THE SUITABILITY OF THINKING PORTFOLIO® SOFTWARE IN PROJECT REPORTING

CASE: CARGOTEC

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ABSTRACT

Cargotec is a large global company working in cargo handling business. In 2010-2011, they implemented ABC Project Model™ to better manage and report their internal development projects. After that new software called Thinking Portfolio® was acquired from a company called Thinking Business in order to provide a platform for reporting development project portfolios. Cargotec’s version of the software was designed specifically for the internal development projects. The recently implemented project model was also considered in the design. The purpose of this final thesis was to evaluate how suitable the Thinking Portfolio software is for project reporting in Cargotec, as well as providing concrete development ideas for the software. The results of the final thesis were also used in the post evaluation of the Thinking Portfolio implementation project.

A user satisfaction survey was conducted among the Thinking Portfolio users of Cargotec to find out how suitable the software is for project reporting. The results of the survey indicated that the users find the Thinking Portfolio easy to use and they collectively felt that it can provide value to their organisation. The results also suggested that the users had not familiarized themselves with the automatically created reports yet, since the majority of the users gave undecided feedback about the usability of the reports. The problem areas of the software identified by the survey respondents were unclear data requirements, lack of integration with project model documents and insufficient user rights of the project managers. The software also includes features that do not provide value for all users.

There were five major recommendations proposed. Firstly, portfolio management team could go through the software and decide which parts are truly relevant for Cargotec. It is recommended that software features that do not provide value could be removed or edited. Secondly, the project documents could be integrated with the software to avoid double reporting. Thirdly, the data requirements for Thinking Portfolio and the rules for project reporting could be communicated better to the users by providing more training and support as well as a detailed reporting plan. Fourthly, the project managers could be granted the same access rights as the project owners in order to enhance the value of the software for them. Fifthly, the reports could be explained better by providing help functions and by communicating the data exporting possibilities.

Key words: Portfolio management, project reporting, software implementation, user satisfaction.
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1 INTRODUCTION

1.1 Description of the company thesis was made for

![Cargotec Logo](image)

FIGURE 1. Cargotec logo

The company this thesis was made for is Cargotec, a large global company working in cargo handling business. The mission of Cargotec is to improve the efficiency of cargo flows. Cargotec’s vision is to be the world’s leading provider of cargo handling solutions. The products and services Cargotec sells consist of on-road handling equipment, container handling equipment, marine cargo flow solutions, heavy industry material handling equipment and offshore solutions. Cargotec’s customers consist of ship operators, ports, shipyards, terminals, municipalities, heavy industries, distribution centers and logistics companies. Cargotec’s promise to their customers is: “we keep cargo on the move™” (Official Website of Cargotec Corporation, 2005).

The products Cargotec sells in the cargo and load handling solution site consist of ship-to-shore cranes, yard cranes, shuttle- and straddle carriers, reach stackers, forklifts, log stackers, terminal tractors and empty container handlers. Load handling site offering includes loader cranes, forestry- and recycling cranes, multi-lift demountable system, tail lifts and truck-mounted forklift. Marine side products include hatch covers, equipment for RORO (roll-on/roll-off) vessels, cargo lashing equipment, bulk handling equipment, cargo access equipment, link-spans and offshore load handling systems. Cargotec also offers various services in addition to the equipment side. There is warranty work, basic inspections, spare parts to on-call service, refurbishment work and maintenance contracts (Official Website of Cargotec Corporation, 2005).

1.2 Background information on the thesis topic

Cargotec decided to improve the way their internal development projects are reported and managed in the company, especially on the portfolio management level. Cargotec implemented ABC Project Model™ created by Project Institute Finland Ltd to establish
harmonised project policies to make the project work and reporting clearer. Later on software called Thinking Portfolio® was acquired from Thinking Business. The software was acquired to provide a tool for reporting the development projects on a portfolio management level.

1.3 Purpose and objectives of the thesis

The main motivation for the thesis came from the fact that each version of the Thinking Portfolio software is designed for each company specifically, thus providing them a key opportunity to get a perfectly fit software application to the company. Cargotec also went through a process of customisation. Their software version was designed to be suitable for internal development projects and therefore the ABC Project Model was considered in the design. Because the software can be customized and changes can still be made, the objective of the final thesis was to find out how suitable the users find the software right now and what kind of development ideas should be considered to make it even better. The thesis was also used for post evaluation for the Thinking Portfolio implementation project.

1.4 Research methods

The research methods for the thesis included studying books for theory, utilising material provided by Cargotec, expert interviews and own experiences with the software. The suitability of the software was measured by conducting a user satisfaction survey among the Thinking Portfolio users of Cargotec. The research methods of the survey included both qualitative and quantitative elements.

1.5 Structure and limitations

The thesis has been divided to four major parts. First of all, the there is the introduction for the thesis. Secondly, the concept of unified project policies is researched as well as its influence on project work, project management and portfolio management. Then the ABC Project Model is introduced to give a better understanding of the new project
processes in Cargotec as well as the reporting requirements the software must fulfil. Thirdly, the Thinking Portfolio® software has been introduced in detail to give an idea of the current reporting capabilities. Fourthly, the software project success factors are gone through. This chapter gives a better idea how software projects should be handled and what characteristics in software applications cause resistance among the users. Fifthly, the suitability is measured based on the results of the user satisfaction survey and software project success factors. The chapter also includes the recommendations for Cargotec.

There were some limitations for the thesis. First of all the scope of the questionnaire was limited. It was agreed with the company representatives that the questions measuring user satisfaction focused on the overall usability, the reports and benefits evaluation. The smaller scope of the survey helped to ensure that the response rate would be high and the most important aspects would be covered. The second problem was the limited experience of the users, because it decreased the amount of feedback in some subject matters. For example: in the survey section concerning the automatically generated reports nearly 50% of the users did not have opinions to give, because they had not used the reports yet. The third problem was that the software was updated a few times after the initial launch. The changes had a few effects on the thesis. Firstly, the description of the software content had to be modified. Secondly, a few recommendations became unnecessary to include to the thesis because the problems were fixed.
2 PROJECT MANAGEMENT AND PROJECT REPORTING

2.1 Project and project management

According to PMBOK® Guide (2004), a project is “a temporary endeavor undertaken to provide a unique outcome”. Projects are always temporary; they have a clearly defined start and end and this distinguishes them from regular process work. Projects come to an end when objectives have been reached or when it is obvious they can’t be reached. Projects are also always unique, because the working methods applied and the results produced will always have unique qualities which distinct them from other projects. Projects are needed for many reasons. They are used for implementing organizational change, developing the company and their products or services, answering market needs as well as growing and expanding to new market areas (Michael W. Newell & Marina N. Grashina, 2004).

In Cargotec a planned work effort must pass certain requirements so that it can be considered a project. First of all, the general characteristics of a project must be fulfilled and therefore the following statements must apply for the planned work (Cargotec Project Model Project Guide version 1.0, 2011):

1. A project is a temporarily limited one-time job to create an agreed unique outcome or change.
2. Project work is steered and followed up by a nominated project owner and/or a steering group and managed by a nominated project manager. A project is implemented by the project group members.
3. Objectives concerning the deliverables, cost and time are always defined and a project is always linked to the strategic objectives.

Secondly, the project must fulfill three out of five predefined requirements so that it is sensible to arrange the effort as a project (Cargotec Project Model Project Guide version 1.0, 2011). The requirements include:

1. The amount of work needed is more than 150 man-days or 120 hours.
2. External costs are more than 20 000€.
3. More than two people are actively involved (in addition to project manager, steering group and project owner).
4. There are external parties involved.
5. There is a need for resources from different organizational units.

When the requirements mentioned have been fulfilled, the planned effort can officially be considered worth organizing as a project. Lastly general evaluation is needed on should the project be approved for execution or not. According to Cargotec project Model Booklet version 1.1 (August 2011), “projects are needed in Cargotec to create the company’s future by ensuring that the company’s strategy can be implemented” (Cargotec Project Model Project Guide version 1.0, 2011).

Project management means applying skills, knowledge, tools and techniques to carry out project activities in a way that they meet project requirements. Project management processes include project initiating, planning, execution, monitoring, controlling and closing. Managing a project includes establishing reachable objectives, which have been made perfectly clear for everyone involved in the project work. Project management also ensures that the project quality, scope, time and costs are balanced throughout the project. The requirements of the steering group must also be met (PMBOK® Guide, 2004).

The most typical challenge with project management is the struggle with time, scope and cost. The quality of the project heavily depends on how well the goals that were initially set for these three categories have been reached. Typically an alteration in one of these factors will also influence at least one other factor. For example: if the scope of the project sudden is expanded then there is probably very little chance of executing it on time that was agreed upon earlier. The project management team has the responsibility of delivering the project as promised to the stakeholders, customer and the general public (PMBOK® Guide, 2004).

Project management is gaining increasing popularity, even in manufacturing and production business areas. These days companies want to manage-by-project approach. There are several reasons for this. First of all, project management has been increasingly involved with other activities aside from just delivering products or services. Secondly, projects are needed and used for steering change in companies, which gives project management a more important strategic perspective. Thirdly, project management activities have also been focusing more on human resource management and
communications. And finally, project management is going to more human-focused approach, meaning that less mathematical tools and measures are used. All in all it can be concluded that project management has an increasing role in strategic development in many companies (Michael W. Newell & Marina N. Grashina, 2004).

2.2 Project portfolio and Portfolio management

According to PMBOK® Guide (2004), a project portfolio is a collection of projects grouped to enable better management of project work to implement company’s business strategic business objectives. The main goal of every portfolio manager should be to maximize portfolio’s value by considering which projects should be included based on the strategic objectives of the company. According to Gerald I. Kendall & Steven C. Rollins (2003), project portfolio management should “ensure that the collection of projects chosen and completed meets the goals of the organization”. There are four big universal problems with project portfolios. A picture below is provided to give an overview of the most common problems.

![Image of portfolio problems]

FIGURE 2. The four universal portfolio problems (Gerald I. Kendall & Steven C. Rollins, 2003)

The first problem is that companies typically have more active projects than they can execute, often the amount is almost double of what a company should have. One of the biggest problems here will be with the resources, because too many projects typically mean that there are people trying to work on several projects at the same time. Too many projects in one portfolio also increases the risk that some projects will be terminated in the middle of execution due to lack of resources, time or money. This indicates that projects aren’t prioritized properly early enough. Everything that has been
invested to a project that can’t be completed is wasted. One of the most important aspects of project portfolio management is to build the project portfolio based on the execution capacity. This approach will ensure that the most significant projects are done and provide the wanted deliverables (Gerald I. Kendall & Steven C. Rollins, 2003).

The second universal problem with portfolios is the problem of wrong projects. This means that company is executing projects which don’t truly create value to the company. This is a very critical problem, because every project is an investment and therefore a company should expect to get something back. Resources spend on wrong projects are also taken away from more important tasks. There is also the chance that some efforts in the company are considered and reported as projects, when they don’t truly fulfill the required description of a project (Gerald I. Kendall & Steven C. Rollins, 2003).

The third problem is that in some companies projects don’t serve the strategic goals of the company. In this situation, projects are being made, but nobody has a clear vision why and what for. When there is no clear connection between projects and company’s strategic goals, they will never be able to reach those goals. When the projects are not clearly linked to strategic goals, there is a good chance the portfolio also includes projects that aren’t really needed or provide any real value (Gerald I. Kendall & Steven C. Rollins, 2003).

The final problem is an unbalanced portfolio, meaning that the company is only focusing on certain types of projects. This leads to a situation where some business areas receiving very little attention. This can then cause that certain resources have too much work, because they are needed in several similar kinds of projects at the same time. Meanwhile other resources in other business areas aren’t being used at all for project work. Unbalanced portfolio also indicates that some business areas or divisions are not being developed at all, which can cause problems in the future for the company or their customers. In order to avoid these kinds of problems, companies should have competent project portfolio managers to ensure that the project portfolio will be successful (Gerald I. Kendall & Steven C. Rollins, 2003).
Six major responsibilities have been identified for the project portfolio management personnel. A picture has been provided above to describe the responsibility areas of project portfolio managers. Firstly, project portfolio management should be able to determine a viable project mix that meets organization’s goals. The portfolio should be possible to execute and the projects should truly aim to fulfill the goals the company has set. Secondly, the portfolio has to be balanced. This means that the portfolio has various projects from different business units with different focus areas. This way they can also ensure that resources are used sufficiently and the business is being developed as a whole. The projects in the portfolio should balance risks and rewards, research and development as well as short term and long term goals (Gerald I. Kendall & Steven C. Rollins, 2003).

Thirdly, the chosen projects should be systematically monitored, planned and executed. The portfolio management group should support the project work of the project teams and decision makers. Fourthly, the project portfolio management has the responsibility to continuously analyze the performance of the portfolio performance and find different kind of ways to improve it. For example: If it seems that there are too many projects, they should consider eliminating a few of them to ensure that the rest of the projects in the portfolio are completed as expected (Gerald I. Kendall & Steven C. Rollins, 2003).

Fifthly, the portfolio management group should evaluate new project opportunities for the existing portfolio. This is a challenging task, because when new projects are accepted to already existing portfolio, it can change the balance of the portfolio. Especially the company’s project execution capacity must be considered every step of the way. Every project that is accepted effects the other projects in the same portfolio, because they compete for the same resources. Lastly, the project portfolio management
should provide information and recommendations to decision makers on all levels. This simply means that they need to have an understanding about the portfolio and the projects in it, to enable management teams to make competent decisions based on the information they have been given (Gerald I. Kendall & Steven C. Rollins, 2003).

The portfolio management teams have three main responsibilities in Cargotec: deciding which projects and programs to implement, ensuring project portfolio balance and monitoring and controlling deviations in project and programs. Provided below is a picture about the responsibilities of Cargotec’s portfolio managers (Cargotec Project Model Project Guide version 1.0, 2011).

![Picture showing responsibilities of portfolio management groups in Cargotec]

FIGURE 4. The responsibilities of portfolio management groups in Cargotec

2.3 Unified project policies

Each company forms their own unique project culture based on the common practices that are in place in their organization. It is necessary for each company to have a common way of working, because it helps steer the project work. When there are no established project policies with rules and regulations, the result is typically chaos in projects which can be seen on all levels (Melton, Iles-Smith & Yates, 2008).

Project teams and the project managers will face problems with project work when common policies are not in place. First of all they are burdened with having to “re-invent the wheel” every time when a new project begins. As an example, let’s imagine that a company doesn’t have a standard way for establishing the level of authority each person has in a project. That means that every time a new project begins, the people involved must agree upon the decision-making practices. Needless to say, having to re-invent the wheel increases the time it takes to plan and execute projects. Misunderstandings and conflicts can also happen more frequently when project team
members are forced to deal with constantly changing project environments (Melton, Iles-Smith & Yates, 2008).

Portfolio level management also suffers from lack of common practices. When there is no unified way of executing projects, there typically isn’t a common way to provide project information either. Then the portfolio management team has a pile of information in various forms, making it difficult to properly compare projects, make decisions and execute prioritization. Assigning resources of any kind can also be difficult, when decision-makers don’t have a clear view on all the projects in different business functions or the whole company. When portfolio teams are unable to manage the collection projects and programs in the company, it is more than likely that they fall for the four universal project portfolio problems. Making those mistakes will significantly increase the likelihood of failed projects (Melton, Iles-Smith & Yates, 2008).

If the following statements apply to the projects carried out in the company, then there are reasons to suspect that there is a lack of common project procedures (Melton, Iles-Smith & Yates, 2008):

1. Projects are completed late or the budget has been exceeded.
2. Projects do not deliver the quality quantity or functionality which was agreed at the start of the project.
3. Projects don’t meet business needs.

2.4 ABC Project Model™

Project Institute Finland Ltd is a Finnish company which specializes in project culture development. They market themselves as the most experienced project management training and consulting company in Finland. Their customer base includes: Elisa, Empower, Fennia, Fortum, Patria, Rocla Oyj, SPR Veripalvelu, Tieto Oyj, Turvatekniikan keskus (TUKES), Veikkaus, Visma Software Oy and Wärtsilä Oyj. The ABC Project Model™ has been developed by the Project Institute Finland Ltd. It is a project management model which aims to create a harmonized process of project implementation and reporting, making project work effective and manageable. According to ABC Project Model Brochure (accessed 2011), ABC Project Model
covers how to define the project objectives, plan the project work, implement the tasks, steer the project during the life cycle, close the project once the tasks have been done and document project data (Project Institute Finland Ltd Website, accessed 2011).

Cargotec decided also to integrate ABC Project Model to their project management processes. The project model includes general guidelines and instructions how project management is done in the company, as well as the processes and procedures of project management. It also addresses the project lifecycle, project procedures, main project roles, mandatory templates and project methodologies (Cargotec Project Model Terminology, 2011).

The motivation for acquiring the project model came from the fact that Cargotec has faced several mergers and acquisitions during their history. Cargotec has been build from several companies and different business units. All these companies and business units have had their own way of working. Differences in project execution, communication and responsibilities have been evident. Therefore common project model implementation was necessary. Managing projects in a global corporation becomes impossible if common practices are not being followed. Especially decision-making about the internal investments of projects on the higher levels will suffer, when every business units has their own way of working (Expert Interview, Anne Happonen, Business Portfolio Manager, 12.9.2011).

There are many kinds of projects in Cargotec, and therefore it is worth discussing what projects are going to follow the principles of ABC Project Model. The projects that are going to be included are internal development projects. These projects consist of offering development, mergers & acquisitions, supply, internal process development and other internal development. Development projects typically aim to create an internal change in the company, for example: acquiring a new tool for HR to improve recruitment process. These kinds of projects can also affect external people or organizations. For example: a project can also be about creating a new product. Then the project outcome can have a big impact on Cargotec’s customers and their competitors as well. External projects (project business) such as sales - and customer delivery projects are not managed according to ABC Project Model, there are other practices that apply to these projects. Provided below is a picture of the projects that are
and aren’t considered development projects (Cargotec Project Model Booklet version 1.1, 2011).

FIGURE 5. Development projects (blue) and Project Business (red) in Cargotec

The purpose of the project model is to improve project work in Cargotec by ensuring that development projects are executed and reported the same way. There are three operational levels which the project model aims to positively influence. On the portfolio level the project model will help ensure that Cargotec is doing right things. This means that project and programs are selected on a higher decision-making level and prioritized accordingly so that the best projects are chosen to be implemented. The project management level goal is to help Cargotec do things right. By doing things right on the project management level, the project is initiated, planned, controlled and closed in a manner that ensures that project objectives are reached. The project operational level goal is to help produce concrete deliverables. Provided below is a picture of the management levels and the influence the project model will have (Cargotec Project Model for Steering Groups and Projects Owners, 2011).
2.4.1 Project classification

In ABC Project Model, all projects are classified based on their complexity. This way of defining project complexity is known as ABC classification. The goal is to avoid bureaucracy in simple projects and ensure that complex projects get the effort needed to finish them successfully. The ABC classification is not concerned with the importance of projects or their prioritization. This classification is used only to make sure that the management level for each project is appropriate. Also the required amount of project documentation and reporting is based on the classification. The evaluation made will also help map the possible benefits and risks of the project. Each project is classified as an A, B or C project. Picture below provides the explanations for each classification (Cargotec Project Model Guide version 1.0, 2011).
Complex projects require a lot of follow-up and documentation. The management team should also be actively involved in the project process to ensure that it is executed as expected. Simple projects don’t require as much documentation or follow-up. The projects are typical and straightforward, thus not much attention is needed from management team. To help classify the projects, there is a common template available in Cargotec, known as the ABC classification template. There are statements divided to six categories. The project participants filling the template must critically consider which statements truly apply to the project in each category. The more statements apply the more complex the project is. Provided below is a picture about the seven categories which are evaluated with the ABC classification (Cargotec Project Model Guide version 1.0, 2011).

![The seven categories evaluated in ABC classification](image)

As stated earlier, the ABC classification template has been divided to seven categories:

1. *Uniqueness and complexity of project content or project process.* In this part evaluation is needed on how unique technology, solutions or working methods are used to implement the project. Evaluation is also needed if there is a unique outcome for the project which will have significant influence on the company or its customers in the future.

2. *Schedule.* In this part evaluation is needed on how critical it is to complete the project in a certain timeframe. This category is also used to evaluate if there are some external dependencies, which the project group can’t control themselves.

3. *Project participants.* This section is used for evaluating the complexity of the project group. There are several factors which can make teamwork more
complex and must be considered in the evaluation, for example: cross-functional teams, international teams, use of external work force or having participants who are involved with other projects as well.

4. **Stakeholders.** In this section the stakeholders of the project are identified and the complexity of the stakeholder group is evaluated.

5. **External factors and changing environment.** In this part evaluated is needed about the complexity of the project environment and the external factors that influence the project.

6. **Cost.** In this part the project is evaluated based on the size of the needed budget.

7. **Strategic significance and economical benefits of a project.** This section evaluates how critical it is to perform the project, for example: can big benefits be reached by executing the project. Also evaluation is needed if the project has a significant effect on Cargotec or their customers.

### 2.4.2 The roles of the project members

According to the Cargotec Project Model Guide version 1.0 (2011), there are some common rules that apply to all projects. First of all, every project must have a project owner with a business interest. His responsibilities include defining the business goals and ensuring the conditions for a successful project together with the steering group. Secondly, each project needs a project manager and a project group. They are responsible for implementing the project in a way that the project deliverables are reached. Thirdly, projects have interfaces with line organization, defined in the project documentation. Fourthly, complex projects require more experienced project manager and an extremely supportive line organization. Fifthly, projects that apply matrix organization must clarify the roles and responsibilities of the project organization in detail.

The project roles must be clear for every project participant, especially the level of authority they have in the execution. Project manager does the operational management work of the project and reports to project owner and the steering group of the progress. Project manager also plans the needed resources and approves the allocation of these resources. He also appoints sub-project managers if needed. Project group consists of people involved in the project organization and they answer to the project manager.
during the project (or to sub-project managers if applicable). The members of the project group do the concrete project work and they report about possible delays or problems during the project. Project owner is the person who has the biggest business interest to the project, and thus suggests new projects to be initiated to the project portfolio management group. The project owner has the important task of nominating the project manager. The rest of project owner’s duties are involved with taking business responsibility for the whole project. He accepts the scope of the project (goals, budget, and schedule), participates to steering group meetings, accepts deviations and supports the project work (Cargotec Project Model Guide version 1.0, 2011).

Project sponsor reports progress of the project to executive board/sub-boards. The sponsor also helps project manager and - owner achieve the business objectives by making sure that there is support for the project on the business area level. Essentially, he/she is the one who is in charge of communicating the project progress to the decision-makers. It should be noted that project sponsor is only required in A-level projects, which are highly complex (Cargotec Project Model Guide version 1.0, 2011).

Steering group consist of the stakeholders of the project. The smallest possible steering group consists of the project manager and project owner. The size of the steering group depends on the complexity of the project. In every steering group there has to be clearly defined roles and responsibilities. The job of the group is to ensure that the business benefits of the project are achieved. They also allocate resources. The steering group makes all the major decisions of the project (related to objectives, resources, and schedule). In A-level projects the chairman of the steering group is the project sponsor. In B- or C-level projects the project owner acts as the chairman. The project sponsor and the project owner also have the possibility to nominate someone else for the chairman (Cargotec Project Model Guide version 1.0, 2011).

It is extremely important in every project to establish the roles and responsibilities of the people involved. This way they know what kind of work is expected from them in each stage of the project. When there is a common way to define the responsibilities, the project team doesn’t have to spend time wondering who will be in charge of what. The communication is also clearer, because the project model also establishes who has the responsibility to ensure information flow to decision-makers. Having this kind of internal clarity will help in the project work become more fluent. To find out what kind
of tasks each project team member has can be better explained with the help of the project life cycle (Cargotec Project Model Guide version 1.0, 2011).

2.4.3 Project life cycle

According to PMBOK® Guide (2004), a project life cycle describes the phases that form the project timeline. The description also includes what work is done in each project phase and by whom. The transfer from one phase to another is usually a result of a deliverable or technical transfer being handed over and approved. Therefore the life cycle should also address when deliverables are expected to be reached and based on what the results are evaluated and approved. The project life cycle also addresses how the phases are controlled and approved. Every project goes through four distinct stages. Each one of these stages has a start, an end and a goal to reach. Every stage is like a project within a project (Melton, Iles-Smith & Yates, 2008).

![Figure 9](image-url)  
**FIGURE 9.** The Four ‘value-added’ project stages (Melton, 2007). Recreated.

The ABC Project Model considers the project life cycle in a detailed manner. The goal is that the project management phases steer the project execution by guiding the management decision-process, so that expected outcome can be reached. The idea of the gate structure is that the project time schedule is divided to decision-making points known as gates (G). It also shows the phases between the gates and the project work and documentation that must be completed. The gates and the tasks between them shouldn’t be considered literally as phases, they are actually closer to a process, because there are overlaps. When a project reaches a new gate point, the project status is evaluated. Based on the status evaluation a decision is made if the project should continue or not. The decision whether the project should continue or not is made by the individual or group who has been assigned with the authority to do so. Provided below is a picture representing the gate decision points and the phases (Cargotec Project Model Guide version 1.0, 2011).
The very first thing that happens with every project is that there is a need for it, internal or external. As established before, it is essential to evaluate which projects should be included to the portfolio, to avoid having too many projects or wrong projects. Therefore in this stage an ABC analysis should be made to identify how complex the project is going to be. This will help the management in their decision-making when they have an initial evaluation on the project’s requirements and the risk level. Next G0 decision is made to approve a project idea. The decision is made by someone who has the authority to do it based on the written project proposal. The idea can be considered active or inactive. G0 project that is active indicates that the preparation phase can be started. G0 project that is inactive is a project on an idea level that hasn’t received the permission to continue. This can be due to lots of reasons, for example: the timing to start working on it isn’t good at the moment due to insufficient resources. Inactive projects typically form a pool of projects which might be executed later on (Cargotec Project Model Guide version 1.0, 2011).

In the preparation phase project proposal is modified further and pre-studies are implemented if needed. Project owner is responsible that the preparation work is done. These actions include nominating the project manager (or another person that also has responsibility about the preparation work). A business case description and investment calculations must also be completed. Measurable objectives for the post project evaluation are defined and the steering group for the project is gathered. The people in the steering group are then assigning appropriate roles. Lastly the project owner, project manager and the steering group make a project analysis to define if the project is an A, B or C-project. The result of the preparation phase is the project charter. Gate 1 decision is needed before the project can move any further. In this decision-making point, project owner suggest and project portfolio management group makes the decision if the project can proceed to the next phase or not. The decision consideration is done based on the
During the planning phase a project plan is created. The project plan should include information on how the project is executed, all the deliverables that need to be completed when the project closes and the acceptance criteria for these objectives. The project manager is responsible that the project plan is created. Project owner assembles the final steering group in the beginning of the planning phase. Project owner acts as the chairman of the steering group, and they participate to business planning by ensuring that business case and project plan are realistic. They also confirm that the project plan is aligned with the business case and plan the steering group’s work by developing a project steering plan. Project owner, project manager and the steering group make the project classification again just to make sure that the corresponding management level will be accurate. When the project plan has been completed, it is time to make a decision to start project execution (Cargotec Project Model Guide version 1.0, 2011).

Steering group and project owner suggest the Gate 2 decision whereas project portfolio group makes the G2 decision. This is one of the most important gate decisions to make. Up until now, everything related to the project has been planning work, which has only consumed a moderate amount of time and resources. When the project gets the permission to continue to the next phase, then the real project work will actually begin. Then resources will be properly assigned and the project will get a budget. This means that if the project has to be terminated for any reason later on in the project life-cycle, all the resources are wasted. Also, the projects chosen for execution should be those that will bring real value to the company. If the company executes (even successfully) a project that doesn’t really provide any value, then the resources are also going to be wasted (Cargotec Project Model Guide version 1.0, 2011).

In the execution phase all tasks and activities assigned for the project are carried out in order to complete the project with expected deliverables. During this phase project manager makes progress reports, and steering group makes needed decisions. The steering group needs to ensure that the business case stays valid throughout the project, meaning that they follow the business environment, risks, effects of the project and goals. The project actions are compared to the project plan during their execution. If there are deviations (for example: budget is exceeded), then actions should be taken to
deal with these changes. The project owner can make decisions if there are significant deviations in the project schedule, budget or deliverables according to the authority given to him. If the deviation is so major that the project owner’s authority isn’t enough to decide about the issue, then the portfolio management team makes the decision. The project manager documents change reports if adjustments are needed for the project scope, schedule, resources, benefits or costs. Gate 3 decision needs to be made after the project execution is coming to an end. In this gate, the project deliverables are approved and the project is moved to closing phase. Project manager makes the proposal to the steering group, and they then decide if the project can move to Gate 3 (Cargotec Project Model Guide version 1.0, 2011).

Project closing phase ensures that the project owner receives the project deliverables. It is also important for documenting the experiences of the project for future use in similar projects. Project group members should be officially released of their duties. All the results must be documented in a final report, which includes description of the achieved and intended project results. Final report also includes a section covering the real project costs, resources used, time used and scope compared to the original expectations. There should also be a chapter covering the post project actions, which include plans about how the business results are going to be measured. The steering group is responsible for ensuring that the line organization employs project results. The steering group must also analyze the success of the project and consider how the final business benefits are going to be evaluated (Cargotec Project Model Guide version 1.0, 2011).

The Gate 4 decision is made to officially close the project. The decision about the G4 is done by the project portfolio management group. The decision is based on the final report of the project. G4 decision can be done as soon as project deliverables have been handed over, responsibilities are agreed upon (for example: who employs the project results in the line organization) and other administrative duties have been completed. Project owner is responsible that a follow-up is executed after the project has been finished. The post evaluation happens approximately 6-12 months after the project closing. The goal of the post evaluation is to consider and evaluate the project’s business benefits and strategic goals. Post evaluation results can also provide valuable knowledge for similar projects in the future. A picture detailing which project document must be provided in each gate has been provided in the appendix (figure 30) (Cargotec Project Model Guide version 1.0, 2011).
2.5 The effect of ABC Project Model on the Thinking Portfolio

The Thinking Portfolio software version Cargotec acquired has been designed according to the ABC Project Model and therefore it was important to go through the basics of this model. That way it can be understood better how project management is conducted in the company and what kind of reporting requirements there are.

Project document templates have been available in Cargotec. These project documents were created according to ABC Project Model and they have been used for reporting project progress. Now Thinking Portfolio should be used for reporting purposes and thus it is essential that the project model has been considered in the design.
3. THINKING PORTFOLIO®

3.1 Introduction

Thinking Portfolio® is a strategic management tool developed by a Finnish company called Thinking Business. The software is meant to be used to view, manage and document organization’s projects to portfolios. According to the Thinking Portfolio website (accessed 2011), the database allows people from different departments to have their own portfolio within the system. This way information is reported on a broad enterprise level, but different units have their own place for project information (Thinking Business, Thinking Portfolio® Whitepaper, 2011).

According to an expert interview with Mr. Esa Toivonen from Thinking Business, Thinking Portfolio has several benefits as software. Firstly, each version of the software can be completely parameterized to suit the customer’s needs. Secondly, everything that is quantitative can be reported in the system (things that have a numerical value in some sort of category according to which they are arranged). Thirdly, the portfolio view can be seen immediately after projects are reported to the system. Even two projects will already form a portfolio. Fourthly, the software is not licence-based, thus having more users doesn’t cost the company more money (Expert Interview, Esa Toivonen, Senior Advisor and managing partner of Thinking Business, 15.9.2011).

Cargotec also acquired Thinking Portfolio in 2011. The main motivation for purchasing the software was to further harmonize the work with internal development projects. The ABC Project Model helps implement common working methods to enable more streamlined project work. Thinking Portfolio helps by providing a platform where the information of the development projects can be reported and stored. The main strength of the software is the fact that every version is customized according to Thinking Business’ customer’s wishes. Therefore Cargotec had an excellent opportunity to have software which would consider their line of business and their newly implemented project model. Project managers and owners are obligated to provide up-to-date information on the Thinking Portfolio about the development projects they are responsible for. This information is needed in the operative portfolio meetings where the portfolio management team decides about resource allocation and gate decisions (Cargotec Project Model Booklet version 1.0, 2011).
There were several benefits which were hoped to be reached with the help of the new software. Firstly, project portfolio related data could be found in similar format from the same source. Secondly, the provided data can be used on a portfolio management level to help decision-making and project prioritization. Thirdly, having a common platform for project portfolio data would promote visibility and transparency for the projects on decision level. Fourthly, project portfolio management and learning from history would improve, which would benefit portfolio team, project owners, project managers as well as project teams (Expert Interview, Anne Happonen, Business Portfolio Manager, 12.9.2011).

Thinking Portfolio is a protected application which works on an Internet browser. This means that the user doesn’t have to install any additional program or software to their computer. The user identification happens either based on the Windows recognition or internal username- password identification. These access- and user rights are decided by the system administrator(s) when the user account is created. Thinking Portfolio as software is rather difficult to describe on a general level, mostly because Thinking Business designs the software according to their customer’s wishes. It has been made easily customizable by offering several readymade widgets and reports from which the customer can choose the ones they want for their company. The terminology used in the software is also based on the customer’s wishes, ensuring that filling the correct information is easier (Thinking Business, Thinking Portfolio® Whitepaper, 2011).

The Thinking Portfolio has been made simple to use. Information is typed on small text fields or large text areas, selected from a drop-down menu or chosen from check boxes. The software allows the users to link files to the software. This is helpful if there is more information about the project that should be provided. Several parts of the Thinking Portfolio are also created and updated automatically. The users can also “make mistakes” without having to worry much. All data that is uploaded to the system can be easily changed or removed with just a few clicks. Even though describing the system on a general level is difficult, there are a few common features in each one. The Thinking Portfolio has three main views: the project directory, schedule and quality. There are also two supporting views, which help the user get out the wanted information from the software. These views are known as advanced filtering and reports. Every version of the software also has one to five widgets where the project information is
stored. The only part that the users have to update and modify themselves is the information which goes to the project pages, also known as the widgets. The three main views and the reports update automatically when new project data is uploaded (Thinking Business, Thinking Portfolio® Whitepaper, 2011).

### 3.2. Widgets

Every version of the Thinking Portfolio has project pages or “widgets”. These pages contain the detailed information of a single project. When a new project is created to Thinking Portfolio, information is added to the project pages. This is the only part of the software to which the user has to manually input the data. All other parts of the software are created automatically based on the information that is filled to these project pages. There are usually one to five widgets and their content and layout depend on the company. There is a ready-made list of widgets which the companies can include to their Thinking Portfolio, in the order they wish (Thinking Business, Thinking Portfolio® Whitepaper, 2011).

Cargotec’s version of the Thinking Portfolio includes five widgets. The first widget is called “Key information”. There is a lot of data that must be saved to this widget. First the user (project owner or PMO) provides the basic information of the project. With every project, it is essential to confirm what kind of project is reported and where is it placed in the Cargotec organization. The user first selects basket, sub-basket, program, project type and organization from drop-down menus. Then Project ID and Cost ID are reported. The user also provides the names of project sponsor, project owner and project manager. There are four open text boxes for project description, business benefits summary, scope and out-of-scope items and business objectives. These will help describe in more detail what kind of project work is going to be done and what benefits can be expected when the project is completed. Lastly the ABC classification template is filled. It is accessed by clicking the icon in the project page. The template will open to a new window and then the user fills the correct information. A picture of this widget has been provided in the appendix (Figure 31).

The second widget is called “Effects” and like the name suggests, this project page is used to evaluate the effect the project has when completed. The benefits and risks
evaluation is done to find out the possible benefits and threats and how deep of an impact they will have on Cargotec when actualized. Then business impact analysis is made by identifying the business areas, regions and functions of Cargotec the project will have an influence on. Next strategic focus analysis is made to reveal what strategic company goal the project is trying to positively influence. Lastly customer impact analysis is made to analyze the customer segments affected by the project and what means are used cause the impact. A picture of this widget has not been provided in this thesis as requested by Cargotec.

The third widget is called “Control”. The schedule of the project is reported according to the ABC Project Model phases. For every project the budgeted schedule is reported in the beginning, this is the initially agreed timeline. There is also a possibility to provide a schedule forecast. This is reported when there is a deviation (positive or negative) to the original schedule. Total hours spend on each phase can also be reported, as well as how much the phase has progressed. Next key resource demand is used by choosing the person working for the project and identifying how much work is expected from them in each phase of the project. Then the budget for the project is provided. The originally planned use of resources is reported to the budget section. Deviations to the original budget are reported in the forecast section. After the project has been completed, the actualized resource use is reported to the actual section. Lastly the current status of the project is being evaluated as often as required. Traffic lights colors are used to evaluate project’s cost, time, scope, resources, management support and overall status. Red indicates that a target can’t be achieved as planned, yellow indicates that actions are needed to reach target as planned and green indicates that targets will be reached as planned. Fourthly, there is a section for providing progress summaries. In this part, the project manager can report the most significant news related to the project whenever necessary. A picture of the Control widget has been provided in the appendix (Figure 32).

Fourth widget is called “Business case & PE”. Firstly, the post evaluation of the project is done. Here the cost, time and scope are evaluated before and after the project. In the beginning of the project, the project group evaluates how important is the success of cost, time and scope elements. Then after the project they evaluate the same things again based on how well the goals were achieved. Secondly, there are two open text boxes for lessons learned and benefits achieved. These experiences are written after the
The fifth and last widget is known as “Steering”. Firstly, information on the steering group is provided, including the name of chairman, project lead and other members. Secondly, the names of associated projects are added to an open text box. These are projects that are somehow interlinked with the project that is being reported and have a significant impact on its success. Thirdly, the steering diary is reported. The progress summaries are added automatically from the “Control” widget. There is also an option to add items, for example: a memo of the steering group meeting. A picture has been provided in the appendix (Figure 34).

3.3 Main views

3.3.1 The project directory

The project directory, also known as the portfolio map, is the main page of the application. This means that as the user logs in, this is the view they will see first. The project directory consists of all the projects in the software that the user has the rights to view. This view shows brief project information summary consisting of several columns. A project summary can include, for example: project name, business area, project manager’s name, company division and current phase of the project. Each company can choose what information columns they want for their project directory. As soon as new information is updated to a project, it moves to the first one on the project directory. This way the users can see which projects have been updated recently. When a user wants to access the information of a specific project, they click the project’s name from the list of projects. Then they are able to view the widgets and find out all the detailed project information.

As stated earlier, the very first thing every user sees when logging in to the system is the project directory. The projects the user gets to see are based on the access rights granted by the system administrators. There are different user groups and their user rights are
also based on these roles. The project directory columns include sub-basket, project name, project owner, project manager, organization, project type, the current phase of the project, budget in k€ and project status.

3.3.2. Schedule

Schedule is a bar chart from where the projects’ phases or milestones can be seen on a timeline. The projects that the user can see in this timeline are again based on the access rights they have been granted. The user is usually presented a few options for the length of the time span in the report. They can also choose to view the past, present and future. The timeline then shifts accordingly. The schedule part of the Thinking Portfolio is created automatically based on the timing information provided in the widgets. The quality of the report depends on the accuracy and amount of information provided to the project page.

In the Cargotec Thinking Portfolio version every project is divided to phases according to the gate model introduced by the Cargotec project model. The user can choose from three different timelines: past, present and future. On default, the schedule shows the present time consisting of one year, divided to spans of two months. When the user chooses to click the past/future option, the timeline moves back/forward. There is also a dropdown menu for the schedule, on default showing one year. The user can choose to view the project information for 6 months, 1 year, 2 years, 3 years or 6 years.

3.3.3. Quality

This is a view that shows a list of projects in the Thinking Portfolio the user has the rights to view. Next to the project’s name, there is a field for each widget. Traffic light colors are used to expresses how much project information has been uploaded to the software on each widget, and which parts are yet to be filled. It also shows the last day during which the project information has been modified and indicates how long it has been since the last status report. All in all, this view doesn’t measure the quality of the project, but rather the quality of the project report in the software.
In Cargotec’s version of the Thinking Portfolio, there are six fields for each project: budget, schedule, steering, strategic focus, impact and report date. Each column is colored according to traffic light model either in green, yellow or red. Green indicates that all needed information has been provided. Yellow indicates that some of the information has been provided and red indicates that no information has been provided. The reporting date expresses the last time the project information was updated.

3.4. The support views

3.4.1. Advanced filtering

It is important to discuss that the users do not have to view all the projects they have access rights to view. Each user may select which projects they wish to see on the main views, from the tab called advanced filtering. For example: the user can choose to only view the HR projects in Tampere region. The options for filtering come from the columns chosen to the project directory. These filtering options make it easy for the user to get access to the information they want. When the advanced filtering option is used, it will impact all the other views, for example: the quality view will only show the projects that were left after the filtering. The options for the advanced filtering come from the columns provided for the project directory, therefore the filtering options for Cargotec are: sub-basket, project name, project owner, project manager, organization, project type, the current phase of the project, budget in k€ and project status.

3.4.2. Reports

The last important part of the Thinking Portfolio is the reports- section. From here the user can find a selection of graphics and textual reports. These reports are created automatically based on the project information uploaded to the widgets. The reports wanted are once again selected based on the company’s needs and there are more than 200 ready-made reports to choose from. When the user clicks the reports window, they receive a list of possible reports the system can create. The user chooses the report(s) they want to view and proceed. The reports are then generated automatically and displayed in a new window. The quality of the reports depends on how much
information is uploaded to project pages, how many projects and how often the
information is updated. In Cargotec’s version of the Thinking Portfolio there are 34
different reports available.
4. SOFTWARE PROJECT SUCCESS FACTORS

In order to draw the conclusions, it is worth discussing information technology and the factors affecting software acceptance level. These are going to be used as a basis for the analysis of what has been done right with the Thinking Portfolio software project and what things have gone wrong and should be fixed. According to CJ Rhoads (2008), information technology is “the people, processes, software and hardware that make up for the information flow in the operations of the organisation”.

![Diagram](image)


It should be noted at this point that software implementation projects, just like all other projects, are more likely to fail than succeed. The reason for failure comes from lack of balance between people, processes and the software. Proper communication and quality training must also be ensured. All elements for software project success will be gone through next in detail.

4.1 Considering the experience and ability of the users

There are two things that affect a person’s relationship with new software: experience and ability. Experience indicates how much a person has been using a software application and how familiar they are with it. When a person has a lot of experience with a certain software application, they can use it effectively in their work. Using the particular software has become a routine. Ability on the other hand measures how fast a person learns how to use new software. People with high ability can generalize their abilities and figure out how new software works based on the experiences they have
with old software. Provided below is a picture of the experience/ability chart (CJ Rhoads, 2008).

![Experience/Ability Chart](chart.png)

**FIGURE 12.** Experience/Ability Chart (CJ Rhoads, 2008). Recreated.

People are divided to four categories when it comes to technical abilities. First of all, there are people who have low abilities and low experience. They haven’t really used a lot of software. For them, learning to use a new application takes the longest amount of time. They don’t have experience with other software that they could use to help them out. Their abilities with technology are also low, meaning that they can have difficulties with very basic things such as the terminology. Secondly, there are people with high experience but low ability. They may be experts with one software application, but can’t generalize what they have learned. This means that they don’t know how to apply the skills they have learned with one software application with another application. Because they are unable to generalize their abilities, they have much longer learning curve. However, if the new software has similar features with the old one, they can learn to use it faster (CJ Rhoads, 2008).

Thirdly, there are people with low experience but high ability. They will learn quickly to use new software. They will be able to apply the skills they have learned with previous software, even when they don’t have that much experience. Finally, there are people with high ability and high experience. They are typically drawn to work with technology. They can very flexibly apply the skills they have gained with previous software to new ones. They also have the shortest learning curve. It is important to realize these differences with people’s abilities and experience, because these
differences form gaps between people. Information technology goes through changes all the time and faster than ever before. This is also affecting companies, as new software and hardware becomes available all the time, making the older stuff outdated. This creates challenges for the people who have low abilities with technology, because software applications change faster than they can even learn to use the old ones properly (CJ Rhoads, 2008).

4.2 Mapping the process

The second factor affecting the success of technological solutions are the procedures adopted by the company. In order to ensure a successful software implementation, time should be reserved for mapping the process the software is there to help. Mapping helps identify inputs and outputs as well as the manual and automatic actions. This will help find out what kind of software is needed and what computing skills are required from the staff. Spending time identifying the elements of procedures might be seen as a waste of time, but it should be noted that one of the biggest reasons why software implementation projects fail is because the processes behind the technology are poor. However, people are more likely to think that there is something wrong with the software or the personnel rather than the process (CJ Rhoads, 2008).

Poor procedures are typically very bureaucratic and complicated, slowing down the work. Positive change in these situations cannot be reached by simply adopting new software or hiring people with high skills with software. The advice is, don’t try to look for perfect software or perfect people because you will never find them. The idea is to find a process that can maximize both the capabilities of the people and the functionality of the software (CJ Rhoads, 2008).

4.3 Choosing the most suitable software at the right moment

The third factor which forms IT is the software and the hardware. They have direct influence on the information flow of operations, because software and hardware affect the way people work in the company. Good software and hardware can make working for the employees easier, faster or more efficient. However, when software is purchased,
there is always a risk involved. Therefore there are three things that should be done to ensure that the software selection is successful. Firstly, allow people from different organizational units to be involved in the decision making. Secondly, only purchase the software after it has reached the end of the growth stage. Thirdly, realize which factors will cause initial resistance with the software (CJ Rhoads, 2008).

Often software applications are being chosen by the wrong people. This is because typically the people who have the most knowledge about the business environment and the strategies of the company don’t have as much information about technology. The people most educated about technological things are typically working with IT and therefore have less information about the business and strategies. This is why one would never allow the IT staff to select the new software alone (CJ Rhoads, 2008).

The most important decision makers should always be the intended end users. They are the people with the business knowledge and they know best what type of requirements the software must meet to be usable in their work. Also, the chosen software should match the abilities of the intended users. If the decision making is left to the hands of the IT experts, they may end up choosing an application which the intended users find too difficult to use. However, the IT staff should definitely be involved in the selection process as well; they can give valuable insight concerning the technical specifications and data security. In an ideal situation both sides are heard when new software is being selected (CJ Rhoads, 2008).

Product goes through four distinctive life cycle stages. It is important to be able to identify in which phase the product should be bought. The first stage is called development, here the idea for the product is introduced, developed further, tested and the feasibility is being researched. In this stage purchasing software is extremely risky. All the good things that are being said are usually only marketing effort or hype from the market. In this phase the software capabilities have not been proven yet, therefore being among the first to acquire the software means being subjected to a lab rat. It is a smarter move to wait and allow the competitors to take a risk with new software. In this stage there are also several competitors competing with similar solutions, and thus there is no way to know which one will become the preferred solution in the end. Software applications typically have some bugs when they are first released to the market and these issues naturally hindrance the usability (CJ Rhoads, 2008).
The second stage is called growth, in this phase the commercial introduction happens, the product is accepted in the market and the product expands in the market as it is being sold more widely. In this stage there are typically a few vendors competing for customers and they are able to make profit with their product. The best moment to buy the product is in the end of the growth stage, as the product is starting to gain more popularity. In this stage there is also still a chance to learn from mistakes made by other companies (CJ Rhoads, 2008).

The third stage is maturity, in this stage the product has stable sales before the popularity starts to decline. This is the longest phase with a successful product. In the maturity stage no bug releases happen anymore and upgrades become available. However the end of maturity phase is also a bad moment to buy the software, as it will soon be at the end of the life cycle. This forces the company to acquire something to replace it (new software or an upgrade to the old one). The final stage is obsolescence and in this phase the product stops existing (CJ Rhoads, 2008).

It should be kept in mind that there is always going to be some initial resistance when new software is launched, but the amount of resistance depends greatly, as well as the reasons for it. Recognizing in beforehand what kind of factors affect the acceptance level among the users can help pick more suitable software. Five factors affecting the level of acceptance among the users have been identified. First of all there is relative advantage. This means that there should be a clear benefit visible to the users. Lack of visible improvement will make them less likely to use the software. Of course, this is difficult to measure, because every person forms their own opinion based on the way they experience the change. The concept of benefit can’t be fed to users, they have to feel it (Bob Hughes, 2008).

Secondly there is compatibility. In this situation the user doesn’t have to make huge changes to their way of working. In software processes, it can mean that the new software has some overlaps with technology already existing in the company, like hardware or operating system platforms. In some situations, the new innovation replaces the old one. The chance of resistance can increase greatly, especially if the old system was generally accepted or liked. Changing the system can be seen as a nuisance, even if the benefits were communicated in detail. Thirdly there is complexity. The more
difficult the software is to use, the less likely people are willing to adapt it to their working life. Complex software is typically rebelled because learning to use them takes a lot of time. Especially when the users don’t see a clear benefit to make up for the time spent on learning to use the new software, they are typically not very enthusiastic about the learning challenge. Fourthly there is trialability, which means that the user are given a chance to try the new software. The users are more likely to accept the new software, if there is time and the possibility to get to truly test it, without having to commit to it right away. This way they can get to know the software without feeling that they are pressured into using it. Fifthly there is observability, which means that there is a visible benefit for using the software that can be noticed by outsiders as well. When the users collectively feel the benefit of the software as well as the outsiders, then acceptance can be reached easily. Again the problem here is that benefit recognition can’t be forced (Bob Hughes, 2008).

### 4.4 Communicating the vision

The information of the new software must flow to the users before, during and after the software project. A proper communications plan should be made before the project starts and the communication should be started as early as possible. Information must be provided about the purpose of the software, the instructions and rules for using the software, the intended users and the process of implementing the software in the company. Lack of information will cause confusion and misunderstandings. Simple and consistent message is needed throughout the implementation process. Proper communication is usually also forgotten with software projects, even when it is essential for securing the success of the project (CJ Rhoads, 2008).

### 4.5. Quality training

It is extremely important that enough effort is put to ensuring the quality of the support functions and training. The amount of training and support has a big impact on the success of any software implementation project. Still this isn’t realized most of the time. Often people in charge of software projects assume that everyone will be able to use the new software without any problems. This happens especially if they consider the
software straightforward to use. Undermining the training needs of the users will cause several problems. First of all, the amount of resistance towards the new software is likely to be higher when the amount of support isn’t sufficient. Secondly, the time it will take to have everyone using the new software will be longer, because the users have to figure out themselves how to use the software. Thirdly, there is a chance that the users will use the software the wrong way or the users don’t want to use it in order to avoid making mistakes (CJ Rhoads, 2008).

In conclusion, proper training and support functions will have a big impact on the failure or success of a software project. Therefore it is recommended that training events are arranged, user manuals are made available and the contact information of the support personnel is provided for the users as early as possible in the process (CJ Rhoads, 2008).
5. EVALUATING THINKING PORTFOLIO SUITABILITY IN PROJECT REPORTING IN CARGOTEC

A user satisfaction survey was conducted among the Thinking Portfolio users of Cargotec. The purpose of the survey was to find out what they think about the usability of the software at the moment. The survey also aimed to pinpoint areas in the software that must be developed further in order to make the software suitable for Cargotec personnel. The results of the survey were used in the post evaluation of the Thinking Portfolio implementation project. The results were also a basis for development discussion with Thinking Business representatives, who can still make changes to Cargotec’s version of the Thinking Portfolio when needed.

5.1 Research methods and survey practicalities

There are two so called “research families” with different approached for acquiring information. The first research method is qualitative research, which is an empirical research mean where data is collected and analysed in many formats. The data results are not in numerical format. The second research method is quantitative research, which is an empirical research mean which involves large scale and representative sets of data in numerical format. There are some similarities between the two research methods. Both can be used to research hypotheses and theories. Also, quantitative research methods may include elements from the qualitative elements and vice versa. The differences of the two can be observed from the table below (Loraine Blaxter, Christina Hughes & Malcolm Tight, 2010).

TABLE 1. The paradigms of the two research families (Loraine Blaxter, Christina Hughes & Malcolm Tight, 2010)

<table>
<thead>
<tr>
<th>Qualitative paradigms</th>
<th>Quantitative paradigms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concerned with understanding behavior from actors’ own frames of reference</td>
<td>Seeks the facts and causes of social phenomena</td>
</tr>
<tr>
<td>Naturalistic and uncontrolled observation</td>
<td>Obtrusive and controlled measurement</td>
</tr>
<tr>
<td>Subjective</td>
<td>Objective</td>
</tr>
<tr>
<td>Close to data: “the insider” perspective</td>
<td>Removed from the data; the “outsider” perspective</td>
</tr>
<tr>
<td>Grounded, discovery oriented, exploratory, expansionist, descriptive, inductive</td>
<td>Ungrounded, verification oriented, reductionist, hypothetic- deductive</td>
</tr>
</tbody>
</table>
The user satisfaction survey conducted among Thinking Portfolio users of Cargotec implemented both quantitative and qualitative research methods. The survey consisted of sixteen multiple choice questions to which the participants were required to answer. Three questions had a unique criterion and two questions had yes/no criteria. All other multiple choice questions used Likert scale, which consists of statements which express favourable or unfavourable attitude towards different subject matters. This item is then evaluated based on how much positive, negative and undecided feedback it got. In the user satisfaction survey for Cargotec the answering options were agree, slightly agree, not sure, slightly disagree and disagree (C.N Sontakki, 2010).

Qualitative research methods were used as well. This was necessary, because development ideas and problem areas wanted to be found out to provide concrete recommendations. Therefore after a large majority of the questions the users were given a chance to provide written feedback to open text fields. Also the last question in the survey gave the users an opportunity to provide feedback to an open text field about anything related to the software or the implementation process. However it can still be concluded that the survey was still more quantitative in nature. The users had a chance to provide written comments throughout the survey but this was not mandatory. The reason for this was that making open ended questions mandatory to answer might have decreased the amount of survey responses.

The user satisfaction survey had four distinctive areas. Questions number 1-4 focused on getting some background information from the users. After that the questions were focused on measuring user satisfaction, mostly with the use of the Likert scale. Questions 5-8 focused on the interface and usability. These questions were directed at finding out how easy the software is to use and are there enough instructions and support provided. Questions 9-12 focused on the automatic reports created by the software. As mentioned earlier, Cargotec’s version of the Thinking Portfolio can create 34 reports automatically, based on the information provided in the project pages. The users were asked to evaluate the clarity and usability of these reports. Questions 13-16
focused on the benefits evaluation. There were several benefits which were hoped to be reached with the help of the Thinking Portfolio. Here the users were asked to evaluate do they feel that the mentioned benefits can be reached.

The user satisfaction survey was created with SurveyMonkey®, which is an online tool for creating different kinds of surveys. The questionnaire was in electronic format, because the survey respondents were from different countries and reaching them was easiest that way. The users were contacted by e-mail and asked to participate to the questionnaire. A link for the survey was posted to the end of the e-mail. The user satisfaction survey was open during the 15th – 27th of November.

The sample consisted of 90 Thinking Portfolio users from Cargotec. The people were selected based on how many times they had logged in to the software because the software is relatively new. It would be senseless to include everyone who has access rights, when a large number of them had logged in only once or twice. Therefore all of the chosen participants had logged into the Thinking Portfolio at least 8 times. Large majority of them had logged in more than 10 times, and the most frequent users more than 100 times. 54 people responded to the survey, 52 of whom completed the whole survey. This means that around 58% of the invited survey participants provided feedback. This was perceived sufficient and the survey results were considered reliable by Cargotec representatives. In total 199 written comments were provided by the survey respondents. As requested by Cargotec, only some of the comments were published in the thesis in order to ensure the anonymity of the users. However, all of the comments were used for analysing and evaluation, even though they were not included to the thesis. Some of the written comments provided in the thesis have also been slightly edited for publishing purposes.

5.2 User satisfaction survey questions and results

5.2.1 Background information (questions 1-4)

The first question was asked to establish the user’s role in the Thinking Portfolio. It also helped to indicate what kind of job they have in the company. This was the most important piece of background information needed. The users were asked “what is your
role in the Thinking Portfolio”. This was a multiple choice question with seven answering options including: BPMO (business portfolio manager), PMO (project management office), line manager, project manager, project owner and other. If the users chose the option “other” there was an open text field provided where they were asked to establish their role. The survey results indicated that the biggest user group was project managers, 20 users. Next was PMO (10 users) and project owner (8 users). Smallest user groups were line manager (5 users) and BPMO (3 users). There were 8 users who chose “other” option. Provided below is a pie chart detailing the roles of the users. The written comments were not included to the thesis in order to protect their anonymity.

What is your role in the Thinking Portfolio?

![Pie Chart]

FIGURE 13. User satisfaction survey, Question 1

In the second question the users were given a statement “choose the option that applies to you”. This was a multiple choice question. The users were given two answering options: I fill and view Thinking Portfolio data or I only view Thinking Portfolio data. This question was asked to find out do they use the software for reporting, or do they just view data other people have provided. The survey results indicated that almost all of the users had been both filling and viewing data (50 users). Only 4 users had only been viewing data. Provided below is a pie chart illustrating the answers given to user satisfaction survey question 2.
FIGURE 14. User satisfaction survey, Question 2

The third question was asked to identify which project type the users are most interested to follow via Thinking Portfolio. The main area of the user group’s interest can be taken into consideration in the software design, for example: by providing reports that are only focused on certain project type. The users were asked “what projects are you the most interested to follow”. This was a multiple choice question with three answering possibilities: on-going projects, project ideas and finished projects. There was also an open text field provided for additional comments.

Unfortunately the question was misleading to several users. “The most interested”-part should have been emphasised more. The other option would have been to give the users an option to choose more than one project type. The question got criticism for being too limiting, which can be seen from the written feedback. This is why the results provided also took into consideration the written comments provided by the users. The Survey Monkey has a feature which can be used to track down each respondent’s answers in detail. Therefore it was possible to find out, for example that the user chose “on-going projects” and the written comments stated “also project ideas”. The pie chart has therefore been recreated by tracking down the individual responses. After this the results indicated that on-going projects interest 46 users, project ideas 17 people and finished projects 7 persons. Provided below is a pie chart, which has been edited according to the written feedback. Table with written comments can be found from the appendix (table 2).
The fourth question was asked to identify how many users still feel they need training or support. The users were asked “do you need more training/support related to the Thinking Portfolio”. This was a multiple choice question with two answering options: yes or no. There was also an open text field for additional comments. The results indicated that 26 users would like to have more training or support and 28 users felt they didn’t need more help. This means that 48% of the users felt that they need more training or support. Provided below is a pie chart about the users’ answers to question 4. A table has been provided of the written comments given by the survey respondents in the appendix (table 3).
5.2.2 Interface and usability (questions 5-8)

The fifth question was asked to find out are the technological abilities of the people sufficient for using Thinking Portfolio. The users were provided with a statement “Thinking Portfolio is easy to use”. They had the option to answer: agree, slightly agree, not sure, slightly disagree or disagree. There was also an open text field provided for their written comments. The results indicated that large majority of the users felt that the Thinking Portfolio is easy to use (21 agree, 20 slightly agree). There were some negative comments as well (7 slightly disagreed and 3 disagreed). 3 users were not sure. As a summary, 76% of the users provided positive feedback, 6% of the users were not sure and 19% provided negative feedback. The written responses indicated that the users found inputting data easy, but the data requirements were not clear. Provided below is a column chart featuring the answers given by the users. A table with written comments has been provided in the appendix (table 4).

FIGURE 17. User satisfaction survey, Question 5

The sixth question was asked to find out do the users think that the terminology used is understandable. This question was very important, because making changes is easy and the terminology should be in line with Cargotec’s project reporting. The users were given a statement “the terminology used in the Thinking Portfolio is understandable”. They had the option to answer: agree, slightly agree, not sure, slightly disagree or
disagree. The survey results indicate that most of the survey respondents felt that the terminology in the Thinking Portfolio is understandable (15 agree, 19 slightly agree). There were also a number of negative answers (9 slightly disagree, 6 disagree). There were five users who were not sure about the clarity of the terminology. In conclusion, 63% gave positive feedback, 9% were unsure and 28% gave negative feedback. The written feedback suggested that the users felt that the terms were confusing because they weren’t in line with the project documents. Provided below is a column chart featuring the survey answer. The table featuring written comments given by the user satisfaction survey respondents has been provided in the appendix (table 5).

![The terminology used in the Thinking Portfolio is understandable](image_url)

**FIGURE 18.** User satisfaction survey, Question 6

The seventh question was asked to find out can the users find the information they are looking for from the Thinking Portfolio. The users were provided with the statement “navigating in the Thinking portfolio is easy”. They had the option to answer: agree, slightly agree, not sure, slightly disagree or disagree. There was also an open text field for written feedback. The survey results indicate that almost all of the users thought that navigating in the Thinking Portfolio is easy (28 agree, 18 slightly agree). There were few negative comments (4 slightly disagree, 3 disagree). One user was not sure. Overall, 85% of the users gave a positive feedback, 2% gave an uncertain reply and 13% gave a negative feedback. The written comments indicated that the users were able to navigate after a few tries without problems. Provided below is a column chart of the answers given. A table with written comments has been provided in the appendix (table 6).
The eight question was asked to find out are the help functions clear for the users. The help functions are essential to the software, so that the users know what is supposed to be filled to each widget. The users were given a statement “the help-functions in the Thinking Portfolio provide clear instructions”. They had the option to answer: agree, slightly agree, not sure, slightly disagree or disagree. There was also an open text field for written comments. The survey results indicate that there were quite many users who thought that the help-functions provide clear instructions (3 agree, 18 slightly agree). However, the amount of negative evaluations was almost as high as the amount of positive replies (9 slightly disagree, 8 disagree). There were 16 users who were not certain, which is a high number of the respondents. Overall this question really divided the users: 39 % felt positive about the help functions, 31% were not sure and 30% felt negatively. The written comments suggested that the users were not very satisfied with the help functions. They pointed out that there were empty help functions and those that had text were not detailed enough to give them an understanding of the data requirements. Provided below is a column chart detailing the answers given by the users. A table with written comments has been provided in the appendix (table 7).
The ninth question was asked to find out how beneficial the reports are for the users. The users were given a statement “the reports produced by the Thinking Portfolio are useful”. They had the option to answer: agree, slightly agree, not sure, slightly disagree or disagree. There was also an open text field for written comments. The survey results indicate that the users gave relatively good feedback to the reports. There was a good number of users who felt that the reports are useful (8 agree, 13 slightly agree). Only a small number of users felt that the reports are not useful (5 slightly disagree, 1 disagree). However, the number of people who were not sure was extremely high, 26 respondents were not sure what to think about the usefulness of the reports. To summarize, 40% gave positive feedback, 49% were undecided and 11% gave negative feedback. The written comments indicated that there were users who had not used the reports at all yet and they were not sure who should use the reports. Provided below is a column chart featuring the answers given by the users. Written comments given can be found from the appendix (table 8).
The tenth question was asked to find out do users feel that the reports look good and that they can be used in presentations. The users were given a statement “the reports are visually well displayed and can be used in presentations”. They had the option to answer: agree, slightly agree, not sure, slightly disagree or disagree. There was also an open text field for written feedback. The survey results indicate that the amount of positive feedback was once again quite high (8 agree, 11 slightly agree). However, there were also a number of negative responses (6 slightly disagree, 3 disagree). There were 25 users who were not sure. In conclusion, 36% provided positive feedback, 47% were undecided and 17% provided negative feedback. The written comments suggested that the users felt that some of the reports get too crowded when there is information of several projects. It was also indicated that there were users who had not used the reports. Provided below is a column chart featuring the answers for question 10. A table featuring written comments provided by the users has been provided in the appendix (table 9).
The eleventh question was asked to find out if the users understand the content and results of the reports. The users were given a statement “the content and results produced by the reports are understandable”. They had the option to answer: agree, slightly agree, not sure, slightly disagree or disagree. There was also an open text field for written feedback. The survey results indicate that the amount of positive feedback was the same as in the previous question (8 agree, 14 slightly agree). There were 25 people who chose “not sure” option. There were 5 people who slightly disagree and 1 person who disagrees. This means that 42% gave positive feedback, 47% were not sure and 11% gave negative feedback. The written comments indicated that many of the users had not used the reports. The users also hoped to see the calculation methods behind the reports. Provided below is a column chart featuring the answers. A table with written comments that the users provided can be found from the appendix (table 10).

FIGURE 22. User satisfaction survey, Question 10
The twelfth question was asked to find out do the users have some reports they would like to have included to the software that aren’t there yet. In this question the users only had two answering options, yes or no. They also had the chance to give written feedback. 36 users indicated that they didn’t have a report in mind that should be added to the Thinking Portfolio. 17 people responded that they had a report in mind the software should generate. The written comments indicated that some users didn’t have reports ideas yet, because they had not used the reports. They were also hoping that the option to influence this also in the future would be arranged. Provided below is a pie chart featuring the answers given by the users. In the appendix there is a table featuring written replies given by the users (table 11).
5.2.4 Benefits evaluation (questions 13-16)

The thirteenth question was asked to find out do the users feel that the software can somehow positively influence their organisation. The users were given a statement “Thinking Portfolio provides value to your organisation”. They had the option to answer: agree, slightly agree, not sure, slightly disagree or disagree. There was also an open text field for written comments. The survey results indicated that large majority of the users felt that the software can provide value (27 agree, 13 slightly agree). Eight users were uncertain. There were a few people who evaluated that the software won’t bring their organisation value (2 slightly disagree, 2 disagree). Positive feedback was given by 76% of the users, 16% were not sure and 8% gave negative feedback. The written feedback indicated that the software can provide the benefits in the future, but more user activity and better instructions are required first. Provided below is a column chart with the responses to question 13. A table of written comments which were provided by the users can be found from the appendix (table 12).

![Column chart](image)

**FIGURE 25. User satisfaction survey, Question 13**

Increasing visibility and transparency is one of the key goals of the Thinking Portfolio. The fourteenth question was asked to find out do the users believe that these benefits be reached with the help of this software. They were given a statement “Thinking Portfolio increases the visibility and transparency of the projects”. They had the option to answer:
agree, slightly agree, not sure, slightly disagree or disagree. There was also an open text field for written feedback. The survey results indicated that 29 users agreed and 11 slightly agreed. 6 people were uncertain. 5 users slightly disagreed and 1 user disagreed. 76% gave positive feedback, 12% were not certain and 12% gave negative feedback. The written feedback indicated that the users think visibility can only be reached on a higher level, because project managers can only see their own projects. Provided below is a column chart featuring the responses. In the appendix there is a table with written comments given by the survey respondents (table 13).

FIGURE 26. User satisfaction survey, Question 14

The ability to prioritise projects better is also one outcome that Cargotec hopes to achieve with the help of the Thinking Portfolio. In question fifteen the users were given a statement “the information provided in the Thinking Portfolio can be used to help prioritize the projects”. They had the option to answer: agree, slightly agree, not sure, slightly disagree or disagree. There was also an open text field for written comments. The survey results indicated that there were 21 users who agreed and 14 who slightly agreed. 13 people were not certain. 3 users slightly disagreed and 1 person disagreed. In conclusion, 69% gave positive feedback, 25% were not certain and 6% gave negative feedback. The written comments suggested that the users feel that better reporting is necessary before this benefit can be reached. Provided below is a column chart featuring the responses. A table of written comments given by the survey respondents is in the appendix (table 14).
This sixteenth question was asked to find out do the users feel confident that the information provided to the software can be used for decision making. The users were given a statement “The information provided in the Thinking Portfolio can be used to help decision making”. They had the option to answer: agree, slightly agree, not sure, slightly disagree or disagree. There was also an open text field for written feedback. Most of the users think that the Thinking Portfolio can be used to help decision making (24 agree, 14 slightly agree). There were eleven people who were not certain, which is quite high number. There were also a few who didn’t think that the statement was accurate. 2 people slightly disagreed and 1 person disagreed. To summarize, 73% gave positive feedback, 22% were uncertain, 6% of the users gave negative feedback. The written comments indicated that the users again felt that more clarity for data requirements is needed as well as more frequent use of the application before this benefit can be reached. Provided below is a column chart featuring the responses given by the users. A table detailing written comments given by the users has been provided in the appendix (table 15).
5.2.5 Other comments (17)

Question seventeenth was asked to provide the users with a chance to comment anything they felt was significant. The question was “Do you have any other comments, feedback or development ideas related to the Thinking Portfolio? Feel free to comment any part of the software or the implementation process.” There was an open text field available and it wasn’t mandatory to answer to this question. Written answers were given and they are provided in the appendix (table 16).
6. CONCLUSIONS AND RECOMMENDATIONS

6.1 User satisfaction survey conclusions

Based on the user satisfaction survey questions 1-4, there are a few conclusions to be made about the background information. Firstly, the user group was diverse and therefore provided different views about the software. The largest user group was (as expected) project managers. They form the largest user group at the moment, since they have the reporting responsibility and therefore have been among the first to get their user rights. Secondly, large majority of the users had been filling and viewing information. This was good for the sake of the survey, because then they had firsthand experience about the usability of the software. However, this can also indicate that the responsibilities have not been understood correctly. Thirdly, the users were mostly interested to follow on-going projects. They were also interested to follow projects ideas. These results were not surprising. The project managers are obviously following on-going projects intently, because they must report the progress of their projects. The project ideas are definitely going to be interesting to follow for the decision makers on the higher level. For them the not started projects form a pool of project ideas which may be implemented later on. Very few users were interested about the finished projects. This might be because they have other means and practices for following finished projects. This might also be a development area for the Thinking Portfolio, how to make it more attractive for post project evaluation. Fourthly, 48% of the users wanted more training or support. This clearly indicated that thus far the amount of support has not been sufficient. The users were able to identify areas where support is needed and they will be introduced in the next paragraphs.

Based on the answers given to questions 5-8, the following conclusions have been made about the interface and usability. Firstly, the survey results clearly indicated that the users did not have difficulties with the actual software. 76% of the users found the software easy to use and 85% of the users thought that navigating was easy. However, there were things that hindered the usability of the software. The areas that received criticism the most in the interface & usability were the terminology and the help functions. The help functions got negative feedback from 30% of the users and the terminology from 28% of the users. The users indicated that the biggest problem with the software right now is unclear data requirements, to which the terminology and help
The users identified the two major problems related to the data requirements. Firstly, the requirements have not been communicated clearly to them and therefore they are unsure what rules apply for filling the information. Secondly, the terminology doesn’t always give them clear understanding what is supposed to be filled to each widget. They felt that the terminology isn’t always the same as in the project model documents of Cargotec. Provided in the appendix is a table containing comments given concerning the confusion with the data requirements and the terminology (table 18). As mentioned earlier, one part of the problem were the poor help functions. The user satisfaction survey participants identified three problems related to the help functions. Firstly, the users evaluated that the instructions could be easily misunderstood or interpreted in different ways. Secondly, there are help functions that have no instructions. Thirdly, the instructions in the help-functions do not provide a sufficient description of the data needed. One survey respondent summarized the problem like this: “There are blank help-menus and unclear help-menus. Some parts of the software are not addressed. People seem to have different views what is supposed to be filled to each part. This will make it difficult to report correctly.” Provided in the appendix is a table containing written feedback related to the help functions (table 18).

Based on the answers provided for questions 9-12, the following conclusions can be drawn related to the reports. One of the things that came apparent with the reports section of the questionnaire was the fact that majority of the survey respondents had not used them at all yet. In every question concerning the reports, the majority of the users chose “not sure” option. Usefulness of the reports got 49% undecided feedback, ability to display and include to own presentations got 47% and the understandability of the content got 47%. There were also several written comments stating that they had not used reports at all yet. The software is relatively new to the users and therefore they may have not had the time to familiarize themselves with the reports, especially since there is so many of them. Even though there wasn’t a lot of feedback, it is worthwhile to go through those things that were mentioned at least a few times. There were a few users who had some constructive criticism.

Firstly, the calculations methods were not visible, only the results. The users hoped that the calculation logic could be visible, to give them a better understanding what the
report is actually measuring and how. One user described the problem in the written comments like this: “The results are presented well, but the process of what has been calculated and how would be nice to see in text. Now I have to look carefully and figure out what exactly has been presented to me.” Provided is the appendix is a table of the comments related to this subject matter (table 19). Secondly, the intended users for the reports were not clearly communicated. The users were uncertain to whom the reports are directed for and in what situation they are used. Provided is the appendix a short list of comments related to the uncertainty of the intended reports users (table 20).

Thirdly, data exporting possibilities were limited or unknown for them. The users were hoping that the reports from the Thinking Portfolio could be exported to Microsoft PowerPoint or Excel. There was also confusion about how the reports can be exported at the moment and what options are even available. Provided is the appendix are comments related to the report data exporting process (table 21). These findings may explain why large majority of the users had not been using the reports before. They didn’t have an understanding to whom they were directed for and could they benefit from the somehow. The lack of knowledge about the used calculation methods can also lower the level of usage for the reports.

Based on the answers given to questions 13-16, the following conclusions have been made concerning the benefits evaluation. Firstly, the benefits evaluation got lots of positive responses and very few negative replies. Most users felt that the software is suitable for prioritization (69%) and decision making (69%), adds visibility (76%) and provides value (76%). The comments given by the users also indicated that some of them felt that the software hasn’t provided these benefits yet, but it can in the future. The parts that got the least amount of positive responses were the suitability for project prioritization and decision making. Here the amount of uncertain responses was a bit higher. This is most likely because the people who are not in higher decision making position were not sure what kind of information is required to make such decisions. One important finding was also the fact that majority of the users felt that the software brings value to their organisation. This is extremely important, because benefits realization will make the software implementation project more likely to succeed.

However, there was also some criticism for the benefits evaluation. Firstly, the projects managers only see the information of their own projects. This means that they don’t get
any information of other projects of their organization. The users felt that this decreases the visibility and transparency of the software. The user satisfaction survey participants also identified that the Thinking Portfolio could be very beneficial for Cargotec, but more users are needed to maximize the value of the software. One of the users summarized the problem in the written comments like this: “As long as only project managers and project owners have access to Thinking Portfolio and project managers only can see their own projects, visibility will not be increased outside this group of people.” Provided is the appendix are comments related to the lack of user rights for project managers (table 22).

One large problem that was identified was also the small amount of integration between the project documents and the Thinking Portfolio. The project documents are very detailed and include a lot of data. The Thinking Portfolio provides summaries and overview of the content of these documents. The problem is that there are parts that are reported both in the Thinking Portfolio and the project documents. Because the project documents are so much more detailed, the Thinking Portfolio can’t replace them completely, thus leading to double reporting. The issue was well summarised by one of the written comments, stating: “Most important is better integration with the Cargotec project documentation - done in various separate documents that are not linked or integrated and cause a massive amount of duplication (even between different documents. Also common data should be centralized (automated) as any change requires updating multiple documents.” Provided in the appendix is a table detailing the comments given about the lack of integration between the Cargotec project documents and the Thinking Portfolio (table 23).

6.2 Software project success factors conclusions

As mentioned earlier, the information flow of operations is formed by processes, people and software and hardware. If there is not a balance between these three elements, then there will be problems with the information flow of operations. (CJ Rhoads, 2008) There are also five factors which affect the amount of acceptance or resistance towards new software including relative advantage, compatibility, complexity, trialability and observability. It is important to recognize where the Thinking Portfolio project has succeeded and what kind of lessons can be learned for future software projects (Bob Hughes, 2008).
The people aspect is well balanced with the Thinking Portfolio software project. The survey results indicated that the software itself was not difficult to use, thus confirming that the ability and experience of the users matches the software. The software aspect is also rather well balanced. The selected software has been used in several large Finnish companies, meaning that Cargotec hasn’t taken a huge risk with the application. The fact that the software can be individually tailored for Cargotec is also a great asset. The newly implemented project model is very likely going to be in use for a long period of time. Having a software application that considers it in the design is extremely convenient. There are some points to be improved in the software, as identified by the user satisfaction survey answers. For example, the users were hoping improvements for the help functions and the terminology. The processes aspect is less balanced. The users indicated that they were not fully informed of the data requirements and the reporting process in general. Especially lack of integration with the project documents was problematic for them. The users indicated that they were uncertain which medium to use for reporting and what rules apply now when the Thinking Portfolio software is in use.

Five factors affecting software acceptance are also evaluated to give an idea which characteristics should be secured better in future software projects. First of all there is relative advantage. In the benefits evaluation part of the questionnaire the users showed that they feel confident that the software can help prioritize projects and help in decision-making. The users also expressed that they feel that the Thinking Portfolio can provide benefit to their organisation and that the software can help increase the visibility and transparency of the projects. Some users pointed out with their written comments that the system isn’t yet mature enough to provide such benefits, but in the future it could be. It can be therefore concluded that the benefits realization has happened and the software has been acquired to fulfil a real need in the company. Good results in this area are extremely important, because it has a huge impact on the success or failure of the software implementation project.

The second factor to be evaluated is compatibility. The Thinking Portfolio is an online based system, which means that no additional software installation is necessary. Therefore it certainly does use already existing platform, but the software itself is new and must be learned from scratch. However, the software has been individually tailored for Cargotec, thus increasing the ability to integrate it to the company. Another positive
factor is that it isn’t replacing any old software, because there hasn’t been portfolio level software in Cargotec before. Based on the survey results it can be concluded that the software is quite compatible.

Thirdly the complexity is evaluated. As far as the software design goes, the Thinking Portfolio has been made very simple and straightforward to use. There are help – functions in each widget, giving the user instructions on the information that has to be filled. All the data can be easily stored to the system. Several parts of the Thinking Portfolio are created automatically, which also makes the software less complex. Large majority of the user satisfaction survey respondents from Cargotec evaluated that the software is indeed simple to use and navigating is also straightforward. The complexity issues the users had came from unclear instructions and processes, not from the software itself.

Fourthly trialability is evaluated. In Cargotec, there is a Thinking Portfolio test environment. This provides the users the opportunity to try out the system and get used to the interface before reporting real project data to the official version. Unfortunately, the test environment was launched after the official version was. This was definitely a problem with the software implementation process. However, all information that is uploaded to the official version of the Thinking Portfolio can be changed very easily, which can therefore compensate a little for the lack of the test environment. Commitment to the software on the other hand has been mandatory from the very start. The software was acquired and since that the personnel have been obligated to use it in their project reporting. The end users didn’t have that much influence on the selection of the software or the initial software design. The amount of trialability was therefore on a rather low level. In the future the involvement of the end users should be increased as much as possible. Also the test environment should be established long before the real version is in use. Preferably the end users should have a chance to try out the software before it is officially acquired.

Lastly the observability is evaluated. It is challenging at this point to predict whether the Thinking Portfolio truly provides real benefits in the company. However it is worth mentioning that since there hasn’t been portfolio management level software before, positive changes can definitely be expected. Also the overall results of the user satisfaction survey were positive. There are areas that could be modified in order to
improve the process and the use of the software.

6.3 Recommendations

The very first recommendation is that portfolio management team would spend time going through the Thinking Portfolio software in order to make it even more suitable for Cargotec. It would be worthwhile to go through every widget and decide which parts of the software are needed for project reporting in Cargotec. Especially the reports could be gone through to decide which ones will provide value.

This is recommended, because there are still features in the software that are not very beneficial. For example: there is a part in the “Control” widget called estimated key resource demand. Provided below is a picture of this part of the widget.

![Estimated Key Resource Demand](image)

FIGURE 29. Estimated key resource demand (© 2006-2012 Thinking Business)

The project manager is supposed to name the key people of the project and indicate how much work is needed from these people during each project phase. The problem is that this part isn’t very suitable for Cargotec for several reasons. Cargotec is going to acquire new software, which is meant to be used for confirming and allocating human resources to projects. Also, the human resource usage in Cargotec is counted in hours, days or work weeks. The key resource demand part in the software expects the user to express the work load in percentages. Also there is only room for six people. This is not sufficient to give a clear view of the human resources involved, especially with the more complex projects. Based on the reasons given, it can be concluded that this part of
the software doesn’t provide value. Therefore it would be a good idea to consider removing this part from the software. Other option could be that this is addressed in one of the help functions. The text could say, for example: “this part of the software isn’t needed in project reporting, please leave it blank”.

It is also recommended that the resource allocation issue is addressed among the Thinking Portfolio users. Some of the user satisfaction survey respondents criticized the software for not having enough options for allocating resources. They could be informed that new software is coming to answer to this need and that Thinking Portfolio is not going to be used for that purpose.

The second major recommendation is that the integration between the project documents and Thinking Portfolio is increased. As identified by the user satisfaction survey respondents, there is a lot of duplicated reporting. The project documents are more detailed than the reporting which can be done with the Thinking Portfolio. This is understandable, because the main focus of Thinking Portfolio is providing the portfolio management teams an overview of the development projects. However, the problem is that there is a lot of same information that has to be reported with project documents and the Thinking Portfolio, thus increasing the reporting burden of the project managers.

The survey respondents identified some ideas that could be used to solve this situation. Firstly, all the project model documents could be added to the software the similar way the ABC classification template was. In this situation the users would fill the project document, and their responses would automatically update accordingly to Thinking Portfolio widgets. Secondly, Thinking Portfolio reports would create the project documents based on the information provided to the widgets. This is the opposite of the first option. Here the users would update the data to widgets, and the project report would be created automatically. Thirdly, Thinking Portfolio could be developed more to handle all project reporting, making project documents unnecessary. Fourthly, edit the project documents by removing the parts that can be reported with the Thinking Portfolio. It is proposed that this issue is solved somehow because this was one part that received criticism in the user satisfaction survey.
The third recommendation is that the portfolio management team would communicate the rules for project reporting and for filling project information to the Thinking Portfolio. When the reporting was done with only project documents, for every gate there was a document that had to be provided before the project could advance to the next phase. There is a picture available of the document requirements and it has also been provided in the appendix (Figure 30). Now when the Thinking Portfolio has been acquired, it would be good to have a similar reporting plan made that also considers the software. The plan could include a detailed list what things must be reported in each phase of the project. It could also state who the responsible person for reporting the information is and what medium (Thinking Portfolio or project document) they should use.

Also explaining the data requirements would help improve the process of reporting. One way to ensure that enough information of the data requirements is provided for the user would be by completing the help functions of the Thinking Portfolio. The data requirements could be communicated in detail and the instructions could also be in a logical order, meaning that the instructions appear in the same order as the widget fields. Also more training events could be arranged for all users. The results of the questionnaire indicated that almost half of the survey respondents were hoping for more support in order to use the Thinking Portfolio better. This indicates that so far the amount of training and support has not been sufficient and therefore arranging more training events could be very beneficial. The users could also be provided with the names and contact information of the support people who they can contact when experiencing problems. These actions would significantly help reduce the amount of confusion regarding the data requirements.

The fourth major recommendation is that in order to enhance the value of the software to project managers, they could be given the same user rights as project owners. There are several reasons why this could be considered. Firstly, this would promote visibility and transparency for project work in Cargotec. Secondly, the project managers would also benefit from the automatic reports generated by the software. Thirdly, they are key users for the software, because they have the biggest responsibility to report there. Therefore their acceptance is crucial for the success of the software project. Fourthly, at the moment there isn’t a lot of integration between Cargotec project documents and the
Thinking Portfolio. Therefore the software has also increased the reporting burden they have instead of decreasing it.

If giving them the same access rights is not an option, they could at least have the right to view some projects that are significant to them. For example: project managers should have the right to view projects that have dependencies with their own. If there are compelling reasons for limiting their access rights, such as data security reasons, they could be communicated to the project managers as soon as possible.

The fifth major recommendation is that the reports could be explained better to the users. Based on the expert interview with Mr. Esa Toivonen from Thinking Business, the Thinking Portfolio supports the option of adding help functions to the reports as well. The recommendation is that this feature is added to Cargotec’s Thinking Portfolio. This is worth looking into since it could help solve some of the problems the users had with the reports. The users were hoping to have more clarity about the calculation methods, the intended users as well as the forums where the reports are used. The help functions could include a short description of those things, thus giving them better information of the reports. It is also proposed that the data exporting possibilities are found out and communicated. This way the users have a chance to use the data created by reports better. The survey respondents were especially hoping to be able to export the data to Microsoft PowerPoint or Excel.

The Thinking Portfolio is now in use in all business areas in Cargotec and the first budgeting for projects has been done. After the initial introduction of the software, several changes to the application have been made already. The results of the user satisfaction survey have been taken into consideration as Cargotec’s version of the Thinking Portfolio has been modified. The software development still continues in order to make it even more suitable for project reporting in Cargotec.
REFERENCES

Books


Web-pages


Other sources
Cargotec Project Model Booklet version 1.0. 2011. ©Cargotec
Cargotec Project Model Terminology. 2011. ©Cargotec

Expert interviews


APPENDICES

APPENDIX 1: DOCUMENT REQUIREMENTS IN EACH GATE

<table>
<thead>
<tr>
<th>Phase</th>
<th>Documents and decisions</th>
<th>Minimum project management level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>A</td>
</tr>
<tr>
<td><strong>Project ideas</strong></td>
<td>Project Proposal</td>
<td>x</td>
</tr>
<tr>
<td><strong>G0</strong> Start preparations</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Preparation phase</td>
<td>Project Charter</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Project ABC Classification</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Business Case</td>
<td>x</td>
</tr>
<tr>
<td><strong>G1</strong> Planning decision</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Project Plan</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Updated Project Charter</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Communication Plan</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Risk Management Plan + follow up</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Steering Checklist</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Quality Plan</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Resource Contracts</td>
<td>x</td>
</tr>
<tr>
<td><strong>G2</strong> Execution decision</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Execution phase</td>
<td>Summary Progress Report (powerpoint)</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Progress Report</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Milestone Review Minutes</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Change Request</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Change Log</td>
<td>x</td>
</tr>
<tr>
<td><strong>G3</strong> Approve project deliverables</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Closing phase</td>
<td>Final Report</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Lessons learned</td>
<td>x</td>
</tr>
<tr>
<td><strong>G4</strong> Project closing</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PE</strong> Project post evaluation</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

FIGURE 30. Documents in each gate (Cargotec Project Model Project Guide version 1.0, 2011)
FIGURE 31. Key information widget
FIGURE 33. Business Case & PE widget
FIGURE 34. Steering widget
TABLE 2: Comments for question 3: “What projects are you the most interested to follow?”

<table>
<thead>
<tr>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>It is as important to see project ideas, on-going projects and finished projects.</td>
</tr>
<tr>
<td>I'm concerned about both ongoing and not started projects.</td>
</tr>
<tr>
<td>I am interested in following all above options.</td>
</tr>
<tr>
<td>Project ideas and on-going projects.</td>
</tr>
<tr>
<td>Both, ongoing and upcoming projects / not started</td>
</tr>
<tr>
<td>I am interested in following all projects.</td>
</tr>
<tr>
<td>Although on-going projects have been selected as the option, I am also interested in the other two options.</td>
</tr>
</tbody>
</table>

TABLE 3: Comments for question 4: “Do you need more training/support related to the Thinking Portfolio?”

<table>
<thead>
<tr>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>More support how to fill the correct information.</td>
</tr>
<tr>
<td>More guidelines on the terms/choices in Thinking Portfolio, to have common understanding about the terms.</td>
</tr>
<tr>
<td>There is same data to be filled in both in Thinking Portfolio and other templates. What to be used?</td>
</tr>
<tr>
<td>General guidance for how the data should be presented in the tool, what and how the reports are generated, what is the trigger from data to reports.</td>
</tr>
<tr>
<td>Manual/ better instructions/ training are needed to understand the information that must be filled.</td>
</tr>
<tr>
<td>I need more support related to integrating this to project work and some parts of the software could be explained better.</td>
</tr>
<tr>
<td>Not so much the actual tool but how to take techniques into live/every day business.</td>
</tr>
<tr>
<td>The filling must be consistent and the rules must be set. Once the rules for filling information have been established it must be educated to all personnel that have access to Thinking Portfolio.</td>
</tr>
</tbody>
</table>

TABLE 4: Comments for question 5: “Thinking Portfolio is easy to use.”

<table>
<thead>
<tr>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>The software is easy, but I'm not sure what to fill to each part.</td>
</tr>
<tr>
<td>Inputting data is very easy.</td>
</tr>
<tr>
<td>Some data requirements are unclear, e.g. budget details (inclusions, timeline), resource demand (% of what?)</td>
</tr>
</tbody>
</table>
Easy to use the wrong way. Each and every person filling the information is able to interpret the instructions differently.

The software is simple and straightforward to use.

### TABLE 5: Comments for question 6: “The terminology used in the Thinking Portfolio is understandable.”

- Someone should proof-read the terms and make sure they are the same as in project documents.
- Support such as having more guidelines on the terms/choices in Thinking Portfolio, so there is a common understanding about the terms.
- Should be the same terminology in Thinking Portfolio and the supporting documents.
- There are several new words and definitions and there should be a glossary.
- Especially on the "Effects" sheet, Business Impact Analysis and Customer Impact and Means can be understood different ways.

### TABLE 6: Comments for question 7: “Navigating in the Thinking portfolio is easy.”

- Everything is easy to find when you get used to it.
- I would find useful to have the possibility of having 2 different projects open at same time.
- After a few tries it is easy to remember where everything is.
- Doesn't take long to remember where you can find what information.
- Everything can be found very fast and the items in the software are arranged logically.

### TABLE 7: Comments for question 8: “The help-functions in the Thinking Portfolio provide clear instructions.”

- Some of them are ok, but there is also some that have no info or very limited amount. Is there a manual available?
- Some sections are noted to have clearer help-menus, which are very helpful.
- Some help texts are still missing. Some help text should be updated with some more detailed explanations.
- There are blank help-menus and unclear help-menus. Some parts of the software are not addressed. People seem to have different views what is supposed to be filled to each part. This will make it difficult to report correctly.
- Some help-menus are still empty - instructions would be needed.
- For some sections more help text or guidance could be added.
TABLE 8: comments for question 9: “The reports produced by the Thinking Portfolio are useful.”

<table>
<thead>
<tr>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>I'm not sure if I'm supposed to be using them.</td>
</tr>
<tr>
<td>Haven't used them yet x6</td>
</tr>
<tr>
<td>Missing an overview of new ideas and lining them up, also new ideas should be able to be prioritised and ranked.</td>
</tr>
<tr>
<td>I don't really know which ones to use and where. Some of the reports are also blank at the moment.</td>
</tr>
<tr>
<td>Have only used 1-2 different reports. I am not sure which reports could be useful for me.</td>
</tr>
<tr>
<td>In pilot phase, needs more development and option to create on reports or query data.</td>
</tr>
<tr>
<td>They are useful once everyone understands their meaning and what kind of effect the data behind the reports have. Now they provide nice visualizations but since the data is inconsistent, the decision makers can't make justified decisions based on the reports.</td>
</tr>
<tr>
<td>I believe some of them will be useful, but I don't think it has been discussed who will use the reports and where.</td>
</tr>
</tbody>
</table>

TABLE 9: Comments for question 10: “The reports are visually well displayed and can be used in presentations.”

<table>
<thead>
<tr>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>I don't know how to export them, so nut sure.</td>
</tr>
<tr>
<td>Have not used the reports x 6</td>
</tr>
<tr>
<td>Need to figure out a better way to include in PowerPoint presentations</td>
</tr>
<tr>
<td>Some of them look very bad when there is information from many projects. How can I export the pictures?</td>
</tr>
<tr>
<td>Some of them become unclear when you can see many projects at the same time.</td>
</tr>
</tbody>
</table>

TABLE 10: Comments for question 11: “The content and results produced by the reports are understandable.”

<table>
<thead>
<tr>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most of them are ok, but would be good to have the option to see the calculation logic of the report.</td>
</tr>
<tr>
<td>Haven't used reports x6</td>
</tr>
<tr>
<td>I understand some of them. There are some confusing ones. Not sure where to use them.</td>
</tr>
<tr>
<td>Understandable, yes. Understood, no.</td>
</tr>
<tr>
<td>The results are presented well, but the process of what has been calculated and how would be nice to see in text. Now I have to look carefully and figure out what exactly has been presented to me.</td>
</tr>
</tbody>
</table>
**TABLE 11: Comments for question 12: “Is there report(s) that you would like the software to generate, but at the moment it doesn’t?”**

<table>
<thead>
<tr>
<th>Haven't used reporting x5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total budget/forecast/actual report from the control sheet.</td>
</tr>
<tr>
<td>Yes, for example new idea generation, priority and ranking.</td>
</tr>
<tr>
<td>At this time we use both portfolio and the PPT documents like Progress reports and charter etc I think reports should take care of those for instance</td>
</tr>
<tr>
<td>Can't think of anything yet, but there might be some ideas in the future.</td>
</tr>
<tr>
<td>1) Planned schedule vs. forecasted schedule 2) status report with all traffic lights (schedule, cost.), 3) possibility to see clearly 'on hold'-projects and 'terminated' -projects form the project portfolio list.</td>
</tr>
</tbody>
</table>

**TABLE 12: Comments for question 13: “Thinking Portfolio provides value to your organisation.”**

| Depends highly the final solution we will have regarding the internal visibility of ideas. |
| I think it will later. Better instructions needed, and then the benefits can happen. |
| I think it will provide in the future. More users are needed and better reporting. |
| Only if all personnel commit to use it as planned. So far seems that this is not the case. |
| When filled correctly and used enough, yes. |
| I believe that this will improve portfolio management and the effects can be seen in my organisation. |

**TABLE 13: Comments for question 14: “Thinking Portfolio increases the visibility and transparency of the projects.”**

| It increases visibility on a higher level, but for example project managers only get to see their own projects. |
| How does it add visibility? People still have different access rights. |
| As long as only project managers and project owners have access to Thinking Portfolio and project managers only can see their own projects, visibility will not be increased outside this group of people. |
| Not allowed to see other projects, which is problematic. If there are secrets to be kept this must be solved in a different way. |
| But I think it should be more users/viewers so it gets even better on that. |
TABLE 14: Comments for question 15: “The information provided in the Thinking Portfolio can be used to help prioritize the projects.”

<table>
<thead>
<tr>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not know, I am not in such role, but I would imagine yes.</td>
</tr>
<tr>
<td>This statement should be true but not sure we are mature enough as an organization or in our use of the tool to say this statement is true.</td>
</tr>
<tr>
<td>In the future, maybe. Better reporting is a necessity.</td>
</tr>
<tr>
<td>We need to get more experience with the system and make sure that the quality of information is good</td>
</tr>
<tr>
<td>All documents that have to be produced and which overlap with the thinking portfolio information should be entered instead via thinking portfolio and be possible to generate as reports.</td>
</tr>
<tr>
<td>Needs more work on resource allocation / planning</td>
</tr>
</tbody>
</table>

TABLE 15: Comments for question 16: “The information provided in the Thinking Portfolio can be used to help decision making.”

<table>
<thead>
<tr>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Probably it can, but still to be demonstrated.</td>
</tr>
<tr>
<td>Yes when everyone knows how to use it and the activity of the users is high.</td>
</tr>
<tr>
<td>More project specific information would be good to have to be able to have facts for decision making available.</td>
</tr>
<tr>
<td>Again, this statement should be true but don’t think we are there yet.</td>
</tr>
<tr>
<td>Except that all information is not kept in thinking portfolio which it should be.</td>
</tr>
<tr>
<td>It's good basis for discussion, thus supporting decision making.</td>
</tr>
<tr>
<td>Yes, the Thinking Portfolio provides many essential facts about projects which can be taken into consideration when making decisions.</td>
</tr>
</tbody>
</table>

TABLE 16: Comments for question 17: “Do you have any other comments, feedback or development ideas related to the Thinking Portfolio? Feel free to comment any part of the software or the implementation process.”

<table>
<thead>
<tr>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>There are some things reported twice. Documents should be added inside the portfolio like classification or we could link them there. More instructions are needed; some people have different ideas what to do in the software.</td>
</tr>
<tr>
<td>The Thinking portfolio and our project model should be combined, so there wouldn’t be two different places to fill in data.</td>
</tr>
<tr>
<td>Thinking Portfolio could be developed to the extent that it replaces the documentation needs in the Cargotec Project Model, i.e. we just need to refer to Thinking Portfolio for information on projects.</td>
</tr>
<tr>
<td>There are a lot of templates where same data has to be filled in at several places. Thus it is not always clear where to report.</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>It might be a good idea to have general guidance from corporate level for what kind of data to be feed in and how often to have the update. It may be good to set the access right in structured way that people understand what kind of role and expectation required with the tool.</td>
</tr>
<tr>
<td>It takes a lot of time to have all the information updated, so I really would like the Thinking Portfolio becomes useful to as many people as possible to make that time worth it.</td>
</tr>
<tr>
<td>Better possibilities to make progress reports and keep the back log of this without transferring this to steering committee by default. More milestones implemented that would be possible to give own names and free of choice in-between which Gates they would be put. A box where the project group is defined would be nice information to have in the same way as the steering committee. A feature to link a program into another program would be valuable; in order to be able to create a program which contains sub projects and at the same time another program with sub projects.</td>
</tr>
<tr>
<td>The reports are not very clear at the moment and the help-menus can be improved. The process must be clarified further (who fills the information, when, why). Integrated reporting should also be arranged.</td>
</tr>
<tr>
<td>It should be possible to load attachment to the Thinking Portfolio and easy links to more detailed financial plans.</td>
</tr>
<tr>
<td>Certain aspects are not really utilized yet (e.g. resource planning). Reporting has more potential. Most important is better integration with the Cargotec project documentation - done in various separate documents that are not linked or integrated and cause a massive amount of duplication (even between different documents. Also common data should be centralized (automated) as any change requires updating multiple documents.</td>
</tr>
</tbody>
</table>
## APPENDIX 4: CONCLUSIONS

### TABLE 17: Data requirements and the terminology

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>More support how to fill the correct information.</td>
<td></td>
</tr>
<tr>
<td>More guidelines on the terms/choices in Thinking Portfolio, to have common</td>
<td></td>
</tr>
<tr>
<td>understanding about the terms.</td>
<td></td>
</tr>
<tr>
<td>Manual/ better instructions/ training are needed to understand the information that must be filled.</td>
<td></td>
</tr>
<tr>
<td>It might be a good idea to have general guidance from corporate level for what kind of data to be feed in and how often to have the update</td>
<td></td>
</tr>
<tr>
<td>Some data requirements are unclear, e.g. budget details (inclusions, timeline), resource demand (% of what?)</td>
<td></td>
</tr>
<tr>
<td>The software is easy, but I'm not sure what to fill to each part.</td>
<td></td>
</tr>
<tr>
<td>Easy to use the wrong way. Each and every person filling the information is able to interpret the instructions differently.</td>
<td></td>
</tr>
<tr>
<td>Someone should proof-read the terms and make sure they are the same as in project documents.</td>
<td></td>
</tr>
<tr>
<td>Support such as having more guidelines on the terms/choices in Thinking Portfolio, so there is a common understanding about the terms.</td>
<td></td>
</tr>
<tr>
<td>Should be the same terminology in Thinking Portfolio and the supporting documents.</td>
<td></td>
</tr>
<tr>
<td>Especially on the &quot;Effects&quot; sheet, Business Impact Analysis and Customer Impact and Means can be understood different ways.</td>
<td></td>
</tr>
<tr>
<td>There are several new words and definitions and there should be a glossary.</td>
<td></td>
</tr>
</tbody>
</table>

### TABLE 18: Help functions

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Some of them are ok, but there is also some that have no info or very limited amount. Is there a manual available?</td>
<td></td>
</tr>
<tr>
<td>Some help texts are still missing. Some help text should be updated with some more detailed explanations.</td>
<td></td>
</tr>
<tr>
<td>There are blank help-menus and unclear help-menus. Some parts of the software are not addressed. People seem to have different views what is supposed to be filled to each part. This will make it difficult to report correctly.</td>
<td></td>
</tr>
<tr>
<td>Some help-menus are still empty - instructions would be needed.</td>
<td></td>
</tr>
<tr>
<td>For some sections more help text or guidance could be added.</td>
<td></td>
</tr>
</tbody>
</table>
### TABLE 19: The calculation methods

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>General guidance for what and how the reports are generated, what is the trigger from data to reports.</td>
<td>The reports are useful once everyone understands their meaning and what kind of effect the data behind the reports have.</td>
</tr>
<tr>
<td>Would be good to have the option to see the calculation logic of the report.</td>
<td></td>
</tr>
</tbody>
</table>

### TABLE 20: Intended users

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>I'm not sure if I'm supposed to be using them.</td>
<td></td>
</tr>
<tr>
<td>I don't really know which ones to use and where. Some of the reports are also blank at the moment.</td>
<td>Have only used 1-2 different reports. I am not sure which reports could be useful for me.</td>
</tr>
<tr>
<td>I believe some of them will be useful, but I don't think it has been discussed who will use the reports and where.</td>
<td></td>
</tr>
</tbody>
</table>

### TABLE 21: Exporting options

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Need to figure out a better way to include in PowerPoint presentations</td>
<td></td>
</tr>
<tr>
<td>Some of them look very bad when there is information from many projects.</td>
<td>How can I export the pictures?</td>
</tr>
<tr>
<td>I don't know how to export them, so not sure.</td>
<td></td>
</tr>
</tbody>
</table>

### TABLE 22: Project managers’ user rights

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>It increases visibility on a higher level, but for example project managers only get to see their own projects.</td>
<td>How does it add visibility? People still have different access rights.</td>
</tr>
<tr>
<td>As long as only project managers and project owners have access to Thinking Portfolio and project managers only can see their own projects, visibility will not be increased outside this group of people.</td>
<td></td>
</tr>
<tr>
<td>Not allowed to see other projects, which is problematic. If there are secrets to be kept this must be solved in a different way.</td>
<td></td>
</tr>
<tr>
<td>But I think it should be more users/viewers so it gets even better on that.</td>
<td></td>
</tr>
</tbody>
</table>
It takes a lot of time to have all the information updated, so I really would like the Thinking Portfolio becomes useful to as many people as possible to make that time worth it.

### TABLE 23: Document integration issues

<table>
<thead>
<tr>
<th>There is same data to be filled in both in Thinking Portfolio and other templates. What to be used?</th>
</tr>
</thead>
<tbody>
<tr>
<td>At this time we use both portfolio and the PPT documents like Progress reports and charter etc. I think reports should take care of those for instance.</td>
</tr>
<tr>
<td>All documents that have to be produced and which overlap with the thinking portfolio information should be entered instead via thinking portfolio and be possible to generate as reports.</td>
</tr>
<tr>
<td>There are some things reported twice. Documents should be added inside the portfolio like classification or we could link them there.</td>
</tr>
<tr>
<td>The Thinking portfolio and our project model should be combined, so there wouldn’t be two different places to fill in data.</td>
</tr>
<tr>
<td>Thinking Portfolio could be developed to the extent that it replaces the documentation needs in the Cargotec Project Model, i.e., we just need to refer to Thinking Portfolio for information on projects.</td>
</tr>
<tr>
<td>There are a lot of templates where same data has to be filled in at several places. Thus it is not always clear where to report.</td>
</tr>
<tr>
<td>It should be possible to load attachment to the Thinking Portfolio and easy links to more detailed financial plans.</td>
</tr>
<tr>
<td>Most important is better integration with the Cargotec project documentation - done in various separate documents that are not linked or integrated and cause a massive amount of duplication (even between different documents. Also common data should be centralized (automated) as any change requires updating multiple documents.</td>
</tr>
</tbody>
</table>