and conclusions of the research. (Saunders, Lewis & Thornhill 2009) The insufficiencies in this case study are that:

1. the data is limited to observing one company
2. the data is limited to observing one implementation albeit to fact that the implementation concerns the whole company
3. the data is gathered by one researcher

These insufficiencies are addressed with a secondary validation process with an interview with a long time expert in the field, but the original data will still have these limitations.

4.1 The constructive approach

The approach of the study is constructive as the aim is to build a new model for total project management embedded with disciplines from human resources and Change Management. Constructive approach is critical and is used to finding innovative and new constructions in business and technical research but it has been used for information technologies and even medical research (Rolin, Kakkuri-Knuuttila & Henttonen 2006). The nature of this approach is exploratory and I chose this approach, because it gave me leeway to be experimental and test the effects of different theories in action. The characteristics of a constructive approach are that:

1. the problem and the solution have practical implications
2. there is a connection to existing theories
3. the solution is tested in action and
4. the solution contributes to the existing theories

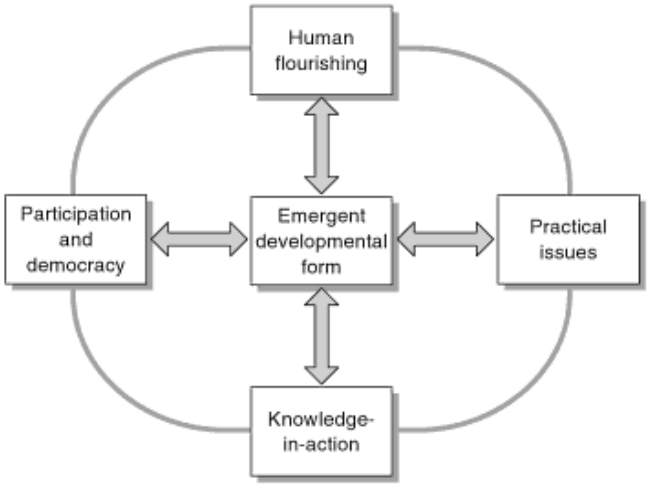
(Rolin, Kakkuri-Knuuttila & Henttonen 2006)

The approach recognizes that this type of research is time consuming but that the benefits come from careful, critical, holistic, practical, reliable and validated findings, which

aim to resolve difficult business problems. In order to gain the benefits, the research must be in intensive co-operation with the organization, maintain engagement and also approve that the new model may not resolve the problems or that the problem may resolve itself during the process. (Rolin, Kakkuri-Knuuttila & Henttonen 2006, Kasanen, Lukka & Siitonen 1991) In this case study intensity was gained automatically as I did the research while acting as the project manager for the implementation. Organizational engagement was achieved with continuous good results and I had enough time to gather and analyze the findings during the process. Had I not found the correct ingredients of the new model, the effects would have ranged from the study to the whole implementation, which would have affected the whole company significantly. Hence, I can say that failure was not an option, which forced me to remain very objective and problem-solving throughout the scope of the project and the study.

4.2 Action Research

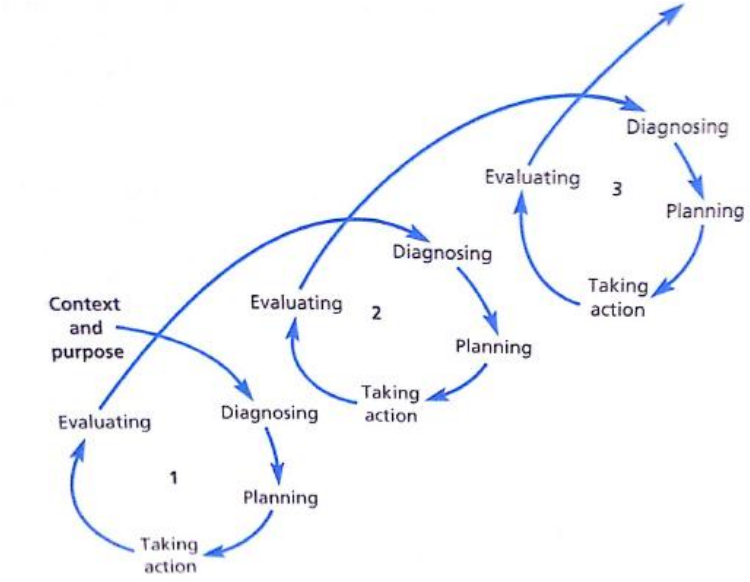
In action research the researcher becomes one of the subjects and learns together with the others. (Saunders, Lewis & Thornhill 2009) The process of AR is highly interactive and iterative, which is one of the strengths of the method. (Reason & Bradbury 2008) In AR the researchers gets to hear even the shyest personalities, which enhances the correctness of the study. The characteristics of action research are that democratic people can flourish together and solve practical issues creating knowledge in action (figure 4). To my study this is the correct method, because change management in implementing an ICT tool requires the understanding of everyone involved and the result can be the best possible only, if everyone is heard. In my experience the tools tend to be picked up by the people who speak the loudest and this also effects, how the implementation process is executed.



Source: (Reason & Bradbury 2008, 5)

Figure 4: Characteristics of Action Research

This study contains three AR cycles (figure 1) beginning with the initial research, building, creating and evaluating the suggested framework in-action and resulting in validation with an interview.



Source: (Saunders, Lewis, & Thornhill 2009, 148)

Figure 5: Action Research cycles

In the first cycle the purpose of the study and the current situation was diagnosed based on discussions, shared feelings and other barely unnoticeable signals such as used words, sighs and looks. Based on these the initial plan was finalized and I knew roughly, which elements would play a role and could start researching on the subjects. During the second phase the new theories were tested and continuously evaluated in

action while participating in the project. In the third phase the findings of the study were diagnosed and an additional interview was made to validate the findings.

Action research is doing research with people (Reason & Bradbury 2008; Saunders, Lewis & Thornhill 2009), which in this kind of study gives much needed inside information into what effects the stakeholders feelings towards the implementation. However, the method is not problem-free and they scale from point of entry to the analyzing of the data. One of the issues with the method is that without gaining the trust of the subjects the research loses vital factors of reliability. (Saunders, Lewis & Thornhill 2009) In this case study this was not an issue as I had been working with the company for years and proven my capabilities many times. Another problem may be that the volume of the data becomes a constraint, if not enough time is given to its analyzing. (Reason & Bradbury 2008) This risk was minimized by extending my studies with additional few months.

4.3 Case study and participant observation

A case study investigates current, on-going phenomenon (Woodside & Wilson 2003) in real life. The method has been criticized for being subjective only to the current issue and the one researcher and that the findings are not generalizable (ibid.) but with a mixed approach with other qualitative methods (Amaratunga, Baldry, Sarshar & Newton 2002), these issues may be overcome. Case study and especially participant observation is particularly effective, when the aim is to probe into issues occurring randomly and unrelated to each other. One of its characteristics is that the situation may not be replicable (Woodside & Wilson 2003): this affects the possibilities to validate the findings but on the other hand, gives a possibility to research one-time issues such as an ERP implementation.

Another weakness of the method is researcher bias, where the beliefs and previous experiences of the researches drive the results (ibid.). This may be true in many cases but in this one it was only a good thing that:

- I had very little experience in the research method and

- no previous knowledge about how employees act, when directed with human resources and Change Management procedures.

This helped me to keep an open-minded view about the arising phenomenon.

In a participant observation –method the researcher becomes a part of the process. In this case study this approach was logical as I was also the project manager and in charge of the whole implementation. The approach is good for studying people experiences and feelings towards issues and finding out *what is going on* in a social situation (Saunders, Lewis & Thornhill 2009).

In this case study I was a complete participant, which has been criticized for lack of detached perspective (ibid.). However, in order to get to the root of the issues, I had to be very close to everyone within the company. Also, in this case I was personally responsible of carrying the project through, so the role was self-evident. I did not find any issues with being too close to the people and in fact that was the only way I could really *sense*, if they were satisfied. This gave me a possibility to gather the data as primary observations, which I wrote down or gathered continuously.

Analyzing the gained data while implementing the ERP and gathering more related theories was the most challenging part of the case study. I had been working for the company for approximately 3 years before the project begun, so I had knowledge about which parts had failed in the previous implementation, but even so, new issues occurred. Hence, I had to be continuously ready to review my previous knowledge and find new problem solving solutions. I overcome these issues by continuously creating new hypothesis and testing them with the change agents before taking action with the rest of the organization. Because of this method, the suggested framework is highly subjective to my ability to think theoretically and find possibilities within the theories. I realize that there may be dark spots, which could have been overlooked or handled differently, but in this particular case, my findings and actions led to the successful on-time implementation for the first time in the company's history. In this case the taken action was enough. The suggested framework needs to be tested further to make it valid for different kinds of organizations and to diminish my researcher bias (ibid.).

4.4 Interview

The triangulation of the case study was done with an interview with an expert sofigator. This process aims to validate my study findings and also deepen my knowledge about the subject: it is highly possible that a person who has worked in the field for years can contribute to the suggested framework or at least give tips for further research. The process also gave me a chance to let people know about my findings on the subject and thus spread knowledge.

The interview was conducted with focused main questions (Rubin & Rubin 2005) at the Sofigate's office in Otaniemi. I was able use straight forward focused questions, because the interviewee, Ms. Salmi, had a chance to read the case study story beforehand: she knew the surroundings in which the study was done and could hence emphasize with the situation. The questions were 2-part questions and could evolve during the interview, which makes them semi-structured (Saunders, Lewis & Thornhill 2009). Because the interview was done for validation purposes, I had to be specific about what is needed of the answer but I also needed to give the interviewees enough space to tell their own stories (Rubin & Rubin 2005). With this method I was able to probe the interviewee's answers in order to get a more in-depth understanding of his/hers answers and also allow them to "think out loud" (Saunders, Lewis & Thornhill 2009).

The questions asked were mostly open-ended following the chronological order of the case study and the interview was recorded and the transcript validated by Ms. Salmi. The questions included:

1. What do you think of the case study in your own words?
    a. Have you come across similar situations in your own career?
2. Now that you are familiar with the case study, can you see yourself repeating the events in your cases?
    a. If no, which issues are subjective to this particular case?
    b. If yes, which parts in particular?
3. In the case study *knowing the people* involved played a big role. Would you do the same questionnaires to get to know your customer's staff?

    a. Is it important to know the people in your own opinion?
    b. Do sofigators have the possibility to go to these lengths at the customer's site?
        i. If no, what can we do?
        ii. If yes, will you use the method in your next case?
4. According to the findings, there is a clear link between human resources and change management issues and the success of an ICT project. Do you agree with the findings?
5. Do you agree with the built framework and would you use it to guide you next project?

(Source: Appendix 5)

There are many potential pitfalls in doing interviews with strangers (which sofigators are, because I have just started to work there). These problems include lack of trust, time and common language but in this case the most likely problems were related to elite bias and me constructing the knowledge (Myers 2009). It is possible that the sofigators could not identify with the case study environment but rather gave replies based on their own experience, which would then make the study look unreliable. This was tackled with the first question and probing how they see the situation in their own words. The other problem relates to me being objective enough not to interfere with the subjects' replies. Having lived and experienced the case study strongly may affect my ability to talk about it with an outsider. The possibility of this is quite minimal, though, because I and the interviewees all work for Sofigate and we have a common goal of improving our customer satisfaction with the SMEs.

4.5 Reliability and validity

As my study problem has complex interdependencies, which cannot be measured by numbers, a qualitative method is required in order to get a deep understanding. Out of qualitative methods I chose a participant observation case study action research, because that allows me to study all of the subjects in their own comfortable surroundings. Realism is the correct paradigm, because I am trying to find a theory or similarities within behavior in predetermined conditions of implementing an ICT tool. The case

study is my instrument, with which I am trying to understand abstract things coming out of peoples' minds (Healy & Perry 2000); what makes them feel the most comfortable in a changing situation. The suggested framework was built from many separate theories, which makes the approach constructive.

The reliability of the initial action research was validated with an interview with an expert of the field. This brought a new cycle to the action research and enabled triangulation with two experts. This brought external reliability and validity to the research and the findings making it more generalizable than as a simple case study. The goal of any interview is to see the topic from other people's point of view (Amaratunga, Baldry, Sarshar & Newton 2002) and it was particularly good in this case as the study needs to be tested in as many surroundings as possible in order to gain internal validity as well. In the case study the internal validity is threaten by the fact that all of the subjects gain new abilities during the project: if this internal growth is strong people may react differently in the beginning and the end of the study simply due to new ways of looking at the surrounding world. Because the case study was made in a working environment where people gain new knowledge daily, the internal validity is not strong and the study should be tested repeatedly in order to increase the validity of the whole framework.

I am fairly new to the subject myself; hence my own experiences do not affect the findings and I do not have prejudice about how I think the people will act. Using action research as the initial study method also minimized the risk of my views affecting the findings as the subjects live the process with me. The reliability of the findings will be further discussed after the findings have been introduced.

5 Applied theories

The purpose of this study is to find and create links between existing theories in Project management and ICT strategies, human resources, Change Management and communication. In the process the aim is to create a new framework, which will guide organization through different ICT implementations. The theories and their relevant disciplines were not picked before the study but rather the need to include them was identified during the process. In the beginning, there was a need for the study, as based on personal experience and discussions with colleagues ICT implementations were not pleasant, and in the end the study revealed that in order to overcome the obstacles, the five different functions need to work together agile.

I am looking at these theories form the case study's point of view, which is why some aspects of them are left untouched. For example, In ICT strategy and management these areas include sourcing and vendor management, in project management I have only discussed the PMBOK approach not going into more detailed level with the agile approaches and in human resources I did not need to touch the subjects of recruitment or determining salaries. The theories were approached from an ICT implementation project point of view in which the people are from the case company and are surrounded by their everyday working environment.

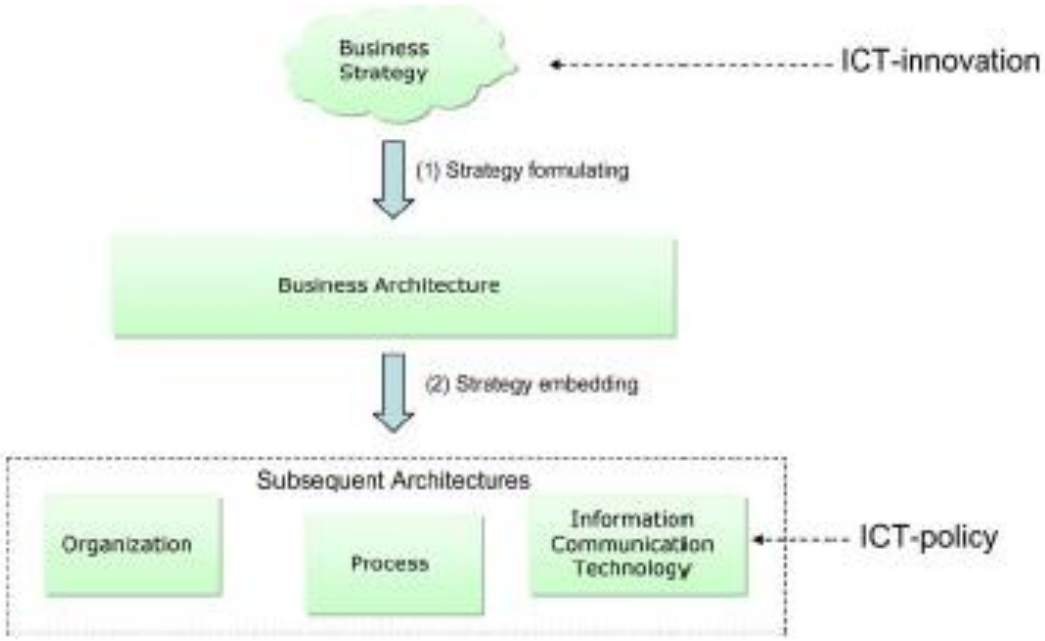
5.1 ICT Strategy, governance and management

A well working ICT strategy is in line with the company's business strategy and helps to align the needs and objectives of business, technological advances, efficiency and employees (Sofigate 2010; Versteeg & Bouwman 2006; ISO/IEC 2008). The role of ICT management is to

- understand business needs coming from the owners and directors,
- understand the needs of employees and to provide them with the correct tools and training and
- communicate the possibilities arising from new technological advancements to both parties.

Source: (Sofigate 2010)

Due to this multilayer structure, business alignment is crucial. In the Sofigate's standard the alignment is a goal-oriented and formalized co-operation, which runs through top-management and all operations (Figure 3) and in the Versteeg's and Bowman's Business architecture –model, the alignment is a completely new layer in the organization. In this model, the company's business strategy is transformed into functions in the architecture layer linking it tightly together with the organization, processes and ICT policies.

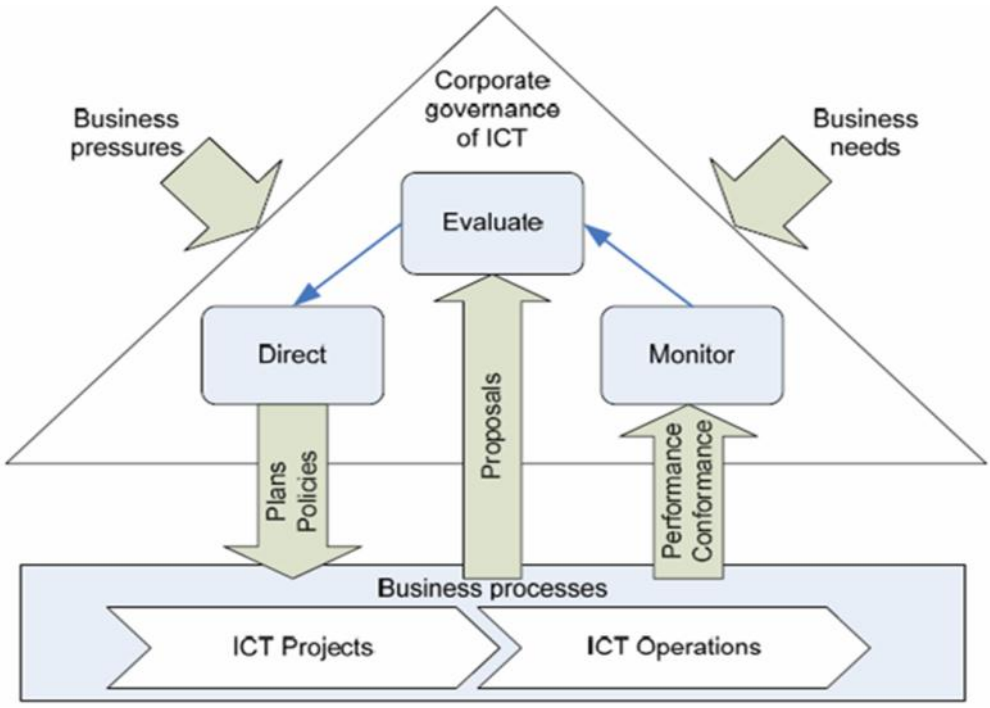


Source: (Versteeg & Bouwman 2006, 93)

Figure 6: Business architecture –model

Both of these ways to picture ICT emphasize the importance of ICT management as a function and help understand why ICT management needs to be separated from the formal company hierarchy. In many cases the reality is, that changes in the company strategy trigger ICT implementations or that new tools are implemented without a proper business need and both of these extremes lead to an unnecessarily messy ICT domain. If ICT managers are seen as only guardians for an ICT policy, they cannot influence the ICT innovations. Therefore, it is crucial that a company has an ICT strategy, which transforms business strategies into action and validates employee needs against the business strategy.

A third way to see ICT management is a body handling the pressures from employee and business needs, like in the ISO 38500 standard.



Source: (ISO/IEC 2008, 7)

Figure 7: Corporate governance based on ISO 38500

In this standard ICT management is seen as monitoring, evaluating and directing body, which handles business needs, pressures and proposals from business processes point of view. This model takes into consideration that the driver for change may come from three different directions.

5.2 People in ICT Strategy

To take the strategy into a more practical level the ICT standard talks about partners in business alignment, steering comities and management team (Sofigate 2010). Versteeg and Bowman again discuss responsibility over business functions (Versteeg & Bouwman 2006). On top of these, change management theories talk about change agents (Senior & Swailes 2010). I will go deeper into the subject of change agents in the Change Management section as the theory applies in any change situation, but in a case of an ICT implementation, and especially in the case study company, the change agents

can be seen as ICT business partners. In a bigger company, an implementation project may have different people as manager and change agents, but in small companies the same people do the steering, changing and use the tools. In the ICT standard, the people in the alignment are managers, who are chosen by the directors and they control the ICT function. In addition other supervisors and managers may be involved in projects and there can be other steering comities, where other stakeholders get heard (Sofigate 2010).

In the Business architecture –model the people in charge are responsible of business functions. This difference means that an implementation project may be performed together with ICT managers and people responsible for using the tools in real life, if they have been named as responsible of the process. (Versteeg & Bouwman 2006) The difference in the models is in the hierarchical position of the people involved, but which one to choose is subjective to a company's current situation. In both cases the people are permanent parties of the ICT management.

In the case study company the selection of people involved was made for the individual project but the selections were, none the less, made partly according to the above mentioned standards and partly based on their natural characteristics. The most important functions of these people is to be accountable for the area they represent regardless of the organizational hierarchy (Versteeg & Bouwman 2006; ISO/IEC 2008), set up objectives, measures and follow-up (Sofigate 2010, Versteeg & Bouwman 2006, ISO/IEC 2008), develop new concepts to improve performance (ibid.), manage the projects (Sofigate 2010) and support business continuity and continuous improvement (Sofigate 2010; Versteeg & Bouwman 2006).

In both The ICT Standard and the Business architecture model the starting point is a customer need as the projects are strategically validated. Hence, the people involved in ICT management must understand the business related needs of the customers but, on the other hand, also the ICT supplier's needs and objectives regardless of the level of outsourcing. The governance of the ICT management should be in the hands of the

directors as they are responsible for the overall performance of the company and the alignment of principles and approaches (Sofigate 2010).

In an ICT implementation one of the key issues is competence development. It is inevitable, when people learn new skills, ways to do things and ways to approach their tasks. The business architecture –model does not touch the subject individually but embeds it into organizational functions (Versteeg & Bouwman 2006), whereas the ICT standard names it as one of the main functions of governance (Sofigate 2010). The standard mentions that competences should be developed in line with the ICT strategy and targets and that these measures will also guide future recruitments and possible outsourcing. (ibid.) In an ICT implementation, based on the direction the company is going, people will need different kinds of skills from leadership to more technically oriented data management. ISO 38500 standard, however, dedicates a complete principle for human behavioral issues stating that policies, practices and decisions should demonstrate respect for the evolving needs of "people in the process" and that directors should monitor practices and peoples' use of IT tools. (ISO/IEC 2008) However, all of these theories lack concrete advice in *how to* achieve these and *to know what's needed.*

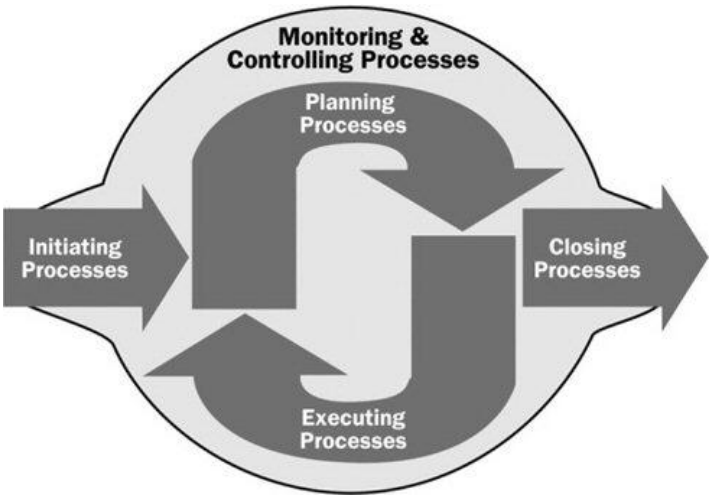
5.3 Project management

All project management theories begin with an initial process, where the project is validated and justified with other business partners. (Project Management Institute 2008) (IGC 2009) A definition of a process is that it is a temporary organization, which serves as a means to deliver a change in a business case. (IGC 2009) There are many ways to deliver a project depending on the business case and picking the right theory is important. In recent years agile methods have taken ground from the more traditional ones due to their ability to adapt in high pace projects such as game development (CC Pace Systems 2003-2011), but in an ERP implementation the PMBOK approach is still advisable due to its capability to take every aspect into account.

PMBOK or the traditional waterfall method relies on furious planning ahead. The method has nine bodies of knowledge, which need to be taken into consideration with each step of each project. According to PMI (2008) The bodies of knowledge are:

1 Integration to current procedures	6 Human resources
2 Scope	7 Communication
3 Time	8 Risks
4 Costs	9 Procurement
5 Quality	

When all of these are analyzed, planned, documented and scheduled beforehand, the project has very little room to change. If it does, the planning must start from the beginning, leading into a continuous cycle of planning instead of executing the duties.



Source: (Project Management Institute 2008, 40)

Figure 8: Project management phases (traditional)

Traditionally the project has one scheduled Gantt chart indicating, which tasks to perform and in which order. This causes problems, if any of the parts fail to be ready for

any reason and is the main reason for criticism (CC Pace Systems 2003-2011). With the more agile methods the phases are replaced with *lighter* rules and

- initiating becomes giving a guiding vision,
- planning becomes teamwork and collaboration and in some cases autonomy,
- monitoring is cherishing open information,
- controlling is a mixture of simple rules and light controlling and
- closing the project becomes agile vigilance and ability to adapt.
  Sources: (Project Management Institute 2008; CC Pace Systems 2003-2011)

In the case study project the bodies of knowledge (BOK) were adopted from PMBOK and the knowledge areas were analyzed for each subproject. However, there was no predetermined list of work to do, individual deadlines or any other rigid procedures, which are usually linked with the traditional waterfall method. In this sense, the case study's approach was a mixture of PMBOK and freedom from agile methods and the integrated Gantt lived according to specific needs.

Human Resources in PMBOK

Because the study is about the role of human resources and change management, I will go deeper into this subject within project management. PMBOK covers the issue as a separate body of knowledge, but going through it reveals that they are meant for the projects internal use and not for all of the stakeholders.

The PMBOK approach to human resources is that there should be a human resources plan and that a project team should be acquired, developed and managed. The human resources plan should be made based on the requirements of the project, the working environment of the company (human and market conditions) and which processes the project touches. After acquiring the correct people, responsibilities and tasks are divided in a RACI format, which comes from the words Responsible, Accountable, Consult and Inform. (Project Management Institute 2008) The theory is that each person has their own set of tasks, but that they also need to be aware of other people's actions. PMBOK indicates that other stakeholders could be managed with the same theory, but

does not embed it into the concept of project management. (ibid.) This is a shame, because the theory is quite handy in other situation, too.

RACI Chart	Person				
Activity	Ann	Ben	Carlos	Dina	Ed
Define	A	R	I	I	I
Design	I	A	R	C	C
Develop	I	A	R	C	C
Test	A	I	I	R	I

R = Responsible A = Accountable C = Consult I = Inform

Source: (Project Management Institute 2008, 221)

Figure 9: An example of a RACI format

In picking the correct people on to the project team PMBOK emphasizes leadership and influencing skills and the ability to make decision effectively. On the case study I chose the people based on a mixture of change management and business architecture approaches, not forgetting the value of great leadership skills.

5.4 Human Resources

As a basic business function, human resources mean

- securing resources with strategically justified recruitments,
- managing compensating (paying wages, taxes and report creation),
- managing conformity with laws and common agreements,
- managing talent, learning and performance and
- managing relationships and participation.

Source: (Beardwell & Claydon 2010)

Most companies have a department or dedicated people doing this and they are involved in each step in each employee's career.

In spite of understanding that human resources is a holistic function and that human resources managers have a big role in securing a company's efficiency and competitiveness (Recruitment and retention in SMEs: Problems of HRD facing Finland's small firms 2007) an ERP project is usually run with project management rules and cycles without the involvement of human resources. In bigger companies human resource development may be involved but especially smaller companies lack this dimension (ibid.) even though "changes in technology have a direct impact on human resource issues" (McCole, Morrow, Ponsonby & Kelly 2001). Personally I have been involved in implementation in global leading employers with 70 000 employees as well as small 20 people SME's and have never been approached by human resources. Not even when my tasks have changed from purchasing to negotiating sales budgets with customers in one implementation.

It is also widely acknowledged that human resource development has a big role in retaining current staff and also maintaining resources for future projects: people value possibilities to develop themselves and increase their human capital. (Caravan, Morley, Gunnigle & Collins 2001) Yet, during this research I was not able to find any books that would link these issues together in effective project management or ICT implementations and publications in journals were equally scarce. The widely used project management approaches, PMBOK and Prince2 say next to nothing about human resources and Communication: PMBOK touches these subjects, but merely from the projects internal point of view. Even though people say "...people-oriented factors have gained focus in project management..." (Toor 2008), the practical ways to do it seem to go unpublished. This new framework aims to fill that gap.

Furthermore, the literature showed that human resources and Change Management are usually seen as part of overall governance or the responsibility of line managers or consultants *after* the project is finished. (ICT Standard Forum; Project Management Institute 2008; IGC 2009) This may be true in episodic changes, which are dictated by the directors or the organization, but in an ERP situation, the need may come from the bottom-up. This was the case in the case study, too. In these situations the employees

are more significant stakeholders than the top-management and directors and hence their needs come first. This can be achieved with the suggested framework.

5.4.1 The dynamics, which run the employees

The dynamics, which run a company's employees, revolve around basic functions, tasks, feelings, organizational structures and leadership issues (Kallasvuo, Koski, Kyrönseppä & Kärkkäinen 2012). In the case study company these issues are particularly meaningful, because the careers are long and the dynamics have deep roots. For a thorough ERP project these dynamics may cause problems as a new system and a way of doing things affects each tentacle. A new ERP

- changes basic functions and the way tasks are done,
- causes emotional stress as for a while, people feel incapable of performing their duties,
- may change organizational structures via automation or changes in processes and
- changes leadership structures as, for a while, people directly involved with the project lead the organization regardless of their status in daily routines.

The changes in leadership are particularly noticeable if the project includes resourcing from outside the company. In case of Sofigate, this is always an issue and each sofigator should be aware of this dynamic.

In the case study company the most demanding dynamic is the relationship the employees have with their basic tasks. People form an emotional bond with the tasks, because they have either done them for a long time, studied for them and/or are otherwise deeply engaged with them (ibid.). When an organization and its processes are led by the ERP, an update to it causes an immediate negative reaction. The reaction is a basic defense mechanism, which emerges unconsciously due to the emotional bonds (ibid.) as all of a sudden a known, self-evident task becomes new. In the case study company the staff is not highly trained on a theoretical level, which means that the bonds are with the ERP tasks rather than with the function itself. I can best describe the situation with an example of a marketing manager: the marketing manager of the

company is the one, who knows how to use Photoshop, regardless of complete lack of an education in marketing as a job or a business function.

5.4.2 The international challenges

The case study is done in a Finnish company, but as the suggested framework can be used in an international environment as well, cross-cultural challenges need to be addressed. In a theoretical situation the company would have implemented the new version of the ERP in other countries, too. In this case the suggested framework would have been used in each country but the evaluations and timing would have had to be made individually. The suggested framework works in different cultures, because the bases of it is in individual evaluation but the communication strategy would have to vary with for example people coming from the individualized U.S. or the centrally led Germany (Beardwell & Claydon 2010). Different cultures appreciate different approached, which is why an implementation process cannot be the same in each.

Organizations have formal and informal layers and leading an ERP implementation has tentacles in the informal structures. Thus leading the change does not happen by setting goals, communicating strategy and managing financial resources, it has to be led by touching the organizations underlying values, norms and office politics. National culture issues play a role when the project is taken to countries where power distance, individualism, masculinity and long-term orientation vary, but the biggest difficulties arise from what lies underneath. (Senior & Swailes 2010) I will discuss these in chapter 5.5 Change Management.

Another issue to consider is the conformity of the chosen ERP to the culture it is being implemented to. This is also one of the issues, which, in my opinion, lacks a theoretical framework. Minna Kamppuri from University of Eastern Finland addressed the issue in her Academic Dissertation *Theoretical and methodological challenges of cross-cultural interaction design* (2011)by saying that the ways in which people view, adopt and use technology needs to be considered already in the design phase of the tool. I will not go to details about the necessity of the designer to be aware of their and the users ethnocentric thinking, but from the project's success point of view, the tool would need to

be picked, so that everyone within the organization would feel comfortable using it. In this particular case these issues were irrelevant, because the ERP itself did not change; it was only updated.

5.5 Change Management

Change Management is a broad discipline the theories of which should be applied to any situation from employing a new person to changing the strategic direction of the company. The approach to change may be economical or for developing the organizational capabilities (Luecke 2003) and in an ERP implementation it is usually both. From an ERP implementation's point of view the necessary topics to consider are:

1. the target of the change (process, task, organization or something else),
2. the direction of the change (top-down or bottom-up),
3. type of change
4. cultural issues
5. picking the appropriate change theory based on the answers to the above,
6. selection of change agents and
7. measuring organizational readiness for change

In order to know, what is changing, the project team needs to either know the stakeholders thoroughly or ask. An ERP implementation brings about technological changes, which always has human resources related impacts for people individually (McCole, Morrow, Ponsonby, & Kelly 2001) but also to the organization as a whole. In some ICT implementations this is limited to a smaller group of people (such as invoicing to financial and sales departments) but in a thorough ERP renewal the impacts affect everyone. Project managers may be narrow minded in their view and think that the change is happening on a process level, when in fact it may be a cultural change affecting the whole organization. This would be true especially when processes are automated, like when customer data is migrated from an external excel to a fully integrated CRM. Hence, the first Change Management related issue is to know, what is changing.

5.5.1 Selecting the appropriate theory

The direction of the change and the culture in which the change is happening play a significant role in picking the appropriate change management theory. A change can emerge from an outside source, be induced by the management or come from bottom-up, when employees demand new and improved tools (Senior & Swailes 2010) and these different situations require different approaches from the project team. The change can be continuous or episodic and the scope convergent or radical and all of these aspects require attention. (ibid.) In this case study the change was continuous and rather radical but due to the long implementation period, I was able to turn it into a convergent change. The implementation was done in two parts (servers and ERP) but the staff was trained continuously for a period of 7 months. For the staff the change was a transformation.

In a transition the company hierarchy should be kept as flat as possible (Luecke 2003), but the project manager still should not forget the existence of it. Even if the project is run with slightly different rules from the other daily routines, the routines are the reality for the staff; forgetting that nearly cost the success of the case study project, but luckily I was able to turn the situation around. In a bureaucratic organization roles form chains and people carry out duties accordingly and have impersonal relationships, whereas flatter organizations are more agile in decision making, have less corporate governance and an increased capability to utilize IT (Senior & Swailes 2010). The case study company seemed flat but the reality underneath was that only a few people had decision power. These internal cultural issues play a huge role in the success of any change and their importance has to be acknowledged. The way the company's structure has been drawn on paper does not mean that the company performs that way: ICT tools have improved the quality and quantity of available information (ibid.), which means that even the most hierarchical organization may be flat from its *information structures*.

As David Drennan says "Culture is ´how things are done around here´". It is what is typical of the organization, the habits, the prevailing attitudes and the grown-up pattern of accepted and expected behavior." (ibid.) It is therefore that the company culture is

the determinative issue in change situations. In multinational companies the country or region level culture plays a minor role and the companies own way of doing things is the dictating factor. The culture of the company plays such a big role that it should not be read from company's web site and taken for granted but actually measured and analyzed from the change's point of view (ibid.). The analysis is fairly easy as it can be done with seven questions, which test the person's way of doing things. These questions are rated with a scale from 1 to 5 and the results analyzed together, unit-by-unit (Luecke 2003) or even individually.

Table 2: Analyzing company culture

Innovation and risk taking	The degree to which I am innovative and take risks.
Attention to detail	The degree to which I exhibit precision, analysis and attention to detail.
Outcome orientation	The degree to which I focus on results or outcomes rather than on the techniques and processes used to achieve them.
People orientation	The degree to which I take into consideration the effects of our decisions or actions on people.
Team orientation	The degree to which I like activities to be organized around groups rather than individuals.
Aggression	The degree to which I am competitive rather than easy-going.
Stability	The degree to which my activities emphasize maintaining the status quo in contrast to growth.

Source: (Senior & Swailes 2010, 132)

When analyzing the results certain patterns start to emerge and it will also be easy to locate those people or groups of people, who are most likely to cause problems in the implementation. These people require more training than the others. The other thing directly affected by how people act, is picking the appropriate way to *lead* the change: the leadership style may be collaborative, communicative, directive or even coercive depending on the peoples' natural way of acting (Senior & Swailes 2010).

5.5.2 Change management theories

The field of organizational change is evolving rapidly and new theories and approaches emerge. In her Critical Review (2005) of Organizational Change Management theories Rune Todnem By identified the differences between 3 major change theories of the past years: Kanter's 10 commands from 1992, Kotter's 8 stages from 1996 and Luecke's 7 steps from 2003.

Table 3: Change management theories

Kanter's 10 commands 1992	**Kotter's 8 stages 1996**	**Luecke's 7 steps 2003**
1) Analyze the organization and need for change	1) Establish sense of urgency	1) Mobilize energy and gain commitment
2) Create a common vision /direction	2) Create a guiding coalition	2) Develop shared vision… of competitiveness
3) Separate from the past	3) Develop a vision	3) Identify leadership
4) Create sense of urgency	4) Communicate for buy-in	4) Focus on results
5) Take leadership	5) Empower action	5) Start change for bottom up
6) Gain political sponsors	6) Generate wins	6) Institutionalize success as policies
7) Plan implementation	7) Produce more change	7) Monitor and adjust the change process
8) Develop enabling structures	8) Anchor the new approaches	
9) Communicate		
10) Reinforce		

Source: (Todnem By 2005, 376)

The biggest revelation, in my opinion, is that during these ten years the world has changed from analyzing the need for change into thinking the change is a given. This is true and we all know it, but the people living the change situation may be from different backgrounds hence having different points of view about this. This is usually called resistance to change, but in my opinion it is just a difference in worldview. Another difference in the worldviews from the 90s to today, is that there's no need to separate from the past: the past is not an issue when the only constant is change. These issues should be addressed when developing a plan from employee development and are tasks for human resource development or unit managers and should not be embedded into the project manager's job description. However, dealing with SMEs, will also mean dealing with less staff to rely on and I am sure that the sofigators will be facing this dilemma.

When taking a deeper look at the content of the theories, I found that if I categorize the issues I was able to create a full comparison of between them. Based on table 4 there has been a strong shift from planning and preparing for the change on the top management level to following the results and creating the need for it on the lower levels. This suggests that the change itself has become a bigger part of the daily routine and managing it should no longer be done step by step from the top down.

Table 4: Differences in change management theories

Issue	**Kanter's 10 commands 1992**	**Kotter's 8 stages 1996**	**Luecke's 7 steps 2003**
Current state analyses	1) Analyze the organization and need for change	1) Establish sense of urgency	1) Mobilize energy and gain commitment
Creating a vision	2) Create a common vision /direction	3) Develop a vision	2) Develop shared vision... of competitiveness
Preparing for change	3) Separate from the past		
	4) Create sense of urgency		

Leadership of change	5) Take leadership		3) Identify leadership
Gather support	6) Gain political sponsors	2) Create a guiding coalition	
Planning for change	7) Plan implementation		
Empowering the change	8) Develop enabling structures	5) Empower action	
Communication	9) Communicate	4) Communicate for buy-in	
Integration into organization	10) Reinforce	8) Anchor the new approaches	6) Institutionalize success as policies
Rewarding		6) Generate wins	
Motivating		7) Produce more change	
Focus			4) Focus on results
The way of change			5) Start change for bottom up
Monitoring the change process			7) Monitor and adjust the change process

According to this categorization there is

1. no longer need to prepare for change
2. no need for the management to gather support, if the change is coming from bottom-up
3. the implementation plan is no longer a part of the theory, it is a part of the project plan (Luecke 2003)
4. no need to extra rewarding or motivating, if success has been institutionalized and held as a given; the rewarding system should be embedded into the normal routines (Luecke 2003)

5. a focus shift from planning and processing the episodic change to getting results and creating an ongoing change mentality.

At this point, I am not saying which one of the theories is better than the other, but in the beginning of my study I had to take into consideration that one of the points of failure may be that the theory and approach used to manage the change itself may not be suitable for the working environment at hand. For example, the top management may think that they are implementing episodic change, when the employees again feel that the change is just a continuation of other changes, resulting in a situation, where the management style of episodic change does not work. This revelation led me to forget about the most commonly used approach, Kotter's eight steps, and turn towards Luecke's seven. The employees in the case study company were the ones, who introduced the need for the change hence there was no need to *create a sense of urgency*. They were in transition.

5.5.3 Luecke's seven steps

One difference between Kotter and Luecke is the level of hierarchy; in Kotter's theory there's a leader and a coalition but Luecke talks about the need to reduce hierarchy before introducing the change (Luecke 2003). I agree with this, because it minimizes the risk of people not willing to take orders from someone they do not talk to on a daily bases. This issue should be considered when picking the change agents. It does not mean that the company should not have good and healthy leadership, but the people are more motivated, if they have a personal gain. (ibid.)

Luecke's seven steps have many similarities to the project management knowledge areas: Luecke also begins by creating energy and commitment though identifying the current business problem (integration to current procedures). This step gives the people a reason for the change, which makes all the next steps much easier. When it is done together with sharing a vision of gained competitiveness, there is no need for other reasoning or gathering coalitions: everyone is going for the same goal. Again this does not mean that a leader is not needed, it means that the leader's role is being a sponsor

and making sure the change is possible to accomplish rather than pushing it forwards from the top down. (ibid.)

Step 4 in Luecke's theory is to put emphasis on results rather than on action. This is a clear difference for Kotter's theory as there empowering action and creating short term wins have their own steps. Luecke puts emphasis on trusting people to do the work, if the focus is not on developing teams or giving instructions but on the result itself (ibid.). I agree with this put in an ERP implementation such leeway is a risky move, because the parameters and testing has to be done according to plans. On the other hand giving this freedom also institutionalizes success (step 6) as everyone gets to celebrate their own victories.

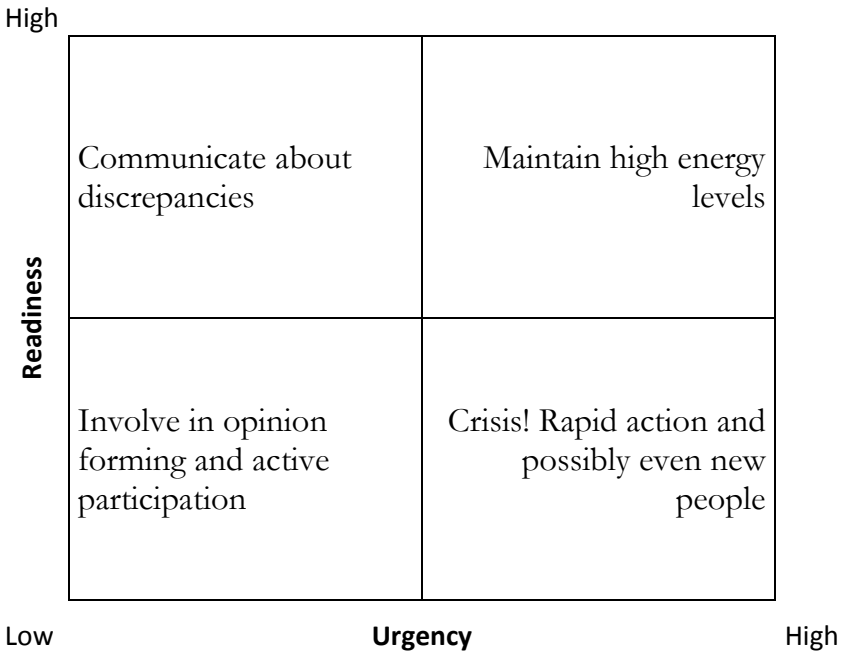
The final difference between Luecke and Kotter comes from making the change stick. Kotter's last step is to anchor the change (Kotter 1996) whereas Luecke's aim is to create continuous change (Luecke 2003). He does this by giving everyone the same goal and institution for success and a possibility to monitor the progress. In this case study this was achieved by creating tasks into outlook and giving everyone the rights to see those. This also gives a clear view into the change processes' development and gives the leader a good way to monitor the success and adjust quickly.

5.5.4 Readiness measurements

Analyzing the organization's readiness for change is important, because this has a direct effect on peoples' ability to act: when the staff readiness improves, the project has more possibilities to succeed. But even more importantly readiness for change affects the way situations should be communicated. When readiness increases the communication can be more activating and participatory whereas in low readiness/high urgency situations the company is in a crisis. (Senior & Swailes 2010) This theory has a direct link into picking the correct change agents: this should not be done based on the position in the organizational hierarchy but based on readiness for change. This way the project manager can get motivated and committed people on board and he/she can concentrate on taking the project forwards. If the change agents are wrong, then a

change in the project's governance will take more effort than necessary and the project will go from one crisis to another.

Table 5: Communication in ratio to readiness for change



Source: (Senior & Swailes 2010, 266-267)

The readiness for change can be measured with the same test, which was used to measure the organizational culture: the same issues measure the person's motivation to act in the changed situation and motivation again is a key to change (Luecke 2003). The tests should be done unit-by-unit (ibid.) or even individually depending on the size of the company. In the case study company I was able to take individual needs into consideration.

5.5.5 Calculating Return on Investment

Another measurement relevant to the study is the return on investment calculation, which may be limited to the actual purchase price of the tool and saved costs in other tools and/or time. The most basic function for calculating it is:

[(PAYBACK-INVESTMENT)/INVESTMENT] X 100

where the payback should be the added value in time and currency and the investment equally the price of the tool and the time used for the implementation and planning but the time is seldom taken into consideration. Even more seldom is the calculation used as tool to calculate the improvements which *should* be gained from the tool. This is common for Sofigate as well, whose best practice is to calculate the projects direct monetary affects instead of taking the deeper issues and indirect costs into consideration.

In the case study the approach to calculating the ROI was based on money and time saved by the new processes and/or reduction of other supportive tools, but we also gave emphasis to employee satisfaction and *how people feel, while working*. Therefore the study will shed some light on how to apply knowledge gained from ROI calculations in the implementation phase and as a tool to manage the resistance to change. As Luecke (2003, 19) says: "The motivation to change typically results from dissatisfaction with the current state and eagerness for something measurably better." Introducing the "measurably better" issues and the results (quantitative or qualitative) in the early stages of the implementation brings about the urgent willingness to thrive. In addition, these improvements should be considered as factors in defining the quality of the project: "Did we gain what we wished for?" should be asked together with the euro-calculations (Sofigate 2010) as sometimes the budget may be exceeded but a lot more was gained.

5.6 Communication

For communication PMBOK offers five good processes, which were also used in the case study. The processes are (Project Management Institute 2008):

1. Identify stakeholders
2. Plan communication
3. Distribute information
4. Manage expectations
5. Report performance

Identifying stakeholders may require in-depth knowledge of the company employees as identifying them from a process flowchart may be difficult. Key stakeholders are easier to locate as they are the ones responsible for the issues but the others should also be kept in the loop. These other interested people can be located based on interviews (ibid.) or also based on other firsthand knowledge such as analyzing personnel transfers, new processes or recruits. The third step in identifying stakeholders is identifying the way they're likely to react (ibid.); this was measured by analyzing the organizational culture.

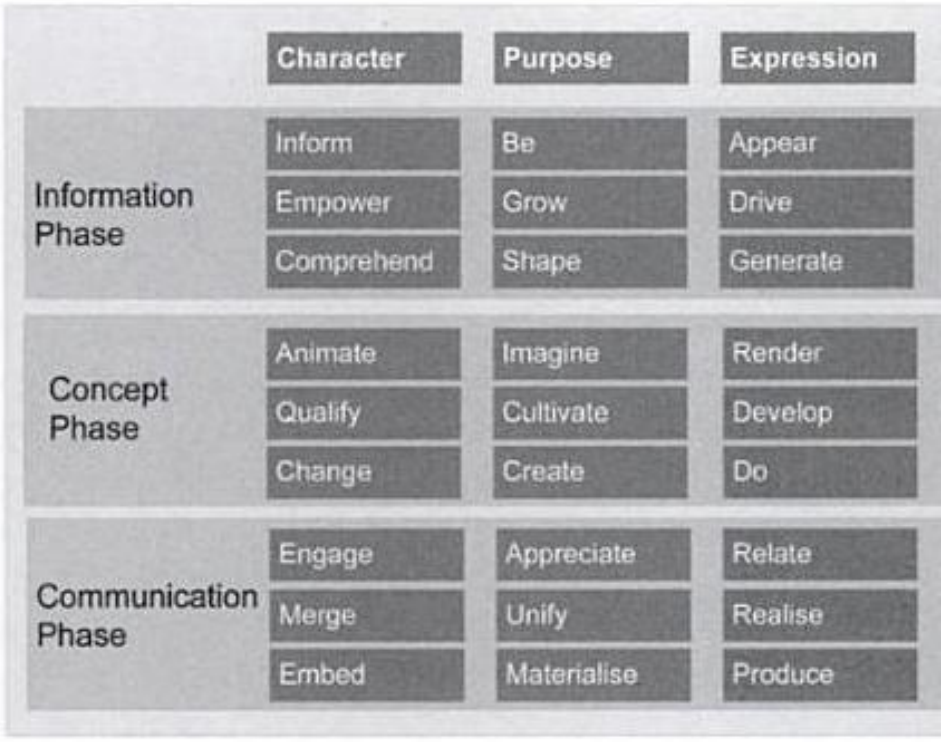
The communication plan should answer to questions (ibid.):

1. who needs
2. what information
3. when they need it
4. how it will be given and
5. by whom

It is rarely possible that each stakeholder can be reached with the same method as some need instructions in writing and some need face-to-face guidance, but the big picture should be planned and communicated to everyone. The distribution of information can be made in many ways from workshops to memos, but the main point is that the information can be reached by everyone at the same time. Change management addresses this issue from the organizational readiness point of view according to which the style of communication should change when the readiness increases or decreases (Senior & Swailes 2010).

PMBOK, or any other standard for that matter, does not shed light on *when to communicate* and it is usually said to be a subjective issue: something *you just need to know*. In the suggested framework, I approached it from an organizational development point of view but PMBOK links it together with managing expectations. For PMBOK managing expectations means actively mapping them and looking for raising concerns for future problems and resolving these (Project Management Institute 2008). Hence, the answer to question "when" would be, before the anticipated problem becomes one.

One thing PMBOK does not touch is the words and vocabulary, which should be used in the communication. How we say things matters (van Leeuwen, Winkel & Dijkstra 2007). For this purpose van Leeuwen, Winkel and Dijkstra have created a CSmatrix, which gives guidelines for the words to use based on their purpose.



Source: (van Leeuwen, Winkel & Dijkstra 2007, 21)

Figure 10: The CSmatrix

Based on the matrix, the purpose of the communication defines, how we should communicate. In case of an ERP implementation the early stage *informational* communication should be easily comprehendible, shape the readers views into the required direction and drive the project forwards. In the initiating phase and when the project team determines, how the possibilities of the new ERP fit into the existing processes, the communication should be cultivating and enhance creativity. In the third phase, once the project is running, the communication should be appreciative and unifying.

While in a project the person responsible for communication, should bear in mind that the key stakeholders may be in a different phase than the people who need to be informed and hence the messages need to be formed a bit differently for each case.

6 The Case Study: an ERP implementation

The case is an ERP update, Digia Enterprise from version 4.0 directly to 4.6, in an organization, which is heavily dependable on ICT solutions: the customer orders and sales invoices are delivered directly via EDIs and all master data is stored in the in the ERP servers. If anything happened to the system, everything would be lost, the company's delivery times would exceed customer agreements and the customers would more than likely walk. The agreements contain sanctions for even one day delay in deliveries, so every mistake in the implementation would have a financial impact on the company.

The ERP is a common tool for everyone in the company except for the top management. The update has several different stakeholders all over the company not to mention a technical need arising from the EU's SEPA (Single European Payment Area) directive, which changes the ways we all deal with bank transactions (FFI 2012). The project is technically "a must" but in addition to that it had many other business impacts and benefits.

The project had a demand from all business units and the change was justified from the business architecture point of view:

1. The company's growing customer base was difficult to handle with an external excel database, hence the sales department needed the new CRM.
2. The companies growing delivery flow needed more advanced logistical processes: the newest version included signing in and sending deliveries from one control screen (as opposed to the previous four screens each) and many improvements to inventory management.
3. Financial department was back against the wall with the SEPA directive.
4. The purchase departments semi-external excel demand planning was tying resources into updating Cognos-files and spreadsheets instead of concentrating on product portfolio development, purchasing and keeping track with the deliveries.

The change was also justified from the infrastructure point of view, because the old servers were getting too old, outstanding their warranties, the risk of losing all data was increasing daily and even the storage was running too low for the current and increasing data flows.

Even though everything was going right from the project justification point of view, getting the approval for the project lasted for years. The CEO made it clear that he was reluctant to give funding for the project, because he did not want the stress of going through the project. He would have been OK sending purchase orders as excel files, had the servers crashed. Eventually the wait made it possible to exploit all the latest technologies and applications, update exchange servers servicing e-mails from version 2003 to 2010 and also the Microsoft Office® -package from 2003 to 2010, but it was still frustrating for everyone in the staff. The wait also increased the risk of something going wrong in migrating the ERP data through five versions from 4.0 to 4.6. Taking into consideration the wait, the staff being anxious, the ERP update turned into "ERP+Office+e-mail" –update including a full server outsourcing, the project's success was a surprise to everyone. A simple project turning into a multiproject environment affecting everyone's jobs was not easy and everything still went according to schedules and plans. The role of human resources and change management was extensive and this case can be used to overcome similar situation in the future.

6.1 The case company

The case company is a family owned business operating in importing, wholesales to all major grocery and department stores in Finland, own stores in Helsinki and export into the Baltics and a sister company in Russia. The company is very profitable, operates with only around 20 employees and serves everyone from the warehouse and office in Helsinki. The success has been made possible with automated ICT solutions, which can handle the data and product flow with monthly orders and delivered products exceeding 150 000 lines.

The organization is flat but still hierarchical. The organization has three actual leaders: the top management and controller/IT (me at the time) and the rest of the company is

derived into sales, purchasing, logistics and financial department directed by team leaders. With such low hierarchical model, decision making should be fairly straight forward, but in reality the company had only one person making decisions: the CEO. On paper the team leaders were in charge, but in reality, people running the departments were not even allowed to decide on holidays. This positioning made getting the project approval extremely difficult.

Other project affecting features of the company include continuous suspicion, talent being tied to particular tools instead of theoretical knowledge, extremely departmental thinking resulting in gaps in process and information flows, long careers resulting in huge burden from bad experiences in the past and continuous fear of failure coming from culture of seeking for culpable for anything going wrong. This kind of culture makes any project difficult to run especially when it is affecting the peoples' core competences: the tools they use. Hence, it was clear to me from the beginning that I was not running an ICT implementation; I needed to make the staff go through a culture change before that.

On the other hand, the unique features of the company made it a fertile ground to make things right and see the reaction, while doing things differently. The company had never run an ICT project as business development project, so the whole approach was different, not to mention that people and their happiness was the focus point. The action research was manageable as everyone showed their emotions without too much time consuming digging and interviewing. This company was also the best place to test the forces of human resources and change management, since they had not experienced those before.

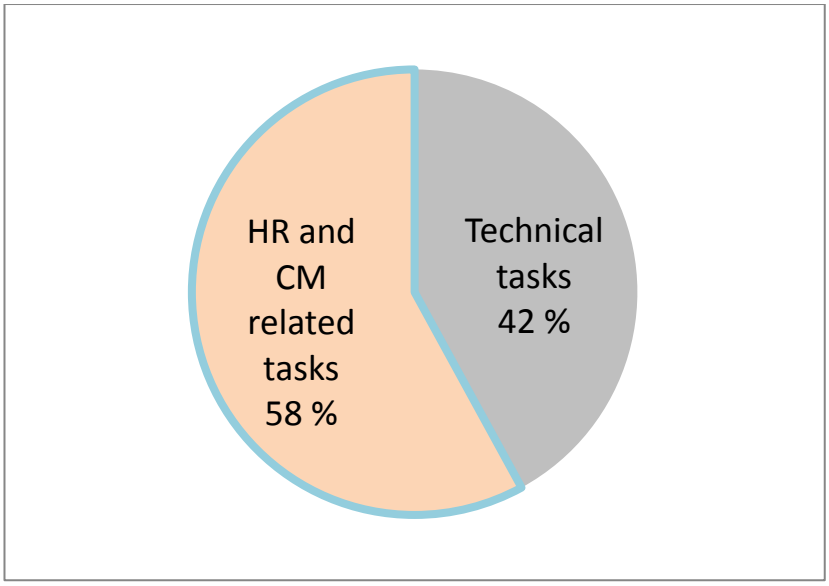
6.2 Diary and analyzing process

The background work of the project started many years before the actual work. (appendix 6) The background work included process descriptions for each process handled by the ERP system, system architecture evaluation, vendor evaluations, tendering and most importantly justifying the project to top management. For them the project was not at all important even though the staff was desperate for new tools (see 7.1.6

readiness measurements). During these years I had the time to get to know the staff, so the current situation was clear to me and I knew which methods I needed to test.

When the actual work began I used the Gantt chart (appendix 1) to determine which issues needed to be considered and also which change management steps they represented. With this method I was able to keep track of the issues, which went right and which ones needed more efforts. At the same time, I communicated with the audiences on 3 different levels (see 7.1.7 communication strategy) based on the RACI analyses (appendix 4) and the staff's readiness for change. Because the company was small I was able to get immediate feedback on everything, which meant that I was continuously able to analyze the success of the actions.

As the project went along it became clear that the most work had to be done with mobilizing energy and gaining commitment, developing shared vision and letting everyone enjoy the success of the project. During the months, 60% of the actions taken were related to those issues.

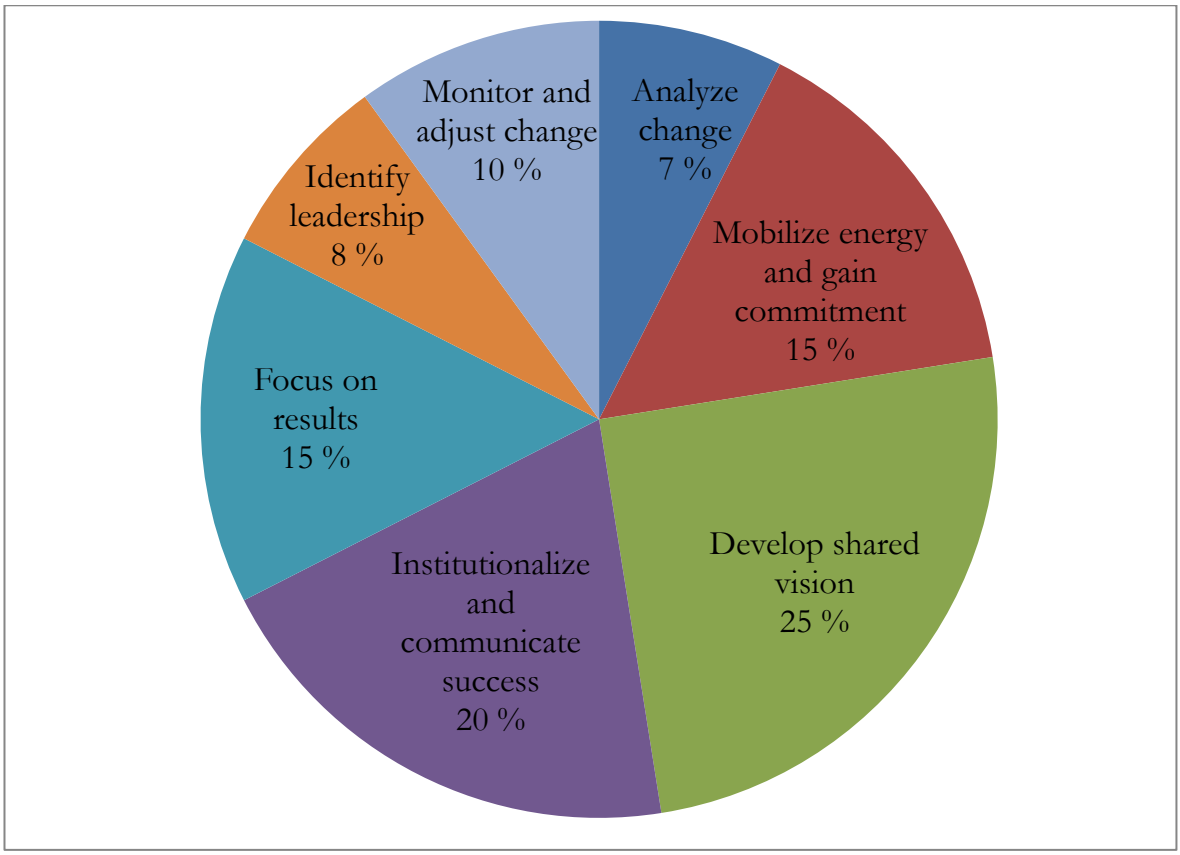


Source: Appendix 1

Figure 11: Percentages of technical and HR and CM related tasks

The result is rather astonishing as these issues are not emphasized in project management this much. Had I ran this project with project management rules, the results

would not have been the same. For this company project management, flow charts, work breakdown structures and technical vocabulary were not an issue at all; this company needed to feel committed, have a shared vision and know when things are going right. They also needed to be self-organizing, so that they could focus on the results and enjoy getting things done.



Source: Appendix 1

Figure 12: Emphasis on different change management phases

This conclusion carried the whole project through and even the testing and training were organized so that there was as much of togetherness and self-organizing as possible. The testing and training had very little actual instructing and telling which buttons to push but more developing business processes and finding the correct ways to *think*.

The study was done by observing and listening to the people. It required detecting subtle hints and also ignoring issues, which were not relevant to the study. By this I mean the comparison made to other projects and previous implementations, which had not

gone right. For reliability of this study I needed to pay attention to the things, which were going right instead of the things which were going *better* than previously. This was quite hard, because everyone had been working for the company for a long time and the history ran deep. The meaningful observations are listed in appendix 6 in a chronological order.

7 Findings

The project had points of success and points of failure and even in the case of failures only two out of seven were ICT related and the rest of them were human resources related issues. All these features point to the conclusion that 60% of an ICT project's success factors are *soft factors* instead of ICT issues.

Appendix 1 clearly shows that of all the tasks performed during the implementation 60% were something else than ICT and out of those 60% were mobilizing energy, gaining commitment, developing shared vision and celebrating success. From these figures I can conclude that the role of change management and human resources is bigger than the role of anything else even though the project seemed technical. Having said that, I must mention that the project went very well; even though the data had to go through five conversions from version 4.0 to 4.6, everything went ok. In most other cases I have worked on, the data or parameters have had some difficulties, which have taken most of the time to clear out. In this case, we were able to concentrate on the business and human resources side, as the rest of the master data was in good condition.

7.1 Victories

Overall, the project was a success, because it stayed on budget and schedule and the project actually increased employee happiness and feeling of togetherness. The value creation does not happen instantly and therefore it is not possible to analyze all of the effects right after the project's closure, but as long as I was in charge, the project run smoothly.

The first factor in the success was the Business case (appendix 2), which was not done based on Euros alone but based on qualitative issues, which would enhance the employees' working conditions. A few years before the project, I had done a full round of qualitative research with every employee and in this business case I incorporated much of the wishes said back then. All of the measures taken prior to the actual project had

an effect on the employee readiness for change and their willingness to start using the new system right away.

One of the victories was also the availability of time. It is rare that projects can have the time it needs to build up. Usually projects are driven by money and time, but in this case the driver was organizational development. This feature gave me leeway to post-pone deployments, if the organization was not ready. It also gave me leeway to give the change agents extra work, which played a role in gaining commitment. This project did not have too many resources (money, time or people) but the resources were flexible and I could steer them according to the changing needs.

7.1.1 Change agents

Picking the correct change agents, henceforth Ninjas, turned out to be one of the key elements in the success. In all the previous implementations, the people working in the project team have been automatically selected based on years of employment, status in the organization or tasks regardless of their personality and fit to be a good ninja. In this project the leadership style was collaborative and communicative and I needed to pick people, who could carry that responsibility.

To pick the change agents I did an inner "open task" add, which indicated:

- why I needed them
- from which departments they should be
- what was the aim of the project
- what were the leadership and communication styles of the new team

Interested employees could then apply for the position and the success was surprising to me too. I was able to pick the best candidates from each business department and a team which had

- "steady adult types" to keep the project organized,
- one "flower child" to keep throwing weird ideas, which no one else would dare to say,

- "the trainers", who had the stability and endurance to work with even the toughest people and
- "the follower", who just followed orders and executed given tasks meticulously.

I surveyed these characteristics with ego states measurements, which test the adult and child ratio in a person and seeks to find his or hers natural state of mind. I wanted people to feel natural while working on the project, so that they would not have to battle with their own motivation while helping others coping with theirs. I also needed people to be self-organizing, so that the agile project management methods could be used, but I needed one person, who would do exactly as told for the parameters testing phase. Basically, I was able to pick a ninja for each phase of the project before the project started. I built the project an organization of talents and capabilities; almost like building a company. This method proved to be one of the key success factors.

7.1.2 Project planning

The project planning was not made based on the vendors time tables, but based on business possibilities and employees readiness for change. Even after the project the vendors said that our project was the longest they have ever done but this was not because of extra work but because the work was timed based on the companies abilities to take each tool into use. This feature caused problems for the vendors' resourcing but on the other hand the costs or time restrains were not any higher than planned. The method was new to the vendors who were used to delivering when it suited them and their schedules, but now I told them, when we were ready. We did the planning many months in advance, so that it would be convenient for both parties and everyone knew the practices.

The basic rules were that no deliverables would be introduces before the staff was ready to use them, the business did not have anything else major going on, the ninjas would be available to help and instructions were ready to be used. This meant that some of the deliverables were implemented in phases, where the change was made to one computer; this person did the testing and created step by step instructions for all and the rest of the users would follow. Some of the changes again were done in one

instant. For example the Office 2010 update was done when a week had passed from giving instructions and most of the people were around to help each other out. These soft issues played a big role in how well the staff took the changes. I was a bit nervous about these as we were updating everything the staff used, meaning that for a while they would not be able to do their jobs as well as they used to, but with these human resources and change management related premeditated steps, they did not mind. Usually changes in these basic abilities create a resistance (Kallasvuo, Koski, Kyrönseppä & Kärkkäinen 2012). Some project managers think that a company should have one way of running projects, so that everyone knows, what is happening at each time, but I disagree. A good project manager takes every situation into consideration with its own unique features and dynamics and integrates everything together.

7.1.3 Two project plans: technical and human resources related

The third success factor was having two project plans: one for the technical things, which was updated and followed by the vendors and another one for knowledge creation, building abilities and understanding and communication. In appendix 1 these are both combined with the human resources related marked with peach color and the technical things with gray.

All of the tasks were synchronized so that the training and abilities to learn were built before the actual ICT change took place. In the beginning I had planned only the last training and testing session according to the integrated schedule with the ERP vendor; all the other trainings and knowledge creation during the project were planned according to the arising needs. The target was to manage everyone's expectations and keep both extremes in order. It is a common view that in an ICT implementation someone or a few people get really excited about the change and on the other hand some people resist. I did not want anyone to get more excited than others and I also wanted to take everyone's needs into consideration. With the integrated human resources and communication plan, I was able to handle all situations and create extra training if needed or give the "too enthusiastic ones" more issues to handle. These enthusiastic are really good at testing and setting parameters, because they really want the project to happen.

All of the departments had the same kind of training developing everyone's abilities simultaneously, which also built a new kind of togetherness for the company. The only discrepancies were the training provided for me (lack of it) and the extra CRM training for the sales team. The extra training was organized, because the sales department was the only group of people not using the system daily. The CRM had been available for use for years but it had not been utilized due to lack of excel interface: creating data into the system would have been manual work and therefore not worth it. The new excel interphase was introduced to the sales team together with other features, so that they would "buy" the system and start using it. Unfortunately one of the points of failure disturbed this part of the project.

My own training and capability training was happening while we went along and there was definitely too much of it. I was responsible of training myself and also of detecting, where I needed to improve. I felt extremely unable at times, because I did not have time to truly internalize everything. Even though the ICT issues of the project were outsourced, I still had to be in control of those issues as well all the human resources, change management and communication. In hindsight, it could have been better to have two project managers, one handling the technical ICT and one handling the human resources issues. That would have made a bit easier. Even this double role would have been bearable, if I had had the possibility to have my holidays. In this case, the stretching time tables were good for the users and staff, but prevented me from taking any time off.

7.1.4 Integration to current procedures: employee engagement

In this project integration to current procedures (Project Management Institute 2008) was used to create a common vision (Luecke 2003) and to show, how the new tools and systems could be utilized together (Versteeg & Bouwman 2006). Integration to current procedures was the main source of employee engagement as everyone realized that every process, which was under renewal, had several links to other departments and other people. This enhanced the feeling of togetherness as well created a sense of accountability for the ninjas.

The bases of the integration was the Business case, which I had already conducted (appendix 2) and used to sell the project's importance to the CEO. On week 17 I had a meeting with the change ninjas and introduced these thoughts as a base of a development plan. I gave them a task to go through the manual of the new version by week 19 (Pick your battles –analyses; appendix 1) and come up with their own thoughts regarding:

- which features we would need to implement
- how important were they
- what would they change in comparison to the current processes
- how would they affect the company
- where to use the new spare time or other resources
- what affects does the change have for people
- which extra purchases do we need for the implementation and
- how long would it take to implement it (changes in procedures, databases, interphases etc.)

Basically, the questions they had to answer were based on the nine knowledge areas of project management (Project Management Institute 2008) and this task created a lot of new knowledge and also opened the ninjas' eyes towards process and organizational development. The task was introduced as a game and the one with the best answers was rewarded. I was truly amazed by the level of the answers and the fact that they were all done on time without further reminding. This was the first sign of true commitment by the ninjas.

The best analysis was rewarded with items which had specific meaning to the receiver (making it feel more personal), but because the answers were so great I gave an extra reward for the second best and bottles of sparkling wine for everyone. Good results and commitment need to be rewarded accurately (Kotter 1996; Luecke 2003) in order to maintain the good flow. Furthermore, the priorities identified by the ninjas, were the priorities given to the subprojects, which meant that from then on they were running those projects, which they felt important. They were able to introduce the features to everyone with confidence, because they knew all about them. This factor made it clear

that the change was led by the staffs' needs (Luecke 2003) and not dictated from above. Yes, my Business case was steering the development but the staff felt as though they were heard in the matter as equals. This was mobilizing energy and the momentum was carried throughout the project.

The same priorities and new functions were listed to the vendor's consultant, who was coming in on week 23 (New features –workshops; appendix 1), which was also one of the success factors. This way the consultant knew what help we needed and did not give us messy information. We were all able to concentrate on the important issues and had an agreement on those. The scope of the project was clear and understood by everyone for the staff as well as the vendor. This made the co-operation easy and both sides appreciated the other ones efforts. The commitment was mutual on all sides of the table.

7.1.5 Return On Investment calculations

In this case company the staff was not interested in money. The company was doing well financially, so extra savings were not needed and were in fact considered a bad thing. Hence, calculating return on investment with only quantitative factors would have created a resistance for the change. The monetary calculations were made only to keep tracks of the invoices and project budget, but were never introduced to anyone else.

For the staff, the reason for the change was employee happiness. The next paragraph (7.1.6 readiness measurement) will give a clear picture about the surveys, which were done to measure these and how these affected the timing and order of tasks and phases. The staff heard only the payback time, which was calculated to be around 2 years, which again served as an incentive for the change. The staff was the driver of the change, which meant that a success in this project would more than likely create other possibilities for improvement. When the staff is needed for the change, I suggest tthat the way to calculate ROI, payback time or budget so that the staff can use it to control their own actions. The targets need to be clearly communicated and also the way they have been calculated need to be explained. Only then can these, too, be utilized togeth-

er, so that everyone speaks the same language. A budget is a good tool to engage employees, if it is communicated in a meaningful way for the audience. In this project this was part of the "Pick your battles" analyses. Money was never even mentioned as the true return on investment game from the use of the renewed processes.

7.1.6 Continuous readiness measurements and timing

Even though readiness measurements made up only 7% of the project's tasks, they were the bases for everything and hence the most important thing. Without them I would not have gained enough knowledge about what drives the staff in the company and what kind of difficulties are likely to arise. Without these measurements I would not have been able to drive the change.

The first measurement was the first ICT questionnaire, which measure the staffs' willingness and need for change. The questions and answers gave a clear view of the staffs priorities and needs. All of the surveys were done with Webropol online survey tool, so the measurement did not take long to make. The end-result was worth the effort.

Table 6: Results of the 1st ICT questionnaire

Question	**Answer**
My own ICT skills are (with a scale from 1-5)	3,6
The company's ICT management is on level (scale 1-5)	2,6
I could utilize my work better, if I had	More training or better tools
The most important updates are	1) Net site, 2) ERP, 3) Office 2010 and 4) outsourcing servers
When would you need the updates	Within 1-2 months
Is this realistic	No
I would like to get the updates because	1) The new tool/process would create savings, 2) I know my colleagues need them, 3) the current way/tool makes my work difficult

Having integrated tools is important (scale of 1-5)	4,1
I believe the company can change (scale 1-5)	4,1
I know, I can change (scale 1-5)	4,6
I am ready to help others through the change (scale 1-5)	4,6

Source: Project documents (classified)

These questions and answers gave me, the steering group and the top management a clear view on the current situation and readiness and need for the change. The most important issue was the fact that the staff would actually be better on the systems than they *were able to be* with the current ways of doing things. The staff was getting annoyed with the fact that they needed to perform worse than they would be without the company. These kinds of issues need to be addressed, because the frustration may lead to changing jobs.

The timing for the project was derived from question "When would you need the updates". Luckily everyone knew that the wish for 1-2 months was unrealistic as vendors would need to be taken onboard, but none the less, the message of urgency was clear. The replies to question about the reasons for the updates spoke on behalf of joint efforts as it was clear that people wanted saving, better tools for their colleagues and the new tools for themselves. This combined with the readiness for change, made it clear that people were committed and that by enhancing that side, I would be able to maintain the momentum.

The second questionnaire was about the ego states, which was already mentioned in 7.1.1. With this questionnaire I tested the natural characteristics of people and picked the correct people to the ninja team. I also used the results of this questionnaire to improve the ninjas' readiness to face people in different situations; by understanding the other person's motivation, they would be able to influence them better (classified project documents). The third questionnaire, and the first actual readiness measurement, was then about the culture of the company. This questionnaire measured people's ac-

tions in different situations on a scale of 1-5 (Senior & Swailes 2010). The questionnaire was sent to 15 recipients (out of 22 employees) and 14 replied. That makes the results valid for the purpose.

Table 7: Results of the 1st readiness measurement

Issue	Question	Average (scale 1-5)
Innovation and risk taking	The degree to which I am innovative and take risks.	3,6
Carrying responsibility	A degree to which I like following orders (1) rather than making decisions on my own (5)	2,6
Attention to detail	The degree to which I exhibit precision, analysis and attention to detail.	4,1
Outcome orientation	The degree to which I focus on results (1) or outcomes rather than on the techniques and processes used to achieve them. (5)	2,2
People orientation	The degree to which I take into consideration the effects of our decisions or actions on people.	3,8
Team orientation	The degree to which I like activities to be organized around groups (1) rather than individuals. (5)	3,6
Aggression	The degree to which I am easygoing (1) rather than competitive. (5)	3,4
Stability	The degree to which my activities emphasize growth (1) in contrast to maintaining the status quo. (5)	2,8

Source: Project documents (classified)

This measurement told me that the staff is innovative and risk taking but like following orders. Actually this question was one of the most valuable ones, as no one wanted to make decisions themselves. The message to me was that there's none who would like to be accountable, so that was something I really needed to address; hence the engagement with the "Pick your battles" –analyses.

A good thing was the staff was result oriented, which is good for agile project management and Luecke's seven steps change management theory. The staff was also considerate towards other people even though preferred working on their own. This was the second most important question as an ERP system is all about team work and creating knowledge and data for other people's use. I needed to create an environment of

teamwork, an organizational change, before any training could be done or any improvements could manifest. This is why I mixed departments for the training and testing phase.

Competitiveness and emphasizing growth are the least reliable questions as people tend to answer these the way they think the top management would like them to act. Even though the questionnaires were made anonymously, I believe the replies influenced by the working environment. None the less, based on these replies the staff is competitive and growth oriented, which are great for commitment and readiness for change in an ICT implementation.

During the months of the implementations I duplicated the ICT questionnaire in order to find out whether the staff still agreed with the direction the project was going. On week 35 the differences to the previous ones were that

1. Peoples' own ICT skills had dropped to 3,2 from 3,6.
2. The company's ICT management was now on level 3,2 (2,6)
3. The reasons for the needing the updates had changed so that people needed the new features of the coming new ERP version and creating savings had dropped from the list.
4. The company's readiness for change had dropped to 4,2 (4,6), the staffs readiness for change had dropped to 4,3 (4,6) and volunteering to help others and dropped to 4,4 (4,6).

None of these results were surprising as it was expected that during the change people would feel that they cannot perform as they used to. The staff was heavily system oriented and the changes in them created a momentary lack of confidence. This is why creating a unified change and joint reasons for the change were so crucial. Now the staff was able to rely on each other.

The fact that the faith towards the company had grown and that people wanted the new tools, were signs of thing going well. People had understood what the change meant for them individually and they were counting on the company to provide them

the tools they required. This was wonderful news. Had these results been different, I would have failed in change management. Due to these changes, it is important to make these questionnaires a few times during an implementation; without them it is impossible to know, how things are going.

The fact that people and the company were at this point less ready to change was a bit disappointing, but an important message to me. The staff needed some time off and they needed to relax. In order to change this around, I promised them days off for good performance as well as increased giving positive feedback. Regardless of the efforts sick leaves were on the rise, which was a clear sign of increased stress.

7.1.7 Communication strategy

From the very beginning I communicated the ways in which the official communication happened. During other projects I had learned that gossip and informal communication can have bad effects and this time I wanted to minimize that and maximize people's ability to concentrated on the right things. On week 21, I communicated the communication policy, which stated that all formal communication came via e-mail from a special address dedicated for the project and that the topic would always start with a special phrase. With these measures I was able to make sure that people knew, what the correct messages was and that they found them from the endless flow of e-mails effectively. Having said that, even this was not enough and I should have made more efforts into making sure that the messages were read and understood.

The messages were sent according to the integrated plan, but the messages were conducted based on the RACI analysis (Project Management Institute 2008). I did not send one message to all, thinking that the ones who only needed the info would be interested in all the information needed by the ones who were accountable. The messages were conducted based on the objective of the message. The below table includes a sample of a message formed based on these rules.

Table 8: Objectives and examples of communication

Person	Objective	Message formation
Responsible	Gain commitment, affect motives, make sure message is understood	Answer to questions why, what, when, what if. Demand a reply.
Example:	*Dear agents,* *the old e-mail server will be shut down during the weekend and all mails will be copied to the vendors' servers. From now on, we will be free from managing AD and all related requests will be forwarded to the outsourced helpdesk. If anything goes wrong in the copying process, the old server will remain and the end users will not notice the difference. Tasks will be updated as the work progresses. Please reply, that you have understood the process.*	
Accountable	Gain commitment, mobilize energy	Answer to questions why, what, when, what if. Ask for a reply
Example:	*Dear heads of departments,* *we're moving towards fully hosted IT services, beginning with emails, this weekend. If anything goes wrong, the old server will remain and the end users will not notice the difference. Please check tasks for the progress of the work and in any questions, please don't hesitate to ask.*	
Consultant	Mobilize energy	Answer to questions why, what, when.
Example:	*Dear all,* *we're moving towards fully hosted IT services, beginning with emails, this weekend. There are no identified risks, so everything should go ok and your e-mails will be fully copied. No action is required and your change agent will help you with any questions.*	
Informed	Give information	Answer to questions what and when.
Example:	*Dear steering group,* *we're moving towards fully hosted IT services, beginning with emails, this weekend. There are no identified risks, so everything should go ok.*	

The aim of the messages was to maintain high energy levels, because the staff was ready for change and the urgency was kept high by them (Senior & Swailes 2010). During the weeks of little or no progress I communicated only about the discrepancies the urgency was low but during the weeks of *action* the messages were short and dense.

For internal communication all of the subprojects were set up tasks in Outlook. With these tasks we were all able to see the progress of each project, who was the owner of it and which issues needed to be taken into consideration. This tool reinforced the power of the RACI analysis and kept everyone in the loop. This way people could monitor the change and feel belonging in the project, even though, they were not directly involved in the making. This institutionalizing of success created a feeling of a joint experience (Luecke 2003; Versteeg & Bouwman 2006).

In hindsight, this communication methodology was very good for the staff and helped them in finding the acute things to consider. Most of the times, the messages were very similar, so I was able to copy them and make minor adjustments. The burden of 4 different messages was not too big, but had the project environment been any bigger, the work load would have exceeded my capabilities. In bigger organizations the value of the communication strategy increases but at the same time it becomes too much for the project manager to bear. In these environments, I suggest that a project controller or similar should take a bigger responsibility.

Also, keeping the top management only on the "inform" –loop, caused a problem in the end. They did not feel the same commitment towards the project, because they were only on the outsides looking in. This was not good, because they were then the ones who were able to create resistance. It is hence one of my findings that one of the keys to using the RACI better, is to make sure that the audiences are equally as important.

As a last bit of communicative strategy I decided to create an issue escalation policy for the time of deployment. The staff at the case company was prone to panicking and the sales team was already showing signs of it. There was, for example, shouting on the

corridors and unwillingness to negotiate on anything. I decided that I would ask the vendor's consultant to come into the office on the first day as we were confident enough that we could manage on our own. According to the escalation policy issues which created a business closure, would be immediately dealt with by the department's ninja, the rest of the project team. We would call the vendor, if nothing else helped. If the problem was slowing down business, we'd try to take care of it and then wait for the next day for the consultant. If the problem was only annoying, we'd deal with it after the implementations and start new projects for the improvements. This policy took the panic away from the first days and the vendor was also particularly grateful for it.

7.1.8 Training

In an ICT project testing and training create co-operation with business processes and ICT parameters. In my experience the testing is something that is done by a small group of people, who are then overwhelmed by the workload and cannot take everything into consideration. In this project the testing and training was done simultaneously in the training environment by the same people who use the system in groups of people who are involved and on top of these the results were openly discussed with everyone else. This was new to everyone in the company as well as the vendor side and it raised questions but in the end of the day, people trusted my judgment.

The training and testing was not introduced to the audiences as that. It was introduced as business process development clinics. I did not risk system failures, which is why the first set was done with the ninjas and the rest of the staff was taken to the last set. These were the most intensive weeks of the project, but because they were a success, they made the project possible.

During the first set of testing and training on week 40 and 41 (Training for new processes; appendix 1), the project team went through 35 process, updated all process descriptions so that they could be used in the latter training sessions, communicated all mistakes and failures to the vendor, waited for corrections and went through them again. This was also the time to make sure that the new processes work and benefit the

customers and staff according to the original Business case. Some of the processes were postponed for later deployment, if the changes to a certain group of people become unbearable. This was the time, when the actual amount of changes became reality. Due to these training sessions, the ninjas knew everything about the system and could stand in front of everyone with confidence. Again this was part of mobilizing energy and gaining commitment (Luecke 2003). This was also the time, when the ninjas were starting to get tired, so the training sessions were kept short and time off was given at the end of them.

As the last parts of the training begun, the vendor's consultant was there to walk us through all of the processes we had gone through and gave us the final hints and tips on how to act in the new environment. After this training everyone had access to the training environment and they could log in and train themselves. In hindsight, I should have checked that everyone really went in and looked for the new features. On the other hand, the new process descriptions worked well as a tutoring tool. The deployment time was virtually problem free.

7.2 Failures

Even though the project was a success, there were a few moments, when not responding or making a wrong decision would have impacted the result. The decision about communication and training were done as the project went ahead by continuously analyzing the staff, asking how they felt and responding to the weak signals they were sending.

A prerequisite for detecting the weak signals is good and identified leadership. In this case the leadership styles and people were well communicated for the staff but not towards the top management, even though they had given the project to be run by other than themselves, they still did not let go of their own involvement, which at times led to unwanted power battles. For a project to succeed the project manager must have adequate authority and full trust from the steering group (Sofigate 2010), but in this case those were somewhat lacking. These power battles were manageable, but did steal strengths and concentration away from the concrete tasks.

The project encountered a few ICT challenges as well but those were addressed quickly and made up only about 30% of the failures. The rest of them were human resources related further backing up the conclusion that 60% of a success in an ICT implementation is made up by human resources and change management related soft factors.

7.2.1 Lack of ICT strategy and risk analyses

The first noticeable issue was the lack of ICT strategy. According to the best practices, ICT strategy should be derived from the company's business strategy (Versteeg & Bouwman 2006; Sofigate 2010), but in this case the strategy was missing. This did not affect the project as a separate entity, but it affected the company's way of thinking. It was harder to prioritize issues when there was no clear strategy. On the other hand, in this case the employees were able to do the prioritizing, which had a good affect on commitment, so it is difficult to say, which one is better.

The lack of strategy resulted in prolonging the project's start, which created frustration amongst the staff. On the other hand the situation was the same for all, which created a sense of togetherness and thus laid the foundations of the project. The frustration from the waiting was the same for everyone and should have been minimized with overall strategic planning.

The lack of strategic planning also resulted in lack of preliminary risk analyses. Yes, the risks were thought about for each subproject but not for the whole project and certainly not on a level that would have resulted in minimizing the risks. The risks were identified, but nothing was done for them. This is not enough (Kinnunen 2012) and the risks have to be evaluated and their occurrence must be analyzed. For example, the printing failure in the last stages of the Go-live (addressed in 7.2.5) could have been prevented, if it had been mentioned as a risk in the beginning or any phase of the project. Now the lack of customer focus, created a mess in the end.

Lack of risk analyses was, in fact, a major reason behind all of the failures. Had engagement and holidays been analyzed in the beginning of the project, I do not think

that we would have been so tired. At least we would have known about it in advance and would have been able to adjust. Now the stretching timetable resulted in stretching strengths, which led to sick leaves and fatigue on times when people were needed to most.

7.2.2 Change agent positions in organizational hierarchy

An organization is a group of people interacting with each other in order to reach a common goal (Senior & Swailes 2010). The people, who form the organization are picked based on the company's human resources policies, which cover:

- securing resources with strategically justified recruitments,
- managing compensating (paying wages, taxes and report creation),
- managing talent, learning and performance and
- managing relationships and participation.

Source: (Beardwell & Claydon 2010)

The *organization of the change*, is not that much different from the formal one. The change was being driven by a group of people from different parts of the organization, who shared the same vision and goal of making the tools and system work better and be more modern. The change ninjas formed their own Communal culture, (Green 2007) where the people were committed to the cause and collaborated to reach the common goal. Thus any the change organization was an organization within the formal organization and naturally changes in the formal organization reflected on the project team.

During the project, or more precisely right before the project kick-off, the formal organization went through two changes: one of the ninjas was demoted and our rooms were changed so that all the ninjas were located on one side of the office. To us these changes had no meaning but for *outsiders* the signal was that

1. the people on the project team are not qualified to do their job and
2. the people on the project team operate amongst themselves and do not listen to anyone else.

It did not make a difference for the others that these changes were not driven by us. The changes affected our organizations reputation with the rest of the company and this reputation was quite difficult to turn around. We had to dismount ourselves around the company and build trust all over again. We succeeded, because we reacted so quickly. In a perfect situation, the organizational effects would be analyzed before any changes are made and delicate situation, such as the one we were in, are protected from extra turmoil.

7.2.3 Top management engagement

The theory says that a project's owner must be the one, who is responsible for the business operations directly affected by the project (Sofigate 2010). In this case the ERP was the common tool for everyone in the company, meaning that the owner should have been the CEO. However, the top management was the group, which did not use the system at all, meaning that they had no interest or competence to handle the project. The project was given to the third person in the managing board: me. This approach would not have been a problem, if there had been a clear ICT strategy and the decision-making would have included the top management through that, but in this case that was lacking too.

In a small company the resources are limited and I knew from early on that managing the project, the integrated communication and training schedule, physically giving the training, configuring system parameters and e-mail accounts, making sure that everyone is happy and satisfied and keeping track of the study at the same time were a handful. I had to make a choice of giving the informative communication the smallest priority, which eventually led to the top management disengagement. I had physical meetings with the steering group but not with the CEO and the sales director together. They justified the lack of meetings with trying to save my energy for the details, so no one realized what was happening before it was too late and I was no longer able to get them on board.

While the project progressed the business also grew and new customers arrived and product categories were launched. All of these were feeding form the same pool of

resources as the project and because the top management felt disengaged, they gave their business projects bigger priorities. Lucky for the success of the project, the leadership had been so profoundly identified and the value to the users had been so well internalized, that the new prioritizing did not affect the staffs' commitment to the project. Had the foundations of the project been any weaker, the staff would have moved on to doing other stuff and left the project. This would have led to uninterested people attending the training and testing session, which would have led to a poor overall success.

In hindsight, I should have taken care of the top management's engagement, abilities' built-up and knowledge gaining as well as I did for the staff and the change ninjas. The change was driven from the bottom-up, but it did not reach the highest top but actually created a big gap between the top management and the staff, leaving the management feeling powerless (my interpretation). The first signs of unhappiness were detected in the beginning of September, in the most crucial moment and right after the holidays, when the commitment had to be rebuilt. The mistrust and disengagement was a big threat to the project but luckily the foundations were strong enough. The lesson learned was that getting people committed from the first day onwards carries the project through the rough times, which are bound to happen eventually. Keeping everyone equally as engaged ensures that there are no power battles, which reduce the possibility of a success.

7.2.4 Sales team panic and sick leaves

Right before the Go-live the sales team started to show signs of panicking. This was not caused by the staff but by the sales director, whom I had neglected to engage properly. The difference between the discussions from the employees and the sales director were profound: the employees were ready to use the CRM and were actually quite anxiously waiting for it but the sales director, who was their immediate supervisor, had not even opened the system or have access to it.

This was result of not engaging the top management properly but also due to internal issues, which had nothing to do with the project. The sales team did not share their

knowledge with another, the sales director did not know about her staffs' abilities and had not internalized the knowledge they had gained during the months. The sales team's ninja had not been working for the team long enough to have the adequate authority and the sales director was not about to give that authority easily. The lesson learned in case, too, was that the audiences must be equally engaged or the power battles will start to create obstacles. It is also important to maintain the authority structures even though someone or something may want to come in the way.

All of this internal disagreeing and not having the same priorities and knowledge started to show as increasing sick leaves, which had an effect on the project. The first one to leave was the sales team's ninja, then left the purchase team's ninja followed by the ninja for the sales order processes. The tasks were set up so that everyone had a replacement person and none of the daily errands were affected but the sick leaves were a clear sign that everything was not ok and they increased stress at a time, when things should have been calm and organized. At this point there were signs of suspicion towards the project but even this was saved by the foundation of the project. The rest of the team was able to isolate the problems to the sales team and they were given extra attention. The problems could have escalated, had the panic been able to spread around the company.

7.2.5 Testing failures

Usually ICT projects concentrate on discrepancies on testing the deliverables against the initial needs. In this case the testing was done in form of process development and training and we dictated ten system failures, which obstructed the work flows. This is a very small number and I have to admit that the project was run extremely well by the vendor. Usually there are parameters missing or data has not been transferred properly, but in this case those failures were nonexistent. The fact, that we did the initial "new features" -workshops and "Pick your battles" –analyzing and communicated the results to the vendor, helped them set the parameters according to our needs in advance. Also the stretching time tables gave them time to do this; we were able to negotiate responsibilities as we went along giving both sides the time to allocate resources. The system failures were noted as threats but in fact handling them was so well organized, that

there was not a problem. Because of the failures, the project team was able to restore some of the trust. We were able to state points of failure and how they were fixed and communicating these on daily bases had a calming influence on the staff.

The only big and time consuming ICT failure came from printing and was originated by poor communication and managing responsibilities. Up to date, I still do not know whose job securing the printing should have been. The company outsourced the servers and the ERP environment to a third parties and the vendors were responsible for their own parts, but apparently on-line printers were no one's responsibility. This resulted in a total delivery gap, as we could not get delivery notes or labels out of any printers after the Go-live. The problem escalated and took over three days to cover during which time the warehouse was standing still. Eventually the situation was cleared, the staff was angry and had to pull extra hours, but the storm calmed down. However, the customers did not send demands due to the poor performance, because the communication was open and done daily.

7.2.6 Lack of holidays

One of the costs of the project was the lack of holidays for me and lack of days off for the ninjas. The sick leaves were the first sign of problems and my own tiredness was the other. The only reason, I was able to keep up with the work load was the feeling of succeeding every day. It is a good motivator but also a sneaky enemy as a person can go on for weeks and months with the pure dopamine. Finally the holidays were set to start two weeks after the Go-live for me and the purchase team's ninja and we were both exhausted.

The timing of the holidays was wrong, because the weeks following the Go-live are crucial for making the change stick (Kotter 1996). On the other hand there was no choice as we were so tired; we were not able to do anything productive. The lesson learned here, was that there has to be enough time off from the project and that the timing of the holidays must not be the responsibility of the project manager. In my case, in order to have the holiday, I had to organize everyone else's workloads, which was yet another burden on my shoulders. The resourcing must not be the task of the

project manager, there has to be another person looking out for the well-being of the whole team. I think that that would have saved us from a lot of grief.

7.3 The suggested framework

During the study it became clear that there is a strong link between managing people, managing change and managing a project. In fact, managing the project required the least amount of work, because with clear communication with the vendor, I was able to leave them to do all the work. This framework has been built in a situation, where the servers for documents, e-mails and the ERP were outsourced, but it can and should be applied to situations, where those remain in the company. In that case the technical project manager can be a different person from the *change project manager*. In the current ICT standard the suggestion is that the change management should be the line manager's responsibility and that the change management begins at training (Sofigate 2010), but due to the findings from this study this part will be revised for the next update.

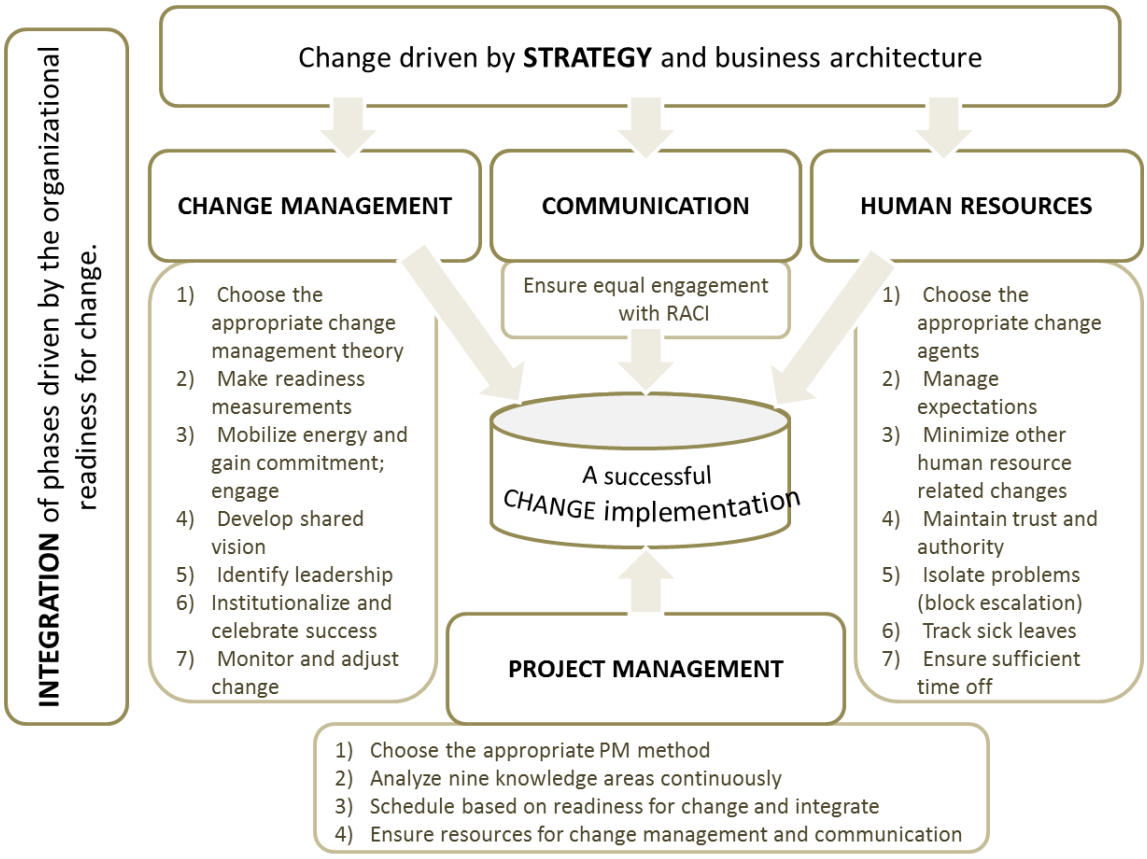


Figure 13: The suggested framework

In the suggested framework human resources, communication, change management and project management are integrated by timing, which is guided by organizational readiness for change; the whole project is driven by strategy and validated by business architecture.

The suggested framework takes proper project management procedures for granted and concentrates on the value added by human resources, communication and change management. For a project to be successful the outcome (deliverable) of it needs to be financially justified and needed by the business. The project needs to have a management model (method) and a project plan. The project plan needs to contain

- assessment of current situation, dependencies and scope
- definition of targets
- requirements specifications against which the project success is measured and
- preliminary phasing

Source: (Sofigate 2010)

The phases of the project often consist of a Kick-off, acceptance testing planning, building the solution, monitoring and evaluation, acceptance testing, training, Go-live, completion and value creation analysis. Change management and human resources procedures cannot displace any of those phases but they complement them and make

1. their execution easier for the project manager
2. the change easier to internalize for the end-users

In the traditional project management model, the people and change management come into play during acceptance testing, training and Go-live (Sofigate 2010), which (based on my experiences) inevitably creates a feeling of being left outside, being in a hurry and being forced to go through something unpleasant. Those kinds of thoughts are not good for evolving and learning as the uncomfortable situation blocks rational thoughts. With the aid of a few rules of thumb the situation can be turned into a joyful process of organizational development for each participating party.

The rules of the framework

Rule 1. Pick and choose

There are many ways to do things, but for a project to succeed, it needs to be run with methods, which fit the nature of that particular project and people working for it. Do not force methods, which are not supported by the organizational natural abilities or build the abilities first. Pick the project organization based on people's natural characteristics and ways of being. Remember, that people act differently while working with the daily routines and when going through a change. Do not make assumptions about the characteristics; measure and test. Then choose the appropriate the change management procedure based on the organizations culture.

Rule 2. Integrate

After picking the appropriate methods, people and theories, integrate the initial project plan with plans for the total organizational development and communication. The driver for this integration comes from organizational readiness, so be prepared to extend and/or manipulate the original, technical, project plan, if your staff so requires.

Rule 3. Test and measure

Assuming things based on routine operations may lead to unexpected consequences. Testing and measuring readiness for change in intervals gives a unique view on the progress of the development. Apply corrective measures, if something is going wrong. Keep track of the project's nine knowledge areas (integration to current procedures, scope, time, costs, quality, human resources, communication, risks and procurement all the time.

Rule 4. Engage employees

Taking everyone on board with equal opportunities will create energy, commitment and a momentum, which will carry throughout the project

and even out most wrinkles and clear any hick-ups, which will happen. Thinking, that a project is a journey of predetermined phases and smooth sailing, is delusional. People who know why, how and what is about to change, feel the need to change and have appropriate time to change, will do it without resistance. Developing a shared vision with everyone regardless of their direct involvement with the project and managing expectations will go a long way in ensuring the success. A RACI analysis is a good tool to identify appropriate stake- and shareholders

Rule 5. Secure resources

By recurring resources this framework means identifying leadership and making sure that the leaders have adequate authority throughout the project. Everyone needs to trust the leaders without a doubt. Securing resources also means making sure that there are enough people to handle all the work and that they get enough time off. Everyone's sick leaves should be monitored as those are usually the early signs of something going wrong.

Rule 6. Celebrate success

Monitoring the progress together with the engaged staff keeps up the momentum. Success should be visible to all and communicated continuously in order to gain the desire to change. This also takes the burden of monitoring away from the project manager and the steps taken to reach the shared vision are clear to all. The sense of success is a great motivator. Naturally this does not work without fully engaged people.

Rule 7. In case of emergency, isolate

Panic has a habit of spreading and in an ICT implementation rumors can threaten the whole project. Engaging people helps, but issues may still arise. In case of emergency, regardless of its origins, the problem should be identified, isolated and managed immediately. Problems may come from users, the system or outside the project, but they should not be al-

lowed to spread and affect the authority and trust towards the project team.

With these rules people start to work *for* the project deliverable clearing most of the problems themselves and not letting obstacles affect their motivation. This takes a lot of burden off the project manager's shoulders and gives him/her time and space to concentrate on leading instead of extinguishing arising fires. These rules complement the initial project plan and its phases and they help with the execution.

Downsides of the suggested framework

This framework is time-consuming and switches the focus point from the technical project plan towards people in the project. Running project with the suggested framework requires new skills and abilities from project managers, who are used to organizing ICT processes instead of ICT users. At first the workload may look overwhelming but the benefits manifest quickly, when the people start to organize themselves.

In international organizations maintaining the quality of the project may be difficult if the level of knowledge and understanding is different amongst the project managers. An ICT project can be rolled out in one Big Bang, step-by-step or one country at a time and each of these creates different kind of problems. In a Big Bang implementation all the countries have different cultures, so even though the project organization is the same, they need to address, manage, test and measure all countries separately. In a step-by-step driven project the project begins with a test group and the system is then rolled out to other groups, which again requires all of the steps to be managed separately. On the other hand, in this project environment, the lessons learned are always carried to the next step, which means that the change management and human resources issues also improve gradually

In a phase implementation project teams travels around the countries implementing the system to each. In this environment the implementation happens the same way each time and there's not a lot of space for the human touch. Also the presence of

many project teams causes a risk of noncompliance. In this case, the countries may have very different levels of readiness for change and thus each case should be managed as an isolated incident. In this project environment the projects are usually standardized and even timed beforehand and the suggested framework changes the approach entirely. The suggested framework can be used as such, but the phases need individual evaluation and each country's or unit is own culture needs to be taken into consideration.

8 Reliability of the suggested framework

The suggested framework and the findings can be tested anywhere by following the steps taken in this study. The people in this study have their own subjective issues and the groups have their own dynamics, which may result in different kinds of reactions but the suggested framework itself can and should be replicated many times. This proves that the study is reliable and valid even though the observations may be subjective to that particular case environment.

In a participant observation the researchers own views play a role in the reliability of the findings and conclusions. One of my drivers was the need to succeed in the project and I gave it a lot of energy. This energy may have affected everyone else; so that it may have seemed that they were happy due to the steps I'd taken even though they might have been happy, because I was. This reliability cannot be studied afterwards, so it just needs to be cleared with testing the suggested framework in other surroundings (paragraph 12). There's always a chance of researcher bias and the possibility that someone might have interpreted the happenings differently. However, during the validation interview Ms. Salmi stated that the notes and experiences I have had were very well described (Appendix 5), which proves that researcher bias was not an issue in this case and others reading the findings afterwards came to the same conclusions.

Due to the wrong timing of the holidays, I was not there to make any user questionnaires after the implementations, which means that the good results may have not been long lasting. In January everything was already neutral, so the critical first months and weeks were not researched. Due to the lack of holidays, the burden of running the big project on my own, studying and making this study at the same time, I was also extremely tired, which may have clouded my judgment. On the other hand, my observations were always made with many people and proven accurate only, if the majority of people felt the same way or showed the same symptoms, which minimizes the risk of researches bias.

The uniqueness of the company and the people involved in the project may also be a factor in the reliability. On the other hand, I can't be sure how unique it is to have a company whose processes are based on their ERP system rather than on business needs and drivers. Some even say that the number of companies adopting processes from systems is increasing. In that sense, the company may not be unique at all and the issues which arose during this study may have an increasing importance to project managers in the future.

9 Validation of the suggested framework

One characteristic of the constructive approach is that it needs to be tested in action. In this case the first validation was done during the constructing: the project was a success, so the suggested framework worked. However, the suggested framework needs to be tested in different organizations and different settings, before reaching a scientifically proven quality. Based on the documentation and background information given in this report, the suggested framework can be tested, but due to time limitations, the testing is left for the future.

For the time being the validation was done based on an interview with Ms. Salmi, who has worked in project management for many years and have a clear vision of what works and what needs to be done in successful ICT implementation. To get her thoughts on the subject I conducted face-to face interview. Based on this interview I can conclude that the framework is valid, but with certain restrictions: scheduling needs to be flexible and to know the people, the project manager should be an internal resource (Appendix 5).

9.1 Interview questions and findings

In the interview I questioned Ms. Salmi about her thoughts on the case study overall and she mentioned that in some bigger cases knowing people becomes difficult but otherwise she agreed with the findings. I also asked, if she's been in similar situations and she said "yes" and not only in ICT related cases but in every change situation. She mentioned that picking and choosing the correct change agents is a must every time people are involved in the project. She, however, slightly disagreed with my mention of picking the appropriate change agents based on their natural ability to act as trainers. In her opinion, professional substance is more important, so that people can fully trust the agent. But whichever the choosing criteria, the people still need to be picked and chose separately for each change.

In the second set of questions, I asked Ms. Salmi if she would repeat the events and steps I took. With this question, I partially probed the reliability of my findings and

actions and she said yes, if only the surroundings gave leeway to do so. She said that I had a unique situation as I was able to pick and choose, the staff stayed the same the whole time and that I was able to mitigate the time constraint. Usually projects are run with a tight schedule and the resources are given without further checking for appropriateness. She says that the human approach underlined in the framework is a universal must for any project to be a success but that there's rarely enough time for it (Appendix 5). In my opinion, that should not be an excuse, because the constraint can be mitigated with good planning. After the case study I have entered sufficient amount of tests and measurements into the preliminary project plans and every steering group has approved them, even though they have prolonged the project with a few days. In ICT implementations making sure the employees know what is happening and can affect the situation has direct implications in the correct use of the tool and the employee happiness at Go-live. It is worth the time to be prepared.

In question three, I asked Ms. Salmi about the significance of knowing people and getting to know them with the questionnaires I had performed. She said that in a small scale the questionnaires are a good tool: the amount of results needs to remain manageable. She said that there rarely enough time to do these kinds of things as the schedule and time tables are too rigid (Appendix 5).

In the question about the link between human resources and change management in the success of ICT projects, Ms. Salmi agreed with their importance but said that all of these elements must be the task of the project manager (Appendix 5). In her opinion, the project manager is the closest person to people working in the project and that the human resources as a separate function cannot help with the workload. Clearly this is something that organizations need to address, because on the other hand the project manager has his or hers hand full of other issues to take care of, so surely other departments in the organization could do their part. For example, if the organization had a good HR system, from which they would see the projects and tasks each employee has at any given time period, it would be very possible to track each employees workloads from the outside of the projects and the project manager could feel more secure about his or hers resources.

The last question was regarding the whole framework and its usability as a guiding tool in her next projects. To this question she again said that she would use the approach, if only there was enough flexibility from all parties (Appendix 5). She said that for example testing and measuring continuously requires leeway to change the schedule according to the findings and this again needs to be discussed in advance with the solution supplier. I agree with this and luckily I had that possibility as the scope of the case study project was small enough.

9.2 Interview conclusions

According to Ms. Salmi, the framework is applicable to more situations than only ICT implementations. In the interview she stated that she could use it in all kinds of development and change situations. To me that is proof that the findings and the framework is valid and working. However, she also mentioned that not all of the elements can be applied in all cases and that there are surroundings when the people cannot be taken into consideration as individuals.

The situations, which rule out some of the elements include:

1. A time constraint; when the project needs to be finished in certain time regardless of the peoples' readiness.
2. A volatile environment, where people change jobs rapidly; this works against knowing the staff well enough.
3. Global roll-outs; in these cases a change is implemented into many organizations at the same time regardless of the readiness for change in each. In these cases the integration comes from timing.
4. Fusions, where two or more companies are merged and the readiness for change may be different in each.

None of these situations rule out the framework entirely, but only some parts of it. For example, in global roll-outs and fusions the integrations comes from the timing and picking and choosing the appropriate methods for each organization is difficult, but the change is still driven by strategy, testing and measuring needs to happen in order to

know, where the staff is, employees needs to be engaged, sufficient resources need to be secured, successes celebrated and emergencies isolated. So, even in those cases rules 2-7 apply.

In a volatile working environment, where the staff has a high turnover rate, engaging staff is crucial but not always possible. These kinds of situations may well happen in industries with plenty of temporary (rental) workforce. In these cases integration based on readiness for change is difficult, because the readiness changes when people change. The same applies for securing resources, maintaining adequate communication and informing and even celebrating success is difficult when the people responsible for the success may have changed many times during the process. In this case minimizing the human resources related changes becomes even more crucial than in other situations. But even with that, I have to agree that this kind of environment may be too difficult to handle with the suggested framework.

The fourth case, where Ms. Salmi saw difficulties, was cases where time was a constraint. This is a difficult situation, because in the case study itself time was a constraint: the system needed to be in operation before the European SEPA deadline. I handled the situation by starting the project well in advance, which mitigated the effects of the constraint. However, sometimes there are cases, where the source of change comes from the outside as well as the timetable for it. In these cases the staff needs to be trained and made ready for the change according the timeframe driven by something else than the peoples' readiness for change. Other rules can still be applied, but the integration happens based on a timetable from an outside source and there may not be enough time for testing and measuring not to mention acting according to the findings of the tests. The conclusion is that for the framework to work, the time constraint needs to be eliminated.

9.2.1 Conclusions on human resources involvement

In the questions of human resources involvement in the project, Ms. Salmi slightly disagreed with my findings (Appendix 5). Ms. Salmi saw this element as a very case related issue and dependent on the organizational roles and responsibilities. In her opinion the

project manager needs to be in full control of the project and the resources assigned to it. I agree with her fully as that is the current way most organizations operate, but I cannot help to wish that this would change. According to the findings in this case study, one project manager cannot do all of the tasks on his or hers own, so there must be help from the outside; either human resources as a function needs to take a bigger responsibility in the development of the employees or the project controller must be more than just a financial calculator and a monitoring function.

I agree with Ms. Salmi that this kind of co-operation across different functions is rare and easier to maintain in a small organization. It may be that this framework is not applicable in bigger organizations but limited to small ones. However, bigger organizations can have the characteristics of smaller ones, if their culture cherishes it. Therefore I wish that the current way of doing things would move more towards togetherness rather than sticking to what is the current trend simply due to time constraints. Since the role of human resources and change management is crucial to the success of any project, the project manager should secure resources even from the outsides of the project organization.

9.2.2 The final conclusion

In the end Ms. Salmi agreed with all points of the framework excluding fusions and other time restricted situations and volatile organizations with plenty of employee turnover.

Table 9: Validity of the framework

Framework element	Statement	Agree	Disagree
Strategy and business architecture	Change driven by strategy and business architecture	V	
Integrated phases	Integration of phases driven by the organizational readiness for change.	V	V (FUSIONS)
Change Management	1) Choose the appropriate change management theory	V	
	2) Make readiness measurements	V	

	3) Mobilize energy and gain commitment; engage	V	
	4) Develop shared vision	V	
	5) Identify leadership	V	
	6) Institutionalize and celebrate success	V	
	7) Monitor and adjust change	V	
Communication	Ensure equal engagement with RACI	V	
Human resources	1) Choose the appropriate change agents	V	
	2) Manage expectations	V	
	3) Minimize other human resource related changes	V	
	4) Maintain trust and authority	V	
	5) Isolate problems (block escalation)	V	
	6) Track sick leaves	V	
	7) Ensure sufficient time off	V	
Project management	1) Choose the appropriate PM method	V	
	2) Analyze nine knowledge areas continuously	V	
	3) Schedule based on readiness for change and integrate	V	
	4) Ensure resources for change management and communication	V	

Based on these results, the framework is a valid one and should be further tested in different scenarios such as international implementations.

10 Conclusions and discussion

To conclude the study, I can reliably state that human resources and change management play a role in the success of an ICT implementation. Taking people's feelings and abilities to learn into consideration may prolong the project but this does not affect the costs, if training has been given enough resources in the first place. In fact, running the project as an organizational change may even lower the costs as people are commit to making most of the work themselves as self-organizing bodies and thus the need for outside consultants is reduced. The framework can be used in any country or organization as it is specially designed to take people into consideration as they are and with the abilities they have.

The trick is to identify *what is changing*. In this case the changes affected everyone work and ability to perform and on top of this there was an organizational change from individual work towards using one unified ERP. Had the change been only about the ERP the organizational change steps would have been unnecessary. In this case they were mandatory for the success of the project. Making observation and detecting the little subtle hints from people's behavior and words is difficult and time consuming. I recommend paying much attention to the initial change readiness measurements, because these will tell, what is needed.

The project stayed on budget and schedule and was a success due to:

1. a business case made with qualitative issues and used to commit the staff from the very beginning
2. careful selection of change agents based on their natural abilities, the project's needs and their responsibilities in the company
3. project planning made from the business development point of view
4. an integrated project planning taking knowledge creation, building abilities and communication into consideration
5. much emphasis on employee engagement, developing shared vision and celebrating successes together
6. continuous readiness measurements and reacting to changes

7. communication strategy built on RACI analysis and the audiences needs and abilities to take it in
8. training used as a testing platform

The points of failure again were related to:

1. lack of ICT strategy and risk analysis
2. changes in organizational structures
3. top-management engagement
4. sick leaves and lack of holidays
5. failures in the system operations

From this we can conclude that over 60% of the factors in an ICT implementation are human resources and change management related. Organizations should take all of the changes into consideration, when making decisions about changing rooms or demoting/promoting staff. It is possible that the changes will send the wrong message.

So, returning back to the original research questions, the answers are quite simple. In an organization where the systems play a big role, changes in them always cause an organizational change.

Table 10: Answers to the original research questions

Theme	Question	*Answer*
Main question	Is there a link between strategy, project management, human resources, communication and change management and which role to they play in the success of a successful ICT implementation?	*There is a clear link and they should all be integrated together. The integration and timing of steps needs to be driven by the organizational readiness for change. All of the elements are key elements in the success of any development project.*

Human Resources	How to embed employee engagement and organizational development in the original project plan or should they be?	*They definitely should be and the development and communication plans should be fully integrated.*
Change Management	What is the role of the appropriate Change Management theory, or does it not matter? Do all of them work in all conditions?	*The appropriate change management and project management theories as well as change agents need to be picked according the project's individual needs and characteristics.*
Strategy, Human Resources	Who are the people or stakeholders, who need to be committed to the project and what kind of roles should each of them have?	*The projects audiences should be evaluated using the RACI analysis on each phase and task of the project. There are no predetermined inside or outside audiences; the needs vary based on the task at hand.*
Communication	What is the value of communication strategy? Is open and free communication good or should there be a structure?	*There should definitely be a structure and a RACI analysis and the strategy should be communicated to everyone. Not everyone needs the same information.*
Project Management	What is the basic knowledge and level of planning that must occur before the project starts?	*The project should have an end-date, a beginning, an integrated schedule, determined business needs and readiness measurements. According to this study, everything else can be planned as the project goes along.*

It does not matter, whether the project is for ICT implementation or other business development project; the framework works for each change situation, where people are involved, there is sufficient time and the people stay the same throughout the project.

10.1 Suggestions

Based on this study, I would definitely make some changes to the project organizations regardless of the size and culture of the company. I suggest that each project's steering group would have a person from the human resources department taking care of the needs and strength of the project team. This person should also take responsibility of analyzing the readiness measurement, because they may be difficult for a technical project manager.

On top of human resources, I would recommend to have someone responsible for following the communication as the project manager is usually overwhelmed by sending the messages. He/she rarely has the time to make sure that the message is read or received and understood properly. These could be the tasks of the project controller and this person should prioritize the work according to the RACI analysis.

I also recommend that the planning of the projects is left to a minimum, so that there is leeway to postpone deliveries or deployments and create the necessary abilities before the implementation. In this case this action reduced the resistance to change to zero; on Go-live dates there was no resistance and the problems were faced as challenges rather than life-ending-disasters. The planning from the vendor's, human resources and communication point of view should be fully integrated and run as one project entity.

The framework requires plenty of knowledge of the employees and their internal abilities, which limits the frameworks use in volatile environments. With those constraints I would suggest using Kotter's eight steps change management theory and handling the staff as one big entity regardless of peoples' individual abilities. Also time constraints coming from the outside of the organization cause a constraint which limits the use of organizational readiness as the integration factor. These constraints may include political changes or fusions. In these cases the integration comes from simultaneous timing regardless of the readiness of the staff.

The framework can be used in any types of change situations: international, ICT implementation or any organizational change or in business process development. In mergers and fusions the time constraint creates an obstacle, because everything needs to be aligned and changes happen simultaneously. In these situations it is difficult to maintain the human approach and to analyze people's readiness for changes.

10.2 Summary

Recently there has been some debate about, whether system users should be trained at all, or whether they will learn themselves, if the system has been designed to be easy enough (Alppiranta, 2011). I agree with the idea to a certain point but would also like to ask: "Should users be trained or given a shared vision, lots of change energy and effective results?" It is the conclusion of this study that emphasizing those issues gives people the power to adjust to the change themselves. Training on how to use the tool, is maybe a way to finalizing *the mental change* that has been done before that; the processes need to be clear and understood before a tool is given to perform them with.

In any project, ICT implementation or other business development project, human approach and taking people into consideration from the very beginning is a crucial element in the success of the project. The suggested framework is one way of doing it and it suggests that everything starts with a clear strategic vision and a justification from the business architecture point of view. After this the change management theories, project management methods and communications should be chosen based on the organizational readiness for change and led by carefully picked change agents.

The process requires continuous testing and measuring of change readiness and ability build-up, which lead the timing of the project phases. Other issues under continuous surveillance include:

1. Integration to current procedures
2. Scope
3. Time
4. Costs
5. Quality

6. Human resources
7. Communication
8. Risks
9. Procurement

These issues together are the nine knowledge areas of project management according to PMBOK (Project Management Institute, 2008).

On top of those, employees need to be engaged by managing expectations, maintaining trust and authority, mobilizing energy and sharing the same vision. The resources assigned to the project need to be secure, so that there is very little other human resources related changes and there is a clear leader. Every success should be celebrated and the staff should be able to monitor the progress in real time. In case something goes wrong, the problems should be isolated and rumors tamed down, so that individual misfortunes do not affect the overall feeling surrounding the project.

Table 11: The framework rules

Rule 1	Pick and choose
Rule 2	Integrate
Rule 3	Test and measure
Rule 4	Engage employees
Rule 5	Secure resources
Rule 6	Celebrate success
Rule 7	In case of emergency, isolate

The framework works in cases where time is not a constraint or can be mitigated and where the staff remains relatively stable throughout the duration of the project.

10.3 Further research

The whole framework needs to be tested in other kinds of situations in order to find similarities in people's reactions regardless of any subjective issues they may have going on in their lives. The suggested framework needs testing in implementation with different scopes and in different kinds of organizations and cultures. This testing would increase the internal validity of the framework.

Further research should also be done on keeping the momentum after the implementation, during holidays and/or during employee changes. This all relates to risk analyses and what kind of issues should be taken into consideration from the organizational point of view.

Further research should also be done on the effects of a good implementation on future projects. I stated in the beginning that failures in projects tend to cause fear towards future projects, but does a good project then generate a good momentum? In the case study company, the next implementation was tools for remote work, which had been discussed for years but was left undone due to the fear. So in that case a good ERP project was a beginning of other improvements in the workplace.

There should also be quantitative analyses on the effects of using this framework in Big bang, step-by-step and phase driven implementations. It would need to be measured, if taking people into consideration each step of the way increases the costs of running the project or prolongs the projects. I would like to know in which situations this decreases the overall costs and in which it possibly increases them.

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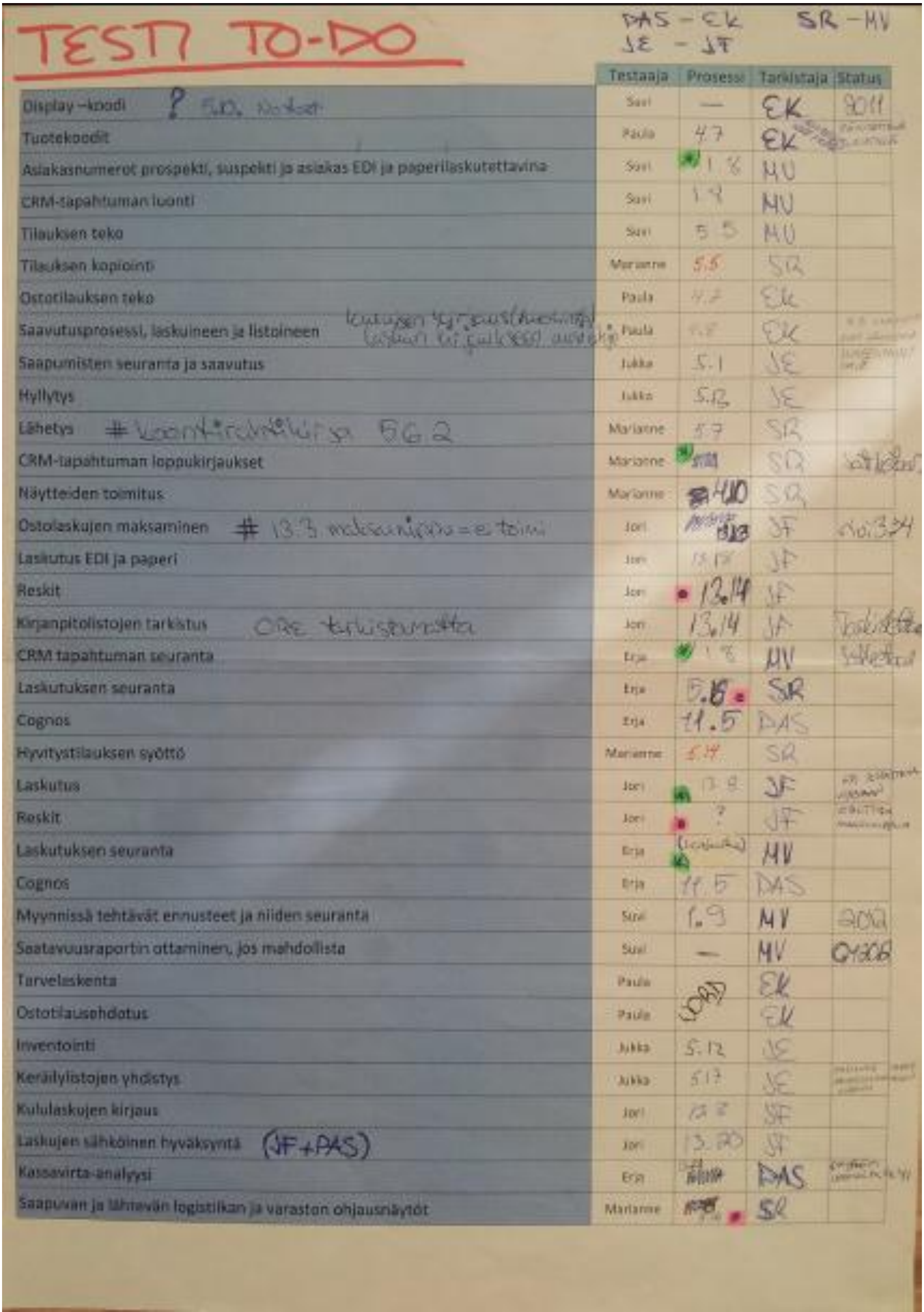
	Enterprise update project schedule		April					May					June					July					August					September				October				November					
	Phase	Info and notes	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	January			
Internet																																									
	New connection 20/20M																																								
Server outsource	Kick-off meeting																																								
	Server outsource project	e-mails 1st, then documents																																							
	New desktops																				!																				
	Closing meeting																																								
	Success celebration	Communicate success																																							
Office 2010																																									
	Change to Office 2010																																								
ERP																																									
	Project coordination																																								
Solution vendor tasks	Set-up of new servers																																								
	Progress RDBMS Area Type II devel. and transition																																								
	Technical coordination																																								
	Progress RDBMS Area Type II testing																																								
	Progress and Enterprise RDS and printers																																								
	Project support for remote services																																								
	Remote support for remote services																																								
	Transfer of tailored solutions																																								
	Inferitance and parameters for tailored solutions																																								
	Database changes and transfers																																								
	Cognos version changes	Communicate success																																							
	Documentation																																								
	Conversions to test and devel.-environments																																								
	Conversions to production environment																																								
	Technical testing																																								
	Support for acceptance testing	Communicate success																																							
	Go live	Communicate success and daily crisis communication																															!									
Training																																									
	Support for Go live																																								
	CRM training for sales	Extra training																																							
	Preparation for training	Institutionalize success																																							
	New features -workshops (3)	Develop shared vision																																							
	Change ninjas: knowledge areas in a project	Develop shared vision																																							
	Tailored solutions -walkthrough	Develop shared vision																																							
	Training for Office 2010	Institutionalize success																																							
	Training environment in use	Focus on results																																							
	Training for new processes: sales	Develop shared vision																																							
	Training for new processes: purchases	Develop shared vision																																							
	Training for new processes: warehouse and finances	Develop shared vision																																							
	Acceptance testing / last training	Focus on results																																							
	New process descriptions	Tools for Go live training																																							
	Support for Go live																																								
Change management	Picking change ninjas	Mobilize energy, identify leadership																																							
	1st readiness measurement: Character-assessment	Analyze change																																							
	1st ICT questionnaire	Develop shared vision																																							
	2nd readiness measurement: culture	Analyze change																																							
	Pick your battles -analyses	Develop shared vision, mobilize energy																																							
	Change ninja rewarding	Gain commitment																																							
	2nd ICT questionnaire	Analyze change																																							
Monitoring																																									
	Opening tasks to outlook	Monitor and adjust change																																							
	Task monitoring	Monitor and adjust change																																							
	Financial follow-up	Monitor and adjust change																																							
Communication																																									
	Meetings: Steering group	Gain commitment																																							
	Meetings: Change ninjas	Mobilize energy and gain commitment																																							
	Meeting: Change ninjas' roles and responsibilities	Gain commitment, idenfy leadership																																							
	Meeting: Organization info	Develop shared vision																																							
	Communicate communication policies	Identify leadership, Institutionalize success																																							

	Enterprise update project schedule		April				May				June				July				August				September				October				November				
	Phase	Info and notes	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	January
	Organizational message about email-server change	Continuos information (at least weekly)																																			
	Meeting: Change ninjas: follow-up on each subproject	Monitor and adjust change																																			
	Meeting: Change ninjas: organizing testing/ training workshops	Focus on results																																			
	Organizational message about testing and training	Weekly and after every workshop																																			
	Organizational info: problem escallation policy	Focus on results																																			
ROI																																					
	Pre study	Focus on results																																			
	Pre study: prioritizing	Develop shared vision																																			
	Value creation analyses	Focus on results, communicate success																																			
Other affecting issues																																					
	Change ninja demotion																																				
	Rooms change																																				
	Sales team panicing																																				
	Sick-leaves (3 change ninjas)																																				
	Testing failures (10)																																				
	Printers off-line																																				
	Project manager and change ninjas' holidays																																				

Prio	Unit	New feature	Current way	Savings / effects
-	All	Open office support	office	License fees
B	All	Mass changes color cells in grey	-	time used for double checking
A	All	Instant solutions deployment on desktop	manual	seconds
-	All	64 bit enviroment	32 -bit	time and capasity
A	All	Multiple criteria for data selection	1 criteria at a time	time and thus money
A	All	Automatic reports upon start-up	Manual running	Appr. 15 min. / day
A	All	Office 2010 support and printing to excel	Manual report-creation	Appr. 20 min. / day / user
A	Sales	Data upload from excel: customers	Manual	Appr. 15 min. / customer
A+	Sales	CRM	Manual customer database (excel), no linked records or sales data	Minimizing double work, reporting directly from the system
C	Purchases	Relex possibility for graphical demand planning	-	-
C	Purchases	Possibility to correct prices	Create a new line	time and money
A	Purchases	Data upload from excel: demand planning	Manual demand planning	6 hours/week
A+	Purchases	Possibility to pre-set the most favoured supplier / article	-	-
A	Purchases	Data upload from excel: articles	Manually	Days / new selection
C	Main user	Data upload from excel: user names and permits	Manual	Some minutes / user
A	Main user	Tools-skripts	-	-
A	Finances	Possibility to combine sales and credit notes	Separate handling	time
B	Finances	IBAN and BIC from system	Printed forms for invoices	time, money, paper
B	Finances	Cashflow analyses	-	-
A	Finances	1 screen payments from all accounts and to all countries	Separated SEPA-countries and outside euro payments	time and money
A	Finances	SEPA upgrade	-	1 100 €
A+	Warehouse	Delivery target data per order line	Tailored solution	Costs of tailoring
A+	Warehouse	Sales order copying	Tailored solution	Costs of tailoring
A+	Warehouse	Delivery target data on picking lists	Tailored solution	Costs of tailoring
B	Warehouse	Possibility to combine picking lists and sign them at once	Picking lists entered into excel and calculated manually	Minimizing picking mistakes, time of manual work, money
B	Warehouse	Credit order, which returns the goods back to stock	Manual inventory	Double work minimized
A	Several	Barcode interface: helps in sales order entering, paying invoices and receiving goods	Manual in all	time and money



TESTI TO-DO

DAS – EK SR – MV
JE – JF

	Testaaja	Prosessi	Tarkistaja	Status
Display –koodi ?	Suvi	—	EK	9011
Tuotekoodit	Paula	4.7	EK	
Asiakasnumerot prospekti, suspekti ja asiakas EDI ja paperilaskutettavina	Suvi	1.8	MV	
CRM-tapahtuman luonti	Suvi	1.8	MV	
Tilauksen teko	Suvi	5.5	MV	
Tilauksen kopiointi	Marianne	5.5	SR	
Ostotilauksen teko	Paula	4.7	EK	
Saavutusprosessi, laskuineen ja listoineen	Paula	4.8	EK	
Saapumisten seuranta ja saavutus	Jukka	5.1	JE	
Hyllytys	Jukka	5.12	JE	
Lähetys # 5.6.2	Marianne	5.7	SR	
CRM-tapahtuman loppukirjaukset	Marianne		SR	
Näytteiden toimitus	Marianne	4.10	SR	
Ostolaskujen maksaminen # 13.3	Jori	13.3	JF	
Laskutus EDI ja paperi	Jori	13.17	JF	
Reskit	Jori	13.14	JF	
Kirjanpitolistojen tarkistus	Jori	13.14	JF	
CRM tapahtuman seuranta	Erja	1.8	MV	
Laskutuksen seuranta	Erja	5.16	SR	
Cognos	Erja	11.5	DAS	
Hyvitystilauksen syöttö	Marianne	5.14	SR	
Laskutus	Jori	13.8	JF	
Reskit	Jori	?	JF	
Laskutuksen seuranta	Erja		MV	
Cognos	Erja	11.5	DAS	
Myynnissä tehtävät ennusteet ja niiden seuranta	Suvi	1.9	MV	9002
Saatavuusraportin ottaminen, jos mahdollista	Suvi	—	MV	9?
Tarveleskenta	Paula		EK	
Ostotilausehdotus	Paula		EK	
Inventointi	Jukka	5.12	JE	
Keräilylistojen yhdistys	Jukka	5.17	JE	
Kululaskujen kirjaus	Jori	13.2	JF	
Laskujen sähköinen hyväksyntä (JF+PAS)	Jori	13.20	JF	
Kassavirta-analyysi	Erja		DAS	
Saapuvan ja lähtevän logistiikan ja varaston ohjausnäytöt	Marianne		SR	

ERP update RACI

Issue	Ninja Sales	Ninja Purchases	Ninja Finances	Ninja Warehouse	Ninja Sales orders	Sales dep.	Purchase dep.	Finance dep.	Warehouse	Order handling	Steering group	CEO + SD
Internet connection 20/20M	I	I	I	I	I	I	I	I	I	I	I	I
Server outsource Kick-off meeting	I	I	I	I	I							
Server outsource project: e-mails	A	A	A	A	A	I	I	I	I	I	I	I
Server outsource project: documents	A	A	A	A	A	I	I	I	I	I	I	I
New desktops and passwords	A	A	A	A	A	A	A	A	A	A	A	A
Server outsource Closing meeting	I	I	I	I	I							
Change to Office 2010	A	A	A	A	A	C	C	C	C	C	I	I
ERP Set-up of new servers	I	I	I	I	I						I	
ERP Progress RDBMS Area Type II devel. and transition	I	I	I	I	I						I	I
ERP Progress RDBMS Area Type II testing	I	I	I	I	I						I	
ERP Progress and Enterprise RDS and printers	I	I	I	I	I						I	
ERP Remote support for remote services	I	I	I	I	I						I	
ERP Transfer of tailored solutions	I	I	I	I	I						I	
ERP Inferitance and parameters for tailored solutions	I	I	I	I	I						I	
ERP Database changes and transfers	I	I	I	I	I						I	
ERP Cognos version changes	I	A	I	A	I						I	
ERP Documentation	I	I	I	I	I						I	
ERP Conversions to test and devel.-environments	C	C	C	C	C						I	
ERP Conversions to production environment	C	C	C	C	C						I	
ERP Technical testing	I	I	I	I	I						I	
ERP Go live	A	A	A	A	A	A	A	A	A	A	I	I
Support for Go live	I	I	I	I	I	I	I	I	I	I	I	I
CRM training for sales	R	I	I	I	C	A				C	I	I
New features -workshop: Sales	R	I	I	I	C	A	I	I	I	C	I	I
New features -workshop: Purchases	I	R	I	C	I	I	A	I	C	I	I	I
New features -workshop: Warehouse and finance	I	C	R	R	C	I	C	A	A	C	I	I
Training: Change agents: knowledge areas in a project	A	A	A	A	A						I	
Tailored solutions -walkthrough	C	C	C	A	C						I	I
Training environment in use	A	A	A	A	A							
Training for new processes: sales and orders	R	C	C	C	R						I	I
Training for new processes: purchases	C	R	C	C	C						I	I
Training for new processes: warehouse	C	C	C	R	C						I	I

ERP update RACI

Issue	Ninja Sales	Ninja Purchases	Ninja Finances	Ninja Warehouse	Ninja Sales orders	Sales dep.	Purchase dep.	Finance dep.	Warehouse	Order handling	Steering group	CEO + SD
Training for new processes: finances	C	C	R	C	C						I	I
Acceptance testing / last training: sales	R	C	C	C	C	A	I	I	I	I	I	I
Acceptance testing / last training: purchases	C	R	C	C	C	I	A	I	I	I	I	I
Acceptance testing / last training: warehouse and orders	C	C	C	R	R	I	I	I	A	A	I	I
Acceptance testing / last training: finances	C	C	R	C	C	I	I	A	I	I	I	I
New process descriptions	R	R	R	R	R	A/C	A/C	A/C	A/C	A/C	I	I
Support for Go live	C	C	C	C	C	I	I	I	I	I	I	I
Introducing change agents						I	I	I	I	I	I	I
1st ICT questionnaire	C	C	C	C	C	C	C	C	C	C	I	I
1st readiness measurement: culture	C	C	C	C	C	C	C	C	C	C	I	I
2nd readiness measurement: Character-assessment	C	C	C	C	C	C	C	C	C	C	I	I
Pick your battles -analyses	A	A	A	A	A						I	
Change agent rewarding												A
2nd ICT questionnaire	C	C	C	C	C	C	C	C	C	C	I	I
Opening tasks to outlook	R	R	R	R	R	I	I	I	I	I	I	
Task monitoring	A	A	A	A	A							
Financial follow-up	I	I	I	I	I						I	I
Meetings: Steering group											A	I
Meetings: Change agents	A	A	A	A	A						I	
Meeting: Change agents' roles and responsibilities	A	A	A	A	A						I	
Meeting: Organization info	C	C	C	C	C	I	I	I	I	I	I	I
Organizational message about email-server change	I	I	I	I	I	I	I	I	I	I	I	I
Meeting: Change agents: follow-up on each subproject	A	A	A	A	A							
Meeting: Change agents: organizing testing/ training workshops	A	A	A	A	A							
Organizational message about testing and training	I	I	I	I	I	I	I	I	I	I	I	I
Organizational info: problem escallation policy	C	C	C	C	C	I	I	I	I	I	I	I
Pre study	C	C	C	C	C						I	I
Pre study: prioritizing	C	C	C	C	C							
Value creation analyses	A	A	A	A	A	I	I	I	I	I	I	I

Interviewer: Erja Klemola

Interviewee: Ms. P. Salmi

Date: 4.10.2012 14:00 Otaniemi, Espoo

1. What do you think of the case study in your own words?

Paula: Overall, the experiences and notes regarding the project and the success are well described! (e-mail: 4.9.2012)

Paula: I have worked for big and smaller organizations and can say that this framework applies for cases in isolated cases and /or small organizations, where knowing the people is possible. The environment needs to be stable and this may not be possible in bigger organizations. taking people into consideration is a must in all cases, but this framework is easier to manage in smaller organizations. (interview: 4.10.2012)

The ideas in the framework are replicable into different situation, but the execution must be tailored case by case. Not all elements work in all situations. (interview: 4.10.2012)

In a global roll-out the framework would be impossible to use as time is a constraint and there are thousands of employees. In these cases communication goes (unfortunately) one way and taking everyone into consideration individually is impossible. (interview: 4.10.2012)

a. Have you come across similar situations in your own career?

Paula: I come across these issues in IT projects as well as other development projects. The issues do not depend on the field of operations, company or development issue.

Users/people have to be taken into consideration from the beginning. The framework can be used in all projects with people involved. (interview: 4.10.2012)

Paula: When a change involves people the first question is: "how does this affect me?" Choosing the change agents is a must and there is no general figure how many there should be. The change agents can be from different geographical location, business units, or cultures and or use different languages. In this sense the "pick and choose" –theory works. The main criterion is not the characteristics of the person but the professional competence of the person. The person has to be credible. (interview: 4.10.2012)

Erja: I agree, because I am currently "using" a change agent, who is the most reluctant to change and not an easy person, but still a good and persuasive change agent. (interview: 4.10.2012)

Paula: There has to be a critic in the team. (interview: 4.10.2012)

➔ *note to case study: in that case, choosing the people based on their natural characteristics was the right choice, but this may not be applicable to all cases.*

2. Now that you are familiar with the case study, can you see yourself repeating the events in your cases?

Paula: The same tactics can be used but it is rarely possible. (interview: 4.10.2012)

a. If no, which issues are subjective to this particular case?

Paula on using Luecke's theory regarding putting emphasis on trusting people to do the work and monitoring the progress themselves (study page 42): "I wonder how that would apply when there's a restricted amount of time, for example in fusions? Or when there's little money to use and the project has to be run with limited resources? (e-mail: 4.9.2012)

Paula: When outside resources are involved the projects are usually restricted with time and money. For the framework to work, flexibility is a must. This flexibility has

to be negotiated before the project begins with all parties; including solution vendors. (interview: 4.10.2012)

The framework is easier to apply if the project manager is an internal resource and the organization is small. (interview: 4.10.2012)

b. If yes, which parts in particular?

Paula agrees with "With the aid of a few rules of thumb the situation can be turned into a joyful process of organizational development for each participating party." (study page 75) (e-mail: 4.9.2012)

Paula: The Human approach is an universal must. (interview: 4.10.2012)

3. In the case study *knowing the people* involved played a big role. Would you do the same questionnaires to get to know your customer's staff?

Paula: This is not possible in bigger organizations. If the organization is small and limited, the framework works better. I've used the similar questionnaires for, for example, IT's internal issues in looking for knowledge gaps. I would use the questionnaires when a specific change needs specific knowledge creation and the target group is small enough. (interview: 4.10.2012)

a. Is it important to know the people in your own opinion?

Paula: Yes. When people are but first, the projects have a much better chance of succeeding. (interview: 4.10.2012)

b. Do Sofigators have the possibility to go to these lengths at the customer's site?

Paula: not really. (interview: 4.10.2012)

i. If no, what can we do?

Paula: It's very rare, because usually the project have cost and scedule constraints. (interview: 4.10.2012)

Erja: One possibility is to include these steps in the original project plan, when the needs are recognized in the early stages. (interview: 4.10.2012)

ii. If yes, will you use the method in your next case?

Paula: I would, if it was possible (interview: 4.10.2012)

4. According to the findings, there is a clear link between human resources and change management issues and the success of an ICT project. Do you agree with the findings?

Paula on: "The resourcing must not be the task of the project manager, there has to be another person looking out for the well-being of the whole team. I think that that would have saved us from a lot of grief." → *tbd: I slightly disagree"* (e-mail: 4.9.2012)

Paula: This depends on the organizational roles and responsibilities. Usually taking care of the peoples well being is the project manager's responsibility, because no one else is close enough to the project. The final responsibility is with the project owner. (interview: 4.10.2012)

People may feel unhappiness because of the project or any other reason. In these cases the Project Manager may be the one who detects the fatigue but the reason is somewhere else. In most cases HR is involved in projects only if it includes changing peoples' job descriptions or maybe layoffs. (interview: 4.10.2012)

Otherwise, I agree with the findings. (interview: 4.10.2012)

The change manager should be the one to whom the role fits the best. It may be the Project manager or the line manager or someone else. Change management should begin long before the project even starts. (interview: 4.10.2012)

5. Do you agree with the built framework and would you use it to guide you next project?

Paula: question regarding adequate authority: how to verify adequate authority in each case and organizations? In my experience 'rules for the road' must be agreed and recorded in the very beginning between steering group and pm. I usually suggest to SG what I'm authorized to decide as pm, € limits, resourcing policy, etc.. (e-mail: 4.9.2012)

Paula on "Pick and choose": This cannot be generalized but fits this case study. In a bigger organization the same possibilities and rules don't apply. This kind of method is applicable only if you have a chance to pick and choose whoever you want to from the organization. (e-mail: 4.9.2012)

Paula on the framework:→ this kind approach is very good, stipulating the solution supplier (or other external party) is very flexible in providing resources to the project. Means careful approach to the contract with the solution supplier, what kind of pricing model will be the best? (e-mail: 4.9.2012)

Paula: It is rarely possible to use the whole framework, but I'd use it if the chance arrived. It requires flexibility regarding timetables; for example rule "test and measure" may require for the time table to change based on the results. In rule " In case of emergency: isolate" the project manager's own calmness is crucial. (interview: 4.10.2012)

Paula on the framework: (interview: 4.10.2012)

Framework element	**Statement**	**Agree**	**Disagree**
Strategy and business architecture	Change driven by strategy and business architecture	V	
Integrated phases	Integration of phases driven by the organizational readiness for change.	V	V (FUSIONS)
Change Management	1) Choose the appropriate change management theory	V	
	2) Make readiness measurements	V	
	3) Mobilize energy and gain commitment; engage	V	

	4) Develop shared vision	V	
	5) Identify leadership	V	
	6) Institutionalize and celebrate success	V	
	7) Monitor and adjust change	V	
Communication	Ensure equal engagement with RACI	V	
Human resources	1) Choose the appropriate change agents	V	
	2) Manage expectations	V	
	3) Minimize other human resource related changes	V	
	4) Maintain trust and authority	V	
	5) Isolate problems (block escalation)	V	
	6) Track sick leaves	V	
	7) Ensure sufficient time off	V	
Project management	1) Choose the appropriate PM method	V	
	2) Analyze nine knowledge areas continuously	V	
	3) Schedule based on readiness for change and integrate	V	
	4) Ensure resources for change management and communication	V	

Paula: but all elements are not applicable to all situations! (interview: 4.10.2012)

Paula: Can you change the "A successful ICT implementation" into "A successful change implementation"? The framework is applicable regardless of the target. (interview: 4.10.2012)

Transcript was approved by the interviewee on: 4.10.2012

Study diary

Timing		Notes	Observation
Between 2008-2010	**Pre-work**	The company's staff are stressed about ICT implementations. They get frustrated in the mention of something new.	Anxious talking, resistance to change, promises to change but then continuing with the old method, refusing to participate in ICT related issues. Not using the current tools to their full potential. Important: people are good at using the tools but due to lack of theoretical training (no high education or degrees) they don't always understand the reasons, why the tools are used or what is achieved with them.
		The top-management is reluctant to give funding to any new implementation, because even the old ones are not fully utilized.	Even though projects are well prepared and presented, no funding is given. The servers are over 7 years old, thus not covered by warranty, which is highly risky to business continuation
		Mapping of all processes reveals many cases, where the current tools are either not working properly, not used or prevent the process from being streamlined. Time used: 9 months in 2008	Some ICT solutions prevent the process from working. The staff are working for the tools instead of the tools being used to promote the business processes. Some processes have been developed, because the systems require them; business benefits are lacking.
		Talking to people reveals lack of trust towards ICT solutions.	ICT tools are used and they form the bases of peoples' work but the company has never had a proper ICT manager, so there hasn't been any real training or support for the tools. People are left to survive on their own and finding ways to use the tools by themselves. This seems to lead to not understanding the business value of the tools.
Q4 2010	**Current situation and business values of the new version**	Creating an "ICT team" creates enthusiasm towards the future.	Choosing the correct people from each business unit created happiness amongst the selected people and trust towards the coming projects.
		Mapping current process and checking how the new version could handle them reveals many saving points	The possibility of streaming many manual process creates eagerness for the change to happen (amongst the staff). Top-management is still not convinced as past projects have failed. Regardless the negotiations with vendors begin. Integrating the new processes with the old ones created a sense of transformation instead of something completely new. The transformation can be managed with Luecke's seven steps change management theory, so I picked that one for tis case. Picking the correct one, was a success.
		I start the train myself in project management, change management, talent management and communication in order to prepare for the project.	This convinces the top-management that I'm serious about the project and will be doing everything I can to make everything work. Finally the funding is given.
		Testing the ICT team members ego states	This test reveals, what kind of personalities I have in my team and what kind of roles I can give to these people in the project. Due to confidentiality the results cannot be published.
Q2 2011	**Testing HR, CM and communication**	The ICT team members are trained into project management and they given tasks to prepare for the project.	The training of the theories of project management and people engagement increased the readiness and knowledge of the ninjas giving them the required trust in their own work. Now that the project management procedures were clear to all, they were confident in front of others. This lead to trust towards the whole project and the staff begun to increase their knowledge as well.
		The first ICT questionnaire is sent	Results give validation that the project is needed and that the staff is ready to help each other in the project. The fact that the staff was interviewed resulted in top-management trust. They gave the project to me entirely and stepped aside.
		Culture test	Testing the company culture reveals that most people do not actually like working in a team, they like to make their own decisions. On the other hand they are also result driven, not concentrating on the way things should be done but on the results. This culture needs to be changed as the new system promotes working together in specific sequences. If people are independent and leave things undone, the processes will not work. -> increase group work and mix groups.
		Add HR, CM and communication to the Gantt chart and integrate	Integrating the people related tasks with the technical Gantt chart gave me a clear view into what needed to be achieved before the technical solutions could be implemented. With this I had more confidence and I could really manage the project correctly from the people's point of view.

Study diary

Timing		Notes	Observation
		Change ninja demotion	Demoting a change ninja gave a signal of mistrust. The dust settled but it had to made sure that the demotion was due to non-IT reasons and I needed to make sure that everyone knew that I still had trust in the person.
		Continuous meetings and sequenced communication based on RACI	This method created a sense of "methodological" trust towards the project. On one hand the ninjas knew, where we were going, the steering group knew that they were always informed and the staff knew that they would receive all the information they needed when the time was right. Note: the top-management were receiving only a limited amount of information as they were notified only about the progress and not the tasks or what they contained. The continuous memos, meetings, group work and organizational info gave a shared vision for everyone.
		Change of rooms	The changing of rooms created a bit of a hustle as it was interpreted as a hierarchical change. Note: even the slightest change can influence the project in a small company.
Q3 2011	**Monitoring and updating**	Everything is going great -> communicate about progress and discrepancies	As everything was going great, the communication was get soothing and informational. The tasks were continuously updated maintaining the high quality of managing the project and all issues were clearly communicated. This gave everyone a sense of trust towards the project and everyone went to holidays with a peaceful mind. No resistance to changes were reported even tough the e-mail program was updated from Outlook 2003 to 2010. The training material was distributed before the holidays. My own holidays were postponed to the end of the project -> note to self, this leads to fatigue.
		2nd ICT questionnaire	The repeat of the ICT questionnaire revealed that the changes in the e-mail program had effects on the staff; the willingness to help others had reduced slightly. This was no surprise as the staff relied on the tools and during getting used to the new tools, they concentrated on themselves. This was the first indication that there might be problems in the future if training was not comprehensive enough. -> training was added
Q4 2011	**Implementation**	Training environment	The change ninjas had access to the training environment of the new system months before the others. The change ninjas were doing system testing while training for the new processes. This reduced problems in the implementation lowering the time needed and the costs.
		Departmental training with an outside consultant	For the training where everyone had access to the training environment was done in groups so that everyone had the same info. The training was organized so that we all participated in the same fictional process increasing the importance of teamwork. At the same time, the last testing was done and everything was thus fixed before the go-live. The Only thing left untested was printing.
		Change ninjas sick leaves	Ninja ill for 2 + 1 days, ninja ill for 6 days, ninja ill for 2 days. These sick leaves happened during the same time right after the trainings. The ones that were ill were the ones with the most pressure on their shoulders. Note: more support has to be offered to the people with the most pressure, including the project manager.
		Sales team stress	One of the ill ninjas was from the sales department, creating a lack of support for them. There was shouting on the corridors and otherwise irregular and inappropriate behavior. Note: the sick leaves have to be taken into consideration and a good risk analyses is a must
		Lack of holiday -> fatigue	In the end I was really tired, because I'd been working without a holiday for a year.
		No resistance to change	Regardless of the stress the sales team was showing, there was no reported resistance to change. The training and the methods used during the year had created in a sense of trust, which resulted in a calm wait for a better future instead of fear towards the new tools.