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# Risk Management in ERP Projects

Upgrading to Microsoft Dynamics NAV 2009

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<p>Today the importance of IT is bigger than ever before in the business world of the 21<sup>st</sup> century. Information has to be available immediately and it has to be accurate, as the rapidly changing environment demands it. Enterprise Resource Planning (ERP) systems are capable of providing businesses with the needed information in the required level; however the systems demand vast investments and failed ERP projects can be perilous. Therefore, correctly managed IT projects are deemed as requirement for businesses to remain competitive. This study is based on project management and focuses on ERP projects especially.</p> <p>The literature of this study presents the importance of ERP systems in modern organizations and in the proper implementation of such systems by minimizing the possibility of failure. Each book utilized in this study focuses on some specific project management aspect, such as IT projects, ERP projects or project management methods. The various project management researches used described the same steps with small variances. Despite the focus, all literature reviewed for the purpose of this study pointed out the significance of planning and documenting each step. ERP projects do not differ from this fact, besides by typically being expensive and demanding.</p>	
Keywords	IT Project Management, CHAOS report, ERP, ERP implementation, risk management, project plan, project team

## Contents

1	Introduction	3
1.1	Objective and scope	5
1.2	Research Methodology	5
2	ERP systems	7
2.1	General information about ERPs	7
2.2	Accounting module in ERP systems	10
2.3	Microsoft Dynamics NAV 2009	12
3	Project Management	14
3.1	Definition of a project	14
3.2	Project Management in seven steps	14
3.2.1	Define the project	15
3.2.2	Organize the project	15
3.2.3	Quality in IT project management	16
3.2.4	Forming the project team	17
3.2.5	Plan the project	17
3.2.6	Manage the project	18
3.2.7	Track the project	18
3.2.8	Closing the project	19
3.3	Project Organization	20
3.3.1	Project Manager	20
3.3.2	Project team	21
4	Risk management of IT-projects	22
4.1	Reasons for IT-projects failure	22
4.2.	Project risk management	23
5	Conclusion	27
6	References	29

## 1 Introduction

Enterprise 128 was an ambitious British company set up to create the home computer people wanted, when there was close to no competition in the market. It had everything IT people of that era were dreaming of: Zilog Z80 processor, 128K of RAM memory, various different ports, a cassette interface etc. In other words it was years ahead of its time and when they announced their flagship product in September 1983 they managed to pull 80,000 pre-orders. At that time the sum was enormous due to the fact that the home computer market had not been properly established yet. (Snedaker, 2005: 8)

Unfortunately they were unable to ship the products until 1985. At that time IBM and Apple had already shipped their home computers at a much lower price. In spite of the competition having fewer features than the Enterprise 128, it did not succeed as a result that it entered the market too late, and with features no one cared about (or understood). Enterprise 128 learned their lesson a bit too late. (Snedaker, 2005: 8)

The above case example shows that IT projects are often mistakenly thought only to include processes including hardware, networking systems, software, and applications, which end up introducing new technological changes. As a matter of fact they actually include considerable amount of human activity, and the projects should be linked to the bigger goals of the organization. IT projects are similar to normal typical projects in many ways, for example they both have clearly defined deliverables which are obtained through a set of coordinated activities within the limits of time and scope. (Macapagal, 2010)

According to Susan Snedaker (2005: 6, 203) Software development projects have a rather low success rate of 28% and it is causing the industry losses of billions dollars annually. It is essential for organizations to reduce the number of failed projects. IT projects fail more often than construction projects and one explanation can be found in the fact that constructions have little to no flexibility in modifying the details mid-project whereas IT projects tend not to get locked down until the very end. Humanity has had thousands of years of building experience and knowhow, and only a few decades of knowledge from the IT sector.

The Standish Group International, a research organization based in Boston, US, has conducted thorough researches on IT-project success rates since 1994. Their CHAOS reports are published every two years. The reports are comprised of updated statistics on the various aspects of software projects. The respondents consist mainly of IT executives and project managers from small, medium and large organizations. They also include interviews and focus groups to generate more reliable qualitative results. (Snedaker, 2005: 6)

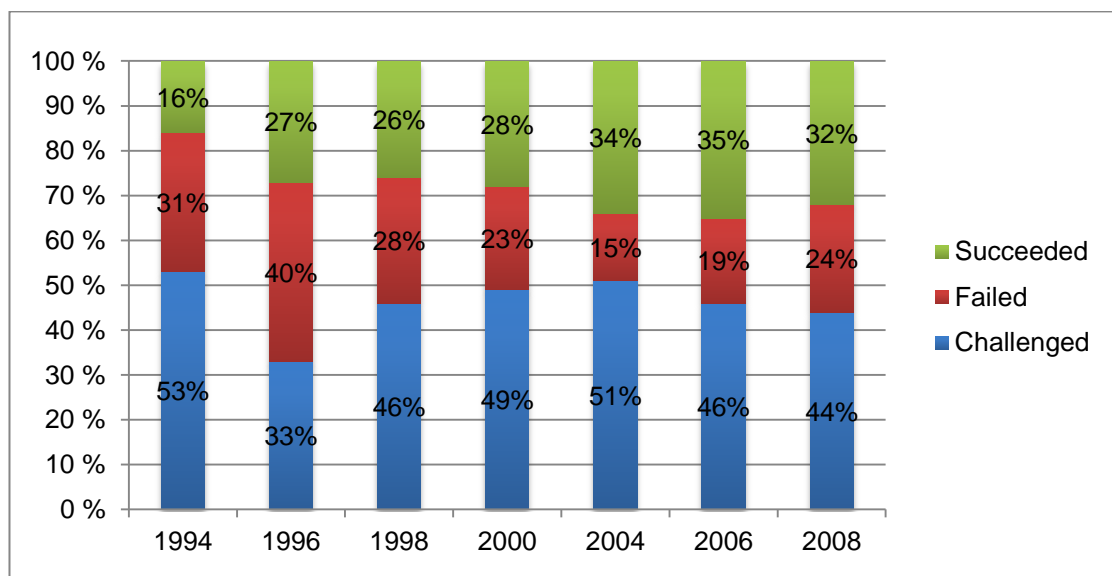


Figure 1. Standish Group CHAOS report biennial success rates (Software Quality Consulting)

The 1994 Standish Group CHAOS Report stated that only 16% of projects succeeded, whereas 31% outright failed, and 53% were considered challenged, which can be seen from the Figure 1. Projects are considered as challenged when they are not completed in time, in budget, or within the planned scope or quality. Standish Group defines a successful project as a project, which was delivered on time, on budget, and with all the functions, which were initially specified to be included in the project. It can be seen that the success rates have improved over the years in software projects in addition to the failure rates decreasing. (Snedaker, 2010: 6)

The statistics are somewhat dramatic. To give an example, U.S. companies spent \$250 billion annually on software development only. (Snedaker, 2005: 6) On average the cost of a software project for a small company is \$430,000 and a massive amount of

31% of those failed. Many smaller organizations cannot endure multiple failed or challenged projects successively, nor be able to walk out of it.

### 1.1 Objective and scope

The objective of this study is to understand project management processes and IT project management steps, and learn how to diminish the risks of project failure with the assistance of risk mitigation plans and functioning project teams. The study also analyzes the importance of enterprise resource planning (ERP) in modern organizations, and specifies requirements for a successful ERP upgrade. ERPs are business operating systems and they will be discussed in more detail in chapter 2. The study is based on literature review. The study can be justified by the failure rates provided by Standish Group's CHAOS reports as proper project management is in key role in increasing success rates, and by understanding the advances ERP systems provide to organizations.

The literature review of the thesis includes a summary of project management steps according to Susan Snedaker (2010), and ERP systems and their implementation.

More varied literature could have been used in the secondary research to provide insight on various project management theories.

The main research questions of the thesis are the following:

1. What can modern companies do in order to increase IT project success rate?
2. Why are ERP systems deemed necessary?
3. Is there a correlation between proper project management and success rates of projects?
4. Is there correlation between risk mitigation plans and success rates?

### 1.2 Research Methodology

The research is based on a literature review. The literature used in the study was obtained through The Helsinki Metropolia University of Applied Sciences' libraries and databases. The secondary research for the IT project management was widely obtained from a single source whereas multiple sources should have been used.

The case company of the thesis wishes to remain anonymous and hence the case cannot be presented in this study.

## 2 ERP systems

### 2.1 General information about ERPs

Enterprise Resource Planning (ERP) systems are not particularly new to the business world. The same functions have been performed outside these systems years before these systems existed. In the past decades the world of IT has grown tremendously leading to computer-based ERP-systems. (Themistocleous, 2005)

ERPs are the foundations for many organizations across the globe. ERPs support all the core business functions ranging all the way from procurement to production, from individual sales to accounting, and handling cost management and human resource management. It can be said that ERPs essentially are tools to operate business. They cannot cover the entire information technology landscape and satisfy all individual requirements, but they come close to it. (Themistocleous, 2005)

These systems help organizations in handling the supply chain, receiving products, inventory management, order processing, production planning, wide variety of accounting functions, human resource management, and other functions. The consulting group Deloitte describes ERPs as systems that automates and integrates majority of the business processes, which shares common data across the organization (Deloitte, 2013). These systems work as a database, in to which everything is entered, processed, monitored, and reported. Integration of systems prevents data fragmentation within the organization. Less consolidation of data typically means more accurate data. (Sumner, 2005: 2, 7)





Figure 2: ERP Systems (Green Beacon Solutions, 2012)

From a business standpoint, ERPs boost many important business functions, which all either reduce costs or increase profit: maximize information availability, minimize response time on all business needs let it be from a customer or from a supplier, speed up decision making due to the information being more easily accessible, and they provide on-time information to those responsible for decisions. Mary Sumner (2005: 4) weights one thing above all the aforementioned: integration of supply chain information. A fully functional supply chain reduces costs due to a more easily manageable inventory as well as it increases operational performance. A supply chain also helps a sales team to function more effectively by providing a faster lead-time and by increasing responsiveness. The manufacturing side is improved by faster product designing and faster production.

Companies invest massive sums of money in their ERP software justifying the investment by a large variety of reasons, such as reduced cycle times in deliveries, general reduction in operating costs, and replacing the old legacy systems. Legacy systems are old computer systems, which may still be in use due to the data not being able to be converted to a newer format, or the applications in the system cannot be upgraded

(Businessdictionary.com, 2013). All levels in an organization can utilize and benefit from a working ERP-system and its online and real-time operational data it provides. The organizations are generally satisfied with the investment they have made. (Sumner, 2005: 2)

The implementation of ERP systems may be, and they typically are, troublesome and 90% of the implementation projects are either delayed or exceed the budget as illustrated by Standish Group's Chaos reports. (Sumner 2005: 15) A successful implementation requires a lot of planning and should be looked as multiple smaller projects that are linked together. The benefits of the project are not easily visible and they do not appear until the project has been closed.

Sumner (2005: 13) lists four phases of ERP implementation: a planning phase, a re-engineering phase, a design phase, and a configuration and testing phase. She notes that proper re-engineering for the needs of the business is critical in a successful implementation. By re-engineering Sumner meant that the business has to re-think its way of doing business and in some cases, even radical redesigning of their business processes is required. Re-engineering needs to be done in order to achieve critical improvements to the overall business. ERP modules are built to be the best and the most efficient way of doing business and adapting to those generally improves profitability as it reduces costs.

ERP projects typically last for a long period of time but there is no typical time it takes, as each project is unique. Project scope gets multiplied as companies integrate all territories' companies into a single unified ERP system. The process of compiling the information from various sources and unifying them is called consolidation (Merriam-Webster, 2013). Implementing or updating the ERP system of a relatively small organization generally speaking is always a smaller project than that of implementing or updating the ERP system of a large multinational organization. Each territory or company within the organization has their own standards and reports they need and the data needs to be unified so consolidation of data can be generated into a single system. The best ERP systems integrate and standardize processes throughout the organization. When organizations unify their overall business they will receive greater value from the ERP project. Although a specific territory or a company may need to alter their working

methods a lot, it can still be considered useful for the organization. (Sumner, 2005: 124)

Due to the fact that these projects are so vast, the organizations working on these projects are suggested to hire external consultants. The knowledge required to implement these projects are not typically found within the organization, as a consequence of the expertise required to be really specific. The consultants need to understand how each different module is linked to each other and how they are linked to the general ledger built into the ERP system, on top of understanding the code language required to connect the strings between the various modules. (Sumner, 2005: 124)

Therefore, hiring external consultants is risk management at its best. Companies need select their consulting vendor carefully as the negotiations might lead to a lifelong commitment between the parties as a result of the main organization becoming highly dependent on the knowledge of the consulting company. The consultants should be involved throughout the project rather than from the point when problems arise. The consultants are critical for the success of projects but their knowledge should be given to internal employees during the project, which is why involving stakeholders during implementation is immensely important. Another method of transferring the knowledge is in-depth user training for the frontline workers, which should also be done even though they were project workers for the implementation. The users need to be able to handle the functions and demands of the new system they have been working for. (Sumner, 2005: 125)

## 2.2 Accounting module in ERP systems

All companies, no matter the size, need to manage their finance at some level. According to Mary Sumner (2005: 120) the finance module is the most often implemented ERP module. The finance module is the core of many ERP systems. It gathers financial numbers from many departments, creates and handles invoices, generates required reports including the balance sheet, general ledger, quarterly statements and profit and loss accounts. The more an organization utilizes its finance module, the more it receives out of it. (Monk, 2007: 149)

When multiple systems are used on top of each other the accounting data might not be up to date in any of the systems, which will cause problems to all of its users including

sales representatives making decisions, management analysing the business, in addition to increasing the work finance workers have to do. Closing the books will always be a lot more difficult with multiple un-integrated systems, as a result of the accounting unit needing to collect the data from multiple sources and then trying to consolidate them. Closing the books simply means to clear the temporary period based accounts in the balance sheet. All these will affect profitability of the organization in the long run. (Monk, 2007: 149)

Ellen Monk (2007: 149) focused on one specific function of the finance module, which was the drill-down option. Drill-down option benefits management the most as they can see more clearly the results of a department. Drill-down means that the user can go deeper in the hierarchy to see where the sales or costs are coming from.

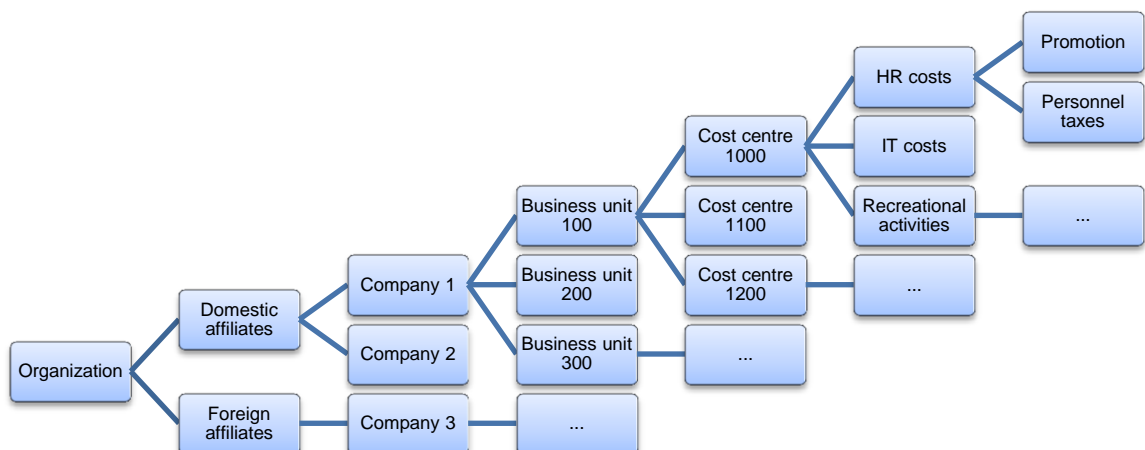


Figure 3. Cost hierarchy example (SAP Community Network, 2010)

In figure 3 is an example of a cost hierarchy within a multinational organization. The management can check organizational levels promotional costs or then they can dig deeper (drill-down) to see which cost centre the cost was linked to. An example of this would be that management notices a sudden peak in IT expenditures. The management starts drilling down on the cost to find a certain department, cost centre, to be the reason for the sudden increase in the costs. This can be achieved with an organizationally integrated ERP system with unified processes and codes. (Monk, 2007: 150)

Proper use of the finance module assists management, but furthermore it is also required as a result of the Sarbanes-Oxley Act, a 2002 US Federal Regulation created because of the Enron incident. The act creates standards and more transparent requirements for all financial reporting. The act increased the demand for these integrated financial modules. (Monk, 2007: 150)

### 2.3 Microsoft Dynamics NAV 2009

Microsoft Dynamics NAV 2009 is an ERP-program created by Microsoft Corporation. It is an upgrade for Microsoft's previous installment, which went by the name Microsoft Dynamics Navision 4.0. Microsoft's biggest goal with the new rebranded NAV fundamentally was to make it to be as simple as possible and be as unthreatening to its users. Roys and Babić (2008: 28) explained the differences of the old NAV and new NAV in the following way in their book *Implementing Microsoft Dynamics NAV 2009* and the same can be said about comparing other ERPs to Microsoft Dynamics NAV 2009:

#### Speak to me NAV

As you can see, the RoleTailored client is welcoming and attractive. If it could talk, it would sound like HAL from the 1968 science fiction film 2001: A Space Odyssey. I imagine it saying: "Hi Dave, how are you? Shall we sell something today?"

The Classic client, on the other hand, would have a voice like John Cleese's Basil Fawlty (short, abrupt, and more than a little bit rude), and would say "Yes. What do you want? I haven't got all day you know!" (Roys and Babić 2008. 28)

Microsoft Dynamics NAV consists of the basic ERP modules such as the human resources, business intelligence reporting, manufacturing, supply chain, sales and marketing, service management, project management, and finance. NAV is generally suited for small and middle-sized companies rather than the multinational multibillion organizations. (Roys & Babić, 2008: 25)

Microsoft Dynamics NAV excels at creating a user-friendly and intuitive user experience. Everything can be modified easily and all users who have previous experience in any Microsoft Windows product know the logic behind navigation within the system. As it is a Microsoft product, the ERP system does not run on other operating systems as easily. (Roys & Babić, 2008: 25)

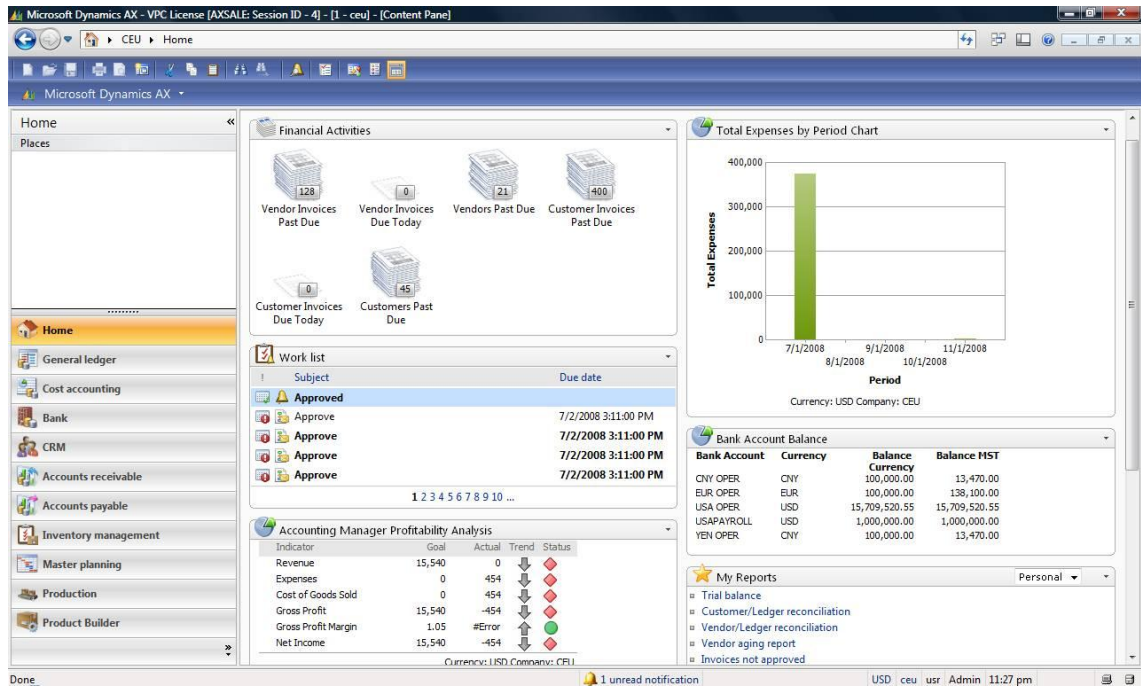


Figure 4: Home screen view of Microsoft Dynamics NAV 2009 (MSDN Blogs, 2010)

### 3 Project Management

#### 3.1 Definition of a project

Projects are core parts of numerous organizations as Harvey Maylor states in his book *Project Management* (2010: 9). Siemens, the engineering group, estimates that 50 percent of their revenue accumulates from their various projects. Consultancy companies can earn up to 90 percent of their revenue from their projects. It is of utmost importance that projects are managed accordingly and that they reach predetermined goals on time, on budget and on scope.

It is crucial to define the term project due to the fact that almost all activities can be labeled as projects. The easiest way to define a project is to state that all projects have a beginning and an ending. Projects should not be mixed with operations, which normally are ongoing processes, which may not have any ending anywhere in the foreseen future. (Maylor, 2010: 5) British Standard Institution (BSI) defined the term project in the following way:

“A unique set of coordinated activities, with definite starting and finishing points, undertaken by an individual or organization to meet specific performance objectives within defined schedule, cost and performance parameters.” (British Standard 6079, 2000)

All projects tend to have similar characteristics. Projects are mission focused; unique projects are completed in order to gain some kind of benefit. As mentioned above, projects are temporary as in they have a clear start and a clear end: project team does not have to go back to the project after it is finished unless it turns into an operation. An operation does not have an end. Another fundamental characteristic of projects is uncertainty: some parts of the project cannot be defined pre-project. These include such factors as costs of people, equipment, or materials. Some sections of project might not be even achievable at all. (Maylor, 2010. 7)

#### 3.2 Project Management in seven steps

Chapters and sub-chapters between 3.2 and 3.3 are all from Susan Snedaker's book *How to cheat at IT Project Management* (2010) unless otherwise stated.



Susan Snedaker explains IT project management process through seven steps each project should go through. The steps are illustrated in Figure 5. These steps are later in this thesis referred to when analyzing the success of the case study.



Figure 5: Seven steps of IT Project Management (Snedaker, 2010)

IT project management is repetitive, which means some of the steps might have to be completed multiple times. For example the project team might have to be rebuilt mid-project if the initial setup did not include all the required personnel. Changes will occur in all IT projects and more often in the early stages of the project. IT project managers should get used to their projects getting changed regularly. It is better for the changes to occur in the early stages rather than 5 months and \$5 million in to the project. Same thing can be applied for cancelling projects earlier rather than late. If a project is deemed to be a failure it is rational to cancel the project as early as possible.

### 3.2.1 Define the project

The first step is to define the outlines of the project. Simplified defining the project means to outline the starting point, each specific step, which needs to be taken, and the results of these steps. Once the basic nature of the project is understood the project manager should complete other sections of a proper project proposal on a higher level. These other sections include financial analysis of the project, preliminary risk analysis, exclusions, high level scope, and high level resources needed in order to succeed in the project. Once the project proposal has been approved, typically by executives of the company, the project manager can proceed to organize the project.

### 3.2.2 Organize the project

Organizing the project means that project manager should identify all prospects of the project. This can be considered to be a repetitive step to the first one as it is just doing the same but in more detail. Some companies fulfill this step during the initial defining-stage; some companies might not want any plans. Nevertheless they are important and



useful to have when things do not go the wanted direction and in order to give estimates about the project. Project manager should clearly identify the objectives of the project and what to include in the project.

Each objective of the project brings a new set of stakeholders to the project. Stakeholders are individuals who have interest or stake in the deliverables of the project. These typically include the day-to-day users of the project's outcome, executives of the company, project team members, and the project sponsor among others. Each stakeholder should be consulted during organizing the project in order to identify his or her requirements.

At this stage the initial project proposal should have grown quite a bit since it was approved. Next thing to add in to the plan is to include various parameters related to the project. Merriam-Webster (Merriam-Webster.com, 2013) defines parameters "as an independent variable used to express the coordinates of a variable point and functions of them". Parameters, which should be defined, include success criteria, acceptance criteria, scope, cost, time, quality, risks, and milestones. Each company and project has a different set of parameters but the list mentioned includes the most often needed.

As mentioned during the introduction, a vast amount of projects fail or succeed only partially according to the CHAOS reports. The failure is based on the success criteria parameter defined here. The project can be considered successful when the outcome was delivered on time, on scope, and within the preapproved budget. It is important that these variables are defined as accurately as possible.

### 3.2.3 Quality in IT project management

Quality in IT projects is built by three components: planning, monitoring, and testing. The quality process should be ongoing throughout the project in order to give the stakeholders the deliverables they require. Quality should be built into the project right from the beginning. The costs of quality are often overestimated, when thinking about the savings they can provide to the company. The cost of improving the quality post-project can be tenfold to the cost of improving the quality pre-project.

### 3.2.4 Forming the project team

At this stage of the project the manager should know the requirements of the project thoroughly. Knowing what the outcome of the project is and knowing how to get there, the project manager only needs the correct tools in order. These tools are the correct personnel, which enables the success of the project. Ideally the same project team should partake during defining the project stages. This is not always possible but nevertheless should be aimed at. Involving the project team from the beginning of the project adds an additional element, ownership, which can be considered to be the most important in forming of the project team. Having the project team members feel that their output matters motivates them greatly and gives a genuine enthusiasm for the team members. The project manager does not have much formal organizational authority over the team members, which creates even more stress upon the employees feeling like they have proper ownership to the project. Staffing will be looked more thoroughly in chapter 3.3.2.

### 3.2.5 Plan the project

The project should be heading towards the right direction if the abovementioned steps have been fulfilled, as there should not be any weaknesses appearing during the project planning stage. Project should now be separated to smaller, more manageable tasks, which helps the project manager estimate the budget and time more precisely. When the project is cut down to smaller sections, new problems may arise and these should be handled accordingly; if a new risk is too high, it should be dealt with somehow. Specifically in IT projects the communication should be specified in high detail. Timely and effective communication enables the project to continue successfully but it also helps the project to be perceived to be successful as well.

Project manager should also identify and specify all the plausible risks related to the project. The risks should be identified, quantified, and, if necessary, mitigated. More on project risks on chapter 4.2.

As mentioned above, project communications is vital in IT project management. Project updates should be communicated on regular intervals to the following audiences: IT project sponsor, IT project team, IT project stakeholders, organization and executives of the company. Communications should include important checkpoints regarding the

project and its progress. Most IT project managers under communicate the progress rather than over communicate it. An email every week or two to stakeholders is quite appropriate, or a general update to the whole organization in a company newsletter every month or two in a case that the project is organization-wide. Communication plans differ a lot depending on the style and size of the project, but the important part is to communicate to the correct personnel according to the communications plan. No news is bad news.

### 3.2.6 Manage the project

At this stage all the planning should be done and the project manager has to make sure everything gets done correctly and in time, scope, and with the desired quality. Managing the project progress has been made easier with all the work done previously. All the previous work has been done so monitoring and controlling the project is manageable. Controlling means making slight adjustments to the project if necessary in this case. Monitoring attempts to answer questions such as the actual status of the project, difference between actual progress and planned progress, required adjustments needed in order to keep the project in course, and things the project manager has learned from the project.

### 3.2.7 Track the project

Tracking the project and monitoring it goes hand in hand. Tracking includes more options to analyze the project than the rather simple options listed in chapter 3.2.6 regarding managing the project. Reason why Snedaker included tracking, as its own step in her seven steps is to emphasize the importance of having the results tracking provides. The more technical metrics used during the project are often overlooked by the project managers. Sometimes the reason behind it is the fact that gathering the information seems too big of a burden. Often the reason is simply that the project manager lacks time to complete these metrics as the day-to-day activities of the project take majority of the time. The metrics gained from these tools can be given to project sponsors and to the stakeholders, which typically means that if communications are not working properly in the project the tracking is lacking as well.

Testing is crucial in all IT projects. Many large IT projects can have their own specific teams solely for testing and quality assurance purposes. The nature of the testing

again depends widely on the type of a project. Testing and quality assurance should be an ongoing process throughout the project as correcting defects gets more expensive and cumbersome later on.

Proper communication is important during the latter stages of the project in case the project has implementation or deployment done by a separate team. Integration to other operating platforms should also be communicated to the personnel responsible for the systems. Even the various smaller changes in the scope or deliverables can affect the outcome or integration possibilities of the other teams.

### 3.2.8 Closing the project

All projects come to an end at some point; let it be through cancellation, five months later than intended, or on time and on scope. First thing the project manager has to do is to make sure that the project is actually finished; the project manager should check that there are no more pending issues needing immediate action. If there is no more actual work needing to be done in order to finish the project, the manager can continue to create final documentation. The final documentation could include the following information: project summary report, closure report, coding used in the project, instruction manuals, training manuals, list of the testing done in the project, performance reviews, etc. Again these reports vary project by project; nevertheless each project manager should close the project with some summary of the project. After the documentation is ready they should be sent to personnel mentioned in your communications plan, depending whoever needs which reports. Stakeholders who will be mainly using the outcome of the project will need training and instruction manuals, whereas executives will be more interested in the project summary and closure reports.

After the documenting part of closing is done the project team can start to celebrate the ending of the project. Projects take a good amount of time and the team members are spending a large number of hours in them. During the final team meeting the project should no longer be discussed besides giving out the honors to the team members who overdid themselves and certificates of recognition to those who deserve them. This can simply be a dinner provided by the company for the team members, or a coffee break in the office with relaxing atmosphere but it still has its importance in keeping the workers motivated for future projects. The project manager can disband the team after this.

### 3.3 Project Organization

#### 3.3.1 Project Manager

The key function of a project manager is to ensure that the project gets completed. The project manager has to make sure that the project is completed in time, stays within the budget and that the final result fills the goals set for the project. Project managers require a wide range of skills such as sense of direction, precision, stubbornness, briefing, and negotiation skills. The manager has to know how to reach the end goal and be committed to that. The commitment will be tested when the project faces a problem. (Kettunen, 2003: 30)

Many project managers get the position accidentally and many of them do not necessarily have much previous management skills. Typical scenario is that a technical project member gets to manage a project due to the previous experience they have regarding that subject. According to Harvey Maylor, only a handful project managers active today have had professional project management training. (Maylor, 2010: 9)

Many line managers work as project managers as well. Project management runs across multiple functions in organizations ranging from finance to quality assurance. Line managers' responsibilities are limited to their own function whereas the responsibilities of project managers are cross-functional. The skill set required from the line managers is quite different from that of project managers due to different and changing responsibilities. (Maylor, 2010: 11)

According to Sami Kettunen (2003) there are ten guidelines in order to be considered as a successful project manager.

1. Plan the project carefully. Only meticulously planned can succeed.
2. Document everything. File all the agreements and discussions related to the project. Pay special attention to changes done to the project. Project manager should ensure that the documents are shared with the right people.
3. Monitor the progress of the project and make sure you are getting reports on the progress on a regular basis.
4. Be open and honest to the owner of the project. Underrating the problems will lead to even bigger problems.
5. Handle problems when they arise. Problems tend to grow rather than disappear.
6. Distribute project processes and insist reports. Project manager cannot do everything the project includes.

7. Have to courage to refuse and ask for reasoning. Project manager must be able to refuse processes that are not included in the project. The customer or project team must also explain the changes and why they are required. Ask the question why several times.
8. Make sure the project team works properly and are not overladen. Ensure that the project team's spirit works. If problems show up, contact their direct supervisors and do not take responsibilities that belong to direct supervisors. Project manager must work together with the direct supervisors in case of personnel problems occur.
9. Make a risk analysis of the project and monitor how the risks evolve.
10. Prioritize your work. Focus on key functions and processes, which help the project to reach its goal. Learn how to deal with the pressure of unfinished work.

The responsibilities of the project manager according to Kettunen are much alike the seven steps described by Susan Snedaker. The project manager is responsible that the steps are walked through.

### 3.3.2 Project team

When the project has been defined and the requirements and goals have been figured out the project manager can start to build his or her team. It is critical that the definition is completed before because it would be difficult to know who the right people for the project would be otherwise. Once the required skills have been identified the project manager can start to look for specific people. IT project managers should also note that the projects themselves do not fail but rather the people working on them. Not managing the team accordingly will set the project in danger. (Snedaker, 2005: 328, 331)

Roles and responsibilities need to be clearly defined when building the team. This allows everyone to know exactly what they should be doing, and when things go wrong or if they are off-schedule it is easier to find who is accountable for the problem. Properly defined roles also motivate the workers as it gives the team a goal to aim towards. Precise roles will also make evaluation to be impartial for the individual workers. (Snedaker, 2005: 329)

After the project manager has found his or her ideal team for the project the manager should use whatever power or authority available to get the members to the team. Often some of the members might be unavailable, for example due to other projects taking all of their time, or that they would only be available temporarily. Finding and identifying these constraints should be done at this stage so the project manager should not have to reform the team later on. Recognizing the constraints helps to build the sched-

ule around the gaps. Another option is to hire external staff if some set of skills is too inaccessible due to scheduling issues. (Snedaker, 2005: 330)

Each project has stakeholders that should be taken into account. Stakeholders often are not directly part of the project team, however they should not be disregarded. Stakeholders can be categorized into three sections to help to understand their needs: informed stakeholders, influential stakeholders, and involved stakeholders. Informed stakeholders want regular reports on the progress of the process but are not directly involved in any part of the project (for example the board, consisting for example of CEO, CFO, or COO). Influential stakeholders can alter the direction of the project and will use the end product in their work. Involved stakeholders on the other hand will be included in the project team at some stage during the life of the project although they might not influence the direction of the project. (Snedaker, 2005: 275)

In many large IT project cases, such as implementing a new system or upgrading the old one, companies have to rely on external consultants and workforce. The systems are complicated and require some know-how of the system beforehand. The products also often need to be modified to meet the requirements of the individual company. IT sourcing defines, plans, and manages how an enterprise arrays internal and external resources and services to ensure the continuous fulfillment of its business objectives, including projects. (Gottschalk, 2006)

## **4 Risk management of IT-projects**

### **4.1 Reasons for IT-projects failure**

As mentioned previously in this study, a successful project is a project, which is completed with the desired outcome, in time, and in scope. Definition of the desired outcome should be made measurable due to the fact it will make analyzing the vital information of the project clear. (Garton, 2005: 15)

The failed projects are what we are looking at this section. Coleen Garton (2005: 416) listed top ten reasons why projects tend to fail:

1. Lack of buy-in or support from the project sponsor, senior management, or the client;
2. Lack of clearly defined and documented project management and technical processes;

3. Inaccurate estimates;
4. Unrealistic expectations;
5. Team members are inexperienced or lack the appropriate training or skill sets;
6. Ineffective or nonexistent change control;
7. Poor team motivation;
8. Adding new team members mid-project;
9. Lack of client input or involvement in the project;
10. Lack of adequate quality assurance testing.

Kuruppuarachchi et al (2001) claim that ICT projects tend to fail more often due to bad communication between the end-users and the coders rather than due to actual technical issues. This essentially is one of the most crucial challenges regarding cooperation of external provider and the customer. Susan Snedaker (2010) also emphasized the importance of communication within the project.

#### 4.2. Project risk management

Risk is generally seen as something absolutely negative. If looked at from a different perspective, risk is intrinsic to all things involving change or some kind of progress. Risk also takes place in everyday life situations, travel, and all sports. In projects risk is something that evidently exists and has to be dealt accordingly and with some level of planning. To manage risk successfully, one must manage risk proactively. Managing risks reactively will lead the project manager and project team to run out of time and energy quickly. (Garton, 2005: 88)

According to Snedaker (2005: 375) risk management is one of the key issues in building a successful project. Different risks have different impacts and probabilities, and each risk should be checked according to the probability of occurrence and the impact it might have on the project. For example some risk might be improbable but if it would occur the after-effects might be even endangering the progress of the whole project, whereas some would be highly likely to occur but the effects would not be particularly harmful. The risks that should be notified lie normally in-between those two. Project risk management process can be cut into three steps: identify the risks, quantify the risks and mitigate the risks.

Snedaker states (2005: 378) that the first step is to find all the possible risks. A good way to handle this is to arrange a meeting with all the stakeholders and discuss the various problems, which might take place in each stage and in each function. At the



beginning of the project, the various stakeholders might know more about all the possible risks, which might occur and how crucial they can be than the project manager. Another good way is to look at each of the tasks in the project and figure out what could go wrong. The really pessimistic workers might shine in this process as they can see the worst-case scenario more easily than their optimistic coworker.

These risks might vary from natural disasters to sick leaves of the employees, which is why the most important risks should be written down for further quantification. Organizational risks can include cash flow issues, strikes, executive turnover, scandals etc. Obviously some of these can be hard to manage. Project risks contain for example resource conflicts, budget problems, suppliers, IT changes and vendor issues. (Snedaker, 2005: 377)

Susan Snedaker (2005: 377) points out clearly that the need for specific training should also be identified. For example if the team is required to work using a specific computer language they are not familiar with, some basic training might be needed. In some cases it might be necessary to also hire outside contractors or consultants to manage some tasks in the project. (Gottschalk, 2006)

Risk quantification is the second step in project risk management. This can be done after all the risks have been identified. The process is about quantifying and qualifying the risks, which in other words means to see how probable and dangerous the risks are. A risk, which is highly unlikely to occur, is not of much threat. One way to quantify is to start by listing all the identified risks and then giving them numbers based on the impact they would have on the project. The manager can number them from 1 to 50 for example with 50 having disastrous impact on the project and 1 having close to nothing. After they have been quantified they can be numbered based on the likelihood of occurrence, this process can also be done by numbering them from 1 to 50. After the two different numbering have been done, the manager can add them together to see the potential of the risk. By doing this it can be easily visible which risks should be looked into. (Snedaker, 2005, 378)

Likelihood/Consequences	Insignificant	Minor	Moderate	Major	Severe
Almost certain	Medium	High	High	Extreme	Extreme
Likely	Medium	Medium	High	High	Extreme
Possible	Low	Medium	Medium	High	Extreme
Unlikely	Low	Medium	Medium	Medium	High
Rare	Low	Low	Medium	Medium	High

Table 1, Risk Matrix (Garton, 2005: 90)

After all the possible risks have been identified and quantified the team can begin to plan how to avoid and mitigate them. At this point the project team has built a risk matrix at this stage and each team looks at them differently. (See table 1) The team has to figure out what to do if the risk occurs, how to know if a risk has occurred and how to avoid the risks. In an ideal scenario the best mitigation strategy is to avoid it completely but unfortunately this is not always possible. In some cases the risk can have so high likelihood of occurrence and impact that it is best to delay the whole project until the specific risk can be taken care of. The team also has to figure out which risks they should proactively plan for. For example in table 1 most risks labeled low should not be planned for at all, whereas each extreme risk should be looked at and specific plans should be created for those risks. (Garton, 2005: 90)

Harvey Maylor (2005: 197) added a third variable to the quantification calculation: hideability. The factor measures how easy it would be for a stakeholder of the project to hide the fact that things were not going to the right direction. This leads to problems and risks not being detected until it would be too late. This third variable would change the calculation of failure to: (likelihood) x (severity) x (hideability).

Triggers are called events in a project when an alternative plans will be put into action. These triggers should be planned at the mitigation process of risk management. An example of a trigger point could be that if the project were few days late at a specific point of the project, they would recruit a temporary worker from a contractor. Trigger points should be made as clear as possible so the team knows exactly what to do. Naturally the alternative plans might have risks involved in them and they should be identified and quantified as well. Project managers should try to create alternative plans

with the smallest risk factors in them, while keeping them feasible, logical, desirable, and affordable. (Snedaker, 2005: 380)

## 5 Conclusion

The study demonstrates that ERP systems are necessary for modern businesses and that the implementation of them can be considered a challenge. Although companies are focusing more in project management, the success rates have flat lined as seen in Standish Groups Chaos reports (Figure 1). Modern companies tend to know the importance of planning projects thoroughly beforehand and the two main topics discussed in this study, risk mitigation and team planning, are widely important in order to maximize success.

ERP projects are deemed mandatory for a vast majority of modern organization, let them be manufacturers or service providers, due to the on date information they are able provide in order to support the business. ERP projects are typical organization wide projects, hence they need to require even more planning than other types of IT projects alongside the big budget. External consultants are almost always needed for a successful ERP implementation as a consequence of the ERP project expertise being a niche talent.

All the project management books referenced in this study emphasize the significance of systematic project planning. Majority of the research material used was describing project management steps' processes rather than typical management processes. Although project management is a type of management, it mainly consists of different steps and how to conduct the steps.

In this study risk mitigation was looked more in-depth than other project management steps. Risk mitigation is a key ingredient in a successful project due to the fact that many projects would end up failing without proper analysis of the risks. Some risks need to be planned for albeit their probability of occurrence being minimal.

This study overlooked many success factor calculations, budgeting, and estimations and the mathematical angle of project management could be a study of its own. Project management has a mathematical angle as many success factor calculations are intricate and they would require their own study. The theory compiled to this study could be considered high end, as there was not much drilling down to more complicated details

included in all of the steps. Each individual step explained in chapter 3.2 includes various sub-steps, which can be considered crucial for the project's success.

## 6 References

BusinessDictionary.com, 2012. Definition of legacy system [Online] Available at <<http://www.businessdictionary.com/definition/legacy-system.html>> Last accessed 16.2.

Cameron, Sheila 2009. *The Business student's handbook: Skills for study and employment*. 5<sup>th</sup> edition. Pearson Education Limited. Essex, England.

Deloitte Consulting Group, 2013. Definition of ERP [Online] Available at <[http://www.deloitte.com/view/en\\_IE/ie/services/consulting/consulting-services/enterprise-applications/index.htm](http://www.deloitte.com/view/en_IE/ie/services/consulting/consulting-services/enterprise-applications/index.htm)> Last accessed 16.2.2013

Garton, Coleen 2005. *Fundamentals of Technology Project Management*. 2<sup>nd</sup> edition. MC Press Online, LP. Lemisville, USA.

Gottschalk, Peter 2006. *E-Business Strategy, Sourcing and Governance*. Idea Group Inc. Hershey, USA.

Green Beacon Solutions, 2012. Defining Enterprise Resource Planning (ERP) Solutions & Their Benefits [Online] Available at <<http://www.greenbeacon.com/GreenBeaconWebsite/Microsoft-CRM-ERP-Solutions/EnterpriseResourcePlanningERP.aspx>> Last accessed 23.3.2013

Kettunen, Sami 2003. *Onnistu projektissa (Succeed in a project)*. WS Bookwell Oy. Juva, Finland.

Macapagal, Mayette 2010. *ICT Project Management in Theory and Practice*. [Online] Available at <http://www.unapcict.org/news/aboutus/programmes/research/BriefingNote-7-web.pdf> Last accessed 10.10.12

Maylor, Harley 2010. *Project Management*. 4th edition. Pearson Education Ltd. Essex, GBR.

Merriam-Webster, 2013. Definition of consolidation [Online] Available at  
<<http://www.merriam-webster.com/dictionary/consolidation>> Last accessed 7.2.2013

Merriam-Webster, 2013. Definition of parameter [Online] Available at  
<<http://www.merriam-webster.com/dictionary/parameter?show=0&t=1358608079>> Last  
accessed 19.1.2013

Monk, Ellen 2007. *Concepts in Enterprise Resource Planning*. 3<sup>rd</sup> edition. Gex Publish-  
ing Services, United States

MSDN Blogs, 2010. Tips and tricks to NAV 2009 [Online] Available at:  
<[http://blogs.msdn.com/b/nav/archive/2010/10/20/nav-2009-tips-and-tricks-save-  
filtered-lists.aspx](http://blogs.msdn.com/b/nav/archive/2010/10/20/nav-2009-tips-and-tricks-save-filtered-lists.aspx)> Last accessed 23.3.2013

Roys, David and Babić, Vjekoslav 2008. *Implementing Microsoft Dynamics NAV 2009*.  
Packt Publishing Ltd. Olton Birmingham, GBR.

SAP Community Network, 2010 [Online] Available at:  
<<http://wiki.sdn.sap.com/wiki/display/ERPFI/What+is+a+Cost+Centre>> Last accessed  
15.3.2013

Snedaker, Susan 2005. *How to cheat at IT Project Management*. Syngress Publish-  
ing, Inc. Rockland, Canada.

Software Quality Consulting, 2011 [Online] Available at:  
<[http://www.swqual.com/verification\\_validation.html](http://www.swqual.com/verification_validation.html)> Last accessed 16.2.2013

Sumner, Mary 2005. *Enterprise Resource Planning*. Pearson Prentice Hall. New Jer-  
sey. USA.

Themistocleus, Dr Marinos 2005. *Enterprise resource planning and enterprise applica-  
tion integration*. Emerald group publishing ltd. Bradford, GB