Benchmark study to enhance business processes through ERP system.

Case: Company X

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Laurea University of Applied Sciences   **Abstract**
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The objective of the thesis is to identify the best practices of enterprise resource planning (ERP) system for the thesis commissioner. The main focus of the thesis is in the processes in the ERP system: how the system can help the company to achieve efficiency and decrease manual work and what are the challenges in the processes. In addition, the thesis considers if changing the ERP systems could help to achieve efficiency with the business processes.

The ERP system should decrease manual work by terminating replicate data in a company when all of the data is centralized and available throughout the organization. ERP systems can also be purchased as a cloud computing service. The service is available through internet and it can be scaled for multiple users and the fees are paid monthly based on the number of users.

This thesis is commissioned by a digital advertising agency. The commissioner, Company X, provides digital advertising and marketing services to its clients. The commissioner's head-quarters is in Helsinki and they have subsidiaries worldwide. The Company X has been using SaaS based ERP system, which has been developed for professional service agencies, such as advertising agencies. Currently, the commissioner is not satisfied with its ERP system because it does not suit the commissioner's needs.

The theoretical background is based on literature and gathered on ERP systems and cloud computing, the advantages and risks with them and implementation process. The research is done by benchmarking successful advertising agencies that use different ERP systems than the commissioner by interviewing the financial department of the benchmarked companies. Interviews are done as structured interviews. The analysis is done as thematic analysis.

The main result of the research is that the advertising agencies use SaaS based ERP systems that are developed for the industry. The main purpose to change ERP system is to improve processes, such as personnel's activity to record data or integration with other software. The implementation process with SaaS model is faster since there is no hardware to be installed and the initial investment is lower than in a traditional ERP system. However, adjustments require time and resources. The key in successful exploitation of ERP system is the active personnel.

The conclusion of the thesis is that the implementation of the currently used ERP system was not properly done and changing to a new system could increase the use of the system as a data storage and enhance information flow. Activating the personnel to use the system according to the instructions of the management, a manual of the ERP system should be created and introduced to the personnel.

Keywords: ERP system, cloud computing, benchmark, advertising agency

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1   Introduction

1.1   Background and goals

The objective of the thesis is to identify the best practices of enterprise resource planning (ERP) system for the thesis commissioner and why the commissioner's current ERP system is not meeting the needs. The current problem is that the ERP system is not used efficiently enough and the process of recording data is lacking.

The thesis determines whether the current ERP system is able to meet the needs of the commissioner or if the system should be changed to another in order to achieve the improvement suggestions and if the new ERP system could improve the lacking processes. It is also discussed what should be taken into consideration when a new ERP system is implemented.

The main focus of the thesis is in the processes in the ERP system: how the system can help the company to achieve efficiency and decrease manual work and what are the challenges in the processes. It is also important to identify the advantages and short comings of ERP system to be able to use the system as effectively as possible.

The research of the thesis is limited to medium sized enterprises in Helsinki region that have subsidiaries. The thesis focuses on Finnish advertising agencies and does not take into account requirements of other countries. Since the study sample for the thesis is small, the results cannot be generalized for the whole industry. The costs of different ERP systems are not considered in the thesis which means that with paying more for a system might get the company better system to work with. Due to a limited time frame, the suggestions are not confirmed by action plan.

The thesis focuses only on ERP systems in advertising agency industry and does not take into account what other systems the companies use, such as finance and accounting software and if they can be synchronized with the commissioner's ERP system.

1.2   The structure of the thesis

This thesis is divided to five main sections. The topic and the background are introduced and the goal is defined. The commissioner is introduced and the requirements of the industry for an ERP system. In the second section, theoretical background for the thesis consists of theory on ERP systems, cloud computing and reporting.

The commissioner's current situation is explained in the introduction with the information on the current ERP system, ValueFrame. The current state of the commissioner is based on an interview with the Chief Finance Officer and observation. At the moment, the thesis commissioner is not satisfied with the system and the system is not used efficiently.

The theoretical background for this thesis is based on literature on enterprise resource planning systems and reporting. The theoretical part explains the basic concepts of ERP system, the advantages and challenges concerning ERP systems. The cloud computing was included in the theory because of its high use of SaaS concept in the advertising industry. The theoretical background includes reporting because it is important part of an ERP system and how the ERP system could be better exploited in reporting. This thesis does not focus on the details of information technology in the systems but the general idea of ERP systems in organizations.

The methodology for the research is explained in the third main section. The selected research method was benchmarking which was implemented by interviewing. In the implementation chapter, the interview questions are stated.

The results for the interviews are stated and analyzed in the next section. The background for the analysis is based on research and theoretical background. The research method used in the thesis is benchmarking of other advertising agencies and theoretical background is based on ERP systems and requirements of consultancy service industry.

In the final section, the recommendations are given to the commissioner based on the theory and the findings from the benchmark to enhance the ERP system and processes. The conclusion includes the consideration of how the research met the requirements of trustworthiness, which are stated in the methodology section.

1.3   Company introduction and industry requirements

The commissioner for this thesis is a digital advertising agency in Helsinki, Finland with subsidiaries worldwide. The company was founded in the beginning of 2000s. The commissioner is referred to as Company X. Company X provides digital advertising services and the technology to create those services. At the moment, there is approximately 50 employees in the group. Company X currently uses ValueFrame as its ERP system. The commissioner uses Procountor as its accounting system but it is not integrated with Valueframe.

Advertising agency is a consulting organization that provides marketing and advertisement services for other companies. The industry is fast phasing due to project based work. Fore-

casting and budgeting is challenging which emphasizes the importance of ERP system and reporting. The invoicing is done based on the projects, either by hourly rate or beforehand agreed amount.

The requirements for an ERP system in advertising agencies differs from manufacturing companies. For example, modules such as manufacturing and inventory management are not relevant for the agencies. The key aspects in the business are project management, time tracking and invoicing (ValueFrame, n.d.). Creativity and flexibility of working in an advertising agency also sets requirements for the system; the system should be accessible and flexible. For example, SaaS based system can be used outside of office which allows flexible working environment.

In SME companies, the level of differentiation is low compared to a large enterprise where each employee has a designed job description and department they are working for. In SME companies, the personnel is able to work flexibly on multiple job descriptions if needed. Resource utilization rate is high and the processes are flexible. When the business grows, the processes become more defined in order to gain efficiency. The low differentiation can be a challenge when purchasing and implementing an ERP system. The structure of most ERP systems is based on differentiation and hierarchal management. (Kettunen & Simmons, 2001)

1.3.1 Thesis commissioner's current situation

The Chief Financial Officer of the commissioner company, Company X, was interviewed for the thesis to provide the overview on the current situation with the ERP. In addition, the observation was used to establish the current situation and finding the processes which needed development.

Company X uses ERP system called Valueframe, which is a Finnish cloud software. The system was purchased in 2010 but the real implementation started only in 2012. Before purchasing the system, the company used Microsoft Office Excel spreadsheet for keeping track on the company data, which was not convenient and adequate to manage the company when the business evolved.

Company X has not been satisfied with their ERP system. It was described as rigid and not very user friendly software. The main problem with the system was that since the Company X is a worldwide group with many currencies, the system did not support that. The Finnish software would probably work better if the company worked only in Finland. Group reporting is difficult due to the different currencies.

Even though the company has thought about changing the system and made research on it, the company is staying with ValueFrame for now. Changing the ERP system takes time and money. Implementation and training the personnel is a process that takes resources. One of the possible other ERP systems mentioned in the interview was Visma Severa.

Tools used in ValueFrame are resourcing, time sheet, customer management and reporting. The most important reports are order forecast report, billability, resourcing, project reports and client profitability. Invoicing tool is not used in ValueFrame. Company X uses a separate finance and accounting system, Procountor.

Reports concerning projects are monitored weekly. Project reports are mostly followed by project managers. Billability reporting is done monthly based on the billable work done by the employees. Client profitability report is done every third month. Updating the ERP system should be continuous but especially working hours are not always up-to-date. The reports are affect by lack of recording working hours to time sheet. If the working hours are not recorded to the system, the reports give incorrect and unreliable information.

Company X considers questions such as should it be provided by a Finnish company or a foreign company, is the system targeted to small or big companies which defines the tools in the system and the price when selecting systems. Different ERP systems are targeted to different sized enterprises. Small enterprises need less features from their ERP system than large enterprises. This sets limitations on which systems are suitable for the company.

Observations concerning the ERP system and the processes in the system were that the information flow lacked and the needed information was missing. The data was not updated by the personnel and the reports were not trustworthy due to the lack of needed data. Invoicing was also difficult because of lack of required documents were not easily available through the ERP system and the accounting software was separate system and not integrated into the EPR system. Project follow-up was also difficult and required manual work since the invoicing and project purchases were not updated to the system. In addition, as the data was not available through the ERP system, accurate reporting was challenging. Overall, the system was not fully exploited and personnel fully involved to the system.

1.3.2 Valueframe

ValueFrame is a Finnish cloud computing software founded in Jyväskylä in 2001. The company was the first Finnish company to provide enterprise resource planning as web browser based service to small and medium size enterprises (Vartia, 2011).

 ValueFrame provides five main products: Enterprise resource planning system, project management, customer resource management system, ValueFrame Start and working time tracking (Valueframe, NDA).

ValueFrame customers base consist of, for example, engineering offices, accounting companies, architecture agencies, and communications and advertising agencies (Valueframe, NDA). According to the customer base, ValueFrame is targeted to companies that conduct project work and emphasis is in project management.

Valueframe has over 60 advertising agencies using their software (Valueframe, NDA). It offers tools for monitoring and managing projects, for instance, profitability and development in Euros and in graphics. The ERP system includes resourcing and task tool to help with project management and subcontracting costs can be added to the right project.

ValueFrame offers reporting tools which include profitability and billability reports. The system also helps with budgeting by creating the company a layout for the report where the information is updates automatically (Valueframe, NDA).

Professional Services Automation (PSA) has the same idea as ERP and they are used as synonyms (Mononen, 2015). While ERP system includes manufacturing, supply chain and research and development modules, PSA system is lighter version because it is targeted at project based companies (Mononen, 2015).

PSA system is developed for consultancy companies and the modules such as manufacturing and supply chain management are not needed from an ERP system. PSA system usually includes project management, time sheet, invoicing and reporting tools modules. PSA system may also include customer relation management and sales modules and it can be integrated with accounting software (Mononen, 2015).

2   Enterprise resource planning systems

Enterprise resource planning (ERP) system is often defined as software that integrates organization's information flows concerning finance, human resource management, clients and supply chain (Granlund & Malmi, 2004). These information flows are gathered into integrated modules that use same centralized database. A typical ERP system includes at least sales, manufacturing, project management, human resource management, logistics and accounting modules (Lahtinen & Salminen, 2014).

ERP system combines company's internal and external processes and helps to automate some of the functions and activities with an integrated software application in the organization. ERP system enhances the information flow within the company but also the communications to outside stakeholders. (Elmut & Topaloglu, 2013)

The integrated modules support the organization's functions and activities beyond unit borders and also in global scale as needed. The information is available throughout the organization once the information is entered, which makes essential that the information is correct (Granlund & Malmi, 2004).

Medium size enterprises have growing needs due to growing business, growing organization and the processes in the company change to more complex. When the business grows significantly, practical solution is to improve the processes by digitalizing and automating functions in order to gain efficiency. The requirements for reporting become more complex as the business grows and using only spreadsheet is not the most practical solution anymore (Lahti & Salminen, 2014).

Companies have different needs for their ERP system depending on the business field and the organizational culture of the company. Small enterprises have limited possibilities for ERP system customization compared to medium-sized and large enterprises. There are dozen different ERP systems developed for medium sized enterprises in Finland of which some are especially designed for certain industries (Lahti & Salminen, 2014).

The finance department is typically in charge of the ERP system; all the inaccuracy in the information entered to the system shows in the financial management. The finance department is usually responsible to solve the inaccurate information even if other department has caused the error. Furthermore, the finance department is often seen as a helpdesk when there are problems with the data input (Granlund & Malmi, 2004). These tasks increase the finance department's work load.

2.1   Background of ERP system

ERP systems have become common in large enterprises from 1990's onwards and also medium sized enterprises were developed customized ERP system solutions in the 2000's (Lahti & Salminen, 2014).

The development of ERP systems started in the 1960's when the software for inventory monitoring was started to develop. Simple software were developed to manage the inventory

within the organization. The software were developed and customized for a certain organization either by the organization itself or by an external software developer company. (Kettunen & Simons 2001)

In the 1970's, MRP (Material Requirement Planning) was developed to help with planning of manufacturing. The system provided calculations of material needs by managing purchasing and automating the purchasing orders. In the late 1970's, the amount of commercial standard software increased. (Kettunen & Simons 2001)

Development of technology in the 1980's increased the technological know-how and MRP II (Material Resource Planning) was developed based on MRP. MRP II also focused on managing manufacturing and materials but it also included new functions for increasing manufacturing, such as managing logistics. (Kettunen & Simons 2001) Compared to the MRP and MRP II, ERP systems cover wider range of business processes and actions regardless of department borders in the same relational database (Lahti & Salminen, 2014).

The development of ERP systems is an ongoing process due to an intense competitive business environment and companies wanting the real time information from each business unit to be available at any given time. ERP systems have improved the processes by eliminating the use of multiple systems and increasing the efficiency by removing overlapping tasks and automating processes. (Lahti & Salminen, 2014)

In the recent years, development of ERP systems has focused on solutions for a certain industry and the suppliers have taken interest in developing suitable systems to small and medium sized enterprises (Lahti & Salminen, 2014). Globalization increases competition and reducing costs has become increasingly important among companies leading to structural changes within a company. In order to implement the structure change, the companies have needed to evaluate if the current ERP system can meet their needs (Carutasu & Carutasu, 2016).

Different ERP systems have their own strengths. Some ERP systems are specialized for a particular industry's specific processes and functionalities, other systems might have better human resource or sales functionalities. The right ERP system for the company depends on the industry and more specifically the company itself since the organizational structure and culture may differ from the competitors'. Especially the financial functionalities and its sub processes may have substantial differences in different ERP systems due to the opportunities caused by digitalization (Lahti & Salminen, 2014).

The future trend of ERP systems is that the cloud computing is becoming more common in companies and penetrating further into the market (Carutasu & Carutasu, 2016). Furthermore, ERP systems are developed for mobile devices which requires that ERP systems uses less computing resources. Many companies are starting to be aware of cloud based technology and the number of cloud computing adapters is increasing (Carutasu & Carutasu, 2016).

ERP systems as organizational best practices is a concept that can be dived into two. The development of the ERP system is based in the previous experiences and seen to present good practices for western style management. However, ERP system may fail because of the lack of identifying the importance of social, organizational and cultural aspects (Dumitru et all. 2013). The best practices can also be seen to be connected to structural practices and to the models that create improvements to company's performance (Dumitru et all. 2013).

ERP system is acquired to integrate company's business and technical processes. ERP systems are considered to be a managerial tool that helps with managing resources and performance and enhancing information flow for decision making (Dumitru et all. 2013). The advantage of implementing an ERP system consists of both tangible and intangible features, such as integration of internal processes, improved information-flow, enhanced customer service, and cost efficiency (Dumitru et all. 2013).

When a company decides to implement an ERP system, the company may be required to either modify current business processes, customize the ERP system to suit the current processes or depend on the system provider for support (Dumitru et all. 2013). The evaluation of the effect on company's organizational performance is essential to be able to identify the best practices and failures of the implementation process (Dumitru et all. 2013).

2.2 Implementation process of ERP system

Implementation of an ERP system is a process that needs careful planning and resources. There is a high risk of failing the ERP system implementation. According to Nicoleta Carutasu and George Carutasu article (2016), 58% of ERP implementation projects increase above the original budget and 65% of the ERP projects are not completed by the deadline. In addition, as high as 40% of the companies implementing an ERP system receive less than 50% of the expected benefits (Carutasu & Carutasu, 2016).

ERP system implementation project begins with discussing the objectives of the implementation project with the ERP system consultant (Carutasu & Carutasu, 2016). When the objectives are clearly stated, the provider is aware of what is expected and can work accordingly.

This stage decreases the risk of failure with the implementation. The most significant objectives are to standardize global processes, to increase company's performance and to integrate the system to all locations (Carutasu & Carutasu, 2016).

On the next stage, the current situation is described and analyzed and the customization requests for the ERP system are stated. The analyzation is done from both business and technical perspectives. This stage allows the customer to consider the problems with the current business or technical processes. The costs are forecasted in this stage (Carutasu & Carutasu, 2016). During the implementation process, the customer may request for more customization than in the initial contract, which increases the costs. Due to this, it is important for the consultant to build a trusting customer relationship (Carutasu & Carutasu, 2016).

On the third stage, the implementation contract is written between the system provider and the customer, which includes the information of the duration of the project, price, and customized features. Before the actual implementation starts, the plan for the execution plan is created including the deadlines and the resource distribution. (Carutasu & Carutasu, 2016)

On the fourth stage, the actual implementation is started. In this stage, the customization request are analyzed thoroughly from the business and technical perspective. The customer needs to decide whether they want to customize and integrate the ERP system to the current processes in the organization or if the organization is adapting new business processes according to the ERP system. (Carutasu & Carutasu, 2016)

In the testing stage, the customized features are tested by the customer. Test plan is created including the tested scenarios, the different user types and the identified failures. The testing report identifies the tested features and the errors with the system. (Carutasu & Carutasu, 2016)

After the problems are corrected, the customer agrees that the errors mentioned in the testing report are corrected and the ERP system is ready for the final adjustment stage. There might be errors in the later stages which are adjusted by the consultant. (Carutasu & Carutasu, 2016)

In the next stage, the personnel is trained to use the ERP system. Training plan is created with the training materials, training structure and the employees who attend in which trainings. (Carutasu & Carutasu, 2016)

In the data converting stage, the company's existing data is transferred to the new system from excel files and previous ERP system. The information includes for example customer and

vendor data, accounting and human resources data (Carutasu & Carutasu, 2016). After the data has been transferred to the new ERP system, the ERP implementation project is in go-live stage. When the project is in this stage, only the new ERP system should be used (Carutasu & Carutasu, 2016).

2.2.1 Failures with implementation

A common reason for failure of the implementation process is that the objective of the an ERP system is misunderstood or unclear (Carutasu & Carutasu, 2016). The company who is implementing an ERP system should understand that the purpose of an ERP system is enhance business and technical processes. Implementing an ERP system only for invoice printing is waste of the resources used for the implementation process (Carutasu & Carutasu, 2016).

Another common failure of the implementation process is the lack of top management support (Carutasu & Carutasu, 2016). If the top management of a company is not supporting the implementation and does not understand the impact of an ERP system on the whole organization, the implementation can fail. In addition, the lack of top management support with a long duration of the process can also decrease the level of involvement to the implementation process from both company's and the consultant's perspective. If the needed resources are not available provided by the top management of the company, the implementation becomes challenging (Carutasu & Carutasu, 2016).

For judging the success or a failure of an ERP system implementation, the key performance indicators (KPI) related to the implementation need to be clearly stated (Carutasu & Carutasu, 2016). The KPIs should be specific and easy to measure if the target has been achieved. Each implementation stage is recommended to have its own KPIs clearly stated to the both parties, the company and the consultant. When the KPIs are clear, both parties know what is expected from each stage (Carutasu & Carutasu, 2016).

Weak change management is also a common cause of failure (Carutasu & Carutasu, 2016). The employees may see the implementation as a secondary work and the understating of the gained benefits of an EPR system may be unclear which lead to lower involvement level towards the process. To better manage the change, all of the users of the system should be trained to their daily tasks using the ERP system. Instead of decreasing costs by limiting the number of employees to be trained, using less expensive training types, such as virtual trainings, is preferable in a long term. The system manuals should be available for the employees to decrease the misunderstanding of the system and the operation (Carutasu & Carutasu, 2016).

Failure of an implementation process can be caused by incorrect data (Carutasu & Carutasu, 2016). If the data used for the analysis of the current business and technical processes and data migration is incorrect, all of the analyses based on the incorrect data will be false compared to the real situation. To be able to verify that the data is correct, the migrated data should checked within a reference set (Carutasu & Carutasu, 2016).

2.3   Advantages of ERP system

The main reasons for an organization to purchase an ERP system are to improve profitability and efficiency. ERP system can increase competitive advantage and cost-efficiency. When the business grows in an organization, multiple different systems do not serve efficiently and in these situations, the need for manual work increases which also increases the risk of human error. (Profitz, 2013) Companies can develop their business model through ERP system, solve logistical problems and there are less maintenance problems than with several different systems (Granlund & Malmi, 2004).

The notable advantage of an ERP system is the released resources and hence decrease in the labor cost. With multiple different systems, the same information is entered repeatedly and the processes do not work effectively. ERP system integrates company's information flows into one database and eliminates the routine work. Coherent system automates the often repeated processes when the data is not updated to several systems. This also increases the information flow across the organization units and precipitate decision making (Profitz, 2013)

When the data is available across the organization in real time through ERP system, the sales department can make quicker offers for customers. Customer relationship management (CRM) system is great tool to manage customer data but the advantage of ERP system is that it can provide information for the sales department on, for example, manufacturing timetable and inventory. (Profitz, 2013)

ERP system can be scaled for an organization's needs at any given time. Modular structure of the system supports scalability and enables the addition of additional parts and functions which increases the flexibility and lifecycle of the system. (Profitz, 2013)

2.4   Risks of ERP system

Defining the cost of an ERP system and making budget for the investment is important. Some of the costs may be easily overlooked or underestimated leading to exceeding the budget. Some of the common hidden costs are training the personnel to new processes, integration

and testing the system with other company software, customization for the company's needs and data conversion from the old system (Koch & Wailgum, 2008).

Implementation of ERP system is generally described as troublesome; introducing an ERP system in a company may require changes in the existing business processes because of the rigid system structure (Granlund & Malmi, 2004. p. 36). Companies need to adapt to the technology and redefine methods to suit the system. ERP system is developed to have seamless integration for good solutions but because of the seamless integration, some of the functionalities of the system are compromised (Granlund & Malmi, 2004).

The implementation process is a long process. The process takes a year on average in which time the organization's activities and the objectives for the system may have changed. Because of the changes, the new system can be outdated even before the full use of it starts. (Kettunen & Simons 2001)

ERP system causes changes in the working processes which can cause resistance in the personnel. In order to successfully implement ERP system, the personnel needs to be committed to the deployment and to adopt the changes (Koch & Wailgum, 2008). The end-users, the personnel, should be motivated to the deployment process, so that the transfer from the old system to the new would be as seamless as possible.

Centralized information management and more efficient control over activities can cause feeling of excessive supervision of work among company's personnel. Excessive control over work can decrease the motivation of the employees and seen as mistrust for employees. (Kettunen & Simons 2001)

Since ERP systems are purchased for several years, the risk of provider should be considered. It is not profitable to invest in old technology because the functions may not necessarily meet the organization's needs in the future. If the technology is in the end of its lifecycle and the system does not develop after implementation, the organization needs to change to another solution which will cause again more costs. (Profitz, 2013)

3   Cloud computing

Cloud computing can be defined as information technology model that provides resources for offering services provided electronically (Baun et all. 2011). The services are available through internet and they can be scaled for multiple users. From the cloud computing service provider's point of view, the consumers are billed by the usage of "remote IT infrastructure" (Hassan, 2011).

Information technology resources, such as computing power, storage capacity, application development platforms and applications, are available as multitenant application for the customers through Internet. The five characteristics of cloud computing by NIST (National Institute of Standards and Technology) are on-demand self-service, broad network access, resource pooling, rapid elasticity and measured service. (Salo 2012)

Cloud computing services are categorized into three main categories; SaaS (Software as a Service), PaaS (Platform as a Service) and IaaS (Interface as a Service). The services differ from each other by offered solutions. SaaS is the most known cloud computing service and its market share is the most notable. Instead of purchasing a software, SaaS offering provides the software as a service which is paid by time usage, number of users or devices. Most common services are software for managing business, such as CRM and ERP. (Salo 2012)

When the ERP is acquired as SaaS model, a customer does not purchase a license for the software but rents the access rights for the software. The software is hosted by the third-party and it is not installed to organization's servers. The application is available anywhere via web browser. The maintenance and updates are managed by the service provider and organization's resources are freed to managing data (Profitz 2013).

3.1 Cloud based ERP system implementation

The implementation process with a cloud based system is similar to traditional ERP system implementation. The cost structure of cloud based system is different from the traditional ERP system.

Type of costs	Traditional ERP	Cloud
Lifetime ERP license	x	
Lifetime database license	x	
Annual fee per user		x
Hardware infrastructure (for ERP and Database server)	x	
Customizing fee for ERP functions	x	x
Third party application fee	x	x
Data migration fee	x	x
Internet connection fee		x
Trainings	x	x
Maintenance	x	
Support	x	x

Table 1. Type of costs of traditional and cloud based ERP (Carutasu & Carutasu, 2016)

The traditional ERP system requires hardware and a lifetime license for the ERP system and the database. Traditional ERP system also requires maintenance with hardware. In cloud ERP system the lifetime licenses are replaced with monthly or annual fees based on the number of users. This means that the annual fees become relevant when the number of employees increase (Carutasu & Carutasu, 2016).

Both traditional and cloud based ERP systems have the fee for customization. The customization with cloud based system is similar as the one with the traditional system. The analysis is done from the business and technology processes (Carutasu & Carutasu, 2016).

Internet connection fees can be seen as a cost related to cloud based system since using a cloud based system is dependent on the internet connection. However, the cloud based system has a faster recovery and system data option than in traditional system (Carutasu & Carutasu, 2016).

Training the personnel and needed support for fixing errors have similar costs in both traditional and cloud based systems. Maintaining costs are higher in a traditional ERP system because of the maintenance of the hardware (Carutasu & Carutasu, 2016).

3.2 Advantages of cloud computing

The main advantage of SaaS model ERP is that the initial investment is lower. Cloud ERP is cheaper in short-term which decreases the risk for SME companies (Netsuite, NDA). The implementation costs are lower in a cloud based system which makes it more accessible to SME companies (Carutasu & Carutasu, 2016). The IT infrastructure is hosted and maintained by the service provider and there are less implementation costs for an organization (Netsuite, NDA). Maintaining service includes updates and automatic version upgrades which are usually included to a monthly costs (Profitz 2013).

Since the cloud ERP system is available via Internet, the real-time data can be accessed regardless of the place or the device (Netsuite, NDA). Because of this, the company's personnel can access the accurate data outside of the office by mobile phone or laptop without additional hardware.

The implementation process is much faster in a cloud ERP than in a traditional on-premises ERP system (Koch & Wailgum, 2008). Cloud ERP system does not require additional hardware or installation and it is distributed as a ready service across the organization. The fast and

easy implementation process decreases the expenses and budgeting cash flow is easier when the costs are divided into monthly fees (Netsuite, NDA).

In a cloud ERP system, the version updates can be done automatically and more frequently by the service provider (Koch & Wailgum, 2008). The possible customization solutions are more likely to work after updates than in an on-premises ERP system. In an on-premises ERP system, the updating and upgrading to the newest version is responsibility of the organization (Netsuite, NDA).

Cloud ERP system is more flexible and easier to scale to an organization's needs. When the business grows, the number of users can be easily increased without any additional hardware to be installed (Netsuite, NDA).

3.3   Risks of cloud computing

The main concern of cloud ERP system has been the information security. The servers are located outside of company's premises and the information is trusted to the service provider. Companies want to control the data accessibility and to keep it safe from external parties as well as the service provider's employees (Salo, 2012).

Even though the initial investment is lower in the SaaS model, the costs cumulate in the long term and can rise above the cost of purchasing an on-premises ERP system. In addition, in growing business the number of employees increases leading to increase in the monthly fees. (Profitz, 2013)

Because the SaaS ERP system is available only through web, the usage of it is dependent on data network connection. Internet access is stable in Finland but sometimes there might be interruption in the connection. Fault may also be caused by interruptions in device, integration or cloud computing software itself. (Salo, 2012)

The customization possibilities can be inadequate for a company's needs even if the company would have the know-how (Profitz, 2013). The software is physically located in the service provider's premises and provides only the tools and interface for the customer so the managing the software is insufficient (Salo, 2012).

3.4   Reporting

Importance of reporting is increasing in organizations and they are developing their manage-
ment reporting and forecasting processes due to the prolonged uncertain financial situation
and organizational changes (Lahti & Salminen, 2014). The financial managers think that the
most important financial reports are profitability and forecasting (Lahti & Salminen, 2014).

There are two types of financial reporting; management and financial reporting. Financial re-
ports are attained from accounting software. Management reports present data from the ac-
counting software, ERP system and from other operative system (Lahti & Salminen, 2014).

Management reporting can be categorized to three types: financial reporting, corporate/en-
terprise performance management reporting and business intelligence and analytics (Lahti &
Salminen, 2014). Reporting technology offers different solutions to support each of the cate-
gory. Good management reporting is strategy-driven, supports the business and implementing
the strategy and helps with estimates (Lahti & Salminen, 2014)

Reports on different processes in an organization are needed when more detailed information
is wanted on a process, such as amounts, volumes or status of the process or process summar-
ies (Lahti & Salminen, 2014). When developing the process, the reports and statistics are rele-
vant in order to gain better overview on the process. Different processes reports in an organi-
zation may include for example project management reports, purchase invoice reports, pur-
chase ledger reports, sales invoice reports, accounts receivable reports and travel and ex-
pense reports.

Project management reports may include project profit, expenses and profitability and com-
parison on used working time and resourced working time. Purchase invoice reports may in-
clude for example the amount on received purchase invoices, purchase invoices for a cost
center or a project and how much is purchased from one supplier. Sales invoice reports may
be for example sales per client, sales per seller or sales per country. (Lahti & Salminen, 2014)

ERP systems are intended to help reporting in an organization but business analyst and finan-
cial department of a company might have problems with creating reports in an ERP system
(Riddick, 2014.) Attaining the right information from a system may be complex so instead or-
ganizations use spreadsheet to create those reports. This means coping and pasting infor-
mation which is time consuming. The same time could be used to process and analyze the in-
formation.

Microsoft Excel spreadsheet is the most used business productivity tool in the world; it has
many advantages, such as lower training cost for an organization because it is a well-known

business tool, it supports collaboration in a general format and it is responsive to different sources and it is easy to use with other systems (Riddick, 2014).

Microsoft Excel also has disadvantages if used as a data storage. This leads to overlapping information and disconnected data since the spreadsheets do not communicate with each other (Riddick, 2014). ERP system is used to eliminate these data replication and enhance data flow within an organization. In companies, collecting information from ERP to spreadsheets in individual departments is common. In these situations, the management of an organization is dependent on the spreadsheet data that is not "managed, controlled, validated, or secured" (Riddick, 2014).

In the recent years, reporting software and solutions have developed considerably (Lahti & Salminen, 2014). One of the trends in reporting software development has been integration and reporting coverage. Better reporting coverage means that one reporting solution can be used for different reporting needs. The traditional reporting solutions have been separated and developed for different reports. In the traditional reporting solutions, forecasting, budgeting, group reporting and cash flow reports have had their own separate software applications. In the newer software solutions, some of the different reports are integrated into one solution. (Lahti & Salminen, 2014)

The second trend in technology development has been the infrastructure of reporting solution software (Lahti & Salminen, 2014). Traditionally, data warehouse has had the center role in the infrastructure. In the late 2000's, memory based reporting solutions have increased. These solutions do not need data warehouse and they can organize the all data.

The third trend in technology is enhancing user experience design in the reporting software (Lahti & Salminen, 2014). The reporting tools and exploiting the data is developed to be more convenient. Reports and the graphics are easier to interpret. Graphics and metrics are clearer and compared for example to forecasts and the differences to last period can be emphasized. In addition, the information can be attained also on smart phones instead of just on computer (Lahti & Salminen, 2014).

4   Methodology

The aim is to develop and enhance processes of the commissioner company. The development is done by comparing the ERP system processes with other companies in the industry with different ERP systems. Benchmark research method was exploited for this purpose.

Benchmarking was conducted by interviewing the selected organizations. The interviews were done as structured interview. Analyzing the data was done by thematic analysis.

4.1 Benchmarking

Benchmarking is a research method where the best practices in the industry are compared to one's own business processes. The method is a good way to develop new ideas to improve processes and learn from others. The aim of benchmarking is to understand the competitors' business situation and compare them to own operations and learn from the findings. Benchmarking can be used to compare strategic choices, products, services or processes. Benchmarking is researching, observing, comparing, evaluating and interest for other organizations' procedures (Tuulaniemi, 2011).

Benchmarking helps to identify both good procedures of others that can be exploited and mistakes which can be avoided. In addition, benchmarking may help the company to identify already existing good processes within the organization. Knowing and recognizing competitors' processes is smart and it can help the company to make strategic decisions to promote competitive advantage. Researching successful businesses should be done in order to exploit them in own processes (Tuulaniemi, 2011).

Before conducting the benchmarking, thorough background research within the organization should be done to recognize the process to be developed. Benchmarking is a good research tool for processes that can be clearly defined. When the process is identified, a successful companies, where the defined process works better, is selected for the benchmark. After the selection, the data is collected by visiting the organization and searching for information available on internet (Ojasalo, 2014).

Analyzing the data from benchmarking should be done creatively but critically at the same time to be able to implement it into one's own business models. It is important to identify the ideas that can be implement as such, what is possible to customize to own processes and what can be learnt but cannot necessarily be adapted. However, some good procedures found from the benchmark cannot be exploited in one's own business because of the differences in organization culture (Ojasalo, 2014).

Internet can be exploited to gather basic data for the background. On site and face-to-face meetings may give information that would not otherwise be attained. It is important to remember behave businesslike to avoid stained reputation and complicate business (Tuulaniemi, 2011).

4.2   Interview

Research methods should be selected according to the topic of the research. Interviews differ from questionnaires by answering different purposes. Questionnaires are for large data gathering and interviews are for deeper understanding of a topic. There are three main features of an interview which are that the questions are open, interviewer can ask clarifying questions from a respondent and the interviewer has structured the interview. (Gillham, 2005).

Interviews can be done face-to-face method or as distance interviewing via email or phone. Distance interviewing is usually conducted in a situation where the resources are limited, such as limited time or accessibility for the interview to take place face-to-face (Gillham, 2005).

Respondents are usually hesitant to answer personal questions in emails, and therefore there might be lack of in-depth answers on the part of the respondent. In a situation where the topic is not personal, giving answers to a person who the respondent has never seen or has acknowledge of might create trust issues. In these cases, follow-up after face-to-face interview could be done by emails (Gillham, 2005).

Trustworthiness refers to the quality of qualitative research and that the analysis, observations and interpretations, is a result of a systematic and consistent process and the analysis can be trusted (Lincoln & Guba, 2013). There are four criteria for trustworthiness that should be met. Generalization is not the aim in interpretive research but the possibility to apply the results; the results of the research can be adjusted and transferred to other research contexts by providing detailed description of the context of the research.

Another criteria for trustworthiness is truthfulness. This can be determined, for example, by triangulation, using multiple sources which indicate the same results, adequate time to familiarized with the researched and peer opposing (Lincoln & Guba, 2013). Conformability means that the results are consistent with other sources.

Credibility refers to the objectiveness of the researcher even though the subjectivity is strongly present. The data should be looked at critically to recognize subjective views. To increase trustworthiness, the hypothesis and prejudices are stated and the research process is described clearly. The research study is explained in detail with theoretical background and the steps taken in the research. (Lincoln & Guba, 2013).

The topic development is important. The research question should be clear and focused to be able to identify relevant topics. Before developing questions, the researcher should conduct a critical literature review to avoid asking questions that are already known. The questions of a

research should be arranged so that the repeated questions are eliminated, related questions are arranged under same topic and the sequencing is clear (Gillham, 2005).

Analyzing of the data is done as thematic analysis (Saunders et al., 2016). Thematic analysis is often used when analyzing qualitative research. Saunders describes approach of thematic analysis as "systematic yet flexible and accessible" way to analyze qualitative data.

Thematic analysis is quite straightforward and easy tool to analyze qualitative data compared to other analyzing techniques. Thematic analysis process consists of four steps; familiarizing with the data, coding the data, looking for themes and relationships within the data, process themes and testing suggestions (Saunders et al., 2016).

Familiarizing with the data is ongoing process in thematic analysis; the data is read many times to be able to define repeating themes and patterns in the data (Saunders et al., 2016). Coding the data means making the interesting and meaningful data available for analysis. Qualitative data is often large and complex which is why it is important to code the data to more comprehendible format (Saunders et al., 2016). These steps are attained when the interview answers are written out in the results section.

Looking for themes and relationships within the data is the process of finding reoccurring themes from the coded data. However, the coded data should not be too detailed so that the analysis would not be too broad and include unnecessary data to be analyze (Saunders et al., 2016). The connecting of the data is done in the analysis section.

It is important to remember the research question and the objectives of the research when analyzing the data. The analysis is guided by the question and the goals and the data collected to be analyzed should focus on them (Saunders et al., 2016).

Processing themes and testing suggestions is a process where themes are reorganized. The themes should format a coherent outcome to be able to have organized framework for the analysis (Saunders et al., 2016). The emerged suggestions should be reconsidered to find other explanations for the phenomenon. By this process, a valid conclusion can be reached and all of the possible explanations are looked thoroughly. The testing of the suggestions is done in the recommendations section where the themes are reorganized to be suited into the commissioner's needs.

The data should be look at impartially even though while conducting the interview, the analysis is already starting to form (Gillham, 2005). The researcher's assumptions and interpretations affect the outcome of the analysis and one should be aware of it.

The written results are the paraphrasing of the interview and words used in it are selected and interpreted from the words of the interviewee (Gillham, 2005). Because of the summarizing, the context may change of what was said in the interview. In addition, the interviewer's interpretation of the words may be different of what was actually meant.

5   Research results

The results from the interviews with the commissioner, Company X, Competitor X and Competitor Y is states in this section. Company X's Chief Financial Officer was interviewed in order to attain the current situation of the ERP system and the processes. Competitor X's Chief Financial Officer and the Group Chief Financial Officer was interviewed and Competitor Y's Chief Financial Officer.

5.1   Implementation

Competitor X and Competitor Y were selected to be benchmarked. The competitors are successful advertising agencies, they are ones of the biggest advertising agencies in Finland, and they use different ERP systems than the commissioner. Competitor X is a group with subsidiaries in Finland and Sweden and Competitor Y is part of international group with subsidiaries in Europe.

Benchmarking was selected for the methodology since it enables the identification of how the successful companies use their ERP systems. The interviews will clarify what ERP systems other companies use in the industry and what features and reports they exploit within the system.

The benchmark was done by interviewing. The interviewees were approached by email and asked for a face-to-face interview. The main interview respondents targeted were financial managers and employees.

The results cannot be generalized for the whole industry in Finland due to small sample but also because the organizational structure and strategies are different in different organizations. The benchmark aims to develop ideas for the commissioner to enhance the ERP system and processes in the company.

The questions of the interview concern the ERP systems and other software in use, reporting and how content the company and the company's personnel have been with the current system. The goal of the research is to find out what strengths and problems the systems have and if the overall performance of the systems work for the company. In addition, there are questions concerning implementation and the problems concerning it.

The structured interview questions were divided into six main questions with more detailed follow-up questions to attain more detailed information on the subject. The first questions were aimed to clarify the background of the system in use from the company's point of view. The basic questions were concerning the ERP system in use and how long they have been using it. These questions were also asked to determine if the system was especially designed for the industry.

Because of the complexity and challenging process of implementing an ERP system, the question on the successfulness of the process was asked and the challenges concerning it. Because ERP systems contain both advantages and disadvantages, questions concerning these were asked to get an overview on the ERP system in use in the benchmarked company.

The second main question was concerning the most important features of the system and how the system was exploited in the company. Because of the importance of reporting, the main reports and how often the reports were monitored was asked to understand the process.

The third question concerns the other software used with the ERP system and how the data transfer is organized between the two systems. The question is aimed to establish the data synchronizing and how much there are manual work included with the data transfer.

The fourth question was aimed to establish the overall satisfaction and arouse conversation how it has or has not met the defined goals. This was to understand how suitable the system is for the company and for the industry. The question was also aimed to establish the personnel's satisfaction with the system.

The fifth question concerns data update in the system. The ERP system was invented for better information flow through an organization which is why the fifth question concerned updating data to the system. To be able to fully exploit the system, the information needs to be updated as soon as possible. The information flow is better when the data is updated often. The question also aims to understand how the personnel is using the ERP system and how they update the data to the system.

The last question was about previous ERP systems and if the company had changed systems before and how long they had used the previous system. This was asked to understand why the system was changed and how the change was deployed. In addition, it was asked if the company had thought about changing the system and if so, what would be the main reasons to do so.

5.2   Interview with Competitor X

Competitor X is an advertising agency in Helsinki. It has subsidiaries of which one is in Stockholm. The Chief Financial Officer and the Group Chief Financial Officer was interviewed for the thesis.

Competitor X uses ERP system called Traffic Live which is software as a service by American company Deltek. The company has used Traffic Live since the beginning of the year 2016. The company had a short trial period for the system in the fall 2015 but there was not enough resources to have full overview on the system.

The biggest challenge with implementing the new system was the changes in internal procedures. There was internal resistance to change. The personnel was hesitant with adapting to the new system and there was need for training and increase the know-how. In addition, another challenge was to see how the new ERP system would work in multiple unit company structure.

The main advantages of Traffic Live are that it is designed for advertising agencies. The system has very good resourcing features and tools for project management. Furthermore, recording working time to time sheet is more detailed.

The main disadvantages of the system are the customer relations management is not advanced. Compared to their previous ERP system, Visma Severa, the reporting tools for financial reports is not as good. In addition, the aggregate reports are quite complex.

The fact that Traffic Live is a foreign software also has some disadvantages compared to Finnish software. Finland has advanced electronical financial services which may cause a problem for foreign software. Furthermore, the system provider helped with the implementation but afterwards the support has been almost non-existing.

The most important features that the company uses in the system are project management, invoicing and travel expense invoicing. The customer relations management is not used as

much because of the lacks of the feature. The system is integrated to the company's accounting software, which enables the invoicing through the system. The purchasing invoices need to have their purchase order number on the invoice so that it can be added to the right project. This has caused challenges if the number has not been included.

The main reports from the system are project profitability, utilization rate, resourcing, working hours per a client and billability. The reporting is done once a month with invoicing.

Checking and fixing the system works as wanted is done at the same time with reporting and invoicing. This causes challenges with enhancing the system because of the lack of time. For example, the integration with company's accounting software and invoicing, especially internal invoicing, has had problems which had to me fixed manually. Invoicing is done by the project managers.

The other systems used by the company are accounting software and a reporting software. The ERP systems gives hard data that is inserted to the reporting system. The integration has not been effortless with the systems. The new ERP system was not selected because of the good integration with other systems in the company.

The system supports different currencies. The unit in Sweden has had its own, separate ERP system before but it will be integrated to Traffic Live in the end of 2016 or in the beginning of 2017.

The overall satisfaction to the system has been good. The system is used as a management tool. The reason to change the ERP system was to increase personnel's activity in the system and gain efficiency. The main challenge has been the integration with other systems. At the moment, the system meets the needs of the company.

The personnel has been more active with its time sheet and project entries after the change. Some of the personnel records their hour by the end of the day or once a week, some do it at the end of the month before invoicing. The sales and purchases for projects are added as they come in.

The previous ERP system used by the company was Visma Severa, for five years. Before Visma Severa, the company used Project Cast. Visma Severa is more traditional ERP system compared to the new system. Visma Severa suits well for Finnish companies.

The advantages of Visma Severa were project follow-up reports and it was easier to use. In addition, from financial perspective, the reports were better. The disadvantages compared to

Traffic Live were rigid time sheet and project management. The system was difficult to customize for the company's needs since the software development was slow.

The main reason to change the systems was to change the way of working. The problem with the system was that it was not fully utilized which lead to change the ERP system. The change was more of an organizational change to gain efficiency and activate personnel to insert and upload data to the system.

5.3   Interview with Competitor Y

Competitor Y is a part of a global advertising agency chain, office located in Helsinki. It is very successful agency which has increased its operations and profit annually and has over 100 employees in Finland. The Chief Finance Officer of the company was interviewed for the thesis.

Competitor Y uses Visma Severa as its ERP system and it has been using it for two years. The system was selected because of the integration possibilities with its accounting software, Netvisor. The advantages according to the Chief Financial Officer are integrated accounting software, fast development of the software by the provider and the support from the provider in case needed. In addition, the software is easy to use, modern looking and the training time for new employees is short and overall satisfaction of the personnel has been good towards the system.

The disadvantages of the software are resourcing tools and reporting has not developed as expected and it is an ongoing process. The resourcing feature in the software is inadequate and has been complained by the personnel.

The key features used in the system are project management, resourcing, time sheet and invoicing. The invoicing and deferral are done through the accounting software. The integration has decreased manual work, for example, purchase invoices are automatically updated to the ERP system.

The most important reports from the ERP system are project profitability, client profitability, utilization rate, billability and working time monitoring. The Competitor Y uses Excel 365 for reporting, where the report formulas are built. The Excel 365 is in cloud which enables the modification by multiple users at the same time. The information is available in real time which enhances the information flow. The time sheet is closed each week and all of the weekly hours need to me recorded to the time sheet before that. The information in the ERP system is updated daily, integrated information is available in real time.

The system was changed from ERP system by AtTask. AtTask is an American company but it has a European unit in Great Britain. AtTask, currently known as Workfront, is provider of SaaS platform based work management system (Workfront, n.d.). Competitor Y used AtTask for five years and it was changed because the company wanted to integrate their accounting software with the ERP system which was not possible with AtTask. In addition, the previous system was foreign software and the support was abroad; the development of the software for the company's needs was slow.

The Competitor Y's overall satisfaction with Visma Severa is good and it has not thought about changing the system to another. The company has considered changing the ERP systems used in other offices in Europe to integrate process on the group level. Integrating all of the systems is difficult because of the integration to accounting software; each country has juridical requirements for accounting.

5.4   Analysis

The analysis was done by thematic analysis. The analysis cannot be generalized for the whole industry due to a small sample but it may suggest new ideas. The analysis is based on theoretical background and the benchmark.

The discovered themes from the both interviews were overall requirements for an ERP system, changing and implementing an ERP system, the difference between domestic and foreign provider of an ERP, reports and personnel of the company.

Theme	Description
ERP	Developed for an advertising industry
	SaaS
	Easy to use
	Unit model in a company is problematic
Changing ERP system	To improve process (Personnel's activity, integration)
	Lifecycle about five years
	Every ERP system has shortcomings
Implementation	Support from the provider
	SaaS implementation is fast, adjusting takes time
Domestic vs. Foreign	Domestic provider: faster development, support available, domestic market knowledge, may lack features in global scale

	Foreign provider: Global market knowledge, support unavailable
Personnel	Multiple finance employees: implementation project Active personnel: data updating on weekly basis
Reports	project profitability, utilization rate, billability Separate reporting software; manual work Elimination of repeated files: Excel 360, reporting software Accounting reports from the accounting software, project follow-up from the ERP system

Table 2. Thematic analysis of the interviews

Overall requirements for the ERP system were that the system was specifically created for the advertising agency. Both TrafficLive and Visma Severa, which are currently in use by the interviewed competitors, are specialized to agencies. The system providers have many customers from the industry which increases the knowledge of the requirements and needs of an agency for its ERP system.

Cloud computing is preferred in the advertising industry. Both competitors use cloud computing ERP systems. The SaaS based system is upgraded regularly and developed continuously by the provider. The development of an ERP system is more rapid when multiple organizations request the certain improvement. The preferring to SaaS based system may be due to creative working environment where the data needs to be available everywhere and on any device. In addition, software as a service based system is usually lighter alternative to more traditional on-premises systems. The initial cost is lower in the SaaS based systems which lowers the risks of acquiring an ERP system.

The initial implementation process is rapid with SaaS software because of the system is more simple and lighter than a traditional ERP system. However, the fixing and retailing of the SaaS software can be time consuming. In both of the interviews, the competitors told that process is ongoing and requires time. The support from the provider for modifying the system for company's needs can be difficult to attain after the implementation process. Fixing of the system can take time especially if the provider is foreign.

The ERP systems used in advertising agencies are quite simple with fewer functions needed and easier to use compared to manufacturing companies. In the interviewed companies, the ERP system was seen as quite easy to use even though there were some need for employee training and adjusting in the new system at the beginning. The systems include less features than traditional systems due to a lack of manufacturing and supply-chain features. The most

important feature required by an advertising industry is the project management tools which include resourcing and time sheet tools. Customer relation management tools are not seen as relevant as the project management tools.

Finding the right ERP system for a company that has a group unit structure is seen as a challenge because, at the moment, the ERP systems used by advertising agencies do not support the multiunit structure. Unified ERP system with company's subsidiaries would increase information flow and efficiency as stated in the theoretical background. The different juridical aspects for accounting sets challenges for unifying systems throughout the company.

Changing the ERP systems is easier with SaaS based ERP system since the software is not bought and there is no hardware to be installed on premises. In addition, the initial cost for new SaaS based ERP is less expensive. Because of the lower investments and shorter implementation process, even a minor dissatisfaction towards an ERP system may cause to changing the systems. In the interviewed companies, the previous systems were in use for about five years which is quite short time compared to on premises ERP systems.

The objective for changing an ERP system to another is to gain efficiency. In the benchmarked companies, the reasons to change systems were to integrate other systems with the ERP system or to change the process of working. The aims in changing the systems according to the benchmarked companies were to increase the activity of personnel and changing the working habits with the system or to integrate other systems, such as accounting software, to the ERP system. According to the interview with Competitor X, it was said that the previous system had better reporting tools compared to the new one and that the all of the EPR systems have their own strengths. All of the ERP systems have features that are lacking and do not serve the company's needs. The best ERP system serves the overall requirements of a company and increases the productivity.

ERP system can be bought either from domestic or foreign software provider. In both benchmarked companies the companies had experience with both domestic and foreign software providers and had noticed differences between them. The domestic software provider has the advantage of fast development and available support as needed. In addition, domestic software provider is familiar with the market in Finland and can develop the system accordingly. Large, foreign providers may not be as interested in an individual organization abroad as smaller, domestic providers to improve and develop the system for a small customer. Integration with Finnish software can be also more difficult with foreign software.

Personnel is the key factor in exploiting an ERP system according to the Competitor X and the theoretical background. Even if the system is easy to use, it does not guarantee that the system is used to its full potential. The personnel should be trained from the beginning to record the documents properly to the system and use it correctly. The ERP system can be used as administrative tool for monitoring resources and modifying how personnel behaves when using the ERP system. Changing the manner of doing work usually causes resistance in personnel and should be considered when changing the system or introducing a new way of exploiting it.

In the benchmarked companies, the financial department was in charge of the ERP system and lead projects to enhance it. In addition, in the theoretical background it was stated that usually the financial department is in charge of fixing and developing the system. According to the theory, the knowledge of the company's ERP system should be shared within the organization and support should be given by other departments as needed in order to fully exploit the ERP system.

The most important reports from the ERP system in advertising agencies, according to the benchmarks, are project profitability, utilization rate and billability. Aforementioned reports require the information of time sheet entries which emphasizes the responsibility of personnel to record the working time properly. The financial reports are generated from the accounting software and the project reports from the ERP system.

The reports straight from the ERP system are not used as such as discover from the interviews. The data for the reports are transported from the ERP system and transferred either to a separate reporting software or to Excel 365, both promoting information flow since the reports are available on real time to anyone with credentials to the applications. The ERP systems are lacking in reporting and need manual work to generate credible information.

6   Recommendations

The suggestions are based on the theoretical background, the interviews with Competitor X and Y and the research analysis. The theoretical background and research are evaluated and compared to the current situation in Company X.

The problem with the current ERP system is that the purchasing of the system was not thoroughly planned since the system was acquired in 2010 but only started to use it in 2012. The implementation process and the objectives for purchasing the system were potentially vague.

The current problem with the ERP system is that the data is not recorded to the system but the work is done manually, such as adding the sales and purchases to the project. In addition,

the personnel has limited training to the system. A handbook for using the ERP system should be done, which would include detailed instructions how to use the system in general and how to create a project and how and when to update the data in the system. The handbook should be updated regularly. The handbook should be available for all of the personnel and it could be used in orientation.

The projects are at the moment created for only time sheet entries and resourcing. The price for an employee hourly cost is inserted to the system which then automatically calculates the estimated cost for the project according to the employee working hours. Time sheet entries calculate the actual cost for the project according to the working hours. The problem is the activity of personnel to enter the actual project hours. The hours might be entered a month after the occurrence or might not be added at all. This leads to unreliable reports.

To improve this, the hours should be tracked on weekly basis and to remind those who have not entered the hours. The time sheet could be closed weekly and no flexi hours could be available for the employee if the hours are not added to the system in the given time. The overtime hours and negative hours should be reconciled in a month period and should not increase above ten hours.

The time sheet entries have the feature to add description on the working hours. Currently, the description is not used. Using the description would be beneficial for the company's managers as well as for the customers to know what has been done with the recorded working hours.

Not all of the data and documents are recorded to the ERP system which decreases the information flow. To improve the information flow, the documents related to the project, such as purchase orders and timetable for invoicing should be attached to the project documents. When all of the documents are in the system, the information is available for everyone interested and personnel has knowledge of what has been negotiated if, for example, the project manager is on vacation.

All the sales opportunities should be updated to the ERP system and estimate the profit for the opportunity. As the opportunity moves to next stage of sales funnel, the stage should be updated to the system. When the project for the opportunity has been created, the project should be linked to opportunity to be able to monitor the process. The statistics concerning the budgeted and realized profit should be made to be able to better negotiate more profitable and realistic sales orders according to the actual cost of the work.

Reporting could be improved by creating user groups by company and by position to monitor the utilization rate by position and billability by company. The costs for a project should be in line with the profit from the project so that costs are activated when the profit is made. By reporting, the collection of receivables could be improved when the overview of the receivables is more enhanced. The reminding of unpaid payments should be active to be able to receive the payments and being able to pay the payables on time to avoid reminding fees.

At the moment, the ERP system in the Company X is under used project wise, for example, the costs and sales are not entered to projects which would improve the following-up process and the information would be available for everyone. All of the purchase invoices related to the project, such as subcontracting and material expenses, should be added as a cost to the project in the ERP system and attach the copy of the invoice.

The challenge is that the accounting system is not integrated with the ERP system but instead the data should be manually transferred to the ERP system. This requires manual work and increases the risk of incorrect data.

Because Company X does not have integrated invoicing in the ERP system, the invoicing might be lacking because of the lack of information flow between project managers and the person who does the invoicing. For example, in the benchmarked companies, the invoicing is done by the project managers who know the best what to invoice and when the invoicing should be done. Integration between ERP system and accounting software decreases the manual work when the sales are updated automatically.

Competitor X had improved the personnel's activity with the system by changing to another ERP system. The new ERP system introduced a new way of working and exploiting the system and activating personnel. Even though the change to a new system has faced resistance from the personnel, changing the system has been seen positively by the management. By changing the systems, the Competitors X and Y have improved efficiency even though the previous systems have rather same features as in the new systems.

Changing the system does not automatically fix the problems since the basic idea and structure of ERP systems are similar with few differences. The objectives for a new system need to be clearly stated and an implementation plan should be made to successfully conduct the project.

The initial investment of a new SaaS system is lower than a traditional one, which makes it easier to change the system. However, changing an ERP system is always time and money

consuming project because of the research of possible ERP systems, deciding of the new system, piloting the system, implementing, data transfer from the old system, training the personnel and adjusting of a new system.

The advantages of changing the system is that the system might be better suited to the company's needs if the selection criteria are defined well enough. The personnel needs to be engaged and trained to the new system adequately to meet the set targets.

Company X should change the ERP system since the satisfaction with Valueframe is low and changing the ERP system would help with activating personnel to record data. Selecting a domestic supplier might be a decent choice because of the support would be available if needed and adjusting the software later on might be easier.

When changing EPR systems, the provider of the system and the technology should be taken into consideration. Since the system is purchased for several years, the provider should be stable and profitable. The technology should not be outdated but advanced in the time of purchase since the implementation process is time consuming and might take a year before the system is fully in use.

7 Conclusion

The objective for this thesis was to identify the current problems with the current ERP system and to improve and enhance ERP system processes to gain efficiency by decreasing manual work and improving the utilization rate of the ERP system in advertising industry. Based on the theory and the research, the thesis introduces solutions to better exploit the ERP system and considers if changing ERP systems could help to reach the introduced solutions. The Company X was interviewed in order to define the current situation in the company and the satisfaction level towards the ERP system. In addition, observation was used to determine the lacking processes.

The thesis was based on the theoretical background of ERP systems in general and SaaS based system. The research was done by benchmarking successful and global competitors in advertising industry. Using the benchmarking as the research method allowed to find the ways of how the competitors exploit ERP system and what they find important in an ERP system. The challenge with the interviews were that the interview candidates were not interested in answering nor had time. This was an issue when gathering the results.

The results cannot be generalized for the whole industry in Finland due to small sample but also because the organizational structure and strategies are different in different organizations. The benchmark aimed to develop ideas for the commissioner to enhance the ERP system and processes in the company and to identify successful business processes and compared them with the commissioner's processes.

ERP system is aimed to increase the efficiency of a company and centralized the data. Manual work decreases when the repeated processes are eliminated. In addition, the ERP system enhances information flow throughout the organization. SaaS based ERP system is available online and does not need installed hardware. The initial cost of SaaS ERP system is lower but the monthly fees may increase the costs to be more than in a traditional ERP in the long term.

The problems in the Company X's ERP system are that the software is rigid and the level of exploiting of the system is low. The data is not recorded into the system by the personnel which distorts reporting and analysis. Following-up the projects is challenging and requires manual work which should decrease when using an ERP system.

The initial problem with the current ERP system has been the implementation process. The implementation process was not done properly and even the purchasing of the system was not thoroughly planned. The system was purchased in 2010 but it was only started to use in 2012. The process of purchasing an ERP system requires thorough planning and defining of the objectives for the system. The implementation process was lacking the resources and the clear objectives.

In order to achieve efficiency through an ERP system, the working behavior with the system should be changed. This changed could be achieved by changing ERP systems by implementing the new ERP system properly and training and involving the employees to the system and creating an instruction manual for the ERP system. It is essential that the objectives for the new system are clearly stated. In all ERP software, some of the functionalities can be rigid and some functions work better in another EPR systems. This means that changing the system might not be the best solution if the research and planning and determining of what is required from the ERP system is not properly done.

7.1   Trustworthiness

Trustworthiness refers to the quality of qualitative research and that the analysis, observations and interpretations, is a result of a systematic and consistent process. The aspects of trustworthiness are application of results, truthfulness, conformability and credibility.

The results of this thesis can be applied to other research context. Even though the results cannot be generalized, they can be applied not only to advertising industry but in a broader context, the results concerning ERP systems can be adjusted to any industry. Personnel is the key factor to establish the success of an ERP system in any company and if the personnel is not motivated to learn or use the system, the system cannot be exploited efficiently. In addition, the difference between domestic and foreign ERP system supplier is applicable in any industry as well as the compromises when changing systems.

The truthfulness can be determined with using multiple sources that have the same results. Multiple sources were used to gather the theoretical background with recently published literature and online sources. All of the theoretical sources indicate the same results.

Conformability was met by using multiple sources to determine the consistency of the results. The results from the research correspond the results of theory and the interviews were not in conflict with each other.

The credibility is determined by explaining the steps of the research, the theoretical background is stated, explanation of how the research was conducted, what was the method of the research, what was the aim and the interviews were written out in the results part of the thesis and then analyzed reflecting on to the theory. The thesis is structured systematically to be able to follow the steps and understand how the results were concluded.

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Tables

Table 1: Interview questions p. 19-20

1. *What ERP system do you use?*
   a. *How long have you used it?*
   b. *How was the implementation process?*
   c. *Strengths and weaknesses?*
2. *What features do you use in the system?*
   a. *Reports and follow-up?*
3. *Do you use other software? Which software?*
   a. *Challenges with synchronizing*
4. *Have you been satisfied with the system?*
   a. *What does the personnel think about the system?*
5. *How often do you update the data?*
   a. *Has there been problems with the personnel?*
6. *Have you changed ERP systems? Was it successful?*
   a. *Have you thought about changing the current system?*
   b. *Have you used other ERP systems? How did you like it/them compared to the current system?*

Table 2: Thematic analysis

Theme	Description
ERP	Developed for an advertising industry
	SaaS
	Easy to use
	Unit model in a company is problematic
Changing ERP system	To improve process (Personnel's activity, integration)
	Lifecycle about five years
	Every ERP system has shortcomings
Implementation	Support from the provider
	SaaS implementation is fast, adjusting takes time
Domestic vs. Foreign	Domestic provider: faster development, support available, domestic market knowledge, may lack features in global scale
	Foreign provider: Global market knowledge, support unavailable
Personnel	Multiple finance employees: implementation project
	Active personnel: data updating on weekly basis
Reports	project profitability, utilization rate, billability
	Separate reporting software; manual work
	Elimination of repeated files: Excel 360, reporting software
	Accounting reports from the accounting software, project follow-up from the ERP system