Project Overload in Project Based Organizations

- Causes, Symptoms and Effects:
A study of Project Members and their Projects

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Programme: Master’s Programme in Leadership and Management in
International Context

Research Theme: Fair Management and Sustainable Economics

Level: Graduate

Baltic Business School, University of Kalmar, Sweden
May 2007
Acknowledgements

First of all we want to thank our families for their support and encouragement during the last ten months. Without their help our studies here in Kalmar, Sweden would not have been possible.

Gudmundur extents special thanks to Fanney, and their two children Lineik Sóley and Jóhann Rókkvi. Tobias extents special thanks to his parents as well as to the rest of the family and the other relatives.

We express our gratitude to Dr. Bertil Hultén for his excellent support as our tutor for this thesis. Also we want to send special thanks to Dr. Philippe Daudi, for his continuous effort to move us forward during the whole period of the programme. Additionally thanks to all the other team members of the Master’s Programme in Leadership and Management in International Context.

Furthermore we want to say thank you to all the companies that have been willing to help us with the interviews and the questionnaire. Also special thanks we want to send to all our interviewees who took their time to contribute to our study. Without them writing this thesis would not have been possible.

Moreover we want to thank our classmates and friends from all over the world for the past ten months. It has been a magnificent experience to get to know you while working, laughing and celebrating together. It is our deepest will to stay in contact and preserve our friendship in the future.

Finally we want to thank each other for the great teamwork, discussions and companionship we had during the thesis project and hopefully will have in the forthcoming time.

Guðmundur Bjarnason and Tobias Hochdorfer
Kalmar, May 2007
Abstract

This study investigates the matter of project overload which project members have to face in project based organizations. The thesis is based on 13 interviews with project team members in different project based companies and industries in the countries Sweden, Iceland and Germany. To support the interviews and to gather a broader understanding of the topic an online-questionnaire was provided to 103 project workers and managers in 6 companies in the same countries, of those 103, 47 participated. The result of the online-survey shows, that around 70 percent have ever felt overload with their project work.

The guiding research question for this study is: *Why does project overload occur, how can it be recognized and how does it influence the project work?* The research question has been chosen in order to give a broad understanding of project overload. The causes, symptoms and effects of project overload are analyzed on the basis of the interviews and the online-survey in the consulting, construction, IT and customized high-tech manufacturing industry.

The results of the study shows the most important factors why project overload occurs, how it can be recognized by the project members and how it influences important aspects of successful project management like time, budget and quality.
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1 Introduction

1.1 Metaphor

The problem of project overload itself has not been so much studied like several other problems related to project management. Therefore it is difficult to find exact definitions what project overload is about. In order to give a better understanding of the topic two metaphors for project overload will be introduced.

The idea for the first metaphor was given to the authors by the Head of their Master’s Programme, Dr. Philippe Daudi in the very beginning of the thesis project in December 2006. It explains the project overload issue with the help of a juggler. The juggler is juggling with four balls. Every single ball can be seen as a project in a project based organization, the juggler as a project worker or a project manager. The juggler has to pay attention to every ball and to coordinate his resources like eyes, arms, hands, feet and brain to keep them in the air. What happens now when somebody is throwing a fifth ball into this circulation? Is the juggler still able to hold all the balls in the air? Or will he drop some balls because he does not have a third hand or eye to manage five balls? The juggler metaphor also occurred during the empirical research for this thesis. In one of the conducted interviews with a consultant that has several projects running at the same time the situation of overload is described with the words: “You have too many balls in the air at the same time”.

The other metaphor is explaining project overload in a little different way. The “highway metaphor” is written in Tobis (2002, p. 78) and focuses on how people get overloaded. In this metaphor project workers can be seen as a highway and the vehicles driving on it as the projects. A highway is carrying out as much traffic as possible and as many vehicles as it is safe. The more vehicles a highway is carrying the cheaper the costs per vehicle mile will be. Nevertheless the highway will reach the point were there is just a little too much traffic. Vehicles start to move slower and slower as the traffic exceeds the capacity of the highway and the vehicles will stop. People in the vehicles are wasting time and will come late. The highway is delivering less traffic per hour than with a lower amount of vehicles on it.

1.2 Problem Analysis

As the title indicates, the thesis is about project overload in project based organization. Any organization or employee can be said to have the possible problem of project overload. In 2004 a
survey was done by the Program Management Group plc (PMG), a leading UK program and project management company, on leading UK companies. The result of this study shows that 84% of these companies are overloading their project managers (http://www.pm-group.com, 2007).

Being overloaded in the case of project overload means having too many projects to work on which leads for instance to low adherence to time schedules (Zika-Viktorsson, Sundström and Engwall, 2006), slipping schedules on all projects (Smith, 1998), late deliveries, disappointing quality (Tobis, 2002) or high psychological stress reactions (Zika-Viktorsson, Sundström and Engwall, 2006).

The situation of overload can lead to a vicious circle problem (Tobis, 2002). Working in a project based organization or multi project environment means dealing with several projects at the same time which includes different schedules, tasks, routines, authorities etc. The vicious circle starts when project workers or managers have to work on too many projects at the same time. It is difficult to pay the same attention to every single project and the project members have to set priorities. Therefore the schedules of some projects start to slip and it takes extra time and effort to catch up these schedules. This time will miss for continuing the other projects, what will again lead to slipping schedules. The vicious circle is running.

The following part should give a short overview about businesses that mainly work in project based organizations, where project overload is a possible problem. All of these quotations and examples show the importance of projects and project management in different industries:

**Construction**

The construction industry deals highly with issues of delivering on time and within budget. For construction companies there is often the difficulty regarding that companies are working on several locations at the same time. It costs money and time to move resources (e.g. human, tools, equipment) from one place to another. The distance between projects can vary a lot, from being the next house to the other or up to be working in different continents. Therefore there is a trend in rather to let workers work overtime instead of moving resources to locations where they are needed. The experience of one of the authors supports this matter of working overtime and resistance in moving resources. And as Raiden, Dainty and Neale (2004, p. 309) say, “The characteristics of the construction industry present an extremely challenging context for effective human resource management (HRM). The dynamic project-based nature of the industry results in extreme fluctuations in organizations’ workload and requires teams to form, develop and disband relatively quickly”.

IT
IT companies often deal with very unique projects that are designed according to customer needs. That highlights its importance following DiVincenzo (2006, p. 19) saying that, ”Project management is an increasingly important responsibility for many workers, as more organizations use teams and project-based methods to get work done. Project management is also a full-fledged career for a growing number of people”.

In the IT industry the companies have to provide the customers with products or services in a much more specific way than in other industries. This can be for instance designing and developing a software programme for specific manufacture, which can not be used or copied by other customers. The difficulties in IT companies are that many of the jobs in these organizations are highly specialised. This can lead to overload on some workers with specialist skills that have the capabilities to do specific kind of work. The issue IT companies can be facing is that some workers are overloaded when others are not.

Consulting
Like in the IT industry, the consulting industry requires high skilled workers. These talents are rare, as the demand is high in the whole industry. Having skilled employees in the company, the chance to overload these individuals with too many work or projects is significant, as expressed by Dinsmore (2005, p. 333) ”Corporate downsizing, organizational restructuring, changes in technology, and many others have required that most employees become skilled multi-taskers and almost all project-managers become multi-project managers. […] Therefore, project managers must be familiar with several aspects of managing multiple projects”.

Internal development
Workers for instance in functional organizations have to face the conflict between project work and functional work. They are situated beneath two bosses, the functional boss and the project manager. These workers can easily be overloaded when the communication between the functional boss and project boss is not in harmony. There is a possibility that the functional boss does not know how much work from the project manager’s side is expected from the employee. ”An organisation consisting of a constantly changing mix of large and small projects presents senior management with new challenges in resource planning, prioritisation and monitoring. Adherence to time, scope and cost requirements in single projects may provide a company with increased income and value for the near future. However, to complement this view, the project portfolio management introduces doing the right projects, creating a link from the projects to the organisation’s strategy and, simultaneously, adopting the long-term view“, (Elonen and Artto, 2003, p. 395).
Customized high-tech manufacturers

From the experiences of the authors it can be said that in the customized high-tech manufacturing industry most of the work is done in projects. Customers of this industry need the products for special reasons. Therefore the manufacturing companies have to pay attention to the different and individual requirements of each customer. These individual requirements can best be fulfilled by forming project teams for each customized product. The production of high-tech products requires a broad variety of skilled project members for instance IT specialists, engineers, marketing experts and normal blue-collar workers.

In the construction, IT, consulting and the high-tech manufacturing industry it is daily life that project workers and managers have to deal with several projects at the same time. In the online-survey done by the authors it shows that in these types of industries most of the project workers or managers have to deal with two till five projects at the same time. The peak of reported projects is reported from the consulting industry with 30 projects at the same time. Furthermore for those companies that are doing their internal development in projects (e.g. developing new products, establishing new stores) it is the daily life to have routine and project work at the same time.

1.3 Problem in Theory and Practice

There has been an interesting shift from more common work habits in functional organizations towards more project based work in organizations. This shift is based on the benefits of project based organizations. Some of these benefits are, the focus of the teams on the activities most aligned with their talents and passions, improved productivity, better allocation of resources, better communication throughout the organization, better use of company resources and many more can be found (http://www.successfulprojects.com, 2007).

Nevertheless this shift has not only positive aspects. Especially in that kind of project based organizations where several projects are running at the same time the hazard of project overload exists. Related to the fact that 84% of the companies in the UK are overloading their project managers it is highly important for the successful or unsuccessful accomplishment of projects that organizations are able to see ahead project overload, how to avoid project overload and realize the effects that project overload can have on the outcome of projects.

On the one hand, there is written a lot about projects and project management in the theory. On the other hand the specific problem of project overload is more practical and has not been examined
that thoroughly in theory. Therefore the major theoretical concepts of projects and their management have to be combined and to be related to the problem of project overload. Detailed project overload literature is rare but gives some interesting models that can be used.

Looking at project overload from the practical point companies have been selected that fit the description of being project based organization. These companies are in the consulting, construction, IT or highly specialized manufacturer industry. Furthermore companies doing their internal development through project are also included in the field of project based organizations. It is well known that companies in these industries are doing their work greatly through projects, so these organizations should in some way be familiar with theories and practices regarding projects, project management and so on.

1.4 The significance of the Problem

According to the readers of the “Engineering Department & Administration Report” in October 1998 the problem of project overload is quite challenging. In the introduction for an interview with the expert in project overload Smith (1998, p. 10) it says “Readers have told us, loud and clear, that their most challenging problem is in not having the available resources to complete the new projects that continually come into the engineering department”. Furthermore in an exploratory study conducted by Zika-Viktorsson et al. done in 2006, a questionnaire was administered to 392 project co-workers in 9 companies in Sweden, in manufacturing, pharmaceutical and construction industries. The results showed that almost 1/3 were under project overload at the time.

When effects of project overload are discussed the significance shows up in the customer satisfaction. Customers want to have their products delivered in time and with best quality. As a fact, project overload can lead to late deliveries and bad quality. Unsatisfied customers are the worst thing a company can have. An unsatisfied customer will never come back and will not recommend the company to other customers.

Being aware of the effects and knowing the symptoms of project overload will help companies to achieve customer’s satisfaction and to stay competitive. Even if project overload will have no effects on the outcome for the customer it can have effects on the organization itself. In order to learn from mistakes and to improve the organization’s performance projects have to be documented, analyzed and reflected after the product is delivered to the customer. Following project after project
or having other projects with higher priorities at the same time will not let the time to conclude projects in a proper way.

1.5 Research Question

The guiding research question of this study related to the problem of project overload is presented in the following:

Why does project overload occur, how can it be recognized and how does it influence the project work?

The research question has been chosen in order to give a broad understanding of project overload. The causes, symptoms and effects of project overload are analyzed on the basis of interviews and an online-survey with project members in project based organizations as consulting, construction, customized high-tech manufacturing and IT companies, and in companies undertaking their internal development through projects.

Project overload will be analyzed concerning important operational factors of project management like scheduling, customer satisfaction and their relation to the project overload issue.

1.6 Limitations of the study

The chosen theories about project management are selected as the most important ones for the subject of project overload. Literature of project overload itself is limited; therefore the researchers are dependent on the few developed concepts and theories.

The empirical research that is done for this thesis is limited on the three countries Sweden, Iceland and Germany. Associated to several restrictions (time, money) the researches have, there is no opportunity to broader the sample in terms of countries and companies. Furthermore the researchers are dependent on the participants in the questionnaire and the interviews. Project workers and managers required to be interviewed are not always available and have limitations in their time. Additionally the researchers have to rely on the participants’ willingness and honesty in giving reply to the asked questions.

1.7 Aim of the Thesis

The aim of the thesis is to give an understanding of what project overload is about. First of all the causes for project overload will be described. Furthermore the symptoms which prove an overload
situation of an individual project member will be described. And finally the effects on important factors of project management like time/cost/quality, project success, customer's satisfaction and usability of the projects outcome will be analyzed and interpreted.

1.8 Method

1.8.1 Grounded Theory

The Grounded Theory was developed by Glaser and Strauss (1967) in their book “The Discovery of Grounded Theory” and is a qualitative research method. A qualitative research is “any type of research that produces findings not arrived at by statistical procedures or other means of quantification” (Strauss and Corbin, 1999, p. 10-11). Glaser and Strauss (1967) introduced this qualitative research approach to study social phenomena from the symbolic interactionism perspective. The basic attitude of the Grounded Theory approach is that the theory must emerge from the data. This means in other words, the theory must be grounded in the data.

According to Strauss and Corbin (1999), the Grounded Theory is using a systematic set of procedures for data collection (e.g. interviews, field research) and data analysis. The data collection and the analysis of the data are interrelated processes. Due to this interrelation the theory develops during the process of research.

In this research, two ways were used for gathering data. On the one hand interviews with project workers and managers were conducted to gather qualitative data. On the other hand, for gathering some quantitative data a questionnaire was provided to several project-based organizations in Sweden, Iceland and Germany.

The findings of both researches were analyzed by using a qualitative approach. The choice for using a qualitative approach to analyze and interpret the data is related to the nature for the research problem as the topic of project overload has much to do with individuals. Every person has a different way of working, different experiences and each individual reacts different to the amount of work loaded on him or her. For those reasons it is difficult to analyze the data with quantitative techniques like mathematical and statistical equations. Furthermore the restrictions of time influenced the authors in their choice as a quantitative study usually needs a lot more time, as a high amount of information is needed, than a qualitative study.
1.8.2 The Research Process

In the upcoming part about the research process it is explained how the study was planned and conducted in terms of defining the problem, planning and gathering the data.

1.8.2.1 Defining the Problem and Research Objectives

It can be said that the broad definition of the problem is, having too many things to work on at the same time with a focus on running projects in project-based organizations. It is introduced in the juggler metaphor as having too many balls in the air at the same time. The research domain therefore is in organizations that do their work in projects as it is explained above.

The problem of project overload is faced by project workers and managers which can struggle into a vicious circle problem (Tobis, 2002), where they can lose schedules, provide low quality work and damage the outcome of project and conceivable the organization overall. Are there any relations between the amount of work loaded on individuals and the project success? Does this amount of work influence the outcome of the project in a negative way, which would lead to unsatisfied customers?

The objective in this research is to describe, analyze, and explain the causes, the symptoms and the effects of project overload in an exploratory research. The gathered information will help to show how the issue of project overload occurs in practice and how it influences single projects and their management. By using the collected data, the problems can be defined and methods for the causes, symptoms and effects can be developed.

For the research overall information regarding projects, project management, project-based organizations, and finally project overload itself is needed. Furthermore information about workload and overwork in general is necessary for the study. The gathering of secondary data has mostly been in the field of projects, project management and other literature related to projects, like success factors in project management. The literature in the matter of project overload is not that deeply developed so far. Therefore there is a need to have solid primary data on the topic of project overload. Four factors of information are mostly needed; they are general background information about project members, causes, symptoms and effects of project overload. To give an example of needed information: numbers of projects working on, working hours, overtime hours, has there been any late delivery on projects, has there been any complaint about quality of the projects, and so on. This information will be compared with general background information in form of experience
of work, gender, experience in working in project work etc. For deeper information, the guideline for the interviews can be seen in Appendix I and the questionnaire can be seen in the Appendix II.

1.8.2.2 Planning Primary Data Collection

In designing a plan for primary data collection, in the form of interviews and questionnaire, the authors have decided to use qualitative and quantitative data collection methods. Several reasons support the choice of using this combination of research. Using the qualitative data collection method, in-depth information concerning the problem can be gathered and more detailed questions regarding the subject can be asked. As there is not so much detailed information in the literature about project overload the collection of qualitative data is a base for the study. The quantitative data collection method in the form of questionnaire is being used to get an understanding of how common the problem of project overload is in different industries and for different individuals.

1.8.2.3 Research Approach

The research approach is in the form of informal in-depth interviews with project workers, managers and leaders. Additionally a questionnaire where information about project member’s knowledge, attitude and preference is collected was provided to project-based companies in different industries and countries. By using the survey method there is a possibility to obtain many different kinds of information from many different situations/industries. Great advantages by using a survey are the flexibility, the low cost and the short time it needs (Kotler et al., 1999). Some of the companies were participating in both, interviews and questionnaires and a few companies were participating in just one part of the research.

1.8.2.4 Contact Methods

The first contact with the participating companies was in two ways, personally and via email. The companies situated in Kalmar, Sweden were contacted personally. Both authors were introducing themselves and their topic in several companies in and around the Swedish city Kalmar. In these companies the authors mainly asked for the opportunity of having interviews with project workers or managers and the possibility for providing the questionnaire to project members. Companies outside Kalmar or Sweden were contacted via email. The authors introduced themselves and their topic on one written page. As the companies were situated in the home countries of the authors the contact was in their mother language.
The interviews were conducted face-to-face or via telephone. In the face-to-face interviews both authors and usually 1 interviewee were participating. These face-to-face interviews in Sweden were all conducted in English. The telephone interviews were mainly conducted with employees in Icelandic and one in Germany. In the telephone interviews always one part of the authors’ team was conducting the interview in the mother language of the country and then translating it into English. The questionnaire was created as an online version and the companies involved in the questionnaire were contacted by email in which the link to the questionnaire was included. Due to several reasons these methods have been chosen, they are: low cost, gathering information quickly, flexibility in telephone interviewing.

1.8.2.5 Sampling Plan

The persons that were accounted as a sample and were contacted in this research are all members of a project team or have certain experience in project work and management. The individuals in the sample are members of project based organizations in Germany, Iceland or Sweden.

The organizations for the survey were chosen by the authors. Criteria for the companies were working in projects and if possible being in the consulting, construction or IT business but not necessarily. A pre-understanding of the companies and their work was created through internet research, personal experiences with the companies, and private contacts with employees or information brochures.

The questionnaire was sent out to consulting, IT and other companies that do their work in projects (e.g. industrial robotics). The number of organizations that were contacted for the questionnaire was 13 and 6 replied and agreed to take part. In these organizations the link to the online questionnaire was sent to one contact person. The contact persons were asked to provide the link to project workers and project managers in their organizations. Therefore the sample members were picked out by the organizations themselves. 103 members of these organizations received the questionnaire. 47 members from these organizations took part in the research. That leads to a respond rate of 45.63 %. Due to the low number of participants in the questionnaire, the data can not be analyzed with quantitative methods like statistical tests of hypotheses. The data from the questionnaires is used to support the data from the interviews in a qualitative approach.

1.8.2.6 Research Instrument

The instrument that is used in gathering information from the sample is in the form of questionnaires with both open and closed-end questions and informal in-depth interviews between
thirty minutes and one hour. The closed-end questions in the questionnaire have several possible answers and allow sample members to make choice among them. On the other hand open-end questions give the respondents the possibility to answer in their own words (Kotler et al., 1999). The interviews were recorded on a tape recorder and afterwards typed and if necessary translated.

1.8.2.7 Implementing the Research Plan

The implementing of the research was in the hand of the authors themselves. By that it was possible to monitor the gathering of the data and allowed to quickly intervene if there are some matters that have to be adjusted. The implementation was done in the time frame of 1st April to 20th of April 2007.

1.8.3 Interpreting and Analyzing the Findings

For the interpretation of the data a qualitative approach was chosen – The Grounded Theory. In the grounded theory approach there are three types of coding: open coding axial coding and selective coding. Coding is the central process in which the data is broken down, conceptualized, and put together in new ways. In the coding process theories are built from data (Strauss and Corbin, 1998).

1.8.3.1 Open coding

The open coding can be seen as “the first analytical step” (Strauss and Corbin, 1998, p. 62) that is needed for the rest of the following analysis. In the open coding process the data is broken down to identify and develop concepts. According to Strauss and Corbin (1998) the data has to be compared for similarities and questions about the studied phenomena have to be asked. The conceptualizing of the data has to be the first step in the analysis. Conceptualizing works by taking a sentence or an observation apart and giving it a name or something that represents a phenomenon (Strauss and Corbin, 1998).

1.8.3.2 Axial coding

In the process of axial coding the data from the open coding is put back together in new ways. This works by “making connections between a category and its subcategories” (Strauss and Corbin, 1998, p. 97). Axial coding is a complex process which includes inductive and deductive thinking. The procedures of the open coding, making comparisons and asking questions, are more focused towards discovering and relating categories in the process of axial coding.
1.8.3.3 Selective coding

The selective coding is the selection of a core category which is the central phenomenon; around this core category all the other categories are integrated. This core category can be seen as a storyline. The core category is related to all the other major categories as well as to it and to each other. When the core category is created, the storyline is developed.
2 Theoretical Framework

2.1 Project

There are a lot of different projects going around in our society. Continuously new projects emerge all over and other ends. Projects have been taking places as from the beginning of time, the Egyptian pyramids or the Tower of Babel were some of the first “projects”. Modern project management, however, is usually said to have begun with the Manhattan Project, which developed the atomic bomb used in Hiroshima and Nagasaki, Japan, in 1945 (Meredith and Mantel, 1995). The wealth of literature that has been found all describes projects in a similar way. A project is a specific, finite task to be accomplished with a beginning and an end. Relevant to say is that a project has to be seen as a unit (Meredith and Mantel, 1995).

And according to Frame (2003) there are, however, some attributes that characterize projects.

2.1.1 Goal oriented

According to Frame (2003) projects are directed at achieving specific result, they are goal oriented. These goals drive the project, and all planning and implementation efforts are undertaken to achieve them. Nevertheless it is not enough to have specific goals, they have to be communicated to all so everybody involved have the same understanding about the goal (Frame, 2003). This subject of understanding of goals and communicating effectively so everybody has the same understanding is a theme in Weick’s (1995) book “Sensemaking in Organizations”. “Because people typically have more than one project under way, and have differing awareness of these projects, reflection is overdetermined and clarity is not assured. Instead, the elapsed experience appears to be equivocal, not because it makes no sense at all, because it makes many different kinds of sense” (Weick, 1995, p. 27). Relating importance of goal oriented to project overload Hyväri (2006) indicates that goal/objectives are one of the most critical project-related factors for success in project management. There exists a danger of misunderstanding between different members of project teams concerning the goal orientation. Project overload can accrue among some project members in the way people have the different understanding of importance and value of the goal/objective factor.
2.1.2 Interrelated activities

Projects are often a very complex number of activities and according to Frame (2003, p 5) “projects entail carrying out multiple activities that are related to each other in both obvious and subtle ways. Some tasks cannot be executed until other tasks have been completed, some must be carried out in parallel, and so on. Should the task get out of sync with each other, the whole project may be jeopardized”.

This shows the complexity of projects and the relations between different tasks that have to be performed in a line with each other.

It is not only that inside a certain project there has to be coordination between different tasks there are also often according to Meredith and Mantel (1995) relationship and interaction with other projects being carried out simultaneously by their parent organization; “but projects always interact with the parent’s standard, ongoing operations” (Meredith and Mantel, 1995, p. 8). These interrelations between projects in the recount to project overload is in that way that project members can focus more on one project than on others. This can be seen in Hyväri’s (2006) study where commitment is one factor that leads to success of projects. Not only project members need to show a commitment to the project but also project manager/leadership and not at least the end-user. Where projects have not the commitment of these members the project misses its status and members start to miss meetings for instance. This relates to more work on the shoulders of fewer members than it should be. Size of the project can also determine the commitment of the project members according to Payne (1995) where larger projects get the necessary resources on the cost of the smaller one. “In the multi-project context, the situation becomes worse. Under these circumstances, the smaller project is at constant disadvantages in the struggle for scarce resources.”, (Payne, 1995, p. 167). Payne (1995) also argues that when an organization is working on multiple small projects, overload is imposed on the management in the organization.

2.1.3 Finite duration

As mentioned before projects always have a beginning and an end in relation to the projects goal. This characterize is described by Frame (2003, p 5) as “projects are undertaken in a finite period of time (although project managers facing schedule slippages may feel they endure an eternity). They are temporary. Projects have reasonably well-defined beginnings and ends”. When the basic project goals are achieved, the project ends. Duration can be directly related to interrelated activities among projects and the commitment project has from their project stakeholders. Project overload can influence the duration of project when for example commitment from one project member is lacking, the project works increased on others members. This can easily be understood when project
members are seen as resources. With fewer resources the project time can be longer than planned. To keep up with projects duration plan, the project managers or leaders try to use several of methods to increase capacity to stand up to planned time. According to Payne (1995, p 164) these methods can be like “working overtime, staff from other departments, temporary employment agencies, short-fixed-term staff, or subcontracting”. And when like working overtime methods is used it can be called overload on project members.

2.1.4 Uniqueness

No project can be said to be the same and according to Meredith and Mantel (1995, p 8) “every project has some elements that are unique”. Even though for a construction company building a new house is not so different from the house that was last build by the company. Nevertheless there can never be totally the same thing. They can for instance be built on a different location, for different customer with different materials and so on. Just the slightest change can give a project its uniqueness. Frame (2003, p. 6) says, “Projects are, to a degree, nonrecurring, one-of-a-kind undertakings, although the extent of uniqueness varies considerably from project to project”. Due to the uniqueness of projects it is hard to find similarities between two projects so that planning is harder compared to the planning of two identical things. Therefore, to keep up with plans, project members have to be really into the project all the time. This relates to more time required than expected. In Payne’s (1995) conclusion he points out, that in a mix of projects, organizations work on, there is a different in size, required skills or urgency. These non-similarities among projects can easily relate to overload on project members.

2.1.5 Conflict

According to Meredith and Mantel (1995, p. 9) “More than most managers, the project managers live in a world characterized by conflict” Furthermore “Projects compete with functional departments for recourses and personnel” (Meredith and Mantel, 1995 p. 9). Individuals working on projects are often responsible to two bosses at the same time, bosses with different priorities and objectives. Even though single projects have their own problems there are even more problems in a multi project environment. This increases conflict in various ways. Working on different projects increases confusion and conflict among all involved. There can be various types of conflicts when working in project based organizations, for instance between functional and project department, between various functional specialist, but the most common according to Payne (1995) are conflicts of priority structure and the work –scheduling process.
Project members can be said to be in a situation between a rock and a hard place. And they are not only struggling between functional and project tasks but also they can have conflicts between numbers of projects they are working on at the same time like described by Meredith and Mantel (1995) that the project itself must be coordinated with other projects carried out by the same parent organization.

2.2 Project Management

The basic purpose for starting a project is according to Meredith and Mantel (1995) the accomplishment of some goals and the focus of responsibility and authority, for realizing the task, on small individual groups. “To get the job done” is referring to Frame (2003, p. 6) the usual reply of project workers when they were asked for the most essential goal in carrying out projects. Project management in fact is a little bit more than just getting the job done. The “triple constraint” (Frame 2003, p. 6) which includes time, money and specifications or as it is called in Turner (1999, p. 9) “The time/cost/quality triangle” are the most important factors in the project management process. For project managers it is important to find the right balance between these three constraints, which differ from project to project. The time constraint is usually managed by establishing deadlines and schedules (Frame, 2003) with the support of electronic tools like PERT/CPM (Program Evaluation and Review Technique/Critical Path Method), GERT (Graphical Evaluation and Review Technique) and VERT (Venture Evaluation and Review Technique). Similar to the time, the cost/money constraint is monitored with several tools (Frame, 2003). The most difficult constraint to manage is the specification or quality constraint. The aim is to satisfy the customer, however it is not easy to establish and monitor specifications. Up till now “project professionals have been struggling mightily to come up with techniques for developing and monitoring specifications, and they have achieved some notable success” (Frame, 2003, p. 7).

Related to the issue of project overload in project-based organizations it is important to say that due to the shift in the organizational structures and new technologies the majority of project managers have become multi-project managers and the project workers have to be skilled multi-taskers (Dinsmore, 2005.) This implies that project workers have to deal with several projects at the same time. Dealing with several projects at the same time requires special skills in multi project management.

2.2.1 Multi project management

Project overload, is in some way, related to the number of projects that project managers and workers have to deal with. Therefore it is important to have a look on the topic of multi project
management. Referring to Pennypacker (2002) in today’s competitive businesses managers and companies have to face a competition for limited resources, narrowing windows of opportunities and the constant changing demands of customers. Additionally more and more projects are added or changed as a response to the market and the business activities. This development requires skills in multi project management. According to Knutsen (2001, p. 215) multi project management for the project manager means, “it’s a noisy, contentious environment where other projects steal your key people”. For the individual project worker instead it is dividing time between several projects and juggling appearances to satisfy different stakeholders in different projects. Multi project management is a challenge for everyone that has to split time between several projects. As Knutsen (2001) states it, the most common situation for individual project workers is not even just dividing time between projects it is also dividing time between a regular, functional job and special projects. Knutsen (2001, p. 216) calls it the “multi assignment management”. If the project is less than 20 percent of time it can be seen as an interruption of the daily work what means that the problem of multi assignment management occurs if the project requires 20 percent and more of the working time. Furthermore Knutsen (2001) introduces some rules how too manage the balance between a project and routine work successfully. These are scheduling the whole week, to do first things first, to reduce risk early and to avoid having more than 85 percent of scheduled work a week. Transferring it to several projects and routine work, Knutsen (2001) points out that an individual professional is able to handle five assignments, activities or tasks per month. If ever single task is coming from a different project the project worker can balance five-multi project obligations over the four weeks of a month. The bigger the tasks are the less can be managed at the same time.

In order to support the individual project workers in their challenge of multi project management the organization should provide some requirements. Those are according to Knutsen (2001, p. 223)

- “Provide good estimates of both the size and the schedule of every job’s activities and of every project’s tasks.
- Avoid committing any person to more than the month’s total calendar days.
- Be sure that work plans limit schedule-driven work to 85 percent of the calendar and allow work that can be delayed to fill the remaining 15 percent.
- Encourage skilful individual time management.
- Be sure every assigned project task has a two-week (or less) duration.
- Be sure that everyone understands the business goals of both the regular job and the temporary project(s) in a way that enables them to choose among them”.

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Although those requirements seem to be obvious they may be a big challenge for many organizations.

### 2.2.2 Flexibility in project work

According to Leybourne and Sadler-Smith (2006) the outcome of project is highly related to the intuition and improvisation of the project managers, that is how he does his work and manages the project in the best possible manner. This raises the question how much flexibility the project workers have in undertaking their work. Is it like that project workers have little things to say how they manage their work like time, how to work, what resources they can use and so on. Or do project workers have all the flexibility they request for undertaking their work in the best way?

In relation to Turner (1999, p. 9) “The time/cost/quality triangle” and to Kao (1996) some assumptions can be implied concerning this matter. Turner (1999) talks about time, cost and quality as the most important factors in project management and that these factors have to be fulfilled in relation to each project. That is each project has its schedule (time), budget (cost) and desirable outcome (quality) that is like the frame of the project. Kao (1996) describe his jamming metaphor in the way that musicians meet and start play with a certain theme, but inside the boundaries of this theme the players can improvise as they feel. Therefore inside Turner's (1999, p. 6) “time/cost/quality triangle” frame, Kao's (1996) jazz jam session can be seen as a metaphor for projects workers flexibility to their work. Even though Kao (1996) uses his jazz jam metaphor in relation to creativity it can also be used in relation to flexibility in project works. The project worker has the frame consisted of time, cost, and quality but inside this frame the project worker can jam as he wants, as long as he stays inside of the theme of the project he is working on. Therefore if project managers or project workers have the flexibility to do their work as they think is best, the project outcome is highly dependent on their intuition and improvisation how to manage the project.

### 2.2.3 Project Success leading to customer satisfaction

For studying the influence of project overload on the outcome of projects it is important to know what defines a project as being successful or unsuccessful. Measuring project success is an intensive investigated issue in the literature. According to Pinkerton (2003) the success of a project can mean different things to different people in an organization. Especially in projects where a lot of stakeholders are involved, success may not be success in the same way for everybody. Furthermore every company has its own way of measuring the outcome of its projects (Heerkens, 2001). Therefore there exists no exact overall definition for project success. In the following the main points of several definitions will be presented. The most obvious factors when project success is
measured are according to Lewis (2001, p. 31) the “PCTS” factors. Where P stands for technical and functional performance requirements, C for labour costs, T stands for the required time for the project and S for the scope of the work. Moreover, Lewis (2001) points out that these factors are not the only ones that measure the success of a project and introduces the following principle: “The only truly successful project is the one that delivers what it is supposed to, gets results, and meets stakeholder expectations” (Lewis, 2001, p. 32). There is a difference according to Baccarini (1999) between project management success and product success. What project member’s look on as a project success is maybe not the same as what the customer sees as a success. To take an example from Kupakuwana and van der Berg (2005, p. 28), “Project 1 - Completed on time, on budget and to specification, but the customer is not entirely happy. Project 2 – Overspent the budget, exceeded the time frame, but the customer is happy”. The common view from looking at project success in relation to Turner’s (1999, p. 9) “Time/cost/quality triangle” where project success is judged by these factors are changing. Instead the project member has to take the customer satisfaction more into consideration. Turner (1999, p. 72) is proposing a list with judging points for project success:

- “it achieves its stated business purpose
- it provides satisfactory benefit to the owner
- it satisfies the needs of the owner, users and stakeholders
- it meets its prestated objectives to produce the facility
- the facility is produced to specification, within budget and on time
- the project satisfies the needs of the project team and supporters
- it makes a profit to them”.

Most of Turner’s (1999) criteria are subjective, that means they depend on the project, the involved parties and their point of view. The objective criteria are just the time and the costs. Furthermore it is difficult to balance these points. Some of them can not be fully achieved at the same time.

Concerning the effects that project overload has on the outcome of a project it is obviously that the time goal could be influenced. Project overload also causes disappointing quality which would have an effect on the satisfactory benefit to the owner or on the technical and functional performance requirements. Working overtime and wasting time are other symptoms for being overloaded with projects; this would lead to increased labour costs. Summarizing it can be said that project overload has a high potential to influence the success of the project in a negative way.

Customer satisfaction plays a very important role in project management and a successful project should usually be satisfying for the customer. “The trend in project literature towards greater customer satisfaction is clear. The project manager should therefore turn his or her focus toward the customer and their needs”, (Kupakuwana and van der Berg, 2005, p. 29). This is highly true in a
competitive environment were companies fight for their customers and it is according to Kupakuwana and van der Berg (2005, p. 33) “keeping an existing customer is much more cost-effective than winning a new customer”. To support this, Frame (2003) points out that the key to survival is to keep the customer happy. And what do companies do to keep their customers happy? According to Frame (2003) empowered employees, flattened organizations and team management have taken over from conventional management wisdom of direct and control. To respond to the force of standing up to customer’s satisfaction companies need to empower their employees to be able to act and make decisions as soon as the customer wants. Customer satisfaction is often linked to customers expectations, Kupakuwana and van der Berg (2005) fulfilling or exceeding customers expectations leads more customer loyalty that help organizations in a competitive environment. Furthermore Frame (2003, p. 112) dedicates a whole chapter to the customer’s needs, which are “the fundamental driving force behind projects”. According to Frame (2003) it exists a needs requirement life cycle with a needs emergence, a needs recognition and a needs articulation phase. Based on the articulation of the needs the functional and technical requirements for a project are formulated. Many difficulties can arise in the defining of the needs. Fuzzy needs are a common cause for pitfalls in the needs definition which means that needs could be dynamic and changing all the time or they are misunderstood by the customers. Other important causes of needs defining pitfalls are the shortcutting of the needs articulation process and addressing of the needs of the wrong customer.

When the demand for organization service/product is high the danger of not fulfilling the customer’s satisfaction is also high. Because of organizations capacity and the danger of overload, great risk is in not fulfilling the customer’s expectations. It can therefore been seen that overload can hurt the overall performance of the organization when overload influences the customers satisfaction in that way that customers are not getting what they expected and even less what they expected.

### 2.2.4 The project close-out stage

The close-out of the project can be seen as the last stage of the project life-cycle. According to Turner (1999) the project team must maintain their vigilance, make sure that all the work is done and everything is completed in time and in an efficient manner. Like every other stage of a project the close-out needs time. Hence in an overloaded environment, where it is common that one project follows directly after an other, there is a risk that this last and important stage of the project is not accomplished in the appropriate way or skipped at all. As Turner (1999) states it some members of the team may already look forward to the next project.
Turner (1999, p. 337) points out five key requirements for an effective project close out:

- “finishing the work
- transferring the product to the user
- obtaining the benefits
- disbanding the team
- reviewing the progress”

Meredith and Mantel (1995) are claiming that every good management system has to have a memory. This memory is seen as a final report at the end of the project, a project history. Meredith and Mantel (1995, p. 629) express that in this final report the following subjects should be addressed in a way:

- “project performance
- administrative performance
- organizational structure
- project and administrative teams
- techniques of project management”.

Turner (1999) as well as Meredith and Mantel (1995) are pointing out that the end of the project stage should be used to report what happened in the project, to report which lessons have been learnt from each project and as a result help improve future projects. This stage of the project is more related to the internal accomplishment of the project and will not influence the customer directly. No customer will care about this stage as long as the product will be finished in the right way and the right time. Nevertheless this stage of the life-cycle is rather important as it will help the organizations with their project workers and managers to improve and to be better prepared for the next upcoming projects in order to produce higher quality and greater customer satisfaction.

2.3 Type of Project Organizations

According to Meredith and Mantel (1995) three major organizational forms are used for project-based organizations: the functional organization, the pure project organization and the matrix organization. In the following these three organization types will be explained briefly with their advantages and disadvantages which could be important for the project overload issue.
2.3.1 Functional

The functional organization is perhaps the most common vertical organization form. Employees in the functional organization are grouped in units in relation to their similarities (Cleland and King, 1983). For instance, all marketing people are in one unit and all finance people are in another unit. In a functional organization the project is divided into subtasks given to the functional department that has the most interest in the success of the project or is most helpful in carrying out the project (Meredith and Mantel 1995).

According to Meredith and Mantel (1995) one of the major advantages in the functional organization form is that single experts can be used by many different projects. “With the broad base of technical personnel available in the functional divisions, people can be switched back and forth between the different projects with relative ease”, (Meredith and Mantel, 1995, p. 153).

A huge disadvantage of the functional form is (Cleland and King, 1983; Meredith and Mantel, 1995) that there is no individual fully responsible for the total project. Furthermore there is a tendency that projects belonging to the interest area of the functional department are given more effort than to those not belonging to the normal interest areas of the division (Meredith and Mantel, 1995). Figure 2 -1 gives an example how a functional organization could be organized.

Figure 2-1  Functional Organization
Source: own figure.

2.3.2 Pure project

Referring to Cleland and King (1983, p. 276) in pure project organizations the project can be seen as a “minicompany”. The project is separated from the rest of the organization. It is an independent unit with its own technical staff and administration (Meredith and Mantel, 1995).

Advantages of the pure project organization are, according to Meredith and Mantel (1995) that the project manager (PM) has the full authority over the project, the PM can be seen as the CEO of the minicompany – the project. Furthermore the project team develops a strong identity which helps to develop a high level of commitment and high motivation from the project members.

One disadvantage mentioned in Meredith and Mantel (1995) is that employees with critical skills and knowledge are hired for the project when they are available, not when they are really needed.
Additionally there is a tendency to keep these project workers longer in the project than needed. Figure 2-2 illustrates how a pure project organization could look like.

![Figure 2-2 Pure Project Organization](image)


### 2.3.3 Matrix

The matrix organizational form is “a network between a project team and the functional elements of an organization” (Cleland and King, 1983, p. 276). It can be said, that the matrix organization is the middle way between the two extremes, functional and pure project organization. This organizational form combines some of the advantages of the pure project organization and the functional organization and can take on a broad range depending on which of the two extremes it is more similar (Meredith and Mantel, 1995).

A big advantage shows the matrix structure when several projects are running simultaneously. Meredith and Mantel (1995) point out that in a matrix organization an improved company wide resource balance for the individual projects can be achieved. “This holistic approach to the total organization’s needs allows projects to be staffed and scheduled in order to optimize total system performance rather than to achieve the goals of one project at the expense of others” (Meredith and Mantel, 1995, p. 165). Related to the issue of project overload it could mean that project workers and managers will not so easy be overloaded with too many projects because the overall organizational goal is much more important than the accomplishment of a single project.
The ability to achieve a good resource balance of time, cost and performance has according to Meredith and Mantel (1995) also a dark side. The simultaneously running projects must be monitored carefully and the resource movement between single projects could lead to clashes between the several project managers. Frequent jumping between different projects is a symptom of project overload. Therefore project overload in a matrix organization structure could lead to more clashes between projects managers than it is probably the case in other organizational structures, like pure project or functional organizations. Figure 2-3 shows an example how a matrix organization could look like.

![Figure 2-3 Matrix organization Source: Meredith and Mantel (1995), Project Management – A Managerial Approach, John Wiley & Sons Inc, 3rd edition, p 158.](image)

### 2.4 Workload

In relation to project overload it is essential to have some understanding on the term “workload” as it is often mentioned when referring to project overload for the project members.

The term workload can be best explained with a short example. The word “workload” consists of the two words “work” and “load”. Now imagine an athlete who is doing exercises in a gym. This athlete may use a special machine which trains his muscles. The machine can be “load” with a certain amount of weight (60kg is more than 50 kg). The “work” that the athlete is doing refers to the number of reps he is doing with the weight. Twenty reps with 50kg are more than ten reps with the same weight but 2 x 10 times 50 kg would be the same workload. However some human bodies are not able the lift 50kg twenty times in a row, without a break. Therefore the best solution would
be to split the workload in two times ten with a break. In the end it will be the same workload, just split on a longer period of time.

Referring to the Canadian homepage http://www.jobquality.ca (May 07), too much workload can defiantly hurt the work and the workers itself. On the other side it can be said that too little workload can do the same harm. With too little to do the work can be boring and the worker can lose interest in something that is not so demanding or exacting. Determining what is the appropriate workload is a constant issue and varies among workers, projects, resources and so on.

Tobis (2002) uses two figures to explain the relationship between workload and the outcome of the work.

![Figure 2-4 Output increase with effort, with diminishing returns](image)


Figure 2-4 shows that with increasing hours of work the total output will also increase. The important thing at this curve is that the slope of the line becomes less steep. This means that, the more hours a person is working, the less output he will produce in each added hour.
Referring to Figure 2-5, working after 80 hours is useless. The point where the curve turns, of course is dependent on the job and on the person who is working. It also important to mention, that a person is able to overwork for a week or two. Nevertheless, the overwork situation is not a status that somebody can bear for several months. As a conclusion it can be said that the curve may vary but the overall shape will always be the same.

In an exploratory study by Kuprenas et al. (2000) on project management workload and the authors try to identify the number of projects; project managers are assigned in relation to determine project manager’s workload. This study shows that mainly four factors decide how many projects managers can manage at the same time. These factors are

- Project manager experience
- Management approach of the project
- Complexity of the project
- Timing of the project

**Project management experience**

Kuprenas et al. (2000) show that project manager experience is the most important factor in relation to determine how many projects managers can manage at the same time. The more experienced the manager is the more capable he is to manage more projects. The experience of the project manager in this case is related to project management skills. Following Cagle (2004), a project manager must have project management skills. A project manager must have “the ability to create schedules and
budgets, the ability to implement and manage change control systems, the ability to implement and manage risk management systems, and the ability to implement and manage the many other project management skills as well” (Cagle, 2004, p. 8). The more experienced a project manager is in these abilities or skills, the more projects he is able to manage at the same time.

Management approach of the project
Whether the project assigns assistant or a technical expert to the project manager influence how many projects are assigned to a manager (Kuprenas et al. 2000). In a study done by Posner (in Meredith and Mantel, 1995), the technological skills, which means experience and knowledge, is an important cluster to be a good project manager. Project managers should know what is going on in the project and which technology is required to accomplish the project successfully. Due to the fact that every project is unique and different, every project needs different skills. Furthermore some projects require deeper technical skills than others, which require maybe just managerial skills. Finally it can be said, the deeper knowledge of technical skills are required in different projects, the fewer projects can be managed at the same time.

Complexity of the project
According to the study it depends on how many projects are assigned to managers how unique or routine they are. If the projects are unique then the project demands more attention from the manager and therefore he has fewer project to manage at the same time. If on the other hand the project is routine, the manager can manage more project at the same time.

Timing of the project
The timing of the projects the project managers are working, if they are ending or beginning, influences the number of projects, managers are assigned. If the manager is beginning with couple of projects he will not likely be giving a new project, but if the project manager is ending a project he is more likely to be assigned new projects.

2.5 Overload

Furthermore it is also important to have some general definitions of overload before the concrete project overload issue can be discussed. Some online dictionaries give these definitions for overload:

- “Put excessive load on something: to put too large or heavy a load on somebody or something or in something” (http://encarta.msn.com, 2007)
• “To give someone more work or stress than they can bear” (http://www.allwords.com, 2007).

Going back to the authors’ juggler metaphor from the beginning of this thesis, overload for the juggler would mean that he has just too many balls. The juggler is overloaded with balls. This overload situation will maybe work for some seconds, but as a result he has to drop at least one ball. And in the worst case he will drop every ball and the total system will collapse.

2.6 Project Overload

After having some understanding about projects and overload in general a definition of project overload can be build. A project is goal oriented, unique task with a start and an end point, in with interrelated activities that have to be managed. Overload means to have more work than your capacity is able to deal with. Therefore project overload can be defined as having not enough capacity to deal with the amount of given projects and their unique schedules, tasks and deadlines at the same time.

2.6.1 Factors influencing project overload

In the study of Zika-Viktorsson, Sundström and Engwall (2006) a model which proposes relations between important factors of project work and project overload is developed and shown in Figure 2-6.

![Figure 2-6 Proposed model for factors addressing the multi-project work situation that explain project overload](source: Annika Zika-Viktorsson, Per Sundström, Mats Engwall, “Project overload: An exploratory study of work and management in multi-project settings”, *International Journal of Project Management* 24 (2006) p 386.)
The input factors in the model describe working situations in a multi-project setting or a project based organization. In the following these factors will be explained a little bit more.

**Number of projects**

If the juggler metaphor is used again the balls can be imagined as the projects and it goes without saying that the more balls the juggler has to hold up in the air the more load is put on his capacity. Maybe the juggler can handle certain number of balls at the same time but most likely it comes to the point he can not handle more than his resources allow him.

**Routines/Formalizations**

The same goes without saying if the Juggler always does the same task over and over again his practice allows him to handle more than if he continuously changes tasks. If the juggler only does his tricks with balls, he could develop his capabilities to be really good in that. But if he starts doing tricks with cones, knives, rings or fire his routine with only using balls decrease and his capabilities are less than only practicing with balls.

**Task Resemblance**

Though the juggler is using different tools to show his trick the same capabilities are demanded in all. The coordination of hands, eyes, mind and body is what all these different tools need to perform the trick. Obviously the same goes with projects. For the juggler the performed tricks are usually the same. But he can still have different surroundings in the performance, as the same goes with project. The juggler can be performing in a circus, outdoor on a plaza in a private party and so on. Probably he could be constrained in a way what tricks he can perform under different soundings. The juggler does not likely use fire or knives when performing in private party, which he could do in circus.

**Time resources**

The trick the juggler performs most likely depends on his time he is given in each show. Therefore he has to choose what to do and how long he can perform each trick at a time. This is similar to the time each project team or worker is given under the frame each project has to be done.

**Opportunities for recuperation**

It is known that in a competitive world the time project teams or members are given to go over their last project to evaluate and see what went wrong and what went well is not given, but instead the team members are thrown into the next project. The same can happen to the juggler where he
maybe has to rush between shows to perform and maybe cannot go over his last performance in relation to what went well and what went wrong.

**Challenges**

For everyone no matter if juggler or project member a stimulating goal and challenges can make the work more interesting. The juggler who has been doing his tricks with five balls challenges himself by adding the sixth ball into the circulation. By putting his goal into being able to perform his routine with six balls can give him an extra power and stimulation to do so.

**Authority**

Let’s take for example a juggler that is working in a circus. If he is restrain by the circus manager on doing assured tricks and nothing else, his authority is low and that can harm his performance. He will maybe been stuck in a status quo where his capabilities will not shine. But on the other hand if he is given the authority to perform the tricks and develop his scene as he wants he will most likely shine and have the opportunity to fully use his capabilities for the best, benefiting the circus and the juggler.

**Feedback**

For the juggler as for other performers they get feedback straight away from their audience after their performance. If the juggler fails in his tricks he will get the audience feedback instant the same goes if he makes some magic with his tools. For the project worker he maybe has to wait to be evaluated in relationship to time, budget, and quality of his work. The juggler he also can have later feedback from the circus manager or circus co-workers like the project member. For both the juggler and project worker it can be stimulating to have a good feedback for their work as it is for most other people. Everybody likes to have a clap on their back for a work well done. The same goes if people want to develop they have to be able to take some critic if they are not doing so well. Mistakes and failures are nothing else than a lesson to learn.

**2.6.2 Symptoms**

In an interview of the Engineering Department & Administration Report in October 1998, with Smith conducted by Mazel, it is noticed that overload is a real problem and that it shows in virtually every company. In the interview several symptoms of project overload are pointed out.
According to Smith (1998, p. 10-11) they include:

- “Projects get staffed slowly or weakly after being approved;
- Schedules slip on all projects;
- People jump frequently from project to project;
- Priorities shift constantly;
- Scheduling meetings is almost impossible;
- People often say, “I haven’t had a chance to get to it yet”; 
- Engineers split their time among multiple projects;
- Processing queues in drafting, the model shop, testing lab, and other locations; and
- Many dormant projects.”

Following Tobis (2002) an overloaded team is often producing results and income at a significant rate but much of the team’s efforts are wasted on resistance and inefficiency. Tobis (2002, p. 61) is proposing several warning signs for project overload. They are:

- “Lots of overtime
- Lots of wasted time
- People doing other people’s jobs
- Consistently late deliveries
- Consistently disappointing quality
- Constantly shifting priorities
- Some people working much harder than others, causing mutual resentment
- Poor morale”

There can obviously be found some similarities between symptoms for project overload that are reported by Smith (1998) and Tobis (2002), for instance slipping schedules and late deliveries or the constant shifting of priorities. Time in general seems to be the most important symptom when it comes to project overload. No matter if it is the overtime work, the slipping schedule, the late deliveries, the wasted time or just the time that the project worker does not have to work on a certain task. Time as a part of the triple constraint introduced by Frame (2003) or as part of Turner’s (1999, p 9) “The time/cost/quality triangle” is apparently related to project management and the successful accomplishment of a project. Although a few customers would maybe accept a late delivery it should not be acceptable for the majority of customers. Even when a late delivery would be accepted or balanced with a penalty payment, the quality constraint of the project management
would at last lead to unsatisfied, disappointed customers. Poor moral is never positive in teamwork as everybody has experienced for themselves. Loosing the motivation for anything will in the end lead to a disappointing result, for the project worker as well as for the co-workers. When people have to do the job of other people it will not be helpful for the accomplishment of the project as it will probably cause the feeling that other people are working more than others. Conflicts may arise and therefore more time will be wasted.

2.6.3 Effects on the project workers

In an exploratory study conducted by Zika-Viktorsson, Per Sundström, Mats Engwall done in 2006, a questionnaire was administered to 392 project co-workers in 9 companies in Sweden, in manufacturing, pharmaceutical and construction industries. The results showed that almost 1/3 were under project overload at the time.

The authors propose a model of how project overload may be related to certain outcome variables. They are:

- Low adherence to time schedules
- Low development of skills
- Less activity for improvement
- High levels of psychological stress reactions

In this study the authors formulate four hypotheses concerning these variables. According to Zika-Viktorsson et al. (2006) they are:

(H1) There is a negative relationship between project overload and adherence to time schedules
(H2) There is a negative relationship between project overload and self reported development of competences and professional skills
(H3) There is a negative relationship between project overload and participating in work for improvement of routines and methods
(H4) There is a positive relationship between project overload and psychological stress reactions

In the following the authors will go deeper in these four variables and discuss the results delivered from the study.
Low adherence to time schedules
As mentioned above projects have a time/cost/quality constraint. The time constraint is usually managed by establishing schedules and deadlines (Frame, 2003). Dealing with more projects at the same time in a multi project setting, how it is common in today's business life means dealing with different schedules and deadlines for different projects at the same time. Hence, project workers and managers have to jump between different schedules of different projects. Following Zika-Viktorsson et al. (2006), frequent jumping between different projects creates a lack of focus to the scheduled time. Zika-Viktorsson et al. (2006, p. 388) say “It seems to be plausible that a high level of project overload will produce delays in relation to pre-set schedules”. In a study done by Kappelman et al. (2006), about the top 12 people-related risks in managing IT-projects, the weak commitment (adherence) of the project members to the project scope and schedules is figured out as one of the most important risks. Kappelman et al. (2006, p. 34) say “project members with a weak commitment to the project scope and schedule can always find other worthwhile activities to work on”. The hypothesis formulated by Zika-Viktorsson et al. (2006, p. 390) is supported what means “a high level of project overload is accompanied by a decreased number of projects that are in line with their stipulated schedule”. Whereas the direction of the influence is not specified. According to this study, on the one hand project overload can lead to a low adherence to time schedules and on the other hand a low adherence to time schedules will lead to project overload.

Low development of skills & Less activity for improvement
The development of skills is a constant procedure in the daily work, but in multi project settings with an overload of projects there will be not enough time for long-term development and training. Reflecting on accomplished projects and therefore the generation of new knowledge and professional skills will suffer under the lack of time (Zika-Viktorsson et al., 2006). According to White and Fortune (2002), taking the past experiences of projects into account is an important critical factor for the project’s outcome. Meredith and Mantel (1995) also point out that the evaluation of a project will result in a set of recommendations that could help ongoing and future projects to be successful. Some examples for that are improved project performance, reduced costs or earlier identified problems. In Zika-Viktorsson et al. (2006) the hypothesis concerning the low development of skills is supported. That means that a low level of project overload goes with a high level skills development. The hypothesis concerning the activity improvement is not supported. “There is no significant relationship between project overload and efforts to improve routines and work methods” (Zika-Viktorsson et al., 2006, p. 390).
High levels of psychological stress reactions

Following Zika-Víktorsson et al. (2006), for healthy work situation a suitable level of stress is needed. The results of their study also support the hypothesis. However, the focus of this study will not be on psychological aspects, as it is not part of the authors’ educational background, but it is important to mention that psychological stress reactions are a consequence of project overload.

2.6.4 Effects on the outcome of projects

It is evident that project overload can have effects on the outcome of a project in a negative way. According to a study done by Family and Work Institute in America in 2004 overworked employees are:

- More likely to make mistakes at work.
- They feel angry at their employers of expecting them to work so much.
- They are resent to co-workers who don’t work as hard as they do.

From the authors’ own experience in working on projects negative effects of project overload on the outcome of projects can be witnessed. During the authors’ work in projects where overload has been detected these effects occurred:

- Low quality
- Time schedule don’t stand
- Conflicts among project members and others outside the project
- Lower accountability

As mentioned before in chapter 2.1.3 each project has a specific beginning and a specific end. Usually in planning any project (e.g. building a house, developing new software) there is a planned end of these projects. When project workers are overloaded with work then there is a great danger that these planned ending do not stand.

When the employees are in the situation of overload it is understandable in a way to accuse the employer, where it is employer obligation to supply the employee with work. When this situation emerges the employee can feel no obligation to do his job as well as he could otherwise. One of the authors as an employee has thought like that, “If the employer wants me to work so much he cannot expect me to do as well as if I would have the recurrent time as I need”. Therefore this relation between employees towards employer will have negative effects on the outcome of the project.
Working on projects involves a lot of interaction among project members and interaction outside the project. Every project member has his or her understanding on how the project is supposed to work and what is expected from each and one of the involved. These exceptions can vary greatly and therefore create a conflict among the parties involved. Conflicts do not help and are highly negative in complex projects. This can lead to that some members have overload of work and others not. Knowing that you are drowning in work and the colleague sitting next to you is laying back creates conflict that can have effects on the project’s outcome in a negative way.

When low quality, slipping time schedules and conflicts all add up it will give the organization and/or the project team low accountability. For project based companies that are not able to deliver their project on the time, with the best quality and the right usability it will definitely have effects on the customer’s choice for the next project to be considered.

2.7 Research model

In the following part the main arguments and models that are being used from the theoretical framework are summarized and presented in the research model. In order to analyze project overload in a structured way, the topic is divided into causes, symptoms and effects. The following figure should give an overview and visualize the research model.
The research Model

2.7.1 Causes

Five sub categories are being chosen to explain the causes of project overload. First of all the number of projects a project worker or manager has to work on at the same time. Zika-Viktorsson et al. (2006) include the number of projects as an important factor for project overload in their proposed model. Additionally the opportunity for recuperation, which is also included in the model of Zika-Viktorsson et al. (2006), is part of the research model. Workload is an important aspect when studying project overload. Tobis (2002) workload model is used in order to understand how many work an individual can bear until an overload situation occurs. Furthermore the concepts of flexibility in project work (Leybourne et al., 2006) and the experience (Kuprenas et al., 2000) are seen as important causes of project overload.

2.7.2 Symptoms

As the symptoms of project overload are very much dependent on individual persons. Therefore the symptoms part of the research is mainly conducted with open-ended questions in order to figure out the most important personal and professional symptoms. The main focus in the research will be on professional symptoms of project overload.
2.7.3 Effects

Projects have to be managed inside Turner’s (1999, p. 6) “time/cost/quality triangle”. The influences of project overload on these three restrictions are investigated in the research. Furthermore two other success factors of project management are part of the research model, the usability of the outcome and the customer’s satisfaction. These two factors are included in more or less the same way in a high number of project management literatures for instance Turner (1999), Baccarini (1999) or Frame (2003).
3 Results

3.1 Introduction

For the gathering of primary data the authors conducted 13 interviews in Sweden, Iceland and Germany. A detailed description of contact methods can be seen in chapter 1. The structure of the interviews follows the structure of the research model that can be seen in chapter 2.7. First the authors focus on the causes of project overload and ask for the number of projects, workload, flexibility, recuperation and experience of project workers. Second the authors investigate the symptoms of project overload and if interviewees have recognized being overloaded. The authors mainly ask open-ended questions about how the individual project workers feel or recognize when they are overloaded. Third the authors explore what the effects of project overload are. The interviewees were asked if project overload can influence time, cost, quality, project close out, customer satisfaction and usability of the project.

The question guideline for the interviews and an overview about the interviewees and their background can be seen in the Appendix I.

In order to support the interviews and to get a broader understanding about the matter of project overload, an online questionnaire was conducted parallel to the interviews. The questionnaire was provided on the German online survey webpage http://www.befrager.de. On this free webpage the data of the survey is saved automatically and in the end downloaded a Windows Excel file. 103 project workers and project managers received the link to the questionnaire. In the survey just those participants that gave response to more than five questions are included. Therefore 47 people took part in the survey. However just 37 of them gave a response to all of the questions. From the 47 participants in the survey almost 70 percent have felt overloaded with their project work at some time. Furthermore the survey shows that for some individuals project overload is “some kind of every day reality” as it is a situation that occurs “almost always” or “every day”. Additionally the author’s survey shows that project overload is a constant situation and may last “all year long” up to reported five years in a row.

The structure of the questionnaire is the same as in the interviews that is it is structured in this way as causes, symptoms and effects. The complete questionnaire can be found in the Appendix II.
3.2 Data from the interviews

3.2.1 Causes

3.2.1.1 Number of projects

For the different industries it varies to some point how many projects their employees are working on at the same time. For all industries it also varies on what stage the projects are, one could be on the beginning stage and others in the end stage. It also differs how much time project workers have to put into each and one project. In the construction industry it varies how many projects each project worker is working on, what matters the most in the construction industry is the size of the project. That is in the budget, manpower and complexity of the project. For the construction industry project managers are usually just with one project at the same time if the project is big. The interviewees that were discussed with are usually managing one big project at the same time. Still interviewee 8 says “These are quite big project that I am in […] is almost finished and other on is started, if I take concrete examples, then I have three project in some time now.” Still there are those different faces that often overlap in projects, one is ending and others are beginning.

In the IT industry it is quite common to be working on more than one project at the same time. Commonly it is like that: IT project workers are working on three till five project at the same time and even up to 15 projects at the same time. The projects that IT project workers are working on are not as big as in the construction industry but instead they are working on more projects at the same time. There is also routine work that IT workers are working on at the same time like projects. The time IT workers spend on project work varies from 20 to 90 % of their time that is spent on project work.

The results show that in the consulting business individuals have around 15 till 25 projects running at the same time. Especially in the accounting part of the consulting business there is a high loaded peak time from end of February till the mid of June. Interviewee 12 says “So this time I probably have 25 projects going at the same time right now. This is the toughest time of the year.” And then for the consulting business the end of the summer and in the fall there are not so much project running.

3.2.1.2 Workload

When asking the interviewees about the hours they are supposed to deliver and the actual hours they work, the clear indication is that actual working hours are more than required ones. All the interviewees except one said that they work more than they are supposed to do or according to
union contracts. The results differ from working no overtime up to working 20 overtime hours per week. Most of the interviewees are on a fixed salary base that is they do not get paid for overtime they work. That is people are assigned to certain projects and are paid according to that and it is up to project workers how much time they spend on the project or how they manage their time as long as the project is finished on time, on budget and has the right quality.

There seems to be no indications that even though project workers are not paid specially for their overtime that they work less than those that are paid for the overtime they work.

Interviewees also point out that it varies a relatively in their work how much time they spend in work. It is not like that project workers always work the same time every day or every week. There can be a project that has to be finished and then that project demands more time. Often in an end of a project the people deliver more hours than maybe in other stages of the project. For instance in the consulting business interviewee 12 says, “from my personal view it’s from end of February till mid June. Probably five to ten hours overtime per week in this period. But then in the fall you have less hours, we should work like 35 hours a week”. This consulting company works on the auditing of the customers annual reports and these works begin in January and have to finish before the end of June. The same states interviewee 8, about the construction industry when saying, “then there are ups-and–downs in this business”.

Some of the interviewees were working on project work aside with their routine work. The percent of this work varies depending on the industry and position. For the construction industry it is a high percents of their work done in projects, for some it is even 100 %. Many of these projects in the construction industry are done according to a tender description and therefore it is just one particular job and when that is over another one takes over. For the consulting industry it is quite similar as in the construction, most of the work is done in projects, just work like billing is considered as routine work. The IT is the industry where there is the most of routine work in those industries that were investigated. Still in the IT industry it is difficult to say what a project is and what routine work is.

As interviewee 11 answers when asked how many percents of the work are in projects, “Well it depends what you call project. I am working with projects that take from five minutes up to 30 minutes […] if you are talking about larger projects where more than one are involved then that is about 20-30 percents of the time”. Position seems to play a greater part in the IT industry then in the other industries studied concerning percents between routine work and project work. Project managers spend more of their time on projects than specialists or technicians do. The project manager spends around 90 % of the time in project but the technicians or specialists spend 20-50 % of their time in projects according to the IT interviewees. For other industries it is a little bit similar.
to the technical and specialist in the IT industry theses interviewees spend around 20-60 % of their
time in project work rest in routine work.
All of the interviewees no matter in what industries age or position agree that if the project that they
work on is interesting, challenging or joyful their motivation to work harder or put in some extra
hours is more than if the project would not have any of these factors. Same can be said about
project workers authority. When interviewee 5 is asked if it motivates to work harder or work
overtime when the project is interesting or challenging he says “Yes, it does. It motivates”. Same
says interviewee 9 “If the project is interesting then you like to work on it more intensively, and
forget the time.”

3.2.1.3 Recuperation

It is a little bit in the nature of projects that there comes a time in the projects when it is more to do
and other times were there is less to do. “It is ups-and-downs” as interviewee 8 mentions it. Because
of this reason the interviewees were asked about the chance to recover after an intensive project
work. The interviewees answer this in the both ways, that they got a chance to recover and also that
they have not the chance to recover after intensive project work. What can influence this is how the
salary and contracts of the project workers are look like, for example if they are paid for overtime or
if they are on a fixed salary (not paid for overtime).

When project workers have the opportunity to recover it is most often in the form of a day off or a
short vacation of two to three days. Even though some of the interviewees say they have chance to
recover after intensive project work most of the interviewees say they do not get the chance to do
so. The reason is most often that other projects are waiting or they are already in another project. It
also depends on the market and the season of the year. For instance for the construction companies,
the summer is a heavy time and it is difficult to get chance to recover in that time. For consulting
industries in Sweden, February till June is a busy time, for instance. Here can be seen some reasons
overloaded interviewees gave why they have no time to recover after an intensive project work.

- Interviewee 13: “Not so much. Because when we were finished the project we were right in
the production. And then we have to reface the reality.”
- Interviewee 5: “Often not. Usually it has already started up a new project. Parallel to the one
about to close. So it’s on to the new one to continue.”
3.2.1.4 Flexibility

All of the interviewees say that they have great flexibility in how they manage their work. It is just that project workers do their work inside of the frame of budget, time and quality. It is not just flexibility how they do their work but also when they work, many of the interviewees have flexible working hours.

In the following some examples that interviewees give when they were asked about the flexibility in their work:

- Interviewee 4: “I can decide very much for myself, the working hours for everybody are flexible. You decide how you work and you can move some hours between weeks.”
- Interviewee 2: “Yes. Each person, each project manager has a lot of freedom in that, flexibility. It is on their own responsibility to do things in the right time, to get it done in the right time, to get it done in the right time.”

It seems not to matter in what type of industry the interviewees are, what position they have, every one of them has some flexibility in their work.

3.2.1.5 Experience

The age of the interviewees varies from 28 the youngest to around 65 the oldest. The working experiences did then tag along to the age, where it is from around 5 years to 40 years of experience in the labour market, the same is with the experience in working in projects. All the interviewees had a good experience in working in projects and most of them had only been working in project based organizations or in projects so they had good understanding of how projects works and the arrangement concerning in this kind of work. The trend in the interviews shows that experience in project work and professional work in general helps to deal and to overcome overload situations. Asking if the experience in project work helped to deal with project overload in a concrete project phase interviewee 13 replied, “Yes. I think […] that you get experience from every project”. Also interviewee 3 agrees that the experience is helpful to avoid overload situations and any further consequences out of it. Interviewee 6 points out that the most experienced managers are assigned to big projects.
3.2.2 Symptoms

In order to use the advantage of the interview method mainly open-ended questions were asked concerning the symptoms of project overload. Therefore a broad variety of symptoms are reported from the interviewees. The interviewees were asked how they recognize that they are overloaded to figure out the symptoms and to see how is it then possible to recognize when people are getting overloaded in the future. It can be said that the interviewees recognize project overload in two main ways.

First there is the personal way in the form of physical and mental aspects and then on the other hand there are professional aspects. The personal aspects are recognizing like stress, not having enough time for family, getting easily excited and so on. As the professional symptoms are more interesting and appropriate for this thesis some answers are presented in the following.

- Interviewee 5: “Too many questions at the same time”
- Interviewee 12: “You have too many balls in the air at the same time.”
- Interviewee 6: “Yes I have, and I recognize it like I don’t have any time to prepare anything.”
- Interviewee 7: “I would say that I have been in that kind of situation, were you get the feeling that you are locked in some special project and can’t get out of it and can not deal with anything else at the same time.”

It can be seen from these answers that recognition of projects overload differs among individuals and no specific rule can be seen concerning this matter.

3.2.3 Effects

3.2.3.1 Time/cost/quality triangle

The time/cost/quality triangle is the essential concept of project management. The results from the interviews show that the successful management inside this triangle is potentially influenced by project overload. However the trend in the interviews shows that project workers and managers try to minimize the project overload effects on quality. How project overload does have influence on time, cost and quality the interviewees responded as follows.

- Interviewee 5: “The delivery plan is also threatened.”
• Interviewee 10: “Yes, of course. If I am overloaded and I am not reacting, saying I need more support or we have to postpone the opening date or whatever it is, of course it could be a problem.”

• Interviewee 12: “It probably could. Again it’s nothing that we are striving to do or we say right out that it will happen. But it probably happens even if you don’t want it to happen. That’s probably the way it is […] I mean hopefully it is not affecting the quality of the work but I think it is inevitable that in some maybe it does.”

• Interviewee 6: “Yes I could spend more time in deciding about the best material and so on. And maybe the lasting of the project would be better.”

3.2.3.2 Project close out

The project close out stage should be the final task in successful project management. From interviewees it is stated that this final stage is suffering in overloaded environments. In order to have more time to pay attention to customer’s satisfaction and quality the close out is shortened or skipped as it is something not seen directly by the customer.

As interviewee 4 says it, “I know that I would like to have more time to sort things out (analyze, document) to give myself two till three hours to analyze, put down some numeration, measuring the project, document and you don’t give yourself time to do this, yes. Well sometimes it is a little bit stress; there are too many projects at the same time […] This has that effect that you work more and longer till at finish, to be able to deliver what the customer sees, but what he does not sees like documentation you skip that […] you finish what the customer sees, but then the documentation and the after work you don’t finish and afterwards you don’t have as good documents in you hands afterwards. In that way it has effects. But concerning the end product I don’t think it has any effects”. Also interviewee 5 sees that close out stage is influenced by project overload, “[…] lessons learned […] we should write these lessons learned points in a document. But we never get the time to get through the project so we know everything”.

3.2.3.3 Customer’s satisfaction

Customer’s satisfaction is more than just delivering inside the time/cost/quality triangle. The replies to the questions about influence on customer satisfaction vary. However, all in all it can be said that according to the interviewees the influence of project overload on the customer’s satisfaction is not as high as the influence on the project work itself. On the one hand for instance interviewee 13 points out that “[…] I don’t think the customer was so affected of this. I think more we in the
project.” On the other hand interviewee 5 sees it as a definite risk that the customer’s satisfaction is influenced by project overload.

### 3.2.3.4 Usability

The interviews show that with the usability of the outcome it is quite the same as with the customer’s satisfaction as both are really close related to each other. When interviewee 11 is asked for project overloads influence on usability the response is “Hopefully not, hopefully not. […] maybe he gets the service later, maybe day later or week later. But I don’t think that the service itself is worse, just comes a little bit later”.

### 3.3 Data from the questionnaire

In the following part the most important results of the questionnaire survey will be presented. The charts, graphs and the presentations of the data are made with SPSS 14.0 for Windows Integrated Student Version.

#### 3.3.1 Causes

##### 3.3.1.1 Number of projects

The following table shows on how many projects the participants, which have ever felt overloaded, work usually at the same time summarized in two intervals: 2 till 5 and 6 over. Table 3-1 shows just those participants that have ever felt overloaded with their project work.

_Have felt overload with project work and how many projects you usually work on at the same time?_

<table>
<thead>
<tr>
<th>Number of projects</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 - 5</td>
<td>25</td>
<td>78,1</td>
<td>78,1</td>
<td>78,1</td>
</tr>
<tr>
<td>&gt;=6</td>
<td>7</td>
<td>21,9</td>
<td>21,9</td>
<td>100,0</td>
</tr>
<tr>
<td></td>
<td>32</td>
<td>100,0</td>
<td>100,0</td>
<td></td>
</tr>
</tbody>
</table>

It can be seen in Table 3-1 that all of the participants that have ever felt overloaded are usually working on more than one project at the same time, the majority between 2 and 5 projects at the same time.
Furthermore three participants that usually work on only one project at the same time have never felt overloaded with their project work.

### 3.3.1.2 Workload

Concerning the weekly workload in hours the results from the questionnaire are showing the following. On the one side 45.2% of those participants that felt overloaded are working more than 50 hours a week, whereas the peak of the weekly workload was 80 hours in two cases. On the other side 80% of those participants that have not felt overloaded are working under 50 hours a week. Additionally around 66 percent of the overloaded project members are working full time on projects. Those overloaded participants that are not working full time on projects, work in the majority more than 30% of their time in projects.

Additionally all participants were asked questions about their motivation to work overtime. The participants could choose on a Likert scale with 5 opportunities how this factor would influence their motivation to work overtime. The scale varied from strongly positive (++) to strongly negative (--) with the opportunity for 0 influence in the middle. To this question 45 people gave a response. The detailed result for this question is shown in the following in the Graph 3-1.

*How would a challenging project influence your motivation to work overtime on a project?*

![Graph 3-1 Challenge influence](image)

The Graph 3-1 shows that the huge majority of participants are seeing their motivation to work overtime strongly positive or at least positively influenced by a challenging project.
3.3.1.3 Recuperation

The participants were asked if they have enough chance for recuperation during an intensive project work. Almost 70 percent of the respondents that have felt project overload have not enough chance for recuperation during an intensive project work. On the other side 77.8 percent of the not overloaded respondents to this question have the recuperation chance. Asked for the reasons why there is no chance for enough recuperation the participants give some quite interesting answers. Some examples are like

- “not enough time”, “lack of time”
- “too much projects”, “because there is always more projects waiting”
- “going directly to the next project”
- “because I can badly say no to new projects and task”
- “too many hours a week plus communication at the weekends”
- “usually I work on more projects at the same time and when one is finished the work carries on”

3.3.1.4 Flexibility

The flexibility in doing the project work is quite high for both, the overloaded and not overloaded group of participants. The majority of all participants (around 70 %) have a level of flexibility of 4 and more on a scale from 1 (no flexibility) to 5 (complete flexibility).

3.3.1.5 Experience

The participants show a broad variety of work experience and project experience. The number of years varies from 1 till 40 years working experience. For the survey it was important to have the opinion of employees working in projects or having experiences in project work. Ask for their years spend on project work 40 people replied. The number of years spend on project work varies from 1 till 30. As it shows in the data from the questionnaire overloaded as well as not overloaded employees have both high and low levels of experience.

3.3.2 Symptoms

The individuals that have ever felt overloaded with project work were asked how they recognize that they are overloaded or in other words what they see as the symptoms. Like in the interviews it can be seen that the symptoms depend really much on individual persons. Some reported physical
reactions like headache, pain, or illness as symptoms. Others reported more professional symptoms to this question. As the professional symptoms are more interesting and appropriate for this thesis some answers are presented in the following:

- “Can’t keep the focus on the project, only acting on emergency things”
- “Can not finish projects properly”
- “Not being able to deliver high priority tasks on time”
- “Poor quality on my work”
- “Realising that the project could be completed in a better way if timeframe would allow it”
- “Things are not ready when they should be”

3.3.3 Effects

3.3.3.1 Time

In the questionnaire the participants were asked directly how too much project work to do, does influence the project schedule. This question was asked as a closed-end question with a Likert scale from 1 (never in time) to 5 (always in time).

*When you have too much project work to do, how does it influence the project schedule?*

![Graph 3-2 Influence on time schedule](image)

The Graph 3-2 shows the detailed results to this question. 28 respondents are sometimes to never in the scheduled time if they have too much project work to do.
3.3.3.2 Cost

The question how the project costs are influenced by too much project work is structured in a similar way like the one for the project schedule before. On a 5 point Likert scale the participants could chose how too much project work does influence the project costs. In Graph 3-3 the detailed results can be seen.

When you have too much project work to do, how does it influence the project costs?

![Graph 3-3 Influence on project costs](image)

As Graph 3-3 shows, 14 respondents replied that too much project work would lead to higher costs than with normal amount of project work. Still nobody replied that the costs will be much higher than without having too much project work to do. The trend shows that too much project work increases the project costs.

3.3.3.3 Quality

In order to see how the quality is influenced by too much project work the participants had again to choose on a 5 point Likert scale. The detailed results are shown in Graph 3-4.
When you have too much project work to do, how does it influence the quality of the project work?

Graph 3-4 Influence on quality
It shows that for 23 respondents the quality goes down when having too much project work to do. On the other hand 4 respondents even think that the quality increases when having too much project work to do.

3.3.3.4 Customer's satisfaction

The participants were asked for the influence of too much project work on the customer’s satisfaction. The following Graph 3-5 is illustrating the detailed results.

Graph 3-5 Influence on satisfaction
Looking at the influence of too much project work on the customer’s satisfaction it can be said that the majority of the respondents do not think that too much project work does influence the
customer's satisfaction in a negative way. Nevertheless a trend to lower customer's satisfaction can be seen as 15 respondents rather think that too much project work lowers the customer’s satisfaction.

3.3.3.5 Usability

Finally the participants in the questionnaire were asked for the influence on the usability of the outcome. The detailed results are shown in Graph 3-6.

When you have too much project work to do, how does it influence the usability of the outcome?

Graph 3-6 Influence on usability

The results are similar to the ones for the customer’s satisfaction. On the one side 16 respondents see the usability of the outcome negatively influenced by too much project work. On the other side the majority of the respondents do not see the usability of the outcome influenced by too much project work.
4 Discussion and Analysis

The analysis of the data is done in order to give response to the research question. The analysis chapter is therefore divided like the research model and the results chapter in the three categories: causes, symptoms and effects. The analysis is based on the primary and secondary data that was collected by the authors.

4.1 Causes

4.1.1 Number of projects

According to the Zika-Viktorsson et al. (2006) study, one of the causes of project overload can be having too many projects to work on parallel. “The burden of being involved in one or more projects at the same time varies according to types of projects, and their uniqueness, content, size and scope […] the more projects a person participates in, the greater is the risk of project overload” (Zika-Viktorsson et al., 2006, p. 386). This can be explained by using the juggler metaphor. The more balls the juggler has to hold in the air in the same time the more the risk is that he will lose some of them or even all. In this study there are clear identifications that show that the numbers of projects, project workers are running parallel varies a lot concerning size, complexity, scope, uniqueness of the projects and also the industry the project workers is working in. The project workers in those particular industries are dealing with projects of large scale concerning budget, size and complexity and are usually not working on more than one project at the same time. The construction industry for instance, where employees have to deal with large projects, like building big houses, road construction and so on are in these category. Similar is it with customized high-tech manufacturing projects. The uniqueness of these projects leads to that project workers are often not working on more than 2-3 project at the same time. Knutsen (2001) supports this by pointing out that the bigger the tasks are the less can be managed at the same time. From the results of the online questionnaire it can be seen that the great majority of project workers that are overloaded are working on more than one project at the same time. Most of the overloaded participants were working on two till five projects at the same time and as Knutsen (2001) points out an individual professional is able to handle five assignments, activities or tasks per month. If every single task is coming from a different project the project worker can balance five-multi project obligations over the four weeks of a month.
The findings of the authors from the research are therefore in line with Knutsen (2001) that suggests that project workers feel more overloaded if they are working on more than one project at the same time.

### 4.1.2 Workload

Tobis (2002) uses two figures to explain the relationship between workload and the outcome of the work. In Figure 2-4 in this thesis it shows that with increasing hours of work the total output will also increase. However it also can be seen that the slope of the curve becomes less steep in relation to more hours worked. This states that, the more hours a person is working, the less output that person will produce in each added hour. The results from the interviews vary a little in how many hours the interviewees were actually working per week. Most of the workers are supposed to deliver around 40 hours per week. All for except one interviewee did work more than they were supposed to. And it varies from working no overtime to working up to 20 hours per week of overtime. It can be seen that the overtime these project workers are working is not giving as much in productivity as the time before the worker reaches the 40 hours time point. In the findings from the online questionnaire, 45.2% of the project workers that were overloaded were working more than 50 hours per week, but 80% of the project workers that did not feel overloaded are working under 50 hours per week. These findings suggest that the time project workers are working have a great influence on project workers’ feeling of overload.

The market situation has effects on project overload. There may be seasonal ups and downs, which can be best seen in the construction industry. According to Raiden, Dainty and Neale (2004) the workload in construction organizations has extreme fluctuations, sometimes it is very busy and other times it is not. Also some external factors influence the workload for instance, seasonal changes, weather, and the economic situation. This is supported by interviewee 1a saying that in the construction organization the winter is a low time when on the other hand the summer is a busy time. The authors notice the same in the consulting industry as in the accounting business where the high season is from January till mid June. Though it is easy to plan a seasonal change like for the accounting business, the weather and economical situation, demand and supply is a little bit harder to deal with. Economical situation has of course big influence on project overload as other factors, like an economical boom where the work increases in the same way. Interviewee 8 says that as the economical situation is on the construction market at the moment there is no time to recover after a one project. The market pushes the organizations to work ongoing in a situation like this. And for the organizations they have to overproduce to keep up with the market.
The authors noticed that in these market situations where it is hard to forecast, the project management literature and its tools and techniques concerning planning are in a difficult matter. It is rather the solution to let project workers work longer during these times. In some cases where the project workers work in a group they use the group to support them during some time, when these up peaks arise. When interviewee 7 was asked what he/she does when the work starts to become inflicting, the response was “in my group we have been sharing projects”. Same says interviewee 12 “So it’s a little bit more how my colleagues could be there for me and how I could plan the work”. When the group spirit is in this way it can be considered as a part of a solution to get rid of the overload.

According to Meredith and Mantel (1995) projects always interact with the parent’s standard, ongoing operations. Many of the interviewees are both working in projects and on their routine work. The authors notice in some cases the conflict and some struggle between these two types of work. As interviewee 4 mentions having two bosses, “People have always there home base and have bosses there […] and there is project manager […] he has not so much power”. This issue of having two bosses can be in relation to which type of organization the company is. Functional types of organization are most likely to have this problem according to some of the interviewees. On the other hand the pure project type of organization does not have to deal so much with this problem. In this particular case the company was said to be a matrix organization but rather described as a functional organization that can explain the issue of having two bosses.

Knutsen (2001) states how challenging it is for the project workers to split time between projects and also dividing time between regular, functional and project work. Furthermore Knutsen (2001) says if a project is less than 20 percent of time it can be considered as interruption on daily work and therefore an individual project worker is able to handle five assignments or task per month. Also Knutsen (2001) points out that the bigger the tasks or projects are the less can be managed by the project worker at the same time. In the authors study these statements are supported in that way that the interviewees that are working on big project are usually not having more than one project running at the same time, for instance in the construction industry. Then on the other hand the interviewees that are working on small projects have often many, even up to 30 projects running at the same time, like in the IT industry and consulting.

If the project is challenging or it stimulates the project workers it is more likely that the motivation to work and maybe put in some extra hours as the results of this study show. Also according to Zika-Viktorsson et al. (2006, p. 387) “A project goal that stimulates and challenges project members and managers encourages motivation and personal development. A Challenging goal is a strong
motivator, and may also be a strong source of unity among project workers”. From both the interviews and the online questionnaire the results show that if the project in some way motivates the project worker they are more willing to put in some more extra hours and to work a little bit harder. This can even be linked to that projects workers do not as much pay attention to being overloaded as if they were not working on a project that did not motivates them in any way. For leaders of organizations that work in projects it is an interesting point to look at. If the leaders can use this to let the project workers fell that the project is challenging or its goal is stimulating they will probably have a strong tool in their hands to fight against project overload.

4.1.3 Recuperation

Are the project members given the time to recover after a heavy project work or are the project members instead thrown straight away into the next project? According to Zika-Viktorsson et al. (2006, p. 387) when too many project are pushed onto the project workers then “there is a risk that the opportunity to “catch breath” and reflect over the situation after a peak in effort is reduced in project-intensive work settings”. And moreover “Our results show that lack of opportunity to recover is the strongest predictor for project over load among the tested ones” (Zika-Viktorsson et al., 2006, p. 390). These findings in Zika-Viktorsson et al. (2006) study are in line with the results of what this study has found out. Especially the results from the online questionnaire indicate that almost 70 percents of the participants that have felt overloaded have not had the change for recuperation during an intensive project work.

From the results of the interviewees there were answers in both ways that project workers have had the opportunity to recover and also that they have not had the opportunity. Usually the reason why project workers have no opportunity to recover is because there is another project waiting. As when interviewee 5 is asked this question if the opportunity to recover after an intensive project work is given “Often not. Usually it has already started up a new project, parallel to the one about to close. So it’s on the new one to continue”. There is with out a doubt from these results the opportunity to lower the influence of project overload by the organizations leaders by giving the project workers the opportunity to “catch breath” between projects or during an intensive and a long project. Like in the example from the consulting industry when an accounting manager was asked about the opportunity to recover the interviewee says; that the good part about having intensive project work for some time is that he knows that in the summertime it is less to do. The interviewee has the opportunity to recover and arrange the work like working fewer hours in the summer than in the intensive time of accounting from January till mid June.
Still there is the trend for most companies to take in more and more project because “you don’t want to say no to an order” as interviewee 2 responded.

4.1.4 Flexibility

How the project manager manages the work in a best possible manner is according to Leybourne and Sadler-Smith (2006), highly related to the outcome of the project. For the author this raised the question how much flexibility have the project workers in doing their job? Therefore it was asked for the flexibility in the interviewees and in the online questionnaire. The results are simple in that way that participants had overall great flexibility in how they manage their work. What the result shows is that inside the frame of Turner (1999, p. 9) “The time/cost/quality triangle” project workers have a great flexibility to do their work. That is they can “jam” as they want inside this frame. What can be found out of these results is that even though the project workers have a great flexibility they are overloaded as it can be seen in the online questionnaire were around 70 percents have the level of flexibility of 4 or higher (were 1 is no flexibility and 5 is complete flexibility). The authors did not find any indications that some industries were different in this matter or position of the project workers matters concerning flexibility. In the light of this the authors do not see that lack of flexibility can be a cause of project overload, because overall the participants had flexibility in their work.

4.1.5 Experience

Many of the interviewees agree that experience is one of the important factors when working in projects. Experience helps in a way to avoid project overload situations in that manner that experienced project workers are better prepared to deal with this situation then less experienced project workers. Most of the participants, both in the interviewees and in the online questionnaire, had good experience in working overall as well as working in projects. Still though participants agree that it helps to have good experience the result shows that both less and high experience project workers are overloaded. However most of the interviewees agree that their experience helps them to forecast when overload situations may occur and also helps them to take the right reactions to that.

4.2 Symptoms

As the study of the authors shows there are a lot of different symptoms for project overload. In the following the most common symptoms to recognize project overload for project members are
analyzed. The symptoms for project overload can be separated in two categories: personal and professional symptoms.

4.2.1 Personal symptoms

As the name already says the personal symptoms depend on the individual persons. Hence the personal symptoms are mainly based on what the interviewees and the participants from the questionnaire reported. Those personal symptoms for project overload can be divided into four subcategories: stress, physical reactions and suffering private life.

4.2.1.1 Stress

Zika-Viktorsson et al. (2006) figured out a positive relation between project overload and psychological stress reactions. Which means a high level of project overload leads to high psychological stress reactions of the individuals. Also from the interviews and the questionnaire stress was reported as a common symptom of being overloaded.

4.2.1.2 Physical reactions

Physical reactions like headache, illness, bad sleeping or pain in shoulders and neck have been reported from the interviews and the questionnaire. Summarized it can be said that everybody shows different physical reactions on the situation of overload. As it was reported from the interviews some companies even inform their workers about these physical symptoms to be better able to deal with the situation when it occurs.

4.2.1.3 Suffering private life

Another symptom of being overloaded with project work is the suffering private life. Many project workers and managers reported that they feel their overload as soon as there is no time left for any private life like the family, children or sports.

4.2.2 Professional symptoms

The professional symptoms reported from the interviews and the questionnaires are supported from those in the theory and the secondary data. In the following the five main symptoms that authors found out are presented.
4.2.2.1 Difficulties in focus

Both Tobis (2002) and Smith (1998) mention shifting priorities as symptoms for project overload. Furthermore Smith (1998) states that people tend to jump from project to project in an overloaded situation. Additionally the uniqueness of projects has to be taken into account. Meredith and Mantel (1995) as well as Frame (2003) are pointing out that each project is to a certain degree unique concerning the tasks or the requirements from the customers. Combining the symptoms from Tobis (2002) and Smith (1998), the fact that each project is unique and the results from the interviews and the questionnaire it can be said that from the project member’s point of view a symptom to recognize project overload is the difficulties in focus on special tasks or single projects. As priorities shift and people jump between different projects it is difficult to focus on the different and unique things to do. Moreover having always other projects, requirements and tasks in mind makes it more difficult to focus on each one of them and for the project manager there are just too many questions at the same time.

4.2.2.2 Lower work performance

According to Tobis (2002) constantly disappointing quality is a symptom of project overload. The interviews and the responses to questionnaire show the quality of work can not be said to be disappointing in an overload situation. It is more that the quality of work an overload project member is delivering is not on the highest possible level, the performance of the work in general goes down. This means that project members are realizing that they are not able to give their best work performance in the projects. The quality of the work can still be on a satisfying level. Nevertheless the overloaded project members are not able to use their full potential or in other words they are not delivering the best they would be able to do if they were not overloaded.

4.2.2.3 No time to finish tasks

This symptom is based on the author’s survey as many employees are complaining that they don’t have the time to finish their tasks. Being under the pressure of several projects, deadlines, milestones and so on the project members do not have the time to finish their tasks. Recognizing that there is just no time to finish a task because another task is waiting can be seen as a symptom for a project member to realize an overload situation. As a result the tasks are not finished when they should be and in the end it will lead to late deliveries as Tobis (2002) points it out or slipping schedules as Smith (1998) states it.
4.2.2.4 No time for planning

As it is in the nature of projects that they are running in a finite period of time (Frame, 2003) a project needs a clear beginning and a clear end. Therefore it needs to be planned and scheduled in detailed. Having to deal with too many projects at the same time or in a row project managers are not able to plan each project in a right way. As it was reported in interview 6 the time to prepare anything is missing. Also the project workers have to structure their time and should schedule their weeks (Knutsen, 2001). Realizing that the time is missing to plan or prepare anything before starting a project or a certain task can be seen as a symptom for a project overload situation.

4.3 Effects

The results from the author’s research concerning the effects of project overload will be analyzed in the following part. The analyze will also follow the structure of the research model.

4.3.1 Time/Cost/Quality

Simply said, projects have to be managed within a time, cost and quality frame. Navigating the project inside these three constraints is one part of successful project management and the first step for a successful product as outcome of the project. In the results of the authors’ survey it shows that project overload is influencing the “time/cost/quality triangle” (Turner, 1999, p. 9) in different ways.

Concerning the time a lot of interviewees report about threatened delivery plans and later deliveries of products when an overload situation occurs during a project work. As it is pointed out by a former establishment and project manager (interviewee 10), the planned opening date has to be postponed if the project manager is overloaded during certain project stages. The findings in the interviews are supported by the results of the questionnaire. It shows that the majority of respondents have a more or less high problem to follow the project schedule when there is too much project work to do. Also the symptom that project members do not find the time to finish tasks will lead to pitfalls in managing inside the time constraint.

Costs in projects are usually handled with a certain budget. If more resources like time or people are spend on projects the costs will raise. If the costs will rise because the employees have to spend more time on the project or need support from colleagues depends on the type of contract the project members have. The trend that shows in the interviews is that in most of the companies,
especially in the consulting and IT business, the project members are not getting paid for any overtime. Nevertheless as the results from the online-survey shows, around 1/3 of the participants see the project costs rising when too much of it is to do. This could be because on the one hand some people are having contracts with paid overtime and on the other hand that penalties have to be paid because of later deliveries. As it is stated from a manager over applications and project (interviewee 2) that as a result of late deliveries the company is fined by 0.5% of the product costs per week by the customer. And therefore in the same manner the costs will raise around 0.5% a week.

Concerning the influence on quality it can be said that it is not as high as maybe could be expected. The results from the interviews show that the project members try to reduce the effects on quality as much as possible. As it is reported from an interviewee in a consulting company, it is inevitable that the quality sometimes is influenced although it is nothing that the company is striving to do. Especially in the construction industry bad quality can lead to tremendous problems when the finished product is in use. Therefore the construction companies have extremely good quality systems as reported by interviewee 1a and 1b. Nevertheless it can be seen in some other interviews and the questionnaire that the quality is lowered by project overload. In the questionnaire around 55 percent are seeing the quality going down with too much project work but still not in a very harmful way. To conclude, the quality of project in an overloaded environment is lower than without any overload. The quality is not as high as it could be but still on an acceptable level.

4.3.2 Project close-out

Project close-out means analyzing, documenting and reflecting what was happening during the project. The project-close out is important in order to learn from mistakes and to improve the project work. As it is reported in the study of Zika-Viktorsson et al. (2006) the development of professional skills and the generation of knowledge are lower with higher level of project overload. The project close- out stage can be seen as a help for the development of skills and generating of knowledge. In the interviews of the authors’ study project members report that they have no time to sort out things and to analyze and document it. Also established activities for improvement suffer under the overload with projects. As an interviewed application engineer and project manager (interview 5) claims it there is no time to do the lessons learned activities that are established in the company. Zika-Viktorsson et al. (2006) however figured out no significant relationship between less activity for improvement and project overload. Furthermore it can be said that overloaded project-members tend to skip those parts that the customer does not see (e.g. documentation) in order to
work more on the product itself to deliver in time to the customer. On the one hand the customer will not suffer directly from lack of documenting and analyzing projects. On the other hand in the long term view it influences the customer in an indirect way. Without having a good documentation of past projects, mistakes that were done the last time will possibly raise again for the same customer.

4.3.3 Customer's satisfaction and Usability

To measure project success is according to Lewis (2001, p. 32) the following principle: “The only truly successful project is the one that delivers what it is supposed to, gets results, and meets stakeholder expectations”. What the authors found out from the results of their study is that even if the project worker is overloaded he tries not to let it influence the product that is handed to the customer. In other words the project workers try to keep up with the customer expectations as much as possible. The interviewees point out that even though they try to do everything they can to not let this have effects on the outcome of the projects there is a risk that customers satisfactions is harmed by this. From the results of the questionnaire there is a identification that overload can influence customers satisfaction in a negative way, but still it is not so in a drastic way as people could image.

According to Kupakuwana et al. (2005, p 33) “keeping an existing customer is much more cost-effective than winning a new customer”. And this is supported by, Frame (2003) points out that the key to survival is to keep the customer happy. These facts can be the reasons that influence the project workers not to let their overload harm customer’s satisfaction.

And in relation to customers satisfaction the authors asked the participants the question if they think that overload can influence the usability of project for their customers. The results form both the interviewees and the online questionnaires are alike to the customer satisfaction question. That is that the respondents do not apply that the usability of the project is harmed in a negative way for the customer because of project workers overload.
5 Conclusions

5.1 Project overload model

In the following the author’s model about project overload will be presented. This model is grounded in the data from the interviews and the online-survey that was done for this thesis and therefore it may not be seen as an overall valid explanation of the topic. It should give the reader an overview about project overload and summarize the findings from this thesis in a visualized form.

Project overload model

![Project Overload Model Diagram]

Figure 5-1 Project overload model
Source: own model
5.2 Research question

In the following part the authors are going to present how they are responding to the research question. The research question the authors followed in this thesis is:

*Why does project overload occur, how can it be recognized and how does it influence the project work?*

In order to respond to the first part, why project overload occurs, the authors were trying to figure out the causes for project overload. In the research it showed that the biggest role for occurring project overload plays the number of project individual project members have to work on at the same time. Furthermore the general workload can influence project overload for the individual. The workload varies with the number of hours worked per week or month, the market with its seasonal ups and downs and the routine work that has to be done besides the projects. Additionally the recuperation the project members get during intensive project phases influences the feeling of overload. Finally missing experience in project work may cause overload. However, having a lot of experience is not pretending of project overload but it may help to deal with it.

The second part of the research question focused on how a project member can recognize the overload. The study showed that it depends much on the individual how and when they recognize an overload situation. In most cases the overload is seen when the private life is suffering or the stress becomes too high. Furthermore project members should listen to their bodies as they show reactions in the form of sickness, sleepiness or pain. Additionally project members may recognize overload in the way they are doing their tasks. It could be difficult to focus on single tasks and the general working performance goes down. And finally the time to prepare and to finish certain tasks is missing.

The influence on the project work can be seen in different ways. The time, cost and quality requirements are all influenced by project overload. Important to say is that the project members are trying to reduce the influence on quality, time and cost when it comes to the customer. As a result of trying to keep the quality, the customer’s are not that much influenced by project overload in a direct manner. What can be believed is that more internal parts of the project management are harmed by overload. Since project members tend to spend more efforts to deliver the product in time than to finish the project internal by documenting, analyzing and improve processes for the next projects. This fact may not influence the customers directly when the product is delivered but it
may influence them for the next project when potential pitfalls are not recognized in advance as a result of missing improvement.

5.3 Theoretical implications

After discussing and analyzing the data from the research the authors have identified and developed some concepts that were not noticed before in the existing literature about project overload.

As it can be seen in the project overload model (Figure 5-1) the symptoms of project overload can be split up into two sub-categories that are: personal symptoms and professional symptoms. In the existing literature about project overload this separation of the symptoms for project overload has not been found. Smith (1998) as well as Tobis (2002) just mention some symptoms without dividing them into different categories. The two sub concepts of project overload symptoms give two different points of view how to recognize project overload.

On the one side the personal symptoms show the project members themselves how project overload can be recognized not only when doing the project work itself. On the other side the professional symptoms show the project members and the organization as a whole how project overload is recognizable at the place work itself. Summarized in other words the personal symptoms show how project overload can be recognized in the personal life and the professional symptoms show project overload in the professional life of project members. Still both kinds of symptoms should be taken into account to clearly identify the situation of project overload for a project member.

Furthermore the authors have noticed emerging concepts from the data concerning the effects of project overload. Even though Zika-Viktorsson et al. (2006) expresses the relation of project overload to certain variables, there is no separation into different sub-categories. The authors develop the concept of external and internal effects of project overload. As it shows up in the research the influence of project overload on important project management issues is different concerning the external and the internal outcome of the project. Time/Cost/Quality can be influenced regarding their external and the internal impact on the project.

Regarding the internal influence on time it can be said that project overload can lead to missed milestones inside the project itself. In order to avoid a direct influence of that on the end delivery time of the whole project to the customer the project members spend more time at their job. Project
members tend to skip internal project management tasks, like the project close out, in order to deliver in time for the customer or start a new project in the right way.

Concerning the external effects of project overload it emerges the concept that the project members are spending as much effort as possible to avoid any negative effects for the customer in terms of time/cost/quality, usability or customer’s satisfaction.

Furthermore, as it can be seen in the project overload model, the internal and external effects of project overload are influencing each other. Trying to avoid the external effects will lead to less time for internal project accomplishment. In the other direction, not finishing the project in a right way regarding things like documenting and analyzing will harm external factors like customer’s satisfaction or quality in later projects.

5.4 Practical implications

The industries that took part in the research; construction, IT, consulting, customized high-tech manufacturing companies and companies doing their internal development through projects can now have some enhanced understanding on the matter of project overload. This thesis gives them the opportunity to look at the issue of project overload in a new way.

The new concepts that are shown, both for the symptoms of project overload and for the effects of project overload can help the industries to deal with the issue of project overload in the future. Knowing the symptoms better and understand how to recognize them the companies are in a better position to avoid project overload on their project members. Also for the project members it is important to know how project overload can be recognized by looking on the personal symptoms. Being aware that there are both personal and professional symptoms will help the leaders of the organizations to recognize the professional symptoms by their employees and to ask them personally to see if they have personal symptoms of overload.

It is important for the leaders of the organizations and also for the project workers to realize the effects of project overload. If the leaders recognize that their project workers need maybe more time in the beginning or in the end of the project to plan or to close the projects, and then they are able to improve work, the organization will have happier employees, and not at least satisfied customer.
5.5 Future research

There are many sides of project overload that could be better looked into and more research is needed to take a full look into the concept of project overload. The authors of this thesis realised that there are some limitations of this study, but important aspects on the subject of this complex matter of project overload have been discussed in this thesis.

For further research it would be interesting to look deeper into how to avoid project overload or ask the question if it is possible. There are some interesting suggestions that the authors found in their interviews and in the online questionnaire with project workers and people working in projects and know from their own experience the matter of project overload. One of the suggestions the authors spotted from several participants both in the interviewees and from the online questionnaire that is the lack of time to plan and the lack of time to finish the project close out. For further studies there can be more focus on these two tasks that are in the beginning and in the end of a project that could help to better understand the concept of project overload and more important one, even to see how to avoid it.

Then there is the question if it is possible to avoid project overload. Is the current situation in organizations that work in project like that? That it seems inevitable to have some sort of project overload? Conceivable there is organization that is working in project that does not have this situation of project overload, even though the companies’ studied in this thesis had. Then there is a possibility to study that company and see what that company is doing to avoid project overload and learn from that. Overall assumption of the author is that the subject of project overload should be studied more because of how extensive it seems to be in organizations working in projects.
Bibliography

Scientific Articles


Hyväri, I. “Success of Projects in different Organizational Conditions”, Project Management Journal, 37, 4, (Sep 2006), ABI/INFORM Global, p 31-41.


Published Interviews

Books


Internet Sources

APPENDIX I
Guideline for the interviews

1. Could you please first tell us what position you have and what is exactly what you are doing?
2. If you work in projects, which position do you have?
3. How do you structure project team?
4. Do you work full time on projects? How many percents of your time?
5. How many hours are you supposed to work? How is it actually?
6. Do you have to work a lot of overtime during a project work?
7. Do you get enough chance to recuperation during a intensive project work?
   a. How does it look like?
   b. Why not?
8. Do your authority and a challenging project influence your motivation to work overtime? How?
9. How is the flexibility to work? Are you more or less free to decide how you do it or not
10. Is it always clear what the customer is requires?
    a. Do you have time to pay attention to it all the time you are working?
11. What do you thing about project overload? Have you ever thought about that?
12. How would you describe it in you own words?
13. Have you ever felt overloaded with project work?
    a. How did you recognize it?
    b. Why not?
    c. What have you done?
14. How would it influence you work?
    a. Schedule
    b. Quality
    c. Motivation
    d. Outcome
    e. Usability for the customer
15. What about your background?
    a. Working experience
    b. Project experience
    c. Type of organization
    d. Age
    e. Etc.
The interviews

Interview 1, interview by authors, Kalmar, Sweden, 2nd April 2007.
- Interviewee 1a: The interviewee’s position is a district chef in a construction company and is responsible for the project managers that are working on the construction site. The interviewee has a long experience of working in the construction industry.

- Interviewee 1b: The interviewee’s position is working on tender descriptions in a construction company and has a long experience in working both in projects as in general.

Interview 2, interview by authors, Kalmar, Sweden, 10th April 2007.
- Interviewee 2: Is a 39 years old manager over applications and project in a customized high-tech manufacturing company. The interviewee has 14 years of experience and all in project work.

Interview 3, interview by authors, Kalmar, Sweden, 12th April 2007.
- Interviewee 3: Is a project manager in a construction company. He has 33 years of working experience and 31 years of project manager experience.

Interview 4, telephone interview by authors, Kalmar, Sweden, 13th April 2007.
- Interviewee 4: Is a 45 years old project manager in an IT company. The interviewee has about 20 years of experience in working and 10-12 years of experience as project manager.

Interview 5, interview by authors, Kalmar, Sweden, 13th April 2007.
- Interviewee 5: Is a 36 years old application engineer and project manager in a customized high-tech manufacturing company. The interviewee has ten years of working experience and three and a half years of that as a project manager.

Interview 6, telephone interview by authors, Kalmar, Sweden, 13th April 2007.
- Interviewee 6: Is a 50 years old project manager in a construction industry and has 20 years of working experience.
Interview 7, telephone interview by authors, Kalmar, Sweden, 16th April 2007.
   − Interviewee 7: Is a 31 years old operation manager and part time project manager in an IT company. The interviewee has around ten years overall working experience and seven and a half year working in projects.

Interview 8, telephone interview by authors, Kalmar, Sweden, 17th April 2007.
   − Interviewee 8: Is a 41 years old project manager in a construction company. The interviewee has a total of 17 years of working experience and all that time in projects.

Interview 9, telephone interview by authors, Kalmar, Sweden, 17th April 2007.
   − Interviewee 9: Is a 28 years old senior developer in an IT company. The interviewee has five years working experience and projects experience.

Interview 10, interview by authors, Kalmar, Sweden, 18th April 2007.
   − Interviewee 10: Is a 53 years old store manager and a former establishment manager and project manager in a large international home product retailer that does its internal development (building up new stores) in projects. The interviewee has 28 years of experience working for this company and around half of that time working in projects.

Interview 11, telephone interview by authors, Kalmar, Sweden, 18th April 2007.
   − Interviewee 11: Is a 32 years old operational manager and occasionally project manager in an IT company. The interviewee has 12 years of working experience and around six and a half year working in projects.

Interview 12, interview by authors, Kalmar, Sweden, 20th April 2007.
   − Interviewee 12: Is a 44 years old audit accountant in a consulting company. The interviewee has 17 years of working experience in this field and eight years working in projects.

Interview 13, interview by authors, Kalmar, Sweden, 20th April 2007.
   − Interviewee 13: Is a 40 years old financial manager in a consulting company. The interviewee has 20 years of working experience and about 6 or 7 years as working in projects.
The questionnaire

Part I (Causes)

1. On how many projects do you work usually at the same time?

2. Do you work full time on projects?
   - yes
   - no
   *If no*
   How many percent of your time do you usually spend on project work?
   - %

3. How many hours are you supposed (union, contract etc.) to work a week?
   - hours

4. How many hours do you actually work a week?
   - hours

5. Do you have enough chance for recuperation during an intensive project work?
   - yes
   - no
   *If yes*
   How does this recuperation look like? (e.g. a day off)
   *If no*
   Why not?

6. Do you get personal feedback for your project work?
   - yes
   - no

7. a. How would having authority influence your motivation to work overtime on a project?
   - ++  +  0  -  --
   - yes
   - no

    b. How would having a challenging project influence your motivation to work overtime on a project?
   - ++  +  0  -  --
   - yes
   - no

8. Do you have unclear/fuzzy requirements from your customers?
   - never
   - always
9. How much flexibility you have in accomplishing your task?
   no ☐ ☐ ☐ ☐ ☐ complete

Part II (Symptoms)

10. How would you describe project overload in your own words?
11. Have you ever felt overloaded with your project work? ☐ yes ☐ no

   If yes
   a. How often does this happen?
   b. How long is the overload period lasting usually? (e.g. 3 days, 2 weeks, 1 month)

   c. How do you recognize that you are overloaded (what are the symptoms)?
   d. What do you do when you feel the overload?

   If no continue with question 12

12. How often do you jump between your projects?
   never ☐ ☐ ☐ ☐ ☐ always

13. How often do you have to do the job of other people?
   never ☐ ☐ ☐ ☐ ☐ always

14. How often do you change the priorities of your work?
   never ☐ ☐ ☐ ☐ ☐ always

15. How often do you have the feeling that you are wasting time on a task?
   never ☐ ☐ ☐ ☐ ☐ always

Part III (Effects)

16. Do you have enough time to pay attention to the customer’s needs/requirements?
   never ☐ ☐ ☐ ☐ ☐ always

17. Are you able to follow the project schedule?
   never ☐ ☐ ☐ ☐ ☐ always

18.
   a. When you have too much project work to do how does it influence the project schedule?
      Never in time ☐ ☐ ☐ ☐ ☐ always in time

   b. When you have too much project work to do how does it influence the quality of the project work?
      Lower quality ☐ ☐ ☐ ☐ ☐ higher quality
c. When you have too much project work to do how does it influence the project costs?
Lower costs ☐ ☐ ☐ ☐ ☐ higher costs

d. When you have too much project work to do how does it influence the usability of the outcome?
Lower usability ☐ ☐ ☐ ☐ ☐ higher usability

e. When you have too much project work to do how does it influence the customer’s satisfaction?
Lower satisfaction ☐ ☐ ☐ ☐ ☐ higher satisfaction

f. When you have too much project work to do how does it influence your moral?
Lower moral ☐ ☐ ☐ ☐ ☐ higher moral

Part IV (Background)
19. How many years have you been working?
20. How many of them have you been working in projects?
21. Which kind of position do you usually have when you work in projects?
   (e.g. project manager, engineer specialist)
22. The projects you work in are mainly related to (e.g. construction, consulting)
23. In what type of organization form you work in?
   ☐ functional organization
   ☐ pure project organization
   ☐ matrix organization
   other
24. Gender: ☐ female ☐ male
25. Age: ________ years
26. Nationality: