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TAMPERE UNIVERSITY
OF APPLIED SCIENCES

ENTERPRISE RESOURCE PLAN-
NING AND OBSTACLES IN THE IM-
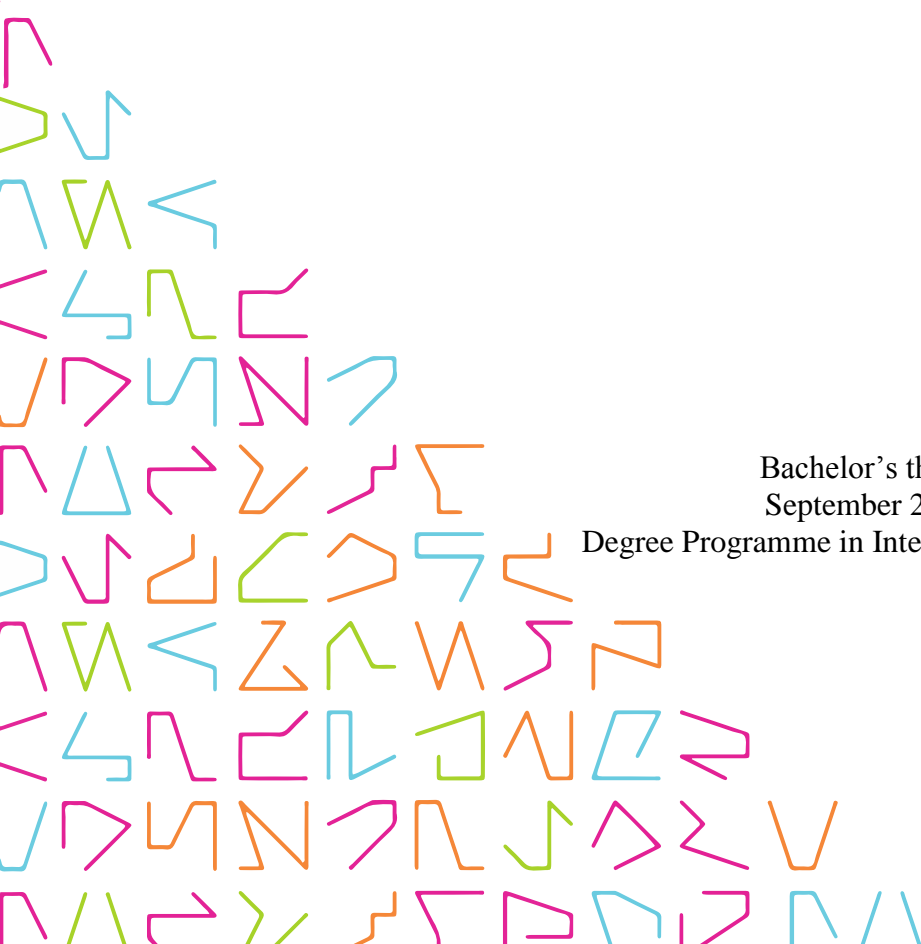# PLEMENTATION PROCESS

The Case of Kalmar

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Bachelor's thesis
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Degree Programme in International Business

ABSTRACT

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DARIA BYKOVA:
Enterprise Resource Planning and Obstacles in The Implementation Process. The Case of Kalmar

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The main purpose of this thesis is to study enterprise resource planning, its' implementation process and problems, which company might face during implementation. The main objective of the study was to explore the enterprise resource planning implementation process as well as ERP functions and characteristics.

The thesis was written in August 2016 and is based on the research made during the practical training in Kalmar Company. The research and conclusions are based on internal materials and interviews provided by the company.

This thesis represents the general information about enterprise resource planning such as definition, functions, modules and history. Positive and negative impact of ERP implementation on the company is also represented, as well as obstacles, which company might face during the implementation, and their solutions. Furthermore, it describes the employees' reaction on changes, and it is supported with examples.

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Key words: enterprise resource planning, implementation, SAP, BAAN

CONTENTS

ABBREVIATIONS AND TERMS

ERP	Enterprise resource planning
SAP	System analyses and Programme networking (software)
BAAN	Software named after its' creator J. BAAN
UK	United Kingdom
FLU	Front line unit
IT	Information technologies

1   INTRODUCTION

Nowadays business success depends on a huge amount of factors, which affect companies' inside and outside environment, such as:

- Communication within company;
- Organizational structure;
- Politics;
- Economics.

Technology is developing very fast, it opens new possibilities, but at the same time it might create many obstacles for a company.

Enterprise resource planning was a breakthrough innovation, which lead to improvement in a core of business process. ERP is a business management tool used to improve and ease business performance. ERP has its' origins in 1960s and was created on a basis of calculating machines used before in order to organize business process. At first, ERP systems were very expensive, difficult to use and maintain, so the development was needed. Starting from basic functions, such as planning reorder point, ERP expanded its' working area during last fifty years to many areas, such as logistics, accounting, marketing etc. Nowadays any ERP is a basis of business functionality of any company.

However, with all the possibilities opened by ERP, many threats appeared as well. For example, there are many cases with connection problems, which lead to huge losses. The biggest ones were caused by implementing ERP system to the company, because the process itself needs a big amount of inputs, such as:

- Money;
- Time;
- Workforce;
- Software support.

During last fifty years companies around the world have been implementing ERP systems to improve company's performance. In this thesis paper case of Kalmar Company,

which is a part of Cargotec Oy, is described. In 2013 company changed its' ERP system from BAAN to SAP, so the implementation process, risks, benefits and drawbacks are studied and represented.

In this thesis work the main characteristics of ERP, its' implementation, best practices and case of implementation will be described. Mostly, this work will be concentrated on SAP and BAAN systems, due to the specifics of the company's case.

1.1 Purpose and goals of the thesis

The main purpose of this paper is to study ERP in general in theory and in practice based on a case of a branch of Cargotec Oy - Kalmar. Moreover, there are few supportive goals, such as:

- Study the characteristics of ERP;
- Find out the best vendors of ERP;
- Study the obstacles, which might occur during implementing process of ERP system.

1.2 Methods

The main method of this thesis is a recourses analysis supported with a small research made in Kalmar, which is a branch of Cargotec Oy. The research, that was conducted, is qualitative.

"Qualitative Research is primarily exploratory research. It is used to gain an understanding of underlying reasons, opinions, and motivations. It provides insights into the problem or helps to develop ideas or hypotheses for potential quantitative research." (Wyse 2011, 1.)

The main method of the research is interviews, which have been taken from Business support managers and SAP key user.

1.3   Research background

The thesis is based on the practical training in Kalmar Company, which is a part of Cargotec Oy. The company is working in heavy transportation industry, producing containers handling equipment.

The practical training duration was 8 months (January-August 2016). The position of student was business support trainee in Spare parts department. The main duties performed during the practical training were:

- Support customers from EMEA region by providing information about spare parts and selling it (mostly: UK, Finland, Russia, France, Italy and Dubai);
- Using different software in order to help customers, including SAP, Sovelia, Baan and C-office;
- Working with logistics, purchasing, item management and pricing departments in order to explore the business process;
- Participation in monthly meetings and live meetings.

Currently Kalmar is using SAP software, but before 2013 it used BAAN. The changing process was difficult and challenging, even nowadays some problems still exist. The company is working daily to improve its' business process and increase efficiency by supporting ERP.

This thesis is made to explore ERP systems, their implementation process and how it can be affected by obstacles, which occurred during the process. Moreover, research is made to study the reactions of employees on new ERP system and implementation from their point of view.

2 THEORETICAL FRAMEWORK

In this chapter the definition of enterprise resource planning and its' basic concepts are considered.

2.1 Definition of Enterprise resource planning

The definition of ERP is very wide, because it is connected to all the business processes in the company. Below there are two versions of ERP definition are represented.

"Enterprise Resource Planning (ERP) is primarily an enterprise-wide system, which encompasses corporate mission, objectives, attitudes, beliefs, values, operating style and people who make the organization." (Parthasarthy 2007, 6.)

"It is the software system that keeps today's businesses running. Most companies that have multiple business functions have an ERP system." (Anderegg 2002, 1.)

The main components of ERP are: transactional database and management dashboard. These components ensure the productive work of ERP systems by creating an easy and comfortable way to create, store and utilize information.

Transactional database consists of various transaction codes, which perform some particular function. For instance, SAP basic transaction code "va01" is a function of creating an order. Management dashboard is an interface, which helps to see the current situation of the company in particular areas. For example, management dashboard can show the sales figures for this year or previous years. This interface is very important, due to the fact, that it is able to show a versatile picture of the company, which is leading to improvement in achieving main goals and developing in challenging areas.

2.2 ERP concepts

There are few concepts connected to enterprise resource planning. One of the most common is a triangle concept, which shows the components of ERP in hierarchy way. FIGURE 1 shows the triangle concept of ERP. The "basis" of the triangle is data, because it is a fundamental thing to run any business. Data provides the initial information, which is needed to establish a well-performing ERP system. Next unit consists of the following sections:

- Programs;
- Database;
- Process;
- Store;
- Move.

Data needs to be stored and moved from one unit to another in order to create a communication process. Moreover, data is required to be processed by different programs and collected to database. There actions ensure a well-done ground to perform functions of ERP. All the components of the middle unit are integrated, because one cannot work without another.

The process of programs interacting with databases for the purpose of processing, storing and displaying/collecting data represents function. (Anderegg 2002, 16.) Function is the "main goal" of ERP, because the system exists to perform it. The highest level of the triangle can be reached only by establishing a stable basement. Without a well-performing function ERP is useless for the company.
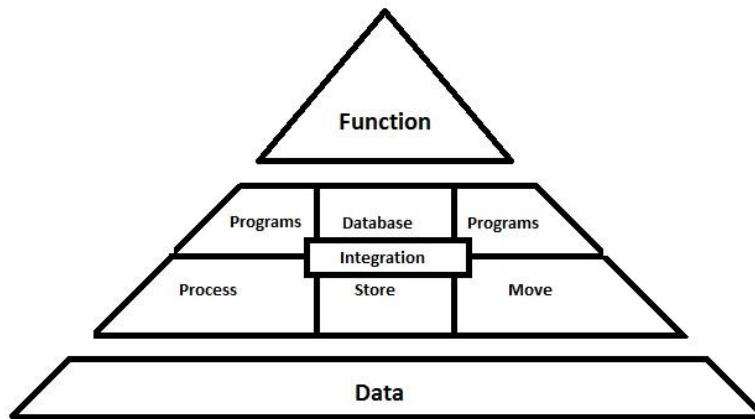
FIGURE 1. ERP triangle (Anderegg 2002, 15.)

The triangle concept considers all the important aspects of ERP except for the human factor. People have a crucial role in ERP performance. Before computers became the essential part of personal and business world, everything was done by people. Even if computers are doing the biggest amount of work currently, without people it would be impossible.

2.3 ERP functions

Enterprise resource planning creates a value for any company by fulfilling its' functions. There are several main functions, which are divided into the modules. TABLE 1 shows the ERP modules and their brief description.

However, depending on the business area, those modules can be grouped to a specific set, which is called suite. Suites help company to improve workflow by eliminating unnecessary areas of focus. For example, transportation management, inventory management and warehouse management can be grouped into logistics suite as well as accounts payable, accounts receivable and payroll can be grouped into financial suite. In big companies suites are created so, that each department can have an access to required modules. Also, there are examples, when purchasing department has no access to financial module and vice versa.

TABLE 1. ERP modules (based on Anderegg 2002, 43-52)

Module	Description/Functions
Address book	Contact information storage
Accounts payable	Payment to vendors tracking
Accounts receivable	Payment from customers tracking
General ledger	Company\s accounts storage
Payroll	Payment issuing and tracking (salaries, taxes, etc.)
Human resources	Human resource management
Fixed assets	Long-term assets tracking
Forecasting	Demand prediction based on sales figures
Master production schedule	Finished goods scheduling and planning
Finite scheduling	Finite scheduling
Material requirements planning	Material management
Distribution requirements planning	Supply and demand planning
Capacity requirements planning	Capacity planning
Bill of material	Shows what parts are included in a product
Product routings	Flow of manufactured product
Product management	Project planning figures
Inventory management	Inventory items tracking
Warehouse management	Warehouse optimization
Bar coding	System for tracking inventory
Customer service management	Customer care (sales order)
Configuration management	Configuration management
Supplier management`	Purchasing functions
Work order management	Work orders tracking
Engineering change management	Changes handling
Preventative maintenance	Equipment maintenance
Transportation management	Transportation resources management
Field service	Servicing product in the field
Industry specific solutions	Taking care of industry specifics
Report generator	Provides reports for all the modules data

These modules and functions allow company to combine a "perfect set to improve the overall performance. Moreover, these functions allow focusing on particular areas of the company. Before implementing new ERP, company requires to plan the modules and functions beforehand.

2.4 ERP vendors and their history

The development of ERP systems started in 1960s, when the first system called MRP II was created. Below there is a TABLE 2, which represents the history of founding different ERP systems (vendors). The development of ERP has a rapid growth, which can be seen from the TABLE 2.

TABLE 2. ERP systems (based on Diercksen 2012, 1.)

Year	ERP system
1940	Early calculating machines
1960	ERP is created, MRP
1972	SAP set up
1977	JD Edwards
1978	BAAN
1987	ORACLE

There are many examples of successful ERP vendors, which created their own systems. In this chapter the main vendors of ERP are represented and compared, such as: SAP, BAAN, Oracle and JD Edwards.

2.4.1 SAP SE

SAP SE is an ERP software provider, which was founded in 1972 by German entrepreneurs (K. Tschita, H. Plattner, D. Hopp, C. Wellenreuther and H-W. Hector) as a private limited-liability company. The headquarters of the company were established in Weinheim, Germany at first, but later on it has been moved to Walldorf, Germany.

During first 10 years the company was developing very fast by creating new functions in the system: sales and distribution, logistics, finance etc. Moreover, the customer database was expanded greatly in those 10 years: by 1982 year approximately 250 companies already had SAP software.

The next decade was very successful and full of improvement: SAP R/2 achieved a good position in the market. The revenue was raising fast, and it lead to new investments in employees and equipment. In 1988 the company becomes publicly traded.

In 1991 SAP R/3 software was presented to the public, which changed the business completely. Even though, already in 1985 company expanded its' operations internationally, only after SAP R/3 it has started to become truly international, and in 1992 almost half of the revenue was coming from outside Germany. During 1994-2000 SAP developed online connections for SAP R/3 and went to Chinese and US markets. By 2000 SAP became a world-wide ERP provider and operated in more than 50 countries. Moreover the revenue at the point was 6.3 billion euros.

The third decade in SAP history was mostly connected to innovations, because at that time technologies were changing rapidly, which allowed new ideas to occur, such as real-time data, which customers can access whenever and wherever they need through Internet. SAP focused on global growth and entered new market areas, such as Israel.

During last few years SAP has been trying to improve its' software. For example, in 2011 SAP HANA software was presented to the customers. This software provided easy usage and fast data processing. Later it has generated good rather revenue of 1.2 billion euros.

SAP SE has long and interesting history, but company tries to focus on the future, not the past. Nowadays SAP concentrates on developing a smooth and easy business network for customers. The main key points are represented in PICTURE 1, which gives us a general idea on how company is doing currently.

310,000	78,230	€20.8b	87%
Customers in 190 countries	Employees in 130+ countries	Annual revenue (IFRS) in FY2015	Of Forbes Global 2000 are SAP customers
44 yrs.	100+	12,100	110 mil.
Of history and innovation	Innovation and development centers	SAP partner companies globally	Subscribers in our cloud user base

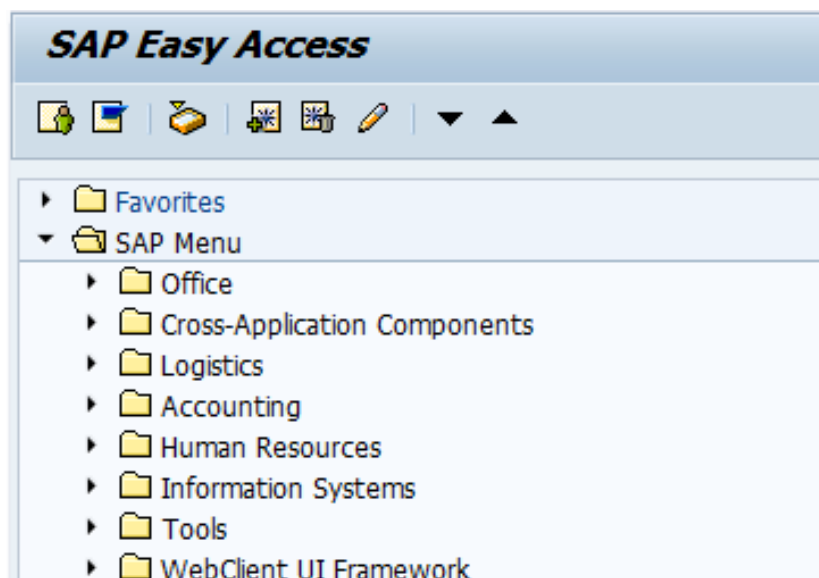PICTURE 1. SAP facts (SAP official website)

PICTURE 2 represents the mission and vision of SAP SE, which is located on their of-ficial website. Moreover, website contains a list of many sub goals, which are needed in order to achieve the mission of the company.

The example of basic menu view of SAP is represented in the PICTURE 3.

Our Vision and Purpose

Run Simple to Improve People's Lives

PICTURE 2. SAP SE vision and mission (SAP official website)

SAP Easy Access

▸ ☐ Favorites
▾ ☐ SAP Menu
   ▸ ☐ Office
   ▸ ☐ Cross-Application Components
   ▸ ☐ Logistics
   ▸ ☐ Accounting
   ▸ ☐ Human Resources
   ▸ ☐ Information Systems
   ▸ ☐ Tools
   ▸ ☐ WebClient UI Framework

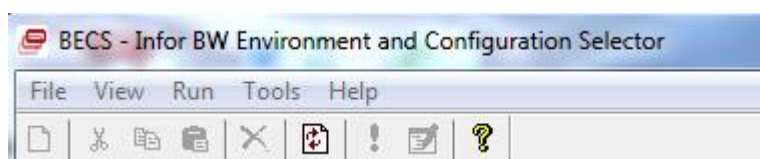PICTURE 3. SAP view example (Kalmar internal materials)

2.4.2 BAAN

BAAN Corporation was an ERP provider, which was founded in J.BAAN in 1964 as a consulting company. However, later company entered ERP software market by creating its' own ERP software called BAAN. Throughout the company existence, BAAN software had few versions, the main once were:

- Baan 4.0;
- Baan 5.0;
- Baan 5.1, 5.2.

However, there were three main versions of BAAN software, the most popular and used one was BAAN 4.0.

J. BAAN founded company with a help of his brother P. BAAN. In 1980s the company has concentrated on computer software and created an ERP system called BAAN. At first, it was very difficult to find customers and make BAAN wide-known, but due to its' good and easy to use software BAAN started to gain popularity rather fast. Dynamic Enterprise Modeler or DEM, which was used in BAAN, was praised by the customers. Already in 1990's BAAN started to be a rather big competitor for SAP SE. In 1994 BAAN Corporation had a huge breakthrough, because of the deal with Boeing. After that, the sales revenue increased dramatically.

Even though the company was rather popular and gained its' good position in the market, due to some revenue manipulations company lost their customers and investors. Financial problems were chasing the company after 1998 and already in 2000 BAAN Corporation has been bought by Invensys. Moreover, new owner changed the name from BAAN to SSA software. Since 2006 BAAN (SSA) belongs to Infor Global Solutions. PICTURE 4 and PICTURE 5 represent the basic view of taskbar and menu in BAAN system.

PICTURE 4. BAAN's taskbar (Kalmar internal materials)
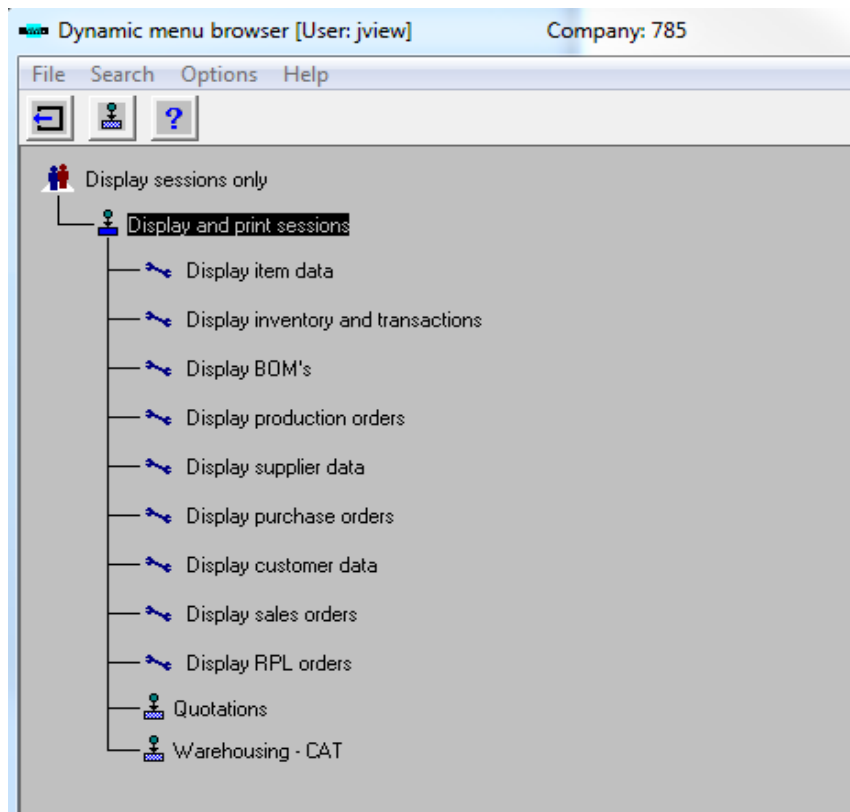
PICTURE 5. BAAN view example (Kalmar internal materials)

2.4.3 Oracle (including JD Edwards)

Oracle is a leading company in providing ERP software. Nowadays the company has 420000 customers in more than 100 countries. The product range is very wide: from ERP software to cloud solutions. Moreover in 2004 Oracle took ownership over PeopleSoft and JD Edwards. However, oracle has its' own software, it is still producing JD Edwards software as well, due to the fact that it has its' own advantages.

Oracle's revenue in 2015 was 38.2 billion dollars. Below there is a PICTURE 6 from official website of Oracle, representing fast fact about the company.

ORACLE CORPORATION

- US$38.2 billion total GAAP revenue in FY 2015
- 420,000 customers, including 100 of the Fortune 100
- 310,000 Oracle Database customers
- 120,000 Oracle Fusion Middleware customers
- 105,000 Oracle Applications customers
- 315,000 midsize customers
- 70,000 hardware customers
- 5,000 engineered systems customers
- More than 25,000 partners worldwide
- More than 130,000 employees, including:
    - 37,000 developers and engineers
    - 18,000 support personnel
    - 17,000 consulting experts
- More than 2.6 million students supported annually

PICTURE 6. Oracle facts (Oracle official website)

Oracle's history has started in 1997, when L. Ellison, B. Miner and E. Oates decided to establish the company called Software Development Laboratories. Already in 1998 they created management system Oracle V1, but it was never released. However, 1 year later company released Oracle V2. Moreover company's name was change to Relational Software Inc. and later on in 1982 to Oracle. During 1980's company concentrated on developing its' software: more than 6 different versions of Oracle software were released.

In 1992 Oracle7 became a leader in the industry, because of its' great functionality. During 1990's and 2000's the company fully focused on E-business development and product range expansion.

3   ERP IMPLEMENTATION

ERP implementation is a complicated process, which involves scrupulous long-term work with different resources, such as workforce, money, time and IT. Different sources describe the implementation of ERP in their own way. In this chapter the main steps of ERP implementation are described:

1. Preparation and planning;
2. Review and configuration;
3. Customization;
4. Test implementation;
5. Live implementation;
6. Support.

3.1   Preparation and planning

Preparation and planning stage is crucial, because it creates a basis for the whole process. At this stage many important things are considered and established.

As any other project, ERP implementation project requires project plan. Project plan is a paper, which includes the essential information about a project, such as:

*   Budget;
*   Scope;
*   Deadlines;
*   Risks;
*   Objectives;
*   Implementation.

In order to make the project successful, all those aspects should be thought through very carefully and thoroughly. Even though, many companies invest a big amount of time and money to create a good project plan, very often unpredictable risks occur and

change the whole implementation process. To avoid that, every single detail should be considered, especially in such costly projects as ERP implementation.

Firstly, company needs to research its' current situation, due to the fact that it helps to understand where the company is at the time of the project and how to align the project goals and the company's strategy.

Below there is a PICTURE 7, which represents a mind-map tool. This tool is important to use in the beginning of the project, because all the project members give their first ideas and thoughts, and, after that, they form a mind-map, so it can be clearly seen, on what the project should be focused and what are the objectives of this project.
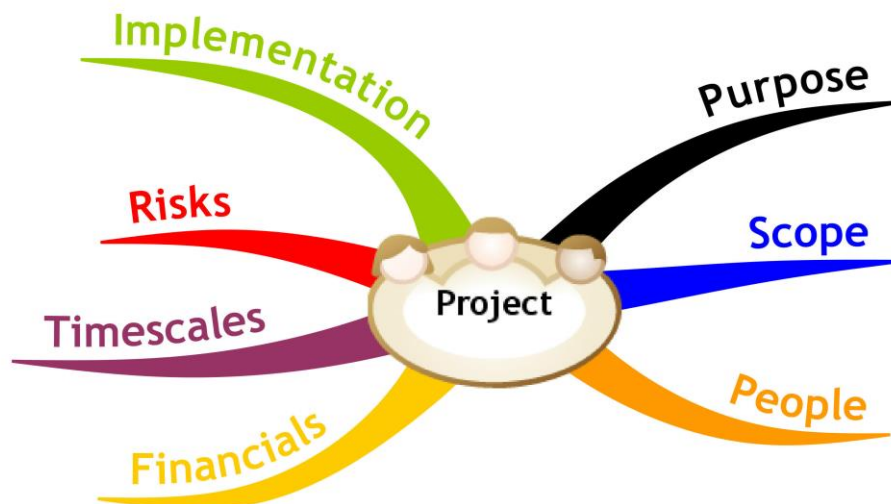
PICTURE 7. Mind map (Project plan templates 2013, 1.)

Furthermore, it is extremely important to identify a good project manager and a suitable project team. For the ERP project it should at least include IT and ERP specialists. In international companies ERP projects usually have its' own department created, due to the big amount of resources used.

Moreover, establishing the right scope plays a big role in ERP projects as well as dead-lines, because time is of value and should not be wasted on something, which is not closely related to the project.

Finally, the implementation process should be thought through beforehand and described in project plan with all the needed steps. This stage helps to follow the project correctly.

3.2 Review and configuration

This stage is a connection between theoretical and practical parts of implementation process. Project team needs to review the plan and check the needed equipment for the implementation.

Moreover, on this stage project team should check the software capability and create the flow procedures, which are needed to fulfil implementing.

3.3 Customization

Customization is not a compulsory stage, but almost every company tries to perform it. This stage allows adjusting ERP system to the specific company operations. Consequently, every process becomes smooth and fast. At this stage, a company is able to configure, which functions of ERP are needed in order to perform well. For instance, a logistics company might not need marketing function of ERP, but instead require extended version of warehouse and transportation management functions.

Even though, the process of customization is very costly and requires much time, it creates many new possibilities to improve the work flow in the company and increase the software capabilities.

Furthermore, customization makes ERP system special and unique for each company.

3.4   Test and live implementation

After all the previous steps are done and checked, the test implementation is needed in order to see, if the system is working correctly. In test implementation the scheme illustrated in FIGURE 2 is applicable.
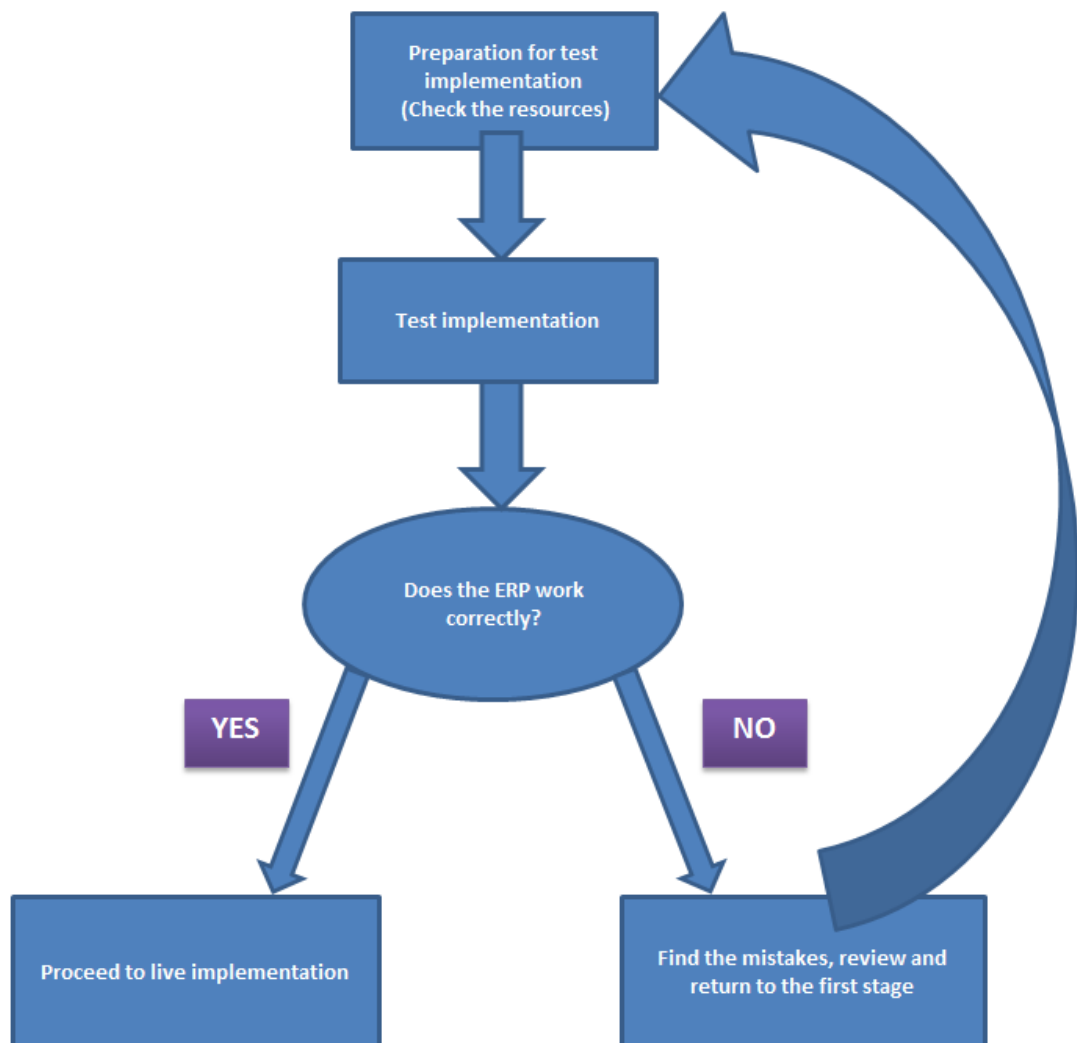

FIGURE 2. Test implementation process

As it can be seen from the FIGURE 2, test implementation requires a thorough preparation before starting. Test implementation itself is made to identify all the possible obstacles that might occur in ERP system before the live implementation, otherwise it will cause a large loss of resources.

The next step after the test launching was successful is to implement the ERP in real life. Live implementation is one of the biggest parts of ERP implementation process, especially in multinational companies.

The live implementation requires a big investment in resources and training: new system will most probably not work fully correctly in the beginning, and the project team should be prepared for that. After the system itself is working accurately, the data should be updated and uploaded to it. Depending on the data size, this process might take a very long time.

Consequently, after the implementation is done, the company should take care of personnel training. In small and medium-sized companies it is common to hire a coach (coach team) to teach employees. In large international companies the ERP department takes are of training by assigning coach to each department.

Finally, if all the above steps are processed correctly, the ERP is supposed to work well and improve company's performance.

3.5   Support

However, the ERP is performing fine, the company should always take care of its' support. ERP support means that there are constant check-ups, development, test, revisions and researches, which represent the ERP current situation. These steps help to prevent ERP break-down.

Moreover, the support step takes care of employees' training, which is crucial for the whole business process.

Furthermore, new items are appearing each day, while others get obsoleted, which means, that constant system update is required.

3.6 Change management

In ERP implementation process the importance of change management is crucial, due to the fact, that new software changes the whole business process and work life. Employees and employers are required to adjust and learn to use the new system.

Change management is an approach to adjust the changes from individuals' and company's perspectives. (Rouse 2015, 1.)

The main purpose of change management is to help organisation and its' employees with adaptation to different changes, which can be predicted and unpredicted. For example, in case of ERP implementation, the type of change is usually predicted one, because company is supposed to plan and prepare such a huge project.

Normally it is easier to adapt to the predictable changes, due to the fact the preparation time can be established beforehand. The example of adaptation plan is represented in FIGURE 3. First of all, in a case of planned changes, the company usually creates a special project to take care of the adaptation process. Project team makes a plan how to face the coming changes. In order to minimize all possible losses, such as money, time etc., project team needs to predict possible risks and create an instruction for different scenarios. Moreover, the project plan should include the timeline for the adjustment process.

Secondly, after the plan has been made, reviewed and accepted, the implementation of needed procedures, which are included in project plan, is required. The most common steps in the changes implementation are training and support, because employees need to know the news processes and how to work in the new environment. The implementation process becomes extremely difficult in the multinational companies due to cultural differences and the number of workers.

Finally, after the adaption process is over, there is review and feedback stage, which should be done. This stage helps employers to see the big picture of their company and how did it take the new changes. Furthermore, the feedback from employees is very important in order to understand if there was enough time and support to adapt to the new things.
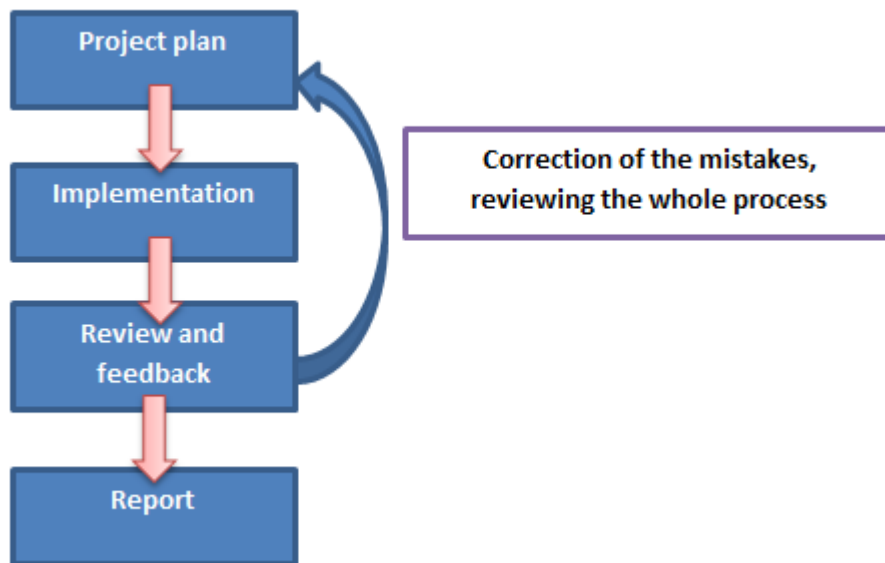
FIGURE 3. Example: action plan to adapt to predictable changes

At the end on the process project team should inform about the results of adaptation, training outcomes and employees' reaction and feedback.

However, very often the changes might appear unexpectedly. In this case the company needs to react immediately. It is very useful to have some prepared action plan for the changes, that cannot be forecasted, but it is extremely difficult to consider each small detail. Nevertheless, FIGURE 4 shows the example of company's plan about how to deal with new things.

As it was mentioned before, the reaction should be immediate, due to the fact that time is of value. After that, the action plan needs to be done and executed. Moreover, in this kind of cases, the communication is especially important, because the occurred problem needs to be solved fast and efficient. FIGURE 4 illustrates an example of actions to be taken in order to adapt to changes, which occurred unpredictably.
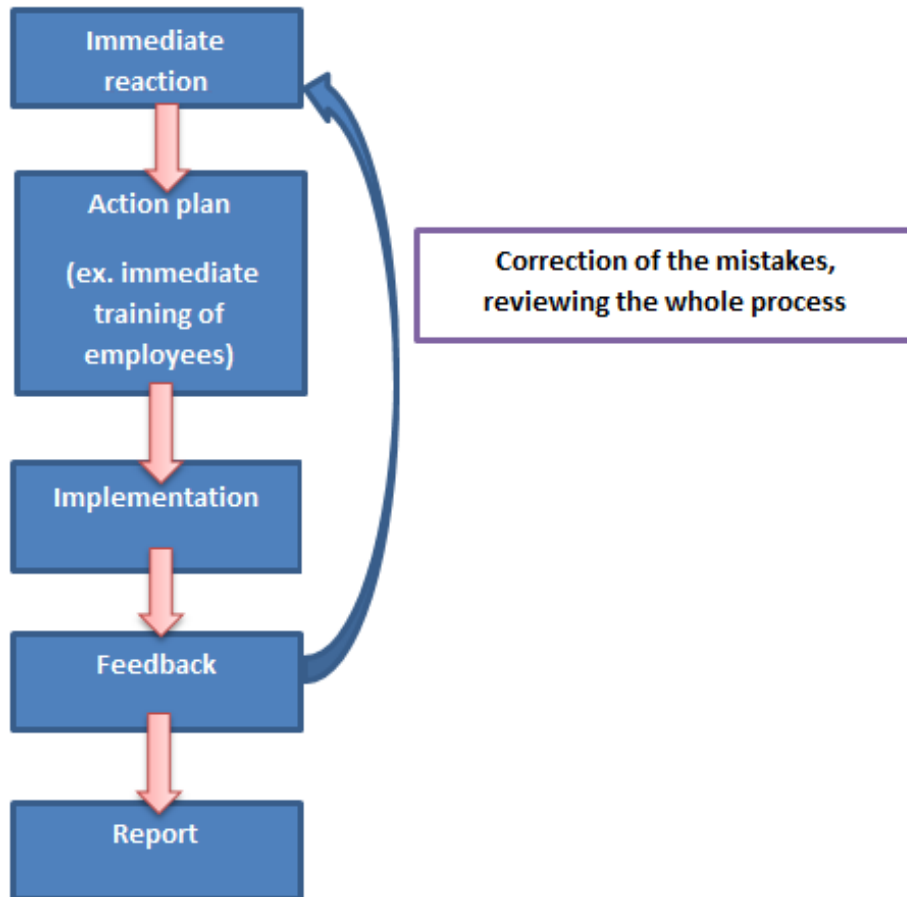
FIGURE 4. Example of actions with sudden changes

Overall, change management assist in adaptation process to different types of changes. The human factor has a big influence on the successful performance of change management, because each person has different adjustment periods. It is extremely difficult to make changes in big international companies, in their case the change management should be done especially carefully and planned very-well beforehand.

3.7 ERP implementation obstacles and their solution

As it was mentioned before, the key figure of ERP are people. This fact affects many aspects of implementation process and creates many obstacles.

First of all, all people are different, which means, that there is no single software program, which would suit everyone. This problem usually occurs in the big international companies. It is extremely difficult to teach people with different cultures, lifestyles and

opinions. In this case the best solution is integration, which means that all the differences should be combined and considered as way to improve the software performance.

Secondly, implementation time is hard to predict. The worst obstacle many companies faced was the schedule problems. Even though in each ERP project the time line should be defined, it is very often the case of delay or unpredicted situations, which cause the prolonging of time frame. Longer time leads to bigger money investment and not every company has a possibility to invest more, so sometimes the whole project is under danger of closure, due to prolonged schedule. In this case the best solution is to spend more effort to scheduling project and to be prepared for additional money investments.

Thirdly, the right ERP vendor is an important choice, because it affects the business process and future of the company. It is very often the case, when company does not pay much attention to the vendor, which might cause many problems in the future communication. There is a need to establish a trustful partnership with the vendor of the company in order to be able to perform better and find solutions together. Good cooperation creates new possibilities to improve.

Fourthly, the lack of training can be a reason of many troubles with ERP implementation. Even though companies understand the need of training, they still try to save money and time on it. This is a crucial mistake, due to the fact, that the losses from the lack of training might exceed the money, which was supposed to be invested into proper training program. The solution is the right attitude. Managers should realize how important the training is, and there is no point to save money on it. Moreover, training enlarges the adaptation period, which makes workers more comfortable with new things.

In addition to the previous point, the managers' commitment should be directed to the company's and employees' well-being. The changes are always hard to adapt to, but with the good support and help, the whole process becomes easier and faster. The change management should be performed well in order to create a comfortable environment for the employees.

It is extremely important to remember, that every obstacle can be faced and solved if all the employees and employers unite, help and support each other. Teamwork is a key to

success and win. PICTURE 8 illustrates the importance of smooth teamwork and what is included in the term "teamwork".

PICTURE 8. Teamwork is a key to successful implementation (Onlineduprograms 2013, 1.)

Even though the technology plays a huge role in innovations, human factor is one of the most important things to pay attention to. The lack of attention leads to problems, which might impact the work flow. To avoid that, people should always keep in mind the importance of cooperation and teamwork.

4   COMPANY CASE KALMAR

This chapter represents the example of ERP implementation in Kalmar Company. Kalmar is a branch of Cargotec Corporation.

4.1   Cargotec Oy in general

Cargotec Oy provides cargo handling equipment and software. Nowadays Cargotec Oy consists of three companies (Hiab, Kalmar and MacGregor), which are represented in its' logo in the PICTURE 9.

PICTURE 9. Cargotec's logo (Cargotec Official website)

In 2005 Kone Corporation was divided into few companies, and afterwards Cargotec Corporation was founded by merging Kalmar, Hiab and MacGregor. Below there is a scheme of Cargotec Oy timeline. PICTURE 10 describes briefly the history of Cargotec and its, development throughout years.
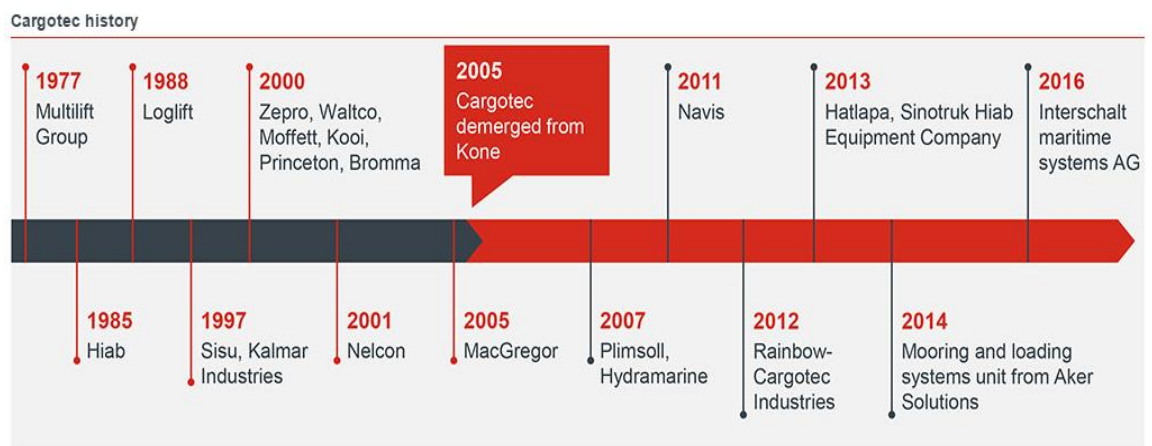
PICTURE 10. Cargotec timeline (Cargotec Official website)

It can be clearly seen, that Cargotec Oy went through many merges and demerges before present situation. Cargotec headquarters are located in Helsinki, Finland. Nowadays this company is very successful in the industry. The main key figures were published on the company's official website and represented in the PICTURE 11.

Facts

- Cargotec is a leading provider of cargo handling solutions
- We operate in more than 100 countries
- In 2015, our sales totalled EUR 3.7 billion
- At the end of 2015, there were approximately 11,000 people at Cargotec
- Our ultimate target is achieving a genuine passion for performance in all our business areas and in every employee.

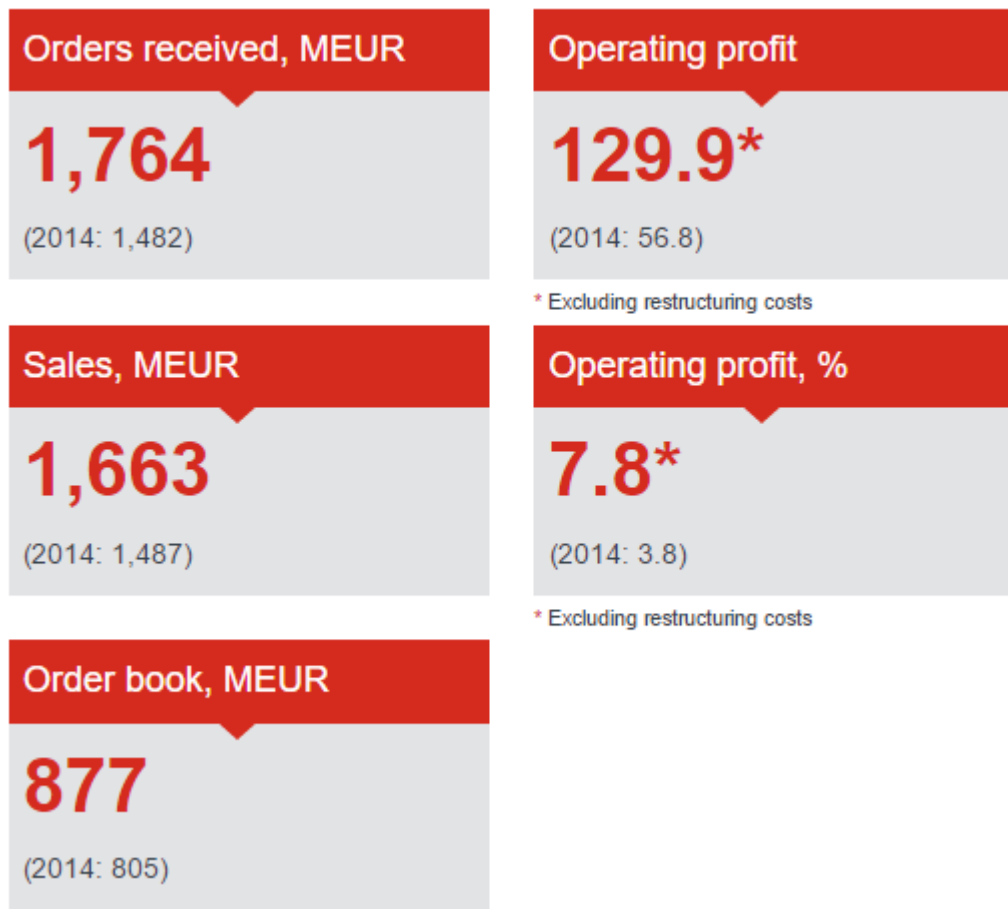PICTURE 11. Cargotec's facts (Cargotec Official website)

4.2   Kalmar

Kalmar specializes in equipment and software for cargo handling. The history of the company started in 1973, when Kalmar was formed by merging LMV and Ljungbytruck companies. At first company provided straddle carriers and ship-to-shore cranes, however during next 30 years it enlarged its' product range greatly by producing reachstackers, forklifts, ports' software and terminal tractors. In 2005 the company was merged to Cargotec Oy. Kalmar logo is shown in the PICTURE 12.

KALMAR

PICTURE 12. Kalmar logo (Kalmar official website)

Nowadays, the company is leading in cargo handling industry market by providing good quality services and products. Kalmar is operating in 30 countries around the world. By 2015 the number of employees was around 5200. Below there are fast facts about Kalmar company shown in the PICTURE 13.

Orders received, MEUR	Operating profit
1,764	**129.9***
(2014: 1,482)	(2014: 56.8)
	* Excluding restructuring costs
Sales, MEUR	Operating profit, %
1,663	**7.8***
(2014: 1,487)	(2014: 3.8)
	* Excluding restructuring costs
Order book, MEUR	
877	
(2014: 805)	

PICTURE 13. Fast facts (Kalmar official website)

Kalmar focuses on its' values, mission and strategy, which are shown below in the PICTURE 14, PICTURE 15 and PICTURE 16, and aims to improve the company\s performance every day.

Values

We drive innovation. We honour our long heritage of innovation, which makes us a global forerunner and the benchmark for the industry. We continue to drive our industry forward by focusing on our customers' ultimate business needs: how to move cargo in the most efficient way.

We do it together. Our customers' success is our success. We believe that the greatest results can be achieved only by being open and working together with our customers, partners and colleagues.

We deliver on our promises. We are a committed business partner and colleague, who takes responsibility and never walks away.

We provide lifetime care. We contribute to our customers' long-term success for the entire lifetime of our products and solutions. We anticipate our customers' needs and proactively support their operations whenever and wherever needed.

PICTURE 14. Kalmar's values (Kalmar official website)

Mission

We have a single focus in regard to our customers, and that is helping them to improve their productivity. This is the reason why we exist and what we strive for in everything we do.

PICTURE 15. Kalmar's mission (Kalmar official website)

Vision

Our vision is to be the preferred business partner of our customers. We work in close collaboration with our customers even when they operate a different brand of equipment or terminal operating system.

PICTURE 16. Kalmar's strategy (Kalmar official website)

4.2.1 Kalmar spare parts

Kalmar provides spare parts for Kalmar machines. The central spare part departments are located in Finland and Sweden. Kalmar has 4 warehouses for spare parts:

1) In Finland, which operates in Finnish and Russian area;

2) In Sweden, which operates for Sweden and Norway only;

3) In France, the biggest one, which operates for basically all the other customers;

4) In USA.

The business structure in Spare parts department is represented in the FIGURE 5. The end customers are served by frontline units (FLU) in the countries of operating, while central operations are providing support and information to frontlines.

Each FLU has its' business support manager, who provides all the needed information to FLU. In Central operations there are following departments: pricing, item management, logistics, sales and purchasing. All these departments are working to source the information about items, however only business support managers work with FLU directly.
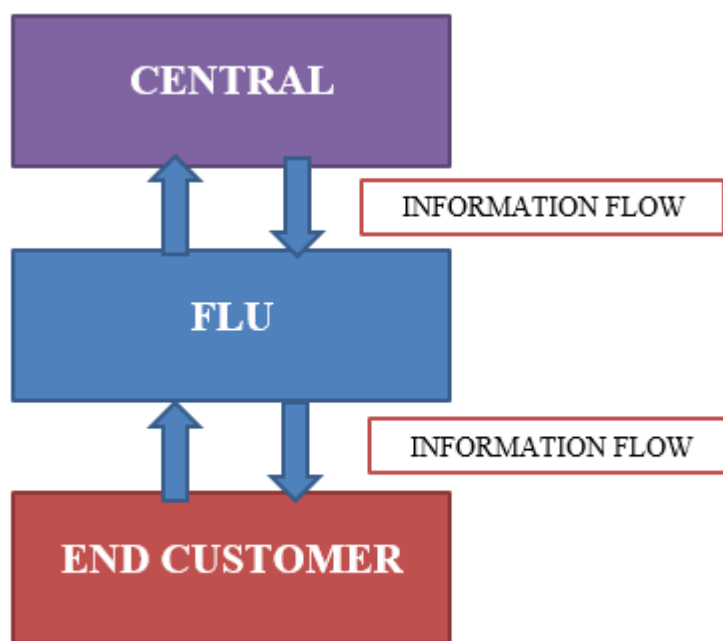

FIGURE 5. Business flow

The scheme above is applicable in every country, except for the middle-east area, where Kalmar works directly with end-customers.

The business structure of Kalmar spare parts creates smooth work flow by delegating the responsibilities and tasks. Moreover, FLUs have a good support from central operations, which also increases the end customer satisfaction.

4.3 ERP implementation in Kalmar (spare parts department example)

The research for this thesis was conducted in Spare Parts department in Finland, and it is based on interviews and internal materials. The interviews have been done with business support managers (Katri Kokkonen and Sari Palkoranta) and SAP key user (Pasi Aaltojärvi). The interview questions can be found in APPENDICES 1 and 2, and answers can be seen in APPENDICS 3, 4 and 5.

Before 2013 the company was using BAAN IV. However, after the company, which provided BAAN support, was closed, Kalmar needed to change the ERP system. The company has selected SAP, because it is one of the leading ERP vendors in the world with good reputation and history. Moreover, the SAP software is easy to utilize and adapt to.

At first, the SAP team was created in IT department for SAP project. During the beginning of the project the project plan was created by the team. After the project plan was made, the group of 4-5 people in Spare parts department was gathered in order to test it. This process took some time, but after the system was working correctly, it went live to the whole company. Afterwards those 5 people became key users of SAP, and nowadays they help and support old and new employees.

After the test trial went well, the training of all employees started. It took a little while to adapt to a new system, but it worked fine in the end. The implementation process itself took several months in general, but still some FLUs do not have it yet. For example, nowadays the implementation of SAP is going on in Russian FLU.

4.3.1 Obstacles, which occurred in implementation

One of the most challenging things was to teach the frontline units, due to the fact, that when business support managers were supposed to teach, they were not very well aware themselves about the new software.

Based on the interviews, which were taken with business support managers, the training period was very small, which caused the lack of knowledge in the beginning. But the

approach "learning by doing" helped employees with the practical aspects. Change management was not performed correctly, due to the too short training period. It was very difficult to adapt to the new system.

Project budget was forecasted incorrectly, and the actual sum exceeded the predicted one very much. It was unexpected, and, even though company still continued the project, it affected the whole process very much.

Project duration was rather long and as the result of that, there was a lack of employees in central operations, because many of them were involved in project and could not perform their daily tasks. Company had to hire substituting employees, which affect the money situation rather much.

However, there were huge obstacles during the implementation process, company has managed to finish it.

4.3.2   Positive and negative points

The implementation of new ERP brought some positive and negative things to the company.

On the one hand, SAP provides better visibility. It creates a possibility of better cooperation between Central, FLU and end-customers. For example, sales department can track invoice information from SAP and check all the paid and unpaid ones. Also, customer data is opened and easy to check for all the departments. Moreover, SAP is more user friendly, which makes it easier to utilize in daily work. A good example is a copy paste option, which is a small ting, but affects the speed of work very much. Even though, it was difficult for employees to adapt to the new system, afterwards they appreciated the advantages of it. Overall, SAP improved the work and communication flow inside and outside of the company, which lead to improvement in company's performance.

On the other hand, the process of changing was very challenging. For many employees it was extremely hard to change attitude towards innovations, they were complaining,

that the old system was better. Moreover, as it was mentioned before, the training period was rather small, because of that, employees were confused about new system. Furthermore, some functions of SAP did not work correctly at first, which caused many "connection holes", and for such a big company as Kalmar it is crucial to have always a proper connection. Those connection holes lead to the loss of orders and crucial information about items. It was fixed afterwards, but it had a very big impact on the work situation in the company.

Summarizing, there are many benefits and drawback of new ERP system implementation. It has changed the business process and impacted employees very much. Even though, there are still some things to work on, overall the result of implementation improved the whole performance.

5 CONCLUSION

This bachelor's thesis described enterprise resource planning in general, its' main features, implementation process and obstacles, which might occur during implementation.

Enterprise resource planning is a complicated business tool, which supports the main functions of the company by creating the correct information flow. ERP system is software, which is actually performing ERP functions. The history of ERP is long and interesting, and throughout the years many ERP vendors started to operate. Nowadays there are 2 main vendors competing with each other: SAP and Oracle.

The main ERP function is to support the company's performance in the industry. There are various modules represented by ERP systems, which company can choose and combine in order to operate more efficiently.

Furthermore, the main steps in implementing ERP were described, as well as obstacles and their solution. As a result, the process of implementation is very individual for each company, and it is extremely important to be prepared for any risks, due to the fact, that forecast is not always correct. Company should invest money and time in order to make the process of implementing as easy as possible. Unfortunately, when companies try to save money and time on this kind of projects, the future possible losses can be unpredictable huge.

The basis for this thesis is Kalmar company example. The company has changed its' ERP system in 2013 from BAAN to SAP. The research was conducted in Spare parts department in order to explore the following points:

- the process of implementation of a new system;
- the problems company faced;
- employees' reaction;
- improvements and breakdowns;
- gains and losses.

The research method was interviews of employees. The results showed that it was a challenging process for the company. Employees had mixed reactions, because something became better way, something worse. Moreover, employees had a very difficult time in the beginning, because the system itself did not work properly. It caused many problems in connection. Furthermore, the lack of training affected very much the overall process. Employees were not ready to change and adapt very fast, and there was not enough time to get used to a new system.

Overall, the implementation in the company went well. Even though, there were many problems company had to deal with, and there are still few nowadays, the implementation of better and updated ERP gave a possibility to improve the company's work flow and performance. More importantly, it has also affected customers in a good way and improved their satisfaction.

In conclusion, the main purposes and goals of this thesis have been achieved. The research was conducted, and the results were processed and described in this paper.

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APPENDICES

Appendix 1. Questions for SAP key user

1. Does the company have an ERP system? Which one? Why did the company choose this one?

2. How the ERP implementation project was implemented?

3. What were the main challenges?

4. What unexpected obstacles occurred?

Appendix 2. Questions for business support manager

1. Was it difficult to change from BAAN to SAP? What was the reason of difficulties? (ex. lack of training, short training time etc.)

2. What positive did the SAP implementation bring to the work life? What negative?

3. Do you think that implementation of new ERP (SAP) affected the business process itself? How?

Appendix 3. Answers of SAP Key user

1. Does the company have an ERP system? Which one? Why did the company choose this one?

Yes, currently company is using ERP. But before we used to have BAAN, but since the provider company stopped supporting it, we had to find alternative.

2. How the ERP implementation project was implemented?

At first, we created a special group in IT department, which would take care of SAP project. After everything was ready with software, they gather group of 4-5 people started to test the system with them. Afterwards, when everything worked fine, the training for the rest of employees started.

3. What were the main challenges?

The main challenge was to adapt to a new system. BAAN was completely different and worked in a different way. It was very difficult to change the mind-set.

4. What unexpected obstacles occurred?

For the project it was budget. I don't know about the exact figures, but the actual project budget exceeded the predicted one very much. Also the training period was rather short and the material volume was huge.

Appendix 4. Answers Sari Palkoranta (business support manager)

1. Was it difficult to change from BAAN to SAP? What was the reason of difficulties? (ex. lack of training, short training time etc.)

Training for users was held before we even had an access to the real system, with test SAP. So the skills we had when system was launched, were little poor. Also totally different system compared to old BAAN system, totally different logic so adaption took little time. Training documentation was in many cases already old when system was really launched, but luckily material was updated so no complain of those. Still nowadays even we have used the system several years, we have lot to learn. Every now and then someone founds some new transactions or those are launched but no official training held anymore, information goes from mouth to mouth from user to another so probably many of the users are not even aware of all those little tricks.

Right after the launch some of the functions were not working like promised, like those ship complete cases but I think that after the first few weeks system was working quite well. But I think the biggest barrier to go over was the general attitude of users towards new system, took long time for SAP to beat BAAN. "Everything was so great in BAAN" was heard for a long time after the SAP launch.

2. What positive did the SAP implementation bring to the work life? What negative?

Visibility to the frontlines. That is good. We are able to see what frontlines are doing and vice versa. Also because of same system with most of the frontlines and all connected so communication and making changes to orders is easier than earlier, also visibility of warehouse inventories and of course sales figures. Also after we have learned to use this system, in some small cases SAP is more user friendly, for example copy paste – texts is much easier on SAP.

Negative thing is that many functions which are on SAP or are promised to be, are not working properly, like backorder reports. If changes needed to be done, it took and takes really long to get those effective, updates only about twice a year.

3. Do you think that implementation of new ERP (SAP) affected the business process itself? How?

I think the visibility has been one of the most positive things, in good and in bad. Information is seen more openly than on BAAN so processes are more open too. I think SAP is good tool even I'm not familiar with all of the functions but in daily work SAP is easier and faster than it was with BAAN. And that leaves time for other sales actions.

Appendix 5. Answers Katri Kokkonen (business support manager)

1. Was it difficult to change from BAAN to SAP? What was the reason of difficulties? (ex. lack of training, short training time etc.)

It was difficult in the beginning. We had trainings but it was only few days and we went through all new things only quickly. BAAN was totally different than SAP. Instructions how to use SAP and all transactions have been good however all the time.

We have office in Dubai and they are using the same SAP and during SAP Go live I was there and I trained them to use SAP. It was challenging to train with the knowledge of SAP I had then. But Learning by doing has been the best way.

2. What positive did the SAP implementation bring to the work life? What negative?

SAP is so much more visible tool than BAAN. We have Finance also in SAP and you can check all invoices, what customers have paid and what not. Also we have dunning process nowadays in SAP so it's easy to follow all Finance issues.

Customer master data information is also easy to check and maintain in SAP. Obviously we will have installed base information of Kalmar machines (sold machines per countries) also in SAP in the future and it will be very useful.

What has been negative... only that everything has not worked properly but most of the problems have been sold now.

3. Do you think that implementation of new ERP (SAP) affected the business process itself? How?

In the beginning it affected negatively because it was so hard to explain to customers that everything is not working properly. For example Ship complete did not worked like it should. In Middle East where it's needed to ship parts together because of customs this was not good.

But now when almost everything is working properly it is easy to use and we can save time and focus on making business and SAP is good tool for that.