Implementation of the enterprise system in a family-sized retail enterprise

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The primary purpose of this thesis was to select an appropriate enterprise system for a small local chain of stores that is managed by one family. Besides, recommendations concerning the deployment of the chosen system were planned to be provided. The system was selected, and advice on its implementation was given based on applied theories and the results of primary and secondary research.

The author applied different techniques for data collection. Face-to-face interviews were used to collect information about the owner's preferences for the enterprise system to be selected and deployed. Employees were asked different questions that were aimed to identify gaps and imperfections in the company's business processes that could be corrected with the help of the implemented enterprise system. Desktop studies were used to review existing ERP systems for small-sized retail companies. The collected data was analysed by content analysis technique.

During the research process, it has become clear that a cloud-based system is the most optimal solution for small-sized retail companies. Thus, only such ERP system was considered in the further research steps. The system was chosen by using predefined criteria. Retailcloud was identified as the best choice out of the reviewed cloud-based ERP systems for the very small-sized retail enterprise. The required actions for its installation were outlined in the report. Recommendations for the next implementation steps such as customisation, data transfer, training, testing, and going live, were provided as well.

The research showed that the implementation of an enterprise system is possible even in tiny companies. Moreover, it demonstrated that this process requires thorough planning of each phase to make the adoption successful and less pricey.

Keywords
Retail, enterprise resource planning, cloud-based ERP, ERP implementation, small-sized business

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1   Introduction

The primary purpose of the given chapter is to provide any reader with a basic idea of what this research is all about. Firstly, the background of the thesis subject is presented. Research questions, key concepts and case company are also outlined below. In addition, limitations and international aspect of the thesis are clarified to indicate the scope of the given research and prove that it fulfils all the requirements set by the school concerning internationality.

1.1   Background

Nowadays it is hard to imagine doing business without the use of any technological devices. Historically, the utilisation of enterprise systems was a prerequisite for the large firms. The situation has changed over time; the technology has made some incredible shifts in its development. And these days enterprise systems are widely acknowledged among organizations of different sizes. The huge assortment of such solutions, the possibility to adapt the chosen system to the company's needs, plus the perspectives of cost savings make them quite attractive to entrepreneurs, who want to optimise various business processes that flow in their companies.

The present research paper aims to find an appropriate enterprise system and give advice on how to apply it in the company X. The commissioned company is a micro-sized enterprise. But even such small companies are required not to lag behind and implement the latest IT developments that promise to ease daily operations of any company.

The areas that are in need of improvements can sometimes be hard to identify. However, there are cases when apparent gaps do not lie beneath the surface and are in sight of not only management personnel but also the less experienced staff. The prerequisite for the research was author's own work experience in the family business which was presented by two souvenir stores at that time, three years ago. The business has grown since that time, and nowadays the entrepreneur owns four stores and still has ambitions for expansion of his business. Taking into account that the business is run by one family, it is growing at a good pace. Nevertheless, widening business requires more control. Modern IT solutions can partly ensure this control. The variety of programs that are available in the market is tremendous. Therefore, the thorough review of assortment is more than advisable. Choosing a right system is only one part of the project. It is also essential to provide recommendations for system installation to ensure that implementation of the system goes smoothly. These are exactly the matters of concern for the given research work.

The singularity of this research work consists in the fact that implementation plan will be made for a small-sized family enterprise. Numerous academic works develop such plans for larger companies. However, the author firmly believes that differences between various types of enterprises influence the implementation process content. Therefore, guidelines that are to be presented in the thesis might be useful for small enterprises, in spite of the fact that conclusions will be made from information, which is received from the representatives of company X and desktop studies.

The research will also benefit the company in its ambitions for development. It will facilitate the professional growth of the researcher, improves her analytical thinking skills and give a sound basis for further studies at more advanced level. It will allow gaining more expertise on the research topic. Moreover, thesis work enables to apply knowledge and skills, which were obtained during 3 years of studies at the bachelor level, in practice.

1.2 Research Question

The main goal of the given research is to improve company's operations by making it organised through the installation and implementation of wisely selected efficient and cost-effective enterprise system solution for a micro-sized family company. Hence, the main research question for this study can be formulated as "How to implement an enterprise system solution in Company X?"

To find an answer to the research question, which is stated above, the researcher will attempt to answer to supportive investigative questions, which are as follows:

IQ 1: What are the current obstacles that are related to the absence of the enterprise system?
IQ 2: What program is the most suitable for the company in question?
IQ 3: How to conduct the installation process of the chosen program?
IQ 4: What is essential for the effective implementation of the solution?

Overlay matrix that is represented below systemizes the research conduction process and visualise the connection between theoretical and empirical analysis.

Table 1. Overlay matrix (Chumakova 2018.)

Investigative question	Theoretical Framework	Research Methods	Results (chapter)
IQ 1. What are the current obstacles that are related to the absence of the enterprise system?		Interview with the owner and employees	4.1
IQ 2. What program is the most suitable for the company in question?	Review of different types of enterprise systems and selection methods	Desktop study + interview with the employees	4.2
IQ 3. How to conduct the installation process of the chosen program?	Theoretical aspects of installation process (which is a part of implementation theory)	Desktop study	4.3
IQ 4. What is essential for the effective enterprise system implementation?	Enterprise system implementation theory	Desktop study	4.4

1.3 Demarcation

The given research-based thesis is focused on finding the appropriate enterprise system and modules to be included in this system. In addition, recommendations concerning installation and implementation of the program will be provided. These are the only points of interest in this research. All the findings are valid only for the case company as they are formed from company's characteristics.

1.4 International aspect

Despite the fact that research is conducted for a small local chain of souvenir stores, the international aspect of this work cannot be questioned. One reason for that is the nature of the business itself. The core products that are sold in the chain are targeted mainly for tourists, who come to Helsinki from different parts of the world. Another reason is procurement of goods for resale, which is mostly held in cooperation with overseas suppliers.

As it was said above, this research work concentrates on enterprise systems and their use in SMEs. This type of software was introduced decades ago and has been in use in companies of different size and structures – from multinational giants to tiny local sole proprietorships. Hence, the subject of the research does not lack the international aspect.

As for the research process, theoretical base and secondary data are impossible to be gathered without the use of internationally acknowledged resources that are available in the university's library and e-databases. The research methods are also internationally well-known and used by scholars all over the world.

1.5 Benefits

The present thesis paper gives answers that are primarily mutually beneficial for the commissioned company and the author, who conducts a research for this company. However, other enterprises from the same field may use the results presented in the report as the last one is available entirely for any reader.

As long as the research aims at finding and implementing an enterprise system for the commissioned company, this company gets most of the gain from the results. Withal the owner of the company will not need to spend his precious time on investigating what program to choose and install and how it should be done. In the long run, the owner will hopefully get the increase in sales, better control over inventory, more order in accounting, etc.

Analytical thinking skills and competencies gained during the research conduction process are advantageous for the next educational step that is to be taken by the author. She also believes that the combination of theory and practical tools that are used in the research process will be useful in her professional future.

1.6 Key concepts

Micro-enterprise is a business that employs less than ten employees and has a turnover or balance sheet, which does not exceed a certain limit. This limit depends on the area where the enterprise operates. For instance, in the European Union, the threshold is set at 2 million Euros. (European Commission 2018.)

Business process is a chain of activities or tasks, implementation of which leads to a particular outcome (Magal & Word 2012, 4).

Enterprise system represents an integrated system for handling various business processes from their beginning to the end (Magal & Word 2012, 3). Business dictionary (2018) clarifies that it is a combination of both hardware and software that are applied by companies to manage their operations.

Enterprise (application) software is a universal concept which can be applied to any software, which is used by any organisation, such as businesses, government, various institutions, name it. The software includes business-oriented functions which are essential for operations management. (Technopedia 2018.)

Enterprise resource planning can be defined as a solution for business data processing. Such software facilitates the process of data handling for various business functions such as inventory management, procurement, accounting, human resource management, production planning, customer relationship management, etc. The solution can be seen as a database, which contains all the transactions that were entered into this system and handled in it. (Sumner 2014, 2.)

Cloud computing is seen as a combination of software and hardware. Cloud software is provided in the form of applications that are supplied to end-users as services through the web. Hardware is mainly located in data centres that provide these services to the end-users. (Armbrust, Fox, Griffith, Joseph, Katz, Konwinski, Lee, Patterson, Rabkin, Stoica & Zaharia 2010, 50.)

SaaS (Software as a Service) is cloud-based licensed software, which is held on the remote server and accessed mainly through the browser with login and password that are provided to each user. The companies purchase a right to use a service from the software provider. (Investopedia 2018.)

1.7   Case company

The research is conducted for a micro-size family business. The name of the company was decided to be kept unannounced in the given report. The enterprise was founded in 2007. However, for the first five years, the company was focused on wholesale. In 2012 the owner decided to switch to retail by opening the first souvenir store.

Currently, the owner manages four stores, which are located in the centre of Helsinki. However, there is still a potential for growth and ambitions for opening several stores with a similar range of merchandise. This small chain of stores specialises in the sale of souvenir products to the end-customer. Although, one of these shops also sells amber jewellery, which is well known a lot among Chinese customers.

There are six people employed in all four stores. Besides, family members of the entrepreneur help him to run the business when it is needed. The inventory is stored in the separate storage, which is located in Vantaa.

The main reason for the research in question was the fact that many company's operations are handled in an old-fashioned way. For example, employees working hours are recorded on paper and later informed to the accountant through e-mail. Another big issue is a lack of inventory record keeping, which is essential at least for the calculation of profitability.

2 Enterprise System Insights

This chapter represents the theory, which is needed for efficient research conduction. It reviews the overall history of the enterprise system and its different types. It also discusses the use of enterprise systems in small companies and retail business in particular. Moreover, criteria for selection and possible implementation strategy are introduced in this chapter.

2.1 Historical background of Enterprise Systems

The development of enterprise information systems has started in the 60s of the past century, when computers have been involved in the business. At that time systems were not as comprehensive as they are nowadays. In the beginning, business decision making could not be supported by integrated and real-time data. (Monk & Wagner 2009, 19.) Despite this fact, reorder point system has been already introduced in the same decade. It was able to make predictions for upcoming inventory demand based on information from the past; its algorithm was simple – inventory was ordered right after the material crosses the predicted minimum. (Sumner 2014, 3.)
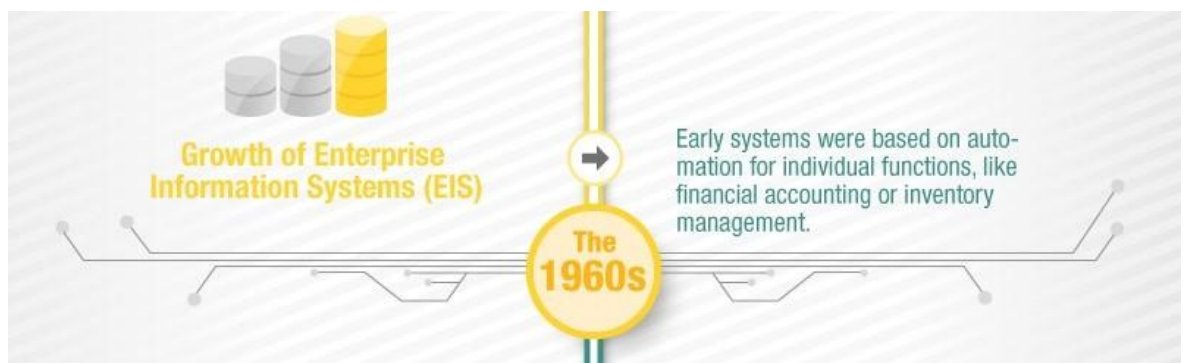
Figure 1. The start of ES development (Cre8tive Technology & Design 2014).

In the next decade, relational database software was created. It enabled a business to keep, restore and make an analysis of the significant amount of business data (Monk & Wagner 2009, 20). Material requirement planning (MRP) systems, which are focused on the demand-based approach, were also developed in the 70s. This kind of systems facilitates the planning process in material production and inventory keeping. (Sumner 2014, 3.)
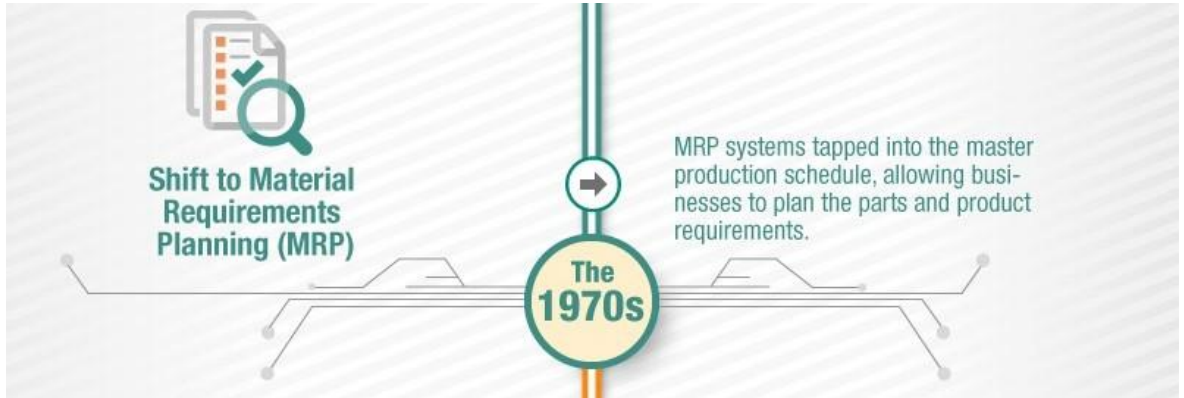
Figure 2. ES development in the 70s (Cre8tive Technology & Design 2014).

Over the next ten years, the attempts of data sharing had been made. From that time it has become possible to exchange information on local networks. Employees have been able to achieve information from a core computer and work with it on their one. (Monk & Wagner 2009, 20). The next step in the development of enterprise systems had been taken. MRP-II, so-called manufacturing resource planning system, is an improved version of MRP that also allows to maintain the capacity planning as well as to plan and control the realisation of production schedules. (Sumner 2014, 3.) As it is shown in Figure 3, the functions of the released in the 80s enterprise system were enlarged. Such modules as human resource management, project management, the analysis tool of shop floor activities were added to the program.

Figure 3. The role of the 1980s in the ES development (Cre8tive Technology & Design 2014).

At the end of the 80s, everything that is needed for the efficient work of enterprise systems has been provided – fast computers, possibility to use networks and databases of a new generation. Surprisingly, despite all the advantages of enterprise systems, businesspeople had not yet acknowledged the potential of such integrated systems and the development of them was not fastened. (Monk & Wagner 2009, 20).

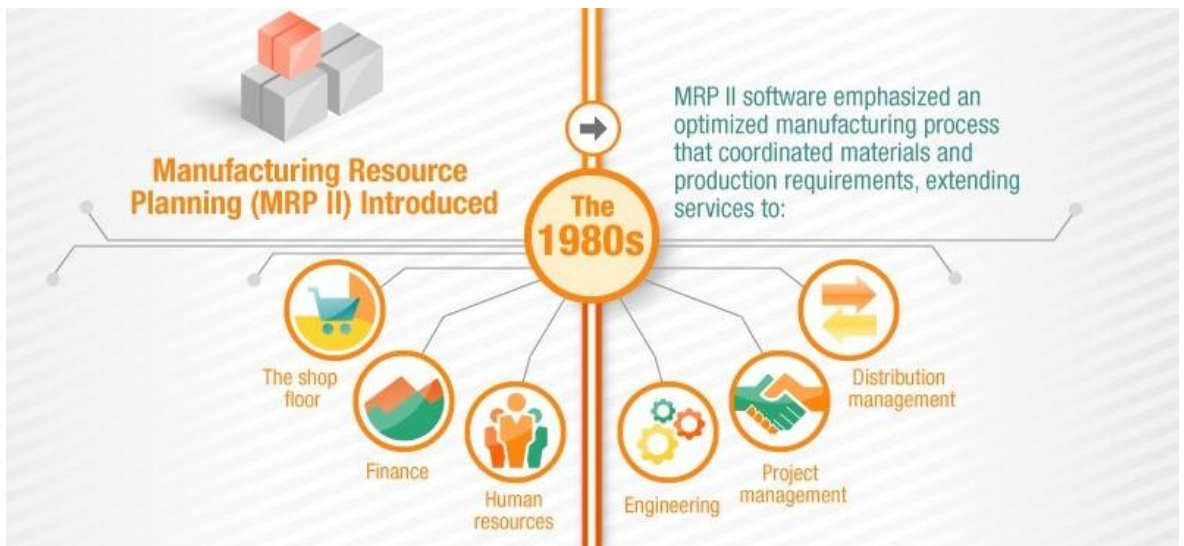However, closer to the 90s the situation was forced to change due to the unstable economic environment – companies received clear motivation to enhance the existing business IT tools. (Monk & Wagner 2009, 21). In the 90s superior version of MRP-II was released. In comparison to the previous release, it had been complemented with the manufacturing execution system (MES). The new program was able to match production schedules with customer needs. (Sumner 2014, 3.)
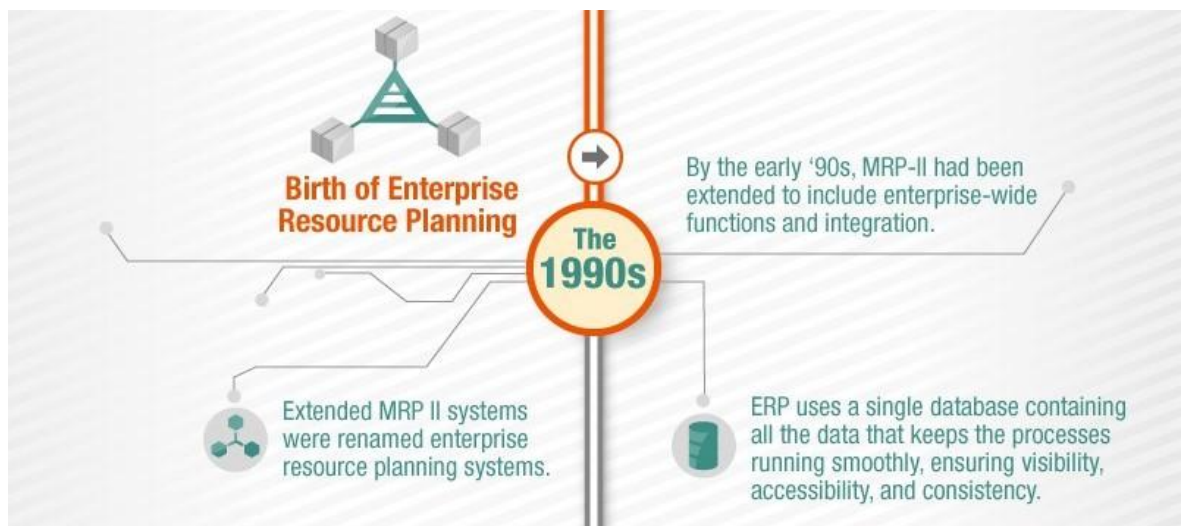
Figure 4. The historical switch from MRP to ERP (Cre8tive Technology & Design 2014).

In the late 90s, the complete enterprise resource planning system (ERP) was introduced to the market. It has enabled the extensively integrated approach to management of various business processes that flow in the supply chain of the organisation. The ongoing information flow that penetrates and connects all the parts of the chain has been introduced in this system. (Sumner 2014, 3.) The development of the system has not been interrupted since that time and solutions of this day are much more functional and inclusive than they have been before.

Figure 5 lists the elements that have been included in the ERP pack during the last 18 years. Customer relationship management, supply chain management and advanced planning and scheduling are now imprescriptible part of the system. Moreover, with the

development of mobile technologies, it became possible to make the system accessible from anywhere as software developers have already released mobile applications and developed cloud-based platforms. (Cre8tive Technology & Design 2014.)
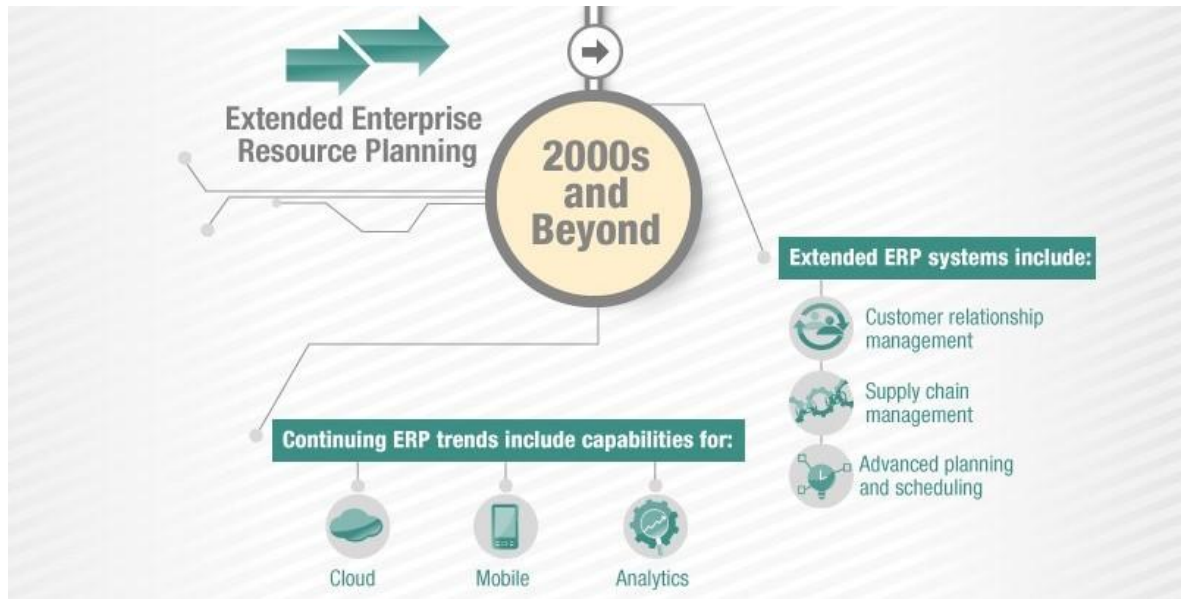
Figure 5. The development of ERP nowadays (Cre8tive Technology & Design 2014).

All in all, the enterprise systems were created to support various business processes and functions. In the beginning, the primary focus of ES was on cost management and marketing. Starting from 80s quality and just-in-time production management have been added to the areas of concern to be supported by ES. The most modern systems have emerged in the late 90s. They provide full integration of processes that are running throughout the supply chain. (Sumner 2014, 3.)

2.2 Business processes

Before the 1990s the main attention of organisations had been paid to business functions. However, the research of August Wilhelm Scheer proved that successful companies prefer process-oriented thinking rather than function-oriented one. For example, inventory management, financial accounting and procurement are typical business functions. (Kurbel 2013, 8.) Business processes are more than that.

Business process can be defined as a sequence of business activities that includes at least one input and is aimed at producing an output that is valuable for the company and

end consumer (Kurbel 2013, 8). The flowchart below (Figure 6) depicts a primitive graphical description of a business process.

Figure 6. Schematic view of a business process (Magal & Word 2012, 5).

As it is represented in the figure above, the business process consists of a chain of sequential activities or steps that might belong to different functional areas. For instance, the situation when a customer places an order might be considered as a trigger for a chain of activities that will lead to a certain outcome. The second step might be a creation of sales order, and then the item must be prepared for the shipping and later sent to the customer. Same time invoice has to be generated and issued. When the custo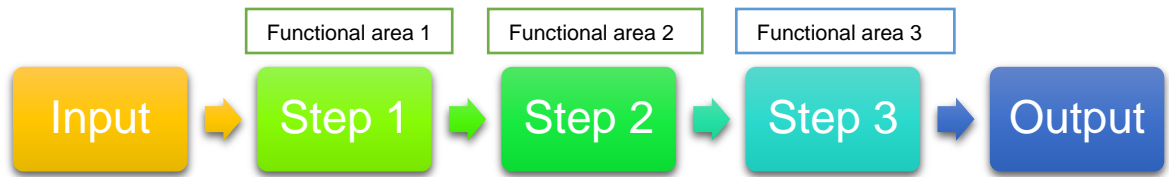mer pays the purchase, the system may register the receipt of payment. Most of these activities are performed by different departments of the company, which in their turn are responsible for various functions – sales, inventory handling, accounting, etc. Despite the fact that these steps are handled in different departments, they are all interconnected as their implementation leads to a specific output. (Magal & Word 2012, 5.)

Successful businesses adhere to business process philosophy because it helps to see company's operations from the customer's perspective. It minimises the interaction of a customer with a firm as he does not need to communicate with each separate functional area himself. Thus the company must ensure that all functional areas are well-connected to each other, which is exactly a task of enterprise system – to integrate various processes that are performed in a business. (Monk & Wagner 2009, 4.)

2.3   The concept of enterprise system

As stated by Gulla (2004, 1), "enterprise system is a packaged application that supports and automates business process and manages business data". Nowadays such information system is considered to be one of the most comprehensive and practical (Magal & Word 2012, 23). The software consists of customizable modules that can store and process business data from different functional areas thereby facilitating the flow of information in the organisation. (Gulla 2004, 1.)

These days companies give their preference to ready-made software packages that are available in the market instead of developing their business applications. Internally created applications are often incomplete and imperfect in use. It is harder to integrate them with other systems. Moreover, the noticeable amount of manual work is involved in the business process handling. Another advantage of such software is that it is developed based on the best example from the industry. Hence, by installing the system organisation might be able to implement to best practices and take its business to the next level (Gulla 2004, 1-3.) Other valuable benefits of software standard packages are presented in Figure 7.

- Rapid availability
- Sound business practices
- Known and verifiable quality
- Low up-front and overall costs
- Inspectable documentation
- Available maintenance
- Continual research and updates
- Varied support and training

Figure 7. Benefits of software standard package (Gulla 2004, 3).

Enterprise Resource Planning systems (ERP), Supply Chain Management systems (SCM) and Customer Relationship Management systems (CRM) are three largest enterprise systems. Big manufacturing companies use them as an integrated package. These systems may share a common database or acquire information straight from the connected program. (Kurbel 2013, 4.) The connection of systems has enabled maintaining inter-company processes (those processes that are held by the company and its partners). For instance, SCM facilitates the integration of manufacturer's and supplier's enterprise resource planning systems. It contributes to optimisation of processes that are related to raw materials acquisition. In its turn, CRM supports the connection of a firm to its customers. This module contributes to the smooth operation of company's marketing, sales and customer service activities. SCM and CRM are useful supplements to ERP system. Together with PLM (Product Lifecycle Management system), these systems comprise an application suite that is nowadays offered by many business software developing companies. (Magal & Word 2012, 26.)

Gulla (2004, 1) emphasises that since 2000 the popularity of large-scale standard packages among small and medium-sized enterprises has been on a constant rise. The author mentions that simplified versions of such applications that are faster and cheaper in the

implementation have played an important role in popularisation of enterprise systems (Gulla 2004, 1).

2.4   Three types of ERP systems

Nowadays there are three possible models for housing ERP – on-premise, hosted and cloud-based (Utzig, Holland, Horvath & Manohar 2013, 2). In their turn, on-premise and hosted solutions belong to traditional ERP systems (Duan, Faker, Fesak & Stuart 2012, 2). All these types share similar functionality but tend to be different in regards to deployment. There is no better or worse model as each of these three types has its category of companies, for which it will be the most suitable option for selection and further implementation.

Going back to historical aspects of ERP development, it is worthy of mentioning that the only available option was the on-premise model. The software is acquired from the developer on a license basis. The program itself is installed on company´s servers and personal computers. The servers are located inside the company´s premises. The firm is responsible for the maintenance of the whole system´s infrastructure. (Duan, Faker, Fesak & Stuart 2012, 2.)

The hosted ERP system appeared at the beginning of the new century. As it has been already mentioned above, this model is seen as a monolith ERP. The difference between these two models is that hosted ERP is seen as a service that is provided to the customer via a straight network connection to a server, which is located in the provider's premises. (Duan, Faker, Fesak & Stuart 2012, 2.)

Cloud-based solutions are a relatively new approach for ERP housing. The user accesses the system via Internet, which means that neither special hardware nor software needs to be installed in-house. (Utzig, Holland, Horvath & Manohar 2013, 2). The detailed review of cloud-based ERP systems is presented in the further subchapters.

Figure 8 illustrates the differences between three ERP system models regarding their deployment. As it is shown, on-premise solutions are the most costly, time-consuming and complicated in their implementation. Hosted systems are somewhat average in implementation and not as expensive as in-house model. (Utzig, Holland, Horvath & Manohar 2013, 2.) According to information presented in Figure 8, cloud-based systems seem to be the most suitable for SMEs. This fact is also confirmed by the findings, which are presented

by Al-Ghofaili and Al-Mashari (2014, 5): small-sized companies with lower financial capability are recommended to take advantage of cloud-based ERP solutions.

	On-Premises	Hosted	Cloud-Based
Implementation Size	Large	Medium	Small to medium
Solution Complexity	High	Medium	Low
Capital Costs	High	Medium	Low
Operating Costs	Low to medium	Medium	Medium
Implementation Time	12–36 months	9–18 months	4–8 months
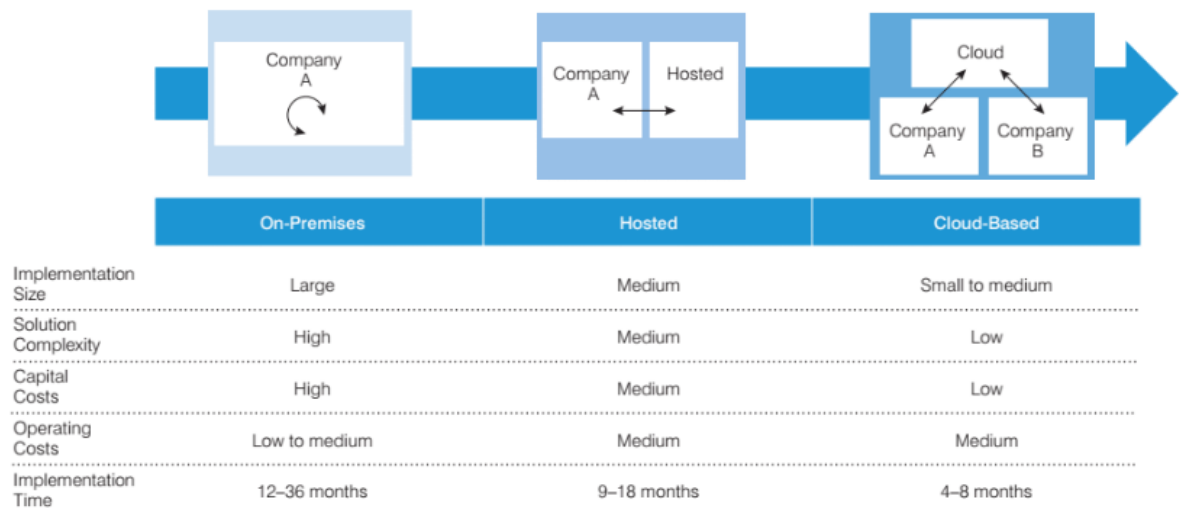
Source: Booz & Company analysis

Figure 8. Comparison of different ERP system models (Utzig, Holland, Horvath & Manohar 2013, 2).

2.5   ERP system for a very small-sized company

Small companies may face similar problems as firms of medium and large sizes do. As well as large organizations they may be beaten by their competitors, experience all the troubles of economic crisis. Attracting customers and, what is even more critical, retaining them, and making their business more and more profitable day by day – all these tasks are set in small companies too. Moreover, small-sized companies have some additional problems to solve; for instance, coping with the very limited amount of funds. Thus small firms, as well as big ones, need a reliable assisting tool that is helpful in dealing with all routine obstacles. (Technology Evaluation Centers Inc. 2010, 8.)

There are two kinds of ERP software which are used in small-sized enterprises. The first type is a simplified version of existing ERP software for bigger companies. Typically, this light version is easier for installation and use. Another type is software that was developed and tailored to the specific needs of small companies. Both types can be equally efficient and functional and thus suitable for use in a small-sized enterprise. (Technology Evaluation Centers Inc. 2010, 8.)

Small companies usually differ from bigger ones when it comes to ERP system selection. This difference derives from peculiarities of small firms. These characteristics are listed below:

- Management makes very prudent investment decisions as usually firm is limited in financial resources
- Modest budget is available for IT update
- Management does not have an expertise in ERP selection, installation and implementation; thus external help is almost always required.
- The decision on ERP system selection is often made by the people, who are not experienced in the field.
- Small companies may need the same level of ERP functionality as bigger companies require. (Technology Evaluation Centers Inc. 2010, 8.)

2.5.1 Myths about ERP systems

Some small companies are afraid to deal with the business application being sure that they are not able to work in the system successfully. There are some myths about the use of ERP systems in small firms. Most common of those are discredited below.

Myth 1: ERP systems are hard in use and are needed for process handling only in big companies. In fact, program developers have already adapted business application to the needs of small companies by releasing simplified versions of original ERP programs. The systems are developed in a more user-friendly manner, which makes them easier in use. (Technology Evaluation Centers Inc. 2010, 8.)

Myth 2: Small companies can easily survive without any specific business application and handle all their processes manually. Practically, the size of a company does not say anything about the number of transactions that are performed on a daily basis in this company. It can be easily close enough to the workload of a large company. Moreover, company's client does not judge company's performance by its size and may claim the same level of customer service as it is offered in the large firms. Withal, ERP system may also bring customer service to a higher level, which will positively affect company's overall performance. Furthermore, automated and efficient business data management should be a goal for a company of any size. (Technology Evaluation Centers Inc. 2010, 8.)

Myth 3: The company will be obliged to replace an existing software with a more powerful one. Experts claim that modern ERP systems do not require much operating memory and

can be easily used together with other programs installed on PC. Moreover, cloud-based systems are run online and do not need any hardware to be installed on PC for their exploitation. (Technology Evaluation Centers Inc. 2010, 9.)

2.5.2 Functional areas

Integration of various business processes can seriously improve the overall activity of a firm, even if the company is of a small size (Monk & Wagner 2009, 6). The number of processes that run in the micro-sized company is incomparable to ones operated in a conglomerate, for example. However, there are enterprise systems that are available for tiny companies too. Functional areas that are needed to be taken into account and included as modules to the enterprise system for a micro-sized company are listed below.

Marketing and Sales: with the help of this module the entrepreneur keeps the accurate sales record, efficiently calculates the price of the product and gets statistical information about each item he sells. When the seller possesses statistical data in his hands, he can analyse what product is successful and worthy of ordering from a supplier again. Information about clients helps to understand them better, and thus improve the offered product according to the needs of these clients. (Monk & Wagner 2009, 6-7.)

Supply Chain Management: shortly, the major functions of SCM are production and procurement. The task of these two functions is to make the product available for the customer when it is needed. Planning (either production or procurement) is based on information from the sales department. To know how many items to produce or order from a vendor, information from sales forecast has to be used. (Monk & Wagner 2009, 7.)

Accounting and Finance: all the operations that are related to the circulation of money in the organisation have to be recorded accordingly, and that is precisely the primary function of accounting module. Sales, as well as fixed and variable costs, have to be registered to calculate the profit or loss of the company. The financial data is often used for purposes other than profitability determination. For instance, sales records are used for predicting future sales of a specific product. Moreover, checking the balance status helps to decide whether new machinery acquisition is affordable for the company. (Monk & Wagner 2009, 7.)

Human Resources: this functional area is responsible for keeping data about employed people. All the operations that are related to recruitment of workers, their training, monitoring and remuneration are handled in this module. (Monk & Wagner 2009, 8.)

As can be seen, all the functional areas are tightly connected with each other. Data sharing between these areas is an unavoidable requirement for successful operation of the whole firm. Such systems as ERP that are based on the concept of data integration can guarantee an ongoing flow of information between all the functional areas. (Monk & Wagner 2009, 8.)

2.5.3 Benefits and challenges of ERP implementation

Apart from the integration of business processes, enterprise systems may offer other significant benefits for a small company. Mathrani and Viehland (2009, 46) state in their research that business processes become more automated and efficient, being handled in the enterprise system. Moreover, researchers add that implementation of such system in a small company helps to enhance an information flow making it more transparent and visible. The system may also facilitate the inventory management, in essence, cut inventory and make it more organised. In general, it positively influences all functional areas. For instance, in HR it may suggest decreasing headcount. Consequently, another indisputable advantage of the use of enterprise system is a high potential for overall cost-reduction in the organisation. (Mathrani & Viehland, 40.)

Despite all attractive advantages of ERP implementation in a small company, its management always have to keep in mind possible challenges and dangers that they might face, while they prepare for deployment. First of all, it is hard to calculate the overall cost of the system. The price may severely vary depending on the brand and chosen package. The acquisition has to be considered as a purchase of new equipment for the company and taken into account in the budget planning. It is essential to notice that the current trends in the industry brought some cost-saving alternatives to traditional ERP. For instance, SaaS-based ERP is supposed to be an economically- and user-friendly model to implement. (Technology Evaluation Centers Inc. 2010, 9.)

Second of all, the entrepreneur has to remember that the implementation of ERP might change the current way of work in the company. The realisation of ERP brings the company to a new level. It helps to make company's operations organised and structured. Therefore, firm's managers might reconsider the working style and principles. (Technology Evaluation Centers Inc. 2010, 9.)

The last but not the least, selection of ERP system has to be taken very seriously by the people, who is responsible for making such decisions in a company. It is better to spend

more time on research than waste money on the program that will not be suitable enough for use. It has to be noted that the system should serve at least seven years. Therefore, the decision must be built based on company's vision and strategy. (Technology Evaluation Centers Inc. 2010, 9.)

2.5.4 Use of cloud-based ERP in the small-sized enterprise

The previous subchapter has revealed some significant drawbacks that may make some entrepreneurs to reconsider their will to deal with such severe software. Moreover, conventional ERP system might not be suitable for some enterprises due to the lack of financial resources for its implementation that involves the purchase of a license and needed hardware, advising, technical support and training, which is often quite costly (Navaneethakrishnan 2013, 2867; Al-Ghofaili & Al-Mashari 2014, 3).

Castellina reports that SMEs had started to switch from monolith ERP to cloud-based systems with increasing pace (Duan, Faker, Fesak & Stuart 2012, 10). The constantly rising popularity of cloud-based ERP systems is not surprising. This kind of business application has some winning advantages that will be elucidated later. First of all, the definition for cloud-based ERP has to be given. Cloud-based ERP system can be worded as an ERP that is hosted on the remote server that can be accessed through the web browser over an Internet connection (Navaneethakrishnan 2013, 2867; Al-Ghofaili & Al-Mashari 2014, 3). Business data is reached through client configuration (Navaneethakrishnan 2013, 2867).

There are three kinds of cloud-based systems: Software as a Service (SaaS), Platform as a Service (PaaS) and Infrastructure as a Service (IaaS). The ERP is often implemented in SaaS cloud service. (Navaneethakrishnan 2013, 2867). This type is recommendable for SMEs that experience some difficulties with finance as this software usually do not require considerable investments. However, such system hardly falls under customisation. ERP on IaaS, in its turn, can be tailored to the needs of a customer and has no limits for business process re-engineering. All these advantages are considered in the cost of the system's use, which is much higher than the price for ERP on SaaS. (Al-Ghofaili & Al-Mashari 2014, 3.) Therefore, it can be concluded that ERP on SaaS is more suitable for companies with a modest budget.

Besides its lower initial and overall operating costs, cloud-based ERP system has more advantages over monolith ERP, which are attractive for small enterprises. Implementation is carried out faster and easier (Navaneethakrishnan 2013, 2867). Furthermore, it has

been already mentioned that monolith ERP is installed for an extended period of use and changing provider is not possible. The cloud-based system is based on subscription approach, which allows a customer to refuse from the use of the chosen system at any time. Moreover, cloud-based applications are much more flexible, that in turn enables SMEs to be competitive with key players in the market. The fact that the service provider takes care of system maintenance allows companies to concentrate on their primary tasks. The service provider may also ensure the recovery of data and error correction in case of emergency situation. In addition, virtual ERPs get updates and new functionality more often than traditional systems. The system can be accessed in any place that has a connection to the internet. (Duan, Faker, Fesak & Stuart 2012, 6.)

It is worthy to mention drawback of cloud-based ERP system as those also tend to exist. Subscription to the service has been seen as a benefit over traditional ERP. However, in a long-term perspective, it might be costly too as license and hardware are purchased for a longer period while subscription fee has to be paid more often. Security is considered to be one of the biggest minuses of cloud-based systems as the service provider has direct access to all data stored on its servers by the customer. Even more so, the agreement that is concluded between the company and service provider often does not include the confidentiality clause, which makes the cooperation with the provider insecure. Another serious drawback is dependence on the network – the data is accessible only via common browser. Therefore Internet connection has to be always available for keeping the work ongoing. Moreover, limitations in functionality and customisation may take place. It has been already said that customising a service is hardly possible in ERP on SaaS. And not every industry finds all the necessary functions in the cloud-based ERP. (Duan, Faker, Fesak & Stuart 2012, 8.) It has been noticed that government and country-specific regulations are rarely supported in such systems. Therefore companies experience difficulties in satisfying this kind of requirements. (Navaneethakrishnan 2013, 2867-2868.)

Based on the comparison of traditional and cloud-based ERP, the following conclusion can be made: traditional ERP systems are considered to be the optimal option for large companies, while cloud-based systems due to their lower cost and simplified implementation are appropriate for use in smaller companies. Al-Ghofaili and Al-Mashari (2014, 5) also specify that SMEs may make a choice two types of cloud-based systems: ERP on SaaS or ERP in IaaS. Researchers claim that ERP on IaaS is suitable for medium-sized companies, who may need a bit more security than small companies do. For small companies, one of the main selection criteria is a cost of the system. (Al-Ghofaili and Al-Mashari 2014, 5.)

2.6   ERP for retail industry

Like any other industry, the retail industry has some peculiarities in its operations. All these specific features have to be reflected in the business applications that are designed explicitly for this sector. Modules that must be provided by a software developer to a store owner are presented below.

Customer management module facilitates the process of analysing customers and their needs. It gathers statistical information on client's purchase history, thereby enabling the determination of the most important customer group. Good enterprise system software can collect, summarise, identify the change in information about company's clients that is taken from various sources such as customers' personal details, purchase history, demographic data, shopping habits and loyalty to the brand. (Vienna Advantage 2016.)

Rewards and loyalty management module takes part in customer retention by helping to conduct different member programs and promotional campaigns. This feature is responsible for creation and management of various membership levels, reward points program. Moreover, it provides the scanning of barcodes and RFID. (Vienna Advantage 2016.)

Product management module is one of the essential ones and has to be included in the system of any store as it maintains product master data, its categorisation and hierarchy. The module also includes such features as product organization and products variations. Product organisation function supports the division of products into various groups depending on their category, type, seasonality or based on supplier, price, inventory level, etc. Product variations feature makes subdivisions for each particular product (for example, size, colour, expiry date), enabling more accurate record keeping on each item. Moreover, this module supports barcode creation and scanning. Some more sophisticated features such as product warranty management and product expiry handling are available for more advanced sellers. (Vienna Advantage 2016.)

Materials and inventory management module provides a clear overview of company's stock. It is responsible for keeping records on inventory and control its movement. Apart from these basic functions, the module may also make material requisitions, monitor the quality of stock, conduct its valuation, print labels, prevent from small thefts, etc. (Vienna Advantage 2016.)

Store and warehouse structuring module manages the data sharing between all the stores and warehouses. For instance, it connects a store with its warehouse to allow an

automatic supply of products from warehouse to the store. Moreover, it breaks warehouse into several sections for a facilitated inventory handling. (Vienna Advantage 2016.)

Pricing and discounts management module manages the pricing for various promotional campaigns, special offers and sales seasons. ERP system eliminates calculation mistakes that are related to pricing. The module takes part in price planning and creates promotional pricing lists. (Vienna Advantage 2016.)

Purchase and supplier relation management module handles the creation of purchase order, keeps the history of relationships with each supplier and compares data from purchase order with data provided in the receipt and invoice. The more advanced software also offers extended functionality for this module, which includes such functions as sending requests for quotation from multiple vendors, procurement rules setup, conduction of central procurement with decentral delivery, etc. (Vienna Advantage 2016.)

Employee management module provides control over employees. It creates work schedules, offers a time clock feature that records hours that employee spends on his shift and calculates the total number of hours worked during a certain period. Moreover, it allows computes a sales commission and track how much each employee has sold in the defined period. (Vienna Advantage 2016.)

Sales reporting and analytics allows acquiring statistical data on sales that is made in the store. Such reports help to determine bestsellers and flops and calculate the revenue that is derived from a sale of each product. Statements that are created by the system have to be available for use in other programs as these reports may be also required by a third party, such as an accountant, who might not be able to use the same system. (Vienna Advantage 2016.)

Point of sale (POS) system has to be comfortable in use and supported by different types of devices. It is essential to notice that the system has to keep working even when the connection with the remote server is disrupted. There are several certain requirements for POS system that have to be taken into account. The system has to support different means of payment such as cash, card or gift vouchers; and handle cash count. It has to be able to read different barcodes (EAN8, EAN 13, GS1). It also needs to be compatible with other devices such as touch screen, receipt printer, card terminal, etc. Moreover, it has to process each operation quickly. In case of discrepancy between the information presented in the price tag and the one offered by the system, the seller should be able to fix this issue by changing parameters in the terminal. Therefore, various promotions and campaigns should be

adjustable on the terminal screen as well as on the remote computer. (Vienna Advantage 2016.)

2.7 ERP system selection criteria

ERP systems are often costly to install and maintain. Moreover, the system is chosen to be used at least for a couple of years. Thus the selection of the most appropriate has to be taken very seriously. To make a right decision, the buyer has to use criteria for systems' evaluation. These criteria are presented in the subsequent paragraphs. Criteria are divided into two classes: software-related criteria and implementation-related criteria.

2.7.1 Software-related criteria

Selection criteria are often divided into three groups: business criteria that evaluate company's position and image; cost criteria that make comparisons based on all the related expenses; and technical criteria that look at most significant parameters of the software (Kilic, Zaim & Delen 2015). The group of technical criteria includes functionality, reliability, compatibility, modularity, customisation, upgradeability and usability.

Functionality is seen to be the most significant criterion among all. It involves such parameters as completeness and comprehensiveness. The modules which are included in the system have to correspond to the company's core activities. Moreover, these modules should be able to manage critical business processes of an enterprise. (Haddara 2014, 399.) Lewandowski, Salako and Garcia-Perez (2013, 60) state that even simplified ERP systems, which were developed purposefully for SMEs, might be quite complicated in use for these companies. Therefore it is crucial to identify the mismatches between the program package and organisations requirements (Lewandowski, Salako & Garcia-Perez 2013, 60).

Kumar (2003) found that **reliability** is the second most considered selection criterion (Ratkevičius, Ratkevičius & Skyrius 2012, 103). Reliability of the ERP system means that this system is well-developed and steady and that its performance corresponds to its specification (Haddara 2014, 401). Researchers regard reliability also to the ability of a system to work as efficient as it worked before the latest updates and upgrades were done to this system. Users often face an issue that they have to learn how to use the program after the update has been executed. (Lewandowski, Salako & Garcia-Perez 2013, 60.)

Another important criterion is **usability**. It expresses an ability to be easily executed. The system is supposed to be easy not only in use but also during the training stage. The ordinary office worker should be able to cope with the program – that is the main idea of this criterion. Ayağ and Özdemir (2007) state that usability of the system directly influences the overall performance of the organisation, which makes it a vital selection factor. (Ratkevičius, Ratkevičius & Skyrius 2012, 106-107.)

Furthermore, the system should be able to compatible with other programs that have been already used in the company to enable collecting business data from all organizational levels of the company (Ratkevičius, Ratkevičius & Skyrius 2012, 103). **Compatibility** is an essential criterion as it is hard to find a company that uses only one operating system (Haddara 2014, 401). Moreover, the buyer should consider getting a program, which can operate on different devices (Lewandowski, Salako & Garcia-Perez 2013, 60).

The system has to be integrated not only externally, with other programs, but also internally having all its modules well-connected to each other. **Cross-module integration** is needed for efficient flow of information. The good service provider also gives its customer freedom to choose required modules, so that he does not overpay for components, which are useless for the company. (Haddara 2014, 401.)

Consumers also value a possibility to customise the system according to the needs of organisation. Despite the fact that companies from the same field have similar business processes to manage, they still might require specific functionality that is developed intentionally for this company. Therefore **customisation** might serve as another criterion in the selection process. (Ratkevičius, Ratkevičius & Skyrius 2012, 105-106.)

It is worth noting that system should be updated and upgraded by the developer on a regular basis to keep the system compliant with all the current tendencies in the IT field. The **upgradeability** is significant as the modern technologies are constantly developing nowadays, while ERP system is a considerable long-term investment. (Ratkevičius, Ratkevičius & Skyrius 2012, 105; Haddara 2014, 399-400.)

The next group of selection criteria is related to cost, which occurs during the process of implementation and further maintenance. There are three different subcategories of costs that should be taken into account when the system is selected among the list: **purchasing cost**; **implementation cost** and **cost of maintenance** (service and support costs) (Kilic, Zaim & Delen 2015). It is good to remember that the value of the system is not calculated

based only on the price of the software package. The acquisition of the program may lead to some unplanned purchases (for example, spending on equipment upgrade). Moreover, installation of new technology requires training for employees, which is not provided for free to the company. Thus the company has to evaluate its buying ability, keeping in mind that most of the firms run over their budget when they acquire ERP system. (Haddara 2014, 400.)

The third group of selection criteria is related to the position of the provider in the market. The list of criteria includes **company's vision**, **brand image** and **market position**. For many companies, the image of the supplier is a quite significant selection criterion in the decision-making process. They believe that a well-known company can provide a high-quality product as operating all over the world such company tend to collect the best practices that are related to the ERP software. Moreover, service providers with a strong brand image are more likely to have a better service infrastructure. These arguments convince the buyer that the service provider may also serve as an advisor in the stringent implementation process. It is also recommendable to take a look at company's experience in the industry in question. The preference should be given to one that is more specialised on developing software for the field in which the company operates. (Haddara 2014, 401.)

2.7.2 Implementation-related criteria

All the preceding criteria can be reckoned as software-related selection criteria (Ratkevičius, Ratkevičius & Skyrius 2012, 98-99). There is also another class of determinants that belong mostly to the implementation process. Researchers claim that it is also essential to consider such factors as easiness and fastness of implementation, organisational fit, training quality, end-user readiness and system support quality (Ratkevičius, Ratkevičius & Skyrius 2012, 108-112).

Easiness of implementation implies that the overall efficiency of this process and complexity of the project. Furthermore, some researchers consider the time that is needed for full implementation and involvement of the service provider in this process. Bernroider and Koch (2001) argue that this criterion is more significant for SMEs rather than to large companies. (Ratkevičius, Ratkevičius & Skyrius 2012, 108-109.) Large companies have more financial and human resources to overcome all the difficulties that are related to the ERP implementation process.

Another critical factor for successful ERP implementation is overall **software fitness to the company**. In this parameter, first of all, the size of the company has to be considered.

(Haddara 2014, 402.) As it has been already said, ERP developers offer a wide range of programs for companies of different size.

The efficiency of **training** must not be underestimated. During the selection stage, the buyer should pay attention to the training plan that the supplier suggests as well as its duration and appropriateness for the workforce of the company. The overall productivity of the company in the post-implementation period depends on how well the training went. (Ratkevičius, Ratkevičius & Skyrius 2012, 110.)

Not everything depends on the successful training and correctly chosen software. Another essential criterion is the **readiness of an end-user**. The user must be qualified and have enough professional skills to handle operating in the program. The system has to be selected in a way that it will be understandable for all the employees. (Ratkevičius, Ratkevičius & Skyrius 2012, 111.)

The last criterion in this class is **system support quality**. The buyer has to make sure that technical support and services are provided for the whole license period. The user faces various issues throughout the entire lifecycle of a program – from installation till post-execution. Therefore, advice and expertise of supplier or its official representatives is rightly expected. (Haddara 2014, 400.)

2.7.3   ERP comparison tips

Having all the selection criteria listed it is also important to note that without systematic approach for comparing ERP software it is hard to achieve a good result. The comparison of various ERP systems should be conducted based on the following recommendations.

The comparable systems have to be of the same tier. Comparison of solutions that are aimed to solve different issues may lead to a failure. For example, ERP system should not be compared with an introductory system that serves as a tool for managing only one particular business process. Right ERP software can be distinguished by the further distinctive characteristics: it has a database; data is shared between different modules of the program; it is massive by its nature; it provides real-time data. (Canes 2015.)

The systems under consideration should have the same deployment method – on-premise, hosted or cloud-based. So, it is advisable to decide on deployment method first, and then make a list of candidates for comparison. (Canes 2015.)

Customer service may reveal some positive side and hidden dangers. Therefore, in the process of negotiations with different ERP vendors, it is essential to note how well the customer is treated. The quality of customer service can be included in the evaluation list. It is recommendable to pay attention to how considerate sales force, developers, support team are to their clients. (Canes 2015.)

While comparing the prices, it is good to remember that lower price for the offered product may be just an initial price, which does not include all the functionality for this value and the actual amount will grow together with supplementation of extra needed features. Same time, high price for the product may include modules that are unnecessary to the firm. Therefore, it is essential to make an emphasis on the content of the package, which is offered for the given price. (Canes 2015.) Sums of all related to the acquisition, implementation and maintenance costs have to be compared instead of comparing only upfront costs (E2B_Marketing 9 August 2017).

It is also important to find a system that will be both enough flexible and steady regarding its functionality. The completely fixed package is not convenient as each company might have some peculiarities in its operations, which will be better managed by the customised system. At the same time, high level of customisation should not be considered as a big plus as systems that are 100% tailored to the needs of the certain company may not reflect the best practices that are used in the industry. (Canes 2015.)

Another area of concern is the company itself. It is recommendable to choose the one that has a longer experience in the market. However, getting the software from the largest provider may be risky too – such companies are used to dictate their own rules of play. Therefore, it is recommendable to check company's history and reviews from their current users. (Canes 2015.)

The comparison can be conducted in the form of a table. Each column corresponds to a particular system. Same functions, features and other selection criteria are listed in the rows. It is recommendable to select and precisely evaluate 2 to 4 systems based on the selected criteria. (E2B_Marketing 9 August 2017.)

2.8   Adoption of ERP system

Implementation of ERP system is a long-lasting process rather than a single task. The full project normally lasts 3 to 12 months, depending on its complexity (Rebello 22 May 2017). Thus the management of a company should see the picture of processes that currently

run in this firm, and also anticipate the situation in the post-implementation phase. (Monk & Wagner 2009, 198-201.) The clear plan of actions has to be declared well in advance.

2.8.1 Standard methodology for ERP adoption

Different methods are used to deploy the ERP system in the organisation. But all these techniques have a similar logic: preparation – realisation – exploitation.

The ERP life-cycle reflects the plan that might be followed by the company when its management realises that the firm is in need of such software. There 13 phases of ERP adoption process. These phases are listed below:

1. **Preparation stage**: it is the first step which is unavoidable and used to determine the need, business drivers, strategies that will serve as a basis for determination of the scale and the main tasks of the ERP program. Expectations of the system implementation have to be stated. Business processes redesign and functional components are to be discussed. (Marnewick & Labuschagne 2005, 153.) The preliminary scanning of the market can be performed. The industry is full of various offers for different types of companies. It is recommendable to choose from a big list a couple of possible candidates that will be evaluated more precisely later. (Management Hub 2018.)

2. **Evaluation stage**: it is one of the most significant steps in the whole process as the final result (positive or negative) depends on the decision made in this phase. The company has to create a list of criteria, which will serve as a basis for selection. (Management Hub 2018.) The list of commonly used criteria is presented in subchapter 2.8.

3. **Project planning**: this phase is devoted to the careful scheduling of events that are related to the implementation of the chosen program. The project team members are gathered together and get the guidelines for the project. All the deadlines have to be set, and roles and responsibilities have to be appointed. (Management Hub 2018; Cloudempire 2018.)

4. **Gaps identification**: it is essential to identify existing gaps to realise what is expected from the program. ERP systems help to cope with routine issues that company faces. Thus, it is essential to be able to list these issues, so that the provider can offer the most suitable package for the company. According to the statistics,

general ERP system meets company's expectations only to 80%. Other requirements are often fulfilled in the re-engineering phase. (Management Hub 2018.)

5. **Analysis stage**: it is another crucial phase of the implementation process. The project scope and current company's business processes have to be discussed and analysed by this team to get understanding of the current state of play. Moreover, functional modules and their cross-integration should be identified too. Various technical and functional requirements have to be checked. (Cloudempire 2018; Marnewick & Labuschagne 2005, 153.)

6. **Design stage**: at this stage, all the findings from the previous phases are combined to make a new framework for the system (Marnewick & Labuschagne 2005, 153). The project team works on creation of transaction flow map and makes a plan for data migration. In addition, the team works on system improvements and areas that require customisation, set documentation requirements and data integration points. Data transfer design documents should be also created. (Cloudempire 2018.)

7. **Construction stage**: the designed model has to be embodied in life. Modified business processes and information system support are created. At this stage, the designed model and information system are compared to make sure that built system corresponds to the model. (Marnewick & Labuschagne 2005, 154)

8. **Installation**: it might take from a couple of days to several weeks to complete the installation process of hardware and software. In case of cloud-based systems, there might be no installation needed as the system is located online. (Rebello 22 May 2017.)

9. **Data transfer**: all the business data such as vendor and customer details, material data, invoices, bill of ladings, item receipts have to be transferred to a new system. This activity can be conducted simultaneously with other; for instance, training and testing. (Rebello 22 May 2017.)

10. **Re-engineering**: the introduction of new technology usually involves some reductions in headcount as the processes become automated and less personnel is needed. At this stage company's management may consider some changes in the number of employees and assign responsibilities according to the needs. (Management Hub 2018.)

11. **Team training**: without training all the efforts on software implementation are vain. Therefore, the proper training sessions have to be organised to ensure that employees are competent enough to work with the program. During the training sessions, employees learn to perform their daily work assignments with the help of installed system. Moreover, they get methodically acknowledged with the system. (Management Hub 2018.)

12. **Testing**: trial round is needed before the system is implemented. During this phase, various scenarios are played to identify possible vulnerabilities. The system is tested for compatibility with other programs that are used in the company; excessive load; hacker attacks; entering invalid data, etc. (Management Hub 2018.)

13. **Go live and post-implementation**: the system is implemented, and at this stage supplier and its representatives are taking care of technical support and services, while the user starts utilising the system. The updates and upgrades of the system are introduced time to time. (Management Hub 2018.)

2.8.2   Adoption of cloud-based ERP software

As long as the whole theoretical part of the research is focused on comparing two types of ERP deployment – in-house and cloud-based, it is worthy of noting that the process of cloud-based ERP adoption is very similar to the adoption process of monolith ERP. However, the significant difference lies behind the implementation time. The implementation of cloud-based ERP only takes about nine weeks. (Kaar Technologies 2016.)

The next listing explains the process of cloud ERP adoption:

1. Goals and objectives determination
2. Estimation of the project scope
3. Gaps identification
4. Determining whether customization of the chosen system is needed
5. Data transfer
6. Testing of the system
7. End-user training
8. Going life
9. Post-implementation support. (Medium 2017.)

The description for the phases can be found in the subchapter 2.8.1.

2.9   Summary of the chapter

The given chapter discussed a theoretical basis for this research paper. The main aim of it is to review historical perspectives of the enterprise systems, discuss their use in small-sized companies in general and in the retail industry in particular, list different types of ERP systems. In addition, ERP selection criteria and its adoption strategy were studied. The concept of business process was also researched.

The distinction between ES and ERP is defined in this research report. Together with CRM and SCM, ERP is a type of enterprise systems. Large companies exploit all these systems and even more, while small companies may need only ERP for managing their daily operations.

As three types of ERP systems were reviewed, it became apparent that companies can choose between on-premise, hosted or cloud-based ERP systems. The choice of the system type should be made based on the size of a company.

The significant emphasis was put on use of ERP systems in small companies. The most common myths were debunked. Advantages and disadvantages were juxtaposed. The special attention was paid to the use of cloud-based systems in small enterprises. The cloud-based system was compared with monolith system to determine which one is more appropriate for the small-sized company.

Cloud-based systems are acknowledged to be more advantageous regarding their cost for the company. However, they are not as reliable as on-premise and hosted solutions. Types of cloud-based systems were also reviewed. There are three of them: SaaS (Software-as-a-Service), IaaS (Infrastructure-as-a-Service) and PaaS (Platform-as-a-Service). SaaS is the most commonly used among these three.

Functional areas that are commonly used in every single small enterprise are marketing & sales, supply chain management, accounting & finance and human resources. Companies that operate in the retail market require additional modules such as rewards and loyalty management, product management, POS management, pricing and discount management, name it.

Implementation of the ERP system might be a very exhausting and time-consuming process for the company. It might take three to twelve months to release the program for com-

pany's use. First steps of this process are quite crucial as their negligent performance may lead to the failure of the whole project. Therefore, the selection process of the system was thoroughly reviewed in this chapter. Criteria were divided into 2 classes: software-related (functionality, reliability, usability, etc.) and implementation-related (easiness of implementation, training quality, user-readiness, etc.).

However, the selection is only one phase out of thirteen that are listed in this report. Other stages are preparation, project planning, analysis, gaps identification, design, construction, installation, data transfer, re-engineering, training, testing and go live.

3   Research methodology

There are numerous methods for data collection. Efficiency and credibility of the results depend on the appropriateness of the tool that has been chosen for research data gathering and further analysis of obtained information. Therefore, the selection of the research method is crucial for the whole research conduction process. This chapter will introduce the research approach and design data collection techniques, review of primary and secondary data as well as data analysis tools.

3.1   Research approach and design

The answers to the main research question are to be found using qualitative research methods. The concept of qualitative research can be described as a thorough explanation of the whole set of data. During the process of analysing gathered information, various strategies are applied to turn this raw data into a consistent interpretation of the research subject. (Altinay & Paraskevas 2008, 167.)

The data collection process will be conducted in Helsinki, in the city where all the stores are located. Owner of the store and employees of the store will be interviewed to identify the existing gaps and preferences concerning the system to be chosen. The desktop study will be held to review the available systems.

The table, which is represented below, describes the peculiarities of the research design that was chosen for the current research work. It partly systemizes what has already been said above. Moreover, it visualises the distinction between primary and secondary research that will be discussed further in the current chapter.

Table 2. Research design (Chumakova 2018.)

	Primary research	Secondary research
Data source	Owner & employees of the company	Webpages, books, journal articles
Respondents	Kamili, Victoria, Maria and Alice	
Data collection methods	Face-to-face interview	Desktop study
Data collection tool		Pen and pad
Data analysis	Content analysis	Content analysis
Analysing IQ's	IQ 1, IQ2	IQ 2, IQ3, IQ4
Research outcomes	Results and recommendations	

It is seen from the table that primary research is aimed to answer the first and second investigative questions, which are the following:

IQ 1: What are the current obstacles that are related to the absence of the enterprise system?

IQ 2: What program is the most suitable for the company in question?

Current obstacles and gaps are to be identified during the face-to-face talk with the owner and employee of the company. The problem should be determined to see what system and how may solve the current issues. To answer the second investigative question, preferences of the owner concerning the enterprise system to be installed and used have to be taken into account. Evidently, the system has to correspond to criteria that are set by the person who pays for it. However, selection cannot be performed based exceptionally on client's preferences. They are only a constituent of a bigger set of criteria that are formed based on the theory which is applied to this research. The desktop study which is a tool of secondary research will also participate in answering the second investigative question. Other investigative questions are presented below:

IQ 3: How to conduct the installation process of the chosen program?

IQ 4: What is essential for the effective implementation of the solution?

These questions will also be handled with the help of desktop study and further analysis.

The differences between secondary and primary research types are described in the next subchapters.

3.2 Data collection

In this research, several methods will be used to obtain empirical data for the subsequent analysis and enunciation of the suggestions for the commissioning company. First of all, the expectations of the owner and real needs of the company have to be identified. The best way to obtain this information is through asking research-related questions to the owner and employees, who have been working for the company for a more extended period. The face-to-face interview is used as a data collection technique for this purpose.

The interview is defined as a consistent approach for acquisition of the research information that is implemented through asking questions, listening to the replies of the interviewee and recording them maximally thoroughly. This technique is especially helpful when gaining insight into the working practices of some organisation is needed. It is essential to be noted that literature review that is related to the topic of the research is compulsory before interview conduction. (Altinay & Paraskevas 2008, 107-108.) Consequently, the questions that are included in it have to be associated with the theory, which facilitates the given research work. Moreover, these questions have to strive to give answers to the investigative questions.

Before conversation with the respondent, the list of questions has to be prepared by the researcher. The list may include open questions, which means that respondent has freedom to answer fully with his own words, and-or close questions, which are worded in a way that expects a monosyllabic response such as yes or no. (Altinay & Paraskevas 2008, 108.)

The list of questions should also follow the recommended structure which includes introductory part and the main body. Introductory part may represent the purpose of the interview and overall goals of the research. The main body of the interview has to comply with the objective of the research and aim at finding answers to some of the investigative questions. (Altinay & Paraskevas 2008, 109.)

One research method will not be enough to find answers to all investigative questions. Most of the data will be gathered using desktop study technique. It is a process of collecting secondary data from various sources such as libraries, internet, etc. (B2B International 2018, 73).

With the help of desktop study technique, various enterprise systems will be reviewed. Later evaluation of the systems will be performed on the basis of theory, which is provided in the given research, and requirements for the system, which will be identified during the interview with the owner and employees of the company. Peculiarities of the installation process, as well as tips for successful implementation, will be reviewed using content analysis technique too.

3.3   Secondary research

In the given research secondary data plays a core role as most of the research data to be found and later analysed. Secondary research is a process of data collecting and analysing using various materials that were composed by somebody else for the aims that might differ from the research aims and objectives. Secondary data may not only facilitate the process of digesting the research topic, but may also be a valuable source of information with hidden answers to a stated research question. (Ghauri & Grønhaug 2010, 90.)

The researcher aims to collect readymade information about different enterprise systems that are recommended for use in the small retail companies, and later evaluate these systems based on criteria which are stated in the theoretical part of the research paper. Various web pages, company's leaflets and brochures with technical characteristics of the presented system, various topic-related articles are reviewed for this purpose.

3.4   Primary research

There are cases when secondary data cannot give answers to the research questions. In this situation, the researcher has to gather material herself. Data that is collected by the researcher from the first-hand experience is called primary data. This kind of data is obtained specifically for the research in question, which can be considered as an advantage of this data sources type. It is suitable for revealing real people's attitudes and thoughts as it is impossible to get to know what people think about a certain problem without making them involved in the research process. (Ghauri & Grønhaug 2010, 99-100.) That is precisely the case for the given research as preferences and opinions of the entrepreneur who has ordered research cannot be identified in any other way.

There are different methods of primary research data collection. Those include observation, surveys, interviews, various experiments and so on. It has been already mentioned above, in the current research primary research data will be collected with the help of face-to-face interview.

3.5 Data analysis

All the gathered information needs to be analysed. Both primary and secondary data will be analysed by the researcher using content analysis method. Content analysis is a data analysis technique that is used in the given research. It concentrates on studying various sources of information such as books, texts, published documents, internet pages, articles and so on. To make it sound more scientific, this technique finds meanings and connections between various concepts which are presented in the source under study and makes some conclusions about them. (Altinay & Paraskevas 2008, 127-128.)

Conclusions for the following research will be made by building bridges between results of the interview and information gathered for the secondary research. The researcher's role is to correlate identified existing gaps, company owner's expectations from the enterprise system with the pre-analysed list of available on the market enterprise systems for the micro-sized enterprise.

4 Enterprise system for a micro-sized retail company

This chapter is focused on the analysis of data, which was collected with the help of such data collection methods as face-to-face interviews with the owner of the chain of stores and its employees, and research on ready-made information, which is available on the internet. Based on the data analysed, the researcher provides answers to all four investigative questions one by one. Thereby, the answer to the main research question is formed.

4.1 Current state of play in the company

Before implementing the enterprise system in a company, the precise triggers of this decision have to be stated. To some extent, these triggers serve as reasons for system implementation. In order to identify these triggers research conducted a face-to-face interview with the owner and three employees. All the interviews took place in different company's premises (depending on the workstation of the interviewee) on April, 4th.

The first interview was aimed at identifying owner's intentions concerning the acquisition of the system for the company. Not all the answers were received from the respondent. In researcher's opinion, this has happened due to misunderstanding as the respondent does not speak English fluently enough. However, the essential questions were not left unanswered.

The owner of the store informed that he was thinking of getting the system for his stores as it would help him to control the movement of items on sale and make more precise calculations of profit or loss made. He told that all the calculations in the company are done manually. Moreover, these days it is hard to get real information on the stock as the basic cash machine, which is used in the company, does not include the division of items sold in the store.

The most important question to the owner was about the expected expenses that he is ready to allocate to the implementation of the system. Without knowing this information, it would be hard to use a cost of the system as a selection criterion. The owner informed that the costs are preferable to be kept at the minimum. He is ready to spend 5000 euros for the whole implementation process. Moreover, he was not sure about the amount he could pay for the subscription, but as well as implementation costs subscription fee should be low enough.

The rest three interviews were of sales assistants. The main aim was to identify the existing problems that might be solved by the deployment of the business application. As it was anticipated, all three employees complained about the way, in which the working process is organized. The main problem, which was reported by all respondents, is unregulated information sharing system. There is no such system at all. Therefore, it is hard to be aware of things that had happened while the employee was off from work. Moreover, it is difficult to find data about items – their net and selling prices, the quantity left, the location in the store, and so on. In order to get to know this information, they have to call their boss or other employees, who might be unavailable at the moment of the call. This information is often needed urgently because it is requested by the customer.

Moreover, as the owner informed, sales assistants are responsible for making lists of items that are low in stock and needed to be purchased from the supplier. This task is also performed manually because the company does not have a database that would contain real-time data about the stock. Each employee has its notebook that is used for recording such information. One respondent told that there were cases when apparent selling failures were mistakenly ordered from the supplier again.

All the respondents reported that they do not have any experience with enterprise systems. However, as long as most of the employees are young students, they convinced that it would not be a big problem for them to learn how to use such system. On the other hand, it is good to take into account future employees, who might not be skilful enough. Therefore, it is still more optimal to have a system, which will be easy enough for all workers.

The interviewed sales assistants believe that the implementation of a business application, or at least a common database, would be beneficial for them as they will get more awareness of the state of things in the company. Moreover, they consider it is advantageous mainly for the company as they would be more order and stricter guidelines for task performance of each person that is involved.

4.2 ERP system for a family-sized retail chain of stores

In order to select an ideal program, selection criteria have to be set. The primary research results showed that the system has to be convenient to use and inexpensive in implementation and further exploitation.

To make sure that the system will be affordable in the exploitation, it was decided to eliminate all the programs that are hosted on-premise. As it was discussed in chapter 2.6, cloud-based systems are sufficient for small enterprises that are used to allocate their financial resources with circumspection. Moreover, research has shown that significant amount of funds will be spent on the hardware, which will replace the old cash machine.

The primary focus was set on cloud-based retail management software. It is convenient in a way that it does not necessarily need to have a representative in a country where the business operates. Some time ago firms were obliged to pick the system, which was available in their region. However, the globalisation and development of cloud-based platforms have enabled companies to choose any system, which is free for use online. (Monk & Wagner 2009, 199.) All the support services are held online: communication via calls and chats are available on the official web-page of the software. Moreover, almost all cloud-based solutions offer a half-month of a free trial period, which means that the client may check himself whether the system is suitable for his company and easy enough for the use.

During the first phase of the selection process, the researcher got acquainted with a couple of dozens of various retail management systems. At this stage, systems were evaluated based on cost, overall fitness to the company and reviews from other users. Feedbacks that are left by the clients on the independent webpages, such as Capterra.com, which makes the description of the various business solutions and provides a forum for leaving a review, were found to be a handy tool to get a basic idea of an offered system (Capterra 2018d).

Three systems were chosen for further comparison and identification of the best one. These three systems are Shopdesk, Retail Cloud Zero and iConnect. All these systems are focused on providing services to small retail enterprises with a small number of employees, to be more concrete, system's users.

These systems are compared based on criteria that are presented in chapter 2.8. All the criteria are listed in the first column of the tables. The first table is going to evaluate the comprehensiveness of functionality of the discussed candidates. Functionality is the foremost selection criteria. Thus it has to be thoroughly reviewed.

Table 3. Evaluation of functionality of enterprise systems (Chumakova 2018.)

	Shopdesk	Retailcloud (Grow)	iConnect
POS	Application for smartphones and iPad; web-based POS for Windows and Mac;	Available for Android (smartphones/tablets) and Windows (PC); unlimited number of POS users;	Available for Android and iOS (smartphones/tablets); Windows (PC);
Sales Operations and reports	Includes a possibility of return and refund; receipts via email; daily reports; sales per store and employee;	Tips acceptance; signature capture; refunds and exchanges; email receipts; suspend/resume sale; sales total reporting; markdown analysis; multiple forms of payment (cash, credit cards; gift cards, checks);	Best selling items report; refunds and exchanges; email receipts, suspend/resume sale; sales total reporting; markdown analysis; multiple forms of payment (cash, credit cards, gift cards, checks);
Product management	Creating/editing of product data;	Unlimited number of products; up to 9 classifications for items; price and cost management; barcode printing;	Creating and editing of product data with Master Product Editor;
Inventory management	Inventory reports; increase/decrease of inventory; low inventory management; automated reordering;	Transfers; receivings; multiple tax rate support; centralized control; inventory visibility; price management; inventory write-off report; cost of goods monitoring; inventory reporting;	Stock level reports; PO creation; stock transfers; inventory write-off report; cost of goods monitoring; receivings;
Employee management	User accounts; tracking of employee's performance;	User accounts; top seller reporting; employee productivity reports; clock-in and clock-out on the POS; commission management;	Each user gets a PIN to login to the system; access permissions are customizable; schedule planning; hours tracking, clock in & out;
Multi-location	Available;	Available;	Available;
Multi-currency support	Available;	Available;	No data available
Off-line operations	Available.	Available.	Available.

Based on the data, which is available in Table 3, it is quite noticeable that all three re-viewed systems have similar functionality. Shopdesk offers fewer functions in most of the modules, while iConnect and Retailcloud are relatively the same in terms of available functions (iConnect 2018; Retailcloud 2018d; Shopdesk 2018a).

The next table is going to compare systems on the basis of the following selection criteria: reliability, usability, compatibility, ability to integrate with other software and customisation. These indicators belong to the software-related class of selection criteria.

Table 4. Comparing retail ERP systems by other software-related selection criteria (Chumakova 2018.)

	Shopdesk	Retailcloud (Grow)	iConnect
Reliability	Controversial: good reviews from the end-users; new platform – hard to evaluate its steadi-ness;	Very good reviews from different users coming from all over the world. The service is on the same pace with the tech-nology development. Availability of disaster re-covery;	Controversial: very perva-sive content on the official webpage and review pages. However, some users leave extremely bad feedbacks on review webpage;
Usabil-ity	Ease of use – the highest grade from all respondents; 4 users evaluated it;	Ease of use – quite easy to use (4.5 out of 5 based on the review of users);	Ease of use – relatively easy (4 out of 5 based on the re-view of users);
Compatibil-ity	Compatible with a large range of hardware;	Compatible with any kind of payment processors, EMV, USB/Bluetooth printer, scanner, display pole, scanner options, Apple Pay;	EMV and PCI compliant; Apple Pay;
Integration with other software	No data available;	Dropbox; Google Drive; QuickBooks Online; Xero; Ecommerce store ECWID; Excel;	Magento, QuickBooks, Sage, MailChimp, Microsoft Power BI, Avalara, GiftCards;
Customiza-tion	It is possible to customize a back office, include only necessary features to the list.	Each user may customize a POS display and a back office based on his needs.	size & color customization on POS; add-ons creation.

According to the showings, which are presented in Table 4, Retailcloud is seen to be the most reliable system among all the reviewed. The system has good reviews from the us-ers (Capterra 2018b). Moreover, it has an unbeatable competitive advantage – the system

offers a possibility of disaster recovery if something extraordinary happens (Retailcloud 2018d). All the systems are quite easy to use. Retailcloud has a bit stronger position in this section too.

As for compatibility, Shopdesk does not specify hardware and software, which might stay connected with the ERP (Shopdesk 2018a). Therefore, it is hard to evaluate the system by this criterion. As for other candidates, both of them have integration with EMV and Apple Pay. Supposedly, iConnect has the same range of hardware, which it can integrate with, as Retailcloud does. However, additional information about it was not found. As for software, the commissioning company does not use any programs which were listed by iConnect. However, the owner of the company uses Excel, and probably Dropbox or Google Drive, which are available in the list of Retailcloud's compatible software.

Table 5. Comparing retail ERP systems by market position and implementation-related criteria (Chumakova 2018.)

	Shopdesk	Retailcloud (Grow)	iConnect
Market position	A new player in the market, founded in 2016; very insignificant market share;	10 years of operating; very insignificant market share;	Launched in 2010; 19th in the Top 20 Retail Management Software; 10000 users all over the world;
Easiness of implementation	Easy (based on the reviews of current users);	Easy (based on the reviews of current users);	Easy to setup;
Training	Documentation and webinars;	Documentation, webinars and live online;	Documentation, webinars and live online;
Support	Online and business hours;	Online (community and direct chat) and business hours;	Online and business hours;
Cost	Subscription; 65$ per month for multi-store package.	Subscription: 30$ per month per POS.	Subscription: 75$ per month per POS.

According to data, which is presented in Table 5, all three retail management systems are accessible in deployment and further exploitation. The most prominent plus of cloud-based systems is that there is no need to hire a consulting agency who will guide the entrepreneur in the implementation process. All the guidance is received from the service provider via various virtual channels. (Capterra 2018a; Capterra 2018b; Capterra 2018c.)

While most of the checked reviews state that customer service is very efficient and helpful, it is important to mention that this support service operates during working hours (Capterra 2018a; Capterra 2018b; Capterra 2018c). All these companies are not physically located in Europe, which means that in case of any situation when help is needed, European customer might not get support from the service provider.

The main difference that is clearly seen is related to their experience and maturity, in terms of which Shopdesk has the weakest position being still a start-up company. iConnect has a better market position and recognition in the industry. Thus the price for its offered services is the highest among the presented. Retailcloud is not highly recognised, but it has excellent reviews from the users. Moreover, the price for its services is lower in comparison to iConnect's prices. (iConnect 2018; Retailcloud 2018f; Shopdesk 2018b.)

It is recommended to choose Retail Cloud (Grow version) for the use of the company in question. This software seems to be affordable for the owner of the business. Moreover, it is quite easy in implementation and use. It is reliable as the company has operated for ten years and it has excellent feedback from the users. iConnect seems to be a good software for the franchise business. Moreover, it contains many features that are not needed for the commissioning company. (iConnect 2018.) Meanwhile, Shopdesk has shown to be poor in its functionality (Shopdesk 2018a). Consequently, Retail Cloud is the most optimal version among presented.

To make sure that the selected software fully fits to the organisation, it is advisable to use the benefit of the trial period, which is entirely free of charge. Retailcloud offers 14 days of use for free (Retailcloud 2018f). Of course, the system cannot be fully checked if the needed equipment is not in hand. Nevertheless, it is still possible to learn more about the functionality of the program and make a final decision on dealing with the offered system.

4.3   Installation of cloud-based retail management system

Selection, as well as the installation of enterprise system, is a step of the implementation process, which is described in the next subchapter. However, choosing the program is a

crucial step that has to be described very precisely. The success of software implementation directly depends on how well the selection process is conducted. Installation is not less important.

Cloud-based systems are advantageous in a way that no servers are needed to be installed in company's premises – all the data is stored online. However, the acquisition of a new system might require replacing old equipment with the one, which is compatible with the program. That is precisely a case of this research. Software selection is only one step; the subsequent step is a choice of hardware and needed additional tools.

Retailcloud system offers two options – use of the software on PC or/and Android. The owner and other authorised users may access the program through the web. Another option is to install the program on the Windows PC. Moreover, the mobile application is available for Android. (Retailcloud 2018c.) The owner does not need to buy PC to use the program as he can do it on his current laptop. But POS needs to be replaced by some newer device.

The service provider also sells hardware with pre-installed software. All-in-one solution is available for purchase. It contains all the needed tools such as a tablet, cash drawer, barcode scanner, etc. However, the price for such device is quite high (2495$); and the limit that was set by the owner does not allow to consider this option as four machines are needed to be purchased, one for each store. (Retailcloud 2018e.) Hence, the more reasonable option has to be found.

POS on Windows PC is found to be unsuitable regarding the price too. The starting price for such point-of-sale system is 2494$. Consequently, the only left option is a POS on Android tablet. Among all presented in the online store tablets, two most affordable were chosen. They are presented in Figures 9 and 10.
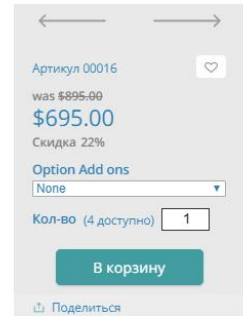
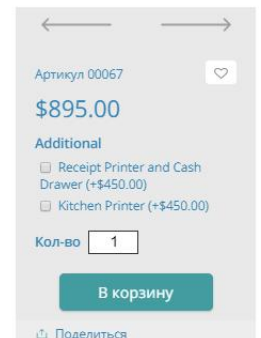Figure 9. Android Commercial 10" Tablet & Stand (Retailcloud 2018a).

Figure 10. Android Portable 10" Tablet & Stand (Retailcloud 2018b).

Similar business-oriented tablets are on sale also in other online stores. Finding the same tablet for a cheaper price is quite possible. It is essential to take into account that these online stores are not located in Finland. When the purchased goods are imported into

Finland, the VAT has to be paid (Tulli 2018). Therefore, the price which is stated on the webpage is not the final one. Moreover, shipping costs have to be counted too.

In addition to the tablet, additional tools have to be purchased. Receipt printer, barcode scanner and barcode label printer are needed for efficient work in the store. Current cash drawers are compatible with the system, so it is not necessary to buy new ones. The service provider also sells these devices. However, they can be also found in online stores with lower prices on these products. The average price for receipt printer is 200$ and barcode scanner is about 70$. Average price for barcode label printer is 200$ (this machine can be purchased in the quantity of one piece and used in the warehouse for marking all the items that are about to be dispatched to the stores).

Taking into account all the transportation and customs costs, the overall implementation costs might run over the set limit. So, Haddara (2014, 400) was right in his statement, saying that most of the firms spend more on the implementation of ERP system than they have planned.

Another important suggestion to be followed is timing for starting the installation process and further activities that are related to the implementation of the system. The entrepreneur has to make sure that this process will not disturb the performance of company's core activities. Therefore, it is recommendable to start installation and data transfer in the quietest time of the year. (Monk & Wagner 2009, 199.) For the tourism sector in Helsinki, this period starts in the middle of January and lasts for two months. Consequently, it is advisable to plan the implementation for that period of a year.

4.4   Implementation of cloud-based retail management system

As it was stated in the chapter 2.8.2 implementation process of cloud-based ERP does not differ much from the implementation process of monolith solution; and it includes the next steps: goals and objectives determination; estimation of the project scope; gaps identification; determining whether customisation of the chosen system is needed; data transfer; testing of the system; end-user training; going life and post-implementation support (Medium 2017).

This plan has been partly implemented in the previous subchapters 4.1-4.3. The aim was defined, gaps were identified, the system was chosen and the installation process was described. This subchapter concentrates on the next implementation steps.

4.4.1 Customisation

The company X does not manage any exceptional operations that would require specific system's adaptations. Therefore there is no need to order any modifications from system's developers at this stage.

The only idea for the future could be integration with e-Taxfree system, which is used by the company X in tax-free sales to tourists that arrive from non-EU countries. Most of the firms use a separate program for such operations. However, it could be more convenient to have all processes run in the same program.

4.4.2 Data transfer

To move forward, the client needs to register in the system and start fill in the required fields. The next step of the implementation process is data transfer. Although, registration in the system and data transfer can be started even before the hardware is installed in the premises.

It is handy to make a plan for data migration before the actual process is started. It might take a couple of weeks to fill required data fields (Kaar Technologies 2016). At the beginning, less essential information should be loaded into the system. During the whole process of data transfer testing sessions should be conducted to check whether the system works properly. (Cole 12 June 2017.)

The direct responsibility of the owner is to load financial, accounting, supplier and employee data. All the existing data, which is available in the digital and paper format, should be transferred to the newly acquired online database.

As for inventory data migration, all selling products have to get its record in the system. The stores have approximately a thousand of items on sale. Sales personnel can also be involved in this process, if they get an authorised access to the product management module, to fasten the process. Tutorials and guidelines are available on the official webpage of the system. The use of this system is simplified in comparison to heavy ERP systems, such as SAP. Therefore, employees will be able to cope with such program, especially since most of the employees of Company X are part-time working students.

To transfer the data as accurately as possible it is advisable to reserve a special day for counting inventory and recording it in the system. The best possible way to do it is to ar-

range a single inventory day in all stores and the storage. Thereby the chance that there will be a discrepancy between the inventory amount in the system and reality will be minimized.

According to the instructing materials, which are presented on the webpage of Retailcloud, data transfer is not a hard task to implement. Thus there is no need to outsource this job to a consulting IT agency. Without any doubts, the owner of Company X can manage it by himself with the help of employed workforce.

4.4.3 Team training

As in all other steps, well-thought plan of actions is a must in the training too. The plan needs to be made to make a training process maximally short and efficient at the same time. First of all, the owner has to familiarise himself with the content of the guidelines, which are free for the user on Retailcloud's webpage. Many learning materials are available in different formats – webinars, videos, blog, text instructions and so on.

When the owner has got enough knowledge of the system, he is ready to share his competencies with the employees. It is recommendable to give learners an opportunity to get acquainted with the system before the actual training session, using the same learning materials.

On the training day the owner has to cover the following topics:
1. Log in to the system through POS / tablet
2. Sale procedure
3. Sale suspending and resuming
4. Payments by card or cash
5. Acceptance of other currencies and registering such sale to the system
6. Returns management
7. Searching an item in the system (checking its price and availability)
8. Price tag printing
9. Checking sales reports
10. Closing a sales day

Before the actual training session, the owner has to make sure that each employee has been registered in the system. One day should be enough to cover all the foregoing topics. However, if the owner decides that his employees can also participate in managing products than additional training is required for the successful start of working with the system.

The same principle is suitable for more advanced training that will include instructions for using product management module. The plan for the session has to be created at first.

The owner has to get prepared for the session and review all the topics himself before explaining the content of the course to the learners. The training on product management may include such thematic sections as product creation and edition, barcode printing, etc. Cloud-based systems are advantageous in a way that they are much more cost-effective than monolith ERP systems also in the implementation process. In the given case, the training, as well as data migration, can be conducted without any external help.

4.4.4 Testing

Testing the system is an essential step before making this system released. However, it is important to remember that testing has to be taken time to time during the whole implementation process to be able to fix all the appearing bugs and weaknesses in the period which does not coincide with the actual work of the company. The testing can be conducted while data is transferred to the system and employees get their training. (Management Hub 2018.)

It is required to check how the system interacts with other programs that are used in the company and equipment (Management Hub 2018). When all the appliances are connected, there should not be any disruptions during the sales process. Both cash and card payments have to run seamlessly. The transactions have to be captured by the system. The receipt printer has to print the receipt after each completed sales operation. The barcode scanner can be also checked for the reliability. As Retailcloud promises that the offered system can work offline and synchronise with the online database right after the internet connection is recovered, this situation of connection loss can be also checked during the testing session (Retailcloud D 2018).

The inventory module should be also checked for its validity. The accuracy of transactions should be verified. It is necessary to make sure that the inventory record stays correct after each purchase, which is related to the movement of inventory. Such transactions may include item movements from the storage to the store, movements from one store to another, selling the item to the customer, return of the purchased item, etc.

Another point for verification is how well financial operations are recorded in the system. It is necessary to check that the system keeps each result of the sales operations registered. During the testing round the sales, the report can be checked to make sure that there is no discrepancy between the figures, which are presented in the report, and in reality. In this process, the person, who checks the system, may keep all the conducted actions recorded separately for a better evaluation of the conducted testing.

Testing is conducted to find mistakes in the system operations. If something goes wrong, the help of the technical support has to be called. If there are many detected weaknesses in the initial work of the system than it may mean that the chosen system is not as efficient as it has been promised to be. And in some particular cases, the change of the system might be unavoidable. (Cole 12 June 2017.)

4.4.5   Going live and post-implementation

Once the program is tested, and employees understand how the system works and all the needed data is entered into the system, the company can start using the system in its daily operations. It is good to set a date of release to the quietest period when there is no rush in the stores (Monk & Wagner 2009, 199). It may be also beneficial for the users as they keep practising working on the system in the more relaxed atmosphere.

The use of the system has to be started simultaneously in all stores to keep the transferred to the system data as accurate as possible. That might be a tricky task to do. Hence it is essential to plan the day carefully. The owner has to be always in touch with his team, which should consist of the most successful learners on that going live day.

When the system is implemented, the only thing which is left to do is exploitation of the system. From this moment on, the owner and company's employees are obliged to enter all the company's operations to the system; otherwise, there is no point to implement such technology in the company.

The owner needs to pay attention to all upgrades and updates of the system. Sometimes the system might work less efficient after the latest updates. In such situations, the support team has to be informed about any post-update related problems. Also, the owner should attend webinars that are organised time to time on the Retailcloud to stay updated with the latest news about the program and enhance the needed skills and competencies.

5 Conclusion

The primary goal of the given section is to summarise the research findings. In addition, it provides suggestions for further research and outlines learning reflection of the author.

5.1 Key results

The main aim of the given research was to find an appropriate enterprise system for a small local chain of souvenir stores and give advice on how this company can implement the system. To achieve a set goal, the author conducted both primary and secondary research; and based on the findings she made some suggestions concerning software selection and its further adoption in the company.

The results of face-to-face interviews showed that Company X experience some difficulties that can be related to the absence of systematic approach in all its business operations. The main identified problem was unregulated information sharing system. Moreover, all the accounting and financial calculations are performed manually. The company does not have an integral database that contains information about every single process that runs in the enterprise. Therefore, the inventory and financial situations are seen to be quite surrealistic as not all transactions and movements are recorded appropriately.

Consequently, the need for a simple enterprise system is unconditional. To that, the owner of the company has been thinking of applying modern technologies to his ordinary business. As long as it is a small family firm with limited financial resources, the chosen system has to be easy in use and cheap in its exploitation. Among three existing types of ERP systems, which are on-premise, hosted and cloud-based, the last one was selected as an ideal for the small enterprise that tends to allocate most of its efforts on its core business processes, rather than on maintenance of monolith ERP system. Thereby only cloud-based ERP systems that are developed specially for the retail industry were taken into consideration.

Desktop studies revealed that there are dozens of various ERP systems for retail businesses. During the first round of selection process, three candidates were chosen based on cost, overall fitness to the company and reviews from other users. In the second round, special selection criteria were used to identify the system that fits Company X at the most. As a result, it was determined that Retailcloud, which is a cloud-based solution for small retail enterprises, was the best selection option among all reviewed. This system is sub-

scription-based, which means that the owner will be obliged to pay a service fee each month. The biggest plus of the system is that it can be easily withdrawn with no data loss as all the content of the database can be safely transferred to some other software which is exploited by the company.

The researcher also gave her recommendation for successful adoption of the system in Company X. The installation process was reviewed. Although the system is located in the cloud, there is still a need to update equipment which is currently not compatible with the offered system. The review of different appliances was made and appropriate ones were suggested for purchase.

The tips for all further implementation phases were provided. As this company does not have any peculiarities in its operations customisation is advised not to be applied in the initial stage of system's usage. All the implementation stages require well-thought planning before their direct realisation. The most important thing to remember is that adoption of the system has to be performed during the quietest time of a year so that company's core activities would be marginally disturbed. Data transfer might be a time-consuming thing to fulfil. However, the involvement of employees is recommendable to fasten this process. Employees should also get appropriate training on using modules that they will have rights to access. As the service provider offers many different ways to get acknowledged with the system, the owner will need to get familiar with all the presented guidelines himself first and then teach his staff to work with the system based on received knowledge.

Testing is also an essential part of the adoption process. The owner has to make sure that the system works flawlessly. The testing rounds should be conducted not once during the whole implementation process.

When the system is released, the owner still needs to keep an eye on solution performance. The developer will release updates and upgrades of the system time to time. So, the owner's task is to monitor whether the system works correctly after all entered modifications.

All in all, cloud-based ERP system allows tiny enterprises to use same technologies that have already been in use of larger companies for decades. Such technologies help not only to optimise and streamline the processes of the company, but also implement the best practices that do exist in the industry. Moreover, there are no limitations for the companies in the use of ERP systems as there is such a vast variety of solutions in the market

that each enterprise regardless its size and financial solvency can find a solution that fit its interests.

5.2   Suggestions for further research

The results of the present study showed that even micro-sized companies can deploy ERP systems for their usage. Moreover, it is even possible to implement the system without any external help of IT consults, in exception of those who work for the service provider.

As an idea for further research, it would be useful to a develop specific training program for self-learning that could be applied by the entrepreneurs, who is interested in saving money on training sessions that are organised by the IT consultants. More specific guidelines for other implementation phases can be a subject for another research as implementation costs can also be quite high, so saving money on these articles of expenses can be attractive to those entrepreneurs, who are still afraid to implement ERP systems in their companies due to their high initial costs.

5.3   Learning reflection

The chosen topic has been meaningful and important for the author throughout the whole study. Despite the fact that she has been already experienced with the use of such programs as SAP and Microsoft Dynamics, theories which were reviewed in the given research have been somewhat unfamiliar to her. At some point, it was quite tricky to move forward with the research due to the extensiveness of the topic. However, the careful review of the material and consultancy with the advisor helped to find answers to all set research questions.

The research process has definitely been beneficial for the scholar. As she plans to continue her Master studies in the same field, the knowledge that has been received is very precious for her further learning and career.

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Appendices

Appendix 1. Infographics. A Brief Overview of Enterprise Resource Planning History
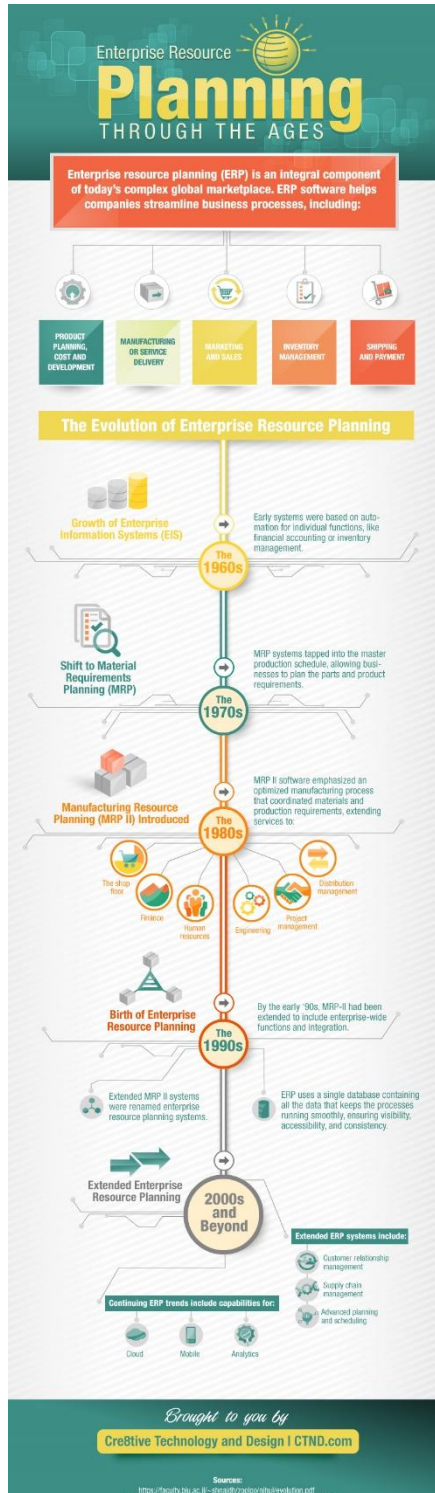
(Cre8tive Technology & Design 2014).

Appendix 2. Questions for face-to-face interview with the owner of Company X

Questions

1. When did you start your retail business?
2. Do you still have any ambitions for enlarging your chain of stores?
3. How do you interact with suppliers, various service providers and other third parties that are involved in your business?
4. What practices do you follow in inventory keeping and bookkeeping?
5. How do you keep statistics about customers' purchasing preferences towards products that are sold in your store?
6. Do you experience any difficulties in managing 4 stores by yourself? What are the main?
7. How do you cope with these issues?
8. Have you heard anything about ERP for retail business / business application?
9. Do you have any user experience with business software (databases)?
10. What is your opinion about such systems?
11. Have you ever thought of acquiring special business application for managing operations in your company?
12. How much are you ready to spend on acquisition of such program and required equipment (for example, compatible cash machines / barcode scanners / monitors / tablets)?
13. How much are you ready to pay for a subscription to the system (per month / year)?

Appendix 3. Questions for face-to-face interview with the employee of Company X

Questions

1. For how long have you been working for this company?
2. Can you describe your main responsibilities?
3. What activities are going well during your work day?
4. Do you experience any difficulties in performing your daily tasks?
5. How do you cope with these difficulties?
6. By which means do you share information with your colleagues?
7. Are there any areas of improvement you can list?
8. Do you think that deployment of business software can partly or fully eliminate these gaps?
9. Do you have any user experience with business software (databases)?