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Use of Information Systems in IT Project Management Processes

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Abstract

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IT companies develop new products through projects. To support projects, many commercial and company's own information systems have been developed in order to ease the scheduling and document management. A company usually has a process that individual projects follow.

The research objective was to examine the project support status of Nordea's IT security unit, IT Operational Security. Firstly, theoretical information was gathered about project management, its phases and processes and information systems. Secondly, two pieces of commercial software for project management were acquainted with. Finally, the theory was applied to map out the steps a project follows.

The research answers three questions: how project management processes and information systems have been documented in Nordea's security unit, how the processes were actualized and how information systems severed their purpose, and what kind of information system would be the best for project management in Nordea.

The research method was to find out areas of improvement within the process by interviewing employees within Nordea. Two information systems related to the project support process are reviewed based on their suitability to the process. The results are compared to the documentation of the project support process in IT Operational Security. The results are summarized to help develop the process.

The results indicate that the project support process does not function properly with the current definitions, and significant disparities exist between documentation and practice.

Keywords	IT project, project management, information system

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Tiivistelmä

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IT-yritykset kehittävät uusia tuotteitaan perustamalla projekteja. Projektinhallinnan tueksi on rakennettu useita kaupallisia ja yritysten omia tietojärjestelmiä, joilla aikataulutus ja dokumenttienhallinta kyetään järjestämään mahdollisimman helpoksi. Projekti etenee yleensä yrityksissä saman kaavan, eli prosessin, mukaan.

Tutkimuksen tavoitteena oli selvittää Nordean tietoturvayksikön IT Operational Securityn projektien tukipalveluprosessin nykytilannetta. Tutkimuksen aluksi kerättiin teoriatietoa projektinhallinnasta, sen vaiheista ja prosesseista sekä tietojärjestelmistä esitellen kaksi kaupallista ohjelmistoa projektinhallintaan. Teoriatiedon avulla hahmoteltiin perusominaisuuksia, joita projektin kulku noudattaa.

Tutkimus pyrkii vastaamaan kolmeen kysymykseen: kuinka projektinhallinnanprosessi ja tietojärjestelmät on dokumentoitu Nordean tietoturvayksikössä, kuinka prosessi on toteutettu ja kuinka tietojärjestelmät palvelevat tarkoitustaan sekä minkälainen tietojärjestelmä toimisi parhaiten projektinhallinnassa.

Tutkimusmenetelmä on prosessin ongelmakohtien tunnistaminen haastattelemalla eri työntekijöitä Nordeassa. Tukiprosessiin liittyy kiinteästi kahden eri tietojärjestelmän käyttö, joiden sopivuutta tehtävään arvioidaan. Tuloksia verrataan viralliseen dokumentaatioon projektituen prosessista IT Operational Securityssä. Ilmitulleista asioista koostetaan yhteenveto, joiden perusteella prosessia kyetään kehittämään.

Tutkimustulokset osoittavat, että projektitukiprosessi ei ole toimiva nykymäärityksillä ja siinä on merkittäviä poikkeuksia käytännön ja dokumentaatiotiedon välillä.

Avainsanat	IT-projekti, projektinhallinta, tietojärjestelmä

Preface

Writing this study has been a great learning process for me. In the past, I have had opportunities to work with various project management processes and it has been very satisfying to write on the subject.

I would like to thank my supervisor Vesa Ollikainen, from Metropolia University of Applied Sciences, for his support, motivating and valuable comments during the writing of this study, as well as Jonita Martelius for the help provided with the English language.

I would like to thank my instructor Emil Wallin and all other colleagues at Nordea IT Operational Security, for their invaluable support and guidance.

Finally, I would like to thank my fiancé, all the members of my family and friends for their relentless support and encouragement.

April 13, 2012
Espoo, Finland
Saila Suvanto

Contents

1 Introduction

Corporations use a lot of effort to create and to maintain their product. The idea behind the project thinking has culminated in 1990's and 2000's and almost every small change in any project or service is done in as a project in IT companies. This has lead IT companies to optimize their working methods and to create a project-based mindset. [1].

The project-based mindset has developed project-orienting working habits in various directions and the project management has been emphasized in companies. A successful project management process is reachable, and various tools have been developed for it. [1].

The initial goal of this study is to provide an improved understanding of existing project management processes and how information systems are used in them in Nordea bank. The study was made for Nordea bank and its security unit, IT Operational Security, which operates in all Northern European countries. Recommendations are constructed based on interviews and by comparing the interview responses to Nordea's official documents. The results are analyzed in accordance to project management and infrastructure systems literature.

Chapter 2 presents the background material and the research questions for the present study. It also provides information on the project life-cycle of Nordea and how IT Operational Security is related to it. Furthermore, information on the information systems used in Nordea and its IT Operational Security unit is given.

Chapter 3 is an overview of project management and information systems through literature. The chapter contains the theoretical background for the study used in the analysis. The chapter also presents the software tools for project management.

Chapter 4 presents information of the research methods used. The study is based on interviews results are compared to existing documentation. The chapter provides information on how the interviews were conducted and the questions. The second part

of the chapter presents the official documentation of the project management processes.

Chapter 5 provides information about the responses of the interviews. The responses have been compared to the documentation of Nordea in order to find any differences.

Chapter 6 is the conclusion chapter which provides answers to the research questions presented in Chapter 2. The conclusion chapter also draws future scenarios for Nordea. The theoretical background is utilized here for a wider perspective of information systems and the project management.

2 Research Objective and Scope

The present study focuses on information systems used in project management processes. Throughout the study, the project support of Nordea's IT Operational Security is used as a case example. The author has worked in Nordea IT Operational Security for a year in different kind of tasks and has got a wide perspective on how the IT Operational Security unit operates. The subject of the thesis was established from the needs of the unit. The tasks of the author were not related to the study subject. However, it gave an opportunity to get an outside view of the topic and still understand how it was related to IT Operational Security and its needs.

When the study was started, it was evident that there were problems in the Nordea project support process but the exact location of problems was unknown. To tackle these problems, the case for Nordea was divided in two tasks. The first task was to achieve an understanding of the current condition of the project support by interviewing employees in different units. The second task was to compare the responses of the interviews to the official documentation of Nordea. The same employees were also enquired how they would see the project support in the future.

The first phase was to examine the information systems, the actual processes and the working methods. After the first interview round, it became clear that this present study would concentrate more on the project management processes and less on the infrastructure systems.

In the initial phase of the project there were two open questions. The first question was what kind of problems Nordea's current infrastructure system has and how it operates. The second question was more general: what are the characteristics and challenges of an infrastructure system approaching to the end of its lifecycle.

As the project commenced, the first question turned out to be relevant in some parts but the second one was found less important in respect of the problems at hand. Consequently, the three main research questions were set:

1. How the processes of project management and information systems have been documented in Nordea's security unit (IT Operational Security)?

2. How processes are actualized and how information systems serve their purpose?
3. What kind of information system would act as the best information system for the project management?

The following chapters present necessary background information for the study. Chapter 2.1 presents background information on Nordea as a company and Chapter 2.2 describes the project lifecycle in Nordea. Chapter 2.3 concentrates on information systems used in Nordea. Chapter 2.4 briefly describes an example project.

2.1 Background Information on Nordea

Nordea is the largest financial services group in Northern Europe with a market capitalization of approximately EUR 28 billion and is among the ten largest universal banks in Europe. Nordea has around 11 million customers, approximately 36,500 employees and 1,400 branch offices. The vision of Nordea is to be a Great European bank, acknowledged for its people and creating value for customers and shareholders. [2; 3].

Nordea operates in nine home markets; Sweden, Finland, Norway, Denmark, Russia, Estonia, Poland, Latvia and Lithuania. Nordea is listed on the NASDAQ OMC Nordic Exchange in Stockholm, Helsinki and Copenhagen. [3]. Nordea was founded in 2000 when Nordbanken, Merita, Unibank and K-bank combined the entire Group under one common brand [4].

IT Operational Security unit is responsible for Nordea's IT security. The employees of IT Operational Security operate in all four countries, Finland, Sweden, Norway and Denmark. IT Operational Security is divided into three sub-units and every sub-unit has its own service responsibilities.

This study is mainly concerned of IT Security Support Service and its subsection General IT Security Project Support. These services are common for everyone in IT Operational Security and are presented in details in Chapter 4.

ITAG (IT Architecture Group) is a decision body for system and project architecture. Each member represents a stakeholder group and often has mandate on an architec-

ture discipline. Overall, ITAG consist of several groups of employees and each ITAG has at least three members: the business IT architect, the security architect and the technical architect. ITAG's purpose is to provide support and quality assurance to the project in the respective IT area. In practice, ITAG has a major role in a project's progress but it is left out from the present study. The role of ITAG does not help understand the project support process in IT Operational Security, though it is relevant from the larger perspective and an important actor to understand the basics of the role.

2.2 Project Lifecycle in Nordea

A project is a temporary endeavour to create a unique product, service or result. Nordea has two major scopes; running the bank and developing the bank. Developing of the bank is done by creating a project.

Figure 1 represents the lifecycle of a project in Nordea. The gates are marked with diamonds and the phase number, e.g "D1". The phase is the arrow pointing to the following gate. The phase is a milestone for project and if passed, the project is able to continue. Main gates are D1, D2, D3 and D4. Gate D2 and its sub-gates are the most relevant for the study and this study mainly concentrates to these. The project must be able to pass every gate and get ITAG's approval to be able go forward.

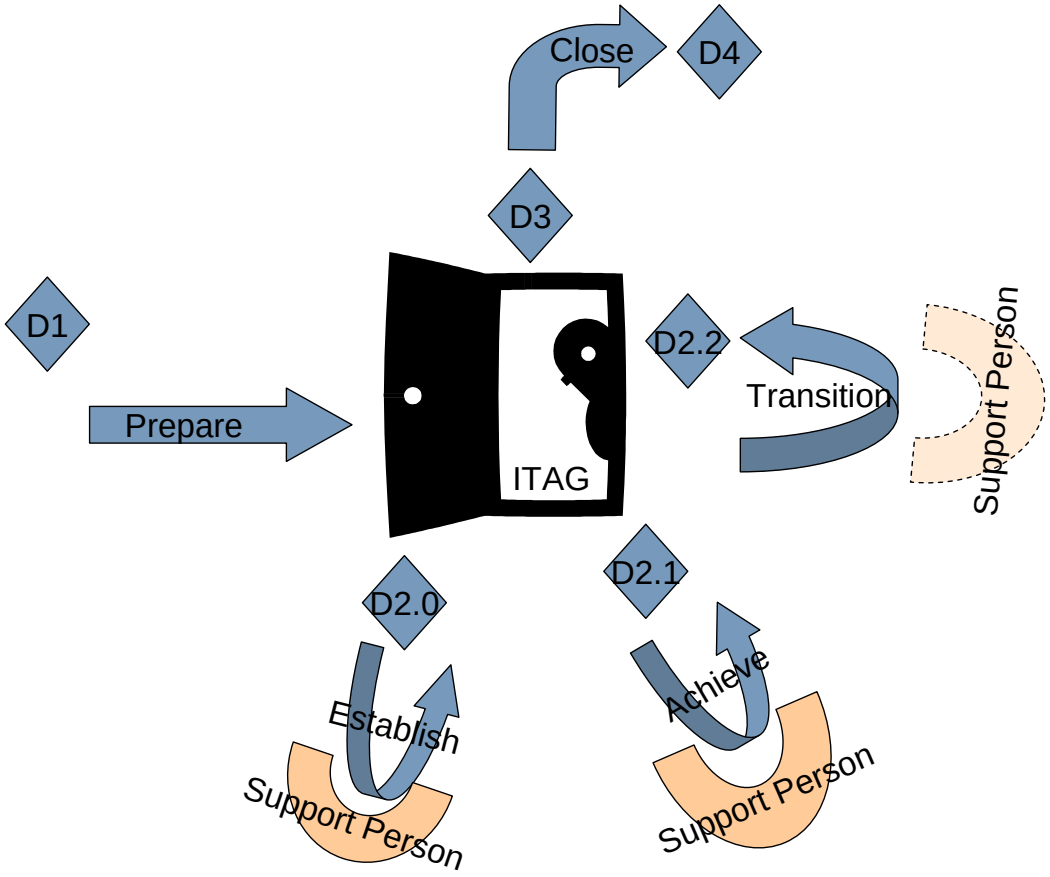

Figure 1: Lifecycle of a project.

Every step forward in the project lifecycle will need ITAG's approval. Each project has one main document that it maintains: SAD (Security Architect Document). A project is not allowed to neglect the SAD and ITAG will review the SAD in each phase that is marked with "D" in Figure 1.

The SAD consist of several smaller documents and check lists. One of these is a security check list in the security chapter of SAD. ITAG will not approve a phase if the project's SAD is not properly filled, which may cause in delays for the project. In the worst case, a project will be held until the SAD is corrected.

In order to help new projects to overcome problems with the policies and standards of Nordea, IT Operational Security will name a support person for each project as a "help resource". Most of the security unit's employees are involved in this project support. The support person, aka contact person, is mostly involved in phases D2.0 (Establish), D2.1 (Achieve) and sometimes in D2.2 (Transition).

The main task of a security support person is to check the SAD's security list and to help the project realize the security issues. The tasks of a support person in a project are elaborated in Chapters 4 and 5.

This study does not address the overall lifecycle of a project in Nordea. The scope is narrowed only to the perspective of IT Operational Security and how IT Operational Security is involved.

2.3 Information Systems

The project updates all its documentations to an information system called NIIDS (Nordea IT Investment and Development System). NIIDS is a common mandatory project management system where all project employees, the project manager, ITAG and other interested bodies can follow up the project's status and gather the information of the documents. This is the official project management system of Nordea and it is used regardless of the project's country or unit. Some of the information given below is vaguely based on Nordea confidential documents.

NIIDS is used for registration of proposals, improvements, projects and project ideas. It is also used for project progress and traffic light reporting[1], and registration of estimated costs and budgets. Overall, NIIDS is used for all administrating purposes.

NIIDS is the master system for registration of estimated costs and budgets (which can be exported to other systems). It is used in ITAG's review process. NIIDS is basically the foundation for continuously ongoing project reviews.

NIIDS is used through a web application running in a Web browser in Nordea's Intranet. NIIDS provides budget and time scheduler functions for project managers. When a project manager creates the project, there are automatic slots for budgets and time schedules. Most of the time schedulers serve as overall life-cycle time lines and do not contain information about e.g. weekly meetings. The time scheduler is created from Nordea's point of view and it shows clearly when the project is estimate to be in each phase e.g. in review gate 1 or when it will be in production.

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[1] Traffic light reporting is a progress bar where is the progress expressed with different colours. Red means that the project is delayed or stopped, yellow is unclear and green is progressing.

NIIDS provides the project management information but it is not the best tool for keeping track of daily tasks, such as normal project meetings. The other commonly used tools (in IT projects) are SharePoint and Microsoft Project. These tools are presented in Chapter 3. Projects use usually a mix of these and it is up to the project manager and the project team to decide the tools they use. If the project is only a renewal for existing system/product the project manager uses solely NIIDS. If the project is massive and the estimated finalisation day up to two or three years from the start, the project material is likely to be found somewhere else than in NIIDS. The SAD and other documents are still saved in NIIDS to make them available for the support units.

Overall, NIIDS is a system that provides the mandatory information of coming projects to everyone interested in Nordea. It is not a storage place for all documentations and the detailed planning of the project. Time schedules for the project's employees, is done somewhere else. The idea behind NIIDS is to provide the information on a project's estimated life-cycle, its effects to business side or IT side, as well as its costs and results. For example, it is the only place in Nordea where the future of IT solutions can be quickly searched.

IT Operational Security also has its own project management system. This system is linked to NIIDS and IT Operational Security's project management system updates almost all data from it with the exception of named security persons i.e. support persons. The data of support person is updated through a system that uses Microsoft Access 2000/2003 as its primary database. User interface is processed through Access. This system offers an important comment functionality but this comment box is visible only for the project's security support person and the comments are not distributed to the project. The comment functionality is more like a note box for a support person. NIIDS cannot offer any comment possibilities.

For confidentiality reasons, screen captures or any other detailed information are not presented from these two systems.

2.4 Example Project

To be able to understand the whole complexity of the projects and project support, an example project is described. This project does not exist in Nordea and does not have any relations to real projects.

An IT unit, Developer, wants to create new software and publish it to everyone in their local unit in Finland i.e. for internal use. The unit Developer has chosen one of their employees to be the project manager. The project manager needs a project group and chooses two software developers and five testers from the same unit to help in the project.

The project manager creates a project plan with information about the deadline, architectural needs, budget and needed resources. The project plan includes the project's SAD. Then the project manager contacts ITAG and registers the project onto NIIDS.

ITAG goes through the plan and contacts the project manager if they have any questions of the project. If necessary, ITAG will suggest changes in architectural solutions. ITAG will approve or reject the project proposition.

After passing the gate D1 will start and they will adjust their plans and deadlines. After the preparations are completed, ITAG will give approval to proceed to phase D2.

When the project gets the permission to proceed to gate D2, IT Operational Security will get a notification from NIIDS. As a consequence, IT Operational Security goes through the material of the project and, based on the information, decides which one of the IT Operational Security's employees has the competence to support that project.

In an ideal situation, the support person from IT Operational Security will go through the project materials and sends suggestions on security issues to project manager. In this project, the issues could be architectural, such as the software's connection to internal systems. The support person will check the security list from SAD and if there is something to comment, they will contact the project and find the solution. Normally, the support person is involved in phases D2.1 and D2.2. These phases have the most relevant security issues.

In this project, the security issue could more likely be related to the application security. The support person would then guide the project to take a look at applications security policies and standards in Nordea. After the project manager knows the project is ready to proceed to ITAG, the support person's work is done. Then, if ITAG spots something non-security related, it is the project that does the investigation. The security support person is not for "helpdesk" jobs for the project. Overall, the project will get help from IT Operational Security for the Definition phase of project.

The project's last phases D3 and D4 are not the concern of the support person and the project must get along by itself. If the security support person is needed, his/her role changes more to a consultant than a support person. In these phases, the project will finalize their software for the use and run the final tests before production and closing.

3 Project Management Theory and Tools

In order to understand Nordea's project management processes and information systems as terms, one needs to get acquainted with the literature on the subject as well as existing software solutions. Chapter 3.1 concentrates mainly on the project management and project phases. Chapter 3.2 briefly describes information systems and some of the commercial project management programs available.

3.1 Project Management

The research questions of the study, presented in Chapter 2, concentrates on the project management process. The purpose of this chapter is to provide information from the literature about overall project management and how it can be applied to Nordea. Particularly, the focus is on established project lifecycle and management models and evaluating how they are reflected in Nordea's practices.

A project is defined as a temporary endeavor undertaken to produce a unique product, service or result. Dr. J. M. Juran defines the project as a problem scheduled for solution. Every project is conducted to solve some kind of problem for a company. This means that if the project can be repeated it is not a project. A project should have clear starting and ending points, defined time, budget and the clear scope for requirements. [5, p. 2].

The lifecycle of project is divided up into the different phases as presented in Figure 2, as described by Kai Ruuska [5]. The phasing of Figure 2 is common and is widely appearing in different kind of projects. Normally the word phasing is only used to refer to the different phases within a Building phase, but it contains a wider perspective from the beginning to end. [6, p. 20].

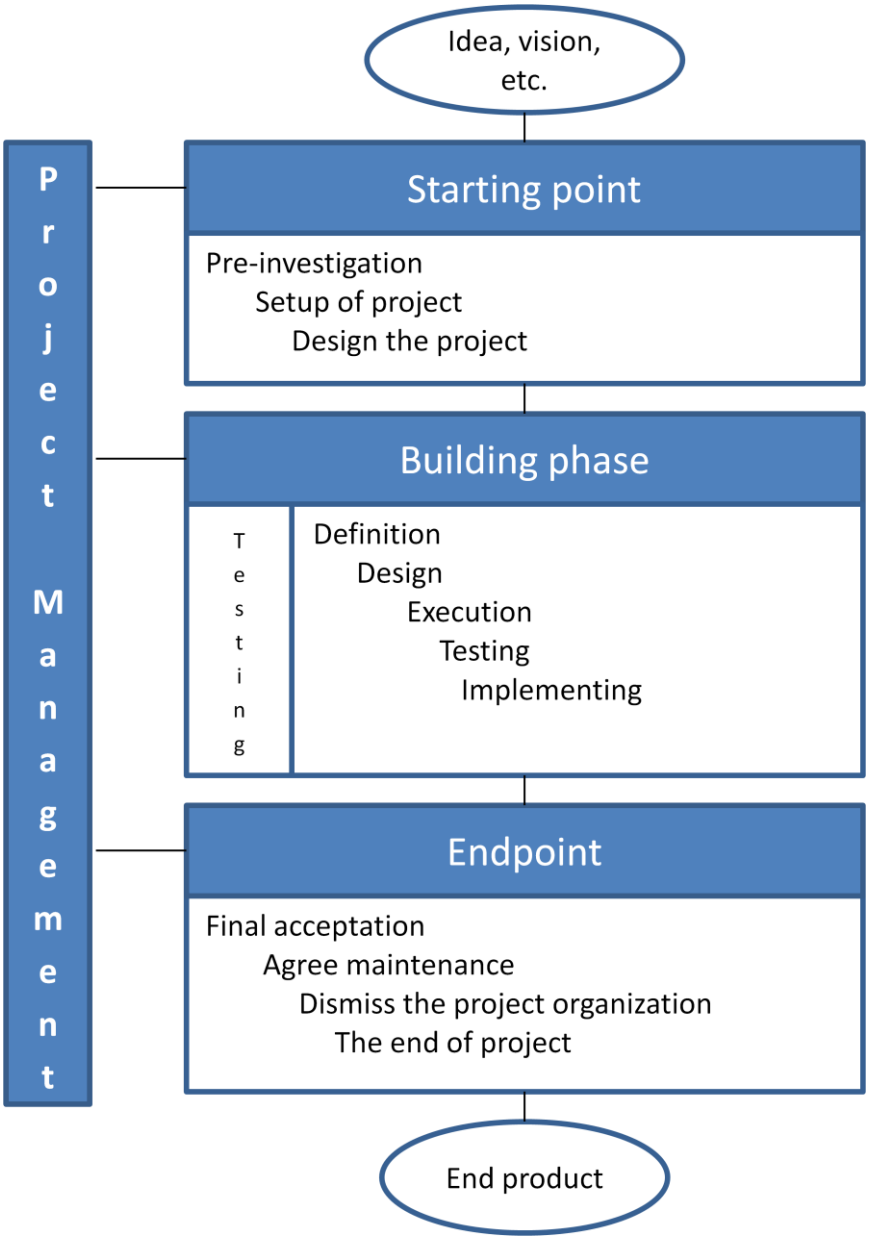


Figure 2: Lifecycle of project and its phases [6, p. 21].

The need of a project might arise from an idea or a vision. It also might originate from a need to reform an existing information system or to do some significant changes. However, the end point the first phase is on a very basic abstract level. Before the project actually starts, it is important to define the desired end point. These tasks are the project's starting point. [6, p. 20].

Before the project is in fact started, it is necessary to do a pre-investigation. The purpose of it is to survey the technical and business needs and how they affect to a company's organization. The pre-investigation should describe the functional targets, cen-

tral problem areas, target schedules, budget, requirements of succession and the end product. After the pre-investigation is done it is possible to decide whether the project can be started or should it be abandoned. [6, p. 20].

The setup of the project is normally done by a small organization within a company. The managers make the decisions concerning the project manager and the project's purpose and the rough time schedule. The managers should also define what the project should accomplish, what the time schedule is and the budget for the project. After these have been done, the project manager can create a project scheme. [6, p. 22].

The definition phase should not take a stance on the technical solutions but only describe what the future's system should do. The results of the definition phase serve as a template for the descriptions, which are in turn used in the design of the technical solution. [6, p. 23].

The design phase creates the functional descriptions of the technical solution i.e. how the system will be implemented. In the execution phase all the necessary documents are created and the required plans for the system are laid out. [6, p. 23].

The function of testing phase is to inspect that both the system's functional and technical details correspond to the set requirements and do the necessary corrections if needed. Even if the testing phase was separated from the building phase, it is necessary to include testing in all the phases of the building phase. [6, p. 23].

The task of implementation phase is to make sure the productive use of a new system can be started without any disruptions. In the end of implementation, the orderer of the project approves the dispatch. [6, p. 23].

The project management is the combination of knowledge, skills, tools and techniques to project activities to in order to achieve project requirements. The project management is achieved through the methods and integrations of the project management processes of commence, planning, executing, monitoring and controlling and closing. [5, p. 4].

The model presented in Figure 2 does not describe project management steps in detail, another model by James P. Lewis is explored to describe the project management process, as presented in Figure 3.

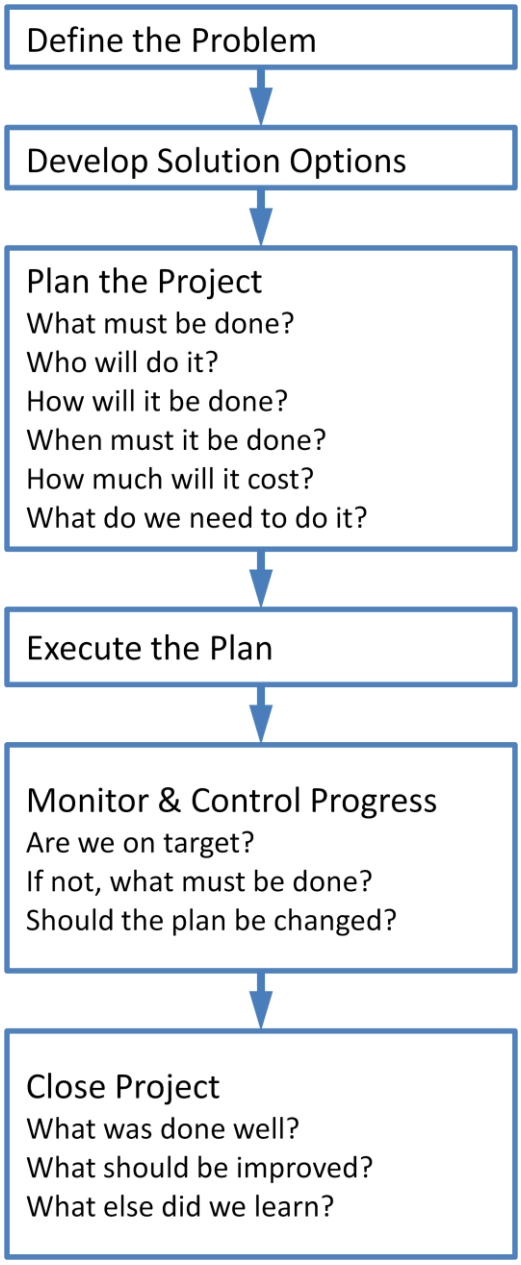


Figure 3: The steps in managing a project [5, p. 15].

The actual steps of managing a project can be very straightforward but accomplishing them may not be. All six phases shown in Figure 3 are connected to project management and a project manager's job. His or her job is to carry out the whole project from very beginning to the end and execute each step.

Identifying the problem to be solved by the project is the first step. It answers the questions of what will be different after the project and how the client will be satisfied by the project. After the problem is defined there is a conception of how many ways there might be to solve the problem. Every problem has alternatives and the solution should consider what would be the best solution for that particular project. [5, p. 16].

Planning is answering questions. Without a proper plan, it is almost impossible to move to the execution phase. Once the plan is drafted, it must be implemented. [5, p. 16].

Plans are developed to achieve the final of project successfully. If the progress is not monitored, you cannot be sure if it will succeed. Once the destination has been reached, the project is finished. [5, p. 17].

According to Lewis, "a process is a way of doing something" [5, p. 17]. Each of the six phases presented in Figure 3 are processes. They can be replayed separately without the previous phase, even though it might be hard to execute without a plan. All of these six phases can be combined to form five separate processes: initiating, planning, executing, monitoring and controlling, and closing [5, p. 17-18].

Figures 2 and 3 represent two different models. Figure 2 is more detailed and applicable to a project. It defines detailed phases to a project and how the project should act. Project management follows the phases but does not get involved on a deep level. On the other hand, the model of Figure 3 concentrates on the actual project management. There the view is from a project manager's perspective rather than from the project. These two models do not represent all project management models but they have a lot in common with Nordea's model.

By comparing these two models similar phases for a project can be seen. Everything starts from a problem to solve something relevant. It leads to a planning phase and from that to the building phase. After the solution for the problem is built, the project will be closed and the maintenance starts. Even though these two models concentrate on different depths of a project and its phases, the basic idea is the same. The project management is not only scheduling the project's needs to the right people working with the project. Instead, it supports the project in each of its phases.

How the project management models then fit to Nordea's project management phases? As seen in the Figure 1 in Chapter 2, Nordea's project has five different phases: Prepare, Establish, Achieve, Transition and Close. These are the same kind of phases as shown in Figure 3.

The support person from IT Operational Security collaborates with the project in phases D2.0, D2.1 and, if needed, in phase D2.2 too. These phases are Establish, Achieve and Transition.

If the Establish phase is compared in Figures 2 and 3 it can be seen that the matching definitions are in Figure 2 "Starting point" and in Figure 3 "Plan the project". As in these models the support person is at the very beginning connected to the project in Nordea. In the planning phase it is easier to change the system requirements and other critical systems in order to evade unnecessary work.

The Achieve phase corresponds to the "Building phase" and "Execute phase" in Figures 2 and 3. When the project goes from planning to the action, there might turn out to be problems. It respectively is of crucial importance that the support person can be involved in the execution. As the building phase is the most expensive phase, it is the first priority to complete it with minimal unnecessary work, saving money and time.

If the Establish and Achieve phases seemed difficult for the project or had some major problems, the support person might also be helpful in the Transition phase. In Figure 2 it would be placed between "Building phase" and "Endpoint", specifically between the phases implementing and final acceptation. In Figure 3 the Transition phase corresponds with the "Monitoring and controlling" phase.

As it seems that Nordea's project management phases are similar to common project management phases they can be applied in the analysis. The analysis itself is in Chapter 6.

3.2 Information Systems

Alec Sharp and Patric McDermott define a process as "an event at one end, and at the other, the result and the customer expecting it". In other words, after beginning activi-

ty multiple functions occur and when the end is near, the measurable output receives an entity, such as another process or resource. [7, p. 126].

Figure 4 presents a process chart of shopping. The shopping itself can be a process because it can be replayed. One goes to a shop and selects a product to buy. Then one goes to a cash desk and pays it. The cashbox verifies the card, records the charge from the account and the cash machine prints the bill. The customer leaves from the shop with the product and the process can start over.

Paying with credit card follows every time the same process and it is a sub-process for the actual shopping. The event leads from activity to another activity ending to process or resource.

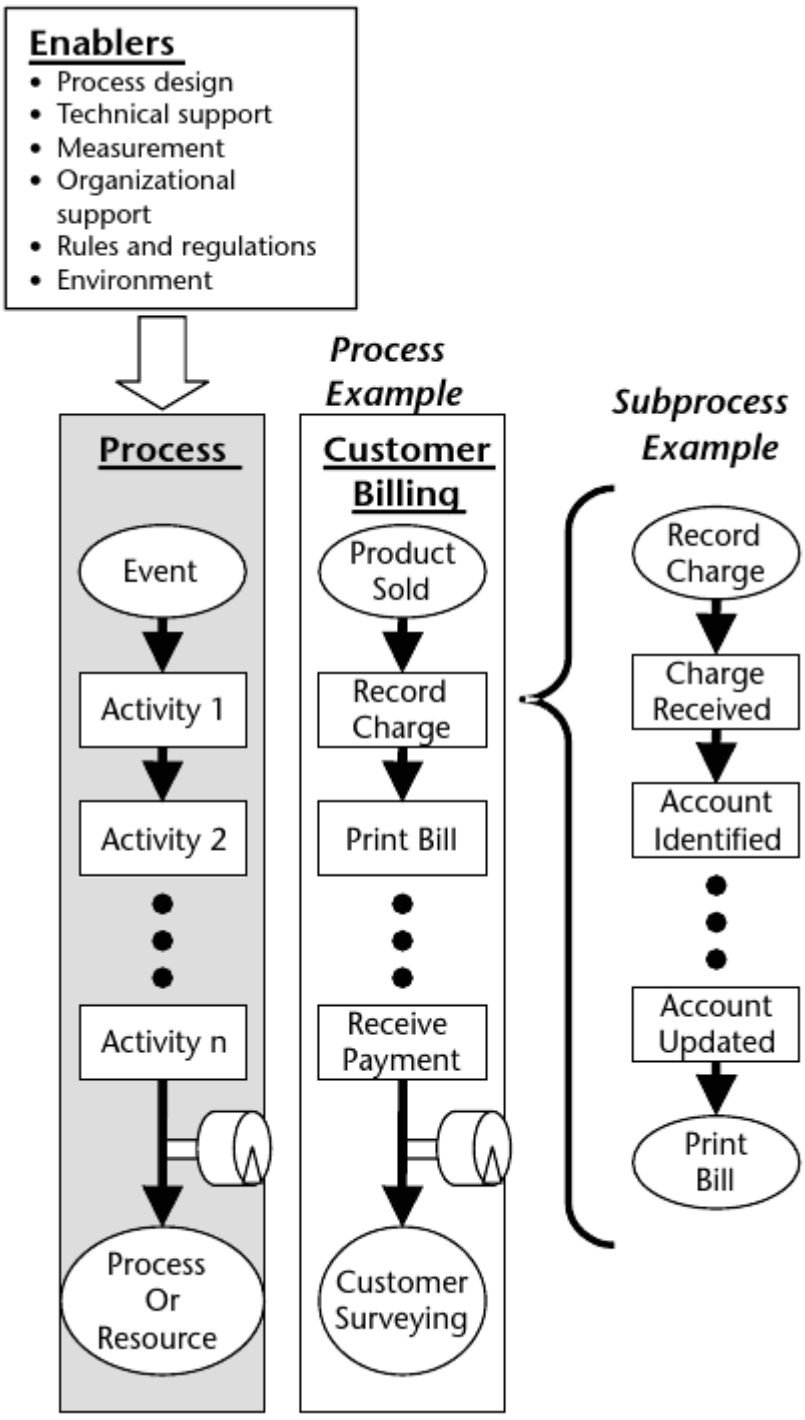


Figure 4: Process components [6, p. 126].

The six enablers shown in Figure 4, as steps, are critical to helping a process achieve its intended results. A process is nothing more than a thought if it is not designed, understood, executed, supported and measured. When a process in formed, the company has to go through six steps: design the process, get the support for process from everybody in organization, establish the process, implement the process, support the pro-

cess and measure the process. Sharp and McDermott say that "processes and information systems are inseparable" in corporate enterprises. [7, p. 126].

As information systems have become more commonplace, it has become apparent that successfully implement information systems, a company should first identify and organize its processes. As an increasing number of processes are automated with IT systems implementations, the complexity of business operations also increased. [7, p. 127].

This leads to a risk that if the process is poorly documented, the people who should work within the process might not be able to do so. Information systems are normally used to help maintain a process, like a system which is only used for supporting projects. This is the role of Nordea's' NIIDS. Even though the project is done only once, the process can be repeated several times.

Information systems inform people. Information systems assist people or users to make intelligent decisions based on good information. If the information is poorly gathered or sorted, incompletely edited, incorrectly analysed, analysed for the wrong things or badly presented, the information system will probably fail in its primary function. [8, p. 1].

Therefore any information system needs to be planned carefully. Information is a polymorphous and flexible product. Anything that leads to an action could be seen as information. The information systems' major attributes are:

- They deal with endlessly changing products – the need for knowledge and the increase of data
- They are required to assist decision making process
- They exist in all organizations
- They are vital to an organization's function
- They are most of the time computer applications
- They are frequently badly planned. [8, 1-2].

According to Simon Bell and co, information systems are an integral and integrated part of the wider organizational system, as presented in Figure 5. [8, p. 2] A system is a set of elements which operate together to accomplish an objective. [9, p. 24].

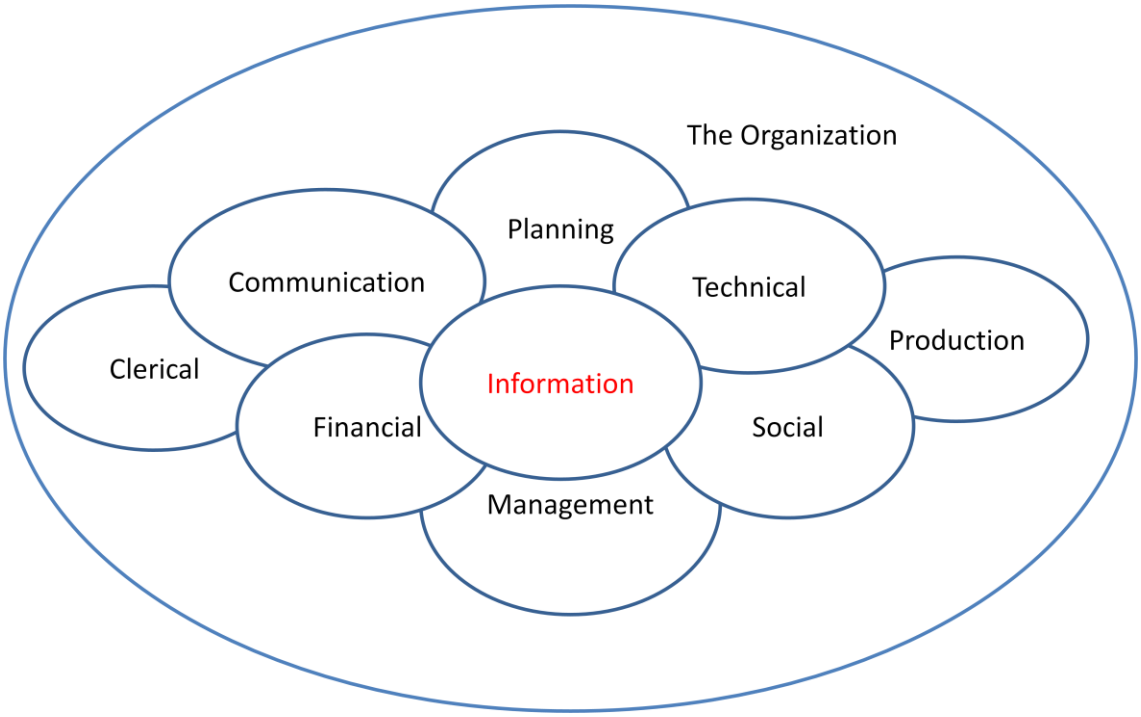


Figure 5: Linked aspects. [8, p.2].

Information systems interfere with most of the features of an organization. Therefore, the planning for taking a new information system into the organization needs to be diligent and sensitive to organizational needs and user thinking. [8, p.4].

The general model of a physical system is input, process, and output. The model of a simple system can be illustrated as in Figure 6. In this case a system involves inputs and outputs, and the model can be repeated. The system can also include several sub-systems. [9, p. 20-21].

Figure 6: General mode of a system. [9, p.20].

Management information system are defined as "a comprehensive and co-ordinate set of information systems which are rationally integrated and which transform data into information in a variety of ways to enhance productivity in conformity with manager's styles and characteristic on the basis of establish quality criteria". In other words, it is a combination of human and computer based resources. Modern information systems use information technology. [9, p. 33].

The most popular information systems in the modern business world are financial information systems. These systems are designed to ensure the proper flow of finance through the organization. Financial information systems facilitate the profitability and responsibility account systems and ensure that they follow organization structure. [9, p.225]. Nordea's online bank service system is this kind of information system.

In managing the project, the scheduling is important. The information systems NIIDS and the supporting project management system (see Chapter 2.3) are used to help employees know where a project's information is located. As the NIIDS is an official "document saver" for a project, the project manager/employees might want to update their time schedules, tasks and etc. without anyone in Nordea reading these. These functions are not supported by NIIDS, so many project managers might use Microsoft Project for creating time schedules and SharePoint to share the documents and arrange meetings.

Normally information systems are understood as software. In the following sections, two commercial information systems used in Nordea are presented.

3.2.1 Microsoft Project

Microsoft Project is a project management program developed and sold by Microsoft. It is designed to assist a project manager in developing a plan, assigning resources to tasks, tracking progress, managing the budget and analyzing workloads. [10, p. 45].

A project involves multiple tasks, such as resources, assignments and dates. This implies that a project manager cannot just "keep in one's head" all the information, and an information system is needed. Microsoft Project is a tool for keeping track all of the details which can be used to create a model of your project. [10, p. 55].

If all the necessary information is stored in Microsoft Project, the exact project information is easily available. One can change and analyze this information in various ways to solve problems, make decisions, and communicate progress to the project team. [10, p. 55].

Next, Microsoft Project 2010 version is used to demonstrate a quick project's scheduling and where it can be used. Figure 7 presents the basic view when opening Microsoft Project 2010.

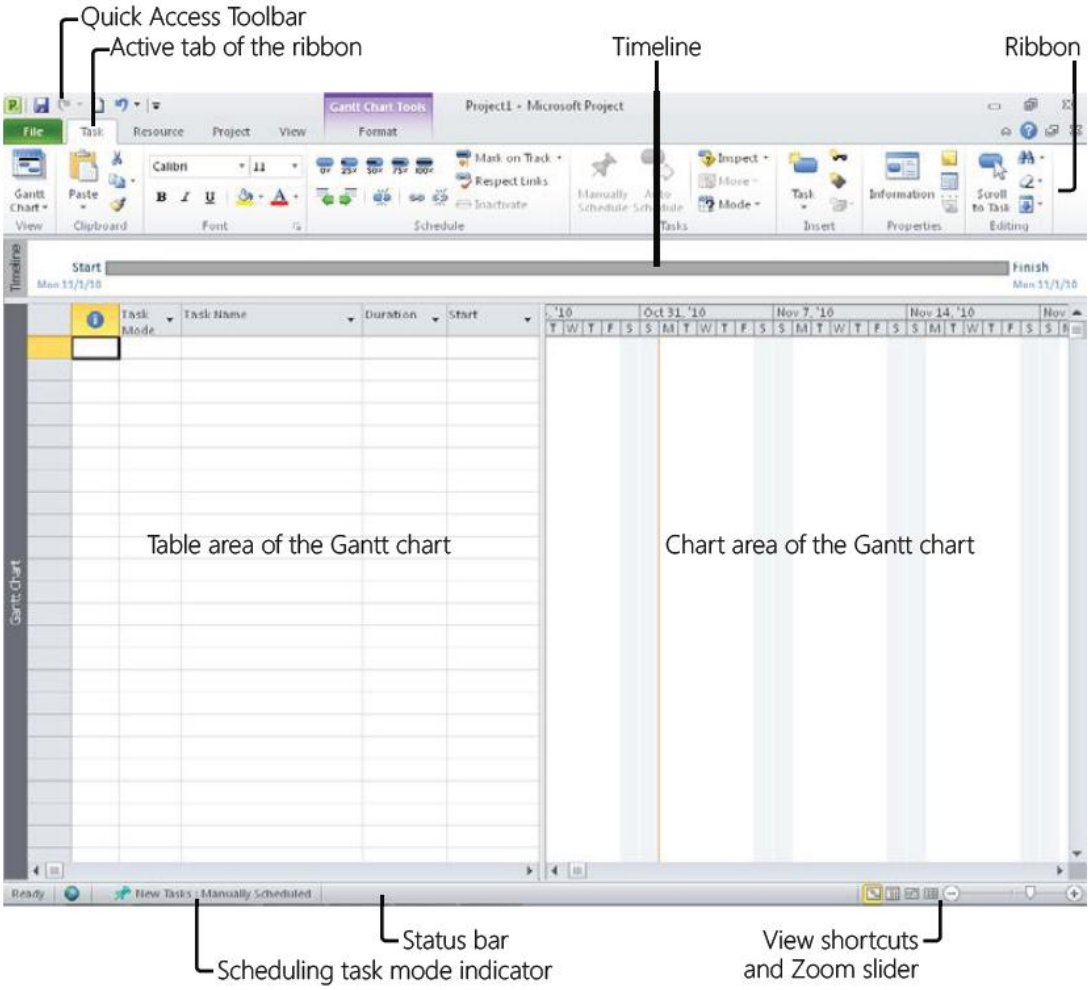


Figure 7: Microsoft Project 2010 start screen. [10, p. 75].

The following figures are taken from an example template list. Their purpose is to demonstrate the use opportunities of how to use Microsoft Project for the project management. Figure 8 represents Project management plan created by Microsoft Project.

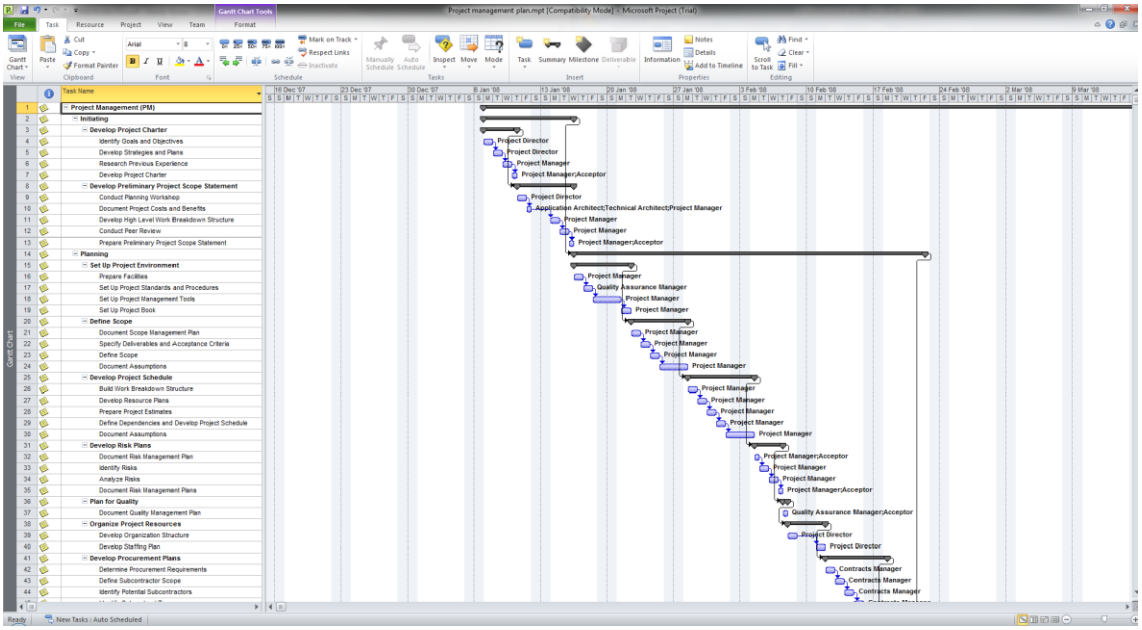


Figure 8: Microsoft Project 2010 example of "Project management plan".

In the left side there is a list of the project management tasks of the whole project. It starts from Initiating and ends to Closing. The structure is the same as in Figure 3. The close-up of Figure 9 presents an opened task "prepare facilities".

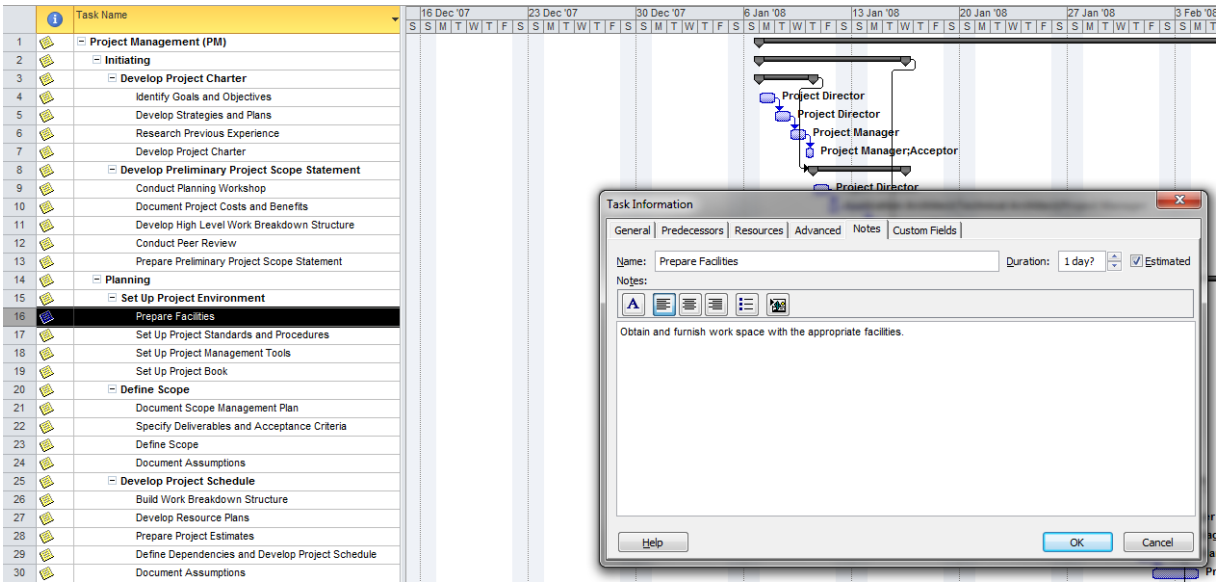


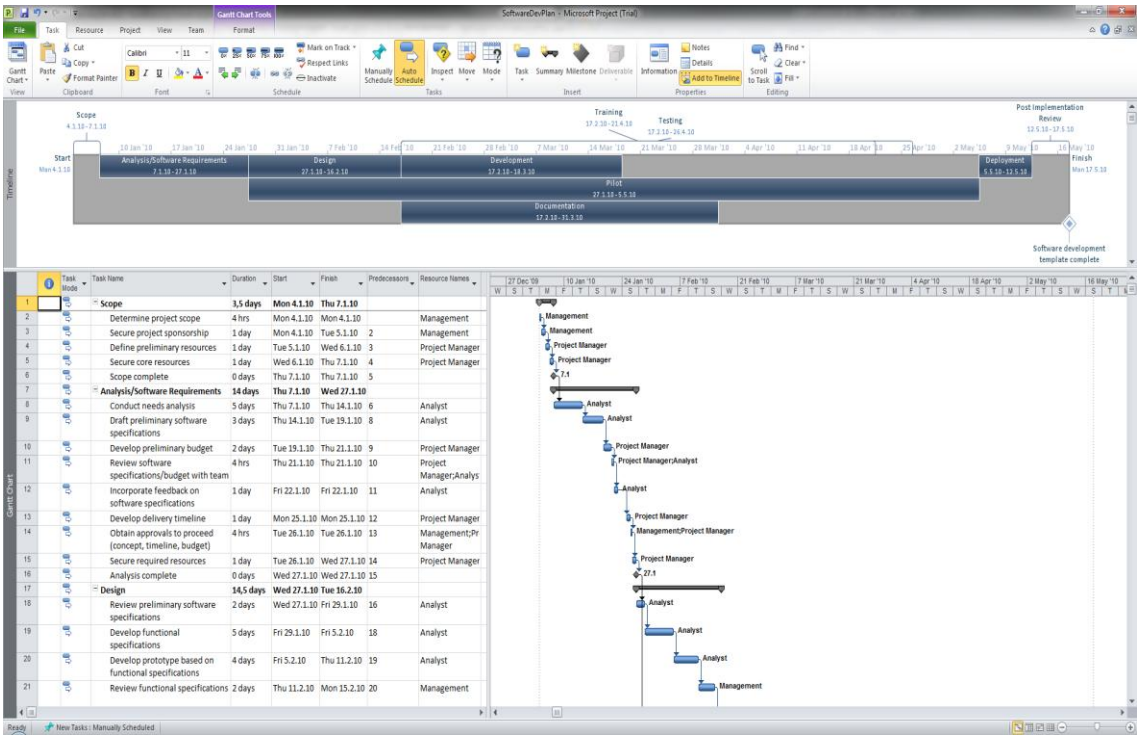
Figure 9: Close-up from "prepare facilities" task.

The "Task information" contains information of general, resources, notes, and custom information. In this particular task one can find information about the task is 0% completed and duration to do it is 1 day. The note gives a short summary of the task: ob-

tain and furnish work space with the appropriate facilities. The rest of the tasks are created in a similar fashion. This is a good baseline for a project management and easy to modify to one's own use.

As the project usually has more accurate information in it, a different project type is examined. This is also a model project and can be found in the same path as the previous project. This project name is Software development plan.

Figure 10 presents a screenshot from the Software development plan. As can be seen, it is a bit different from the last example. In the top, there is a timeline. The timeline starts from Monday 4.1.10 and ends to Monday 17.5.10. The darker blue texts are task names, such as "Scope", "Analysis/Software Requirements", "Design" and so on. Otherwise it is similar to the ones illustrated in Figures 8 and 9.



	Task Name	Duration	Start	Finish	Predecessors	Resource Names
1	Scope	3,5 days	Mon 4.1.10	Thu 7.1.10		
2	Determine project scope	4 hrs	Mon 4.1.10	Mon 4.1.10		Management
3	Secure project sponsorship	1 day	Mon 4.1.10	Tue 5.1.10	2	Management
4	Define preliminary resources	1 day	Tue 5.1.10	Wed 6.1.10	3	Project Manager
5	Secure core resources	1 day	Wed 6.1.10	Thu 7.1.10	4	Project Manager
6	Scope complete	0 days	Thu 7.1.10	Thu 7.1.10	5	
7	Analysis/Software Requirements	14 days	Thu 7.1.10	Wed 27.1.10		
8	Conduct needs analysis	5 days	Thu 7.1.10	Thu 14.1.10	6	Analyst
9	Draft preliminary software specifications	3 days	Thu 14.1.10	Tue 19.1.10	8	Analyst
10	Develop preliminary budget	2 days	Tue 19.1.10	Thu 21.1.10	9	Project Manager
11	Review software specifications/budget with team	4 hrs	Thu 21.1.10	Thu 21.1.10	10	Project Manager;Analys
12	Incorporate feedback on software specifications	1 day	Fri 22.1.10	Fri 22.1.10	11	Analyst
13	Develop delivery timeline	1 day	Mon 25.1.10	Mon 25.1.10	12	Project Manager
14	Obtain approvals to proceed (concept, timeline, budget)	4 hrs	Tue 26.1.10	Tue 26.1.10	13	Management;Pr Manager
15	Secure required resources	1 day	Tue 26.1.10	Wed 27.1.10	14	Project Manager
16	Analysis complete	0 days	Wed 27.1.10	Wed 27.1.10	15	
17	Design	14,5 days	Wed 27.1.10	Tue 16.2.10		
18	Review preliminary software specifications	2 days	Wed 27.1.10	Fri 29.1.10	16	Analyst
19	Develop functional specifications	5 days	Fri 29.1.10	Fri 5.2.10	18	Analyst
20	Develop prototype based on functional specifications	4 days	Fri 5.2.10	Thu 11.2.10	19	Analyst
21	Review functional specifications	2 days	Thu 11.2.10	Mon 15.2.10	20	Management

Figure 10: Software development plan.

The Gantt chart, presented on the right side, is a chart where one can follow which task is assigned to which resource. A closer look is presented in Figure 11. The Gantt chart makes it easy for everyone in the project team to see which tasks are assigned to which person.

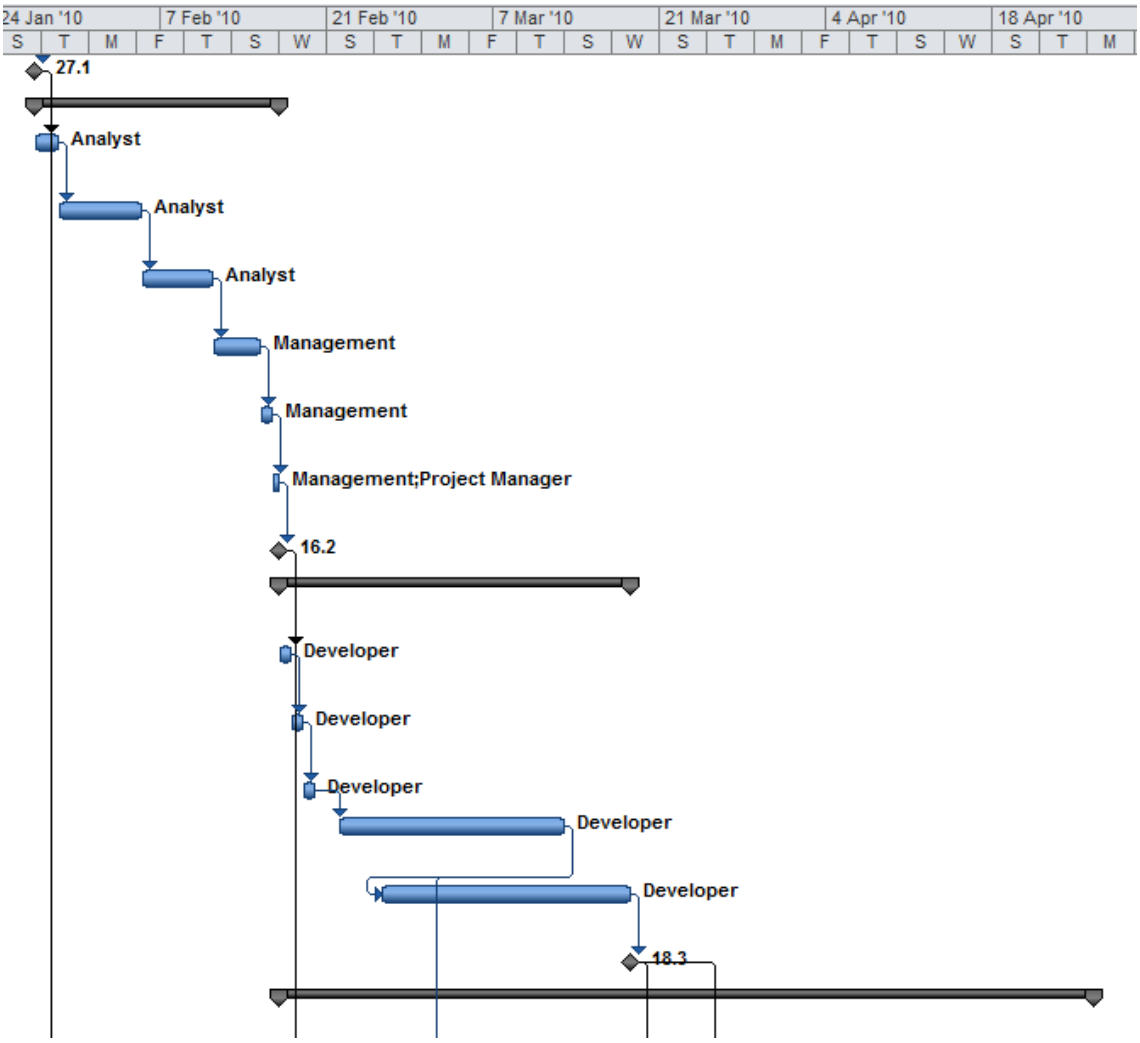


Figure 11: Close-up from Gantt chart.

The chart is developed automatically from the tasks on the left side of the program window. If the duration is changed the chart is automatically updated. Figure 12 presents a close-up from the task list. It displays the tasks, the durations, start and finish times and which resources are assigned.

	Task Mode	Task Name	Duration	Start	Finish	Predecessors	Resource Names
1		**Scope**	**3,5 days**	**Mon 4.1.10**	**Thu 7.1.10**		
2		Determine project scope	4 hrs	Mon 4.1.10	Mon 4.1.10		Management
3		Secure project sponsorship	1 day	Mon 4.1.10	Tue 5.1.10	2	Management
4		Define preliminary resources	1 day	Tue 5.1.10	Wed 6.1.10	3	Project Manager
5		Secure core resources	1 day	Wed 6.1.10	Thu 7.1.10	4	Project Manager
6		Scope complete	0 days	Thu 7.1.10	Thu 7.1.10	5	
7		**Analysis/Software Requirements**	**14 days**	**Thu 7.1.10**	**Wed 27.1.10**		
8		Conduct needs analysis	5 days	Thu 7.1.10	Thu 14.1.10	6	Analyst
9		Draft preliminary software specifications	3 days	Thu 14.1.10	Tue 19.1.10	8	Analyst

Figure 12: Close-up from task list.

This is a fraction of what Microsoft Project is capable of doing, and presents a small demonstration of what kind of project management tasks it can be used for.

3.2.2 Microsoft SharePoint

Microsoft SharePoint is a web-based collaborative platform that allows users to share documents and lists of information, to render reports and data dashboards, and to present web pages of information of the enterprise within your organization. [11, p. 1].

Whereas Microsoft Project can be used for information such as detailed time scheduling and tasks, SharePoint can also be used to share documents. From there, all the team members of a project can easily access and edit (if allowed) the Microsoft Project's files.

SharePoint is also a good place to share the project documentation. As it can be divided into user groups and it can have private and public groups. Each group has their own SharePoint site what they can use within the group.

The sites provide a collaboration access to users in the enterprise to collaborate on documents, work with data, and review displays such as data dashboards. Sites may contain sub-sites. [11, p. 3].

Whereas Microsoft Project can be installed locally, SharePoint needs a server access. It can be bound to for example to a company's intranet. This can be a good solution for companies.

As the SharePoint is linked into the Microsoft Office package (containing programs like Microsoft Word, Excel and Access) it automatically finds what kind of type the document is. Document can be edited in SharePoint or opened with e.g. Microsoft Word. Figure 13 presents an example site in SharePoint. For example, it is possible to import the timeline to SharePoint from Microsoft Project and use Microsoft Outlook calendar's functionality to arrange a meeting. Basically a project would not need multiple sites to save their documents.

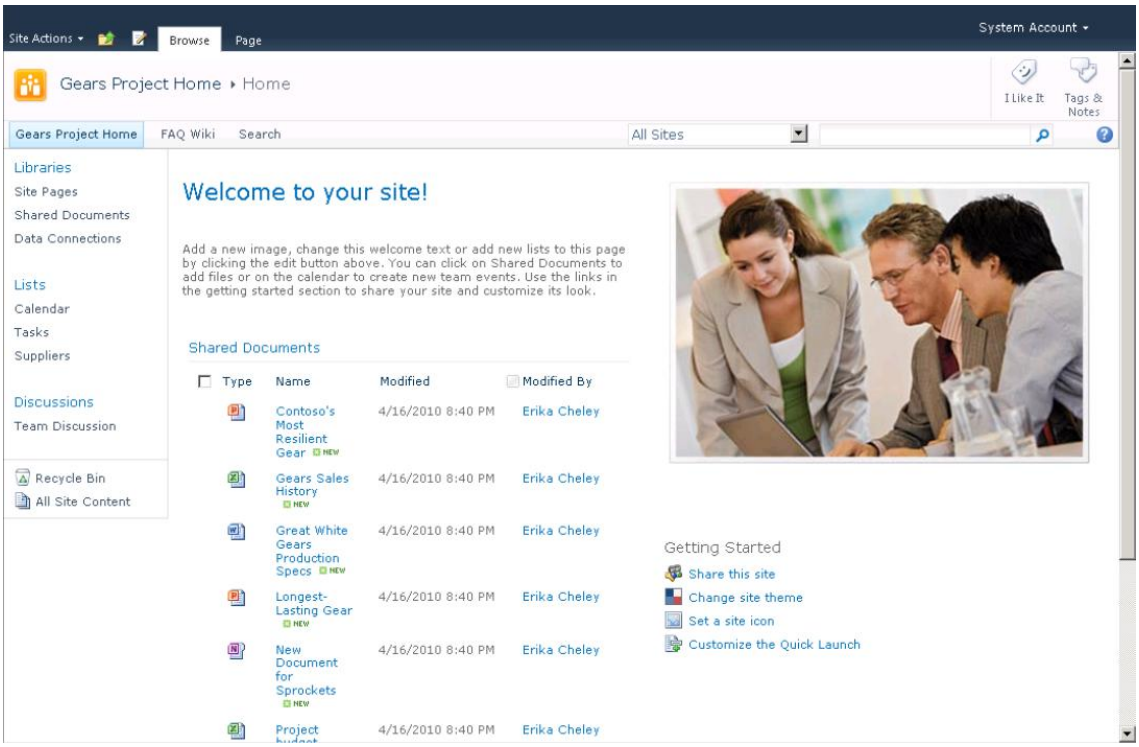


Figure 13: Example of a SharePoint site. [12, p. 10].

This Chapter has described project management processes, information systems and two commercial programs. The following chapters introduce the case of Nordea's project support.

4 Research Methods

In this chapter it is presented how interviews were done and what the interview questions were. This chapter also contains information about the documentation in the area of the project management processes.

The first phase of the research was to interview employees of the security unit, project managers and security architects to get a wider scope of how the security unit actually produces project support today. The second phase was to compare the findings of the interview results to the official documents and create future recommendations.

4.1 Interviews

The interviews were carried out to get actual knowledge of user perspective on the first-line work. Three persons from the security unit were chosen based on their knowledge and work experience of project support service. The project managers were chosen on the basis of their project experience with the security unit. The security architects were interviewed because they are a part of ITAG and in order to get their perspective on the security unit's work.

The number of interviewees was six. Three of them were from IT Operational Security. One was a security architect (representing ITAG) and two were project managers. The interviews were carried out face-to-face, by phone conference and by email. More comments were gathered from other employees in IT Operational Security and security architects by email and these comments are addressed the final chapter. The primary objective was to find qualitative information on the process, so the number of interviewees was not relevant. The quality could have weakened if more interviewees with less experience with the subject had been included.

It was important to gather up information of the project managers on their expectations of the project support. Also, it was important to find out how the IT security architects understand the process now and what they expect IT Operational Security to deliver.

The interview questions rose from the need to understand the project support process. The aim was to approach the project support subject from various directions. The questions were made up by the author and the instructor. As the process was new for the author, it was necessary to understand the three different views: the employees of IT Operational Security, the security architect's and the project managers. The instructor gave the perspective of the IT Operational Security's managers.

There were two sets of questions. The first set was asked from the IT Operational Security employees and the second set from the others. The questions of both set 1 and set 2 are gathered in Table 1 with details on target groups. The questions are explained after the Table.

Table 1. Interview questions.

Question	Target Group
1. How do you understand terms like "project support" And "IT Security Support Services?" (IT Operational Security) How do you understand project support offered by IT Operational Security? (Project manager and Architects)	IT Operational Security, Project managers and Architects
2. What are the bottlenecks? Are there something "stopping" in NIIDS or why is this taking so long time – or is it?	IT Operational Security
3. How is project support workload being distributed within the security unit (IT Operational Security)?	IT Operational Security
4. What would you do for showing a project that your support is ending? Or are you mostly involved in "open ended" project support activities? (IT Operational Security) What is the last phase where the support person's support ends from your perspective? (Project managers and Architects)	IT Operational Security, Project managers and Architects
5. Do you see differences between countries or sub-units?	IT Operational Security, Project managers and Architects
6. Do you see that there are "roadblocks"?	Project managers and Architects
7. Do you see that project support is needed?	Project managers and Architects

Question 1 was chosen because it was important to understand whether the employees in IT Operational Security understand the terms project support and IT Security Support Service. Generally project support within Nordea covers all kinds of support – if one needs a user id for a consultant, for example, this would be a project support task, even if the task was not related to IT security at all. IT Security Support Service is, on the other hand, a certain project support service that IT Operational Security

provides. More about IT Security Support Service is provided in Chapter 4.2. Note that as this study concerns IT Operational Security unit, project support and IT Security Support Service refer to the same services if not specially mentioned otherwise.

The purpose of Question 2 was to find the slowest part in the whole service. This question was proposed by the managers. Is it NIIDS, because NIIDS is not updated regularly by project managers, is it the IT Operational Security's own project system, which is working slowly, or is it some other technical issue?

Question 3 is beyond doubt the most important question. The workload and its balance have been problematic in the project support tasks of IT Operational Security. The managers wanted to know how the employees were handling and how they felt about the distribution of project support workload.

Question 4 addresses an important part of the workload balance. The beginning of project support is well defined, but is not as clear as at the end of the project support. If the workload should be decreased it is most critical to know the current end point of the support.

The purpose of question 5 was to find out if there were any differences between countries' or sub-units' working habits. As IT Operational Security operates in all Nordic countries there might be country-specific projects as well. In these cases there have usually been an attempt to choose a person close to the country in question and the area of expertise but sometimes this is not possible. IT Operational Security is divided into three sub-units and every sub-unit provides a different form of project support. This was a low priority question but it was important to know if there were any differences.

The roadblock in question 6 refers to a project being slowed down because of an IT security support person has not answered or done his/her tasks in time.

The aim of question 7 was to understand how the project support was *actually* done today, not to understand how it should be done it or how they would like to do it in the future.

The collected future recommendations gathered from the interviews are presented at the end of this study. The responses of the interviews were compared to the documentation to find out if there were any exceptions.

4.2 Official Documentation

IT Operational Security has a long history with the project support service. The project support function has survived all along although the name of the unit has changed many times. The project support documentation has changed in the past but the in practice the work tasks have changed slowly.

The analysis is restricted to documents that define the services provided by IT Operational Security. As the documents are dispersed, there is in this chapter a summary of them all. The total number of documents is ten. The documents include meeting minutes, service descriptions, PowerPoint presentations on the topic and Intranet pages.

These documents were only used to get a better understanding of the project support process and the support person's tasks. The information from the documentations were gathered because of intuition was that they were not up-to-date or functional anymore. All the documents, expect the service description, were used inside the IT Operational Security as internal processes and guidelines.

Tasks such as project support are services within Nordea. One can order a service from a service catalog for their own purposes, for example as a project support person for the project. As previously established, a project gets a project security support person automatically from the system, but there has to be an existing service in order to be able to do so. A summary from IT Operational Security's service IT Security Support Service and its subsection General IT Security Project support was selected and it is presented below. The service description describes what to expect, do and what one gets if they order the service. Frankly, if this service did not exist, there would be no project support at all and therefore it is the most important document.

Extract of the IT Security Support Service

> 2) General IT Security Project support
> By ordering this service component, you will get a security contact person assigned to your project. The security contact person will help you as a project manager with:
> - Walking through the IT Security Checklist
> - Review of SAD
> - Security requirements for the project
> - Information about relevant services in IT Operational Security based on the check list and a dialogue
> - Participation in project QRA[2] with focus on IT security risks
>
> The security contact person will not:
> - Participate as a resource in the project with planning, design or implementation. To get such a resource from Operational Security, the ordinary resource allocation process should be used instead.
> - Modify or change Operational Security's services to match the project's needs

While the other documents were dispersed and miscellaneous, the service description was clear and available for all the employees of Nordea, and it was the base that the whole project support lies on. The current service description about "IT Security Support Service" was up to date. The service description defines how to request a service what expectations the requester should have when ordering the service. The extract from the original IT Security Support Service which contains three topics; one of them is General IT Security Project support. This is the only relevant one for this study.

As explained previously, the rest of the documentation was dispersed. Most of the documents were found from the unit employees. They were more like internal guidelines and minutes of the meetings. Table 2 presents a list of security person's tasks from all of these documentations. Each task is explained after the table.

[2] Quality and Risk Analysis

Table 2: IT Security Person's Task List, gathered from official documentations

IT Security Support Person's Tasks
1. Participation in project QRA with focus on IT Security risks
2. Go through the IT security checklist with the project
3. Help the project manager with recommendations to define the security requirements
4. Channel the project manager to the relevant service provider in IT Operational Security
5. Optional: Channel the project manager to security architects if necessary
6. Help the project in writing the security chapter of SAD
7. Read the SAD (and a possible Security Drawing) and find out if there are conflicts with the current recommendations
8. Optional: Can comment the SAD
9. Decide if there are critical security controls that the project must verify before deployment
In summary: the project support is the creation of the security chapter in the SAD and not finding solutions for other issues

1. Participation in project QRA with focus on IT Security risks.

QRA is an acronym of Quality and Risk Analysis. All new or changed products, processes, routines, systems and organizations should be analyzed from the perspective of quality and risk before they are put into production. For example, where a project should do QRA include new IT systems or new versions of existing systems, new hardware, new premises and new or changed routines and processes.

The use of QRA is a mandatory phase in the Product Approval process and it is also mandatory when a change or development is run as a project. QRA is initiated as meetings where all participants relevant to the topic including IT security support persons are invited on.

2. Go through the IT security checklist with the project.

The IT security list is a list in SAD that contains various questions such as: "Does this project need any firewall openings?" If the project answers "yes" to any of the questions, the security support persons should check up with the project and discuss these findings.

3. Help the project manager with recommendations to define the security requirements.

The support person should help the project manager to define the project with the standards and policies. If the IT security check list has any "yes" marks, the support person should help to find the best solution or to solve other problems, such as the IT authorizations for consultants.

4. Channel the project manager to the relevant service provider in IT Operational Security.

As described in Chapter 2, IT Operational Security has several services to offer. If the support person clearly sees that this project needs an education lecture on e.g. network security, the support persons can offer the service. The support persons should channel the issues discovered to the right service provider in IT Operational Security or other unit if necessary.

5. Optional: Channel the project manager to security architects if necessary.

The support person should channel the project manager to contact the security architects if the support person finds it necessary. The security architects have seen the project already and checked the SAD and approved it. The project is channeled there only if there is a problem that support persons recognize belonging to security architects.

6. Help the project in writing the security chapter of SAD.

The IT security chapter has a small checklist for the project. The underlying idea is to help the project realize that they are not creating any potential changes for misuse, intrusion by unauthorized users or denial of service attacks. The security chapter contains seven points that are explained below:

1) Authentication of users or systems

How authentication of users is done for internal users, customers, partners and others.

2) Authorization

How authorization of users is structured. Explain both the authorization controls and the management of controls and control data.

3) Integrity and non-repudiation

How it is intended to achieve integrity of messages, files and transactions for information in transit and in storage. How critical data of business is handled and stored.

4) Confidentiality and privacy

How information is intended to be kept confidential and compliant with Nordea rules, relevant legislation and agreements with third parties in situations of transit and in storage phase.

5) Logging

Analyze and define which kinds of logs are required and what kind of information needed in them. Describe usage of logging framework and compliance with the Security Log Standard.

6) Security drawing (including network security issues)

Draw a picture that describes security controls in the planned / aimed solution.

7) Security testing

Explain how the above described security features could be tested.

7. Read the SAD (and a possible Security Drawing) and find out if there are conflicts with the current recommendations.

The standards and recommendations are changing constantly so it is important that the support person up-to-date.

8. Optional: comment the SAD.

The comments are sent directly to the project manager and not added to NIIDS. The support person can write comments down in the IT Operational Security's own project tool as internal notes.

9. Decide if there are critical security controls that the project must verify before deployment.

If during the eight steps any issues are identified by the support person, the findings must be addressed before the project can move forward.

Summarizing, the project support is the creation of the security chapter that contains the security checklist and the security drawing in the SAD. The purpose is not find solutions for other issues not related to IT security for the project.

5 Results and Analysis

In this chapter, the information gathered from the interviews is presented and analyzed. The main question in this chapter is to find out what the status of project support is and how employees of IT Operational Security see it. First in Section 5.1 the interview results of the employees are presented. These results are compared to the documentation and analyzed in Section 5.2.

5.1 Interview Results

The purpose of the interviews and the motivation for the questions were presented in Chapter 4.1. The contents of this section are based on interviews with employees of Nordea and their own opinions. This section does not represent the official view of Nordea.

Two of the interviews were carried out in Finnish, and the rest in English, the company language being English. All the questions were, however, given in English. The author is responsible for the translations of the responses given in Finnish.

Question 1:
How do you understand terms like "project support" And "IT Security Support Services?" (IT Operational Security)
How do you understand project support offered by IT Operational Security? (Project manager and Architects)

The IT Operational Security's employees' answers are presented first, and then the project managers and architects.

The project support was understood very differently. Project support provided by IT Operational security is seen as "more than a project support", basically everything: phone calls, emails about spam and everything not related to projects at all, just because they are working with IT security. Another interpretation is: "all the services that we supply to the programs of the bank".

On the other hand, IT security support services were seen similarly: to help project managers realize the security needs. However, the difference between a support person and a resource is a grey area for many.

> "The project managers do not understand the difference and do not realize to give the time code[3] if needed. This will lead to the actual workload not meeting the reality."

The differences between ITAG and IT Operational Security's roles are not clear. After the reforming process in 2010, the responsible areas and expectations are not clear anymore. Before 2010 the ITAG was called Architecture Group where IT Operational Security had a stakeholder and it was plenipotentiary in the approval process. After the ITAG was created, IT Operational Security resigned from the approval process and concentrated only to the project support.

> "The lack of service, process and task descriptions are causing problems. Nowadays, the support is more individual and does not follow any congruent unit standard. Similar projects are every time started from the beginning. Same person might do similar projects just because 'you have done it once, you can do it again'. It leads to delays and overheads. There is no room for new supporters which leads to recycling already overbooked employees."

When IT Operational Security's employees understood the term "project support" differently, the project managers (PM) quite did not understood at all the difference between the project support and the IT Security Support Service. The IT Security Architects (SA), though, had an idea what it is as they work very close to it. We will use PM and SA marks to separate the answers.

> "The project support... it is when I face problems, I call to the support person and we figure the problems out." – PM1

> "If I run any risk difficulties or security issues, I call him. The service? I do not know anything about that." – PM2

> "The project support is the task what you do in when you are supporting the project. An important thing is to make sure that you are just supporting, not setting

[3] Time code refers to an information system where all the working hours are marked for specific time code. All job tasks have an own timing code, e.g. time code for project X.

demands. If the support person has questions or something is figured to be in wrong way, the conversation should turn to the project and not to ITAG." – SA1

"If the project support person finds any issues, these findings should be communicated to ITAG." – SA2

Overall, the difference between the project support and the IT Security Support service was quite unclear for all the participants.

Question 2:
What are the bottlenecks? Are there something "stopping" in NIIDS or why this is taking so long time – or is it?

This question was only asked from IT Operational Security's employees.

"I have not noticed delays because of NIIDS. More likely I do not have the time to response that quickly the project wants me to answer. Sometimes getting the time code is delayed. Generally, some projects just take a lot of time and this is triggering."

"The whole bottleneck is that the project needs a support person which we do not have to spare. We would need a lot more support persons from our unit to take the responsibility to help the projects. Now it is piled to couple of employees and this is not a nice situation. It is an effort to clean up the ended projects and unclear status from the project tool and the NIIDS, which we do not have the time for. Likewise we are not quietly sure how many projects are ongoing and how many are delayed or ended. I do not blame NIIDS; I think it is more to project manager's responsibility to update it."

"The whole project support idea counterattacks the thought of services. Now the support is personalized but the service idea is to work as a group. I am getting a lot of contacts from old fellows that "Could you help me in this matter..." and really soon you are stuck with it. What comes to the NIIDS, it is often not updated. The amount of information in NIIDS depends on the project manager. Some project managers update almost every document there and others only the mandatory documents. NIIDS will work fine if the project manager knows what to do. NIIDS should be enough for our support work but often I have to find the material elsewhere e.g. from SharePoint. There the documents name might not be the same as in NIIDS."

Question 3:

How is project support workload being distributed within the security unit (IT Operational Security)?

This question was only asked from IT Operational Security. The answer was congruent: the workload is massive.

> "Where is the line for being a resource for the project or just a support person? This is not clear for the project managers and it takes a long time to get a time code."

> "I give for each project four to five hours "free" and then I will ask for the time report code. Still, I have a lot of projects which status I do not know – if the project does not contact me personally, I won't spend my hours just reading documents."

Question 4:

What would you do for showing a project that your support is ending? Or are you mostly involved in "open ended" project support activities? (IT Operational Security)

What is the last phase where the support person's support ends from your perspective? (Project managers and Architects)

The end point depended a lot on what kind of project support the project had received. If the support persons did not have any communication with the project, the project would be "forgotten". If the support person did have communication within the project, the end point was based on individual decision.

> "I try to agree with the project when my tasks are done. Most of the time the project support ends in phase D2.2."

> "It depends a lot. At least the support should end when the project is closed in NIIDS but there are a lot of cases when the project status is on green (ongoing) but all phases are done. Has the project manager forgotten to close the project, I do not know. I do not see a clear point where the support ends."

The project managers and IT Security architects also had similar answers.

> "Most of the time the support ends when the project reaches phase 3. After this the project should handle the problems by itself." –PM

> "I do not have an opinion when to stop the support. If there are open-ended problems in security area, the support person should help the project until the issues are solved." – SA

Question 5:
Do you see differences between countries or sub-units?

All the interviewees saw that there were no differences between countries or sub-units. The only problem that rose out was that some of the countries were not as involved in the project support as others. This has caused a lack of project support persons.

Question 6:
Do you see that there are "roadblocks"?

This question was only asked from the project managers and the IT Security architects.

> "The roadblock... I think the problem is that the security support person is often very busy with other tasks and it is hard to find a slot where to arrange a meeting." -PM

> "The support is not so organized and you just have a one name which to contact. If the person is busy, sick or on vacation, that would cause problems to our project." -PM

Question 7:
Do you see that project support is needed?

The answer for this from all project managers and IT security architects was yes.

> "Definitely! If only the support persons could have just a little more time would be excellent."

To summarize the interviews, the employees of IT Operational Security felt that they were not quite sure what were the expectation of their work in the IT security project support. As the process had been changed so many times in the past, a common thread was lost and everybody did the job in their own way. The biggest problem was seen to be that the work time they could spend on the support was limited. Only if the project manager contacted to them directly, they could help her/him.

The workload was felt to be massive. The enthusiasm of workers was still there but the other work tasks took the time, as project support is no employees' top priority. This rounded to the question that all stated: what are the expectations for my work and how much time should I spend on it?

As to the end of project, there were differences. Some of the supporters did only the tasks the project manager asked only to the end of gate 2.2. Some followed, with a loose interest, the project to the end of production. The majority did not follow the project if the project manager had not contacted them.

The use of information systems (NIIDS and the project tool) caused some minor problems. If the project updates the NIIDS constantly and it is up-to-date, then the project support person had an easy task to read the documents in there and comment to the project manager. Quite a few of the employees used the unit's own tool for their own markings and only saved the emails and did not make any notes to the tool. The tool was used only for administrating purposes to keep track of how many projects were actually assigned.

Even though the NIIDS is the official project management tool for Nordea, there were still a lot of projects with unknown status. This caused problems to the IT Operational Security unit: every open project was still saved to the tool and the total amount of projects for one supporter was unrealistic. The average number of supported projects for one person could be between 1 and 400, the latter of which is absurd for anyone to follow at all.

The positive side was that no one saw any differences between countries or sub-units. The only slightly negative side was that all of the employees in IT Operational Security would not like to work with project support. This was automatically piling the projects to certain people.

5.2 Analysis

This section contains comparison between the interview responses and the official documentations. The results are gathered to Table 3 for comparison.

After all the interviews were done, the IT Operational Security employees were asked for comments to the contents of Table 3. The comments are presented in Table 3. The results were quite negative and opposite to what the official documents let one understand. They were also asked what they would like to change in future.

Table 3: IT Security Person's Task list gathered from official documentations with comments from interviews

Official Documents	Interview Comments
1. Participation in project QRA with focus on IT Security risks	Can be invited. Usually just read it afterwards.
2. Go through the IT security check list with the project	Small task.
3. Help the project manager with recommendations to define the security requirements	Yes, but no digging in too deep
4. Channel the project manager to the relevant service provider in IT Operational Security	The purpose of services isn't clear to everyone
5. Optional: Channel the project manager to security architects if necessary	This should be invoiced. Takes too much time and effort.
6. Help the project in writing the security chapter of SAD	This should be invoiced. Takes too much time and effort.
7. Read the SAD (and a possible Security Drawing) and find out if there are conflicts with the current recommendations	Who really wants the comments?
8. Optional: comment the SAD	No approval/rejection rights and part of architects do not want hear any comments
9. Decide if there are critical security controls that the project must be verified before deployment	Not digging too deep and without asking.
In summary: the project support is the creation of the security chapter in the SAD and not finding solutions for other issues	Only if the project manager contacts the support person. The support person finds solutions to the problems

Based on the interviews it was clear that nothing would happen before the project manager contacts the support person and ask him/her to help at some of these points.

The support persons would not do any "free" work – looking at the project's documentations and "try to find problems".

The participation to the QRA meeting was felt as a burden: if it was extremely necessary to participate, then they would go. Otherwise the support persons would read the QRA report afterwards if asked.

Going through the IT Security check list was a minor task that the support persons would not put much effort to. It was more like a checklist and a note list for the project.

The project manager will be helped in the security requirements if needed. The idea is to help and provide information but not to solve problems that the project may have.

Channelling the project manager to the relevant service provider in IT Operational Security was not an easy task for the support person. This assumes a lot of knowledge of the services within inside the security unit. The idea behind the service idea was not totally clear for everyone and caused misunderstandings.

Helping the project create a security chapter in SAD takes a lot of time and effort and should be something that the support person could get a time registration code for. If the support person was along to create the security chapter it was most often totally his/her handwriting.

Reading the SAD and commenting on it is possible, but there was no place where to put the comments. One can write the comments into the administrator tool for notes for themselves but the project manager or ITAG will not see them from there. Some of the architects do not want to hear any comments from the support person. This creates conflicts. The support person does not have any approval rights in the process so the support persons felt the comments had no importance.

Deciding whether there are critical security controls that the project must address before deployment was felt to be ITAG's job. The support person can do this if asked, but will not go deep into the issues.

6 Discussion and Conclusions

The research objective was to examine the project support status of Nordea's IT security unit, IT Operational Security. The examination was carried out by gathering information from a theoretical perspective about the phases of a project, information on project management and information systems, and presenting two commercial information systems. The results were compared to Nordea's existing project management process and information systems.

After finding out how the common project process in Nordea was carried out, the research concentrated on the IT Operational Security unit and its processes. The information was gathered by interviewing employees of the security unit and other employees with relevant experience of the project support process. Documentation of project support process was gathered and examined. The interview responses and the documentation were compared in order to understand if the process was working properly or not.

The first research question was how project management processes and information system have been documented in Nordea's security unit. Research into the first research question uncovered that there were five issues within the documentation.

Firstly, the documentation of the project management process in the security unit existed but its function did not serve the purpose. Parts of documents were contradictory and outdated. On the other hand, the service description was up to date and served its purpose. The information system NIIDS had proper documentation and a manual. The second information system, the project management system, had minimal documentation.

Secondly, the impression of the interviews was that the support persons did not quite know what was the minimum level of expected work. The documents made demands that the support persons found too overwhelming and no longer relevant.

Thirdly, the service description of the project support described that every project registered in NIIDS would automatically get a support person from IT Operational Security

whether the project required it or not. NIIDS had a lot of projects of unknown status and this distorted the number of actual projects that needed immediate support.

Fourthly, the employees in IT Operation Security had difficulties fulfilling the minimum requirements of the projects. Some of the employees did not do any project support work for the projects if the project manager did not contact them directly and ask for help.

Lastly, there was no common thread to handle the project support. Every employee had their own way to execute it. The common models would help unify the unit practices and decrease misunderstandings between project managers.

The second research question was how processes were actualized and how the information systems served their purpose. The conclusion from the information systems was that the IT Operational Security's own project management system was in the end of its lifecycle. Updating both NIIDS and the project management system caused a lot of manual work and the maintenance was currently only done by one or two persons and took too much precious work time from the other tasks. The only reason for keeping the administrator tool was to keep track of who had projects to support and how many. In addition, the project management system had a commenting possibility being used by some support persons for tracking the history of each support case.

The third research question was what kind of information system would be the best for project management in Nordea. According to theoretical analysis, a project has at least six phases and it is recommended that every phase produces a document. A project has start and end points, defined time, budget and clear scope for requirements. With this information, the information system should be capable to offer a place to create time schedules, budget, resources, documentations and other needed for project management.

NIIDS was lacking a part of these features. As it is a system where project managers can upload project documentation but not create specific time schedules, it was not the best option. There was a time scheduler but it was concerned with a larger scope of the project. For example, if the project manager wanted to arrange weekly meet-

ings, NIIDS was not the best place to reserve it and inform the team. Still, it fulfilled its function to be available for everyone in Nordea interested in that particular project. If NIIDS had a comment box and some sort of conclusion of the project support persons, it would make the security unit's own system useless. Getting rid of the security unit's system would free results to more beneficial use.

Chapter 3 presented two commercial information systems: Microsoft Project and Microsoft Sharepoint. Microsoft Project is a good tool to create time schedules, project plans and budgets but it lacks the simultaneous use. On the other hand, Microsoft Sharepoint is a perfect place to share documents, calendar and even arrange video conferences but is needs external software to create the documents.

The ideal information system could limit private and public viewing so the project could keep all its documents in one place and just make the important ones visible to public. The system could create detailed information for the needs of project and share all the project documents. Creating this kind of a system would take a lot time and effort and is not probably the best solution for many companies.

The best information system for the project management would be a mix of Microsoft Project, SharePoint and NIIDS. It was found out that every one of the systems had their own strengths and weaknesses. If these three systems could be compiled together, one could have the perfect information system for project management.

The reasonable solution is to keep one or two systems which are easy to update and follow in practice by everyone involved with a project. If the documents and all other necessary information are dispersed to many systems, even the world's best information system would not help.

Based on this discussion, the present study proposes to create a common way of handling a request for project support. Firstly, the written process descriptions and responsibilities of the support persons should be updated. Secondly, the updated documentation should be implemented in practice in order to have the practice correspond to the documentation. A short term recommendation is to clarify the IT Operational

Security's role in QRA. Lastly, it should be clarified what the security architects and ITAG would like IT Operational Security to do.

The project support process should be changed to reflect the actual practice. The automatically provided project support should be ended. If the people in the project feel that they need help, they can request a project support person from IT Operational Security. As a consequence, the actual workload would decrease. The employees would have more time to concentrate on the needs of project and provide quality support for it. When the focus is adjusted to real, simple processes, the project support will be more effective.

Overall, the results indicated that the project support process did not function properly with the current definitions and significant disparities existed between documentation and practice. This study recommends modifying the IT Operational Security's project support to be more functional in practice and less so in paper. The significant changes would include the removal of the project support person's automatic assignment based on the project's needs. Instead, the project would ask for a project support person if they needed it. The second change would be in the information systems, where the project management system should be abandoned leaving NIIDS to take its place with minor modifications.

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