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INFORMATION SYSTEM IMPLEMENTATION INTO THE SELECTED FIRM
IMPLEMENTACE INFORMAČNÍHO SYSTÉMU DO VYBRANÉ A.S.

BAKALÁŘSKÁ PRÁCE
BACHELOR´S THESIS

AUTOR PRÁCE   **Bc. KAMILA RŮŽIČKOVÁ**
AUTHOR

VEDOUCÍ PRÁCE   **Ing. HELENA HANUŠOVÁ, CSc.**
SUPERVISOR

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Bc. Kamila Růžičková

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Instructions:

Introduction
Thesis Objectives
Theoretical Background
Problem Analysis and Current Situation Analysis
Proposal and Contribution
Conclusions
References
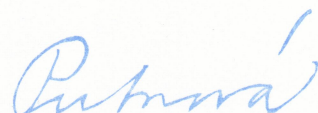Appendices

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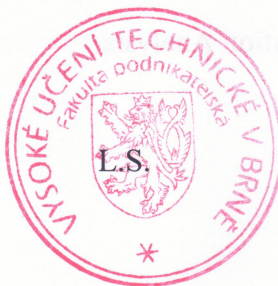
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Ing. Jiří Kříž, Ph.D.
Director of the Institute

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doc. RNDr. Anna Putnová, Ph.D., MBA
Dean of the Faculty

Brno, 7. 2. 2010

Abstract

The objective of the bachelor thesis is to present and analyze the implementation process of the information system to the selected company and on the basis of a detailed analysis give conclusions and recommendations for the company management. Attention is paid particularly to the Enterprise Resource Planning systems.

Abstrakt

Cílem této bakalářské práce je představení a analýza procesu zavádění nového informačního systému do podmínek vybrané společnosti. Na základě detailní analýzy budou předloženy závěry a doporučení pro vedení společnosti. Důraz je přitom kladen především na systémy plánování zdrojů ve společnosti.

Keywords

Information, IS/IT, Information strategy, ERP, IS Implementation, Decision making process

Klíčová slova

Informace, IS/IT, informační strategie, ERP, zavedení IS, proces rozhodování

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Čestné prohlášení

Prohlašuji, že předložená bakalářská práce je původní a zpracovala jsem ji samostatně. Prohlašuji, že citace použitých pramenů je úplná, že jsem ve své práci neporušila autorská práva (ve smyslu Zákona č. 121/2000 Sb., o právu autorském a o právech souvisejících s právem autorským).

Brno, 15. května 2010

Statutory declaration

I hereby declare that this bachelor thesis has been written by myself without any external unauthorised help, that it has been neither presented to any institution for evaluation nor previously published. All used information sources are properly cited including complete reference to the original work.

Brno, 15th May 2010

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Kamila Ruzickova

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Contents

Introduction

Information technologies belong to the most important factors of operation efficiency of a company. Utilization of IT is conditioned whether it is a small sole trader, family bakery employing 10 people, exporting company or multinational corporation. Despite their different background, one thing is common; every one of them wants to stand up to the competition, generate the profit and be successful. In these days, they have to consider increasing role of information; its processing is becoming alpha and omega of the success.

However, IS/IT are disputable phenomenon from the current managerial point of view. It could be an opportunity as well as a threat. This strategic weapon could help in gaining strategic information from R&D of new products, new markets, ways of organizing and managing a company, communication and creation of distribution channels with customers and suppliers; the tool for productivity, quality, flexibility and efficiency increase. IS/IT are essential in the globalization process, increase in intensity of competition, and particularly on the dynamic markets. More and more IS/IT determine business success/failure, increase the differences among the users; they are becoming the key success factor (Willcocks and Plant, 2007). It is not only Internet as a tool for solution the distance and time problems, different ways of communication and thinking; but also electronic banking, purchases, paperwork without any document, home office working, distance learning, and other phenomena concerning the business, too.

The aim of this bachelor thesis is to analyze the implementation process of the information system to the Czech company 'Gral Moravia', present its business position, and on the basis of a detailed analysis give conclusions and recommendations.

The thesis is divided into three chapters. The first chapter introduces the basic terminology, current key applications of IS, and IS/IT implementation strategy. Attention is paid especially to the enterprise resource planning (ERP) systems. The second chapter deals with the current situation analysis. It focuses on the company overview, clarifies the existing company IS, and based on the company IS requirements offers ways how to implement new IS and presents applications meeting the requirements. The last chapter evaluates the strategic contribution of the new IS. In the

conducting part, the findings are summarized and recommendations are given. The reference list and two appendices are the following integral part to the thesis.

All analyses are supported with the literature review e.g. Bocij et al. (2008), Callon (1996), Davenport (2000), Keřkovský and Drdla (2003), Turban (2008), and Vrana and Richta (2005). In order to carry out the analysis of the company it is also used the information published on the corporate websites and in the annual reports. Up-to-date information is based on latest articles from IT and management journals.

1 Theoretical background

The aim of this chapter is to present the basic theoretical background. This chapter is divided into four parts. The first part deals with the main terminology. The second part introduces key IT applications. It clarifies the possibilities which company may have. The third part concentrates on the implementation strategy in general as well as the single steps needed. The ERP systems are discussed in the fourth part.

1.1 Terminology

This chapter provides the basic terms, which are essential for the purposes of this bachelor thesis.

1.1.1 Data, information and knowledge

Data are raw facts, which normally have almost no value until the are processed and transformed into information. Only when data are placed in some form of context can be used as meaningful for a manager (records of business transactions, such as a single visit to a web site).

As far as information are concerned, there are several points to be outlined. First, there is a clear and logical process that is used to produce information. This process involves collecting data and then subjecting them to a transformation process in order to get information. Secondly, information involves placing data in some form of meaningful context. Thirdly, information is produced for a purpose, to serve an information need of some kind (a bank statement, a sales forecast).

Although there are many definitions of knowledge, knowledge can be considered as a person's unique abilities, such as perceptions, experiences, intuition and analytical skills. When these abilities are combined with the information the person holds, this represents knowledge. In general, knowledge can be described as explicit or tacit. It may help to think of explicit knowledge as "know-what" and tacit knowledge as "know-how" (Bocij et al., 2008).

Figure 1 and figure 2 illustrate how the data, information and knowledge are connected with each other and the action.
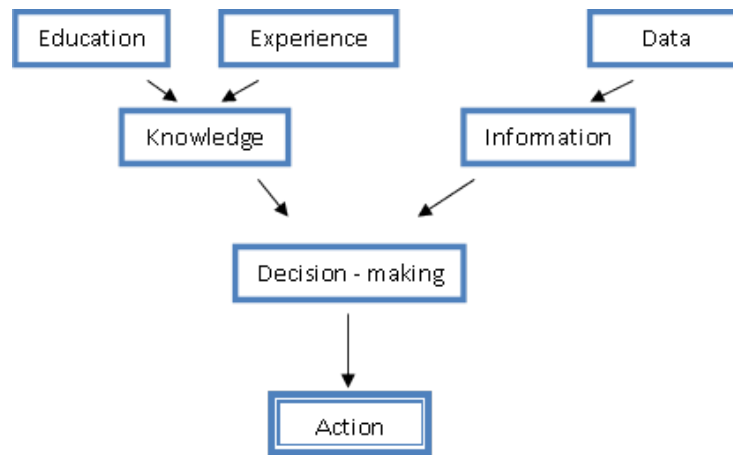
Figure 1: Data, information and knowledge (Bělohlávek et al., 2001)
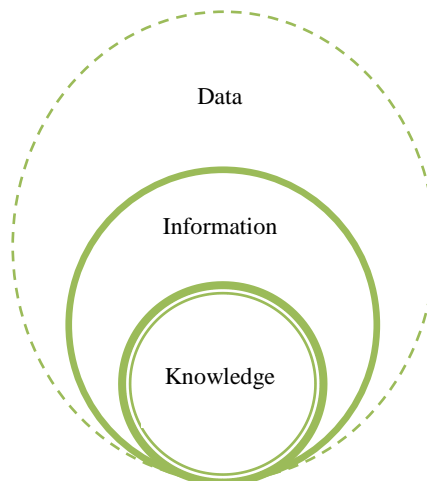
Figure 2: Data, information and knowledge II (Keřkovský, Drdla, 2003)

1.1.2 System

The system is the basic term which needs to be explained. According to the international standards, the system is a set of components which are intentionally ordered to achieve a goal. It could be either any general system, or software intensive system. The general systems are: 'created and used by people, providing products or services for consumers' satisfaction. It includes hardware, software, data, people, processes and procedures, equipment, material and natural sources' (ISO/IEC 15288,

cited in Buchalcevová, 2009). Software intensive systems are: 'systems with prevailing software function' (ISO/IEC 12207, cited in Buchalcevová, 2009:31).

1.1.3 Information technology

Information technology (IT), as defined by the Information Technology Association of America (ITAA), is 'the study, design, development, implementation, support or management of computer-based information systems, particularly software applications and computer hardware' (ITAA, cited in Rainer and Turban, 2009:135). IT deals with the use of electronic computers and computer software to convert, store, protect, process, transmit, and securely retrieve information.

1.1.4 Information system

Information systems (IS) are historically defined as a 'bridge' between the business and computers (Turban, 2008). IS includes procedures, data, software, and hardware that are used to gather and analyze information. The goal of IS is to effectively support information, decision-making and operating processes on the each company level.

However, the terms IS and IT are often used interchangeably. This could be considered as an error, due to the scope of the terms. The stress in IT is on the technology while IS not only refers to the technology, but also incorporates how it is applied and managed to contribute to the business (Rainer et al., 2007).

Any information system includes both automated and non-automated activities. Software supports the automated activities.

Software

Software can be defined as a series of detailed instructions that control the operation of a computer system. There are two major categories of software: systems software and application software. Managers have to specify their requirements for both categories carefully. Systems software manages and controls the operation of the computer system as it performs tasks on behalf of the user, e.g. operating systems, development programs and utility programs. Application software can be defined as a

set of programs that enable users to perform specific information-processing activities that may be general-purpose or application-specific (Bocij et al., 2008).

A computer system consists of a number of interrelated components including hardware and software that work together with the aim of converting data into information (Mutch, 2008). In a computer system, processing is carried out electronically, usually with little or no intervention from a human user.

Hardware

Hardware describes the physical components of a computer system. It consists of different elements. Data are input, then processed according to software instructions, then output to the screen, for example, as information.

The main components are shown in Figure 3. They can be grouped as follows: Input devices are used to enter data, information or instructions into a computer-based information system. As a control is used central processing unit (CPU), it is found in a computer system that controls all of the computer's main functions and enables users to execute programs or process data (Turban, 2008).

Memory is used as temporary means of storage data awaiting processing, instructions used to process data or control the computer system, and data or information that has been processed. Storage devices provide a means of storing data and programs permanently until they are required. Output device translates the results of processing into a human-readable form (Bocij et al., 2008).
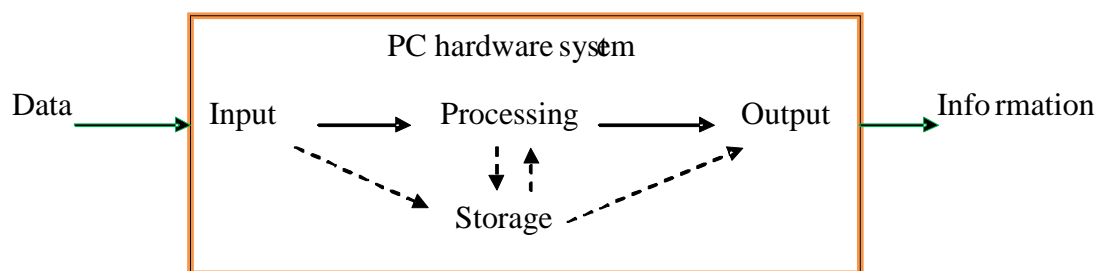
Figure 3: Basic hardware components of a computer system (Bocij et al., 2008)

Orgware

Orgware includes rules and procedures suggested for information systems operations (Koch, 2006).

Dataware

Dataware examines the data stored and used in IS related to its availability, control and safety. It is not important what quantity is stored, or with what accuracy, but, instead, how well can be used by the user and how well it is handled (Koch, 2006).

1.2 Current key applications

In the new global economy, companies are becoming more interconnected (Davenport, 2000). In recent years there has been an expansion in Information technologies (IT) and systems (IS), as Gates states, 'Information technology and business are becoming inextricably interwoven. I don't think anybody can talk meaningfully about one without talking about the other.' (Gates, cited in Bocij et al., 2008:6).

The revolution in computing and IT has facilitated the design and implementation of effective Business Information Systems (BIS). Bocij et al. (2008) consider BIS to be a new phenomenon, a system that provides all relevant information by managers to support company objectives and to retain competitive advantage.

In order to survive and grow in a competitive environment, organizations must seek to gain strategic advantage over their competitors. BIS play a crucial part in gaining and sustaining competitive advantage over other organizations operating in the same industry through a number of different approaches. These include improving operational efficiency, raising entry barriers, creating high switching costs and gaining information leadership (Turban, 2008). More specifically, there are such applications, which are able to gain strategic advantage (CRM, EIS), increase company competitiveness (4GL tools, Project planning and control, stock management and optimization), support the decision-making process ("Paperless office" tools, performance monitoring and employee motivation) or increase productivity and cost saving (video-conferences) (Keřkovský and Drdla, 2003).

Certain information systems support parts of organizations, others support entire organizations, and still others support groups of organizations. Each department or functional area within an organization has its own collection of application programs, or information systems.

These departmental information systems, or functional area information systems, are located at the top. Each information system supports a particular functional area in the organization. Examples are accounting IS, finance IS, production/operations management (POM) IS, and human resources IS (Rainer et al., 2007).

One can sort the information systems from different points of view. In this chapter were chosen IS which deal not only with forms and structured data, but also with unstructured data, in form of communication.

1.2.1 Intranets

The development of a network infrastructure in many organizations enabling personal computers to communicate meant that it was a relatively simple step to deploy the same type of network protocols, the instructions which routes messages and determine how items will be displayed, on internal networks as used on the internet as a whole.

The input are unstructured as well as structured data, the software required are standard web authorising and browsing tools and hardware demanded is only client-server network (Mutch, 2005).

1.2.2 Data warehousing and Data mining

One of the responses to the problem of the incompatibility between data organized for operations and the desire to use them for analytical purposes. At the beginning, there are large amount of transaction data, transferred from operational systems. As software there is need for Online Analytical Processing (OLAP) allowing for multi-dimensional views of data. An important development was the availability of new forms of hardware which would enable the processing the large volumes of data.

While this had traditionally been done on mainframe computers, large machines designed to handle such tasks, these faced the same problem that faced all computer

architecture, that of sequential processing. That is, traditional computer architectures execute one task at a time and, regardless of the speed of the processor, this place a limit on the volume of transaction that can be processed.

However, new developments in computer architecture resulted in the design of parallel processing, that is, where a computer consisted of a number of processors running in parallel (Mutch, 2005).

According to different resources, the main advantage of this system is saving managers' time. They can instead of studying detailed data dedicate their time to processes which may lead to positive change of any situation.

1.2.3 CRM

This technology is designed to store customer data, for others it is a broad philosophy which seeks to emphasize the importance of a single and consistent view of the customer relationship.

The input are transaction data from sales systems, web systems and sales contact systems, the software required is analysis of relationships and hardware demanded is client-server with mainframe for data volumes (Mutch, 2005).

These systems segment the customers and automatically based on set rules they manage the communication through different communication channels. They are able to evaluate the managed communication.

1.2.4 ERP

ERP systems integrate the planning, management, and use of all resources of the organization. The major objective of ERP systems is to tightly integrate the functional areas of the organization, and to enable seamless information flows across the functional areas. Tight integration means that changes in one functional area are immediately reflected in all other pertinent functional areas (Bingi et al., 1999).

Effective ERP system should help the employees with their work and provide relevant information for their daily decisions.

ERP system provides a single view of data across operations but simultaneously requires adoption of standard processes or extensive customization. Client-server with

mainframe for central data storage is the main need of hardware and modular design with modules for major business processes the main need of software (Benders et al., 2006). ERP systems are further discussed in chapter 1.4.

1.3 IS/IT implementation strategy

IS/IT projects are considered as a large projects – not only for their extent, but also for their complexity and specialness. Therefore, general methods and procedures need to be used precisely (Vrana and Richta, 2005). Any IT/IS project has these stages: preparation, implementation and maintenance of IS.

To build a good-quality BIS, a company will follow a process that has defined stages with clear objectives and deliverables at each stage (Porter, 1998; Joyce and Woods, 2001). This part describes the typical activities involved when a new system is build. These stages form what is commonly referred to as the systems development lifecycle.
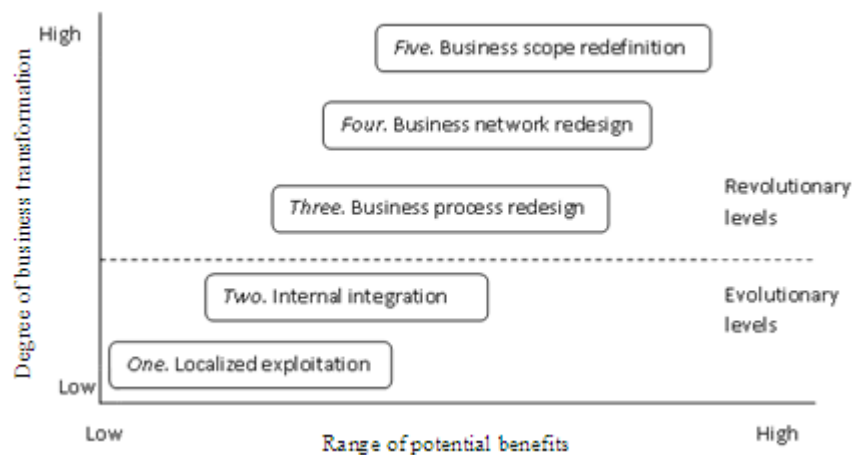
Figure 4: IT-induced reconfiguration. (Mutch, 2006)

Note that as errors are found, or new requirements arise, it is necessary to revisit previous stages. Iterative models such as the spiral model are used to show the cyclical nature of system development where several prototypes are built. This involves repeating the analysis, design and build phases.

1.3.1 Initiation

It is a start-up phase that usually occurs in response to a business problem or opportunity. Its aims are to establish whether the project is feasible and then prepare to ensure the project is successful.

The initiation phase contains the stimulus from which the need to develop a new BIS arises. The stimulus may come about as a result of some external event such as a change in legislation, or it may arise from a desire internally to develop an IS that better supports the business needs of the organization. The source of this initiation process may be one of the following:

- Managing director or other senior management;
- Information system department;
- Functional business area (Rainer and Turban, 2009).
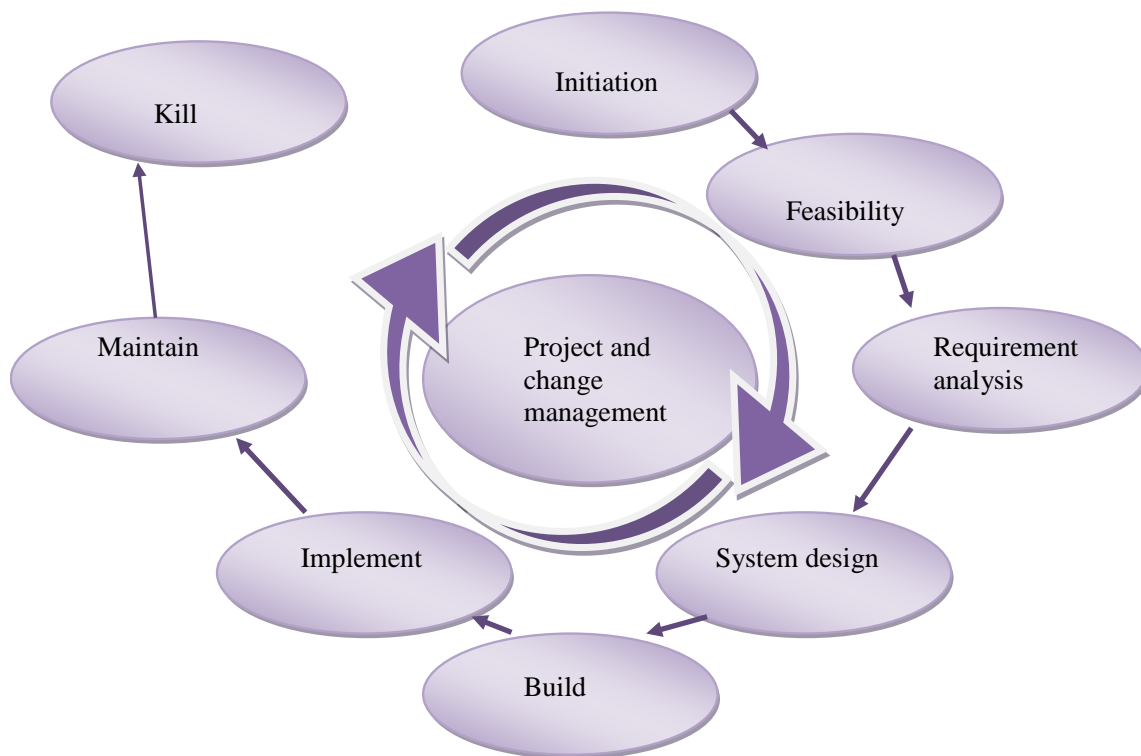
Figure 5: The systems development lifecycle. (Bocij et al., 2008)

1.3.2 Feasibility

Feasibility assessment is the activity that occurs at the start of the project to ensure that the project is a viable business proposition. The feasibility report analyses the need for and impact of the system and considers different alternatives for acquiring software.

The feasibility assessment can be considered to be part of the initiation phase. It will establish whether a computer-based IS fits certain feasibility criteria as technically, economically and organizationally feasible.

The output from this step and therefore, the input to the next step of the model is a stage review and feasibility report (Holland and Light, 1999), which will recommend either that the project proceeds or that the project is reassessed in some way.

1.3.3 Systems analysis

Once it has been determined that it is desirable to proceed with acquisition of a new BIS, it is necessary to determine the system requirements before any design or development work takes place. System analysis is about finding out what the new system is to do, rather than how (Keřkovský and Drdla, 2003).

Fact-finding techniques are used to ascertain the user's needs and these are summarized using a requirements specification and a range of diagramming methods. Analysis will identify the business processes which will be assisted by the software, the functions of the software and the data requirements.

The results of the analysis phase are summarized as a requirements specification which forms the input to the design phase, which will define how the system will operate.

Any errors in systems development that occur during the analysis phase will cost far more to correct than errors that occur in subsequent stages. It is therefore essential that maximum though and effort be put into the analysis process if unanticipated costs are not to arise in the later stages of development (Bocij et al., 2008).

1.3.4 Systems design

The design phase of information systems development involves producing a specification or 'blueprint' of how the system will work. This forms the input specification for the final stage of building the system by programmers and database administrators. The design phase is also closely linked to the previous analysis phase, since the users' requirements directly determine the characteristics of the system to be designed.

The systems design is given in a design specification defining the best structure for the application and the best methods of data input, output and user interaction via the user interface. The design specification is based on the requirements collected at the analysis stage.

Design is important, since it will govern how well the information system works for the end-users in the key areas of performance, usability and security. It also determines whether the system will meet business requirements – whether it will deliver the return on investment. The design specification will include the architecture of the system, how security will be implemented, and methods for entry, storage, retrieval and display of data.

In systems design one is concerned with producing an appropriate design that results in a good-quality information system that:
- is easy to use, provides the correct functions for end-users;
- is rapid in retrieving data and moving between different screen views of the data;
- is reliable and secure;
- is well integrated with other systems.

These factors are clearly all important to delivering a satisfactory experience to end-users and a satisfactory return on investment to the business (Bocij et al., 2008).

1.3.5 Systems build

System build occurs after the system has been designed. It refers to the creation of software using programming or incorporation of building blocks such as existing software components or libraries.

The main concern of managers in the system build phase is that the system be adequately tested to ensure it meets the requirements and design specifications developed as part of the analysis and design phases. Programmers will also want to closely monitor errors generated or identified in the build phase in order to control on-time delivery of the system (Vrana and Richta, 2005).

1.3.6 Systems implementation and changeover

System implementation follows the build stage. It involves setting up the right environment in which the test and finished system can be used. Once a test version of the software has been produced, this will be tested by the users and corrections made to the software followed by further testing and fixing until the software is suitable for use throughout the company. The implementation stage involves managing the changeover from the old system to the new system.

There are several alternative changeover approaches that can be used together if required:

- run the old and new systems in parallel;
- a phased approach where different modules are gradually introduced;
- cutover immediately to the new system;
- pilot the system in one area or office before 'rolling out' on a larger scale.

Some of the main reasons that IS projects may fail at the build or implementation stage, include:

- forgetting the human issues;
- computer resources are inadequate;
- poor management of change process;
- lack of support from the top or from stakeholders;
- using a big-bang method of changeover (Bocij et al., 2008).

1.3.7 Review and maintenance

Maintenance deals with reviewing the IS project and recording and acting on problems with the system. Software change management deals with meeting change

requests or variations to requirements that arise during the systems development project from business managers, user, designers and programmers (Vrana and Richta, 2005).

IS change management deals with the migration from an old to a new IS system. Organizational change management deals with managing changes to organizational processes, structures and their impact on organizational staff and culture (Porter, 2004, Mutch, 2008).

The figure 5 illustrates the traditional waterfall model, which was created in the 70's. It was the first model of IS development in software engineering quite popularized. However, there are some limitations regarding the customer involvement (only at the beginning and the end), no space for changes, stable conditions during the whole process, postponing problems to the next stage, integration after all programming period may lead to problems and changes in proposal, reprogramming and delay in assignment. On the other hand, this model has undisputable strengthens in dividing all process in stages, and giving clear picture of the project extent (Buchalcevová, 2009).
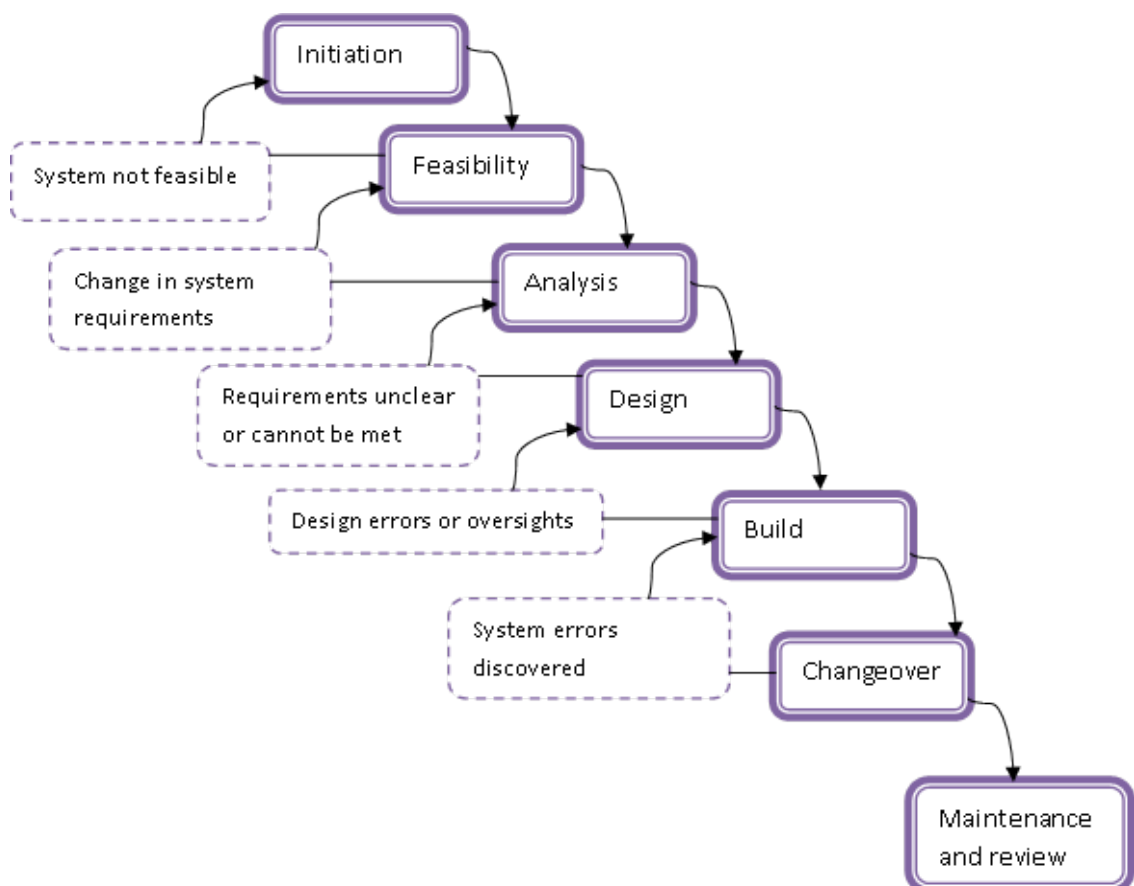
Figure 6: The traditional waterfall model of IS development. (Bocij et al., 2008)

1.4 ERP Systems

The term Enterprise Resource Planning (ERP) was first introduced by the Gartner Group of Stamford, Connecticut, in the early 1990s (Kholeif et al., 2008).

ERP systems can be defined as 'packages of computer applications that support many, even most aspects of a company's…information needs' (Davenport, 2000:2), and these software packages are single-vendor based (Stefanou, 2001). These systems span most functional areas such as accounting, operations management and logistics, human resources sales and marketing. They pose the core of IS application part and cover many of its functions and key processes.

ERP systems are the latest attempt to realize the elusive promise of databases: the provision of a common set of data operating across all an enterprise's operations (Davenport, 2000).

1.4.1 Major objective

ERP's major objective is to automate and integrate all departments and functional information flows across a company onto a single computer system that can serve all of the enterprises' needs (1). For example, improved order entry allows immediate access to inventory, product data, customer credit history, and prior order information. Such availability of information raises productivity and increases customer satisfaction (Murphy and Simon, 2002). In other terms, (2) by sharing data, procedures and their standardization in each company department, (3) creation and making available information in each company department, and (4) the ability to processing historical data, ERP ranks among the most important companies' solution of 21st century.

ERP systems are in use in thousands of large and medium companies worldwide, and some ERP systems are producing dramatic results. ERP integrates all routine transactions within a company, including internal suppliers and customers. However, due to the turbulent times, ERP II was developed in order to satisfy all company needs. It provides better connection of external processes (customers, suppliers) with the internal ones and with processes for decision-making support (OLAP reporting, application for gain, transform, clear, record and analysis of the data) (Tvrdíková,

2008). Besides the automation, other objectives are information use, innovation and control.

The contemporary business environment demands continuous improvement, for instance by the use of information to retain strategic advantage. Key business processes such as financial, managerial, operational, can be improved significantly through the ERP adoption (Bendoly and Jacobs, 2005). Assuming successful ERP adoption, better information leads consequently to cost minimizing and revenue maximizing actions, which is reflected as an increase in revenues.

The impact of an ERP system on the role of the manager in each section of the company is indisputable (Rainer and Turban, 2009). Managers and technology personnel are both responsible for ensuring data integrity and appropriateness of processes within ERP systems (Poston and Grabski, 2001).

Davenport (2000) provides two views on this issue. On the one side, after ERP adoption, there are substantial changes in cycle time, information transaction, and financial management, but on the other hand, this involves a higher level of managerial discipline and accountability.

Most senior managers want the relevant information even if it takes lot of analysts to compile it. The most considerable changes with an ERP system are that other managers can get information above them, and given universal access to one database, managers can efficiently and effectively review employee actions in time. These facts contribute to transparent business processes and hence reduced spending.

ERP systems are designed to correct a problem within the functional area IS. ERP systems were an important innovation because the various functional area ISs were often developed as standalone systems and did not communicate effectively (if at all) with one another (Umble et al., 2003). These systems may resolve this problem by tightly integrating the functional area IS via a common database. In doing so, they enhance communications among the functional areas of an organization. For this reason, experts credit ERP systems with greatly increasing organizational productivity (Rainer et al., 2007).

However, ERP systems can be described as 'multi-everything' systems because they are multi-company, multi-site, multi-currency, multi-platform, multi-level, multi-stage, multi-period, multi-function and multi-industry (Davenport, 2000).

ERP systems provide the information necessary to control the business processes of the organization. A business process is a set of related steps or procedures designed to produce a specific outcome. Business processes can be located entirely within one functional area, such as approving a credit card application or hiring a new employee. They can also span multiple functional areas, such as fulfilling a large order from a new customer (Rainer and Turban, 2009).

This software integrates the planning, management, and use of all resources in the entire enterprise. It is comprised of sets of applications that automate routine back-end operations (such as financial, inventory management, and scheduling) to help enterprises handle jobs such as order fulfilment.

For example, there is a module for cost control, for accounts payable and receivable, and for fixed assets and treasury management. ERP promises benefits ranging from increased efficiency to improved quality, productivity, and profitability (Turban, 2008).

1.4.2   Benefits and limitations

There are a number of perceived benefits of ERP adoption and use. ERP systems integrate all functions by replacing legacy systems, improve communication inside (different sites) and outside businesses (customers and suppliers) by providing real-time information, and standardize procedures within a business and across a specific industry by including best of practices solutions.

Despite these advantages, ERP systems suffer from some limitations (Davenport, 2000). ERP systems take a long period to be implemented, usually more than expected due to complex configurations and business process re-engineering. ERP systems do not solve the trust problem between the business and its suppliers and customers (ERP II solved this problem).

However, the different levels of security built into these systems may contribute to solving part of this problem. In addition, these systems may lead to business bankruptcy due to the large amount of investment required and the changes required in business operations. Besides the financial problems, there are few outstanding operating issues. There is limited functionality of the system – the original ERP systems did not support Internet banking, or data processing of more business unit in one common

database. There is long time in response from the system – inadequate dimensions of the system. The service from the providers was also below the quality standards. In order to solve these issues, ERP systems need to be innovated (Davenport, 2000).

1.4.3   Possible threats

There are few major reasons for why organizations fail in implementing ERP system (Bingi et al., 1999; Holland and Light, 1999).

- Lack of top management commitment
- Insufficient requirements definition
- Insufficient ERP selection
- Inadequate resources
- Lack of change management, poor project management
- Miscalculation of time and effort
- Unrealistic expectations
- Insufficient training and education
- Poor communication

Due to all these reasons, ERP implementation can lead to business decline. The insufficient training and education commented in general terms Drucker, 'Follow effective action with quiet reflection. From the quiet reflection will come even more effective action' (Drucker, 1998:121).

1.4.4   Life cycle

ERP systems have a much greater scope than any typical packaged or custom software, involving virtually every function in the organization. As such, these important differences affect ERP lifecycle in many ways (Leon, 2007). For example, some ERP programmers describe five stages in the ERP 'journey': (1) design; (2) implementation; (3) stabilization; (4) continuous improvement; and (5) transformation.

1.4.5   After successful implementation

Davenport mentions the "half as many, twice as smart" phenomenon (Davenport, 2000:131). It describes the scenario after successful adoption of ERP systems; companies do not need as many people to work, but the employees have to be considerably more skilled and educated about the business processes.

This approach is applicable not only for workers, but also for the whole spectrum of people working in the company. It is necessary for senior management to recognize the value of information to the company (Al-Mudimigh et al., 2001). The importance of data as an organizational resource is the key to success.

Senior managers should personally participate in selling the importance of IS within the organization (Klamm et al., 2005). They can make a contribution through motivating people within the organization to make things happen and managing this effort to achieve results and benefits (Callon, 1996).

They also should understand the competitive role of ERP systems within the organization, because they identify and specify requirements for new systems. All personnel have to find out how to do their existing jobs with a new system, as well as know the implications of their actions for the rest of the company (Shang and Seddon, 2002).

2   Current situation analysis

This chapter gives a brief overview of the current situation. The company background and business position will be outlined firstly. It clarifies the concept of Porter's five forces model, explains the PESTEL framework and discusses the SWOT analysis and its application. Secondly, company's current IS will be described, the company requirements on the IS will be presented in the third part and finally the options which may meet the company's requirements will be introduced.

2.1   Company background

The company Gral Moravia operates on the Czech market of data saving and restoring since 2007. Business activities of the company Gral Moravia can be divided into three key areas. First area is data saving and data restoring from the damaged hard disks. Second area focuses on accounting administration with appropriate tax optimization and third area could be considered as an additional area which deals with sales and distribution of function clothes.

Table 1 illustrates the detailed information about the company.

2.1.1   Business activities

The company Gral Moravia was signed to the Czech business register on the 25th of April 2007. The company's business activities are according to the register: wholesale; promotion activities and marketing; real estate activities; the activity of business, finance, organization and economic consultants; business and services arrangements; data processing; database administration; network management; renting of movables; activities of accounting consultants; accounting administration; and tax documents administration.

The company´s registered office is located in the Czech Republic, in Brno. The company has not any subsidiary company so far.

Table 1: Identification data of the company

The basic identification data according to the Czech company register:	
File number:	B 4849, administered by the County Court Brno
Trade name:	Gral Moravia, a.s.
Company registration number:	27719049
Company address:	Kraví Hora 8, 602 00, Brno, CZ
Legal form of the company:	Private limited company
Registered capital:	2 000 000, - CZK (100% repaid)
Company shares:	10 pieces of common paper shares in nominal value of 200 000, - CZK
Statutory body - board of management:	
Chairm an of the board:	Ing. Antonín Levíček
Member of the board:	Jan Janda
Company convention:	Chairman of the board acts on behalf of the company.
Supervisory board:	
Chairman of the board:	Radka Zbořilová

Organizational structure

The statutory body of the company Gral Moravia is the Board of management, which consists of the chairman and two members.

As an inspecting authority, there is Supervisory board consisting of chairman and member of the Board.

Chairman of the company board individually acts on behalf of the company. Company shares were issued in the paper form in the nominal value of 200 000,- CZK.

The hierarchy of the company is outlined on the figure 7.
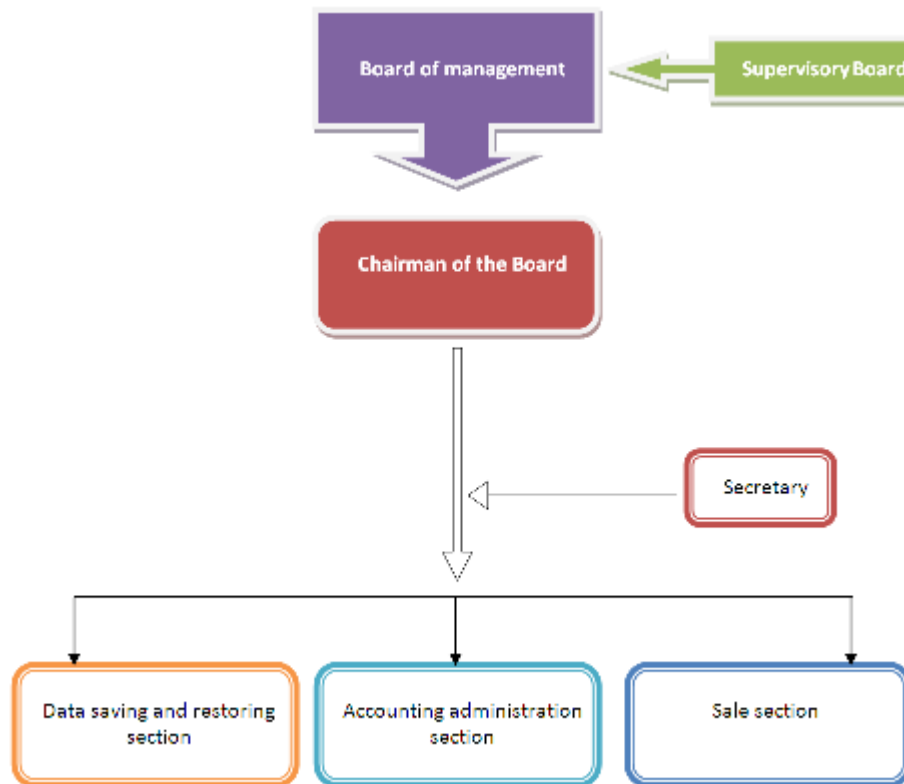
Figure 7: Organizational structure

2.1.2 Company business position

In the past three years, the company noticed a measurable growth in terms of numbers of contracts. Probably, due to the underestimation of data backup in the companies, households and public authorities. The largest percentage of customers involves small-size companies.

Company's products and solutions are used or implemented by many domestic companies - mainly by companies based in Brno.

The company operates in the three areas, as it was stated above, in the financial services industry, the functional textile industry, and also in the IT industry. Following analysis are conducted for IT/IS sector.

PESTEL analysis

The aim of PESTEL analysis is to present the external factors such as political, economical, social, technological, environmental and legal in order to understand which one might influence the company strategy in the future.

Table 2: PESTEL analysis

Political	Support of e-communication with government
	Electronic data archiving
	Stress on personal data protection
	Harmonization of IS/IT legislation in EU
	The technological support of SME from governmental sources will grow weaker
Social – Economical	Positive attitude of the public towards electronic communication, its conditions improvement
	Increasing computer literacy
	New way of working – home office working
	Outflow of workers abroad
	Increasing computer criminality of white collars
	The salary development
Technological	Lowering prices of HW, increasing of its performance
	CRM systems
	Technical tools become obsolete, need to be replaced
Environmental	Green policy – importance of using computers in a more efficient and environmentally responsible way
Legal	High legal safety
	Security

Porter's five forces

The Porter's model of five forces determines the competitive intensity and therefore attractiveness of a market (Porter, 2004).

Attractiveness in this context refers to the overall industry profitability. Porter's five forces include - three forces from 'horizontal' competition: threat of substitute products, the threat of established rivals, and the threat of new entrants; and two forces from 'vertical' competition: the bargaining power of suppliers and the bargaining power of customers.

In the IT/IS conditions, table 3 illustrates the individual forces, how can IT/IS intervene, and mechanisms how to influence any negative situation:

Table 3: Porter's model of five forces (Keřkovský, 2003)

Porter's force	IT potential	Mechanism how to influence negative situation
Threat of new entrants	Create/increase of entry barriers	by applications, investments, and IT/IS development
Bargaining power of suppliers	Reduce power of suppliers, lower costs if switch suppliers	by IT/IS applications focused on better awareness of supply and demand
Bargaining power of customers	Reduce power of customers, higher their costs of switch	by applications increase demand, loyalty, dependence, and costs of switch
Threat of substitute products	Support of service innovation	by IT/IS applications identify the substitutes in time and eliminate their threat; as well as increase utility value
Threat of established rivals	Change of competition base in company favour	by IS support competitiveness activities, or (if needed) support cooperation

In general, this method follows the procedure outlined in table 1. Strategic suggestions and proposals should be the output of the analysis. Identified situations should be included in overall business strategy. Separation of IT/IS strategy from the

overall business strategy is the first assumption of failure, which may end in the business decline.

Competitive advantage, resourcing, competences

The company Gral Moravia operates on the free market, where competition occurs. The competitors of Gral Moravia can be divided into three kinds- according to the business activity. Competition exists in each company section and company approach them differently. For example, in accounting administration section there is a strong market competition, however, on the data restoring market, the competition is not as strong, mainly due to the unique company service.

The competitive advantage of the company is preferential treatment with each customer. Despite the higher costs in comparison with one universal approach company chooses this attitude to develop customer loyalty which is at the end cheaper than finding a new one. In order to perform at the level required to survive and prosper company needs a strategic capability. That depends on the resources available and its competences in using those.

Tangible resources of the company are physical assets such as land, buildings, equipment, personnel, inventory, and money, whereas intangible resources include the reputation of the company, knowledge of providing premium quality services, information, for example about their strategic markets.

As a unique competence, could be considered above mentioned customer treatment. Company obtained the awareness by preferential dealing with each customer and hence positive advertisement. Company should further renew and respect interest in knowledge as an organizational competence. By this way the company can exploit this competence in a wide variety of markets, not only in Southern-Moravian region.

The company operates only on the Czech market, and has no subsidiary so far. The structure of the company sales consists from the main part of sales of own products and services. This fact confirms the main part of the company strategy - developing and updating of company's own products which will fit into the needs of the customers.

SWOT analysis

Gral Moravia SWOT analysis consists of internal and external analysis of the company environment. Strengths and weaknesses describe the internal environment, opportunities and threats describe the external environment.

Table 4: SWOT analysis

Strengths	Weaknesses
- broad focus of product line	- lack of strong external
- employee loyalty	capital investment
- strong brand name – long	- weak language knowledge
tradition and experience	- low financial management
- product flexibility	- missing interconnected IS
- information system	- low company promotion

Opportunities	Threats
- well-based company culture	- strong competition with
- fast changing development	lower prices
and technologies in IT	- fast changing development
industry	and technologies in IT
- growing potential in IS	industry
- growing market	- change of paradigm
	- lack of funds

2.2 Existing company IS

This chapter gives a brief overview about company information system followed by description of IS/IT basic components.

2.2.1 Software

The company uses its own information system for daily running of the company. In the company office, there is currently installed also software that operates basic accounting transactions. Each computer in the company is equipped with operational

system Microsoft Windows (version according to the day of purchase) 2000 up to Vista with web browsers Microsoft Internet Explorer (version 6, version 7 a version 8), further, office package Microsoft Office 2000/XP/2003/2007, antivirus program AVG version 7.5 on the oldest PC and AVG version 8 on the PC in the management office and on the laptops. On the assistant's PC, there is currently installed Adobe Acrobat Reader 5 CE and on the PC in the offices, there are installed Adobe Acrobat Reader 8 CE. In the section of accounting administration, there is in a standard way installed economic-information system Pohoda Komplet with the network licence.

2.2.2   Computer network

The company bought a new computer and laptop last year, modified obsolete system of copying and printing for all-in-one colour laser printer with the possibility to be installed also as the company fax. The only obsolete computer in the company is the assistant's PC, however, this one is fully compatible with the company information system and it is considered to be sufficient for its purposes.

2.2.3   Information system

The company uses the information system mainly for the accounting administration purposes, electronic data management, and connection with the suppliers. The company is planning to adapt their IS for the growing company needs, facilitation of company processes and speeding up the production. The management of the company consider this adoption to bring increase in profits as well as quality improvement.

2.2.4   Data processing and data backup

The company has a compact computer database available. The data are stored logically and precisely with well specified access rights. This database contains information about employees, clients, their accounting information and history of orders, summary information for suppliers and customers, price list of the company products and services, calculations, and additional information. Data files are saved on

the hard disk of the main computer and some of them also on the users' computers in the offices. The local area network (LAN) provides for the mutual access among the company computers. The access to the computer systems is secured by user accounts for each employee. The virus protection is supported with antivirus program AVG.

The backup copies of particular files are made on daily basis, after the working hours. Furthermore, according to the company regulations, there is a complete backup, on the monthly basis. The electronic data devastation would not bring the company any harm, if any error occurs. The company regulations determine the obligation to save the data for 5-10 years on the hard disk outside the company information system.

2.3 Company IS requirements

Due to the planned company expansion and growing competitive environment on the Czech market management of the company decided to implement new information system. The main aim of the proposed IS should be interconnection of administrative work to eliminate manual (hand-operated) work among the company sections and to provide them the access with the up-to-date information. New IS should support the automated flow of information and documents. The project should be realized within one year from the signing the contract.

IS should be stable and on-line provided by stable supplier for further company expansion. ERP system should cover each business activity on the one platform, preferably on the Windows basis. High information security is demanded as well as user-friendliness and future opportunity for growth.

Already in the preparation period there must be a clear analyzed IT architecture framework as a base for any further actions. It should respect individual internal structure of the company and territorial positions of business units. Gral Moravia has no subsidiaries or separated business units, so the procedure will be different from a company operated in 13 countries worldwide.

Management of the company requires the most usage of current hardware of the company and hence enables the consecutive migration to the target IT arrangement, i.e. consecutive purchase of new computers, etc.

Future trends

It is necessary in this area to demand research and development which should follow the latest trends in this industry and create the growth potential of the company.

The company, in order to grow in this area, has to insist on high quality of services provided, high financial sources for innovation and time. Appropriate IS which is well implemented and accepted in all company departments could be the right solution. In these harsh times of world economic crisis the trends in the business has a debasing tendency. Companies are starting to realise the existence of enormous advantages connected with successful implementation of information systems in the company. Nowadays, investment in an information system is seen as an effective way of enhancing the company value. Even in times of the economic crisis the IT industry is relatively prosperous, with no shrinking interest of customers. Companies are searching for more accurate and effective solutions to their needs.

A company wishing to succeed should be prepared and respond effectively to the worldwide trend of data and information digitalization. The future perspective in IT industry has an accelerating trend and the interest in application quality increasing information system within a company is rising. The IT industry has well-educated labour force and there is high demand for workers.

These mentioned factors will form a specific situation on the labour market with high supply of workforce which will lower the price of work and companies will be able to choose cheaper but still well-educated labour force consequently. This will evoke cost saving in the company but ensure high-quality production.

2.4 Possible ways of IS implementation

This chapter gives a brief overview of the possible ways of IS implementation and presents the benefits and limitations of each solution. This selection is the most difficult part in IS implementation. Chosen solution should meet company requirements and be economically advantageous at the same time.

The supply of IS/IT solutions on today's market presents broad but chaotic range of products in all fields of computer applications. The company hence has difficult task: choose the best way of cooperation to implement IS.

2.4.1 IS implementation alternatives

There are main alternatives which can be used when implementing IS. Each alternative is evaluated and the benefits and limitations are specified.

Table 5: Individual application development

Individual application development	
Benefits	**Limitations**
Tailor-made IS	High costs
Possible expansion of IS according to company needs	Time demanding
Detailed knowledge of IS exactly in the company	Lower quality IS
Competitors do not know about the weaknesses of company IS	Risk of IS inconsistency – staff turnover
Contractor will not uncover the business strategy	Cooperative complicatedness
Easy response to users' needs	

Table 5 gives the overview of the benefits and limitations when company decides to develop its own application. The main argument against individual application development is high financial and time demands. The developed product would be obsolete in time of realization and the costs of development would be instead of bearing by many companies bore by the only one.

Tables 6 – 10 provides brief outline of the ways how to implement the IS to the company (Tvrdíková, 2008).

Table 6: External software company

External software company	
Benefits	**Limitations**
Tailor-made IS	High costs (even higher than individual development)
Competitors do not know about the strengths and weaknesses of company IS	Time demanding (but lower than individually)
Using IS/ICT of the external company	Risk of information leakage
The optimal utilization of internal and external specialists' knowledge	

The contractors also have the specialized equipment, technological background and developing software, such as external software company.

Table 7: Completed application purchase

Completed application purchase	
Benefits	**Limitations**
Quick realization	Difficult integration of many applications into one IS
Lowest costs	Difficult maintenance of relations between applications → reduced IS stability
It could be chosen approved solution for each part of IS	

Purchase of an application is connected either with purchase of a complete product or purchase a prototype of a product to be further adapted to the company's needs.

Table 8: System integration solution

System integration solution	
Benefits	**Limitations**
Quickest realization	High dependence on the contractor's skills, reliability, and stability
Low costs	Risk of information leakage
Professional solution of each IS component	
Approved solution for each part of IS	
The integration of components are guaranteed by contractor	

System integration is solution to meet company requirements and to save costs. It means cooperation with external specialized company, called system integrator, which provides the services of system integration. This company acts as the main supplier of IS/IT provider and can handle any problems or issues connected with maintenance and management of IS/IT. It also bears the responsibility for company IS/IT and influences the quality and costs.

Table 9: Outsourcing of IS operations

Outsourcing of IS operations	
Benefits	**Limitations**
Opportunity to focus on the business activities	Long lasting and non-refundable solution
No need to deal with technological aspects	Total dependency on the contractor
Opportunity to solve the project funding	Risk of information leakage (higher than system integration)
Opportunity to change the level of services provided (according to the real situation)	High costs (often because of non-standard applications)

Outsourcing is process of delegation secondary activities to the external company, which is specialized in these activities. Outsourcing is considered to be a business decision leading to reduce costs and/or focusing on more important tasks connected with competitiveness.

Table 10: Application service provider

Application service provider (ASP) outsourcing	
Benefits	**Limitations**
ASP provides access on the internet – the database is in their data centre	Problems with applications execution
Application could be subscribed and used by many users at the same time	Loss of control over IT
Appropriate maintenance is guaranteed by provider	Lower security issues
Customer uses application on his PC by internet browser	Possible problems with integration of applications
+ all advantages of outsourcing	

Application service provider (ASP) is based on separation between ownership of any application and its use. Outsourcing in this context means separation IS/IT management from the company. System is provided as services to be compensated either by supplier, or another provider of these services. It is need to be decided whether company uses classic outsourcing or operations of applications by Internet (ASP). In both cases careful selection of providers needs to be done.

Based on above mentioned, **three main options emerged** (Gála, et al. 2009).

− Using standard application software comprised of completed solution tried and tested by other companies.

− Development of new specialized single-purpose software complying with special requirements.

− Combination of both.

In the case of using standard application, a company can decide whether buy a licence, or hire a licence in the form of SaaS (Software-as-a-service). SaaS is a modern option how to get a licence easily (Keřkovský, 2003; Bocij, 2008; Gála, 2009) . Table 10 presents the main advantages of SaaS.

Table 11: Main advantages of SaaS

Main advantages of SaaS:
Pay only for a licence needed (high flexibility and adaptation, reduce of initial costs)
Fast SW implementation
Lower HW requirements
No special preparation for users
Regular upgrade
Opportunity to switch suppliers if service doesn't fulfil requirements
The application is accessible anywhere and anytime (under certain conditions)

SaaS differs from ASP by the ownership of licence and providing of service (SaaS uses subscription and functional web applications). The monthly fee is on the level of 1% of initial costs and those fees are tax deductible as operational costs.

However, there are also threats, which may be critical for any company. The most important threat is the information leakage. Companies naturally want to secure their information and know how the external company will handle with their data. Server protection on the side of provider is often higher then on the side of the company. Furthermore, if there is a threat of the information leakage, the weakest point is disloyal employee.

Another difficulty could be the customization, adjustment to the needs of customer. However, today's applications can be easily and intuitively adjusted to the customers' actual needs – even by the customer.

2.4.2 Outline of decision-making process

The starting point in choosing any of the options provided can be the decision tree - one of the methods from decision-making analysis. This method can be applied for its simplicity and understandability.

Figure 8 illustrates the outline of the decision tree for choosing one of the options given. It is only an illustrative example, in real situation there could be a combination of the options.

The decision tree needs to be designed for a particular company in a particular environment. It presents a tool in a decision-making process. The edges comprise of estimated time, costs and risks which are added up on the all way from the beginning point to the last one – to the target option. Individual ways can be compared and used as a base for the decision-making process.
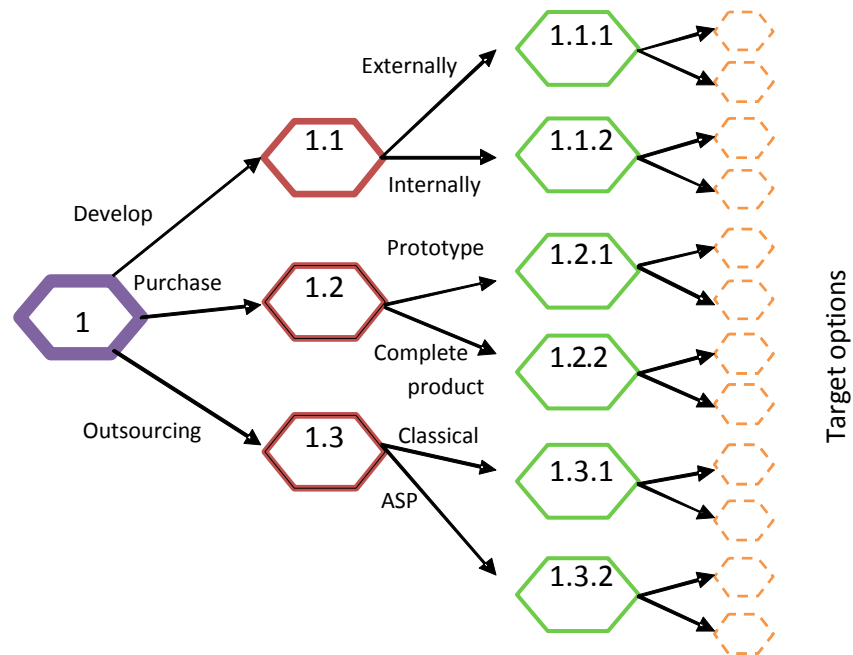
Figure 8: Decision tree (Tvrdíková, 2008)

The decision tree method presumes that full decision tree with its evaluations was made. In the decision making process could be any option refused at the beginning, if necessary. It would be wasting of time and money to analyze such an unfavourable option.

Currently, there is a clear tendency from the companies to abandon individual application development due to the high costs. However, the team working on IS

development needs to be composed from specialists and long lasting training is in this case necessary. It would be non-economic for a company to employ such a team, especially for SME.

The option of buying standard IS from external SW companies is becoming more and more utilized. Mainly due to the high functionality, low price, high integrity and openness in company requirements, which can be further adapted more towards the company's needs. The most important part in any alternative is to create effective cooperation of the company and the provider of IS, whether it is a programmer, or specialized SW company.

In order to comply with the criteria stated by the company (chapter 2.3), complete IS product would be the most appropriate solution. Three main applications were chosen and compared.

2.5 Presentation of applications meeting the requirements

On the Czech market with ERP systems are many suppliers or providers of IT solutions. Among the most popular solution are counted: SAP, Helios, Oracle and Microsoft Dynamics AX and NAV. Due to the size of the company Gral Moravia and its functional demands on IS Helios Orange, SAP Business One and MS Dynamics NAV were chosen for comparison.

Helios Orange is technologically mature information and economic system. It deals with all business activities and provides up-to-date overview of the company and its environment. It automates routine processes as well as reduces costs and enhances communication. IS offers to the small enterprises its analytical extent without the need of modification and possibility to enlarge this IS by other modules according to the needs and financial situation of the company (Asseco Solutions, 2009).

SAP Business One is fully integrated, affordable and localized ERP solution for SME. It supports transaction data processing, CRM, and user-friendliness. There is a simple integration with other SAP products or products from the third sides. Patches and upgrades are available regularly (SAP, 2010). However, these two applications do not fully comply with the above mentioned criteria.

IS MS Dynamics is suitable not only for large international companies, but also for SMEs. This IS complies with the company Gral Moravia requirements, mainly

because of its accessibility and its support of companies in the sector of services, such as accounting, legal, IT and consultancy companies. This application offers support of project management, cost monitoring or mobile register of activities and materials used up on each project (Microsoft Dynamics, 2010). Application of the company Microsoft was also preferred due to the single integration with other technologies of the same company (i.e. MS Office). To save as much costs as possible, SaaS may be employed. Software as a service can be provided by many contractors in the Czech Republic, for example Axiom SW, Cígler software, or WBI (Axiom SW, 2010; Cígler software, 2007; WBI, 2010).

3 Proposal and contribution

The aim of this chapter is to present the proposal based on previous chapters and its contribution to the company Gral Moravia. Application MS Dynamics NAV was chosen and its evaluation and implementation will be outlined in this chapter.

3.1 Suitable IS selection

MS Dynamics NAV was chosen mainly because of low total costs and ownership costs (TCO) and ease to achieve return on investment (ROI). One of the most important advantages is quite fast IS adaption to the company needs. The functionality of IS can be further supplemented and modules for the online business may be connected due to its quick adaptability and ease of use. In the Czech Republic, there is also a broad range of service partners. This IS can be adapted to the company demands very quickly, whereas the functions of IS are not threaten.

Crucial reasons for implementing this IS were the compatibility with MS Office, support of the chain of contractors, and background of the large international company with high potential.

The main functions of MS Dynamics NAV are:
− Flexible project management
− Drawing up, revision and monitoring of a budget,
− Creation of invoicing rules and time table of payments,
− Detailed project analyses,
− Mobile tools for material and work allocation on different project,
− Service contract management,
− Integrated quality control,
− Monitoring, evaluation and supervision of the company; risk management,
− Customer relationship improvement, and
− Company processes optimization.

3.1.1 Finance management

MS Dynamics NAV enables manage the ledger accounts, accounts payable, accounts receivable, fixed assets and cash flow. System can provide the matching of accounts, drawing up budgets, creation and consolidation of reports; and monitoring of trends in any part of the company.

3.1.2 Customer relationship management

In order to be competitive on the dynamic market, the company needs to find, attract and maintain a customer. MS Dynamics NAV may assist in this effort by monitoring customer communication, acceleration of business activities, planning; and realization and evaluation of marketing campaigns. This module may be useful mainly because of future intentions for company expansion.

3.1.3 Supply chain management

One of the business activities of the company Gral Moravia is the wholesale and this module is especially for this section. MS Dynamics for SCM helps in the area of storing, in the one or more location, purchases planning, goods transportation to the customer, or online cooperation with suppliers.

3.1.4 Employee portal

This portal enables significant speedup and price reduction of access to the information. However, all information may be further published on the MS Office SharePoint.

Proposed solution from MS offers access to the information from the each section of the company Gral Moravia promptly. Management of the company has the overview of the stock, its value, and daily results.

The company can assign the ID for each customer and supplier to create the central register to enhance the administration, modification of business conditions, its monitoring and control.

Significant reason for implementing MS Dynamics NAV is working with the same unified and standardized information. All company's processes can be integrated. Moreover, in the case of necessity, employee of one section can temporarily replace the employee of another section without any further training for different processes or IS.

3.2 Modifications before implementing new IS

The future growth and development of the company instead of old system conservation is the crucial point of implementing this new system. However, there are still some changes need to be done before any implementation.

In order to burden the company with as little as possible costs, hardware is not necessary to replace until it is needed. According to the new finance agenda in the new IS, old accounting IS can be replaced as well as IS for contracts.

After the implementation of IS, the operations need to be adapted to the needs of all users of the system. However, the process of changes seems to be never-ending. There are still demands emerged after the implementation:

− Demands emerged during the implementation and postponed,
− Demands emerged during the trial period,
− Demands emerged during the use,
− Demands emerged due to the legal changes,
− Demands based on inaccurate initial analyses,
− Demands based on further company development.

IT/IS strategy of the company Gral Moravia should be based on detailed analyses (in previous chapters) and meet these three basic requirements for success:

1. Must be realistic,
2. Must eliminate possible threats,
3. Must be based on overall business strategy.

Any conflict could be base for further changes or even business decline. In order to prevent the situation of unsuccessful IS implementation, few points will be recommended. Firstly, the clear specification and division of labour should be stated. The company should be able to answer the questions WHO? WHAT? WHERE? and HOW? Secondly, the company should not underestimate the human element in the process of IS implementation. People are a priori against any change or innovation. This

resistance logically influences the processes in the company, financial, technological, organizational, social, etc. The support of the prepared changes means support of all performance group. Members should be controlled and accepted. Delegation rules should be followed and positive atmosphere should be created. Thirdly, each employee should be aware of the process of IS implementation and all IS/IT strategy.

3.3 ERP introduction to the company

After the analytical part of implementation, where global and internal factors are presented, analytical conclusions should be summarized. Key strengths and opportunities together with crucial weaknesses and threats may give a decision whether or not implement IS. In the case of acceptance of IS implementation, intervention areas, personal resources, process implementation stages, and rolling control of the process must be stated.

3.3.1 Initiation

As illustrated on the figure 5 (chapter 1.3), there is an order of the activities in IS/IT projects. To follow this order, first stage is the initiation, in other words, response to a business problem or opportunity. Management of Gral Moravia initiates this project due to its business expansion.

3.3.2 Feasibility

Feasibility assessment serves as a proof of viability of the project. Different alternatives for acquiring software are presented in the chapter 2.4.

3.3.3 System analysis

New IS requirements are presented in the chapter 2.3, before any design took place. For the purposes of this bachelor thesis, the overall system analysis was not conducted, only company's requirements were summarized as stated by the management.

3.3.4 System design and system build

System design and system build will be skipped, due to the alternative of acquiring IS. Solution of complete application purchase complies with the criterion of quick and cheap implementation with as high as possible functionality.

3.3.5 Implementation

The implementation comes after the build stage. If the test version of the application is provided, this will be tested by the users , and if it is necessary, possible corrections are made. As mentioned in the chapter 1.3, there are several alternatives for changeover approaches that can be used together if required. For the company Gral Moravia is the most suitable the cutover immediately to the new system.

3.3.6 Review and maintenance

At the end of the IS/IT project all processes will be reviewed by maintenance and possible problems will be solved.

3.4 Financial budget

Drawing up any financial budget is quite difficult problem when implement ERP system. The price of implementation is influenced by many factors, mainly by the number of changes in the system compared to the standard. The basic price model of the application MS Dynamics NAV arises from the number of users working at the same time. The price for one user is set according to the edition demanded. Different editions have different functions (ERP Forum, 2009).

All costs which may arise with IS/IT project can be divided into acquisition costs and operating costs. Among the acquisition cost rank costs for hardware, software and all implementation costs and costs as energy, maintenance, labour costs (service workers) or depreciation rank to the operating costs.

In the economy and management the main aim of the business is to create a profit not only for enrichment of the owners, but also for further development of the company. To accommodate the demand for profit maximizing all financial inputs have to be

minimized and all financial outputs have to be maximized. This approach uses also the company Gral Moravia. Rather than financial evaluation or budgeting, the company prefers economic evaluation, which can outline the future benefits of the IS/IT project.

Accurate calculation of the total costs will be a part of the definite offer prepared by the provider. Each particular offer will be compared to another and gives a base for decision-making process of the management Gral Moravia.

The evaluation of the application can be carried out by return on investment (ROI) or internal rate of return (IRR). Any further investment is worth to invest until the increase in contribution is higher than the increase in investment/marginal costs. Maximizing of ROI occurs when marginal costs equal marginal contribution.

EU offer this year last chance how to implement IS from the EU funds. SME with intention to become competitive are supported preferentially. EU funds can contribute to the IS project up to 50% from the total costs. There are two main conditions; firstly administrative conditions define the receiver, his economic history, industry and business location. Secondly, there are process conditions, where the company and its IT project is evaluated. Attention is paid especially to the long term solutions (SystemOnLine, 2010). For more information see appendix 1.

3.5 Economic evaluation of the proposed solution

IS/IT strategy of the company Gral Moravia should support the overall business strategy. Furthermore, due to the strategic advantage, which is connected with the implementing of IS, IS/IT strategy has the highest priority. These IT projects are hardly evaluated by the classical method of comparing costs and contributions. When the management of the company should decide whether or not implement this IT project, few strategic viewpoints should be employed. The most important point of view is their necessity for achieving strategic goals of the company.

IS MS Dynamics will have undisputable influence on the company's processes for productivity increase and costs savings. However, the contributions are not only on the operating level, but also on the higher ones. IS could support the decision making process, as well as improve the competitiveness of the company and hence reinforce the tactical level of the company's hierarchy. The strategic level is the most questionable, because it is hard to quantify any results in advance. But there are still some

preconditions, which can be achieved and convert to the strategic advantage, if these assumptions will be observed. Ensured support for IS/IT project from each person in the company. Director of the company should motivate his employees and co-workers and should be the example for the others. Continuous monitoring and evaluation of the contribution of IS/IT projects should became the base for the other decisions in IS/IT strategy.

More specifically, IS could integrate all sections of the company. Each section might use the same system. All employees already know MS setting hence no additional training is needed. Additional presentation of MS Dynamics NAV environment is outlined on appendix 2. The orientation is easier if any user is familiar with the settings, too. IS can provide standardized information in the set demanded, for example for printing.

New register of receivables and payables could be created and thus each employee can be informed about the contractors and their payments. In addition, new application can offer better register of the contracts and orders to be done.

Even further contributions can be named; it depends only on how many modules will be implemented. This will be the base for the price of the application.

Conclusions

In the new global economy, companies worldwide are becoming more and more connected, and it is not only their business function or business unit with another, but also one company to another. In order to run a successful business, today's manager needs to combine business skills with an understanding of IS and the opportunities and benefits that they bring to a company.

The goal of this bachelor thesis was to analyze the IS implementation process in the Czech consultancy company and on the basis of the detailed analysis give conclusions and recommendations for the management of this company.

The thesis was divided into three chapters. The first chapter introduced the basic terminology, current key applications of IS, and IS/IT implementation strategy. Attention was paid especially to the enterprise resource planning systems. The second chapter dealt with the current situation analysis. It focused on the company overview, clarified the existing company IS, and based on the company IS requirements offered ways how to implement new IS and presented applications meeting the requirements. The last chapter evaluated the strategic contribution of the new IS.

I recommend implementing new BIS to the company Gral Moravia. Preferably it is suggested to implement ERP systems, which cover all key business activities and transactions. ERP systems are the appropriate base for further company's expansion and what is more, these systems can save company's funds. As the most suitable way of implementation, purchase of complete product is advised. This solution can meet the financial requirements as well as the functional ones. Moreover, there is also the possibility to use the software as a service, a software distribution model where the company Gral Moravia can access software and data via the Internet, using only a web browser, which is even cheaper. In the year 2010, there is the last chance to raise funding from EU. EU can contribute up to 50% from the total costs for IS implementation to the SMEs. However, there are still some conditions to be fulfilled before any funding.

As the most suitable IS meeting all company requirements was chosen MS Dynamics NAV. This application has familiar functional environment thus no additional training for users is needed. This IS can be adapted to the company demands very quickly, whereas its functions and business activities of the company are not

threaten. Nevertheless, any further steps or actions of the company concerning the real implementation can be hardly described or predicted.

When any inconvenience occurs, there is a broad range of service partners in the Czech Republic, due to the fact, that Microsoft is large multinational corporation with solid reputation. Depending on a provider, possibility of a trial version of the application may facilitate all IS/IT implementation process.

If the system is implement properly, can serve the company needs for ages. Only after the period of IS routine running, when regular IS upgrade are made, in depth evaluation of the results may be stated and the conclusions can be made.

It is also need to be assessed in detail whether anticipated contributions of new IS compensate the implementation costs and whether the company will be willing to go through the outlined process of implementing new IS.

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Abbreviation list

4GL	A fourth-generation programming language
ASP	Application Service Provider
BIS	Business Information System
CPU	Central Processing Unit
CRM	Customer Relationship Management
EIS	Enterprise Information System
ERP	Enterprise Resource Planning
EU	European Union
HW	Hardware
ICT	Information and Communication Technologies
ID	Identification
IRR	Internal rate of return
IS	Information System
IS/IT	Information System/Information Technology
ISO/IEC	International Organization for Standardization/ International Electrotechnical Commission
IT	Information Technology
ITAA	Information Technology Association of America
LAN	Local Area Network
MS NAV	Microsoft Navision
OLAP	Online Analytical Processing
PC	Personal Computer
PESTEL	Political, economic, social, technological, environmental, legal analysis
R&D	Research and Development
ROI	Return on investment
SaaS	Software as a Service
SME	Small and Medium Enterprise
SWOT	Analysis of strengths, weaknesses, opportunities and threats
SW	Software
TCO	Total costs of ownership

Appendices

Appendix 1

Call for proposals of ICT projects – Operation Programme Business and Innovation[1]

Identification of the call	ICT in the companies
Prior theme	Companies development
Number of the call	III
Date of the call announcement	October 22th, 2009
Receipt of registered applications	01.01.2010 – 15.10.2010
Receipt of full applications	08.03.2010 – 15.02.2011
System of the application collection	continual
Planned allocation	0.5 billion CZK
Objective	This programme helps gain EU funding for ICT extension or ICT implementation (hardware, software) in SMEs.
Funding per project	0.35-20 million CZK
Who can apply	SME with two successive years of closed taxation periods, and with prevailing business activity in the manufacturing industry

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Appendix 2

Presentation of MS Dynamics NAV environment[2]

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