Quality Assurance in the IT Project Management Process

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Abstract

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This thesis concerns project management and how to work with quality assurance in projects. The aim is to provide Scania with recommendations regarding quality assurance efforts in the IT Project Management Process. The study is primarily focused on quality of project management and the project as a whole rather than the specific product or output itself. Recommendations are outlined based on an analysis of project management literature, existing work methods at Scania IT and benchmarking to show how other project organizations work with quality.

An important conclusion is that quality assurance should be introduced in a way that acknowledges the need for flexibility and allows each project to set the terms for its quality assurance agenda. Project management and client representatives should however be required to plan and make decisions concerning quality activities as a part of the IT Project Management Process. Required tools need to be provided to facilitate the application of suggested methods, for example templates, guides and menus. Beyond how to manage the internal processes within projects, procedures also need to be introduced for how to organize, coordinate and support different project quality activities within the organization.

Sammanfattning

Detta examensarbete har utförts på uppdrag av Scania IT i Södertälje och behandlar kvalitetssäkring i projektstyrningsprocesser. Scania IT tillämpar en gemensamt anpassad IT-projektstyrningsprocess som är baserad på den generiska projektmodellen PPS. Målet med uppdraget har varit att dra slutsatser kring huruvida obligatoriska kvalitetsavstämningar bör ingå i IT-projektstyrningsprocessen och i sådant fall ge rekommendationer kring hur dessa bör vara utformade. Analysen har baserats på teori i form av projektstyrningslitteratur samt intervjuer med projektledare vid Scania IT för att belysa hur IT-projektstyrningsprocessen och PPS tillämpas i praktiken. För att undersöka förekomsten av kvalitetssäkringsmetoder har även en jämförande studie genomförts där representanter för fyra andra projektorganisationer har intervjuats.

Projekt är per definition unika och en viktig slutsats är att kvalitetssäkring bör införas på ett sätt som ger utrymme för flexibilitet och tillåter varje projekt att utforma sin egen kvalitetsplan. Rekommendationen är att projektledning tillsammans med beställare som en del av IT-projektstyrningsprocessen ska planera och besluta om kvalitetsaktiviteter med stöd av tillgängliga verktyg och tydliga riktlinjer. Utöver att hantera de interna processerna i projekten behöver även rutiner införas för hur kvalitetsaktiviteter ska koordineras inom projektorganisationen.

Table of Contents

1 Introduction

The project form of work is becoming more important as companies increasingly organize central strategic activities such as product development and organizational change as projects. It is common knowledge that projects frequently fail to meet their objectives and deliver the required product, service or result within scope, on time and within budget. In many companies a systematic ability to carry through successful projects is a requirement for prosperity and the ability to manage projects has come to be considered a core competence.

Project management literature and practitioners advocate that following well-defined, previously proven successful methods increases the chance of success while designing new project management processes at the start of every project increases the chance of failure. Organizations applying the project approach often develop methods for managing projects or purchase a general project management model.

Scania is one of the world's leading manufacturers of heavy trucks and buses as well as industrial and marine engines. As a company with a significant focus on quality, Scania works with continuous improvement and has a global management system, certified according to ISO 9001 and ISO 14001. For IT projects, Scania applies the *IT Project Management Process*, which represents a minimum standard method for project management. The main flow in the IT Project Management Process is inherited from the general project management model Practical ProjectSteering (PPS)[1]. Many of the tools in the IT Project Management Process consist of selections from PPS, with Scania unique adaptations and additions.

Quality management can be applied in order to improve the ability to effectuate projects that meet their objectives. Exploring how quality can be managed and how the IT Project Management Process can be improved in this regard is of great interest.

1.1 Aim of the Degree Project

The aim of the degree project is to provide Scania with recommendations regarding quality management efforts in the IT Project Management Process.

1.2 Questions

How is project quality ensured in Scania's IT Project Management Process? What is perceived to be best practice when it comes to quality assurance of project management? How can Scania InfoMate adopt best practice and adapt it to the IT project management process?

1.3 Before Reading

I will use the terms Scania's IT organization and Scania IT interchangeably in this report to denote the collective of divisions and departments at Scania primarily occupied with IT. A glossary is provided in Appendix 1, listing important concepts and abbreviations used.

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[1] PPS is a general project management model developed and marketed by Tieto Enator.

The report is divided into nine chapters, each chapter commencing with a brief overview of its content and main sources if such exist. A main source is then assumed to be valid when a citation is not present. Chapter 2 describes how the study has been conducted and chapter 3 introduces the theoretical framework. In order to provide the reader with a basic understanding of the company's philosophy, organization structure and attitude towards projects, chapter 4 provides an overview of Scania's IT project context. The IT Project Management Process, how it is used in practice and related problems are described in chapter 5. Chapter 6 comprises the result of the benchmarking study while chapter 7 consists of analysis. The report is concluded with recommendations in chapter 8.

2 Method

This chapter describes the procedure and methods which have been applied in this study.

The recommendations in this study have been outlined based on theory, practice and situational factors at Scania IT. See Figure 1.
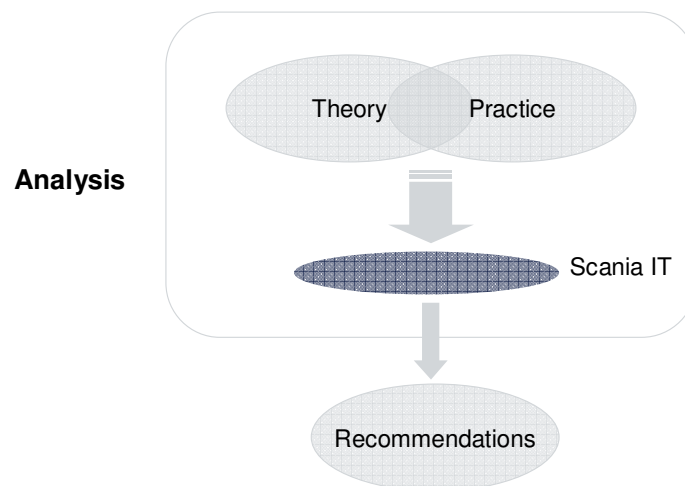
Figure 1 - Recommendations outlined based on project management literature, benchmarking interviews and situational factors at Scania IT.

2.1 Theoretical Point of Departure

Since the IT Project Management Process is concerned with how to manage IT projects on a general level and also based on a general project management model, it was natural to base my study on theories from project management.

Academic research in the field of project management is multidisciplinary, drawing from a number of social science disciplines such as sociology, management studies, psychology and the engineering sciences. It is closely related to practice and the research is often conducted in collaboration with the industry.[2] Project management can also be regarded as an expanding profession with widely applied traditional practices, which may be referred to as the "practical field"[3].

A large portion of the literature about project management stems from the practical field and takes a normative approach, focusing on instructing practitioners how to manage project work. It should be noted that this type of literature is also used in project management courses at Swedish universities. There is also an extensive selection of project management models and frameworks available on the market. Since the study is concerned with practical application in an industrial company, I have primarily used

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[2] Chalmers, Projektledning (2007-03-12) and Joakim Lilliesköld, *Global Project Management* (Stockholm: KTH, 2002), p. 9.

[3] Term used by Lilliesköld, 2002.

literature from the practical field. Also, literature from the academic field of research is limited and do not seem to focus on project management methods.

To a large extent I have applied definitions and concepts from *A guide to the Project Management Body of Knowledge* (*PMBOK Guide*), which is considered to be a de facto world standard for the project management profession. The PMBOK Guide is published by the Project Management Institute (PMI), an American organization actively working to increase the professionalism of project management by standardizing the profession of project management. PMI also manages several levels of project management certification. I consider the PMBOK Guide to provide a good overview of the subset of the project management body of knowledge which is generally recognized as good practice[4].

2.2 Design of the Study

The study commenced with creating an overview and understanding of Scania's IT Project Management Process and how it is perceived and applied in practice. It was also important to understand how IT projects fit into the organization, i.e. exploring the project context and gain an insight into the organization structure and culture.

In parallel with seeking to understand Scania's organization and IT projects I have reviewed theories concerning the project form of work, project management and project quality. The literature study served two primary purposes: to define and understand common project management concepts and to explore how quality efforts can be applied to influence the ability to effectuate successful projects.

The normative project management literature as well as project management models provide an abundance of instructions and activities concerning the undertaking of projects. However, reality is more complex and benchmarking was performed in order to explore how other organizations work with project quality. Benchmarking is a tool for continuous improvement of quality and work activities in organizations. It is primarily concerned with comparing work methods and processes but is also applicable when comparing success factors, individuals and organizational structures. Benchmarking helps organizations to learn about new methods, ideas and tools. It also contributes to overcoming resistance to change by demonstrating that other methods of solving problems work, because they are being used by others. [5]

Benchmarking is often classified into different categories. Internal benchmarking is concerned with comparing work methods within the organization, between departments, divisions, functions and subsidiaries in order to find the best internal method. Internal benchmarking should be considered as a first step, preparing you for external benchmarking.[6] Since Scania is renowned for its project management methodology for product development I found this to be an appropriate area for performing internal benchmarking.

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[4] PMBOK Guide defines "good practice" as a general agreement that the correct application of these skills, tools and techniques can enhance the success over a wide range of different projects.

[5] Joakim Carlson & Lars Sandberg, *Benchmarking – företagets guide till framgång* (Göteborg: BAS, 2000), p. 13-18.

[6] Carlson & Sandberg 2000, p. 19-20.

External benchmarking can be categorized into competitive and non-competitive benchmarking. Competitive benchmarking is concerned with comparing products, services and processes with direct competitors in contrast to non-competitive benchmarking, which can be divided into functional and general benchmarking.[7] Since I have been concerned with project management models and methods rather than production models and since the type of business and the result produced is of less importance, I have not restricted myself to competitive benchmarking but conducted external non-competitive functional benchmarking.

I outlined my benchmarking process based on a model presented by Bergman & Klefsjö, which consists of six phases: plan, seek, study, analyze, adapt and improve. Benchmarking should commence with planning, which includes mapping and understanding your own activities, processes and work methods. Seek refers to finding a suitable organization to study in terms of process ability and performance gap. Three organizations were selected based on disparity in primary area of business and similarity in functional content, i.e. information technology as well their application of a project management model. They represent a consultancy providing IT services, the administrative support unit of a government agency and the group IT project management office at a large bank. According to Bergman & Klefsjö, the benchmarking analysis focuses on determining why the processes are different with the aim of selecting activities and adapting them to the environment. The final phase of improving is beyond the scope of this study and refers to implementing and measure the modified process.[8] The aim of my benchmarking has been to get inspiration and ideas and a better understanding of project management by studying how other organizations work to achieve project quality. I have not measured or compared performance, primarily because it is very difficult when it comes to projects and project management.

Project management as represented by organizations like PMI and "handbook literature" for project managers, can be regarded as a strong normative ideology. Objections have been raised against the underlying assumptions that project management is a generic methodology, i.e. that the same project management methods, ways of organizing, operation procedures and tools can be used for all types of projects in all types of industries.[9] I have tried to keep this in mind and focused on project management support rather than rules as well as taken into account the fundamental differences between the organizations in the benchmarking study.

2.3 Data Gathering

The data collected in this degree project primarily consists of interviews, observations and company internal material such as documents, presentations and the Intranet.

2.3.1 Interviews

This study is largely based on qualitative interviews with employees at Scania IT, at Scania Research & Development and at the companies observed for benchmarking. The

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[7] Carlson & Sandberg 2000, p. 20-22.

[8] Bo Bergman & Bengt Klefsjö, *Kvalitet från behov till användning*, 3rd ed. (Lund: Studentlitteratur, 2001, p. 437-439.

[9] Mats Engwall, "Project Management and Ambiguity, Findings from a Comparative Case Study" (1992). In: *Understanding Projects, Selected Articles on Industrial Project Management 1988-1998* (Stockholm: KTH, 1998).

purpose with a qualitative interview is to discover and identify the characteristics and nature of something. Qualitative interviews are characterized by a low degree of standardization, which means that the questions asked allow the interviewee to respond freely. The degree of structure, i.e. whether there is a predefined order of the questions asked, may vary.[10]

I had two main reasons for conducting qualitative interviews. Firstly, a large portion of the knowledge base in an organization is embedded in the people working there. All elements in a project management model and work methods are not necessarily documented and the parts that are documented may be difficult to fully understand only by reading about them. Qualitative interviews were a useful tool to obtain that information and get an understanding of it. Secondly, a project management model and the methodology connected to it can only contribute to success if it is established in the minds of the people who are meant to use it. Qualitative interviews helped me to understand how the defined models or methods are used, if they help and support the users and in that case how.

In order to get an overview of how IT projects are managed at Scania and how the IT Project Management Process is perceived and applied I began by conducting interviews with project managers at Scania InfoMate. These initial interviews were characterized by a low degree of standardization and structure with open questions loosely connected to different themes. All contacts at Scania InfoMate were mediated by my supervisor Anna Hård af Segerstad and the interviews were carried out at Scania InfoMate in Södertälje. In the case of Scania InfoMate, implications of this method of selecting interviewees may be overlooked due to the fact that a majority of the project managers were interviewed.

At Scania's IT Coordination Areas and project office for product development as well as at other companies, one central contact was provided by Hård af Segerstad. This central contact then suggested other suitable persons to interview. This might have had implications for the result and given a selection of interviewees more inclined to share views and work methods. However, I believe that it would have been severely more difficult to find suitable and willing interview candidates with another method. Due to the different types of businesses and project methods, the benchmarking interviews were characterized by a low degree of standardization and structure. The interviews were conducted with open questions connected to different themes and the theoretical framework applied in this degree project.

2.3.2 Observations

Since I have spent some time at Scania InfoMate, I have also made observations of the work environment just by being there. Observations refer to studying events and behaviours in their natural environment.[11] I have belonged to Scania InfoMate's project office (XIPDX) and had my own desk and computer in an office landscape. The observations have been unstructured and have helped me to understand Scania's organization and project work in practice.

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[10] Runa Patel & Bo Davidson, *Forskningsmetodikens grunder*, 3rd ed. (Lund: Studentlitteratur, 2003), p. 78.

[11] Patel & Davidson 2003, p. 87-89.

2.3.3 Documents

The internal documents used can be divided into two main categories: the work documents produced by employees and the official documents such as information about the company, guidelines and standards. The official documents are generally available for employees on the Intranet while work documents were provided to me by the interviewees.

2.4 Research Quality

In qualitative studies the ambition is to discover phenomena, interpret, understand and describe ideas or cultures. The concepts validity and reliability are not applicable in the same sense as with quantitative studies where validity refers to measuring the right thing and reliability refers to the ability of the measuring device to produce consistent results. In the context of qualitative research, validity and reliability are often so interrelated that the latter is not used and validity is given a wider meaning. Striving for good validity is not only connected to the data collection but permeates the entire research process. I have sought to increase the quality of my study by applying triangulation, which is a common validation method used in qualitative research, referring to the use of multiple cross-checked sources and methods.[12] I have collected data using different methods as well as different sources and integrated these in order to provide an as comprehensive depiction as possible.

I have not been able to substantiate whether any of the suggested project management activities actually contributes to project quality. In this regard I have had to settle with the supposition that the normative school of project management is based on a great deal of experience and well-established practices.

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[12] Patel & Davidson 2003, p. 103-104.

3 Theoretical Framework

The aim of this chapter is to introduce and define central concepts and theories concerning projects, project management and quality.

3.1 What is a Project?

There is a tendency within the business world to call almost all activities "a project".[13] The Project Management Institute (PMI) has defined a project as "a temporary endeavour undertaken to create a unique product, service or result"[14]. Temporary means that every project has a definite beginning and a definite end. The project ends when the project's objectives have been achieved or when it becomes clear that the objectives will not or cannot be met or the need for project cease to exist and the project is terminated. The uniqueness refers to the fact that the project's deliverables are different in some sense from all other previous products, services or results.[15]

The work performed by organizations to achieve a set of objectives can generally be categorized as either operations or projects. While operations are ongoing and repetitive, projects are a means of organizing activities that cannot be addressed within the organization's normal operational limits. [16] Projects can be an efficient way to implement an organization's strategic plan. The project organization enables resources to be collected from different parts of the line organization and focused towards a specific goal. A successful project result is dependent on cooperation between the line organization and the project.[17]

The project's main flow is often described as a sequence of phases, which constitute the backbone in most project management models. Collectively these phases are often referred to as the project life cycle. Typical project phases are: prestudy/initiation, planning, execution and conclusion. There are a number of common project management models and the similarities between them are usually larger than the differences, which typically lie in the number of phases and how they are labelled.[18]

A project can be described as a process, with a beginning and an end. A process is a series of connected activities, which refines a product or service and creates value in order to meet the needs of the customer. The purpose of describing a work task as a process is to ensure that it is executed in a predefined manor and thus as similar as possible at each occasion. The project work consists of several processes, each with a special purpose and objective. The core process is the project's main flow and consists of the work tasks leading up to the project's result while the support processes deliver what is needed to execute the work in the core process. [19]

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[13] Lilliesköld, 2002.
[14] PMBOK Guide 2004, p. 5.
[15] PMBOK Guide 2004, p. 5.
[16] PMBOK Guide 2004, p. 5.
[17] Bo Tonnquist, *Projektledning*, 2nd ed. (Stockholm: Bonnier, 2006), p. 9-11.
[18] Tonnquist 2006, p. 15-16.
[19] Tonnquist 2006, p. 15.

3.2 Project Management

PMI defines project management as "the application of knowledge, skills, tools and techniques to project activities to meet project requirements"[20]. Project management is accomplished through interacting processes that receive inputs and generate outputs. The purpose is to initiate, plan, execute, monitor and control, and close a project. [21]

In relation to projects, three objectives or constraints that need to be balanced are frequently mentioned in both literature and practice. Two of these constraints are time and cost. The third constraint refers to the project's end result and different terms are used to represent this[22]. PMI refers to the third constraint as project scope and states that project quality is affected by balancing these three factors. High quality projects deliver the required product, service or result within scope, on time and within budget. These parameters are interrelated, which means that if one of the three changes, at least one other factor is likely to be affected.[23] The prioritization order between time, cost and scope will differ depending on the project and be reflected in the management and control of a specific project.[24]
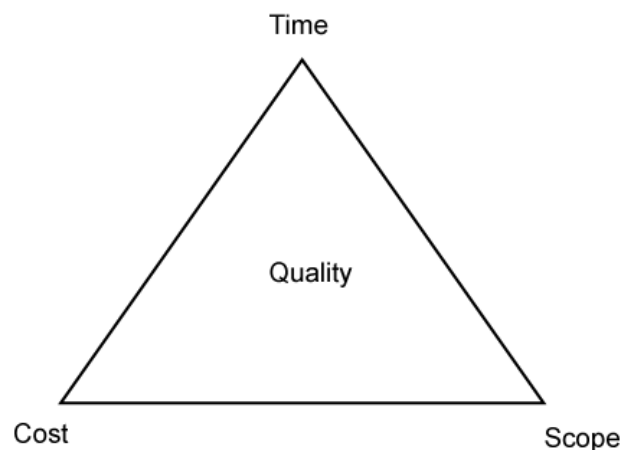
Figure 2 – The Triple Constraint is often depicted as a triangle. See for example Gray & Larson 2006, Project Management, p. 103.

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[20] PMBOK Guide 2004, p. 37.

[21] PMBOK Guide 2004, p. 37.

[22] See for example Söderlund 2005, Engwall 1995, Turner 1999 and Tonnquist 2006. The third constraint is often referred to as functionality or performance, which may be misleading in some instances, e.g. in the case of change projects. Quality is another common term for the third constraint, then usually referring only to the end result, e.g. the product quality.

[23] PMBOK Guide 2004, p. 8.

[24] Jonas Söderlund, *Projektledning & projektkompetens – perspektiv på konkurrenskraft* (Malmö: Liber, 2005), p. 54-56.

3.3 Managing Project Quality

Today, quality is widely regarded as a necessary requirement for a company's success and competitiveness in the market. However, the concept of quality is ambiguous and requires clarification.

3.3.1 What is Project Quality?

According to Turner, definitions of good quality on a project often concern the output and how well and to what extent it: meets the specification, is fit for purpose, meets the customer's requirements or satisfies the customer.[25] The perceived quality should at least match the expectations. The stakeholders' expectations, especially the end users, determine whether the project is regarded as successful or not. It is important to manage the stakeholders and make sure that they have an accurate image of the project and what is to be delivered.[26] Research has shown that if a project manager, the project team and other stakeholders agree before they start how they are going to judge the project's success, then they maximize their chance of success.[27] By the end of the project, what the customers think they want, what they actually need and what you think they need should be the same thing. With that said, Turner states that the widely accepted definition of good quality is taken as delivering project objectives that are fit for purpose, i.e. they achieve the desired result.[28]

As stated earlier, PMI asserts that high quality projects deliver the required product, service or result within scope, on time and within budget.[29] In order to achieve this we must, according to Turner, manage quality of the project management processes as well as of the project output.[30] Macheridis makes a similar distinction separating project quality into two dimensions: product quality and process quality. Product quality refers to the quality of the project output while process quality is defined as the quality work performed during the project process.[31] The concepts of output quality and process quality are closely related since quality of the project's output is the ultimate goal and quality of the management processes is a significant contributor to that.[32] Output quality is based on the assignment and the assignor's requirements, while process quality is connected to the project organization's demands for quality assurance of the project result. The customer is mainly concerned with output quality while, from the project management's point of view, working with the process quality in order to assure the quality of the end result is also important.[33]

I find the idea of managing project quality by addressing the management of the project as well as project output very useful in this context; it corresponds with both Scania's philosophy of improving methods in order to improve result and the separation between

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[25] J. Rodney Turner, *The handbook of project-based management*, 2nd ed. (London: McGraw Hill, 1999), p. 149-152.

[26] Tonnquist 2006, p. 152.

[27] Turner 1999, p. 71.

[28] Turner 1999, p. 152.

[29] PMBOK Guide 2004, p. 8.

[30] Turner 1999, p. 153.

[31] Nikos Macheridis, *Projektaspekter – Kunskapsområden för ledning och styrning av projekt* (Lund: Studentlitteratur, 2005), p. 119.

[32] Turner 1999, p. 153-154

[33] Macheridis, 2005, p. 119-120.

project management model and production model. This study is mainly concerned with process quality, indirectly affecting product quality and overall project quality. Quality of the project management processes refers to their ability to contribute to effectuating a high quality project, i.e. a project meeting its objectives in terms of time, scope and cost.

3.3.2 Planning, Assuring and Controlling Project Quality

Project quality is achieved through Project Quality Management, which in contrast to product quality measures applies to all projects, regardless of the nature of the product. Project quality management activities include planning, assuring and controlling quality during the entire project process.[34]

Since it is less expensive to avoid mistakes than to correct errors, preventive quality work is advisable. This notion should permeate all project work and it is important to take the time for analysis and planning before pressing the start button. The quality of the execution and thus the result is almost always higher if you have a well thought out plan to follow, work methodical and document your actions.[35] At the start of the project, the project manager should draw up a quality management plan to define how quality will be achieved, how the company's procedures will be applied on this project and how the manager intends to assure and control quality.[36]

According to PMI, quality assurance refers to applying the planned, systematic quality activities to ensure that the project employs all processes needed to meet the requirements. Quality control means monitoring specific project results to determine whether they comply with relevant quality standards and take steps to eliminate causes of unsatisfactory performance.[37] In other words, quality assurance may be described as preventive and quality control as curative.[38] My main point of departure is quality assurance rather than quality planning and quality control but it should be noted that these activities interact and overlap. In addition to the direct benefits in terms of project quality by employing quality assurance, these activities may also contribute to inspire confidence in the company's ability to effectuate high-quality projects.[39]

The views in project management literature on how to put quality assurance into practice varies somewhat. PMI describes quality assurance in terms of processes with input, tools and techniques and output often overseen by a quality assurance department. PMI's list of quality assurance tools and techniques include quality audits and process analysis as well as tools for quality planning and quality control. A quality audit is a structured, independent review to determine whether project activities comply with organizational and project policies, processes and procedures. The objective of a quality audit is to identify inefficient and ineffective policies, processes and procedures in use on the project. Quality audits may be performed by properly trained in-house auditors or by third parties, external to the performing organization. The purpose of a process analysis is to identify needed improvements and examine problems, constraints and non-value-added activities identified during process operation. Quality planning tools

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[34] PMBOK Guide 2004, p. 179-180.
[35] Tonnquist 2006, p. 152.
[36] Turner 1999, p. 159.
[37] PMBOK Guide 2004, p. 8.
[38] Turner 1999, p. 153-154.
[39] Macheridis, 2005, p. 120.

and techniques include cost-benefit analysis of project quality management activities, benchmarking by comparing project practices to those of other projects, design of experiments and cost of quality. Quality control tools include different diagrams and charts, inspection in the form of reviews, peer reviews or audits to determine whether a result complies with standards and finally defect repair review to ensure that deviations from standard are corrected.[40]

Lewén & Philip suggest reviews and follow-ups as means to assure the project's result as well as to gain experience from the applied work method, emphasizing the importance of carrying out these activities in accordance with a model documented in the project. The purpose of project follow-up is to compare the present status with the plan, analyze and describe any deviations and design suitable actions. It is carried out at different levels and throughout the entire project lifecycle. Within a specific project, the project manager plans and carries out follow-up activities in order to assure the ability to actively steer the project towards a goal. Different types of reviews include quality audits, continuous monitoring by the project manager, decision points, process reviews and product reviews. Quality audits are performed by an independent party from outside the project, e.g. a quality function within the company or the client. Process reviews refer to follow-ups by the project manager in order to examine whether the project is managed in the most efficient manner and should be performed in relation to phase transitions.[41] It may be difficult to evaluate the quality of what is done to reach the goals and in order to continuously get the project reviewed, Wisén & Lindblom suggest that support and knowledge can be found outside the project group, for example in other projects within the organization. Since they are working on similar tasks they can provide input relatively quickly. Another alternative is to hire a consultant, whose only task is to study and evaluate the content. The project's reference group may also be used for valuation and status reports can continuously be sent to experts for input. Working with quality issues in the follow-up process is important but often neglected.[42]

3.4 Project Methodology

Following well-defined, previously proven successful ways of doing things increases the chance of success while designing new project management processes at the start of every project increases the chance of failure. This means developing procedures for the organization to be used as flexible guidelines rather than rigid rule.[43] Several studies have shown that not having a common project methodology is a primary cause for project failure. Project management offices and project management models are important building blocks in this context. A project management office is usually established in order to coordinate resources, standardize monitoring and reporting and develop the project work quality. Work tasks include developing project tools by implementing and maintaining a project model, establishing and maintaining a project space on the company's Intranet, creating tools for structuring, planning and resource allocation as well as processes and methods for reporting and monitoring. The project

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[40] PMBOK Guide 2004, p. 185-196.

[41] Bengt Lewén & Hans Philip, *Ledande projektledning* (Stockholm: Nerenius & Santérus förlag, 1998), p. 117-121.

[42] Jan Wisén & Börje Lindblom, *Effektivt projektarbete*, 7th ed. (Stockholm: Norstedts Juridik AB, 2004), p. 155.

[43] Turner 1999, p. 153-154

management office is also responsible for quality assurance, for example by conducting project reviews, creating routines for change management and performing analyses.[44]

A project management model consists of three main components: processes, roles and templates and documents. The trick is to find a project management model that provides enough control of the projects without the project managers perceiving it as too restraining or adding to the administrative workload. In order for a project management model to work in practice, methods and perspectives should be established in the organization. It is common that project management models are not used to the extent that was intended when implementing them, often because many of the employees are not familiar with it or because it is perceived as too limiting or cumbersome.[45]

3.5 Project Context

The practical field of project management is primarily focused on how to manage the individual project even though PMI briefly mentions that the project team should consider the project in its cultural, social, international, political and physical contexts.[46] Engwall has repeatedly emphasized the importance of contextual features in relation to project management success. Based on case study research, Engwall states that the crucial factors lie in the interaction between project management and the project environment rather than internal efficiency.[47] The project management context within the organization should also be considered. Sebestyén calls attention to recent and rapid changes concerning the project form of work. Projects used to be commissions of isolated occurrence but today a typical project is one of many in a project portfolio. A small number of large projects have been replaced by many smaller. In a multi project environment, all projects are dependent on each other and often compete about resources, decision and attention. According to Sebestyén, the need for coordination between projects is great.[48] With that said, I believe that the importance of taking project context into account when designing project methods is crucial.

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[44] Tonnquist 2006, p. 325-327.

[45] Tonnquist 2006, p. 328.

[46] PMBOK Guide 2004, p. 16.

[47] Mats Engwall, "Project Management and Ambiguity, Findings from a Comparative Case Study" (1992). In: *Understanding Projects, Selected Articles on Industrial Project Management 1988-1998* (Stockholm: KTH, 1998).

[48] Ulla Sebestyén, *Multiprojekt – ledning av portföljstyrda projekt* (Rönninge: Parmatur, 2005).

4 The Context of IT Projects at Scania

The aim of this chapter is to provide the reader with a basic understanding of Scania's IT project context.

4.1 The Company

Scania is one of the world's leading manufacturers of heavy trucks and buses, as well as of industrial and marine engines. Scania is a global company with operations in more than 100 countries and with production units in Sweden, France, the Netherlands, Poland, Russia, Argentina and Brazil.[49] The company has more than 30 000 employees worldwide of which 12 000 are located in Sweden.[50]

Scania's three core values "customer first", "respect for the individual" and "quality" tie the company together and form the basis of Scania's culture and business behaviour. As illustrated in Figure 3, based on these core values, each part of the company is supposed to focus on establishing and improving principles and methods to affect the results. If the results do not meet expectations, the methods are reviewed and improved. Working continuously with improvements is essential at Scania.[51]
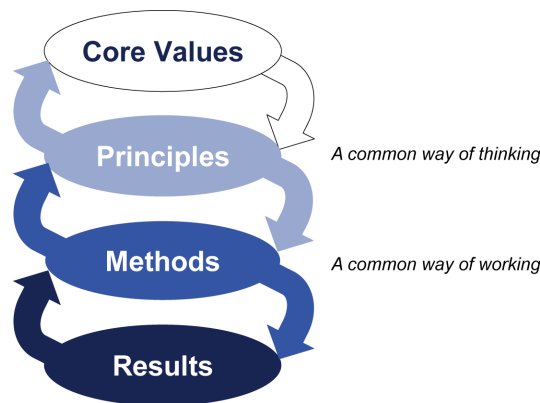
Figure 3 – Management by means. From How Scania is managed 2006, p. 10.

The developed common work methods define what is referred to as a normal situation at Scania. Implementation of a clear normal situation facilitates spotting and managing deviations that may appear.[52]

4.2 Framework for Projects and Assignments

Scania has developed a framework for all project and assignment work, clarifying central concepts, roles and work methods based on experiences from different areas within the company. The aim with the framework is to turn these experiences into a normal situation for all project and assignment work at Scania worldwide.[53]

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[49] *How Scania is managed* (Internal document, Scania, 2006), p. 14-15.
[50] Scania, Om Scania (2006).
[51] *How Scania is managed* 2006, p. 3-9.
[52] Presentation of Scania InfoMate House (Internal document, Scania, 2005).
[53] *Projects & Assignments - Normal Situation* (Internal document, Scania, 2007).

Project and assignment work is viewed from three different perspectives, each corresponding to a model as illustrated in Figure 4. A Business Model deals with why a new project should be initiated, how ongoing projects should be prioritized against each other and whether any projects should be discontinued. A Management Model supports the project manager with defining what shall be achieved and when it shall be delivered. The majority of the activities in a project are carried out in accordance with a Production Model, which delivers results to the project. Which Business Model, Management Model and Production Model that is used depend on the type of project.[54].

Projects are carried out in three phases: prestudy/preparation, execution and termination/conclusion. Four primary roles are the assignor, the steering group, the project manager/assignee and the working group. When needed there may also be a reference group and a sub-project manager. Each project must have an assignor who initiates the project, defines objectives, targets and resources as well as supports the project manager, approves and reviews the result and finally closes the project. The assignor is usually a member of the steering group. The steering group is normally the highest decision-making body and consists of representatives of the line organization that finances and/or is directly affected by the project's result. Each project needs an appointed project manager/assignee whose primary task is project management. The project manager should apply standardized work methods within the project as well as when interacting with other stake-holders. The working group consists of members recruited from different departments depending on competence needed in the project. A reference group normally consists of representatives of future users and administrators of the project results. The reference group normally consists of experts from relevant areas, providing advice on functional content and technical structure as well as back-up for project implementation.[55]

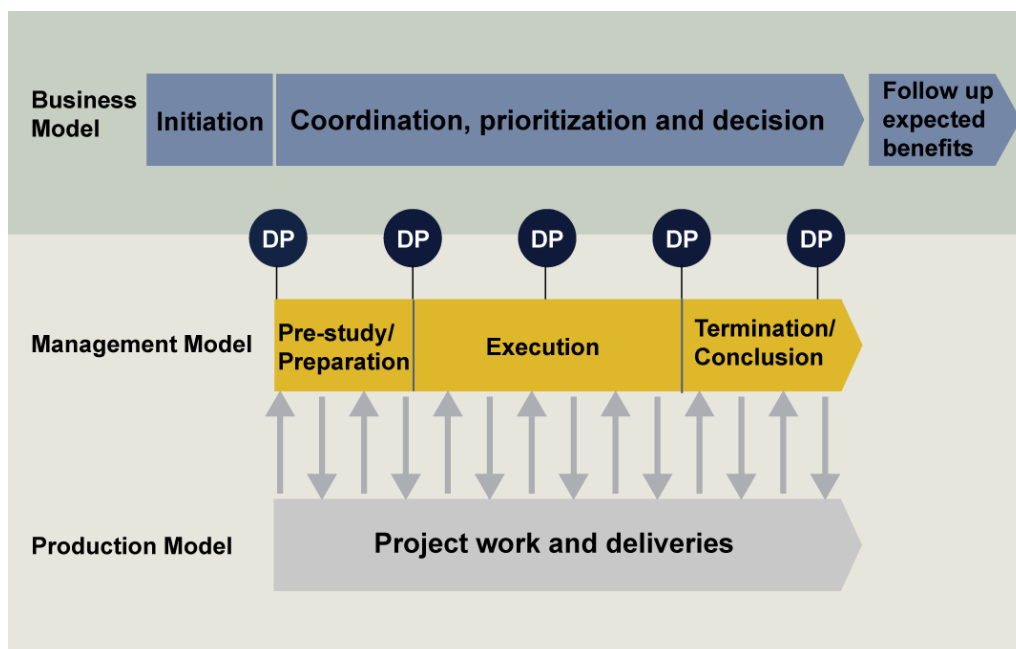*Figure 4 – Business Model, Management Model and Production Model. From Scania's Projects & Assignments – Normal Situation, 2007.*

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[54] *Projects & Assignments – Normal Situation* 2007.

[55] *Projects & Assignments – Normal Situation* 2007.

4.3 IT at Scania

Scania's IT organization structure is illustrated in Figure 5. The elements of primary interest in this context are the strategic and controlling IT function Corporate IT (V), the five IT Coordination Areas and the internal IT providers Scania InfoMate and Scania Networks. [56] Corporate IT is responsible for Scania's global IT strategy and methodology and owns Scania's IT processes, including the IT Project Management Process. There are five IT Coordination Areas, basically corresponding to the main departments of Scania's line organization: Finance and Administration (F&A), Research and Development (R&D), Production and Procurement (P&P) and Franchise and Factory Sales (F&F) combined with Sales and Services Management (S&S). The fifth IT Coordination Area represents other units.[57]

Scania InfoMate (XIP) is a wholly-owned Scania subsidiary and Scania's internal provider of IT solutions.[58] Scania InfoMate was created in November 2001 through the merge of three former independent IT organizations providing products and services within Scania in various countries in Europe and Latin America. Since then, additional independent IT organizations have been incorporated in Scania InfoMate. Scania InfoMate's ultimate objective is to be a global IT provider, providing products and services to all Scania business units worldwide.[59] Scania Networks is the provider of common market systems that support the operational processes at Scania's distributors and dealers, but will not be explored further in this degree project.[60]
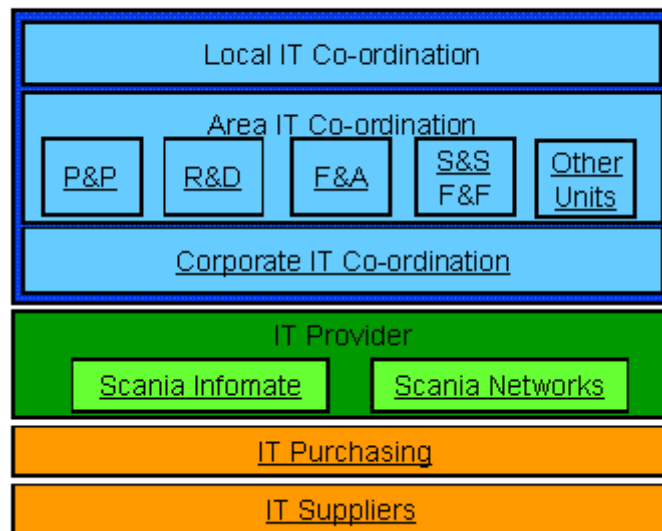
Figure 5 – Scania's IT Organization. From Scania InLine.

[56] Scania IT Portal (2007-03-26).
[57] Irene Nilsson, Corporate IT (V) at Scania. Interview 2007-05-30, Södertälje.
[58] Scania InfoMate (2005-04-26).
[59] XIP – About Scania InfoMate, History (2005-04-26).
[60] Scania IT Portal (2007-03-26).

4.4 IT Projects

A typical IT project is initiated in order to meet the business needs in Scania's line organization as shown in Figure 6, and may for example be a part of a larger project with the intent of organizational change or product development. The IT Coordination Areas act as interfaces between Scania's units and the provider Scania InfoMate, transforming business needs to Information System (IS) requirements. IT solutions are then provided by Scania InfoMate. In most cases an already existing IT solution is reused and in other cases a new IT solution is built internally or a suitable commercial solution is found, bought and adapted to Scania.

The different departments and IT Coordination Areas differ somewhat in structure and how they approach projects. The project management constellations also vary between projects. A project manager may be appointed from the IT coordination area and a project manager may also be appointed from Scania InfoMate's Project Office, usually taking a more technical area of responsibility. Scania InfoMate's Project Office (XIPDX) offers project management both for technical and general projects at Scania InfoMate.
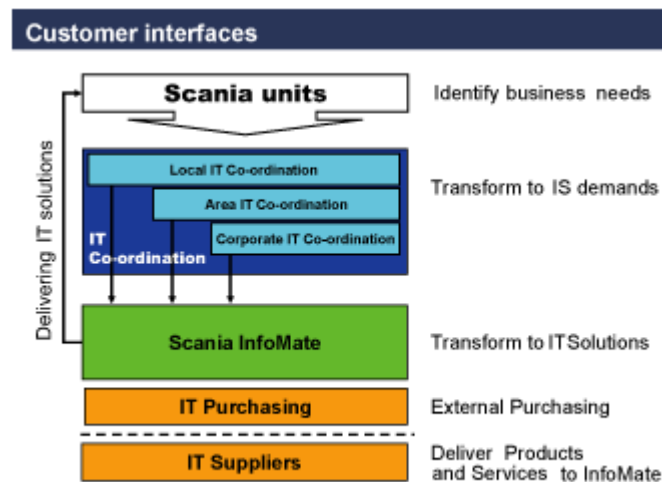
Figure 6 - Scania's internal IS delivery model. From Scania InLine.

5 Current Situation

This chapter provides an overview of the IT Project Management Process, how it is applied in practice and how project quality is managed. Exploring how project management is carried out in Scania's IT organization and how the IT Project Management Process is used in practice is essential for understanding the main issues, how to address them and what solutions are applicable in the concerned organization. This chapter is based on the IT Project Management Process described on Scania InLine and the interviews carried out with employees in Scania's IT organization, predominantly project managers at IT Coordination Areas and Scania InfoMate.

5.1 The IT Project Management Process

In accordance with Scania's framework for projects and assignments described in section 4.2, IT projects are controlled by a business model *IT Planning Process* and a management model *IT Project Management Process*. Depending on the nature of the project at hand, the details of the execution phase is provided by a production model, e.g. *Feasibility Study Process*, *Software Development Process* or *Infrastructure Development Process*. The Software Development Process is a Scania version of RUP[61] and applied on software development projects.
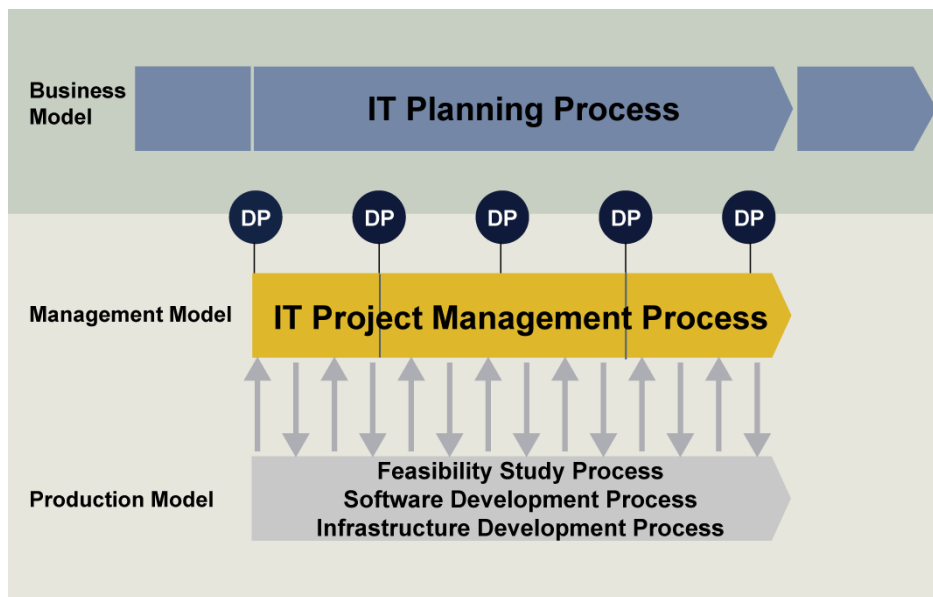
Figure 7 – Scania's IT Processes. Based on Scania's Projects & Assignments – Normal Situation, 2007.

Scania's IT Project Management Process represents a minimum standard process intended to be used for all IT projects at Scania. The main flow in the IT Project Management Process is inherited from the general project management model *Practical ProjectSteering* (PPS)[62]. PPS is a method for planning, managing and monitoring a

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[61] Rational Unified Process (RUP) is IBM's iterative software development process framework.

[62] PPS is a general project management model developed and marketed by Tieto Enator.

project and is independent of the type of result produced by the project as well as of the production model.[63]

The IT Project Management Process is available on Scania's intranet Scania InLine and includes a selection of the tools in PPS, which have been adapted to Scania's specific framework. PPS is also available on Scania InLine and several of the links in the IT Project Management Process refer directly to sections in PPS.

Beyond the project process itself, the IT Project Management Process is portrayed and described in terms of Input, Output, Framework and Methods & Tools as shown in Figure 8.
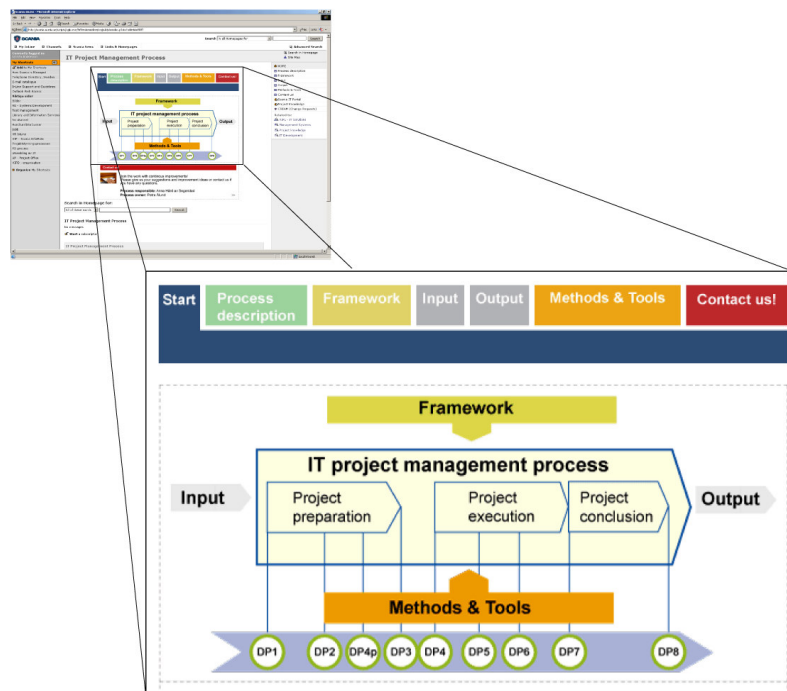
Figure 8 – The IT Project Management Process on Scania InLine.

5.1.1 Input and Output

Input to the IT Project Management Process includes a Business Case describing the reasons for the project from a business perspective and an Assignment Directive, which forms the basis for starting a project. These two documents are produced by the client in Scania's line organization. The overall IT Plan must also be considered before initiating a project.

The project result is the process' primary output, which should be in accordance with the requirements. Approval of Delivery is stated as a form of quality assurance, asking the question of whether the result is in accordance with the assignment directive. Key Performance Indicators are used in order to monitor the process and Scania's IT projects. Lessons Learned is intended to allow the opportunity to read and learn from previous

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[63] PPS [2007-02-26].

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projects but the space for this on Scania InLine is empty. Project experiences are summarized in a Final Report.

5.1.2 Framework and Methods & Tools

The framework for IT project at Scania consists of five elements. Before initiating development of new applications or purchase of third party systems, the IT Architecture Forum must have approved its technical architecture. The ISec Framework describes the organization, processes and steering principles for Information Security at Scania and includes policies, rules, instructions and other documentation. Scania's framework for Projects & Assignments (described in 4.2) stipulates a standard for all projects at Scania. Scania Technology Baseline defines the major technologies needed to provide a technical environment for applications managing data.

Methods & Tools include mandatory templates, PPS, the Action Matrix, Steering Group, Requirement Management, Risk Management and Production Processes. PPS provides an extensive amount of templates for different situations. Five of the templates for steering documents in PPS have been selected, adapted to Scania's framework and stated as mandatory for IT projects at Scania: Assignment Directive, Project Definition, Risk List, Status Report and Final Report. The templates and examples from real projects are available on Scania InLine. If choosing to use other templates provided in PPS, the project manager is supposed to adapt them to Scania's standards and regulations. Producing these mandatory documents involves various activities, indicated by headings in the templates. How to perform these activities are in most cases not mentioned or supported in the IT Project Management Process. Various support tools such as general checklists and general descriptions of a variety of activities can be found in PPS.

The Action Matrix is an Excel document with the purpose of showing all possible activities to be managed by the project manager in order to secure that adequate actions are carried out. The matrix lists a number of activities grouped under different processes or functions, connected to the eight decision points and with a brief explanation.

5.1.3 Project Process

Based on PPS, the main flow in Scania's IT Project Management Process is divided into three phases: preparation, execution and conclusion. During the project's life span there are eight types of decisions that the steering group are responsible for. These decision points (DP) also play an important role in showing the current status of IT projects at Scania and are frequently used when describing the progress of the individual projects.

5.1.3.1 Preparation Phase

DP1 refers to a decision to start the project and initiate preparations. Responsibilities and budget are agreed upon up to DP2 or DP3. The Assignment Directive forms the basis for this decision and is issued by the assignor. It contains a brief overview of the project's background and objectives, project organization, time schedule and project economy.

At DP2 it is determined whether to continue, interrupt or repeat the preparations. Possible new pre-conditions and a revised budget are agreed upon. The Project Manager is responsible for providing the stakeholders with Status Reports and a continuously

updated Risk List at agreed intervals all through the preparation and execution phases. A status report describes the current status and forecast for the project in terms of results, schedule, resources, estimates, obstacles, opportunities and progress. An analysis of possible risks is comprised in a list with an approximation of the probability and effect, priority and action.

DP4p refers to a decision to start pre-execution, e.g. pilot or prototype. The work method, budget, schedule and degree of risk are agreed upon for the current partial result. DP3 represents completion of the preparation phase and a decision of whether there is a sufficiently good basis for making commitment for the remainder of the project. The decision represents acceptance of the Project Definition, which identifies, defines and delimits the commitment in the project.

5.1.3.2 Execution Phase

DP4 refers to deciding whether to begin work to produce the agreed results. The work method, budget, schedule and degree of risk are agreed upon for the current result. At DP5 a decision will be made whether to continue, interrupt or change the project commitment DP6 represents a decision to approve delivery of the project's result or partial result.

5.1.3.3 Conclusion Phase

DP7 represents a decision to approve the transfer of responsibility for the project's result. At DP8 the Final Report is provided and a decision regarding the conclusion of the project will be made.
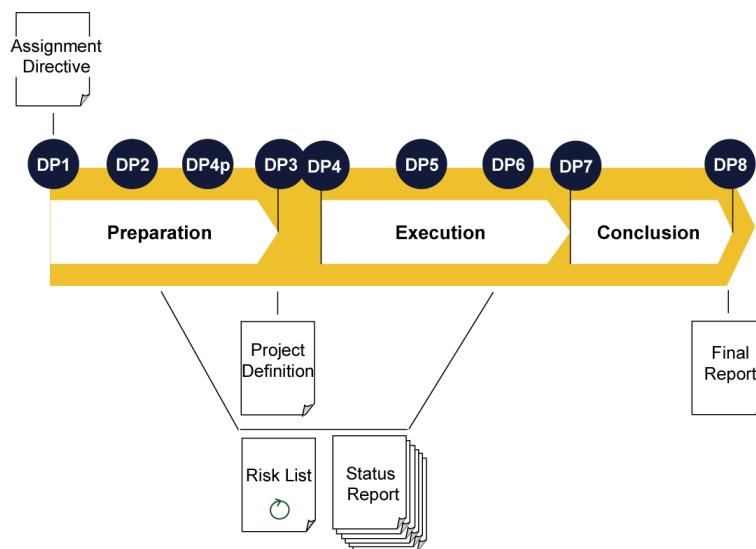

Figure 9 – The mandatory templates in the IT Project Management Process.

5.1.4 Application

There is generally a high degree of awareness among the interviewees of the existence of the IT Project Management Process even if everyone does not discern between the IT Project Management Process and PPS. In practice the project managers seem to apply

the IT Project Management Process by using the five mandatory templates and working towards the steering group guided by the decision points. At Scania InfoMate, the process is also used when reporting the status in the Scania InfoMate version of the Project Pulse, which is based on the Project Pulse for product development described in 6.1.1. The project managers at the IT Coordination Areas seem to use PPS frequently but not the IT Project Management Process on Scania InLine. They do however in general seem to work in accordance with the content in the IT Project Management Process and using the Scania-adapted templates. The project managers at Scania InfoMate did not seem to have very strong opinions regarding the IT Project Management Process and I believe this to reflect that it is not a central part of the project managers' daily work. The project managers at Scania InfoMate are usually more concerned with technical issues and often work primarily with a production model such as RUP rather than the IT Project Management Process or PPS.

5.2 Project Quality Management Activities

Some quality planning in the IT Project Management Process is addressed in the Project Definition template. A schedule with listed decision points is required. In a section called Working Methods the subheading Project Analysis is included requesting the project manager to "Describe the methods and activities being performed to secure the project result and execution. Specify the groups or people who will carry out the analysis."

The decision points are a fundamental concept in the IT Project Management Process, actually representing critical decisions made by the steering group but in practice also used in a wider sense, describing the general progress of a project. This backbone in the IT Project Management Process constitutes in itself an important quality assurance mechanism and represents important opportunities for all parties to review and reassess the project. In PPS, each decision point has a clear and short checklist for the project owner and the project manager. PPS offers a checklist for the steering group member as well as the project manager. One of the interviewees points out that it is in the interest of a project manager to work with the decision points since it also means sharing responsibility with the client. The usage of decision points is high but several of the project managers mention that the steering group meetings do not always function as intended. The steering groups are not always prepared and sometimes lack knowledge of their function. In some cases there seem to be many meetings in addition to decision making meetings. The project managers prepare for decision making meetings in different ways, by having pre-meetings with the chairman and sometimes also with other central members of the steering group and by sending out decision material a week before a meeting.

Formal project reviews performed by a party outside the project are sometimes carried out at Scania IT but not in a standardized manner. This type of project review is usually conducted when a project run into problems, on request from the assignor and the steering group. I have studied two project review reports from IT projects at Scania and both of these reviews were performed in order to improve the continuation of the projects. In each case two employees from Scania's IT organization were assigned to carry out the review. According to the reports, PPS review methods were applied but the reviews were carried out on a general level to cover the whole of the projects. Rather than focusing solely on whether the project applied a certain methodology or documents had been filled in correctly, the reviewers tried to locate the main issues by

interviewing people involved in the project. Strengths as well as weaknesses were listed and the analysis resulted in a list of recommended actions.

The subheading Project Analysis in the Project Definition is a concept in PPS, representing quality assurance efforts. According to PPS the project analysis should be performed in order to increase the opportunities for the project to achieve its idea and objective and meet agreed requirements. It is intended to give the customer, supplier and project management an unbiased verification of the project results and working procedures. Project analysis can be carried out using three review methods on predefined occasions: A characteristics review means using the project's characteristics to evaluate possibilities and difficulties. A project review measures how the agreed working methods are followed and evaluates the possibility of achieving the objective. A solution review is performed in order to evaluate the quality of the solution and the possibility of meeting requirements. In addition to these three types of reviews included in Project Analysis, PPS states that document reviews should be performed of all documents produced as a normal part of project work. The purpose of a document review is to ensure that the document maintains a high enough level of quality to provide a basis for further work. A document review may be conducted in different ways, from letting a colleague read the document to a formal meeting with meeting minutes.[64]

5.3 Other Concerns

Several project managers were of the opinion that quality efforts should be concentrated on the planning phase. Several project managers mention the difficulty of estimating how many hours a project will require and make a good time schedule.

All project managers emphasized the importance of a project management method being a support tool and not a rulebook. Several project managers would like examples of how to apply PPS on different projects.

Using the templates is found to be somewhat complicated. Headings are provided in order to guide the writer when writing the documents. A majority of the headings are followed by a sentence describing the intended content but in some cases the description is not very clear and in some cases it is missing. Some of the project managers experience the amount of information expected by the templates as too extensive. As a consequence, several of these sections are often not filled in.

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[64] PPS [2007-06-22]

6 Benchmarking

This chapter is concerned with project management in four different organizations: Scania, Sogeti, the National Tax Board and Swedbank. Each section briefly describes the organization, the project context, applied project management method, specific project quality management efforts and is concluded with my reflections. The chapter is primarily based on interviews.

6.1 Scania – Product Development

Product development at Scania is an important concern of the entire company and includes development of trucks, bus chassis and industrial and marine engines together with associated products.

6.1.1 Project Context

Product development is the responsibility of Research and Development but is essentially a cross functional activity.[65] Product development is carried out as projects, typically ranging over several years. The projects are centrally managed and coordinated but the resources are owned by the departments of the line organization who carry out the actual product development. Each department involved in a project is responsible for producing and delivering results.[66] A project is divided into a number of objects, which usually are clearly defined entities of the product. The different objects are handled as sub-projects.[67]

Scania is renowned for their Project Pulse practice, presenting their projects in a room with large magnetic boards. The rows of the matrix represent the delivery status of Scania's departments and each column focuses on the individual project's status. A traffic light signal system is used, where a green magnet indicates that everything is working according to the agreed plan, a yellow magnet signals deviation from plan while a red magnet equals a deviation currently without solution. Every Monday a Project Pulse Meeting is held when all projects are presented and representatives from Scania's product development projects and departments attend. The project matrix is gone through with an emphasis on deviations, first by rows and then by columns in order to capture both operations and projects perspectives. This practice contributes to a transparency in the projects.[68]

6.1.2 Project Method – PD Process and PD Method

The *Product Development (PD) process* refers to the product development taking place continuously within Scania in order to develop products and services. The work method used within the PD process is called the *Product Development (PD) method* and is based on previous years of continuous improvements and experiences at Scania. The PD method describes how product development is carried out at Scania and is based on

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[65] *How Scania is Managed*, Internal document, 2006, p. 16.
[66] Kim Granroth, method development at Scania's Project Office for product development (UP), interview 2007-03-20, Södertälje.
[67] Jenny Lugnfors, project manager at Scania's Project Office for product development (UP), interview 2007-03-27, Södertälje.
[68] Lugnfors 2007.

three cornerstones: standardized work methods, cross-functional and parallel work and recycling experience.[69]

Following Scania's framework for projects and assignments, the PD method is applied on the project & assignment level both as a management model and as a production model.[70] The focus of this study is the management methods that provide support for the project managers and it will suffice to mention that the production methods are defined and applied in the line organization, which owns all resources and carries out the actual product development.[71] There are three categories of assignments and projects corresponding to Yellow, Green and Red arrows. Yellow arrow refers to Pre-development assignments with the aim of creating a knowledge base and discovering new products and business concepts, Green arrow is used for Continuous Introduction (CI) and Red arrow represents Product Follow up, which maintains and updates the current product range.[72] The focus of this study is Green arrow projects, i.e. the projects focusing on developing new or modified products or services. CI product development projects belonging are managed by the Project Office (UP).

The PD process and the PD method are described in the PD Guide and in a Scania standard document, both available on Scania InLine. The PD method is also visualized in the Pulse Room where all the projects are arranged according to their PD phase location. Support tools are found on UP's website on Scania InLine.

The standardized work method for CI projects consists of five phases: prestudy, development, verification, implementation and termination. Every phase transition is represented by a decision point (DP), where a formal decision is made by the management regarding the project's further advancement. Each phase and related activities are described in the PD guide. Other important concepts are Start Of Production (SOP) and Start Of Customer Order Production (SOCOP). A main deliverable (MD) is an important product development result and an important communication concept when reporting the project status. A gross list of all MDs to be created and delivered during the project is generated, referred to as the Project MD checklist. The MD-matrix contains definitions of all MDs.[73]

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[69] *The PD guide*, Internal document, 2006.

[70] *Projects & Assignments Normal Situation* 2007.

[71] Granroth 2007.

[72] *The PD guide* and *Rules for Product Development Process PDP*, STD4210en. Internal documents.

[73] The PD guide.
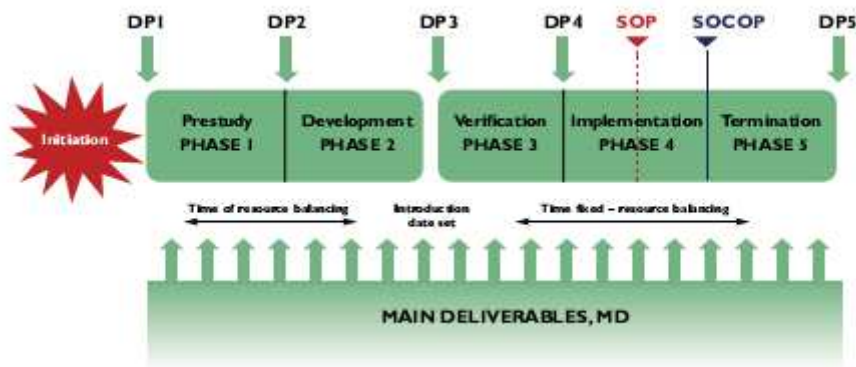
Figure 10 – The standardized work method for product development projects at Scania. From the PD guide.

Mandatory roles are the assignor who initiates, establishes objectives, approves, examines and concludes the project and the assignee who leads the execution of the project, usually the project manager. Other important roles are the object leaders and the project coordinators. The object leaders create a team of object members and manage cross-functional work within the object as well as lead, monitor and report results. The coordinators are responsible for coordinating the project work of their respective line function.[74] Both coordinators and object leaders participate in project meetings, which means cross functional representation.[75]

Depending on the significance, decisions regarding CI projects are made by either of Scania's management decision forums: Technical Specifications Meeting (PM), Product Portfolio Meeting (PQ) or Project Portfolio Meeting (XQ).[76] The Project Council has an advisory role.[77]

6.1.3 Project Quality

Scania strives to ensure quality in product development projects by the existence of a defined process and method and a project office continuously working on improving the method. Explicit efforts to ensure quality include Status Reports, Sign-Off, Concept Reviews and Lessons Learned.

6.1.3.1 Status Reports

To monitor and report the status of a project regularly is extremely important. It is also seen as essential that the presentations are made visual. Having presentations in the Pulse room is a common method.[78] Documents for reporting project status are used for meetings with the Project Council as well as for meetings with decision forums (see 6.1.3.2).[79]

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[74] *The PD guide* 2006.

[75] Lugnfors 2007.

[76] *The PD guide* 2006.

[77] Lugnfors 2007.

[78] *The PD Guide* 2006.

[79] Lugnfors 2007.

6.1.3.2 Sign-Off

The Sign-Off is a method applied in order to achieve a quality-assured phase transition.[80] Before each phase transition the project manager verifies that the main deliveries (MDs) will be delivered on time by sending a Sign-Off document to the concerned line managers. Each of the receivers checks the project status for their delivery, fills in and sign the Sign-Off document and returns a signed copy to the project manager.[81] If any deviations exist, they are described together with an action plan. The project manager compiles the different Sign-Off documents on the List of Sign-Offs for CI, which provides a summary of the status and recommendations for the concerned decision forum's decision to approve the phase transition. The List of Sign-Offs for CI is one of the most important documents for approving a phase transition and a decision to approve a phase transition is verified by the assignor signing the document. A phase transition may be approved even if all the MDs are not delivered on time, given that accounts and action plans are stated for all deviations and the consequences of a phase transition are reported.[82]

Sign-Off support tools include a manual, roles description, checklists and templates. The Sign-Off manual describes the overall procedure step-by-step. The checklists for each phase transition are compiled in one document and further divided under the four headlines: Checklist Before Sign-Off, To Prepare Before Sign-Off Meeting, To Be Presented at the Sign-Off Meeting and After Sign-Off Meeting.[83]

6.1.3.3 Concept Reviews

Product development projects usually last many years, which means that much time goes by between phase transitions. Fourteen milestones have thus been introduced of which five are *Concept Reviews* (CR). A Concept Review is an occasion, usually half a day, when the project manager gathers object leaders, coordinators and concerned members of the line organization to discuss different aspects of the project in a creative environment.[84]

CR0 is a project kick-off, which include initial discussions of project scope and risks as well as creating a first draft of a project time schedule. CR1 and CR2 focus on the product's target, features and cost. These three concept reviews in the pre-study phase form the basis for the Project Definition (PDF). CR3 focuses on verifying the chosen design concept by comparing its functionality with the PDF. CR4 focuses on support services and material that are needed for the product to function on the market.[85] Concept review support tools include manuals as well as templates.[86]

6.1.3.4 Lessons Learned

Lessons Learned or learning from previous experience is based on the idea that everyone follows the agreement to document gained experience, something that is

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[80] *The PD guide* 2006.

[81] Granroth 2007.

[82] The PD guide.

[83] UP – Project Office, Toolbox for project managers (2007-06-29)

[84] Lugnfors 2007.

[85] Pär Wallin, senior project manager at Scania's Project Office for product development (UP), interview 2007-03-28, Södertälje.

[86] UP – Project Office, Toolbox for project managers (2007-06-29)

meant to happen continuously during projects.[87] At the end of a project, approximately after six months in SOCOP, the project participants have a final meeting to reflect and discuss the project. This meeting forms the basis for the final report.[88]

6.1.3.5 Project Reviews

Formal project reviews are rare and not conducted by the Project Office. Scania's quality management system is certified according to ISO 9001 and demands internal audits. Scania's Corporate Quality and Environment (TQ) perform audits for some projects.[89]

6.1.4 Reflections

Since the PD method is developed by and for Scania during several years time, it is based on and closely related to the company's own activities and organization structure. It also seems very dynamic, continuously developing and the gap between the standardized method and practice seems relatively small.

When analyzing how the IT Project Management Process may benefit from a comparison with the PD method, it is important to keep in mind the fundamental differences of the project contexts. An important difference between Scania's CI product development projects and most IT projects is that the sooner is a central strategic activity linked directly to the company's primary product. Decisions about a product development project are managed through the decision forums PM, PQ and XQ, in contrast to an IT project, which requires the formation of a steering group. The decision forums more or less consist of the same people responsible for delivering results.

I believe that the Sign-Off method contributes to more focused decision meetings as well as to enhancing the line manager's degree of commitment to the projects. A phase transition represents a common decision, showing that everyone is onboard.

6.2 Sogeti – Consultancy

Sogeti Sverige AB is a consultancy, specializing in local professional IT services such as IT management, IT specialists, development and integration projects, testing, application management and infrastructure services. The company has about 900 employees and belongs to the Sogeti Group, which is owned by Cap Gemini S.A.[90]

6.2.1 Project Context

Sogeti offers a wide range of solutions, from taking the responsibility to lead, manage and staff a project to filling different roles in their clients' own projects, such as project managers, test managers and validation managers. In terms of project management services Sogeti also conducts project audits and assists implementation of project management methods, such as setting up project management offices.[91]

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[87] Granroth 2007.
[88] Wallin 2007.
[89] Granroth 2007.
[90] Sogeti, About Sogeti (2007).
[91] Margareta Gustavsson, consultant at Sogeti, interview, 2007-04-19, Stockholm.

6.2.2 Project Method – Deliver

For projects, Sogeti uses *Deliver*, which is the international quality system of the Cap Gemini Group. Deliver provides extensive support for different aspects of project work. The method for Unified Project Management divides the project into three phases: start-up, execution and close-down. Thirteen areas are defined, running through the project life-cycle and descriptions, responsibilities and templates are connected to each area. The elements in the resulting matrix can be accessed by phase or by area.[92]
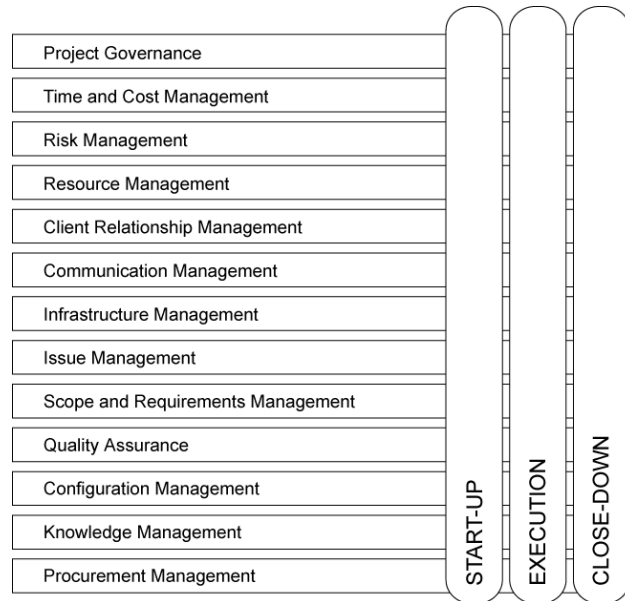
Figure 11 – Deliver, Unified Project Management

Since Deliver is very extensive it is primarily utilized as a framework and Sogeti has selected some of the content and adapted it to the organization. The selected elements are available on the Intranet, divided into processes and primarily presented by area rather than a project main flow.[93]

6.2.3 Project Quality – Managing Business Risk

Sogeti strives to ensure quality in projects by Deliver and selected and adapted elements. Depending on the type of project, different activities and documents are stated as mandatory. At Sogeti, quality is closely related to the defined *Risk Management Process*.[94] Sogeti's growth and profitability is dependent on the choice of business opportunities, good agreements and successful deliveries. The purpose of risk management is to ensure that these processes are managed in the best way. The entire risk management process is applied when the business risk is deemed to be considerable; otherwise, parts of the process are used. Explicit efforts to ensure quality include Project Initial Quality Audit, Project Quality Audit and Client Satisfaction Inquiry.[95]

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[92] Gustavsson 2007a.
[93] Gustavsson 2007a.
[94] Gustavsson 2007a.
[95] Margareta Gustavsson, consultant at Sogeti, e-mail, 2007-04-20.

6.2.3.1 Project Initial Quality Audit

For all undertakings included on Sogeti Risk Management's list of high risk projects, a *Project Initial Quality Audit (PIQA)* is conducted in order to minimize the risks and enhance the quality at an early stage. A PIQA should be carried out as early as possible, at the latest three months after the project has commenced.[96] The initial audit is conducted using a checklist focusing on deliveries, configuration management, testing, acceptance criteria, status reports, change management, detailed plan, estimation of time, roles and responsibilities and risk management. Results, including corrective actions, should be documented and actions should be handled and monitored within the project.[97]

6.2.3.2 Project Quality Audit

A *Project Quality Audit (PQA)* is initiated when the project is suspected to deviate from the original plan or as a planned check after the initial project review. The purpose of a PQA is to ensure that an assignment is delivered on time and above client expectation. The audit is planned in consultation with Sogeti Risk Management and is conducted in a similar manner as the initial audit with a focus on the problem areas.[98]

Above conducting project audits on Sogeti's undertakings in order to minimize business risk, auditing projects are also one of the services offered by Sogeti's consultants. Project audits are regarded as a natural part of a company's project work and should not only be conducted when something goes wrong but as a preventive measure. A well performed project audit can show the project from a holistic perspective and suggest suitable actions, illuminate the project status compared to plans, highlight project risks and support the project. Templates are available, consisting of large batteries of questions connected to different themes. Depending on the situation, a project quality audit can vary in proportion and focus. It may be carried out through interviews, workshops, observation and analysis.[99]

6.2.3.3 Client Satisfaction Inquiry

Delivering *On Time and Above Client Expectation (OTACE)* is an important quality goal at Sogeti. A *Client Satisfaction Inquiry (CSI)* is used to capture customer's expectations and the outcome of a commitment, thus allowing Sogeti to improve customer satisfaction as well as sell and delivery processes.[100] The customer should formulate criteria as an assignment commences and then evaluate how well their expectations have been met.[101] The inquiries should be conducted regularly, which means at least once a year but preferably every six months and always at the end of a project. The outcomes of inquiries are sent to Sogeti Risk Management. If the outcome of an inquiry is below a certain value it should be reported as a customer complaint and immediate actions be taken to satisfy the customer. A record of the outcome of CSIs should be created each month and made available for the employees.[102]

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[96] Gustavsson 2007a.

[97] Gustavsson 2007b.

[98] Gustavsson 2007b.

[99] Gustavsson 2007a.

[100] Gustavsson 2007a.

[101] Damra Muminovic, consultant at Sogeti, interview 2007-04-19, Stockholm.

[102] Gustavsson 2007b.

6.2.3.4 Customer Complaints and Escalation of Problems

All customer complaints should be registered, dealt with and monitored. A customer complaint should be documented as soon as it has been received. The documentation should include an analysis of the cause of complaint, available documentation from the customer and an action plan. A customer complaint is concluded when actions have been taken and a follow-up has been carried out.[103]

Escalation is applied when serious problems arises in an assignment, which may not be managed by regular procedures. This means reporting the problem to nearest manager and to Sogeti Risk Management, documenting the problem and giving it priority. An escalated problem is closed when it has been managed and a follow-up has been carried out. Information about escalated problems is compiled and stored by Sogeti Risk Management and serves together with CSI statistics, results from project reviews and customer complaints, as a basis for evaluating and improving the efficiency of the risk management process.[104]

6.2.4 Reflections

Focus on quality and established work methods are emphasized, in particular for larger projects managed by Sogeti. As a consultancy offering IT services, Sogeti's success is dependent on its ability to satisfy clients and deliver on time, budget and scope. The focus on business is stronger at Sogeti than at Scania IT, which is shown by the fact that Sogeti Risk Management plays an important role in ensuring project quality by minimizing business risk.

6.3 The National Tax Board – Administrative Support

The *National Tax Board* (NTB)[105] is the central government agency responsible for taxation, estate inventory and national registration in Sweden.[106] Also the responsibility of the NTB is the *Enforcement Authority* (EA)[107], which handles all debt collection.[108]

The *Administrative Support for Tax and EA*[109] is responsible for the administrative support of the National Tax Board as well as of the Enforcement Authority. The administrative support concerns personnel, economy, communication, general administrative law, IT and other infrastructure.[110]

6.3.1 Project Context

Projects are carried out in different parts of the organization but in this case, I focus on projects at the Administrative Support for Tax and EA. Projects at the Administrative Support may be of different types but the most common are system development projects, which usually involve buying, adapting and introducing new technology in the organization. The connection between the Administrative Support on one hand and the

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[103] Gustavsson 2007b.

[104] Gustavsson 2007b.

[105] In Swedish: *Skatteverket*

[106] The National Tax Board, Allmänt om Skatteverket (2006-07-06).

[107] In Swedish: *Kronofogdemyndigheten (KFM)*

[108] The Enforcement Authority, Förvaltningsinformation (2007-02-28).

[109] In Swedish: *Verksamhetsstöd för skatt och KFM*

[110] The National Tax Board, Verksamhetsstöd för skatt och KFM (2007-03-14).

NTB and the EA on the second hand is mutually exclusive, neither party is allowed to serve other customers or turn to other suppliers respectively. A project is initiated when the assignor, usually the head office, sends a request for proposal to the Administrative Support. A project analysis is conducted, resulting in a *project contract*, stating scope, initial project schedule, cost, project organization and allocation of resources. [111]

6.3.2 Project Method – Pejl

The National Tax Board as well as the Enforcement Authority applies *Pejl Project Control Model*[112] for all their projects, not only projects at the Administrative Support. Depending on the type of project, different production models are used, e.g. models based on RUP and PENG for system development projects and cost benefit analyses respectively.[113]

Pejl is a general project management model following a clear process, beginning with the organization's requirements and strategies and ending with effect monitoring after the project has terminated. Pejl is a well established model applied by several large Swedish organizations. The model contains decision points, project phases, check lists and templates supporting the project manager as well as the project owner.[114]

6.3.3 Project Quality

The Administrative Support strives to ensure quality in projects by applying Pejl and assign a person from the support unit as responsible for method and support to larger projects. Project planning and the management of risk, documents and change are pointed out as critical activities for the project quality. Explicit efforts to ensure quality include internal and external reviews.[115]

6.3.3.1 Project Planning

Planning is a joint activity in the project work group, including relevant people who can contribute to identifying the requirements and objectives, estimating time, cost and scope. It is important to produce a clear schedule with milestones, detailed enough to show the deliveries. Upon request, the project manager may receive support from the support unit regarding the planning activities, sometimes with a support lead workshop or a support person present at the planning meetings.[116]

6.3.3.2 Managing Risk, Documents and Change

The result of working with risks should be used in the planning. For instance, if the requirements are fuzzy, prototypes should be created. There should be a consensus in the group of which documents that should be produced and how. During the execution of the project it is important to keep the plans updated and routines for change should be included.[117]

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[111] Karin Wissing, method and support at the Administrative Support for Tax and EA, interview 2007-05-14, Stockholm.

[112] Developed and marketed by Pejl AB.

[113] Wissing 2007.

[114] Pejl, Pejl Projektstyrningsmodell (2006-11-30).

[115] Wissing 2007.

[116] Wissing 2007.

[117] Wissing 2007.

6.3.3.3 Project Reviews

Project reviews are divided into internal and external reviews. Internal reviews can be said to be conducted regularly within a project, with the work group being more or less aware of it. Reading each others documents and reviewing each others work can be seen as a natural part of project work. Also, workshops are held where documents are read within the group. More formal reviews may be conducted by an appointed group within the project. In system development projects, a special quality assurer is appointed. External reviews are either performed by the support unit at the Administrative Support on request by the project manager or by a consultancy when requested by the assignor. External project reviews performed by the support unit do not follow a standard template since it is regarded as difficult and as something that needs to be situation specific. The assignor requesting external project reviews performed by a third party has become increasingly common.[118]

6.3.4 Reflections

In its role as an internal provider of IT solutions, the Administrative Support has a similar function to the NTB and EA as Scania IT has to Scania. Pejl is also a general project management model as is PPS. The Administrative Support seem to have a less regulated approach to projects than Scania IT and more project support in form of people with experience working with method in individual projects.

6.4 Swedbank – Group IT Governance Project Management Office

Swedbank AB is one of the leading bank groups in Scandinavia and the Baltic States with 17 000 employees serving 8.9 million private and 460 000 corporate customers.[119] Swedbank's Group IT Governance is headed by the CIO and includes the Project Management Office. Decisions at this level apply for the entire Swedbank Group.[120]

6.4.1 Project Context

Projects are initiated in the line organization and the focus is organizational development. The project manager is appointed in the line organization and the steering group is assembled from the concerned business areas. IT solutions are purchased from external providers or from the internal provider IT Development.[121]

The Project Management Office is responsible for the IT project portfolio, keeping track of larger projects, and Swedbank's common project management method, the Development Process. The Project Management Office also offers project support to other projects within Swedbank.[122]

6.4.2 Project Method – the Development Process

With the aim of optimizing organizational development, Swedbank's Group Executive Management decided on a common Development Process for the entire Swedbank Group in 2004. This meant introducing a uniform work method and common

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[118] Wissing 2007.

[119] Swedbank, About Swedbank (2007)

[120] Peter Lundberg, Group IT Governance Project Management Office at Swedbank, interview 2007-05-25, Stockholm.

[121] Lundberg 2007.

[122] Lundberg 2007.

vocabulary, replacing all other previously applied project management methods. The Development Process is inspired by RUP but all templates, documents and material are created and owned by Swedbank.[123]

Introducing the Development Process was an effort to address some of the problems related to project work. Meetings with the Steering Groups sometimes tended to become work meetings instead of decision points. To enable more focused meetings with the steering group, the Development Process should provide clear instructions for project management and project steering. Other aims were to achieve early risk management and prioritization in projects and to ensure commitment and resources. Introducing the Development Process was also an effort to establish a more business minded approach in order to achieve full value realisation in projects.[124]

The purpose of the Development Process is to facilitate finding the ideas that will bring the largest profit to the Group. The Development Process is divided into four phases: Requirement Analysis, Prestudy, Project and Follow-up, where the Project phase consists of: Initiation, Execution, Verification and Delivery. Support tools such as checklists and templates are connected to each step and moving to the next step requires a decision by the steering group. Each decision except the first and the final is preceded by a milestone. [125]
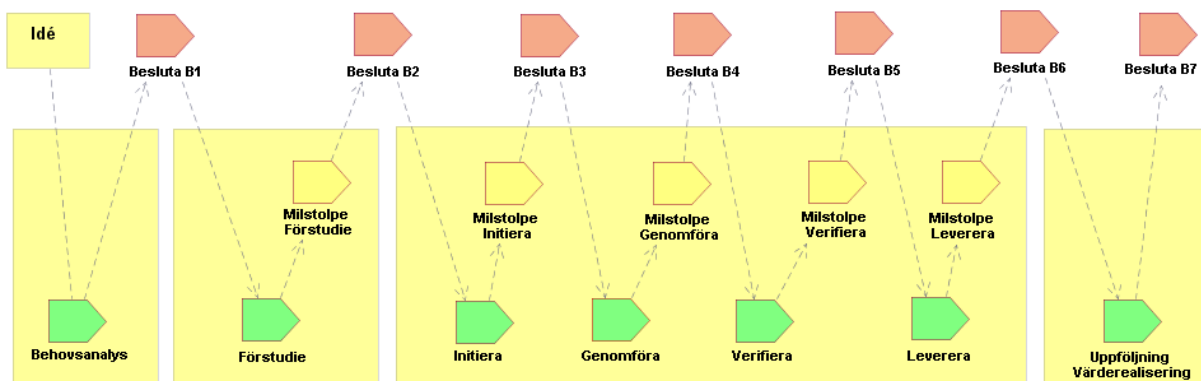
Figure 12 – Swedbank's Development Process

6.4.3 Project Quality

Swedbank strives to ensure quality in projects by applying the Development Process. Explicit efforts to ensure quality include milestones and decision points and project reviews.

6.4.3.1 Milestones

An important part of the project quality management activities is built in the backbone of the Development Process with five of the decisions being preceded by a milestone. These milestones may be seen as review occasions, assembling representatives for the different roles in a project. These meetings result in a protocol and recommendations to

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[123] Lundberg 2007.
[124] Lundberg 2007.
[125] Lundberg 2007.

the steering group, including consequences. The milestones contribute to avoiding the meetings with the steering group turning into work meetings as well as helping them make well-informed decisions.[126]

6.4.3.2 Project Reviews

Project reviews are not carried out in a standardized manner, at least not centrally. It is seen as important not to interfere too much in projects, since it may create disturbance and unrest and an extensive control system means that a large portion of the project is spent on administration. The project management office randomly looks into projects, with the aim of helping the project managers. These reviews may include initial interviews with the project manager and the chairman of the steering group and if needed, further information is collected. Concerned business areas may also perform their own internal project reviews. Internal or external project reviews may be conducted upon request by the steering groups.[127]

6.4.4 Reflections

Swedbank applies a common and Swedbank-specific process for all projects, which sends a clear message and increases the probability that it is adapted to and adopted by the organization. At Swedbank IT projects are monitored from a central project management office in contrast to the approach at Scania IT. This allows a high degree of project overview and coordination but formal project reviews are not conducted centrally.

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[126] Lundberg 2007.
[127] Lundberg 2007.

7 Analysis

The aim of this chapter is to recap and make sense of the data collected during the course of this study, to give it structure and put it into context as means to increase the quality of projects at Scania IT. The analysis and the recommendations it will generate are based on theory, practice and Scania IT. The analysis provides a background to the recommendations given in the next chapter.

7.1 The Complexity of Project Quality

The area of project management in general and project quality in particular is not straightforward. Since the focus of this study is on project management and not on the resulting product, I have defined a high quality project as a project meeting its objectives in terms of time, cost and scope. With this definition a project's success is highly dependent on how the schedule, budget and scope are outlined in the project plan. The limitation of this definition is highlighted if comparing two hypothetical projects that are identical in every aspect except for one of them having a stricter time schedule. If the two projects are concluded at the same time, one of them is deemed as successful and the other one is not. The definition can be expanded to refer to the updated plan approved by the steering group but it is questionable whether a project with a large budget overdraw should actually be considered as successful even if it continuously has been cleared to continue. With this said I want to emphasize the difficulty of defining, measuring and comparing quality of project management and projects.

7.2 Lessons from Theory

Based on the theories and recommendations of the field of project management I found that managing quality of the project management processes and managing stakeholder expectations are key factors affecting a project's success.

I also found that project context is extremely important but often neglected in project management handbooks and models where the focus is on maximizing internal efficiency. The project management "handbook" literature usually describes projects in terms of different areas with large sets of activities that the project manager should plan, execute and control. Even though the theory is largely based on practice I found that in reality the primary focus often seem to be on the product while the project management activities described in literature are secondary. Especially in smaller projects, the expense of project management is often kept to a minimum. Several project managers emphasized the importance of not letting the strive to follow processes and models, filling in and reviewing documents becoming an end in itself. I regard project context as an important parameter when analyzing how methods and tools can be applied in the IT Project Management Process.

Theory also emphasized that models should be flexible guidelines rather than rigid rules and that project management models can only be successful if established in the organization and among the ones who are intended to use it. I find this to be important lessons to keep in mind for the "how" when it comes to implementation.

Theory also pointed out the usefulness and support structure provided by a project management office and project context in the sense that projects depend on each other, and can benefit from each other through exchanging knowledge and resources.

7.3 Project Management in Practice

Forming an intersection of theory and practice I found examples of managing quality of the project management and stakeholder expectations. Based on the interviews I also found a third key area to focus on: the milestones, decision points or phase transitions of a project.

7.3.1 Managing Project Quality

Quality activities require extra time and resources, something that must be balanced against the benefits of performing them. Also, since the IT Project Management Process should be applicable on all IT projects at Scania, it is important to keep the mandatory activities to a minimum for flexibility. The quality plan is an important prerequisite for performing quality assurance and writing it forces the project manager to consider and decide on these activities. The examples of Project Definitions from actual projects I have seen, suggest that the section with the heading Project Analysis is neglected or in the case of software development projects filled in with a reference to RUP reviews of the product.

The concept of project reviews is a primary quality assurance technique. The Swedish word "granskning" has a somewhat negative ring to it, and several of the project managers stressed that reviews should not be carried out in a police like manner, with the aim of finding a culprit. It is important to emphasize that the primary aim of a project review is to support the individual project. Project reviews also enable the organization as a whole to learn and improve its project activities.

In practice it seems that formal project reviews performed by a third party, sometimes referred to as project audits, are rare. Sogeti was the only organization that systematically carried out this type of project review and even the only organization asserting to conduct planned project reviews. Being a consultancy, Sogeti's survival is highly and directly dependent on project delivery and efficient project methods. Something that I believe speaks for introducing quality assurance is that Sogeti applies formal project reviews as a standard for projects they have primary responsibility for. At Scania, IT projects are sometimes formally reviewed but not systematically.

Carrying out reviews requires resources, but considering the mistakes that might be avoided by having another person with experience look through the Project Definition, it may be worth the cost. The examples I have seen of project reviews were performed by employees at Scania IT on request by the steering group. Project reviews might be a sensitive area for the parties involved and it occurs that distribution of the resulting report is restricted, which makes it more difficult to learn from them outside the individual project.

Scania's product development projects apply concept reviews, which are performed in the form of workshops. Visualization is an important technique frequently used and advocated at Scania, as applied in the project pulses or when reporting project status. The content of the concept reviews are closely related to the product. Workshops are currently not suggested in the IT Project Management Process. Different types of workshops are included in Scania's Product Development Method with instructions and material provided on Scania InLine.

Another form of review, which may be performed in a rather informal manner, is to use a colleague for feedback. Several project managers mentioned this as a welcome form of supporting activity that is not utilized very often, mainly due to lack of time. None of the companies mentioned this as an applied standard method, but the National Tax Board has a group of method support that sometimes seems to take this role. Several project managers mentioned the difficulty of estimating how much time that will be required and having a colleague read the Project Definition and provide feedback on the schedule etc. can be valuable.

Employing someone from outside the organization, a consultant with extensive experience of reviewing projects, discerning critical areas for improvement and actions, might be advisable for large and important projects. Especially as a way for Scania IT to learn about reviewing projects.

7.3.2 Managing Expections

Detailed contracts concerning what should be delivered, when and to what cost are a given in a business transaction between a customer and an external supplier. For a consultancy such as Sogeti there is a strong incentive to have a professional and standardized way to manage the customer relationship. The need for such a strict business approach is not as important in the case of an internal provider. The assignment directive and the Project Definition may be said to serve as request for proposal and project contract respectively.

Sogeti uses the Client Satisfaction Inquiry to capture customers' expectations and the outcome of a commitment. The customer formulates criteria in the beginning of a project and evaluates how well they have been met. Since agreeing on how to judge the project's success at an early stage maximizes the chance of success, a similar technique may be advisable for Scania IT.

7.3.3 Decision Points

An important way to monitor project quality in the IT Project Management Process is the decision points, providing a uniform and controlled decision process. Each decision point represents an opportunity to review and reassess the project, both internally within the project and by the steering group who will make the decision. A decision point is also valuable as it represents an agreement of the project stakeholders, showing that everyone is onboard.

According to PPS, the steering group meetings should be short and effective decision making meetings. This presumes that the basis for decision making submitted by the project management is clear and accepted by all those closely involved. The project plan shall include the maximum possible number of pre-booked decision points with their planned content. A problem however, seems to be that these occasions are not always used as intended and that the meetings with the steering group become work and information meetings instead of focused decision points. It is important that the members of the steering groups are aware of their responsibilities and prepared for the meetings. Recognizing the need for providing information to the steering groups about their work tasks, the IT Project Management Process contains a PowerPoint document with general information to steering groups about their purpose and responsibilities, meetings and the work method in the IT Project Management Process.

The same type of problem was identified at Swedbank, and attended to in the Development Process by introducing milestones before each decision point. Gathering different representatives from the project before the meeting with the steering group decision point, analyzing and reviewing, writing a protocol with recommendations and consequences, facilitated more focused meetings with the steering group and better informed decisions. The Development Process also provides clear instructions for the steering group.

Scania's Product Development Method has the sign-off document at every phase transition, forcing every delivering department manager to be involved and clearly state the status of their result. The context of product development projects at Scania differs a lot from the IT projects and do not involve the same type of customer/supplier relationship; instead the decisions are made by essentially the same people who are responsible for deliveries. However, the sign-off document contributes to clarifying responsibilities and project status.

7.4 Other Concerns

Mapping the IT Project Management Process has been rather difficult since there is no master document giving a clear and detailed description of the process. Information about the process is primarily provided on Scania InLine and in some cases the information provided in the various documents is conflicting. A clearer description of the IT Project Management Process is welcome. Since Scania's IT organization is scattered it is extra important that the process is well documented and clearly explained.

Another important concern has to do with that the responsibilities between provider and IT areas vary between projects. This issue was mentioned by several project managers and though not a part of the IT Project Management Process, it affects how the Process is presented on Scania InLine and how specific guidelines and support can be designed.

8 Recommendations

This chapter concludes the report with recommendations.

8.1 Considerations

The recommendations are based on four corner stones:

1) Flexibility – Allow each project to individually set the terms for their quality assurance agenda but require the project manager and the steering group to decide on and plan this

Since the IT Project Management Process should be applicable on all IT projects at Scania, it is important to keep the mandatory activities to a minimum for flexibility. Any additions must be rather general in order to be relevant for all departments and divisions carrying out IT projects. At the same time the idea of having an IT Project Management Process instead of simply using PPS is to take context into account and enable Scania specificity.

2) Simplicity – Simple methods that are easy to apply since all the tools are provided

It is important that any additions to the IT Project Management Process should be easy to carry out, not adding too much to the workload. The benefits of performing quality activities must be larger than the cost.

3) Quality Efforts Established in the Organization – For impact and efficiency

It is important that quality efforts are not simply introduced in the IT Project Management Process but also established in the organization. Beyond how to manage the internal processes within projects there must be procedures for how to organize, coordinate and support different project quality activities in the organization. The project managers are often pressed for time and work on several projects in parallel and if for example peer support is to be an option, they must have the time do it. There should also be procedures for how to assign support to projects.

4) Utilize Already Existing Tools

PPS is a good point of departure when outlining recommendations, since it is already used at Scania and seems well-liked by the project managers.

8.2 Quality Assurance

Quality assurance should be included in the IT Project Management Process. Which quality assurance techniques to be applied should be decided individually for each project but the project manager and the steering group should be required to decide on and plan this. Generally, the larger or more critical the projects are, the more quality activities are advisable.

The quality plan is a central part of my recommendations. The quality plan will show what will be reviewed and how. In regular sized projects the quality plan may simply be in form of a table and inserted in the Project Definition under the heading Project Analysis that may be changed to Quality Plan or similar. This harmonizes with my impression of Scania's overall attitude to project work methods, with visualization and simplicity being important elements. In order to facilitate the task of writing the Quality

Plan I suggest that an empty table with headings is inserted in the Project Definition template. An example of how this table might look is given in Figure 13. In large projects a more extensive quality plan might be required in which case a Scania-adapted version of the quality plan template in PPS can be used.

Object	Quality Activity	Resources	Purpose

Figure 13 – An example of a simple quality plan template in form of a table.

It is recommended that a brief *Project Quality Assurance Guide* is created and made available in the IT Project Management Process. The guide should explain the purpose of quality assurance, provide guidelines and a list of common objects for review as well as a menu with quality activities. Discussions should be held about more specific guidelines regarding when which quality activities should be performed. Guidelines should be very clear and preferably based on numbers. Example: "For large projects with more than X hours work, peer support and planned project reviews are recommended." Based on the guide, the project manager should easily be able to plan and perform quality activities.

In order to increase efficiency, a Quality Role should be created and assigned within the organization. This role should be responsible for coordinating quality activities and taking care of the valuable experience that these may bring to the organization's collective project activities. In each project a Project Quality Role should be assigned. In a small project the Quality Role may be held by the Project Manager but in a larger project this responsibility should be held by another individual, preferably within the project's PMO function.

8.2.1 A Selection of Quality Activities

Quality Activities are both about evaluating what has been done so far as well as looking forward. In order to get more from the different types of review activities in 8.2.1.2-8.2.1.4, they should not just focus on whether documents have been written, but evaluate the content and the implications it will have for the project.

It should be noted that project quality activities that concern the product and are within the bounds of the production model are outside the scope of this report.

8.2.1.1 Health Checks

Internal review activities such as health checks performed by the project manager by using checklists, e.g. from PPS, should be carried out continuously during the project.

8.2.1.2 Peer Support

Peer Support in this case refers to support from a colleague outside the project, preferably with suitable experience from a similar project. This activity may be especially well-suited in the planning phase, for validating the Project Definition or selected elements in it.

8.2.1.3 Kick-off and Lessons Learned

Workshops can be useful both at an early stage for generating a basis for a Project Definition and at the end of a project for evaluating and learning and providing a basis for a Final Report. These two types of workshops can be referred to as Kick-Off and Lessons Learned. A Kick-Off is especially advisable for larger projects with a scattered working group and Lessons Learned is desirable for all projects but especially larger projects. Other workshops can also be held during the project for reviewing the past as well as assessing the future of a project. It is important to have a specific and clear purpose with each workshop.

8.2.1.4 Project Reviews

Project Reviews can be performed based on PPS. The template in PPS should be adapted to Scania and examples of project reviews should be made available on Scania InLine.

Project reviews support the individual projects but also enable the organization as a whole to learn and improve its project activities. Formal project reviews should not only be distributed within the project but also to the person holding the Quality Role in Scania's IT organization to facilitate the organization's learning from experience.

A procedure for requesting, deciding upon, initiating and executing a project review should be established both for planned and unplanned project reviews.

Quality Activity	Object
Health Checks	Project Definition
Peer Support	Status Report
Workshop	Risk List
Project Review	Project to DPX

Figure 14 – List of Quality Activities and examples of concerned Objects

8.3 Expectation Management

Managing the client's expectations is extremely important during all stages of the project. The initial agreement between Scania IT and its client is captured in the Project Definition. A Client Satisfaction Inquiry can be used as a tool to collect and better understand the client's requirements, ideas and expectations as well as provide input to the Lessons Learned sessions. A Client Satisfaction Inquiry facilitates agreement on how to judge project success, captures the customer's expectations and the outcome of a project. The inquiries are preferably given to the customer before DP3 and DP8 respectively and can be in different forms depending on the situation and scale of the project.

8.4 Decision Points

To make even better use of the decision points it is recommended that material is included in the IT Project Management Process concerning how to prepare for decision points. A checkpoint can be introduced before each decision to provide an opportunity to discuss and review. The output from this session will then provide a better basis for the decision. Introducing the concept of Sign-off can help clarifying the project status and responsibilities. Sign-Offs can be used in two different ways depending on the specific project structure:

1) Within Scania's line organization (e.g. the client) concerned managers responsible for approving the deliveries from Scania IT can be sent and required to fill in and sign a Sign-off document in association with Decision Points.

2) Within Scania IT (supplier) concerned managers responsible for main deliveries can be sent and required to fill in and sign a Sign-off document before crucial Decision Points.

8.5 Other

In order to make it easier to quickly get and distribute correct information about the IT Project Management Process it is recommended that a master document is written, describing the process. Along the lines of Scania's Product Development Process, the Project Management Process should be described in a guide or a standard document or both.

References

Verbal Sources

Interviews at Scania IT:

Berglund, Anna-Karin, project manager at Scania InfoMate (XIPDX), 2007: Interview, Södertälje 2007-03-09.

Erixon, Mari, project manager at IT Coordination Area R&D (UTIX), 2007: Interview, Södertälje 2007-06-26.

Fahlström, Richard, IT Coordination Area P&P (TPIL), 2007: Interview, Södertälje 2007-06-07.

Flodén, Anders, project manager at Scania InfoMate (XIPDX), 2007: Interview, Södertälje 2007-03-07.

Fredriksson, Bo, project manager at Scania InfoMate (XIPDX), 2007: Interview, Södertälje 2007-03-05.

Hård af Segerstad, Anna, project manager at Scania InfoMate and responsible for the IT Project Management Process (XIPDX), 2007: Regular meetings, Södertälje.

Johnson, Liselott, project manager at Scania InfoMate (XIPDX), 2007: Interview, Södertälje 2007-03-05.

Kaldma, Viktor, manager of Scania InfoMate's Project Office (XIPDX), 2007: Interview, Södertälje 2007-03-07.

Lukjanov, Georg, facilitator of the Process and Methods Pulse at Scania InfoMate (XIPDP), 2007: Interview, Södertälje 2007-02-28.

Nilsson, Irene, Corporate IT (V), 2007: Interview, Södertälje 2007-05-30.

Persson, Tomas, project manager at Scania InfoMate (XIPDX), 2007: Interview, Södertälje 2007-03-07.

Pierrau, Björn, project manager at Scania InfoMate (XIPDX), 2007: Interview, Södertälje 2007-02-23.

Ruderer, Camilla, project manager at IT coordination area R&D (UTIX), 2007: Interview, Södertälje 2007-06-26.

Benchmarking Interviews:

Granroth, Kim, method development at Scania's Project Office for product development (UP), 2007: Interview, Södertälje 2007-03-20.

Gustavsson, Margareta, consultant at Sogeti, 2007a: Interview, Stockholm 2007-04-19.

Gustavsson, Margareta, consultant at Sogeti, 2007b: E-mail, 2007-04-20.

Lugnfors, Jenny, project manager at Scania's Project Office for product development (UP), 2007: Interview, Södertälje 2007-03-27.

Lundberg, Peter, Project Management Office, Group IT Governance at Swedbank, 2007: Interview, Stockholm 2007-05-25.

Muminovic, Damra, consultant at Sogeti, 2007: Interview, Stockholm 2007-04-19.

Wallin, Pär, senior project manager at Scania's Project Office for product development (UP), 2007: Interview, Södertälje 2007-03-27.

Wissing, Karin, method and support at Administrative Support for Tax and EA, 2007: Interview, Stockholm 2007-05-14.

Scania Internal Documents

How Scania is managed, 2006-10-06. Issue 10. Document ID: HSiM.

The PD guide, 2006-07-01. Issue: 9. Document ID: Guide001en.

Projects & Assignments - Normal Situation, 2007-04-26. Document ID: STD4293en.

Rules for Product Development Process, PDP, 2006-06-29. Issue: 4. Document ID: STD4210en.

Presentation of Scania InfoMate House, 2005-02-18.

Scania Inline

XIP – Scania InfoMate
    Management and support (2007-02-12):
    > For the employees > XIP – Management System > Processes, routines and guidelines > Processes > Management and support [2007-03-27].

IT Project Management Process
    Process overview (2003-02-20):
    > Process description > Process overview [2007-03-27].

Scania IT Portal (2007-03-26) [2007-03-27].

Literature

A Guide to the Project Management Body of Knowledge (PMBOK Guide), 2004. Newtown Square: Project Management Institute.

Andersson, Martin, 2005: *Making a Difference – Project Result Improvement in Organizations*. Dissertation for Ph.D. degree. Stockholm: Stockholm School of Economics.

Bergman, Bo & Klefsjö, Bengt, 2001: *Kvalitet från behov till användning*. 3rd ed. Lund: Studentlitteratur.

Carlson, Joakim & Sandberg, Lars, 2000: *Benchmarking – företagets guide till framgång*. Göteborg: BAS.

Engwall, Mats, 1995: *Jakten på det effektiva projektet*. 2nd ed. Stockholm: Thomson Fakta AB.

Engwall, Mats, 1998: "Project Management and Ambiguity, Findings from a Comparative Case Study" (1992). In: *Understanding Projects, Selected Articles on Industrial Project Management 1988-1998*. Stockholm: KTH.

Lilliesköld, Joakim, 2002: *Global Project Management – developing system solutions in a multi-organizational environment*. Licentiate of Engineering Thesis. ExR 0206. Stockholm: KTH.

Macheridis, Nikos, 2001: *Projektaspekter – Kunskapsområden för ledning och styrning av projekt*. Lund: Studentlitteratur.

Patel, Runa & Davidson, Bo, 2003: *Forskningsmetodikens grunder – att planera, genomföra och rapportera en undersökning*. 3rd ed. Lund: Studentlitteratur.

Sebestyén, Ulla, 2005: *Multiprojekt – ledning av portföljstyrda projekt*. Rönninge: Parmatur.

Söderlund, Jonas, 2005: *Projektledning & projektkompetens – perspektiv på konkurrenskraft*. Malmö: Liber.

Tonnquist, Bo, 2006: *Projektledning*. 2nd ed. Stockholm: Bonnier Utbildning.

Turner, J. Rodney, 1999: *The handbook of project-based management*. 2nd ed. London: McGraw Hill.

Wisén, Jan & Lindblom, Börje, 2004: *Effektivt projektarbete*. 7th ed. Stockholm: Norstedts Juridik AB.

Internet

Chalmers, Projektledning (2007-03-12):
http://www.chalmers.se/tme/SV/avdelningar/projektledning [2007-03-22].

The Enforcement Authority: http://www.kronofogden.se.
    Förvaltningsinformation (2007-02-28):
    > Om Kronofogden > Förvaltningsinformation [2007-05-15].

The National Tax Board: http://www.skatteverket.se.
    Allmänt om Skatteverket (2006-07-06):
    > Om Skatteverket > Allmänt om Skatteverket [2007-05-15].
    Verksamhetsstöd för skatt och KFM (2007-03-14):
    > Kontakta oss > Skatteverket, Verksamhetsstöd för skatt och KFM [2007-05-15].

Pejl, Pejl Projektstyrningsmodell (2006-11-30):
http://www.pejl.se/psm/psm.html [2007-05-20].

Scania
    Om Scania (2006-02-20): http://www.scania.se/About_Scania [2007-03-25].

Sogeti, About Sogeti (2007):
http://www.sogeti.se/templates/Sogeti_LokalStartsida.aspx?id=2087 [2007-04-20].

Swedbank, About Swedbank (2007):
http://www.swedbank.com/sst/inf/out/infOutWww1/0,,136546,00.html [2007-05-28]

Appendix 1: Glossary

Process   A process is a series of connected activities, which refines a product or service and creates value in order to meet the needs of the customer.

Project   A temporary endeavour undertaken to create a unique product, service or result.

Abbreviations

DP   Decision Points, represents decisions that the steering group or similar are responsible for.

PPS   Practical ProjectSteering, a general project management model developed and marketed by Tieto Enator.

RUP   Rational Unified Process, IBM's iterative software development process framework.

PMI   The Project Management Institute, an American organization actively working to increase the professionalism of project management. PMI publishes the *Project Management Body of Knowledge* standardizing the profession of project management and manages several levels of project management certification.

Scania's Letter Combinations

F&A – Finance and Administration

F&F – Franchise and Factory Sales

P&P – Production and Procurement

R&D – Research and Development

S&S – Sales and Services

UP – Project Office for product development

V – Corporate IT

XIP – Scania InfoMate
    D – Provider Development
      X – Project Management Office