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# **How can a project management methodology enhance project success in an IT division?**

## **A case study**

Master's Thesis in the Master's Programme International Project Management

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PHILIP ROTHÉN



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Göteborg, Sweden 2016



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## ABSTRACT

Due to its diversity, IT project can be hard to manage. Reports show that only a third of IT projects are delivered successfully. This thesis focus on an IT division in an international logistics company which suffers from bad project performance, and due to this, has started to implement a project management methodology to cope with their issues. The purpose of the thesis has been to investigate how a PMM can enhance project success in an IT division. In order to do so the concept around project quality and project success and how it is interpreted at the case company had to be studied, as well as investigating the importance of standardized processes when using a PMM. How PMO affect the implementation and usage of a PMM has also been examined. A theoretical and empirical investigation of what positive effects a PMM can have on an organization has been conducted together with the identification of barriers that may hinder the implementation and usage of a PMM and its possible benefits. The research is a case study at the international logistics company, using an abductive research approach and qualitative research strategy with interviews and observations being conducted at the case company. A theoretical section is examining IT projects, project quality, project success, project management methodologies, benefits and barriers of PMMs, project management and processes and project management office to get an understanding about the subjects. By analyzing and discussing the theory and empirical findings the research questions can be answered concluding that a PMM can enhance project success if it is maintained and used consistently over the organization. A common view of project success need to defined in each project in order to being measurable. Seven barriers for achieving the possible benefits of a PMM are identified and the company need to be aware of them in order to implement and use the PMM successfully.

Key words: project management, project management methodology, IT projects, project success, PMO



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## **Preface**

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Philip Nilsson & Philip Rothén



# 1 Introduction

*In the introduction to the thesis is the background to the research presented to get the reader an understanding about the topic. It is followed by a problem discussion that defines the problems, which this thesis focuses on. The purpose for the research is also presented along with the research questions and limitations of the study.*

## 1.1 Background

In order to keep up with the pace of the changing business environment, more and more companies shift their focus towards a more project driven approach to conduct their business (Jarocki, 2011). This change requires project-oriented management in organizations to maintain a competitive framework since old models are no longer sufficient for the business (Turner, 2009). Project-oriented management stands for approximately 30% of the global economy and this underlines the value for efficient project management in organizations (Parker et al, 2013). Collins (2011, p.VII) defines project management as “*the discipline of planning, organizing and managing resources to bring about a successful completion of specific project goals and objectives*”. But, there are some challenges with managing projects, and especially IT projects. The reason for this is that IT projects can range from a few people involved up to hundreds and the task complexity can differ from installing hardware such as a laptop to analyzing business and developing new software for the company. Another challenge with IT projects is that new technology is developed rapidly, which can make the outcome of a project outdated already when it is released (Schwalbe, 2011).

According to the CHAOS report released every year by the Standish Group, which investigates 50 000 IT projects, only a third of all IT projects are successful as presented in Figure 1 below, and the numbers are not getting any better (CHAOS report 2015). This underlines the value of improvements within IT project management. One problem is that it is hard to define what project success is. There are many different opinions of what should be taken into consideration and neither the academics nor the practitioners have agreed to a unified understanding about project success. This means that a project can fail to be delivered within the targets and yet be seen as a successful project to certain actors (Prabhakar, 2008).

MODERN RESOLUTION FOR ALL PROJECTS					
	2011	2012	2013	2014	2015
SUCCESSFUL	29%	27%	31%	28%	29%
CHALLENGED	49%	56%	50%	55%	52%
FAILED	22%	17%	19%	17%	19%

*Figure 1 Amount of successful, challenged and failed IT projects in the CHAOS report (CHAOS report, 2015).*

The ten most important factors that contribute to a higher project success rate, with the definition of project success that the Standish Group uses, are identified each year and presented in the CHAOS report (Hastie & Wojewoda, 2015). Many of the success factors mentioned in the CHAOS report are related to having a formal project management methodology (PMM) for project management (Schwalbe, 2011). Ozmen (2013) states that a PMM is indispensable in order to ensure project success and over 90 % of the project managers in Terlizzi et al. (2016) study also agree to the fact that a PMM brings positive benefits to the company. But, an implementation is not a quick fix for project success and much more is needed to ensure that an implementation of a formal PMM leads to a higher probability of project success (Charvat, 2003).

## **1.2 Problem discussion**

This master thesis will focus on an international logistics company that has faced problems regarding their project management approach over the last years. Due to these problems, they have started to implement a PMM together with standardized project management processes as their new way of working. The case that will be presented is grasping the problems faced within the IT division of the company.

The division is working with projects related to the company's different IT systems and their role is to support the company's core business. This means that the IT division is maintaining their current IT-systems as well as developing and implementing new IT-systems. The division has for a long time suffered from bad project performance and due to this, a big investigation was conducted by the company with the goal of identifying the reasons for not being able to deliver projects successfully. The investigation showed weaknesses and problems on how the division worked with project management in general.

The investigation showed that the performance of the projects was often lacking, which in their case meant that the projects were delivered late, and often as much as six months or more. Another target that the division regularly missed was the budget, which often ended up with more costs than initially planned.

Moving to the project management problems, the IT division has earlier used a project management standard for executing projects, but it was used very divergently among the project managers and there were no clear best practices or guidelines for how to run a project. This standard was initially developed over 20 years ago and has since then just got minor updates.

Another problem that the division was facing was that due to lack of transparency, the division did not know which projects that was running and by whom. This led to many projects being started and run at the same time, which made the project portfolio unorganized. The unorganized portfolio resulted in an unclear project queue and the division did not know which projects to prioritize. The lack of a structured way of working with projects also led to project managers feeling stressed and pressured of the situation of not knowing how to carry out projects in the best way.

The feeling was that the project managers needed to reinvent the wheel every time a new project was started.

To cope with these issues, the IT division started a new initiative, which would change the organization and the way to perform project management. The initiative included different changes in the organization to enhance project quality and this study will focus on two of these, namely:

1. The implementation of a Project Management Office (PMO)
2. A new PMM based on PMBOK

The initiative with implementation the new PMM and PMO was to gain benefits for the case company as well as remove the problems that the company was facing. The benefits that the case company initially wanted to achieve are presented in the table below.

*Table 1 The required benefits from the implementation of the PMM*

<b>Benefits the company wants from the implementation</b>
<ul style="list-style-type: none"><li>• Better project performance</li><li>• Transparency</li><li>• Less documentation</li><li>• Reduce pressure on the project managers</li><li>• Better control</li><li>• More accurate deliveries</li><li>• Creation of best practices</li><li>• Standardize project management</li></ul>

### **1.3 Problem definition**

Due to the fact that project management has become a vital part in today's business environment, as it stands for about 30 % of the global economy, it is quite significant that two thirds of all IT projects are, according to the CHAOS report, delivered with challenged or failed results. This problem is reflected on the case company, which has a problem to deliver successful projects in terms of time and cost. A question is raised here whether time and cost are the most important factors to consider regarding the project performance when delivering internal IT projects to support the core business.

The implementation of a PMO and a new PMM is believed by the company to be an answer to the bad project performance. However, there are still some questions that remain on how the implementation will affect the project performance as a new PMM is not automatically a way to produce better results. It is also unclear if the new PMM will be followed more thoroughly by the project managers compared with the old project model. There is a risk to fall back to the old ways of working with projects if there is no guide on how to work with the new PMM. A crucial factor to determine if

a PMM will help enhancing the project performance is to investigate how the employees at the company define and interpret project success.

## **1.4 Research purpose**

There are many different ways to perform project management in organizations and many different PMMs are available, such as PMBOK, ISO 25001, and PRINCE2. The PMM is implemented at the case company with an aim to improve the project performance and the probability of project success in the IT projects. There are however many barriers of an implementation and usage of these PMMs, which needs to be avoided.

The purpose of this thesis is to investigate how the new implemented PMM can enhance project success in the company's IT projects. This will start by investigating the terminology around project quality, project success and how the company perceives these two expressions. The purpose also includes a theoretical and empirical investigation of what positive effects a PMM can have on an organization. To achieve the positive effects that the case company strives for, the thesis also aims to investigate which barriers that exist when implementing and using a PMM, and how the case company should work to avoid them.

Another part of the purpose of the thesis is to investigate the PMO in the case company and how the PMO affect the implementation and usage of the new PMM.

## **1.5 Research question**

To properly lead the process of achieving the purpose of the thesis as well as answer to the problems faced in the case company, a research question has been formulated upon which the thesis is founded. This question will guide the thesis and is used to create a thread that can be followed throughout the entire study. The case company has had troubles with their project management approach and the bad project performance. The new PMM has been implemented and that has lead the thesis to investigate how it will impact the company's project management results. The formulated research question is stated below:

- How can a PMM enhance project success in an IT division?

There are a few things that have to be defined to make it easier to grasp the research question. Therefore, an additional set of sub-research questions were created. These questions will involve the terminology surrounding the different areas embedded in the research questions such as, what project success is, what a methodology is, what processes are and how these concepts are connected.

### **Sub-research questions**

- How can project success be defined?
- How does standardized processes effect the usage of a PMM?
- What effect does PMO has on project success at the case company?
- Which are the barriers for using the new PMM at the case company?

## **1.6 Limitations**

The thesis is conducted as a final assignment for the master programme International Project Management at Chalmers University of Technology, which is equivalent to 30 credits. Due to this, limitations in time for this research process will occur.

The research will be further limited to one company, which is an international logistics company with offices all around the world, and will be conducted on the company's IT division in its Swedish headquarters in Gothenburg. The reason that the research is just looking at one division is both due to the time factor and to approach the chosen research design in the correct way, as a qualitative case study.

Another limitation is that this thesis is conducted during the implementation phase of the PMM and not at the end of the implementation. This makes it hard to measure how the implementation in the end will affect the project performance. In addition to the earlier mentioned limitation will the results be based on the author's own subjectivity and thoughts on the situation, which means that the information may be interpreted differently by other people. This factor is furthermore discussed in the method section.

## **1.7 Delimitations**

The authors have chosen to use delimitations in order to manage the time frame in an efficient manner during the thesis. The first delimitation is that the research is just looking at projects in an IT perspective. This was done because the thesis is, as earlier stated, conducted at an IT division, which created a situation where the research questions were specifically addressed on the case company and had to be stated with an IT-perspective.

The authors have chosen to focus on the changes related to the implementation of a PMO and the implementation of the new PMM. There are other factors affecting project performance as well, but the current study will mainly focus on the areas described above. The reason the authors focused on these areas specifically is because of two different things, the company's investigation indicated major problems within these areas, and there are extensive changes within the areas.

Another delimitation is that the study only aims to look on the PMM from the perspective of PMBOK. There are other methodologies, which are not deeper examined in the study. The reason for not exploring these other methodologies is due to both the time factor, but also in relation to the case company, whose methodology is said to be based on PMBOK.

## **2 Methodology**

*This chapter will provide an overview of the chosen research methodology and it also provides the reader with information about how the study was conducted and how data was collected, coded and analyzed in order to avoid critique to the chosen methodology.*

### **2.1 Research objective**

The choice of research objective frames the study without describing in detail what should be done. Instead it describes the procedure for approaching and acquiring more knowledge about the problem. The size of the existing knowledge in the area of investigation can be of significant importance when choosing the scientific procedure for the study (Höst et al, 2006). Although every research study is different and has its own purpose, there are a number of different groupings or scientific procedures. A study can, as Höst et al (2006) state, be based on several of the scientific procedures and an example of this is that a problem can be identified in a descriptive study and then be treated in a diagnostic study.

This thesis will be based on two different scientific procedures, an investigative and a diagnostic study. The first part of the thesis has been made in order to gain more knowledge and to get a more thorough understanding about the area of research. This is in line with the explanation of Björklund & Paulsson (2012) where they write that an investigative research study is used to gain a deeper knowledge and understanding about a phenomenon. It is helpful to use such a study when the intent is to describe and explain.

The later part of the study has been made in order to give feedback to the case company and to propose further actions for the company about the implementation of the new IT PMM. This is also in line with what a diagnostic research study is all about according to Björklund & Paulsson (2012). They state that a diagnostic research study is used when the researchers possess knowledge in the researched area and where the objective is to give guidance and to propose actions, which is pinpointing exactly what the researchers in this study will do.

### **2.2 Research approach**

According to Patel & Davidson (2011) the main tasks for researchers is to produce theories that give an as clear image of the reality as possible. In order to create these theories, a researcher has to relate the theory with the reality. A researcher moves between these two levels of abstraction during a research. There are three different research approaches when conducting a research, these are called the inductive, deductive, and abductive research approaches (Björklund & Paulsson, 2012).

The abductive approach is a combination of the inductive and deductive approach, and it is precisely this approach that the study will be based on. It is explained by Patel & Davidson (2011) as an approach which starts with a specific case where the researcher develops a preliminary theory. This theory is then tested and developed together with the results of the research. This process is then repeated in iterations. It

should also be said that there is some critique to the abductive research approach, where the researcher could be colored by earlier experience and knowledge within the subject, so no research starts without preconceptions. However, this is the reality of the inductive and deductive research approach as well (Patel & Davidson, 2011).

This study is using the abductive research approach and the focus has constantly shifted during the research process. Along the process, there has been several changes on the primary focus of the study, which often were based on new information that was discovered, either theoretical information or new empirical information.

### **2.3 Research design**

This research is designed to follow a case study approach, which means that the research is conducted at either one single organization, a single location, a person or a single event (Bryman & Bell, 2003). Berg (2009, p.317) suggests that “Case study is an approach capable of examining simple or complex phenomenon, with units of analyses varying from single individuals to large corporations and businesses”. Case studies are often favorable for qualitative methods as for example, participant observations and unstructured interviews, but this is just because of the fact that the methods are especially helpful when generating intensive and detailed diagnosis of a case. Case studies, as Bryman & Bell (2003) describe them, can both be associated with theory generation and theory testing, which is in line with this thesis as it is as earlier stated a combination between both the inductive way and the deductive way of conducting research.

There are often a number of misunderstandings about case studies and their value to the community of research. There are understandings that a case study cannot be generalized and therefore not contribute to social science development, has a bias towards verification and that the theoretical knowledge is more valuable than practical knowledge. These understandings are being corrected by Flyvbjerg (2006), who states that the case study is a necessary and sufficient method, which is important to the scientific development. Furthermore, Cunningham (1997) states that all case studies have different principles and seek the answer to its own unique tasks.

This study can be recognized as a case study since it is performed at a single division in one company. The case study is used to identify whether the theoretical knowledge about project methodologies can be applied on a practical example and to see if the new PMM together with the processes will be effective in practice by contributing to enhanced project quality and success. The case that this study will examine can be said to be a complex phenomenon because of the number of different parameters that are examined. The complexness of this is that the case is a large division with many different people involved with thoughts and feelings, so there is rich information from many different people that in the end will be summarized into a single understanding from the authors.

This case study is furthermore not about creating a generalized result that can be used on other cases in the future. Instead, it is about creating a deeper sense of the situation in the current case and to bridge the practical and theoretical knowledge that is gathered throughout the process against each other and investigate how they correlate.

## **2.4 Research strategy**

There are different strategies to use when a researcher is about to gather and analyze information. The most widely used strategies are the quantitative and qualitative research strategies (Holme et al, 1997). A qualitative research strategy is based by the researcher's own perceptions about the information. The information should for this reason not be transferred to statistical measures as the quantitative strategy is supposed to. A qualitative strategy creates a deeper sense of the gathered information, which makes the study more understandable. This way of gathering information is conducted in close relation to the research objective as this closeness is necessary to gather all the available information (Holme et al, 1997).

The current case study is conducted with a qualitative research strategy for gathering and analyzing the information that surrounds the research and the researchers have furthermore been close to the researched case company during the study. This has created richness and a deeper understanding about the gathered information. One of the things that have created this closeness is that the authors have spent a lot of time at the studied company. This made the objective used to the presence of the researchers in the office and provided the research with observations that could possibly be missed if the researchers would not have been there. The authors were also invited to participate during different meetings and had access to internal documents and information.

## **2.5 Data collection**

The data collection presents how the information have been gathered during the research process and what tools that has been used.

### **2.5.1 Interviews**

Using interviews for gathering information is a commonly used method in qualitative research. Bryman & Bell (2003) recognize two different types of interviews that can be used, unstructured interviews and semi-structured interviews. Unstructured interviews are when the interview is completely or almost completely unstructured, the researcher may ask a single question and the interviewee can speak freely about the subject. The researcher responds to what seems appropriate or worthy of following up. A semi-structured interview is when the researcher has prepared a number of questions or an interview guide within a specified subject. The interview may not exactly follow the guide in terms of the questions and the researcher can add questions that are not included in the guide as the interview goes on. However, most of the questions should be asked and a similar wording of the questions should be used (Merriam, 2014).

This thesis has been using both of the different interview techniques. The unstructured interviews have been conducted in different occasions when the study needed certain information about a specific subject. The questions were asked to different project managers whereas a discussion about the subject was started. The semi-structured interviews were conducted in a more planned manner, as the dates and interviews were booked in advance and a questionnaire was developed. During the interviews the different questionnaires were used as a base and more questions were added to it as the interview proceeded. Both the interview techniques were used in a flexible way to make sure that all the necessary information was gathered during the interviews. The questionnaires were furthermore continuously developed along the way to improve the questions and to collect new relevant information for the research. The questionnaires are included in Appendix A.

The authors chose to interview people with different functions within the case company to get a broad perception of the situation. Five of the interviewees were project managers working in the PMO since they are working with the PMM and are directly linked to project management in the IT division. The project managers have been interviewed continuously during the process to get impressions of the progress in the implementation. One of these project managers have during the study left the company, but that specific project manager's contribution to the study will still be a part of the report. Furthermore were five internal customers from other divisions of the company interviewed, to get their opinion on the IT division's work with project management and to get their perception about project success. One top manager at the IT division was also interviewed to get the perception of the senior management. The total number of interviews that were conducted during the study was 19 interviews.

Furthermore will the interviewees not be mentioned by name in the thesis and have also been given the choice to approve or neglect to be audio recorded during the interviews.

## **2.5.2 Participant observations**

The main point of participant observations, or as other call it ethnography, is that the researchers immerses into a group or organization for a longer period of time. This is done to observe behaviors, listen to conversations, ask questions, watch what is going on and write it all down. The participant observations are giving the researcher a closer understanding about the organization (Bryman & Bell, 2003). This technique is seen to be the best when an activity or event can be observed in close and when people do not have the time during a study to discuss or answer questions (Merriam, 2014).

During the thesis, observations about behaviors and conversations has been written down or recorded continuously. The field notes are specified to the specific date of the observation and also the person or persons that the observations were made on. They include impressions, feelings but also other relevant information about what different

people in the organization have said that the researchers reacted on. Mental notes were also used when it was inappropriate to take notes directly and these notes were carefully discussed between the researchers before written down at the end of the day.

### **2.5.3 Documents**

Knowledge and information that are collected from documents such as internal reports, newsletters, annual reports or meeting notes is another source of data to a research. The emphasis on this data is that it should have been created without the request of the researcher. This type of data can be used in a qualitative research study as the primary source of data (Bryman & Bell, 2003). One thing to remember is that because the data has not been created for the purpose of the business research, there could be limitations on the validity of the data (Merriam, 2014). Emphasis could be on assessing the quality of the documents in terms of the four criteria presented by Bryman & Bell (2003); authenticity, credibility, representativeness and meaning.

Documents have in the current thesis been used to gather empirical findings relevant for the study. These documents are both private and public documents in terms of organizational charts and reports of the previous results regarding project management in the organization.

## **2.6 Data coding**

One difficulty with quantitative research is that it often quite fast creates a huge amount of data based on field notes, interviews and documents. It is therefore important to create a thorough analysis of the collected material. Data coding is such an analysis, which is a process to review the collected information and to organize, withdraw and categorize the information that is significant for the study. Even though data coding is a tool to withdraw the important information from the data that is gathered during the research, it tends to risk that relevant information for the study may be lost when fragments is taken out of the context (Bryman, 2013).

To make sure that all the relevant information was extracted from the interviews and observations, a coding process was developed. The first step of this process was to record the different interviews, the next step of the process was to listen to the interview and write down the answers to all the questions from the interview. This information together with all the observations was then color coded into different areas of interest, which are related to each of the theoretical sections. All the coded answers from the different interviews were then put into the same area. These areas were then summarized to a complete text in the empirical findings section.

## **2.7 Critique against the qualitative research method**

Qualitative research has been criticized due to a number of different factors that Bryman & Bell (2003) mentions. First of all the qualitative research is by some researchers seen as too subjective because of the closeness to the subject. Secondly that the data gathering is often unsystematic and different people can have different ideas of what is significant and important. Merriam (2014) especially give this critique to participant observations which could be seen highly subjective. A

qualitative research is also seen as hard to replicate because it is almost impossible to create the same circumstances again in a new research. Another question is regarding the generalization of the findings in a qualitative study and to this critique Bryman & Bell (2003) mentions that qualitative research rather generalizes on theory rather than populations. This means that the theoretical inferences are important to consider in a qualitative study when assessing of how the research findings can be generalized. The last thing is that a qualitative study is said to lack transparency, but it is said to be increasingly addressed by qualitative researchers.

The critique on subjectiveness from Merriam (2014) is in this study seen as a big strength because of the earlier mentioned fact that this study is not made to be able to replicate or to generalize, it is instead focusing on creating knowledge and understanding about the specific case from the author's point of view. The last mentioned critique about transparency will be addressed in the study by following a process for data coding and that the participant observations is written the same day they were observed to make sure that no information is lost and that transparency of how the information was gathered during the process exists.

### **3 Theoretical framework**

*In this chapter theory relevant to answering the research questions and purpose of the study is presented. The focus is on IT projects, project success, project methodology and the role of a PMO in an organization.*

#### **3.1 IT projects**

Schwalbe (2011, p.4) defines a project as “a temporary endeavor undertaken to create a unique product, service or result”. Whenever people are gathered together to do something it is called an organization. So a project could be seen as an organization which is temporary. With temporary it means that the project has a clear start and a clear ending. The definition that a project is temporary has however been challenged by Turner (2014). He mentions projects that have lasted for many hundreds of years and gives an extreme example of a canal that was built in Germany that took 1200 years to complete. He also states that some people say that all organizations are temporary and that no one lasts forever. The intention for a project is that it should be temporary and bring change to an organization and after that change is done the project should be closed. Whereas in some organizations the intention is that the project should be permanent. Based on the intention of the project, the approach to the management of a permanent versus temporary organizations is different. This also includes how people in the organization get new functions to perform the project goal. Even though the task performed is temporary it can still be part of the employees’ daily routine work and the organization do not have to create and give employees new functions as in some projects (Turner, 2014).

Moving on to the characteristic of an IT- project, which is described as something that involves using hardware, software or networks to create a product, service or result. One definition by Smyrk (2007) is that, “An IT project is any project in which all outputs take the form of Information System/Information Technology artifacts”. IT projects differ in some areas compared to an ordinary project. IT projects are diverse and can contain anything from a few people to hundreds in a project. The purpose of the IT project can be as simple as a hardware installation to analyzing businesses and developing software for an organization. There can even be diversity within a hardware project with different hardware to install or in a software project with developing entire new software with complex programming language to developing an application within already existing software. IT projects also support every other industry and serves as a main function in many of them. Everything from an animation made in a film company to developing a federal tax collection system are IT projects (Schwalbe, 2011).

Since IT projects are so diverse and because of the newness of the field it is important to develop and use best practices to let PMs have a common starting point and a method to follow with every project. The technologies used by IT professionals can also be diverse. IT professionals can be so specialized that they do not speak the same language even though both of them are programmers. This can lead to communication

problems within projects and project managers can have a hard time forming a project team. Another unique factor for IT projects is that technologies change and develop rapidly, which can lead to drawbacks for projects that are close to be finished when a new technology is being released that would have made the project even better and met long-term business needs. IT project managers should therefore build in some flexibility into their project plans and executions in order to be able to manage changes in the projects. Customers of IT projects should in the same way be open to meeting new project objectives due to changes in the project plan (Schwalbe, 2011).

### 3.2 Project quality

Due to its diversity, IT projects tend to fail at a high content. Around a third of every IT project undertaken is cancelled before it is completed. Because of this, project managers need to ensure the quality in their projects to be able to deliver a project successfully (Schwalbe, 2011). The triple constraint is a model in the shape of a triangle with the factors scope, time and cost in each corner (Figure 2). The factors are used to define success in a project and together they affect the quality of a project. If any of the three corners in the triangle are decreased or increased it will affect the other two corners and the quality of the project (Stiffler, 2010).



Figure 2 The triple constraint model (Stiffler, 2010)

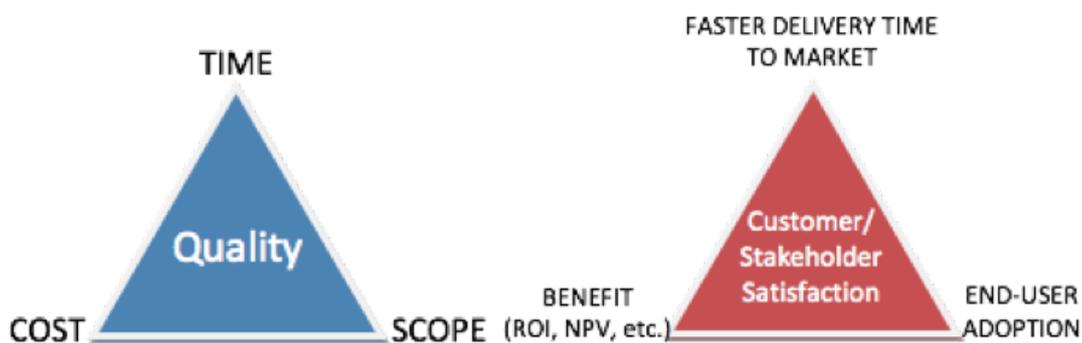
The triple constraint model has been used widely within project management but has been challenged since it just focuses on three areas. Other areas have been highlighted as factors to success as well and the PMBOK describes them in its latest edition instead of the triple constraint model. A hexagon constraint model has been developed by Stiffler (2010) that can be applied (Figure 3). The hexagon constraint model includes the factors quality, scope, budget, resources, risks and schedule, ordered by its importance for the project. The factors resources and risks are new compared to the triple constraint model and all these factors are to be considered since they affect the customer's satisfaction, which is another important project success factor.



**Customer's Satisfaction**

*Figure 3 The hexagon constraint model (Stiffler, 2010)*

The triple constraint is still a framework that is necessary and can be used but even though the scope, cost and time factors are fulfilled, a project can still be a failure due to low customer or stakeholder satisfaction for instance (Stiffler, 2010). It is important to understand that time, cost and scope are factors related to project outputs whereas customer and stakeholder satisfaction, quality of delivery and end-user adoption for instance are related to business outcomes. Duggal (2010) presents a mirrored triple constraint model that shows the business outcomes corresponding to the project outputs and how the project manager has to make decisions in the project that can achieve the business outcomes. Cost and time focus has to optimize business benefits like return on investment and benefits of faster delivery times to market. Scope is mirrored with end-user adoption and the quality is balanced with customer and stakeholder satisfaction (Figure 4).



*Figure 4 The mirrored triple constraint model (Duggal, 2010)*

### 3.3 Project success

To answer the research question, project success needs to be defined. Even though project management is a discipline that has been around for many years, it was just until recently that the focus has increased on using it to deliver IT projects successfully since the failure rate of IT projects is high (Burch, 2010). By observing

that quality is being upheld in projects the project managers can be surer of delivering the projects successfully. However, people are defining project success in different ways (Goatham, 2015). Goatham (2015) has by interviewing project managers and project team members of different organizations identified five examples of project success.

- Example 1 – The project is a success if it delivers all or most of what it said it would (the scope), regardless of time or budget performance.
- Example 2 – The project is a success if it delivers the scope, on time and/or within the agreed budget.
- Example 3 – The project is a success if it delivers the scope, on time, within the agreed budget and/or to the expected quality standards
- Example 4 – The project is a success if it delivers on all agreed project objectives, by the scope, time, budget and quality.
- Example 5 – The project is a success if the product/service produced by the project creates significant net value for the organization after the project is completed and the product/service is implemented.

Schwalbe (2011) presents a similar list of different project success definitions.

- The project meets scope, time and budget goals.
- The project satisfies the customer/sponsor.
- The results of the project meet its main objective, such as making or saving a certain amount of money or providing a good return on investment.

The classical textbook example is that project success is delivering all project objectives (example 4) but according to the interviewees the success definition should be either example 2 or 3 when they were asked in the midst of a project. However, with a little perspective after a project is delivered and the outcome is implemented, it can sometimes be example 5 that is the definition of success (Goatham, 2015).

One reason to why project success can be hard to define is because there are two dimensions for defining project success or failure; Project management success and product success. Project management success meets the demands on quality, scope, time and budget while product success focuses on the value after the project is closed and if the project achieved the desired outcomes and if it met organizational and/or marked needs (Goatham, 2015).

Goatham (2015) states that all interviewed project sponsors agree on that the fifth example about creating real value is the most important since they often are the customer and the ones financing the project. Goatham (2015) therefore believes that example 5, with satisfying the project sponsor, should be the starting point and main target of every project planning. Cost and time are of course important objectives as

well that should not be neglected but creation of value should be the context that decisions are being taken within.

One difficulty with defining project success as created value is the agreement on what project success is with the project managers. Created value is a factor that the project manager cannot control, which creates uncertainty compared to if project success was measured by delivering the project on time and within budget which the project manager can affect. As a project manager it is important to have a clear picture of what success is. That will be the framework for how to work within the project and what decisions will be taken. It is also of importance that the organization's definition corresponds with the definition by the stakeholders of the project (Goatham, 2015).

The Standish Group releases a report called CHAOS annually with data collected on 50 000 IT projects in the public and private sector, identifying critical success factors for IT projects and reasons to why IT projects fail. The Standish Group separates between successful projects, challenged projects and failed projects. Their definitions of the different types are; *“Successful projects are on time, on budget, and have a satisfactory implementation. Challenged projects are over budget, late, and/or have an unsatisfactory implementation. Failed projects are projects that were either canceled prior to completion or not used after implementation”* (The Standish Group International, 2014). The report of the Standish Group's CHAOS report of 2009 shows that only 29 percent of the IT projects are successful and that 31 percent of IT projects will be cancelled before they are completed and that nearly 53 percent of the IT projects will cost 190 percent more than its original cost estimates. The report also presents the ten most critical factors that contribute the most to success of IT projects (Schwalbe, 2011).

The Standish Group has also released their CHAOS report for 2013 and 2015. The ten success factors for IT projects are compared below. One observation is that the report from 2015 redefined project success as it includes project value and customer satisfaction in addition to the triple constraint factors (Hastie & Wojewoda, 2015).

Table 2 The ten success factors for IT projects according to the CHAOS reports from 2009, 2013 and 2015.

	2009	2013	2015
1	Executive support	Executive support	Executive sponsorship
2	User involvement	User involvement	Emotional maturity
3	Experienced project manager	Clear business objectives	User involvement
4	Clear business objectives	Emotional maturity	Optimization
5	Minimized scope	Optimizing scope	Skilled resources
6	Standard software infrastructure	Agile process	Standard architecture
7	Firm basic requirements	Project management expertise	Agile process
8	Formal methodology	Skilled resources	Modest execution
9	Reliable estimates	Execution	Project management expertise
10	Other criteria, such as small milestones, proper planning, competent staff, and ownership	Tools and infrastructure	Clear business objectives

### 3.4 Project failure

Another concept surrounding projects is project failure, which Bolin (2012) explains as something that is only subjectively defined because a strict definition of project failure would not allow any deviations at all on project budget, schedule or scope. Other value-added sources should also be taken into consideration such as benefits,

value to the organization and project usefulness in order to judge if projects have failed (Bolin, 2012). There are many different causes of project failure and different authors state different things. Burch (2010) for instance believes that failure can be caused by misunderstood requirements, optimistic schedules and budgets, poor risk assessment, inconsistent standards and lack of training, failure to manage resources properly, unclear project charter and overall lack of communications. Chua (2009) confirms this with the factors he has identified that can lead to project failure. He states that lacking awareness of organizational issues, poor alignment of IT adoption to the business strategy, changed customer requirements and the project size and complexity all can contribute to project failure.

### **3.5 Project management methodologies**

Over the last decade, a professional area of expertise has emerged and become mainstream; this area of expertise is called project management. It is according to Hill (2009) appropriate that the business processes are aligned with the environment of project management as well as the project management processes are aligned with the needs and interests of the business. To achieve this synergy, an introduction of a project management methodology that is effective is important. The base for this synergy is in today's business environment often already created, as the organizational processes that a company uses are common in both business and project management. But these processes are often used separately and uncoordinated. Recognition of the business contribution of project management is needed from an organization in order to ensure that the return of project management delivers the maximum value back to the business. To do this as well as aligning projects and business, a methodology for project management process that is implemented throughout the organization is essential (Hill, 2009).

A methodology is defined by Charvat (2003, p.3) as “A set of guidelines or principles that can be tailored and applied to a specific situation. A methodology could also be a specific approach, templates, forms, and even checklists used over the project life cycle”. Another definition of a project methodology that Kerzner (2013, p.85) uses is “A repetitive process that can be used on each and every project is referred to as the project management methodology”. Kerzner (2013) also states that it is important that a company uses and maintains a single methodology when conducting project management. A company that applies a formal methodology should follow the methodology as a guideline throughout the project life cycle, and the project members should be familiar with the use of it (Charvat, 2003).

There are a number of different international standards or methodologies to project management on the market and some of these are, PRINCE2, IPMA, PMBOK and ISO 21 500. There are many similarities between the different methodologies and according to Deasun (2012) it can be explained by comparing it to the different ways of making a car were in the end, they all look quite the same. Which methodology a company should use is a big decision and has great impact of the way a company will perform project management and while there is no actual right or wrong decision, an

important thing is to consistently use and implement the chosen methodology (Deasun, 2012).

### **3.6 Benefits of a PMM**

Methodologies, as Kerzner (2013) describes it, do not manage projects, people do. But implementing a single PMM in the right way is believed by Kerzner (2013) to have a number of beneficial effects on the project performance, some of these effects are:

- Increased conditions for project success
- Lower cost
- Minimize paperwork
- Reduce resource requirements for support
- Eliminate duplicated efforts
- Faster project deliveries
- Lower project risk
- Better decision-making process
- Greater customer satisfaction
- More time available for value-added efforts.
- Capture best practices

Other authors (Terlizzi et al., 2016) that agree to some of these benefits, concluded that an establishment of a PMM for IT projects is recommended as a mechanism of control in IT governance. The proper use of a PMM will increase the results and chances of project success. This is also believed by 90 % of the project managers interviewed in Terlizzi et al. (2016) study, as they believe that the usage of a formal PMM brings benefits to the organization. But as written by Charvat (2003), a PMM is not a quick fix or a best practice approach for project success, as there is much needed in order to achieve the benefits stated above. To understand what is meant by the proper use of a PMM it is important to consider why projects fail and the different barriers of implementing and using a single project management methodology.

### **3.7 Barriers of a PMM**

The use of a PMM is, as mentioned before, not a quick fix for project success, there are many barriers stated by Terlizzi et al (2016), which could make an implementation and usage of a PMM difficult. Terlizzi et al. (2016) concluded the five most important barriers that hinder a successful usage of a PMM for IT projects. These barriers are shown in Figure 5 below and the factors are tight project deadlines, working on several positions, working on many projects at the same time, lack of knowledge of the PMM, and difficulties in using the project management software. Wysocki (2004) also mentions some barriers for PMM implementations and he focuses more on personal factors of the change such as the cultural and organizational barriers of change, replacing old project management habits and that people are rugged into a specific technical professional.

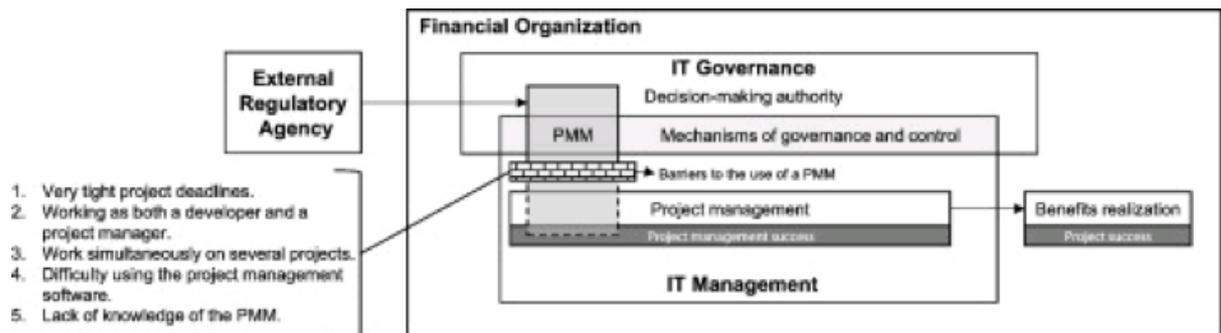


Figure 5 Barriers that hinder a successful usage of a PMM (Terlizzi et al., 2016)

Terlizzi et al. (2016) also believes that it is necessary to create an environment which enhances the proper use of the PMM. One key that Terlizzi et al. (2016) mention is that there often is a lack of adherence and the organization does not ensure the proper use of the PMM. This adherence was especially shown during the scope and risk management process. After an implementation, it is critical to control that the PMM is used and if the usage of the PMM is low, the organization needs to find and address the barriers that prevent the usage of the PMM in the organization (Terlizzi et al., 2016).

### 3.8 Project management and processes

World-class methodologies are characterized by a number of different things according to Kerzner (2014) and among these characteristics, a few are directly involving project management processes. Integration with management processes such as risk management, stakeholder management and communication management is important in order to achieve a world class methodology. This integration is believed by Kerzner (2014) to create a synergistic effect, which minimizes paperwork as well as resources required and allows the organization to work more efficient.

As a project progresses according to the phases defined in the project methodology, it follows a number of steps. These steps can also be referred to as a process. There is often much uncertainty during the starting phase of a project as there are just roughly perceptions about how to reach the goal of the project. A process provides the project a chance to move closer towards the goal and helps to reduce the uncertainty along the way. As the uncertainty is reduced (Figure 6), there is a higher probability of making the right decisions as the process has helped to gather new information (Turner, 2014).

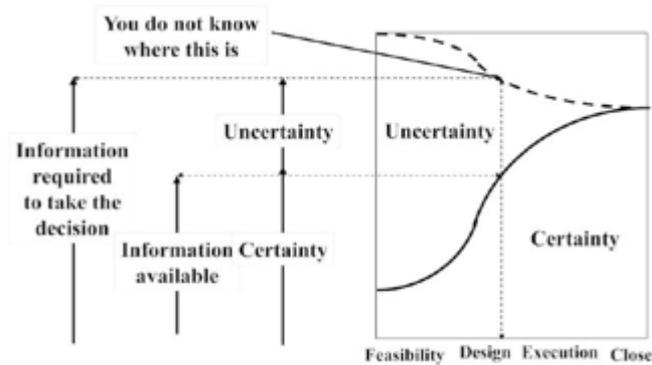


Figure 6 Uncertainty model (Turner, 2014)

Management processes are then defined by Turner (2009) as the steps within each of the project phases that are conducted to deliver everything that is needed in that specific stage. An example of these management processes is in the PMBOK by PMI, where they define five processes: Initiating, Planning, Executing, Controlling/Monitoring and Closing. Another way to state the processes is in terms of functional processes, which is also defined by PMI in the PMBOK as their different knowledge areas. These knowledge areas could be seen as functional processes that run along the entire project (Turner, 2014). An example of this is presented in Figure 7, where the risk management processes are defined for three organizations and their different project management methodologies (Turner, 2014).

Generic Process	PMI (2008)	APM (2004)	OGC (2009)
Focus on risk management		Initiate	
Identify risks	Identify	Identify	Identify
Qualitative assessment	Assess	Assess	Evaluate
Prioritization			
Quantitative assessment	Analyze		
Plan response	Mitigate	Plan	Identify response Select response
Control risks	Manage	Implement	Plan and resource Monitor and report

Figure 7 Compared processes for project risk management (Turner, 2014)

Haugan (2011) states that following project management processes are essential to project success. Another author that focuses on what the processes means for project success is Wysocki (2004), who is referring to the CHAOS report (2001), which is consisting of ten critical success factors to consider in order to achieve project success. He continues to state that out of these ten factors, seven are directly linked to processes. But this is not the whole story, because four of these factors are also focusing on people and three are relating to technology. This forms the triad of people, technology and processes. Wysocki (2004) means that this triad forms a system that must be in balance for the project to have any chance of achieving project success.

Regardless of how much time that has been spent on creating these processes, the reality is according to Wysocki (2004) often that project managers and team members do not use the processes as they should. The usage of the processes is often spread, some use it precisely, some do not use it at all, and others even modify the processes to suit them better. As people get used to a certain way of conducting a project related task, it gets harder to change their way of doing that task without meeting resistance (Wysocki, 2004)

One way to get an understanding about the existing processes, and how the people in an organization use these processes, is to measure the maturity in terms of two variables. The first variable is the processes and the other variable is the practice of those processes. The process maturity is a measure on how well the different processes in a methodology for managing projects is standardized and documented. The practice maturity is a measurement based on how well the processes are used in practice. There are three different scenarios regarding this maturity assessment.

The first scenario is that process maturity exceeds the practice: this means that the organization has processes in place but they are not used as they should because of different factors, such as, the process is not successfully deployed, no sufficient documentation, ineffective process training etc. The next scenario is that there is a balance between process maturity and practice maturity, which suggests a healthy relation between the processes and the practices in the organization. The last scenario is when the practice maturity exceeds the process maturity. This can occur if the processes are not documented and the project managers are doing the practice themselves or if project members use practices from other organizations (Wysocki, 2004).

Measuring project management maturity can help a company to assess where the weaknesses and improvement areas in a specific project management set-up can be found. This further helps the company to improve the identified areas and enhance the maturity of project management (Kaya & Iyigun, 2001).

### **3.9 Project management office**

A PMO should contribute to an organization's strategic goals by supporting and sometimes even managing projects in the organization's portfolio. The PMO coordinates projects, manages portfolios and programs, prioritizes between new projects, and allocates resources between projects. The structure of the PMO depends on the organizational context and the type of projects in the PMO mandate. The organizational context includes factors such as the economic sector, the public or private sector, the size of the organization, the internal or external project sponsors/customers and the supportiveness of organizational culture. The size of the organization will automatically determine the size of the PMO since more projects can be run in a larger organization. The type of projects in the PMO mandate depend on the number of people involved in the project, the duration time, the type of product or service delivered and the involvement of outsourcing. The PMO will be different

depending on if it is managing many small projects or fewer big projects. It is important to have a good understanding of all these factors when designing and running a PMO. Furthermore, with these factors in mind the PMO will be well integrated in the organization (Hobbs & Aubry, 2010).

It is also important that top management has a dialogue with the PMO to set what value needs to be created, what is expected from the PMO and what is defined as a success. This will then affect the projects in what should be delivered in terms of scope, cost, time, business benefits etc. Some PMOs are involved in all phases of the project life cycle while some PMOs specialize in some of the phases. PMOs in different organizations sometimes include post-delivery activities to make the transition from project to operations smooth and to control the business benefits and value created from the project. Monitoring and controlling project performance is one of the most important roles for the PMO which include reporting project status to top management (Hobbs & Aubry, 2010).

The PMO is usually responsible for providing a project methodology, tools, processes and templates. They should be scaled in a way that they can be used in a variety of projects and the development and implementation of the methodology should be considered as a project including stakeholders' commitment and change management. Rozenes & Vitner (2009) also state that a PMO should work with ensuring compatibility and consistency with the existing standards of the organization.

Cooch (2012) states that many PMOs fail in their mission and presents factors that are important to succeed. The most important thing is that the PMO is well embedded in the organization and this is done by collaboration between project professionals and functional departments within the organization. Another important factor is to recognize the expertise within the PMO and to respect their expertise across the entire organization. Furthermore, it is important to let everyone within the organization know what the PMO's purpose is. Cooch (2012) also recognizes that every leader of a PMO should ensure that PMO members understand their value. The PMO also needs to have an environment where ideas can be created and that factors such as cost and time have lower priorities to boost creativity among project managers. The personnel of a PMO should also require skills such as leadership qualities with issue and conflict resolution, the ability to communicate well with project stakeholders and top management and also to work effectively with project teams with employees from different departments (Rozenes & Vitner, 2009). Hobbs & Aubry (2010) state that another role of the PMO is to offer training and mentoring for project managers in order to enhance skills and development within the field of project management.

### **3.10 Senior management**

Senior management wants to secure that strategic goals and objectives are met in the organization. In order to do so the right projects have to be undertaken and delivered successfully. The senior management's role is to decide what projects should be run

and sometimes a PMO is established to undertake that task. The project manager's role is then to confirm that project goals are met in order to contribute to meeting organizational strategic goals which are of the senior management's interest. In doing so the senior management also allocates resources and budgets to the different projects. Senior management's interpretation of project success can be seen as a successful project that contributes to the organization's long term goals (Davis, 2014).

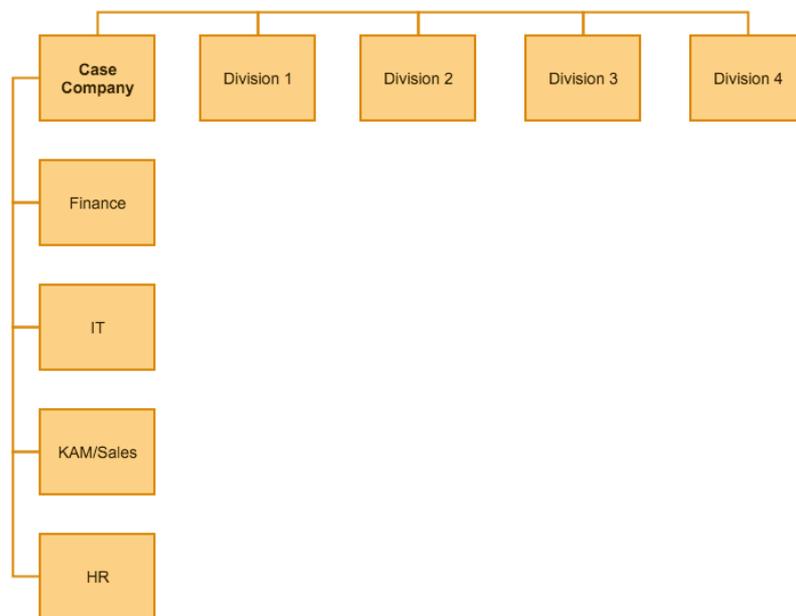
In order to be successful, the senior management also needs to require project management skills with a knowledge base based on areas such as strategic goals for the organization, designing the organizational structure to best accommodate projects, project selection, project and program reviews, thresholds for change and leadership for senior management. This knowledge will help the senior management to choose the right projects and optimize them to reach business objectives and to organize the projects according to size and complexity into programs and portfolios. Senior management should have the knowledge to see when to intervene and help project managers that manage projects that are about to fail in order to avoid project failure. In line with this, senior managers should act as role models for project managers through the right actions and make timely and supportive decisions. If a project manager fails, the senior management fails as well (Ireland, 2006).

## 4 Empirical findings

*This chapter presents the information which has been collected during the thesis. Both from the different interviews conducted as well as the information gathered from observations and data bases at the case company. The empirical findings have been structured according to different relevant areas.*

### 4.1 Case company

The case company have around 3800 employees in Sweden and handles 66 000 deliveries each day. The company's structure in Sweden consists of four divisions connected to the core business. There are also four other divisions with supporting functions to the core business. They are IT, Finance, Key Account Management/Sales and Human Resources (Figure 8).



*Figure 8 Organizational structure of case company in Sweden*

The IT division is lead by a CIO and consists of 80 employees within three different departments. There also three different support functions within the IT division, which are IT Governance, PMO and Controlling/Administration (Figure 9).

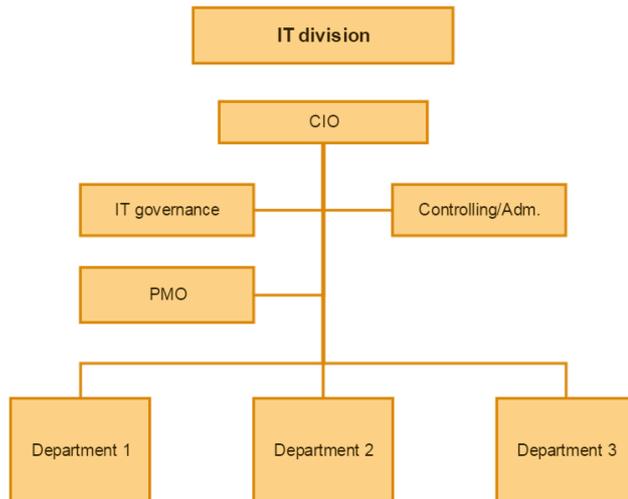


Figure 9 Organizational structure of the IT division

The PMO at the IT division consists of one head of the PMO, five project managers, a change manager and a release manager. The PMO should manage all the IT projects at the division and manage resources in the projects. The goal of the PMO is stated by the top management to release pressure on the project managers and create more control over the projects in the IT division. The PMO has also implemented a new PMM to the IT division and it is the PMO's responsibility to manage it. One part of the new working way, that the PMO has implemented, is a classification and prioritization process for the IT projects before project start. The PMO has also started to implement software tools for managing projects in order to enhance transparency in the projects and rationalize document handling and communication. The PMM aims to be integrated into the new software to make the project work more efficient for the project managers. The project managers in the PMO are also about to be Project Management Professional (PMP) certified according to PMI. Before forming the PMO, project manager was not a specialist position in the IT division and the project management skills among the project managers were different, which needed to be changed.

The PMO's vision is that

- All projects shall have a high quality level that is ensured by quality controls
- All IT projects shall be delivered on time and on set budget
- They shall have full transparency in a project during all project phases
- All decisions that are made concerning a project shall be clear for all stakeholders
- They shall have a clear project initiation process with clear prioritizes
- They shall have a set of modern tools that supports project work and eliminates unnecessary administration

The different IT projects are started with an idea somewhere in the organization. It could be a driver that notices something wrong with the scanner, or it could be a

manager that wants the new version of Microsoft Excel. This process, from an idea until an approval to start an IT project is taking approximately two months and during this time the idea has to go through about a number of different steps and board groups. During this time, the idea transforms to a requirement specification for the project that is later handed over to the IT division. The requirement specification goes through another classification and prioritization process at the IT division before decision of a project start is taken and a project manager is appointed.

The classification will determine if the project is small, medium or large and the project process looks a little bit different depending on the size (Figure 10). After the project is classified the prioritization process takes place, which is a process to decide in what order the project should be started. At the date of data gathering, 71 IT projects have been started and were in different project phases, 15 were in the backlog waiting to get started and 26 IT projects were located in the classification & prioritization phase.

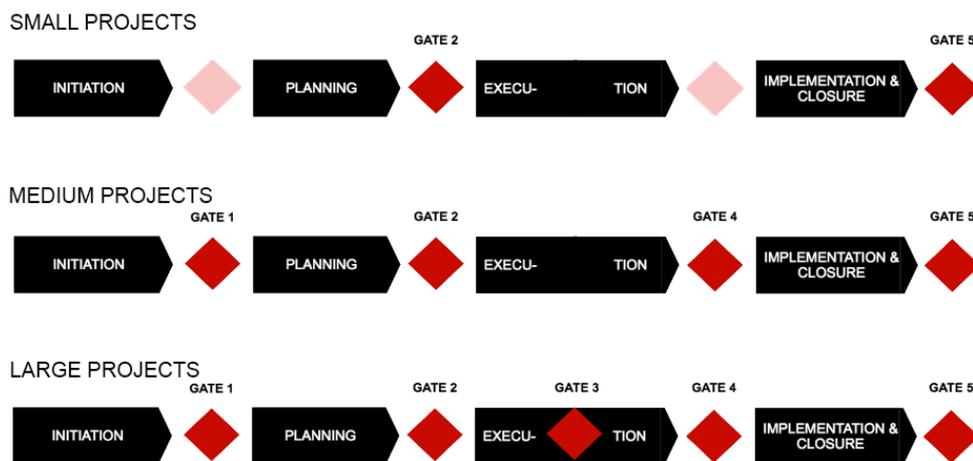


Figure 10 The project classification model at the IT division.

Once the IT project is started, the new PMM that the company recently implemented should be followed throughout the project. This model has four different phases; initiation, planning, execution and implementation & closure (Figure 11). Between each of the project phases there is controlling points called “gates”. When the project manager has finished one phase, a gate meeting is held where the project manager presents information related to the current phase. The board then takes a decision whether the gate is approved or not. If it is approved, the project manager can move on to the next phase of the project. How often the project manager needs to pass a certain gate is depending on if the IT project is classified as a small, medium or large project. Small projects have two gates, medium size projects have four gates and big projects have five gates. After being approved in gate 5, the project manager is said to not spend any more time on the project.



Figure 11 The new project management model.

At the initial phase of the implementation there was no actual definition of the different phases in the project model or what project processes each phase consists of. The definitions of the gate presentations were the only process description available for the project managers. The gate presentations are standardized and the project managers have to prepare the presentations in a PowerPoint template. The presentations should include different information depending on which phase the project is in.

## 4.2 Experience

The IT division has five dedicated project managers in the PMO. The project managers have different experience from working at the case company, between a few months to 19 years, and have had different roles in the company during this time. The educational backgrounds of the project managers also differ, but everyone have some form of IT-related education, and the educations have lasted for one to five years. The experience from working as a project manager varies as well as the project managers' experience from working with project management methodologies.

## 4.3 IT projects

The different interviewees do not completely agree on what an IT project is at the case company. One internal customer believes that an IT project is rarely just an IT project but instead often a part of a bigger development project in the business. It is of importance that the IT projects are related to the business. The project managers on the other hand agree to another view of what an IT project is at the case company. The projects that start are either new functionalities and updates in current IT-systems or completely new IT-systems. An example of an update is a Microsoft Office update on all the computers and an example of a completely new system is the implementation of a new IT-software for project management. The case company is running both small and big IT projects, and the big projects can stretch over a couple of years with budgets of millions of SEK and involve many different people. The small projects, on the other hand, are usually conducted over a short period of time with a smaller budget.

One of the project managers states that working with a development project is hard since there are new suppliers and new ways of working, while in a maintenance project are the contact with the supplier already established. All the IT projects that the IT division runs are internal projects that are mostly business driven, which means that the project should in some way contribute to improvements and better performance of the company. The internal customers agree on that the IT projects should be aligned with the company's business. Every project in the IT division follows the same work procedure and the same information is needed for both small and big projects according to one project manager. Another project manager believes

that the only difference between small and big projects is that there are not as many gate presentations in small projects. One project manager thinks that the small IT projects are the most struggling projects at the moment since there is no dedicated project team, the project managers need to do more tasks by themselves and that the amount of documentation is the same as for big projects. Another issue is that small projects are being pushed aside in favor of big projects according to one of the internal customers. However, can the small projects with small changes be as important for the business in order to be competitive.

All the internal customers agree on that it takes too much time to get through with an IT change and that the process from an idea of change in the business to a delivered project must be more effective. The interviewed internal customers say that in many cases are own solutions developed locally in the business instead of taking it through the IT division. This could according to a few of the interviewees mean that the company risk losing development potential.

#### **4.4 Project success**

The project managers in the PMO define project quality and what a successful project is a bit differently. Two of the project managers believe that a successful project is when the project is delivered within time, budget and with the right quality. They mention different reasons for why they see these factors as most important when defining success. One of the project managers says that they have a demand from senior management on delivering within  $\pm 10\%$  from the initially planned time and budget while another project manager says that it is the internal customer who defines what the most important factor to focus on is in each specific project. Two of the project managers have another focus when they describe how they interpret project success. They think that the most important factor is that the end user is satisfied with the outcome of the project. One of the project managers say that even though a project run over time and budget, the customer satisfaction is the most important thing. One project manager also state that a successful project should improve the company's profitability and focuses on how the IT project can enhance the core business of the company. Three of the internal customers think that a successful project is when the effect goals are achieved and when the project is delivered within the planned time and budget. One of the internal customers states the importance of that the business needs should steer the IT projects and not vice versa.

When focusing on what goals an IT project should deliver are the opinions a bit different as well. According to two of the project managers are all goals of an IT project defined in the beginning by the internal customer and in collaboration with the project manager. One of the projects managers underlines the importance of goals that are measurable. The goals are communicated to the project team when starting the project but not all project members are interested in the goals. One project manager mentions that the goals with a project should be that the delivered product should for example contribute to less workload in the business or something that are saving

money in the end. Another project manager state that one important goal with a project is to satisfy the customer. However is customer satisfaction not measured according to the project manager. The project manager say that it is taken for granted that the customer is satisfied with the delivery of the project if it is not heard from the customer again. This is underlined by another project manager that say that if a customer does not come back to complain after a project are being delivered, are seen as satisfied. One of the project managers believe that it is seldom focused on the end user when thinking about customer satisfaction. Instead the focus is on the internal customer that ordered the IT project. A project manager mentions that it is important that the administrative actions in an IT project do not take time from delivering a good product. The documentation should be secondary compared to the delivery. The project manager say that it is common to cut functionality when time and budget is running out in a project and then will the quality of the outcome decrease. Two of the internal customers think that the most important goals with the IT projects is to support the business and that the company have a good profitability.

Many of the project goals are not reached until after the project are closed and it can for example take up to six months before the effects of a product are measured. The outcome is not measured by the project manager, but by the business, if the outcome is measured at all, according to one of the project managers. Another project manager says that the projects are often monitored and measured according to the triangle model (triple constraint) with time, cost and quality during the project. The triangle model is used by the senior management to steer the project in a certain direction if needed. A problem however is that the model is unclear and that different people, such as project managers and internal customers, have different perceptions of the model, which sometimes causes conflicts. One internal customer says that they could be better to communicate back the results of the projects to the project managers. The internal customer states the importance of giving feedback to the project manager after each project. It can be easy to give negative feedback if you are not satisfied with the outcome, but it is as important to give positive feedback. This is confirmed by another internal customer, which state that they never communicate back to the IT division after a project and do not know the reason for this. But, it is also important to remember as another internal customer states, that it is very hard to actually measure the effect of a project in the business because of external factors. The internal customer also believe that the IT division do not need to know if the effect goals are reached and means that the IT division should focus on the product and project goals, not effects.

The interviewed project managers and internal customers give their interpretations of what a failed project is. One project manager thinks that a project is failed when it delivers something that contributes to a situation that is worse than before the start of the project. The project can have delivered everything that was stated and within time and budget but the end user was not satisfied and that as seen as a failure according to the project manager. Another project manager believes that a failed project is when

the project is delivering something that the customer did not order or when the project is over time or budget. This view of a failed project is shared by two other project managers. However does one of the project managers think that a completely failed project, due to a delivery over time, budget and quality, can be seen as successful because of the things you learned along the way. The internal customers have a common understanding and think that a failed project is when the effect goals, time and cost are missed.

There is a common view among the project managers and internal customers of why IT projects fail. All interviewed project managers mention poor requirement specifications as a reason why projects fail. One project manager says that the poor requirement specifications can be due to the lack of engagement from internal customers. The lack of resources at the IT division is also seen as a reason to why IT projects fail according to one of the project managers. One of the project managers mention that some of the IT projects are dependent on each other and that it causes problems and delays sometimes which leads to failed projects. Further reasons that is mentioned is that estimations of time and costs can be too optimistic in the planning phase of a project or that no buffer for unforeseen changes in the project is planned, which leads to failed projects. Another reason mentioned by one of the internal customers is that the IT solution is not tested enough before it is being released. The internal customer also mentions the lack of engagement sometimes from the internal customers as a reason to project failure but also the lack of resources at the IT division and that projects are pushed aside by higher prioritized projects. When a project is down prioritized can resources be taken out of the project and the project manager can be moved to a different project. When the down prioritized project is started again is a new project manager assigned, which leads to loss of speed and competence, according to another internal customer. An example is a project that has had four different project managers during a short period of time. One of the project managers also mentions that long projects can be affected by environment changes and when the project is delivered the outcome may be out of date.

#### **4.5 Project management methodology**

There are different opinions from the project managers about the new PMM that is being implemented. One project manager does not feel like there is that much of a difference compared to the old project model that was used earlier, the only thing that is different in the initial phase is that there is gates or control points between all the project phases. Another thing is that the phases were more merged in the earlier model and it was possible to start with the execution phase already in the planning stage. Now, everything has to be finished in the planning phase before starting with the execution phase. The project manager furthermore does not feel like it is any control that the model is properly followed. The gate descriptions are not followed by one of the project managers and work more according to the project phase and prepare for the gates when the time comes. There is however a risk that it will be more administrative work for the project managers with the new PMM.

Another project manager on the other hand is questioning the fact that the old model was not used or updated and thinks that the biggest difference with the new PMM is that everyone should use the same methods. The new PMM have higher demands on deliverables and deadlines, which sets higher demands on estimations from the beginning. The same project manager thinks that the new gate process will make a big difference and that it is good that the project managers can get more feedback during the project. But also says that the people working in the projects have no understanding about the model or the gates. The focus is furthermore on the gate processes when working in the different phases according to that project manager and is saying that the PMO controls that the gates is followed properly.

A comment on the PMM from one of the project managers is that there are no guidelines on how to work with the different templates and that people use the templates in different ways. Another thing is that the IT division and other divisions use different templates when working within projects. The same project manager thinks that the model is clear but it does not contain any processes or descriptions, which should be there.

The feeling is the new PMM will bring benefits to the organization and it is a lot more like how you should work with projects according to one of the interviewed project managers and that project manager also believes that there are just positive advantages with the gates and says that it will structure the work.

On one of the interviews the interviewee thinks that it is hard to understand how to work with and what documentation that is needed in the new PMM. That project manager mentions that it is a waterfall methodology where everything has to be defined in the start of the project, and says that this comes with guesses, since many things need to be decided early in the project when not much information is available. All projects need the same amount of documentation according to the interviewee, whether it is small or big and states that administration should not take over the project.

Two of the internal customers talk about the new changes within the IT division as very good ideas in an isolated state. Unfortunately are the changes not synchronized with the other divisions of the company, which make the other divisions feel like they are being left out. They believe that working in different ways is not good and they believe that the walls have become even thicker between the different divisions and the IT division. Another internal customer thinks that the IT division is moving too fast in the changes without including the other divisions in the process. An example of this is that one of the interviewees had not heard about the new project model and says that they are using the old project model frequently in their projects.

## 4.6 Processes

Moving on the role of the processes related to the PMM the project managers have different opinions of this as well. One of them thinks that all project managers work differently and states that it is not any standardized way of working. The project managers use the templates that suites them best and report in different ways. There is not much information or descriptions related to the new PMM according to the same project manager, and this project manager also states that experience and knowledge is used to move forward without having any guides or processes.

Another one of the project managers works in the same way in every project and thinks that it is really important to have something that guides the project manager forward. Without guidelines everyone would work in different ways. The gate presentation templates provide this help and are good to check on and then gather the information that is missing to continue. They are enough to use as guidelines because if the guidelines become even more defined, the project manager would have no space to do as they wish. It feels like you get cornered and uncomfortable if you work exactly after a description.

Another project manager that feels like the there is a lack of descriptions, which also believes that it is hard to know the details of the gate presentations because the detail level is not described anywhere. It would be easier to get started with a project if the structure and processes are clear according to the same project manager. A negative side with too detailed templates is that the flexibility of the project manager gets lower, but the positive effects of clear structure and work processes are higher. During the time at the company, own templates have been created and the experience possessed is leading that specific project manager forward in the project. The same project manager uses the gate presentations to track where the project is in the process and these presentations works as process descriptions.

One project manager that thinks it is hard to get into the company as a new, the same project manger also believes that there are not many descriptions of how to do certain things, such as ordering a license to book meetings. There are few descriptions of how to perform project management work and it is a lot of information to take in as a new employee. Another thing that that project manager believes is that the lack of descriptions is a problem and gives an example where it is hard to know how to perform the practical things that a project manager should do such as contacting suppliers. Other managers know these things from experience and by being at the company for a long time, but if you are new in the company it is hard to know how to perform certain tasks.

## **5 Analysis**

*In this chapter are the findings from the theoretical framework and the empirical findings structured and analyzed. The analysis is structured according to different relevant areas for the study and is forming the base for the discussion chapter.*

### **5.1 IT projects**

According to the Schwalbe (2011), a project is defined as a temporary endeavor with a beginning and an end but this is however challenged by Turner (2014) who believes that the intention of a project can be both temporary and permanent. Another thing that is relevant to address and is stated by both Smyrk (2007) and Turner (2014) is that the characteristics of IT projects are very diverse and an IT project can differ in any other industry. The size of the project can differ as well as its purpose. The diversity of the IT projects is reflected in the case company, where the IT projects can be anything from development of new systems to hardware installations and can contain anything from a few people to hundreds of people. IT projects in the case company are always internal and intended to create value to the business, they can range from a few weeks to a couple of years and new projects can be created as a result from a product delivered to the business. Schwalbe (2011) is mentioning another characteristic of IT projects and it is that technology is developed rapidly, which can lead to drawbacks in the projects. The difference in the way of working with small and big IT projects in the case company is not that significant. Smaller projects are however more difficult to work with according to a few of the project managers since the project managers has to do most of the work themselves and small projects are often pushed aside by bigger projects. Internal customers believe that it takes too long time to get through with an IT change. The effect of this is that own solutions are created locally in the business instead of taking it through the IT division.

### **5.2 Project success**

The theory presents different ways of looking at project quality and different ways of defining project success and the examples by Goatham (2015) and Schwalbe (2011) describes how project success can be interpreted. Some examples include parts of the triple constraint model to be fulfilled in order to be successful, while others need to fulfill all factors of the model or satisfy customer needs, in order to be successful, for instance. The traditional triple constraint model is explained by Stiffler (2010) and are extended with more aspects on project quality, for example resources, risk and customer satisfaction. The dimensions project management success and product success, described by Goatham (2015), is another reason why project success can be hard to define. The interviewees confirm the theory with different definitions by Goatham (2015) and Schwalbe (2011) by saying that project quality and success are looked at in different ways at the case company and that it can be hard to define since people have different opinions of its meaning. Some of the interviewees focus on the end product of an IT project when defining success while others focus on project quality measures such as time and cost. They also say that it tends to be discussions within the projects about this matter. The most extreme case is a project manager that

mentions that a project can be successful even though all targets and the purpose of the project are being missed due to the lessons learned from the failure. The project managers talk about how the projects are being steered by the triple constraint model, which means that the project focus can shift depending on how the project performs. As mentioned above, the majority of the project managers state that project success is when product goals are reached and that the end user is satisfied. These product goals can often be measured as soon as the project is closed, but the effect goals of the product cannot be measured until a couple of months after a project is closed and the project managers never hear back from the business whether the effect goals are reached or not. Schwalbe (2011) states that few IT projects are completely successful and that it is common that IT projects go over budget or time. 53 percent of the IT projects are stated to cost 190 percent more than initially estimated. All the project at the case company have predetermined targets for time and budget set by the senior management, this means that all projects should be delivered within a +/-10 percent difference from the initial planned time and cost.

Another concept surrounding projects is project failure, which is only subjectively defined because a strict definition of project failure would not allow any deviations at all on project budget, schedule or scope, according to Bolin (2012). There is a common understanding among the interviewees of what project failure is and this is summarized with two things. Firstly, a project is seen as a failure when the product of a project makes the initial situation worse than it was before. The second thing that the interviewees see as a project failure is when the IT division delivers something that has not been ordered. These reasons for failure can, according to the project managers, relate to poor requirement specifications, lack of engagement from internal customers, lack of resources at the IT division, bad project testing and change in requirements.

### **5.3 Project management methodology**

Different authors such as Hill (2009) describes that it is important that the business is aligned with the project processes and an important or even essential tool to achieve this synergy is a project management methodology that is implemented throughout the organization. In the case company, the new methodology is only implemented on the IT division and the other divisions are using different kinds of project methodologies. This is confirmed by one of the interviewees from another division saying that they still use the old project model and they never heard anything about a new project model. Another interviewee feels like the methodology is not synchronized with the business divisions, which makes them feel like they are left out and the walls between the divisions are getting thicker. One advantage, mentioned by both Terlizzi et al. (2016) and by Kerzner (2013), is that an implementation of a PMM can create a lot of benefits for the organization, such as increased conditions for project success, faster project deliveries, greater customer satisfaction and a mechanism of control in IT governance. The reason why the case company has implemented a new PMM is to increase project performance as well as preventing the different problems mentioned

in the problem discussion, such as bad deliveries, working with different tools and the project managers feeling pressurized. All of the interviewed project managers believe that the PMM will bring benefits to the organization and it will be a support for the project managers. The progress related to the benefits has during the case study been checked at several times and is presented in Table 3. The first column presents the theoretical benefits from Kerzner (2013). The second column states the benefits the company wanted to achieve from the implementation of the PMM, as mentioned in the background chapter. The two last columns present the benefits that have been found during the interviews and presented in the empirical findings, both in the initial phase of the case study as well in the end.

*Table 3 Benefits of a PMM at different stages of the implementation.*

<b>Theoretical benefits</b>	<b>Benefits the company wants from the implementation</b>	<b>Benefits found in after the initial interviews</b>	<b>Benefits found after the final interviews</b>
<ul style="list-style-type: none"> <li>● Increase conditions for project success</li> <li>● Lower cost</li> <li>● Minimize paperwork</li> <li>● Reduce resource requirements for support</li> <li>● Eliminate duplicated efforts</li> <li>● Faster project deliveries</li> <li>● Lower project risk</li> <li>● Better decision-making process</li> <li>● Greater customer satisfaction</li> <li>● More time available for value-added efforts.</li> <li>● Capture best practices</li> </ul>	<ul style="list-style-type: none"> <li>● Better project performance</li> <li>● Transparency</li> <li>● Less documentation</li> <li>● Reduce pressure on the project managers</li> <li>● Better control</li> <li>● More accurate deliveries</li> <li>● Creation of best practices</li> <li>● Standardize project management</li> </ul>	<ul style="list-style-type: none"> <li>● More feedback during projects</li> <li>● Structure the work</li> <li>● Best practices</li> <li>● Transparency</li> <li>● Better control of project portfolio</li> <li>● Better control of project performance</li> </ul>	<ul style="list-style-type: none"> <li>● Increased conditions for project success</li> <li>● More feedback during projects</li> <li>● Structure the work</li> <li>● Best practices</li> <li>● Transparency</li> <li>● Better control of project portfolio</li> <li>● Better control of project performance</li> <li>● Support to project management</li> </ul>

A PMM is as stated by Kerzner (2013) a repetitive process for conducting project management. Charvat (2003) agrees with the statement of Kerzner and also believes that a PMM should consist of guidelines and processes, which can be tailored to fit a specific situation. If a formal methodology is implemented, Deasun (2012) believes that it should be followed consistently throughout the project life cycle and the project members should be familiar with the use of it. The new PMM in the case company consist of four project phases with five different gates for controlling in between each phase. The perception among the interviewed project managers is that the PMM should be followed in every project and that the biggest difference compared to the old project model is that everyone works according to the same methods. However, the project managers are looking at the PMM in different ways. Some of the project managers work according to fulfill the gate descriptions while others focus more on

the project phases. The project managers that work according to the project phases look on the different phases as processes that consist of different parts that should be fulfilled. It is not until these parts are fulfilled that the project managers gather the needed information for the upcoming gate presentation. The different project phases itself have just a few processes and guidelines in the current version, which make the project managers work according to their own experience when managing a project. One of the project managers mention that the people outside of the PMO have little knowledge about the PMM even though they also are working in the projects.

## **5.4 Processes**

An integration between the PMM and the project management processes is believed by Kerzner (2014) to be important in order to create a good methodology. An integration in this case means that the PMM includes project management processes of different management areas. Another thing regarding the integration is according to Kerzner (2014) that it creates a synergic effect that helps the organization to work more efficiently. Furthermore, Turner (2014) states that a process is a guidance in the right direction for the project managers, which helping the project manager to reach the project goals and decrease the uncertainty along the way. In the initial stage of the case study were the gate presentations the only thing that could be seen as a process related to the PMM at the case company. The gate presentations provide the project managers indications of what should be fulfilled in the previous phase. The project managers use their own experience from working with project management to guide them in each phase. The lack of guidelines and process descriptions is a reason why some of the project managers use the gate presentations as a work description. This is confirmed by three of the project managers that state that there is not much information or descriptions of the methodology available. At the end of the case study, the PMM had been complemented with a few process descriptions that should be followed by the project managers.

Processes itself will not lead to successful projects, Wysocki (2004) means that the people do not always use the processes as they should because of different interpretations and that people get used to their own way of conducting project related tasks. One way to understand the usage of processes is according to Kaya & Iyigun (2001) to measure the project management maturity. By doing a maturity assessment can a company get an understanding of how people interact with the processes. This becomes important when a company want to know where to improve and what processes they should focus on, which is acknowledged by Kaya & Iyigun (2001). At the early phase of the case study were the project managers in most cases working according to their own experience when managing projects in the case company. However do they have standardized ways of reporting progress in the projects and some standardized templates are being used. The gate presentations are, as mentioned earlier, used as processes but the gate presentations describe the output of each phase and not how the project manager should get to the output, which leave space for different interpretations.

## **5.5 Project management office**

A PMO should according to Hobbs & Aubry (2010) contribute to the organization's strategic goals by supporting and managing projects in the organization. In the case company are the PMO responsible for prioritize and classify projects that are ordered from the business. A PMO is usually also responsible for providing a project methodology, processes, tools and templates. Some PMOs are involved in all project phases while others specialize in some of the phases. Furthermore, a task for the PMO is to monitor and control project performance and report project status to top management (Hobbs & Aubry, 2010). The PMO at the case company consist of a PMO leader, five project managers, a change manager and a release manager and is embedded in the IT division. The PMO's purpose is to manage all IT projects and the resources in the IT division. The PMO is also responsible for the new project management methodology and the new tools and processes that should be used during the projects. The vision for the PMO is that all projects should have high quality levels, all projects should be delivered on time and budget, full transparency in all project phases, decision making should be clear for all stakeholders in the projects, a clear pre project process and a set of modern tools to support projects and eliminate unnecessary administration. Hobbs & Aubry (2010) furthermore suggest that it is important that the top management has a dialogue with the PMO to set what value needs to be created, what is expected from the PMO and how success should be defined. The top management has together with the PMO leader in the case company set a target on +/- 10% of originally planned time and budget as a goal for all projects in the IT division.

Many PMOs fail in their mission according to Cooch (2012) and he presents different factors to succeed. The PMO need to be well embedded in the organization, it is of importance that everyone in the organization knows the purpose of the PMO and also to recognize the expertise within the PMO. The PMO has been well embedded in the IT division and the employees of the IT division recognize the PMO as a good step for better projects.

## **5.6 Barriers of the new PMM**

The first barrier that was discovered is tight project deadlines, which is also recognized by Terlizzi et al (2016). This is seen as a barrier, because as it is now, the case company is as mentioned earlier often delivering projects late. The late deliveries are caused by other factors than just the tight project deadlines as mentioned in the interviews. One of these is the lack of resources on the IT division, which cause the project managers to move between projects depending on the fact that more important projects push other projects to a standstill. Another barrier is that many projects are affecting other projects, which causes many projects on a standstill. But, looking on the factors that can be related to tight project deadlines are that the company's early estimations in the projects, when the uncertainty is as highest. Another factor that could affect the estimations is if the project managers do not consider the time necessary to spend on the processes of the methodology in their estimates. The gate

presentations are one example of processes that can take a lot of time to conduct in the project and should also be part of the initial estimations. This will automatically lead to tight estimations from the beginning of the project, and if estimates are tight, the project managers can get pressured to deliver. The pressure could for some people be positive, due to the fact that some people perform better under pressure. A negative effect is that project managers can, with the pressure first of all perform worse and secondly, not be able to focus on following the PMM as it should be used and this could possibly mean that benefits with a PMM could be missed.

The next barrier is also stated in the theory and relates to the fact that a project manager can have several roles in a project and are running several projects at the same time. This could be a barrier for the usage of the PMM, because the project manager could be overloaded by work and this can lead to the fact that the project manager skips parts of the documentation and thereby not use the processes as they should. Observations have been made on the case company where this problem has occurred and it is especially occurring in the smaller projects when the project manager does not have a dedicated project group.

Even though the knowledge and experience regarding project management and methodologies among the project managers can be seen as a strength, there is still a risk that their different perceptions on the new PMM could be a barrier for the case company. This barrier could lead to project managers working in different ways and that the benefits of the PMM could not be realized.

Lack of adherence to the PMM is mentioned by Terlizzi et al (2016) as a barrier, but this barrier is not represented in the case company at the moment. The project managers believe in the change and the new PMM and that it will bring benefits to the company. There is however a risk that the adherence of the PMM will be lowered if the people within the IT division start to doubt the implementation. This has to be controlled by the PMO and the project managers. The result of this would be that the PMM is not properly used, the project managers start working in the way that they think is the right way and the effect, which the company wants to achieve with the implementation, can be lost. One thing that controls the adherence is the gate presentation, which forces project managers use the PMM. One way to avoid this barrier could be that the company controls the adherence among the employees and this can be done by continuously investigating the maturity as earlier mentioned. The PMM also needs to be maintained and updated to ensure that the people draw benefits from using it.

To reach all positive benefits from using a PMM it needs to be further developed. A methodology should as the theory states consist of processes, which are needed to standardize the ways people work within the company. If the people work with the same procedures, those procedures can be improved. However, if processes are

missing and there is no groundwork for working in a standardized way, the benefits of implementing a PMM can be missed. This is a barrier in the company at the current moment since all processes are not in place and the project managers are working in different ways. The company needs to be aware of this situation and recognize the need for processes. To use a fully developed methodology is a condition that is needed in order to derive if the methodology increases the project performance.

The theory states that an organization should implement and use the same methodology for all the projects. But, this could be questioned because of the very diverse types of IT projects that are conducted at the case company. The case company has chosen three versions of the PMM depending on the size of the project. This is seen as a sound thought because of the big difference in the projects. However, in its current state, the PMM is including the same amount of documentation independent of the project size. When a small project is managed according to the new methodology, the methodology could instead of make the project run more smoothly or efficiently, work in the opposite way because of all the documentation that is needed out from small projects. There is a risk that the time spent on administrative work in these projects is more time consuming compared to the size of the project. The result of this is that project can be delivered too late due to the amount of documents or that not all documentation is filled out in order to deliver the project on time. People in the organization say that there is a risk of losing development potential and that people in the different business units do not report small improvements due to the time it takes to get them through. On the other hand, if the documentation is handled in the same way on all the IT projects, the company could benefit from good control over the process and from achieving the synergy effect, which in the end will mean improvements on project management.

Another finding in the theory is that a PMM should be implemented throughout the organization. The different divisions in the organization have implemented different methodologies for conducting project management. This can be seen as a barrier when the different divisions are cooperating in IT projects. The organization risk raising walls between the division because of this fact and can lose benefits from cooperation. These could for instance be that experience and knowledge could be harder to share. It could also mean that it gets harder to cooperate in projects, when people work differently with project management.

## 6 Discussion

*This chapter critically examines the information presented in the analysis and gives the reader an understanding of the different aspects related to the purpose of the thesis. This chapter discusses the different sub-questions and is the base for answering the main research question.*

### 6.1 Sub-research question 1

- How can project success be defined?

It is clear that project success is hard to define. Both theoretically and in the case company since there are various different ways to look at both quality and project success. Goatham (2015) and Schwalbe (2011) describe different definitions of project success, such as when all or just some of the factors in the triple constraint model are fulfilled, when value is created in the organization and when the customer or end user is satisfied, for instance. One of the reasons can be due to the diversity of IT projects. No project looks the same and it can therefore be hard to determine a common view of what success should be in all projects. Some of the interviewed project managers define project success when reaching time and budget goals, while other project managers and the internal customers define success by satisfying the end user. Therefore, it is not completely wrong that people within the case company have different opinions of what success is, because the different departments of the company have their own agendas.

Another reason to why the concept around project success can be confusing in the case company is that the project focus can be steered by the senior management with the triple constraint model. Even though the purpose of the project is to create a certain effect in the business, the project can be steered to focus on other parameters such as time and cost. By doing this the effects that was specified in the beginning could change, which in the end can be seen as a change to the initial definition of success. This sometimes causes discussions between the internal customers, senior management and project managers about project quality and what project success is. The fact that different departments have different agendas cannot be overseen. However, it can be important that the persons involved discuss and get to an agreement of what project quality and success means, in each of the IT projects. If the different departments disagree about this term in the beginning of a project, there can be major consequences to the results in the end as it is interpreted differently.

There is a demand on the IT projects set by the senior management to deliver within  $\pm 10$  percent of the planned cost and time. Since the company has had problems with delivering projects on time and budget, it is a good initiative to set demands on the projects, since the projects can be monitored and controlled during the project phases. At the same time, 53 percent of IT projects around the world cost 190 percent more

than initially estimated, and the case company estimate time and cost in the initial phase of the projects when the uncertainty is at its highest. There could for this reason be a risk that the focus in the project become to control the time and cost estimations in order to deliver the project within the demands set by senior management of the IT division. This means that the business effects wanted by the internal customer or the end user and the reason why the project is conducted may be overshadowed when time and cost will be seen as the factors for success due to the demand by the senior management.

Since the IT division is a support function to the core business in the company, it is important that IT projects are delivered to enhance the performance and add value in the business in order to stay competitive. The internal customers could therefore be seen as a key player together with the project managers and the senior management of the IT division when defining project quality and project success. It can also be of importance to differentiate between project success and product success. As Goatham (2015) describes in the theory are project management success meeting demands on quality, scope time and budget, while product success focus on the value created after the project is closed and if the project achieved the desired outcomes. It is also important to measure whether the project and product goals are reached in order to judge if the project was successful or not. The case company has project goals and products goals in their IT projects and the project goals are easier to measure than the product goals. From the interviews are a common picture supported that product goals are seldom measured. If this is not done it is hard to determine how many projects that are successful, seen from a customer and end user perspective, and the reasons of why they are not. The internal customers interviewed say that an effect of a product delivered from a project cannot be measured until at least six months from the delivery. One of the internal customers says that it is their responsibility to measure the effects and that feedback could then be given back to the project managers but that is seldom done. It can be discussed whether feedback from the effects and success of a delivered product will be relevant for a project manager if this is provided after at least six months after the project has been closed. It can be seen as useful if it is used as lessons learned and to check with the project documentation to see what was performed well or bad. The project manager will however be working in other projects and the time for this follow up may not exist.

Another concept that is hard to strictly define is project failure. There are many different reasons to why a project can fail, described by Bolin (2012), and there are many different ways of looking at failure. The extreme case in the company was when a project manager believed that even though a project missed all goals, it was still perceived as an important project due to the lessons learned from it. Since project success should be defined in each project, a project should be seen as failed when not delivered according to the definition. However, project failure can be seen as something that develops the organization if the case company takes the opportunity to learn from the mistakes.

In conclusion, to be able to judge whether the PMM have increased the project success in the case company, the definition of project success had to be further examined. Different departments in the organization look on project success very differently and the reason for this is because they have different agendas. The important thing for the case company is to come to an agreement in the beginning of each project of how project success is defined. If there is a clear definition in the beginning of a project, all involved parties know how the project should be steered according to the most important quality factors, which earlier have been a source for big discussions during projects. It is also important to separate between product and project goals, as the company are currently doing. Additionally, it is necessary to agree when these goals should be measured and who should be responsible for this. Project success is measurable when the project closes and the effects of the project should be considered in another forum, product success, which focuses on the value created after the project is closed and if the product achieved the desired outcomes. The product effect is therefore not included in project success.

## **6.2 Sub-research question 2**

The next sub-question that has to be answered is:

- How does standardized processes effect the usage of a PMM?

The case company's main purpose with implementing the PMM is to enhance project performance. The main goal in a theoretical perspective with an IT PMM implementation is to create a synergy of how the company works with project management. This implementation is a good step towards improving project management in the IT division since processes and guidelines will help the project managers in their work and standardize the way of working with projects. The implementation of the PMM will also enable and simplify the way projects are controlled. However, since the implementation is limited to the IT division, the synergic effect will stay there and not be spread over the entire organization when the different divisions are not aligning how they work with projects. Other divisions at the company are using different PMMs. This can be seen as unfortunate since the company could possibly miss benefits from not sharing the PMM and there is also a risk that walls are created between the divisions as some of the internal customers states. If cooperation gets better between the divisions and if the project performance enhance, own solutions in the business may decrease and the solutions could go through the IT division instead, which would benefit the organization.

One reason that a PMM is creating a synergy is because it consists of repetitive processes together with guidelines and templates, which provides the project managers with descriptions about how they should work during a project. This standardizes the way projects are conducted and should be followed consistently by the project managers. Even though the new PMM has been implemented it is still a

gap between how the project managers are working with project management. This was also a problem with the old project model, which was not followed by all project managers and this could be a concern regarding the usage of the new PMM. The reason why this is seen as a concern is that if all project managers are not working in the same way, the synergy effect will not occur and the company can miss a lot of improvement potential, which is linked to the project performance. Why the project managers work in different ways can be explained by their different interpretations of the PMM. It is not necessarily so that not working entirely in the same way is a disadvantage. The project managers want some flexibility in how they work and do not want to be too steered in every aspect of their work.

A reason for why there are different interpretations of the PMM can be that the PMM is not fully developed in its current state and that it misses some parts that are mentioned as important in the theory. For example, integration between the PMM and the project management processes is important to create a good methodology. In the current state are there few processes in the methodology and the project managers have to rely on their own experience when moving through the different phases of a project. This is a concern when a new project manager starts working with projects in the IT division and do not get any indications on how projects should be executed in the standardized way that the company wants. The opportunity of enhancing the project performance by working in the same way can then be missed. Some of the project managers say that there is a lack of process descriptions in the methodology and would in some cases need something to guide them forward in a project. However, if processes are in place and the people in the projects do not know how to use or follow them consistently, they may not work as they are supposed to. This shows the importance of the earlier stated balance between processes, people and technology. The project managers within the IT division need to know how the processes in the PMM should be used. As a step in the change process at the IT division are the project managers educated and certified according to PMP by Project Management Institute. This step is good in order to let the project managers be familiar with the processes in each of the project phases in the PMM. A good way of controlling the balance between processes, people and technology is by conducting a project management maturity assessment. This will help the company to get an understanding about how the people work with the PMM and if there is any adherence to the PMM within the IT division. The case company have as said earlier implemented a methodology that are not fully developed and an assessment like this can help the company fill out gaps that are missing.

To conclude the role of the standardized processes is that they can be both beneficial and negative for the company. If standardized processes are created and followed consistently, they will have a major role in the usage of a PMM, since the processes are the foundation for the PMM. Standardized processes create a common way of conducting project management and therefore work as a base for improving the project management at the division. This role of processes is what the case company

is striving for with their implementation of the PMM. The standardized processes work as a guide forward in the projects and is a tool, which supports the project managers during the projects. The result of having standardized processes is that they create a synergy and transparency with the methodology and in the way project management is conducted. However, can a negative aspect of standardized processes be that the project managers can have less flexibility in their work, which is something the project managers in the case company have pointed out to be worried about.

A problem can be that if the standardized processes are not being followed consistently they may not work as supposed to. Thereby could it be important to measure whether the processes are being followed consistently within the IT division. In order to do this the company could continuously conduct maturity assessments.

### **6.3 Sub-research question 3**

The next sub-question that has to be answered is:

- What effect does PMO has on project success at the case company?

The theory states factors that a PMO should be responsible for, and these factors correlate to the vision of the PMO in the IT division. One of the factors is that the PMO should contribute to the organization's strategic goals by supporting and managing the projects in the organization. The PMO in the case company have the responsibility to improve the project management in the IT division. The reason for the implementation of a PMO in the case company is to improve the project performance and it is an initiative that is supported by the theory, especially when implementing a new PMM. The company wants the PMO to control the implementation of the PMM together with the development of it. But, there are different factors that need to be considered in order to reach the effects that the company is looking for.

First, the project managers in the PMO have different perceptions of the new PMM and one of the PMO's tasks is to spread and educate the project members in the new PMM. There is a risk that different perceptions about the PMM are spread in the organization if a common understanding is not established. If the PMM is not used equivalent in the IT division it can become hard to derive whether an establishment of a PMM will make any difference on the project performance. This has been seen before in the company where the old model was not used in the same way by the project managers. This should for this reason be seen as an important factor to further consider for the case company.

Another thing related to the PMO work is that it does not seem as there is a defined strategy of how to update and maintain the methodology. Occasions has however been observed where the project managers have gathered to develop templates and

discussed how to conduct a certain project management activity. A pitfall could be that the structure of the PMM and its processes is set once at the implementation and never updated and improved. The project managers in the PMO seem to have a high workload from their projects and there is a risk that no one will have time for maintaining the PMM. The PMM is not yet fully developed and someone needs to be responsible for that this will occur. Considering this could be an important part for the PMO, because if this is not accomplished the purpose and benefits of having a PMM can be lost.

In conclusion, the PMO are responsible for how project management is conducted at the IT division and this means that they are responsible for the PMM. In excess of implementing the methodology the PMO are also responsible for managing it by creating, maintaining, developing and spreading the PMM throughout the IT division. Thereby is it relevant that the PMO have a common perception of the PMM before it is spread to the organization. It is necessary to create a strategy for how the management of the PMM should be done and that time is set aside to maintain and update the processes, templates and best practices within the PMM. With this said, it can be interpreted that the PMO have a major role in the results of the usage of the PMM and how it will affect the project success. Because, the PMO is creating the foundation of how project management should be conducted at the case company.

#### **6.4 Sub-research question 4**

The last sub-question for the thesis is presented below:

- Which are the barriers for using the new PMM at the case company?

Even though some benefits have appeared, it is clear that in order to enhance the possibility of a PMM that will affect the project performance positive, the company has to be aware of and avoid the barriers that can hinder these benefits from occurring.

The different barriers that earlier were identified in the analysis chapter are summarized in table 4. The discussion from the analysis chapter is summarized in the different columns in the table. The first column is presenting the barrier, the second is about what could cause the barrier and the last column present what effect the barrier could have on the IT division. An expression that is commonly used in the table is that the different barriers could lead to missed benefits with the PMM. This is pointing on the different benefits that is presented in the analysis chapter of the thesis, both the theoretical benefits, the wanted benefits as well as the benefits that is already discovered in the IT division of the case company.

Table 4 Barriers that could hinder a successful usage of the PMM in the case company.

Type of barrier	The barrier could be caused by	What the barrier could lead to
Tight project deadlines	<ul style="list-style-type: none"> <li>- Early estimations</li> <li>- Not including PMM work in the estimations</li> </ul>	<ul style="list-style-type: none"> <li>- Increased pressure on project managers</li> <li>- Missed benefits with the PMM</li> </ul>
Running several projects at the same time	<ul style="list-style-type: none"> <li>- Lack of resources</li> <li>- Many roles in a project</li> </ul>	<ul style="list-style-type: none"> <li>- Not strictly following the PMM</li> <li>- Increased pressure on project managers</li> <li>- Missed benefits with the PMM</li> </ul>
Different perceptions of the PMM	<ul style="list-style-type: none"> <li>- Using different templates</li> <li>- Lack of education and information about the PMM</li> <li>- Not fully developed PMM</li> </ul>	<ul style="list-style-type: none"> <li>- Missed benefits with the PMM</li> <li>- Different ways of working</li> </ul>
Lack of adherence to the PMM	<ul style="list-style-type: none"> <li>- People in the projects do not follow the PMM</li> <li>- The project manager do not see benefits with the implementation</li> </ul>	<ul style="list-style-type: none"> <li>- Missed benefits with the PMM</li> <li>- Fall back into the old patterns</li> </ul>
Stop developing the PMM	<ul style="list-style-type: none"> <li>- No one is in charge for the development of the PMM</li> <li>- No time is spent on the development of the PMM</li> </ul>	<ul style="list-style-type: none"> <li>- Fall back into old patterns</li> <li>- Not reaching the full potential of the PMM</li> <li>- Missed benefits with the PMM</li> </ul>
Static methodology	<ul style="list-style-type: none"> <li>- Same documentation level for both small and big projects</li> </ul>	<ul style="list-style-type: none"> <li>- Much time spent on administration</li> <li>- Losing development potential in the business</li> <li>- Gaining development potential for project management</li> <li>- Late deliveries for small projects</li> </ul>
The implementation is limited to the IT division	<ul style="list-style-type: none"> <li>- Different PMMs on different divisions</li> </ul>	<ul style="list-style-type: none"> <li>- Walls between the divisions</li> <li>- Harder to cooperate</li> <li>- Missed benefits with the PMM</li> </ul>

To conclude this question, the barriers that are presented can hinder the implementation and usage of the new PMM in the case company. By hinder meaning that the company might miss the possible benefits of using a PMM and increase the possibility of negative effects on the organization. These barriers have to be avoided in order to increase the chances of delivering successful projects as well as increasing the project performance at the IT division.

## 7 Main research question

*This chapter is consisting of a discussion about the different aspects of how a PMM can enhance project success. The discussion will lead to an answer of the main research question.*

- How can a PMM enhance project success in an IT division?

After considering the different aspects of the sub-questions is it possible to easier examine the main research question. One has to remember what Charvat (2003) stated about a PMM, that it is not a quick fix to project success, much more is needed to make sure that it gives the required benefits. What is needed to make sure that it does? First and foremost, it is necessary that project success is defined for each project and measured after it, to be able to judge if a PMM can enhance project success. If it is not, there will be no evidence towards an enhancement of project success that could be pointed towards a PMM at an IT division. The case company do not measure project success at the moment, these problems then becomes clear, which makes it hard to say if the new PMM have enhanced project success or not. Instead, the focus has been on understanding the different benefits a PMM can bring and then discuss whether these benefits will enhance the possibility of project success at the case company.

The different benefits that can be achieved when implementing a new PMM is believed by Terlizzi et al. (2016) and Kerzner (2013) to be many and have been summarized in the table below. After conducting the case study at the company, many of these benefits that is linked to the theory by Kerzner (2013) and Terlizzi et al. (2016) have been found and confirmed by the interviewees during different stages of the implementation phase.

<b>Theoretical benefits</b>	<b>Benefits the company wants from the implementation</b>	<b>Benefits found in after the initial interviews</b>	<b>Benefits found after the final interviews</b>
<ul style="list-style-type: none"> <li>• Increase conditions for project success</li> <li>• Lower cost</li> <li>• Minimize paperwork</li> <li>• Reduce resource requirements for support</li> <li>• Eliminate duplicated efforts</li> <li>• Faster project deliveries</li> <li>• Lower project risk</li> <li>• Better decision-making process</li> <li>• Greater customer satisfaction</li> <li>• More time available for value-added efforts.</li> <li>• Capture best practices</li> </ul>	<ul style="list-style-type: none"> <li>• Better project performance</li> <li>• Transparency</li> <li>• Less documentation</li> <li>• Reduce pressure on the project managers</li> <li>• Better control</li> <li>• More accurate deliveries</li> <li>• Creation of best practices</li> <li>• Standardize project management</li> </ul>	<ul style="list-style-type: none"> <li>• More feedback during projects</li> <li>• Structure the work</li> <li>• Best practices</li> <li>• Transparency</li> <li>• Better control of project portfolio</li> <li>• Better control of project performance</li> </ul>	<ul style="list-style-type: none"> <li>• Increased conditions for project success</li> <li>• More feedback during projects</li> <li>• Structure the work</li> <li>• Best practices</li> <li>• Transparency</li> <li>• Better control of project portfolio</li> <li>• Better control of project performance</li> <li>• Support to project management</li> </ul>

Many of the theoretical benefits correlate to the benefits that were expected by the case company from the implementation of the PMM. During the implementation of the PMM, more and more of these benefits have been noticed in the case company. Two examples of benefits that have been noticed are better control of project performance and the capture of best practices. Many of the project managers stated early during the implementation that the new PMM has led to better control on project performance, because of the gates that the managers have to get approved in. The company clearly had this as a goal with the implementation and it can also be seen as a benefit that can increase the condition for project success, which is stated by the theory as a benefit. The second example that has been noticed is that the PMO have started to create standardized best practices for different processes in the PMM. This is seen as another theoretical benefit that the case company has achieved by the implementation of the PMM. The fact that a few benefit already been noticed in the case company can be seen as a good progress, since an implementation should not be seen as a quick fix and it is requiring patience and time to become successful. It is clear that the benefits are positive factors regarding the improvement of project performance in the IT division. The improvement of project performance is linked to the implementation of the new PMM at the case company and this means that the new PMM have had positive effects on how project management is conducted. All improvements that are made can be seen as factors that will affect the possibility to enhance project success at the case company.

The conclusion from this is summarized in the figure below. This figure consists of the different factors that are affecting the end results of the implementation. To reach the needed results and an enhancement of project success, the company needs to achieve a synergy between these factors starting with the PMO, which manage all projects and are responsible for the implementation, spreading and development of the new PMM at the case company. The barriers that were identified in an earlier chapter during the study are threatening this synergy and the company needs to acknowledge their existence and put in resources in avoiding them. If these barriers can be avoided, the case company will have a good possibility to achieve more of the benefits and with this increase the chance of enhancing project success.

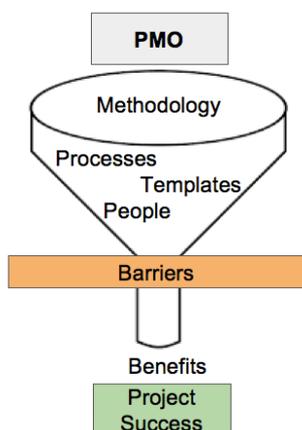


Figure 12 Factors that contribute to project success

## **8 Conclusion**

*In this chapter are a conclusion made out of the answers of the research questions. The chapter also summarize the different findings and also how they correlate to the purpose of the thesis.*

The purpose of the thesis has been to investigate how a PMM can enhance project success in an IT division. In order to do so the concept around project quality and project success and how it is interpreted at the case company had to be studied, as well as investigating the importance of standardized processes when using a PMM. How PMO affect the implementation and usage of a PMM has also been examined. A theoretical and empirical investigation of what positive effects a PMM can have on an organization has been conducted together with the identification of barriers that may hinder the implementation and usage of a PMM and its possible benefits. How project success is defined in the case company differs between different people and departments in the case company since they have different agendas. This correlates to theory which presents many different definitions of project success. The important thing for the case company is to come to an agreement in the beginning of each project of how project success is defined. It is also of importance to separate between product and project goals and that the goals are measurable. Standardized processes are the foundation for the PMM and have a major role in the usage of the it and to achieve the desired benefits of the PMM. The result of having standardized processes is that they create a synergy and transparency with the methodology and in the way project management is conducted. Maturity assessments can be conducted in order to know how the processes are being used and how they can be improved in order to achieve the desired benefits. It has been discovered that the PMO can affect the usage of the PMM and project success to a big extent. The PMO are responsible for the PMM and to manage, maintain and improve it in order to achieve its benefits which further can enhance the possibility of project success. Through the theoretical and empirical study have seven possible barriers for achieving the benefits of a PMM been identified and presented. The case company need to be aware of the barriers, and what causes them, in order to avoid them and successfully implement and use the PMM. Since the IT division is not measuring project success at the moment, indications from achieved benefits at the case company can be used to identify a correlation to the PMM. There is a possibility that a PMM can enhance project success in an IT division. In order to do so the factors elaborated on in the sub questions need to be considered and acted upon.

### **8.1 Recommendations**

The results have been concluded into recommendations for the case company and are presented as bullet points in the different areas below. If these recommendations are followed there is a higher possibility for enhancing project success and project performance at the IT division.

**Project success**

- Agree to a common definition of project success in the beginning of each IT project and how this should be measured in the end of the project
- Separate between product success (effect of the product) and project success
- Measure project success in the end of the project

**Barriers**

- Create an awareness of the possible barriers and what could cause them.

**PMM and processes**

- Recognize the importance of standardized processes
- Finalize the PMM so every aspect of the project life cycle is covered by processes
- Conduct maturity assessments in order to control the adherence to the processes and identify how the PMM can be improved

**PMO**

- Create a common understanding of the PMM
- Create a forum within the PMO for improving the PMM so it is continuously updated and maintained.

## References

- Berg, B. L. (2009). *Qualitative Research Methods for the social science*. 7th ed. Boston: Allyn & Bacon, cop.
- Björklund, M. & Paulsson, U. (2012). *Seminarieboken : att skriva, presentera och opponera*. 2. uppl. Lund: Studentlitteratur.
- Bryman, A., Bell, E., (2003). *Business research methods*, Oxford University Press, Oxford; New York.
- Bryman, A. (2013). *Social research methods* (4th edition). Oxford: Oxford University Press inc. New York.
- Burch, S. (2010) Critical Thinking in Information Technology Project Management. *The Journal of Applied Information Technology Management*, vol. 1, iss. 7
- Charvat, J. (2003) *Project management methodologies: Selecting, implementing and supporting methodologies and processes for projects*.
- Chua, A (2009) Exhuming IT projects from their graves: an analysis of eight failure cases and their risk factors. *The Journal of Computer Information Systems*, vol. 49, nr. 3, pg. 31.
- Collins, R, J. (2011). *Construction Materials and Engineering: Project Management*. Hauppauge, NY, USA: Nova.
- Cooch, M. (2012) *The Project Management Office In Sync with Strategy*. Project Management Institute. <https://www.pmi.org/Business-Solutions/~/media/PDF/Business-Solutions/Value-of-PMO-White-Paper-FINAL.ashx>
- Cunningham, B. J. (1997). *Case study principles for different cases. Quality & Quantity*, vol:31. p. 401-423. University of Victoria, British Columbia, Canada. Kluwer Academic Publisher.
- Davis, K. (2014) Different stakeholder groups and their perceptions of project success. *International Journal of Project Management* Vol. 32, No. 2, pg.189–201
- Deasun O, C. (2012) *Overview of the PMBOK® Guide: Paving the Way for PMP® Certification*. Springer Heidelberg New York Dordrecht. London.
- Duggal, J. (2010) Next Level Up:How Do You Measure Project Success? Rethinking the Triple Constraint. *Project Management Institute*.

<http://www.pmi.org/Learning/next-level-up-how-do-you-measure-project-success.aspx> 2016-02-16

Flyvbjerg, B. (2006). Five misunderstandings about case-study research. *Qualitative inquiry*, 12(2), 219-245.

Goatham (2015) What is project success? *International Project Leadership Academy*  
<http://calleam.com/WTPF/?p=3501> 2016-02-10

Hastie, S. & Wojewoda, S. (2015) *Standish Group 2015 Chaos Report - Q&A with Jennifer Lynch*. <http://www.infoq.com/articles/standish-chaos-2015> 2016-03-01

Haugan, G.T. (2011). *Project management fundamentals: key concepts and methodology*. 2nd ed., Management Concepts, Vienna, Va.

Hill, G. M. (2009) *The Complete Project Management Methodology and Toolkit*.

Hobbs, B. & Aubry, M. (2010) *The Project Management Office: A Quest for Understanding*. Newtown Square, PA: Project Management Institute.

Holme, I., Solvang, B. & Nilsson, B. (1997). *Forskningsmetodik: om kvalitativa och kvantitativa metoder*. 2., uppl. Lund: Studentlitteratur.

Höst, M., Regell, B. & Runeson, P. (2006). *Att genomföra examensarbete*. Lund: Studentlitteratur.

Ireland, L. (2006) *Executive Management's Role In Project Management*. International Project Management Association. <http://www.ipma-usa.org/articles/ExecRoles.pdf> 2016-03-08

Jarocki, T.L. (2011). *Enhancing and Unifying Project and Change Management*. Princeton, San Francisco, CA.

Kaya, Y. & Iyigun, I. (2001). A case study: assessment of R&D project management maturity and improvement in project management process. IEEE, pp. 416.

Kerzner, H (2013) *Project Management: A systems approach to planning, scheduling, and controlling*.

Kerzner, H. (2014). *Project management best practices: achieving global excellence*. 3rd ed. John Wiley & Sons Inc, Hoboken, New Jersey.

- Merriam, S, B. (2014). *Qualitative Research : A Guide to Design and Implementation: A Guide to Design and Implementation* (3rd Edition), Wiley, Somerset, NJ, USA.
- Ozmen, E. (2013) Project Management Methodology (PMM): How can PMM serve organisations today? *International Institute for Learning Inc.*
- Palmer, I., Dunford, R., Akin, G. (2006) *Managing Organizational Change: A Multiple Perspectives Approach*. New York: McGraw-Hill/Irwin
- Parker, D., Charlton, J., Ribeiro, A., Pathak, R, D. (2013). Integration of project-based management and change management : Intervention methodology. *International Journal of Productivity and Performance Management*, Vol. 62 Iss: 5, pp.534 - 544
- Patel, R. & Davidson, B. (2011). *Forskningsmetodikens grunder: att planera, genomföra och rapportera en undersökning*. Lund: Studentlitteratur.
- Prabhakar, G. P. (2008) What is project success: A literature review. *International Journal of Business and Management*, 3 (9). pp. 3-10.
- Rozenes & Vitner (2009) The training methodology of project management office (PMO) personnel. *Industrial and Commercial Training*. Vol. 41, No.1, pp. 36-42.
- Schwalbe, K. (2011) *Information Technology Project Management. Sixth edition*. Boston: Course Technology Cengage Learning
- Smyrk, J. (2007). What does the term "IT project" actually mean?: a challenge to the IT profession. *PHILICA.COM Observation number 36*.  
[http://philica.com/display\\_observation.php?observation\\_id=36](http://philica.com/display_observation.php?observation_id=36) 2016-02-10
- Stiffler, D. (2010) *The Triple Constraint Model – Is It Time To Upgrade? Expert Reference Series of White Papers*. Global Knowledge.  
[http://www.pmisac.com/index.php?option=com\\_docman&task=doc\\_download&gid=47&Itemid=163](http://www.pmisac.com/index.php?option=com_docman&task=doc_download&gid=47&Itemid=163) 2016-02-16
- Terlizzi, M.A., de Souza Meirelles, F. & de Moraes, H.R.O.C. (2016) Barriers to the use of an IT Project Management Methodology in a large financial institution. *International Journal of Project Management*, vol. 34, no. 3, pp. 467-479.
- The Standish Group International (2014) *Big Bang Boom*.  
[https://www.standishgroup.com/sample\\_research\\_files/BigBangBoom.pdf](https://www.standishgroup.com/sample_research_files/BigBangBoom.pdf) 2016-03-01

Turner, J.R. (2009). *Handbook of Project-Based Management*, 3rd ed., McGraw-Hill, New York, NY. 29.

Turner, J.R. (2014). *Gower Handbook of Project Management*. Gower Publishing Publishing House, Burlington.

Wysocki, R.K. (2004). *Project management process improvement*. Artech House, Boston.

# Appendix A

The different interview questionnaires that were used during the thesis is presented in appendix A. The questionnaires were used as a base for the different interviews and questions within the questionnaire could be formulated differently, questions could be left out and other questions could be added based on how the interview proceeded. The interviews were held in Swedish and the questions are presented in both Swedish and English in the appendix.

## Interview questionnaire 1

- 1. What is your name and age?**  
Vad heter du och hur gammal är du?
- 2. What is your work background and education?**  
Vad har du för arbetslivserfarenhet och vad har du för utbildning?
- 3. What is your title and role at the IT division?**  
Vad är din titel samt roll på Schenker IT?
- 4. For how long have you been working at the company?**  
Hur länge har du arbetat på företaget?
- 5. What have you been working with earlier at the company?**  
Vad har du tidigare jobbat med på företaget?
- 6. For how long have you been working with project management?**  
Hur länge har du jobbat inom projektledning?
- 7. What earlier experiences do you have within project management?**  
Vad har du för tidigare erfarenheter inom projektledning?
- 8. What standardized methodologies have you been working with earlier?**  
Vilka standarder har du arbetat med tidigare?
- 9. Have you worked with the old project model at the company and how did you use it?**  
Arbetade du med den gamla projektmodellen och hur använde du den?
- 10. Was there a demand on using the old project model?**  
Fanns det krav på användning av den gamla projektmodellen?
- 11. Was there anything that was not working properly when using the old project model, and if so, what?**  
Var det något som fungerade dåligt i det sättet att arbeta och i så fall vad?
- 12. We have got the understanding that many projects are being delayed. What do you believe is the reason for this?**  
Vi har förstått att många projekt blir försenade. Vad anser du är anledningen till det?
- 13. What projects are you managing right now?**  
Vad sitter du med för projekt just nu?
- 14. How do you manage projects now compared to with the old project model?**  
Hur jobbar du med projekt nu jämfört med den tidigare modellen?
- 15. How does it feel to change the way of working with projects by implementing a new project methodology? What advantages and disadvantages can you see?**  
Hur känns det att förändra arbetssättet med implementering av den nya standarden? Vilka fördelar/nackdelar ser du?
- 16. What tools do you use in your role as a project manager? Templates, Excel, Word, etc.**  
Vilka verktyg använder du i ditt arbete som projektledare? Mallar, Excel, Word, etc.

17. **What do you miss in the new project methodology and your way of working?**  
Vad saknar du i den nya standarden och ditt sätt att arbeta?
18. **What is hard in conducting your work now? What is needed to avoid this?**  
Vad är svårt i ditt arbete just nu? Vad krävs för att avhjälpa detta?

## Interview questionnaire 2

### *IT projects*

1. **How would you define the type of projects that you are running?**  
Skulle du kunna definiera era IT-projekt? (typen av projekt ni leder)
2. **What are the difference in running a big or a small project with the current project model?**  
Vad är skillnaden på att leda ett stort eller litet IT-projekt med den nuvarande modellen??
3. **How many projects is new development projects and how many is update and maintenance projects?**  
Hur mycket är ny-utveckling och hur mycket är uppdateringar av nuvarande system?
4. **What are the difference in the different type of IT projects that you are running?**  
Vad är skillnaden på dessa typer av projekt? (Om man pratar om projektutförande)
5. **Are the projects that are similar type different or are they similar?**  
(Liknar många utav projekten varandra?(de som är av samma typ))
6. **Do you work similar in every project you are project manager for?**  
Jobbar du likadant i de projekt du leder?

### *Project success*

7. **What is a successful project for you and why?**  
Vad är ett lyckat projekt för dig? Varför?
8. **What is a failed project for you and why?**  
Vad är ett misslyckat projekt för dig? Varför?
9. **What are the most common reasons for project failure?**  
Vad är vanligaste orsakerna till att projekten är misslyckade?
10. **What goals do you think are the most important to achieve in the project? (cost, time, scope etc?)**  
Vad anser du är de viktigaste målen att uppnå med projekten? (Cost, time , scope)
11. **How are the project goals communicated during the project and to whom?**  
Hur kommuniceras projektmålen till alla involverade i projektet?
12. **Who are involved in the creation of these goals and how are they measured during and after the project?**  
Vem är med och skapar målen för projektet samt hur man mäter dessa under projektets gång?
13. **What goals tends to be missed in the projects that you run?**  
Vad brukar vara utanför målen när projektet avslutas?
14. **How are the project measured in the relation to the goals during the project and what parameters are controlled?**  
Hur mäter man projekten under tiden i förhållande till målen? Vilka parametrar kollar man på?
15. **How is the goals followed up on?**

Hur följer man upp detta?

**16. How important is it that the internal customer (project sponsor) is satisfied and how is this measured?**

Hur viktigt är det att kunden är nöjd? (Beställaren kan va nöjd trots att det levereras sent) Mäter man detta? Hur?

**17. Have you come across projects that have delivered within each goal but without the satisfaction from the internal customer (project sponsor)?**

Finns det projekt som levererats enligt alla mål men utan att kunden varit nöjd?

**18. What is the reason behind projects that are closed down?**

Vad bidrar till att projekt som läggs ner? Varför?

*Project management methodologies*

**19. Please describe the new project methodology?**

Beskriv den nya projekt modellen (Metodologin) ?

**20. What is included in each of the project phases?**

Vad innefattar den under varje fas?

**21. Are the new project methodology clear in your mindset and what do you think is missing in the methodology?**

Är den nuvarande projektmodellen (metodologin) tydlig?

**22. Is there any control that the methodology is followed by all the project managers?**

Finns det någon kontroll på att man jobbar efter metodologin?

**23. What is your interpretation on how the methodology should be followed?**

Hur har du tolkat att metodologin ska efterföljas?

**24. Do you think that there is information available so that you could follow it properly? Please describe this information**

Tycker du att det finns information tillgänglig för att kunna följa metodologin? Vad? (eller finns förklaringar till metodologin?)

**25. Do you think that the new project management softwares is supporting the methodology and how?**

Tycker du att de nuvarande mjukvarorna (Jira/confluence) stödjer arbetet med metodologin? Hur?

*Processes*

**26. What is leading you forward in projects?**

Vad leder dig framåt i projekten?

**27. Is there any definitions of what you are supposed to do and when you should do it, so that you have all information necessary in order to proceed in the projects?**

Finns det något som definierar vad du ska göra och när du ska göra det samt att du får med dig allt?

**28. What are your thoughts on the importance of something that guides you forward in a project and how detailed should that information be?**

Vad är betydelsen av att ha underlag som hjälper en att komma framåt i projektet? (detalj nivå av underlaget)

**29. Do you often have to go back and re-do things in your current way of working? And if this happens, why do you think this occur?**

Blir det mycket omarbete i ditt nuvarande arbetssätt? (alltså att man får gå tillbaka och göra samma steg flera gånger?) Varför?

**30. In what phase during the project do you think that it is most critical to have something that guides you forward?**

Under vilken del av projektet är det viktigt för dig att ha något som guidar dig framåt?

**Interview questionnaire 3**

- 1. How is the feeling with working in projects now? Are there any difficulties?**  
Hur känns det att jobba med projekt nu? Finns det några svårigheter?
- 2. What benefits can you see with the methodology so far?**  
Vad tycker du att metodologin har gett för fördelar än så länge?
- 3. What benefits can you see with the PMO so far?**  
Vad tycker du att PMO har gett för fördelar än så länge?
- 4. What benefits can you see so far with the entire change at the IT division?**  
Vilka fördelar kan du fram tills nu av förändringsarbetet?
- 5. How is the pressure on you as a project manager when working?**  
Hur är "trycket" på dig som projektledare?
- 6. Do you know what you should do in the projects?**  
Vet du vad du ska göra i projekten?
- 7. Do you have something that guides you ahead in the projects?**  
Har du något som leder dig framåt när du jobbar i projekt?
- 8. How is the transparency in the projects?**  
Hur är transparensten i projekten?
- 9. What do you think about the amount of documentation in the projects?**  
Hur är mängden dokumentation i projekten?