Information needs in an agriculture trading company

An overview before and after implementation of a new ERP System

Master Thesis/ Diploma Thesis

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Date: 14th April 2008

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This Master/ Diploma Thesis is written by Friederich Spinne. The project is evaluated as 30 credits and it is finalized to achieve the Master in Management Studies at Wageningen University and Research Centre, the Netherlands and the Diploma in “Agrarwissenschaften” at the “Rheinische Friedrich-Wilhems-Universität Bonn”, Germany.

Abstract

The agriculture branch had to face fast structural changes as well as price variations in the past. Furthermore the information turnover in companies increased quickly as a result of improved information technology and the globalisation of markets. Nowadays it is necessary that companies work more efficiently to survive the increasing competition, otherwise their latitude and margin will drop. For becoming more efficient available resources have to be utilised. The fourth production factor information is an important part of this.

For utilizing information in enterprises, efficient Information Systems have to be developed and implemented. This is only possible with knowledge about the information use and information needs of the employees. Therefore the objective of this Master/ Diploma Thesis is to analyse the information use and information needs of the middle management in enterprises.

In order to achieve the objective first an overview of fundamental terms is given. Then a theoretical explanation of the most common Information Systems is presented. Additionally, two frameworks for identifying information requirements and developing Information Systems are briefly described, which are the Critical Success Factor and the Business Systems Planning approach. Both approaches are applied in a Case Study. The basis for the Case study provides one sales group of an agriculture trading company in Germany, which currently restructures their whole IT surrounding.

The sales group is analysed regarding information use and information needs of executive employees on the one hand, on the other hand required Management Information Systems are detected. Furthermore advantages and disadvantages of both approaches are pointed out. Based on the Case Study it is concluded that three MIS should be implemented in the sales group in order to improve the information provision.

Kurzfassung

Strukturveränderungen und Preisschwankungen haben den Wettbewerb in der Landwirtschaftsbranche in den letzten Jahren stark erhöht. Hinzu kommt ein stark erhöhter Informationsumsatz, der aus der sich schnell verbessernden Informationstechnologie und der Globalisierung der Märkte resultiert. Um als landwirtschaftliches Handelsunternehmen weiterhin profitabel am Markt zu bestehen ist es notwendig effizienter zu arbeiten und bestehende Ressourcen besser auszunutzen. Der vierte Produktionsfaktor Wissen/ Information stellt dabei einen wichtigen Teil dar.

Die Ausnutzung von Informationen in Unternehmen ist nur durch die Entwicklung und Implementierung von effizienten Informationssystemen möglich. Um derartige Informationssysteme entwickeln zu können muss jedoch der Informationsbedarf der Mitarbeiter zuvor bekannt sein. Ziel dieser Master-/ Diplomarbeit ist es den Informationsbedarf des mittleren Managements in Unternehmen zu analysieren.

Um das Ziel dieser Arbeit zu erreichen werden zu Anfang grundsätzliche Begriffe erklärt. Danach werden die meistgebrauchten Informationssysteme charakterisiert. Außerdem werden zwei verschiedene Vorgehensweisen vorgestellt, die dem Zweck der Informationsbedarfsanalyse und der Identifikation von Informationssystemen dienen. Die beiden Methoden heißen kritische Erfolgsfaktoren-Analyse und Business-System-Planning-Analyse. Beide Methoden wurden an einem Fallbeispiel eingesetzt. Als Basis für das Fallbeispiel wurde eine Vertriebsgruppe eines deutschen Landhandelsunternehmens ausgesucht, welches momentan Ihr komplettes Warenwirtschaftssystem umstellt.

Die Vertriebsgruppe wurde zum einen auf die Informationsnutzung und den Informationsbedarf der leitenden Angestellten untersucht, zum anderen wurden benötigte Informationssysteme identifiziert. Außerdem werden die Vor- und Nachteile der verwendeten Methoden herausgestellt. Abschließend werden drei Management Informationssysteme entwickelt, die die Informationsversorgung der Angestellten verbessern sollen.

Acknowledgements

I would like to thank Dr. Jacques Trienekens and Prof. Dr. Gerhard Schiefer for their supervision and support during the whole Master/ Diploma Thesis.

I also would like to appreciate the company “RWZ Rhein Main eG” and all the interview participants for giving me access to information and for providing an insight in their business.

Finally, a special thank goes to my Mother and my Father for supporting me during my whole life.

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1 INTRODUCTION

Nowadays information and the usage of information becomes a good deal of everyone's daily life and business. Catchwords like 'information society' or 'information as a competitive factor' underline the entrepreneurial and social importance of information. Through fast improvements of information technologies in the last decades, especially companies received many opportunities to improve their performance. These opportunities can only be utilized by using efficient systems to process, store and transfer information.

The technology for operating information systems (IS) is already available and often used. For example modern Enterprise Resource Planning (ERP) Systems previously recording every purchase, every sale, every incoming and outgoing good etc. in companies. These records are the basis for information systems. Because of the complexity of IS in general and ERP Systems in detail, the implementation is challenging for companies. It is necessary to know who requires which information. Only in this way it is possible to provide relevant information and avoid an information overload of employees.

The objective of this Master/ Diploma Thesis is to research, how information use and information needs of executive employees can be identified. A Case Study of one sales group of the company "RWZ Rhein-Main eG" provide the basis for applying two frameworks. "RWZ Rhein-Main eG" is an agriculture trading company with its corporate headquarters in Cologne/ Germany.

The report is divided in six chapters. The first chapter focuses on the design of the research, where the research objective and other important factors that conducted this research are described. In the second chapter fundamental terms are defined. A theoretical explanation of information systems is given in chapter three. Furthermore two frameworks for designing information systems are discussed. The focus of this report lies on the Case Study in chapter four. There, the two frameworks are applied for analysing information use and information needs of executive employees in the sales group. In chapter five and six, findings are summarized and recommendations for the firm and suggestions for further research are given.

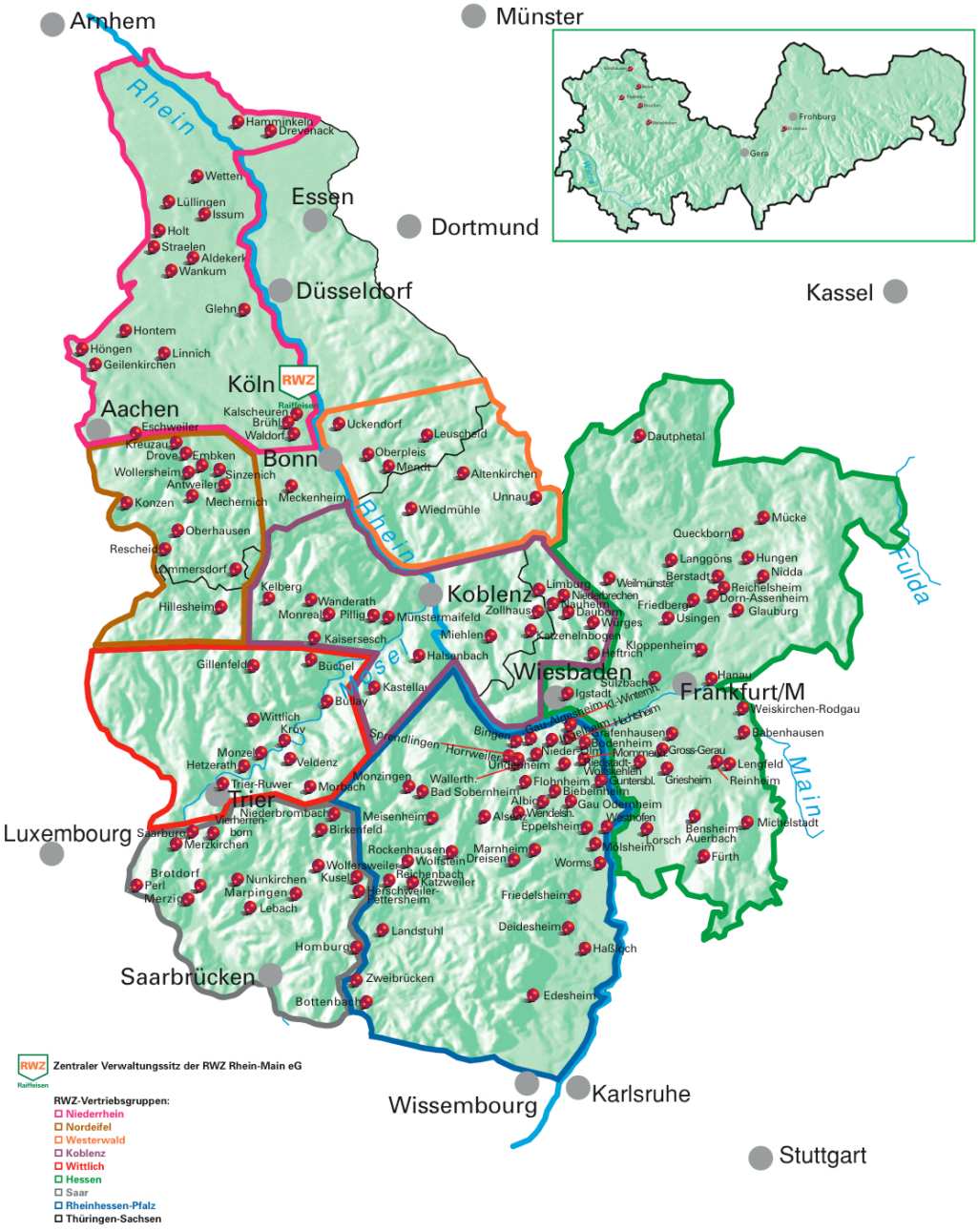
1.1 Company profile and problem statement

The “Raiffeisen Waren-Zentrale (RWZ) Rhein-Main eG” is a German co-operative company with its headquarter in Cologne. The company has around 2500 employees and over 200 subsidiaries in parts of Germany: Parts of North Rhine-Westphalia and Hesse, whole Rhineland-Palatinate and Saarland, and is also active in Thuringia and Saxony (see figure 1.1).

“RWZ Rhein-Main eG” is mainly active in trading and producing agriculture products, building materials and retailing products for the agrarian demand (animal feed, tools, etc.). A part of the business is also dealing with agricultural technology. The organisation of the company is a typical matrix organisation. The line of business is divided in nine sales groups. Each sales group consists of 8 to 40 subsidiaries. The corporate headquarters is divided in 15 departments and eight service sectors. It is responsible for a part of the purchasing and the whole financial affairs. Furthermore it supports the subsidiaries in the daily business.

Every sales group has sales managers for the division, which are important for the specific sales group. For example the “Vertriebsgemeinschaft (VTG) Eifel-Mosel-Hunsrück” has five sales managers for the division: building materials, fertiliser and pest management, seeds and animal feed, cereals, viniculture and wine cellars. Normally one of these managers is also director and another one operates as business controller.
The company in total had a turnover of 1.6 billion € and an EBT of 6.3 million € in 2006. (RWZ Rhein Main eG, 2007)

Figure 1.1: Working area of the company “RWZ Rhein Main eG”



Eight years ago the “RWZ Rhein-Main eG” decided to unify their multifaceted IT-surrounding to one ERP System from SAP. Because of a merger with another agriculture-trading organisation located in Frankfurt, Germany and other acquisitions of smaller agricultural cooperatives in the line of business, an inefficient number of different systems were implemented in the same company. The replacement of the old systems by SAP Retail in corporate headquarters in Cologne is finalised in the beginning of 2008. Starting February 2008, the company begins to test SAP Retail in two pilot subsidiaries: Raiffeisen Zentrum Riedstadt-Wolfskehlen, Hesse, Germany and Raiffeisen Markt Morbach,

Rhineland-Palatinate, Germany. The whole rearrangement of all locations is planned for end of 2009.
In general, the company wants to improve their IT by implementing a SAP System with the objectives:

- Reduction of stocks.
- Increase of gross earnings through better controlling tools and similar IT-surrounding through the whole company.
- A better purchasing process and a reduction of suppliers.
- Standardisation of processes across the group for enabling to focus on the daily business.
- Acceleration of business processes as well as the information flow in the company throughout the line of business.
- Reduction of the average collection period by optimising the invoice printing.

Because of the complexity of ERP systems today, companies can't develop software just for their company structure and business processes anymore, rather they have to change structure and processes in order to fit to the new ERP System. That is the reason why the "RWZ Rhein-Main eG" will reconsider and, if necessary, reorganise the structure and the organisation of the company and the connected function of their employees.

1.2 Research objective

The research objective is defined as follows:

The research objective of this Master/ Diploma Thesis is to analyse information use and information needs of executive employees in enterprises.

To achieve this objective the Thesis in mainly structured in three parts. First, fundamental terms are defined. Second, systems for providing information are explained. Furthermore, two frameworks for identifying information use and information needs are presented. Finally, these frameworks are applied in a Case Study to control if they are adaptive for analysing information use and information needs.

In the first part the theoretical definition of fundamental terms like 'information', 'systems', 'management' and 'information system' is presented. The terms are defined with respect to the economical and information managerial topic.

The second part comprises the explanation of different information systems for providing information efficiently. Furthermore, two frameworks, the Critical Success Factor (CSF) and the Business Systems Planning (BSP) approach, for indentifying information use and information needs are briefly explained. These frameworks are also applicable for designing IS for companies or organisation.

The practical element of the Thesis is the third part. In it a Case Study of the sales group "VTG Eifel-Mosel-Hunsrück" is drawn up. This sales group belongs to the company "RWZ Rhein-Main eG" and exemplify the whole company. The information use and information needs of executive employees are identified by using the before named frameworks. Through interviews with the involved employees the findings are discussed and tested on their validity.

Overall the focus of the Master/ Diploma Thesis lies on Enterprise Resource Planning (ERP) System and, as a part of it, on Management Information Systems (MIS). The target group is the middle management. Here most information provided directly or indirectly by an ERP System is necessary to keep business successful. The higher management needs a mixture of hard and non-measurable soft information to set the strategy, the lower management is responsible for an ongoing daily business.

1.3 Research issue/ Research questions

The main research questions of this Master/Diploma Thesis are

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Which information is currently used by the middle management of the company "RWZ Rhein-Main eG"?

Which information requires the middle management of the company "RWZ Rhein-Main eG" to perform better?

The term 'information' in this context means company related information. The middle management uses normally standardised information for e.g. controlling or managing the organisation on the one hand, on the other hand it requires unstandardised information for e.g. forecasting the demand etc.

The main research questions are followed by a set of sub-questions that elaborate the problem. The sub-questions are divided in themes:

Theoretical question:

Which kinds of information systems exist to provide information?

Who are the addressees for the information systems?

Practical questions:

What are Critical Success Factors for executive employees of the sales group “VTG Eifel-Mosel-Hunsrück”?

What is the current information use of executive employees of the sales group “VTG Eifel-Mosel-Hunsrück”?

What are the information needs of executive employees of the sales group “VTG Eifel-Mosel-Hunsrück”?

Recommendation:

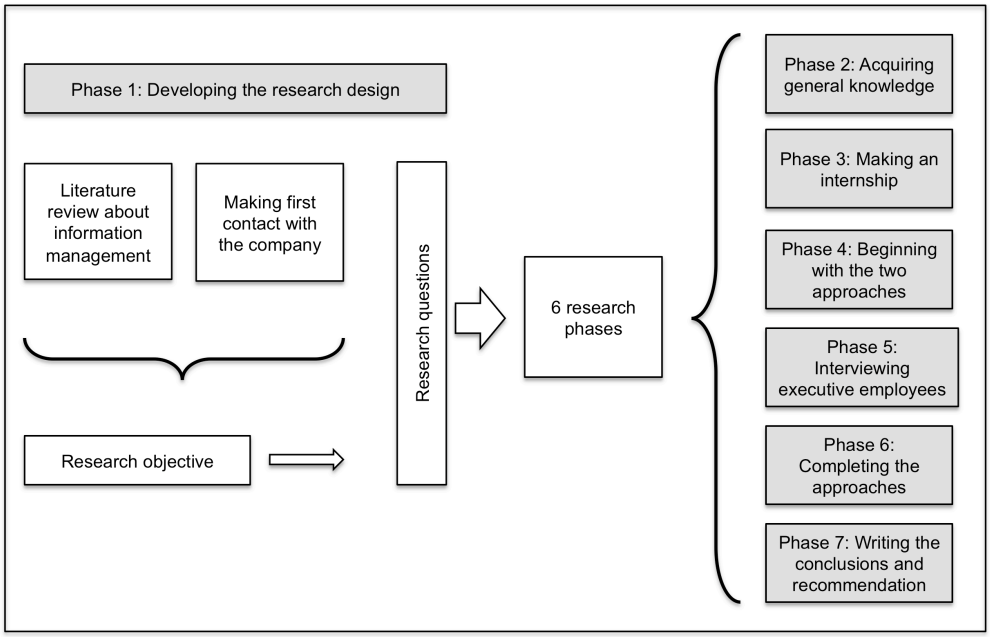
Which information should the new ERP System of the company “RWZ Rhein-Main eG” provide?

1.4 Research framework

A research framework defines a set of different research activities. Moreover, it defines what kind of research activities can be used to produce specific outputs. (Oulon Yliopisto, 2007)

The whole Thesis is based on literature review, observations and discussions during an internship, interviews with executive employees of the company and applying a Case Study. For achieving the research objectives the research framework is divided in seven phases, which are visualized in figure 1.2 and further on explained.

Figure 1.2: Research framework (Source: Based on Rosenthal 2006)



Phase 1:

Phase one corresponds to the current chapter. First scientific literature about information systems and information management is studied to acquire more knowledge about the topic. Then the research objective and research questions are set. The sub-questions are divided in themes. Also the used frameworks are identified and already studied. Furthermore the first contact with the company “RWZ Rhein-Main eG” is made.

Phase 2:

In the second phase fundamental terms important for the Thesis are defined (chapter 2). Also existing information systems for providing information to different hierarchies in enterprises are explained. Additionally, the two frameworks named Business System Planning (BSP) and Critical Success Factor (CSF) approach are briefly explained (chapter 3). This is done by literature review. The two approaches were chosen because of various reasons: The BSP approach is a framework for identifying information use and information needs of employees and enables the researchers to design IS based on an information architecture. BSP comprise a full analysis of the company or organisation, including the identification of processes and data classes. Moreover, it makes it possible to link processes to employees. All findings are controlled by interviews with executive employees. The CSF method used in this study facilitates also designing IS, but it follows a different approach. The information needs of executive employees are identified mainly by interviews. In these interviews the researcher do not ask directly for information the employees are using. The questions focus on the objectives, goals and factors, which are

critical to success in their area of response. By analysing the interviews, information requirements can be identified. Based on the findings, the content of IS can be identified.

Using both approaches is very interesting, because the objectives of both are similar. The aims are to identify information needs and to design information systems.

Phase 3:

In order to conduct a BSP approach, a lot of corporate knowledge is required, e.g. information about the organisational structure, business functions, processes, data classes, existing applications etc. Furthermore, it is important to discover interrelations between processes and employees. For the CSF study it is helpful to get to know existing problems and important business areas of the company. This eases the setting of following interviews. Generally, it is beneficial to be in contact with the involved people before interviewing them. In such pre-meetings it is possible to explain the objective of the study and enable the employees to prepare.

All necessary data for applying the approaches is acquired during a two-month internship. The organisation of the whole company and problems regarding the decentralise implementation are identified by working in the SAP project group in corporate headquarters. Furthermore the sales group “VTG Eifel-Mosel-Hunsrück” is chosen for the Case Study. By working in one pilot location, processes, data classes and the daily business are observed. Additionally the interviewees are firstly contacted and findings are discussed with them and proofed on validity.

Phase 4:

The fourth phase consist of working on the two approaches. First CSFs are studied by the research of Kuron (1993). Then using the information acquired during the internship and literature review, the first six steps of the BSP approach are completed (part of chapter 4). Based on these results, questions for the interviews are set with respect to problems and experiences. The interview is partially standardised, i.e. the main questions are equal, but also specific questions for different divisions of the company are included if necessary.

Phase 5:

In phase five, six executive employees of the sales group “VTG Eifel-Mosel-Hunsrück” are interviewed. All employees have executive positions. The interviewees are: The group director, the business controller, the sales manager for pest management, fertiliser and viniculture, the sales manager for energy, the sales manager for retail and the sales

manager for animal feed and seeds. All employees are personally interviewed. Next to the questionnaire, the already done parts of the BSP Study are discussed and confirmed.

Phase 6:

The interviews are considered regarding two main aspects. On the one hand, CSFs of all interviewees are summarized and compared to the findings of Kuron's study, on the other hand, they are analysed regarding the information use and information needs for the BSP approach. Afterwards both methods are finalised (chapter 4).

Phase 7:

In phase seven the conclusions, the recommendations and the discussion is worked out (chapter 5 and 6).

2 BASICS OF INFORMATION MANAGEMENT

2.1 Introduction

In this chapter fundamental terms, which are relevant for this Master/ Diploma Thesis, are explained. This includes the terms ‘information’, ‘systems’, ‘management’ and ‘information systems’.

2.2 Fundamental terms

2.2.1 Information

The term “information” can be defined in many different contexts. Besides many other explanations, some possibilities are the general-language application, the theory of communication by Shannon/ Waever (1976), the DIN Norm 44300, and the economical definition. In the following, the first three definitions are just shortly explained, while the economical definition is depicted more specific.

The **general-language application** declares, that everybody is confronted with any kind of information every day. This includes reading a newspaper as well as informing themselves about different topics. Seiffert can be quoted regarding a definition of the general-language allocation: “Information is a…present and practice related message about things we are currently interested” (Seiffert, 1971).

The **theory of communication** reduces the term of information to messages and communication (Shannon/ Weaver, 1976). The content of information is measured by the average occurrence of a message. The more frequently a message arises, the more information content the message carries within. Therefore it is possible to rate information quantitatively.

The **DIN Norm 44300** uses terms like characters, signals, messages and data instead of defining the term information directly. Signals are the basis for transferring and storing characters. The transfer of characters leads to messages, the storage of messages takes place in form of data. The semiotics, which explains the term information by using the model of characters and character ranks more precisely, is skipped at this moment. (Krcmar, 2000)

For researching Information Systems (IS) and Management Information Systems (MIS) the **economical definition** is more of interest. An often-quoted definition is: “Information is purpose oriented knowledge” (Wittmann, 1959). Regarding to Wittmann, purpose oriented knowledge are pieces of information, which are helpful for preparing decisions or actions. This definition leads to the wide acceptance that information is a production factor.

At the beginning, in macroeconomics, only the three factors of production (labour, land, and capital) are taken into account. In microeconomics the factors of production were first expand, among other things, by anticipated factors like management, organisation and planning (Gutenberg, 1979) and later expand by information. Witte for example wrote that information is an immaterial good, but not a free good. (Witte, 1972)

This development and the increased acceptance of information as a value-added good lead to the term “information resource management” (Horton, 1981). Under some premises, information became economic goods (Bode, 1993). As every economic good it has to be a scarce commodity, otherwise it won’t have a value anymore. An example for this fact can be the consultancy of companies by other special companies or employees. The consultants simply sell their know-how and give them information to perform better or to solve specific problems. Considering this example, differences between information as immaterial goods and normal material goods can be made. Martiny/ Klotz gave an overview of this in 1989:

Table 2.1: Comparison of economic goods and information (Source: Martiny/ Glotz, 1989)

Material economic good	Information
High duplicating costs	Low duplicating costs
Equalisation of incremental costs to average costs	Incremental costs are equal 0
Obsolescence because of usage	Appreciation because of usage
Individual ownership	Multiply usage possible
Obsolescence through division	Appreciation through division
Identification and protect possibilities	Hard to protect and safe data
Difficult distribution	Easy distribution
Price/ Value objectively definable	Price/ Value only subjectively definable
Costs are easy to identify	Costs are hard to identify
Pricing mechanisms are well known	Pricing mechanisms are hard to identify
Inventory valuation easy to measure	Inventory valuation problematic
Economical theories and models available	Deficit of theories and models

It has to be concerned that the differences presented in table 2.1 are not complete. It simply shows an election of differences.

Disregarding the different definitions of the term 'information', the quality of it is very important. Regarding this, some general assumptions have to be considered in order to talk about value-added information:

- Understandability: Information can only help and support people if these people understand the information, e.g. different languages and therefore associated problems.
- Validity: Information must reflect the reality; otherwise it is not helpful for the company.
- Relevance: Information is relevant for a specific topic, if the information helps to reduce uncertainties and risks of decisions, e.g. information about stocks is irrelevant for human resource management, but it is important for inventory management.
- Accuracy: Accuracy describes the accordance between reality and information about the realty, i.e. if the information says 20 pieces of a good is available, but only 10 pieces are on stock in reality, the information is not accurate.

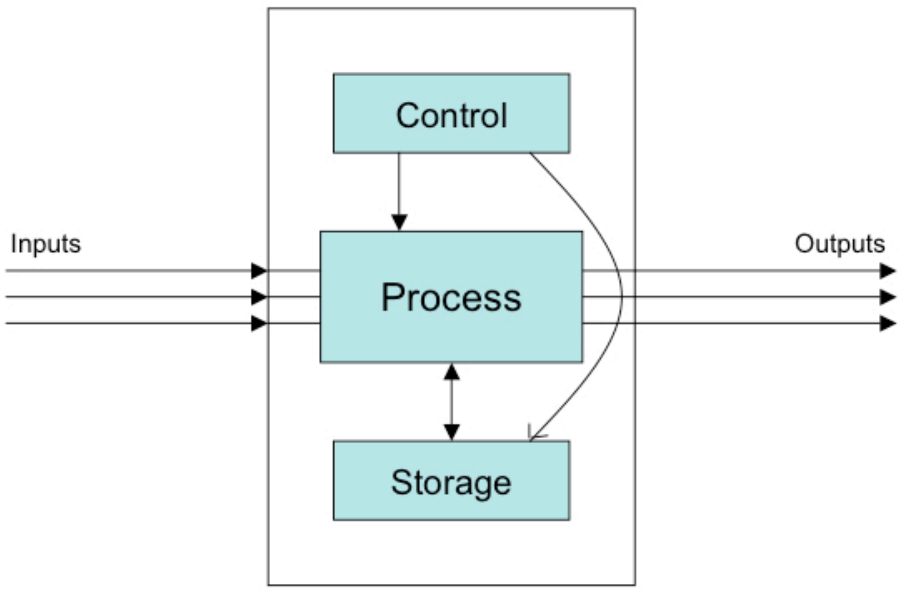
- Completeness: Information should reflect the whole reality and not only a part, e.g. if one makes a decision based on information which reflects only a part of the reality, it could seem to be the right decision, although taking the whole reality into account, it is possible to come to a totally different outcome. (Shtub, 1999)

2.2.2 Systems

Nowadays defining the term 'system' is difficult. Systems can be viewed from many different perspectives, e.g. easy systems like filter or cooling systems. If anybody searches the Internet for the word 'system', mostly companies are listed on top that have system in their name like T-Systems, Adobe Systems Inc., Lufthansa Systems etc. (google: system, 2007). Curtis and Cobham (2002) give a broad definition for the term. They described 'systems' as a collection of interrelated parts, which are taken together from a whole. The collected parts have their own purposes and, if a change comes up in any of the parts, it leads to a change in some other part(s) or results by changes in some other parts. (Curtis/ Cobham, 2002)

This definition means that every system has to consist out of more than one thing, otherwise no interaction can take place. Furthermore the involved parts have to achieve an aim. A normal model of a system, illustrated in Figure 2.1, consists of process, which needs input and produces output. This process is controlled and the action, which takes place in the process, is stored.

Figure 2.1: A general model of a system (Curtis/ Cobham, 2002)



Another typical attribute of systems is that they have objectives. These objectives can vary. However the objectives have to be clearly defined before designing a system.
Inputs and Outputs are also multi-faceted. The input of information systems is often data about purchasing and sales, the output is the information gathered and won through a process.

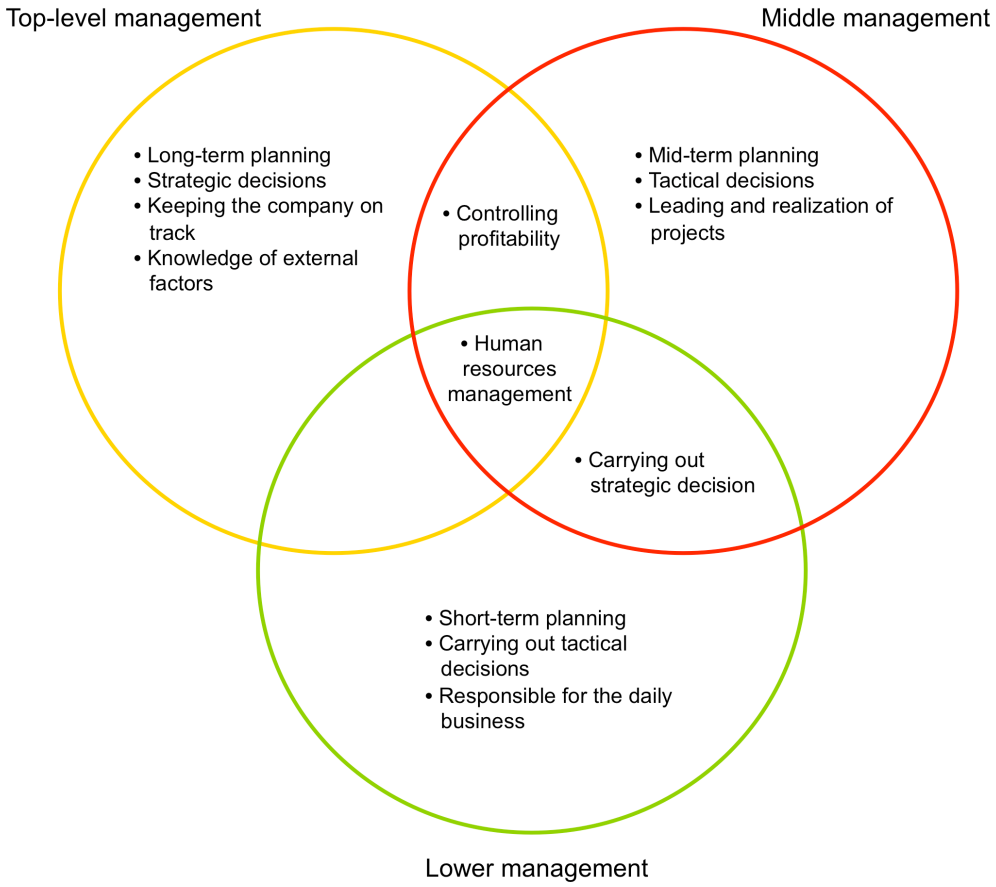
Of course this described system is only a very simplistic example, but general parts are contained. In reality, many subsystems and interrelated systems belong to a complete system, which make it much more complex.

2.2.3 Management

In general, the term ‘management’ can be described as the leading of any institution (e.g. companies, bonds, parties) as well as the human beings executing this (Meyers Lexikon, 2007). This broad term can be subdivided in many categories; two of these categories are the action-oriented concept of management and personal-oriented concept of management. The action-oriented concept of management contains all actions, which are done to achieve the objectives of an enterprise etc. as well as to reach the purpose of involved stakeholders. The personal-oriented concept sees management as the group of persons, who are responsible for actions and purposes because of laws, job descriptions etc. (Krcmar, 2000)

The managerial functions are different regarding the level of management. Normally the levels are divided into three categories: Top-level management, middle management and lower management. Besides other things, top-level managers are responsible for strategic decisions, long-time planning and keeping the company as a whole on track. Furthermore they need extensive knowledge about external factors like competitors and future developments. The middle management is normally needed for leading and realising different projects, carrying out the strategic decisions of the top-level management and controlling the profitability of the company. The decisions of the lower management are characterised by short-term horizon. Furthermore they are responsible for different parts of realising decisions taken by the upper management and controlling the daily business.
A key function of all managers is human resource management. (Hungenberg, 2004)

Figure 2.2: Functions and levels of management



2.2.4 Information Systems (IS)

An Information System is a system for capturing, transmitting, storing, retrieving, manipulating and displaying information. It has human being components as well as computer-based components with the aim to provide best possible information and communication for an organisation or company. Information systems are open, dynamic and complex systems. Because of the interaction with their environment they are open, they are dynamic because they can change different elements and characteristics in order to the environment, and they are, caused by the high number of interactions and elements, complex. (Krcmar, 2000)

To subdivide IS many approaches are developed by different researchers. In the following two approaches are shortly described.
Scheer (1988) divides IS of companies in function-related and company-related systems. Production, technique, purchase, retail, employees, accounting and administration belong to a function-related system. If these categories are customised directly to and for a

specific company, the system is company-related. This customisation takes place through inventing interfaces, which due to specialities of the company and the sector, the company is working in.

In the information technology IS are divided in the application systems administration, disposition and decision support. The administration system is responsible for storing and converting information, the disposition system is used to support the ordering and purchasing processes and the decision support helps middle and top-level management to come to right decisions. (Mertens/ Gries, 1995)

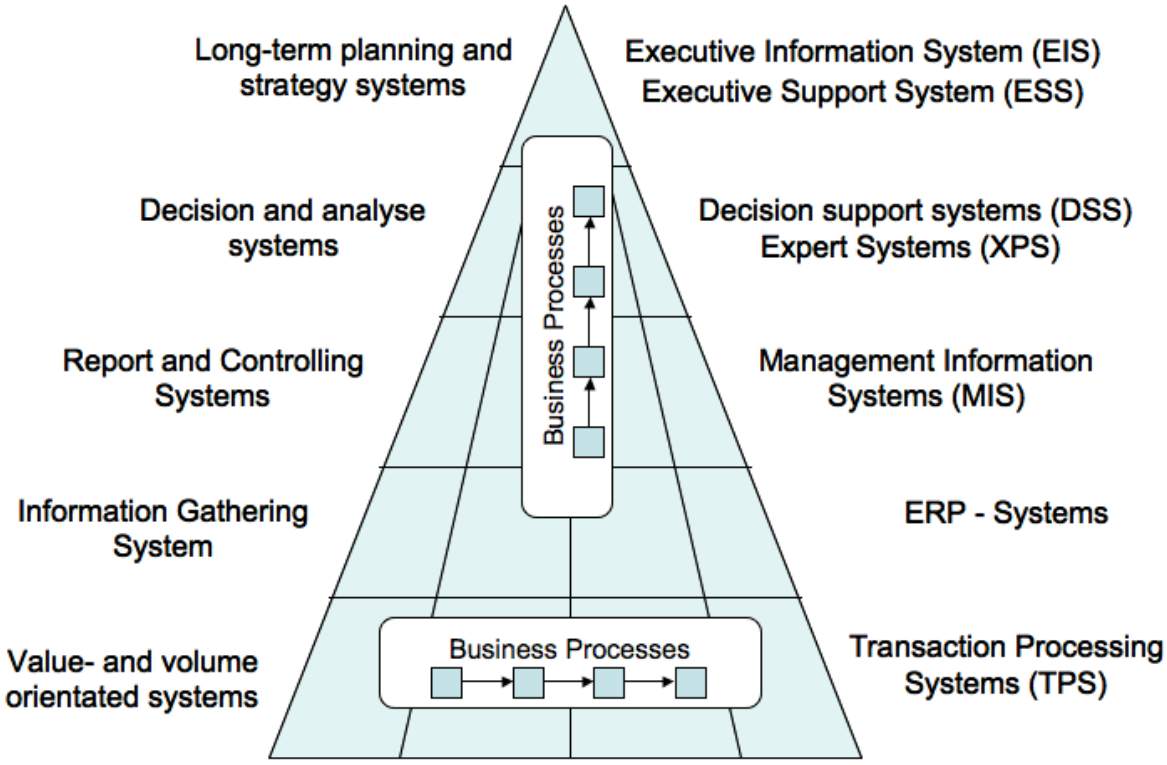
The term ‘Information Systems’ is just the umbrella-term for many other systems and functions, e.g. Enterprise Resource Planning Systems, Management Information Systems, Decision Support Systems and Executive Support Systems. An overview of these systems is given in the following, relevant systems for this thesis are explained more precisely.

3 INFORMATION SYSTEMS

3.1 Introduction

Information Systems exist in different designs for different functions and addressees. In the following, the most common IS are described. Because of the relevance of ERP Systems and MIS for this Thesis, both systems are explained more briefly. Figure 3.2 summarised the different IS with their main characteristics at the end of this chapter. Furthermore two frameworks (CSF and BSP approach) for designing IS are presented.

Figure 3.1: Informationspyramide (Source: Schiefer, 2006)



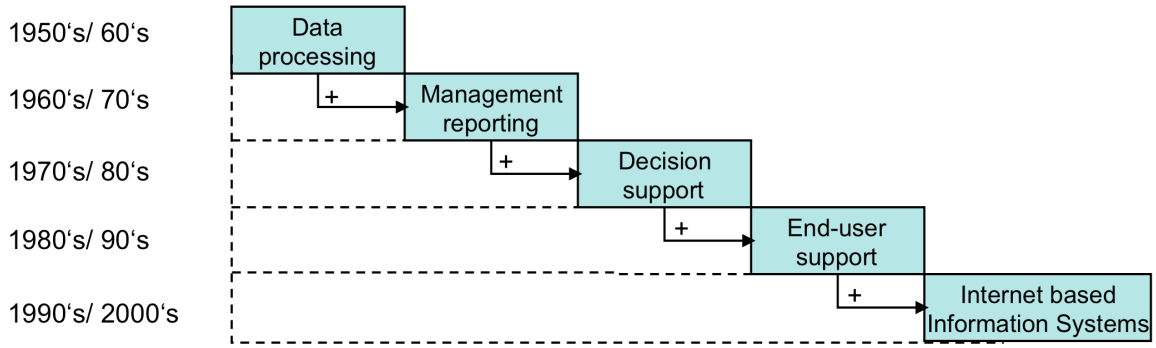
3.2 Historical background of information systems

In the 1950's the first computers were used to process business data. In this time the most often used applications were payroll, high-volume billing and simple ledger accounting activities. The collected data was stored. By recognising that this data can help employees perform better, first MIS's were written. However, these systems were not very useful for companies. This was caused by a lack of computer, a very limited number of software and a poor knowledge about which applications provide significant benefits. Historically these management reporting systems are an intermediate step between

simple data processing systems in the 1950`s and 1960`s and the more specialised systems in the 1970`s and 1980`s, which already provide important information for decision-making. Especially in the 1980`s and 1990`s, many new applications were invented and it came to a wide range of software and application area. (Umble et al, 2003)

The fast improvements and developments in the computer business lead to many new systems and applications. More and more data were stored and analysis programs got cheaper and easier to use at simultaneously improved outputs. Nowadays advanced programs are able to analyse data in real-time and the provided information can be released by authorised people from all over the world via Internet.

Figure 3.2: Historical development of management information systems (Source: Curtis/ Cobham, 2002)



3.3 Transaction Processing Systems (TPS)

Transaction Processing Systems are at the lowest level of the information pyramid. They provide data by collecting, storing and sometimes controlling transaction in a company. A transaction is an information exchange, i.e. every purchase, movement, sale, etc. That means that TPS generate the whole database for the upper systems like MIS, DSS and EIS. It is also possible to program it in a way that it automatically controls each transaction for easily detectable errors like missing data, obviously too high or too low values, inconsistencies in the data, or data in the wrong format. It also checks for required authorisation for the transaction. In a well-designed TPS, which supports all these features, errors can be minimised and it can help to increase the data quality. (Gray/ Reuter, 1993)

In general, two types of TPS exist; batch processing on the one hand and real-time processing on the other hand. These two types differ in the processing time of the transaction. TPS, which works with batch processing, gather and store information

immediately and processes them later. The updating of the database starts either on a schedule or when a sufficient number of transactions is collected. This type is normally used when transaction data comes written and is distributed after a delay. Advantage of this system is that no constant connection to the database is required to keep on working. A disadvantage of this type is that the central database may never be completely current. While data is processing other transaction can be received and stored. In the past, batch processing was the only feasible solution, because data could only be stored on tapes and discs. (Gray/ Reuter, 1993)

The other type of TPS, the real-time processing, collects, stores and processes the transactions immediately. Therefore it requires a constant connection to the database. This requires a by far better technical infrastructure than batch processing. Another disadvantage of this type is that if the connection to the database is shut down, it is not possible to go on with working. (Alter, 1999)

Modern systems are normally real-time processing systems, but they have a special modus in case of shutting down. If the connection breaks up, they still have a small database on their own computer or server, which allows them to keep on working in a bounded way. This solution is not invented for a long-time run, but it helps to bridge over the time till the computer scientists fixed the problem.

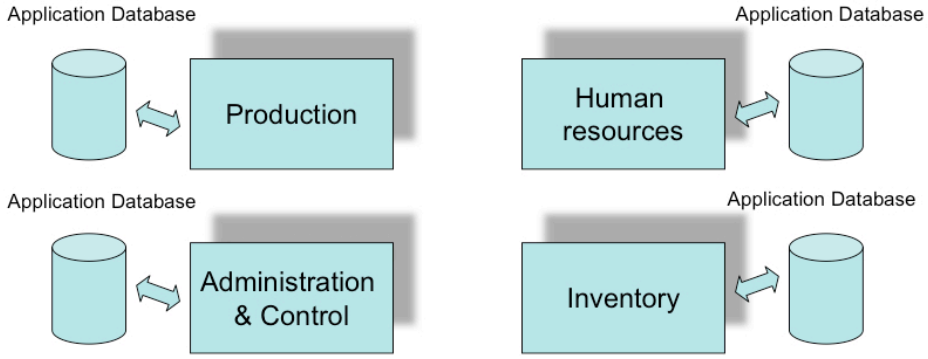
3.4 Enterprise Resource Planning (ERP)

The term Enterprise Resource Planning (ERP) originally stands for the observation and planning of enterprise-wide resources. Nowadays the term has a much broader scope. ERP Systems cover the full management of a company, which provide an integrated view necessary to coordinate purchasing, and production scheduling activities (Alter, 1999). By looking backwards and observing the actual inventory, the system helps to calculate the required amount of materials, products, etc. in a specific period and can order needed materials or products automatically. All major activities are integrated into one ERP System like production, distribution, human resource, inventory, equipment and finance data. This data from all parts of a company forms a database and can lead to an easier and more efficient decision-making process.

In contrast to this integrated database it was also common to have own computer systems for each individual department within one company. This was also the case in the company “RWZ Rhein-Main eG”. Figure 3.3 shows so-called Stand-alone applications’

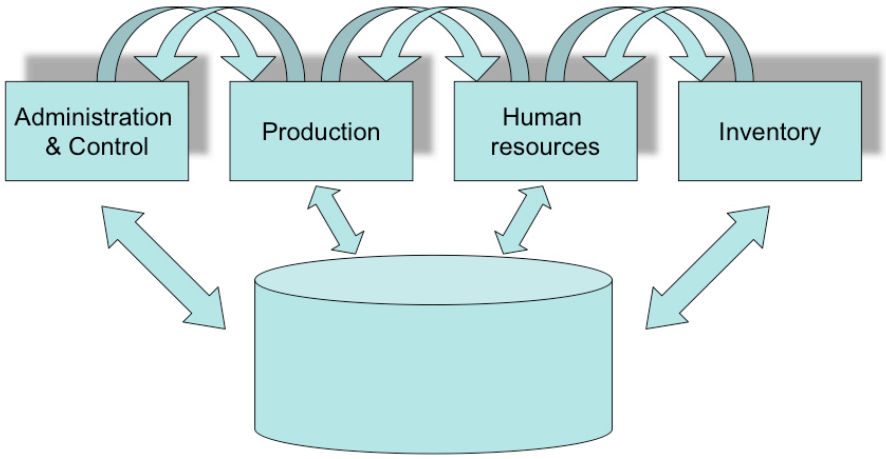
architecture. Every department themed applications have its own application database. These can have interfaces or interconnections between each other.

Figure 3.3: Stand-alone applications` architecture (Source: Loh/ Koh, 2004)



Nowadays ERP Systems comprise all department themed applications and run these off a single database. This leads to a better and easier information share between departments and can reduce the costs training because the employees have to be trained on just one system. Figure 3.4 shows such an ERP-integrated architecture.

Figure 3.4: ERP-integrated architecture (Source: Loh/ Koh, p.2004)



Resulting from this huge amount of data and complex interconnections in every company, it became very complicated to build up such a system. Huge international firms like SAP or Oracle offer ERP Systems. Normally they invented a general framework, which is then customised for every customer individually. This usually takes several months and requires many professionals. (Alter, 1999) Instead of buying an all-in-one solution from one firm it is also possible to integrate different ERP Systems in one company. For

running such a system, interfaces are required to enable the communication between the different systems. This is especially common in the retail sector. Retailers often have their own system with financial applications and selling applications. For all other applications they normally use ERP Systems from specialised companies like SAP or Oracle.

In order to use the provided data best, one single database is ideal. This database can be used for many different functions. A list of the main functions is presented in table 3.1:

Table 3.1: The scope of an enterprise system (Source: Dillon, 1999)

- **Financials:**
  - Accounts receivable and payable
  - Assets accounting
  - Cash management and forecasting
  - Cost-element and cost-centre accounting
  - Executive information system
  - Financial consolidation
  - General ledger
  - Product-cost accounting
  - Profitability analysis
  - Profit-centre accounting
  - Standard and period-related costing
- **Human resources:**
  - Human-resource time accounting
  - Payroll
  - Personnel planning
  - Travel expenses
- **Operations and Logistics:**
  - Inventory management
  - Materials management
  - Plant maintenance
  - Production planning
  - Purchasing
  - Quality management
  - Routing management
  - Shipping
  - Vendor evaluation
- **Sales and marketing**
  - Order management
  - Pricing
  - Sales management
  - Sales planning

3.5 Management Information Systems (MIS)

Management Information Systems are general computer-based systems, which provide information by transforming data. This information is used by executive staff and managers to make decisions easier and more effective.

The essential to the idea of a MIS is the ability to retrieve data and use it for the production of targeted information for different purposes. Much data is stored as the result of transaction-processing operations. It is important that this data is seen as a central resource for the entire MIS and not tied to the application that produced it. (Curtis/ Cobham, 2002)

A classification by functions of MIS can be made in:

- Generating reports: MIS are used for generating reports like inventory status, real-time profit and loss accounts, real-time financial statements, etc.
- Develop scenarios: MIS can be used for developing and calculating different scenarios like: How will change profit if raw-material prices rise by 10% or What will happen if another competitor enters the market?
- Supporting decision-making: Information provided by MIS can be used to support the decision making process, e.g. optimisation of feed production by using linear optimisation, price setting by seeing the actual margin, etc. (Curtis/ Cobham, 2002)

For designing successfully a Management Information System, different factors have to be considered. First, main attributes of information have to be taken into account. These are, besides the general information assumption in chapter 2.2.1 (Understandability, validity, relevance, accuracy, and completeness):

- Timeliness: Information is only useful if it is up-to-date. If information is too old, it is no longer useful for decision-making or even gives a wrong picture of reality.
- Target: The information must be interesting and relevant for the targeted person.
- Format: The way of presenting the gathered information must be chosen regarding the target group. Too many or too less information presented in an unclear way can lead to a different and unmeant conclusion.
- Control: One should be clear about the target group. Some information is critical to the success and is therefore confidential. (Curtis/ Cobham, 2002)

3.6 Decision Support Systems (DSS)

Decision Support Systems are computerised consultation systems to help making decisions in semistructured or unstructured situations. It provides information, models and data manipulation tools to support the decision maker in situations, where the optimal solution is unknown. DSS helps in cases of repetitive as well as in case of non-repetitive problems. To solve repetitive problems the systems provide defined procedures and formats, but the decision to use which information when and how remains in the responsibility of the user. In case of non-repetitive problems, the user has to decide how he wants to use the provided data, models and interface method of the DSS. (Alter, 1999)

Characteristics of Decision Support Systems are:

- It only supports decisions – it is not a compensation of human decisions.
- Human-beings and computers are a combined system.
- It is used to solve semistructured and unstructured problems.
- It is an analysis programme to evaluate databases (trend analysis, statistical analysis, sensitivity analysis, etc.).
- It is model orientated. (Schiefer, 2005)

3.7 Executive Support Systems (ESS)

Executive Support Systems are advanced systems especially for top-level management. It is similar in the basic structure to DSS, but it includes internal as well as external information. As a general definition, Jill Bird can be quoted: “A computer software product, front-ended by a user-friendly terminal and software interface, which electronically provides executives with rapid and reliable access to information regarding key areas of their business, helping them to perform their management functions and achieve their business objectives” (Bird, 1992).

Characteristics of executive support systems are:

- It supports and provides information for the top-level management.
- It supports planning and decision tasks.
- High aggregation of information.
- Targeted information tap (Drill-down, exception-reporting).
- It is used to solve unstructured problems.
- Systems are normally specific for every company.
- The databases are subsystems of ESS. (Schiefer, 2005)

Table 3.2: Overview of information systems (Source: Alter, 1999)

System type	Typical user	Impact on communication	Impact in decision making	Example
Transaction Processing System (TPS): collects and stores information about transactions; controls some aspects of transactions	• People whose involves performing transactions	• Creates a database that can be assessed directly, thereby making some person-to-person communication unnecessary	• Gives immediate feedback on decisions made while processing transactions • Provides information for planning and management decisions	• Point of sales system for sales transactions • Keeping track of customer contacts during a sales cycle
Management information systems (MIS): converts data into information for monitoring performance and managing an organisation	• Managers, executives, and people who receive feedback about their work	• Provides a basis for facts rather than opinions for explaining problems and their solutions • May incorporate e-mail and other communication methods with presentation of computerised data	• Provides summary information and measure of performance for monitoring results • May provide easy ways to analyse the types of information provided in less flexible form by older MIS	• Weekly sales report by product and region • Consolidation of sales projections by product and region • Flexible access to sales data by product and region
Decision Support Systems (DSS): helps people make decisions by providing information, models, or analysis tools	• Analysts, managers, and other professionals	• Analysis using DSS helps provide a clear rationale for explaining a decision	• Provides tools for analysing data and building models • Analysis using a DSS helps define and evaluate alternatives	• System helps insurance salespeople test alternatives • Marketing data and models to analyse sales
Executive Information Systems (EIS): provides executive information in a readily accessible interactive format	• Senior mangers and executive directors	• Gives an overview to executives in form of consolidated data	• Provides different information from the whole company • It is a general tool, not a specific one for a specific purpose	• Analysis about the performance of the company

3.8 Frameworks for designing information systems

Many frameworks for designing IS are developed in the last years. In this Master/ Diploma Thesis two approaches are applied for identifying information use and information needs of executive employees on the one hand, on the other hand for detecting required MIS. The frameworks are named Critical Success Factor (CSF) and Business Systems Planning (BSP). In the following the origin, necessary steps, objectives and benefits of the frameworks are explained.

3.8.1 Critical success factor (CSF) approach

The Critical Success Factor approach is a method to identify factors, which are crucial to success of a company. Factors in this context are elements, which influence the company in any way, for example IT usage, competitors, cooperation and marketing to mention just a few. The method was firstly discussed in the early 1960's by D. Ronald Daniel, who found that a limited amount of factors is responsible for the success of a company. (Daniel, 1961) CSFs are therefore key areas, which have to act well. If major errors come up in these key areas, the company performs less successfully than expected. Therefore it is vital to observe them constantly.

Other researchers enhanced this idea in the 1970's. Anthony et al. for example used this approach for developing Management Control Systems and conclude that CSF exists for specific sectors as well as for specific companies in individual situation and positions. (Anthony, 1990) Meant by specific situation and positions is for example regional competitors and market growth opportunities for specific products, but also facing new challenges like implementing Information Systems.

Based on these studies Rockart developed a method to support executive employees in identifying and evaluating CSFs and resulted information needs. Furthermore this method enables the arrangement of IS. Nowadays the CSF approach shall be deemed to be a formal concept for identifying information needs. (Rockart, 1979)

Purpose of the CSF approach is to identify and picture the specific factors in order to increase the performance of a company. By doing this, observation and controlling of them should be easier and give the company a competitive advantage. Furthermore, the identification of information needs for planning, controlling and supervision is enabled. (Kuron, 1991)

For identifying CSF's in companies, different techniques can be used. Following, the CSF approach designed by Kuron (1993) is described more briefly, which is a framework for analysing and developing MIS.

Kuron (1993) divides the approach generally into four phases. These four phases are separated again in two areas. Phase one and two are necessary to determine the CSFs; phase three and four aim on the analysis of information needs.

First phase: Analysis company's goals and objectives
Objectives and goals have to be identified, because the relevance of CSF's can only be determined in connection to the objectives.
Second phase: Identification of CSFs, which are important for achieving goals and objectives
In this phase the CSFs, which are important for achieving objectives and goals, are determined. It is to say that interdependencies can exist between goals/objectives and CSF's. That means that one goal/ objective can be relevant for more than one CSF and the other way round.
Third phase: Development of indicators for specific CSFs
Several indicators are identified for every Critical Success Factor. On the basis of these indicators, information should be gathered of success themed failure of the specific CSF.
Fourth phase: Determine information, which is necessary for the indicators
In this phase information needs are identified for the CSFs. Thereby the information needs of the executive employees are identified. (Kuron, 1993)

3.8.2 Business systems planning (BSP) approach

The Business Systems Planning approach was invented by IBM Corporation in the early 1970's. It was the first approach focusing on processes, which was a totally new way to build systems. This revolutionary way was often copied since then and often used as a framework for other approaches like the Business Process Reengineering approach.

The BSP approach is a method to compare the current information requirements of management and the information supply of the current MIS (Alter, 1999). Characteristically, the results of this method are displayed in matrix form for easy understandability. The aims of the BSP approach are:

- Estimation of efficiency and effectiveness of current Information Systems
- Objectives for future Information Systems:
    - Estimation of information needs.

    - Assure congruence with objective and goals of the company.
    - Defining information systems, which are durable and assemble in many different organisation forms.
- Objectives regarding data:
    - Assure consistency.
    - Respect data as an economic good and steer them like that.
- Other objectives:
    - Establish a better basis for strategic planning and budgeting.
    - Building a decision basis for resource insert regarding Information System development.
    - Improving of interconnection between departments and divisions.

Furthermore, characteristically for this approach is the top-down strategy to set planning and the button-up strategy to implement identified MIS. First the surrounding and business of the company are examined and then required data for the company are researched by interviewing executive employees. The detailed steps of the BSP approach are explained briefly in the following.

1. Ensuring the support of top-level management: The study can only be successful if the top-level management supports it and guarantees that data are allowed to use and executive employees can be interviewed.
2. Preparing the study: A working plan and a schedule have to be set for preparing the study. Furthermore it is necessary to collect information about the company like market position, organisation, strategy, key figures, etc. The involved people have to be identified as well.
3. Starting the BSP Study: The objectives and the expected results and benefits are presented to the involved people. Normally, the CIO (Chief Information Officer) of the company presents current IS and planned projects. Furthermore he explains current problems and critical areas.
4. Defining business processes: The outcome of step four is a list and a description of business processes within the company. These processes are first summarised to process groups and then linked to the organisational structure. That means that processes are attached to responsible employees. Furthermore it is mentioned that one employee has the main responsibility, strong participation or minor participation within the specific process.
5. Defining data classes: Data and information of the company or organisation is summarised to data classes. This step is important in order to know which data

belongs together and to which process. The interrelations are shown by a matrix, in which data creation and data usage is visualised.

6. Defining information architecture: An information architecture is a matrix to visualise major information categories used within an organisation. It provides a way to map information needs, relate them to specific business function, and document their interrelationship. (Brancheau, 1998) Furthermore MIS, which should be implemented in the company, are identified in this step if they do not exist so far.
7. Interviewing executive employees: The interviews should help verify the collected and analysed data from previous steps. Furthermore the information needs of executive employees should be identified during the interviews by questions like:
   - What are your long-term objectives?
   - Which information are you currently using?
   - What are currently problems in your area of response?
   - What are the key areas in the company for ensuring long-term profitability?
8. Analysing the interviews: The interview analysis has various objectives. First, one aim is to identify current information use and information needs of the executive staff. Second it is necessary to confirm the findings, analysis and information of the previous steps.
9. Determining priorities: The whole information architecture can't be developed at once, therefore priorities have to be set in order to rank the findings. The ranking is a recommendation in which order the identified MIS should be implemented.
10. Formulating an action plan: The action plan contains the priorities and recommendation for implementing a new system. A time schedule, the expected profit, project volume, involved people or groups, methods, and required capabilities and know-how are normally part of the action plan.
11. Presenting final report: The objective of the presentation is to convince the top-level management to realise the action plan. (Heinrich/ Burgholzer, 1990)

The presented steps are not fixed, but it is necessary to change them in the case of specific companies.

4 CASE STUDY OF THE SALES GROUP "VTG EIFEL-MOSEL-HUNSRÜCK"

4.1 Introduction

Chapter four is mainly divided in three sections. First it is pointed out, why the sales group "VTG Eifel-Mosel-Hunsrück" is chosen as a Case Study. In the second section (chapter 4.2) CSFs the researcher Kuron discovered are explained and compared to the own findings. The last section of this chapter comprises the applying of the BSP approach. Main steps in it are identifying the business processes and data classes, defining the information architecture, analysing the interviews and determining priorities.

4.1.1 Selection of the sales group

To investigate the current information use and needs of executive employees of the company "RWZ Rhein-Main eG", one sales group is selected as a Case Study. The sales group is named "VTG Eifel-Mosel-Hunsrück" and is located in the mid-west of Germany. Because of various reasons this sales group is chosen.

The sales group consists of 11 subsidiaries. This number is a little bit below average, but it enables the direct contact with the most executive staff and makes it easier to get a full overview over the business area. Furthermore, the organisation with a group director, a business controller, and sales managers for the different divisions is typical for the company.

The business areas of the whole company are trading and producing agriculture products, dealing with building materials and retailing products for the agrarian demand (animal feed, tools, etc.), dealing with agricultural technology, wine cellars, and energy (Oil, gas, lubricants). These divisions also exist in the sales group "VTG Eifel-Mosel-Hunsrück" in a representative size, only the component wine cellars is larger than in the rest of the company.

The "RWZ Rhein-Main eG" chose two locations to be the first for changing to the SAP System. One pilot is the "Raiffeisen Markt Riedstadt-Wolfskehlen" in the sales group "VTG Hessen" and the other one is the "Raiffeisen Markt Morbach" in the example sales group. Due to the fact that one pilot lies in the area of the "VTG Eifel-Mosel-Hunsrück", the interview partner are more aware of possible problems regarding the implementation and are more in touch with the whole topic.

Another point, why the sales group “VTG Eifel-Mosel-Hunsrück is valid for a case study, is the fact that they are experienced in implementing new systems. The “Raiffeisen Markt Morbach” for example was also the first location, which implemented the old ERP System. They know that they can co-decide the development if they are one of the firsts to implement the systems. This makes it very interesting to have them as an interview partner, because they are already aware of the system.

Mainly because of these five reasons, sales group is chosen as an example. The organisation and the structure represent the company quite well. The experienced and helpful employees make it easier to get good and valid information.

4.2 Critical success factors approach for analysing information needs

4.2.1 Introduction

In the past an unmanageable number of researchers discussed critical success factors regarding ERP Systems. The researcher Kuron (1993) discussed Critical Success Factors for analysing information needs and developing MIS in agriculture trading companies. In the beginning of this paragraph, the CSF approach is just shortly explained. A more detailed explanation can be found in chapter 3.8.1. Then Kuron’s findings are discusses and compared to CSFs identified in the sales group “VTG Eifel-Mosel-Hunsrück”.

4.2.2 Critical Success factor approach

Next to many other researchers, Kuron developed a framework based on the CSF approach by D. Ronald Daniel. Kuron’s research focuses on ERP Systems in agriculture trading companies. He uses the CSF approach to identify information needs and developed MIS based on these findings.

Kuron (1993) divided the approach generally into four phases. Phase one and two are necessary to determine the critical success factors; phase three and four aim on the analysis of information needs. All four phases are explained in chapter 3.8.1. Additionally, the exact methodology Kuron used, can be found in his book “Warenwirtschaftssysteme im Landhandel – Analyse und Konzept für ein integriertes Management-Informationssystem” (1993). Kuron’s research represents an important source of this Master Thesis. The similarities in the objectives of his studies and this Master/ Diploma Thesis makes it possible to use his data as a basis. A deeper explanation of the methodology is left out at this moment.

4.2.3 Results of Kuron's study

Kuron interviewed personally managers of 13 different agriculture-trading companies located in all parts of Germany. The companies should represent all areas of Germany as well as the different business specialisations.

Generally Kuron divided the CSFs in intern and extern oriented factors. In order to weight the CSF's he used the so-called Likert-Scale. The Likert-scale is a measuring, where the interviewed partner had to weight the CSF's between (1) complete critical to success and (5) not critical to success. The following overview shows the weights detailed:

From 1 to 1.5 = Complete critical to success
> 1.5 to 2.5 = Largely critical to success
> 2.5 to 3.5 = partly critical, partly not critical to success
> 3.5 to 4.5 = Hardly critical to success
> 4.5 to 4 = Not critical to success (Kuron, 1993)

Kuron detects seven intern oriented CSFs and twelve extern oriented CSFs for agriculture trading companies.

4.2.3.1 Intern oriented Critical Success Factors

The intern oriented CSFs, which Kuron found in his study (1993), are:

- Balance orientation
- IT usage
- Flexible and situational finance management
- Competent management
- Coordination and planning within the ERP
- Costs and success orientation
- Improvement of employee quality

His research in 1993 showed that all factors are largely critical to success. The most important CSF regarding his study is competent management with an average score of 1.7, followed by cost and success orientation (1.8) and improvement of employee quality.

Kuron explains the high relevance of competent management with the business environment of agriculture trading companies. Caused by the stiff competition, the increasing globalisation and the structural change in whole agriculture, companies in this business face increasing pressure to react quickly regarding organisation and company

structures. Furthermore executive employees require profound knowledge of agricultural markets, business administration and personnel management. This increased the requirements for management. (Kuron, 1993)

The interviewed people score the factor cost and success orientation with 1.8. The almost same grade can be explained by the increased competition on markets. The number of farmer themed farms is steadily falling by a constant remaining agriculture area. The cost and success orientation can also be seen in connection to competent management, because a competent management includes also an orientation on costs and success. (Kuron, 1993)

Improvement of employee quality is the third important factor. This factor, as well as the first one, is significantly caused by the increasing market concentration. Because of the reduced number of customers for agriculture trading companies, every transaction has a higher value and therefore a higher relevance for the company. These structural changes lead to a higher claim of every customer, which has to be fulfilled with improved employee quality. Taking this into account an interconnection with the extern oriented factors active marketing, customer orientation and offering problem solution is visible. Connection to intern oriented CSF is mainly the IT-usage. It is only possible to use modern IT systems like ERP Systems and IS with well-trained employees. (Kuron, 1993)

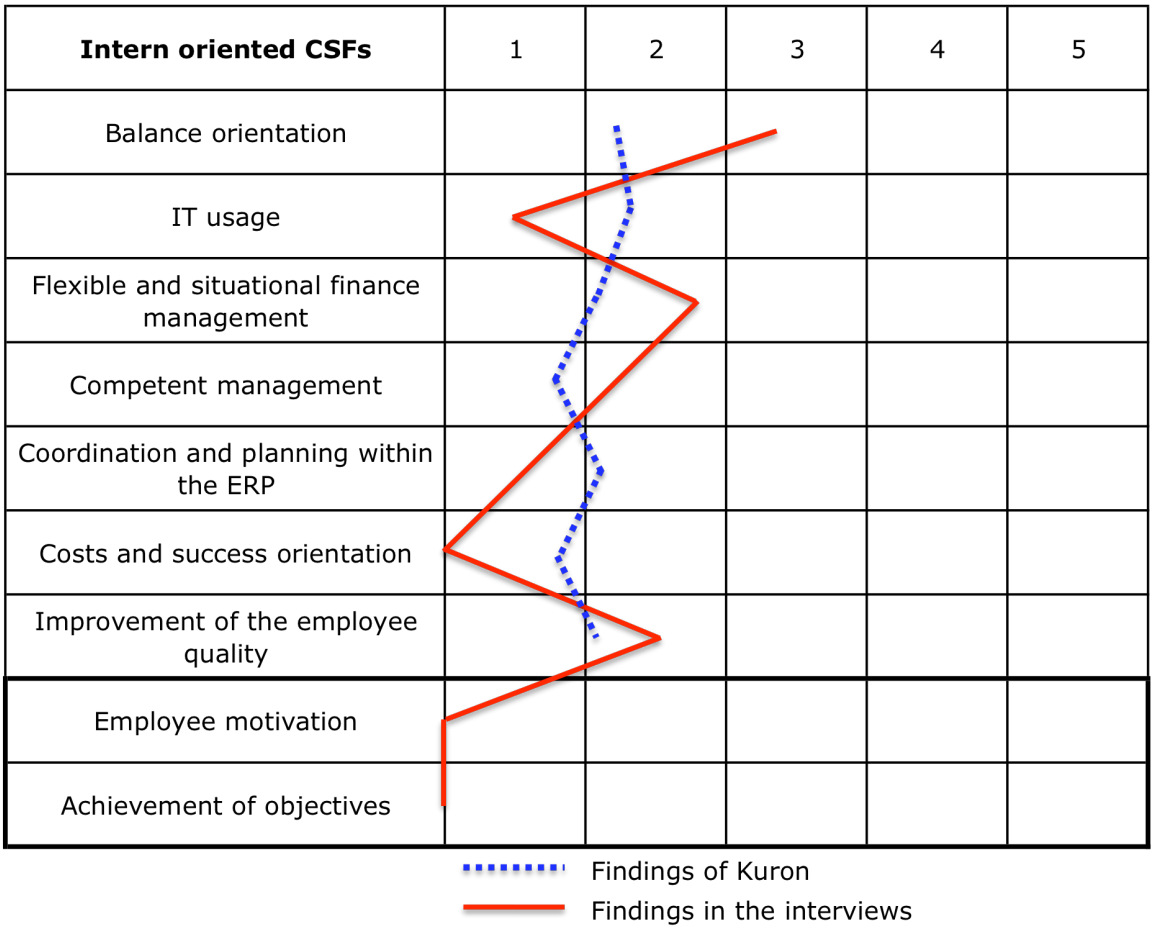
The assessment of intern oriented CSFs by executive staff of the sales group “VTG Eifel-Mosel-Hunsrück” shows some similarities, but also differences. First of all it is to say, that the amplitude of the given answers is bigger. On the hand this is caused by the smaller amount of interviewed people, on the other hand it is caused by the fact that all interviewed people operate in the same area within the same company and more or less face the same problems. Therefore their answers are quite similar and balancing each other not so much.

The interviewed people scored costs and success orientation as the most important CSF (1.0), followed by usage of IT (1.5), and improvements of employee quality. The factors costs and success orientation and improvements of employee quality can be seen as a general objective of the executive employees. The usage of IT is marked that high because of the upcoming changes the employees faces currently. Moreover, the IT usage becomes more and more important in the last years, which is a reason for the unequal assessment in the two studies. The two factors, employee motivation and achievements

of objectives, have a higher score, but they are just named by one employee and consequently not comparable with the other.

Interesting to see is that neither the long period between the two researches, nor the different characteristics of interviewed people lead to a significant change of the assessment of CSFs. An overview of the intern oriented CSFs as well as the weightings are pictured in figure 4.1.

Figure 4.1: Intern oriented CSFs (Source: Similar to Kuron, 1993)



4.2.3.2 Extern oriented Critical Success Factors

Kuron detected 12 extern oriented CSFs in his study. Nine of these critical success factors are named later on in this chapter. Three CSFs are left out because of various reasons. In the following, the left out factors are named and reasons are given for non-consideration.

- Expansion in newly formed German states: This factor cannot be critical to success anymore after almost 20 years of reunion.
- Merger with other companies: The interviewed people are all in charge of the sales group located in the middle of company's business area. They do not have

anything to do with mergers or acquisitions, therefore this factor is not of interest for them.

- Creative and flexible arrangement of procurement market and business market: The procurement market is widely predetermined by corporate headquarters and should be more dedicated in the future. The business market is bordered by other sales groups of the company and is therefore fixed. The sales group self does not have autonomy of decision. So this CSF is left out.

Besides these, the CSF's identified by Kuron are:

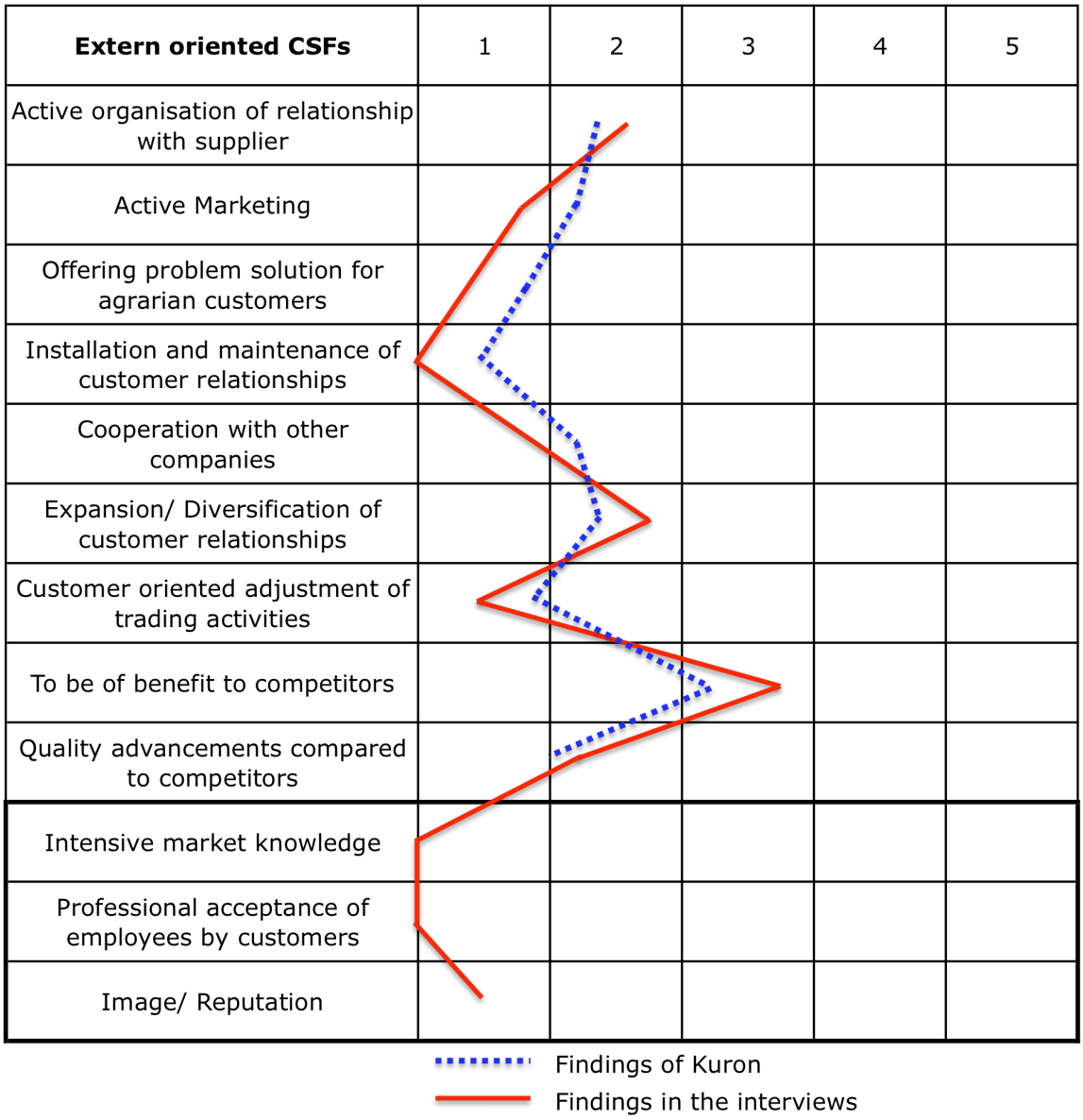
- Active organisation of relationship with supplier
- Active marketing
- Offering problem solution for agrarian customers
- Installation and maintenance of customer relationships
- Cooperation with other companies
- Expansion/ diversification of customer relationships
- Customer oriented adjustment of trading activities
- To be of benefit to competitors
- Quality advancements compared to competitors

As it can be seen in figure 4.2 most of the presented factors are scored largely critical to success. Only expansion/ diversification and to be of benefit to competitors are not judged to be critical to success. The most important factors regarding Kuron's study are: Installation and maintenance of customer relationships (1.5), offering problem solution for agrarian customers (1.9) and customer oriented adjustment of trading activities (2.0).

Significant to see in the extern oriented CSFs is that all factors in touch with customer orientation are scored very high. This is also accented because the factor installation and maintenance of customer relationships is the only one in the whole study, which is judged to be completely critical to success.

In figure 4.2 similarities between Kuron's outcome and findings during the interviews are significant. Every trend is completely similar between the studies, only the amplitude is higher within the red line. Also the customer orientation if vital for the employees within the sales group "VTG Eifel-Mosel-Hunsrück" and has to be respected in the arrangement of ERP Systems. Furthermore the interviewed people expand this list by intensive market knowledge, professional acceptance of employees by customers and Image/ Reputation.

Figure 4.2: Extern oriented CSFs (Source: Kuron, 1993)



4.2.4 Conclusions

Based on this summarisation it can be concluded, that six intern oriented factors and eight extern oriented factors are critical to success. Furthermore the list is enhanced by two intern and three extern oriented factors.

Significant to see is that customer orientation is absolutely the most important factor to success. Furthermore the cost and success orientation as an intern CSF is vital. The information of this chapter is used for setting priorities in chapter 4.3.9, giving recommendation, as well as for writing the conclusions.

4.3 BSP approach for analysis information use and information needs

4.3.1 Introduction

In the following, the BSP approach is applied for analysing the sales group “VTG Eifel-Mosel-Hunsrück”. As explained in chapter 3.5.2 the BSP approach is divided into eleven steps. Hereafter all steps are worn-out. In the beginning, business processes and data classes of the company are identified. Based on these findings an information architecture is developed. In the six interviews with executives of the sales group, information use and information needs are identified and findings of previous steps are confirmed. Afterwards priorities for implementing identified MIS are clarified.

4.3.2 Step 1: Ensuring the support of top-level management

In the beginning of the study, conversations with the CEO (Chief Executive Officer) of the company “RWZ Rhein-Main eG” were conducted. His request was that a student should academically escort the implementation of the new ERP system in one sales group. This escort should combine on the analysis of critical factors to success the one hand, on the other hand an observation which information is really used currently and how information use can be optimised within the new ERP system. The CEO guaranteed full support for the study and talked to all involved executive employees in order to give the project high priority.

4.3.3 Step 2: Preparing the study

The aim of the study is to identify current information use and information needs of the group director, the business controller and the five sales managers of the sales group “VTG Eifel-Mosel-Hunsrück”. After identification of current information use, the future information needs should be defined in order to fulfil requirements of the staff. The involved people were identified by dint of RWZ’s CEO. The CEO also informed involved people about the study, but they are also directly informed by the researcher in first clearing interviews and visits.

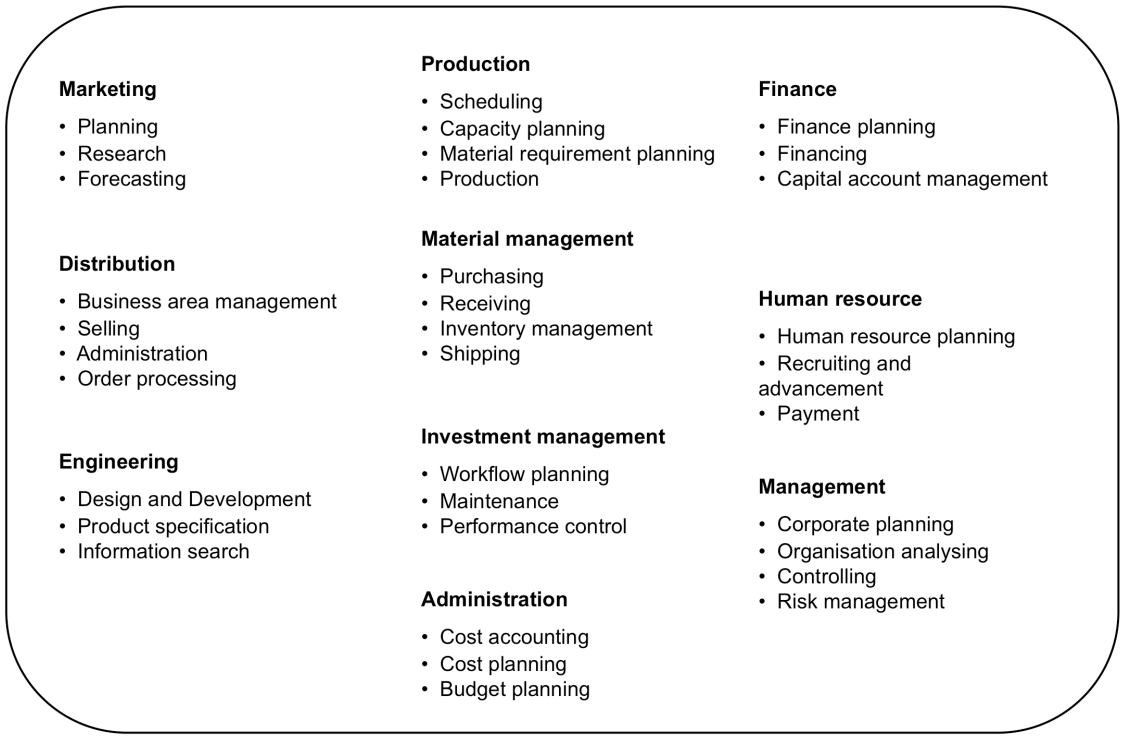
4.3.4 Step 3: Starting the BSP study

The objectives and the expected results and benefits are presented to involved people. Normally the CIO (Chief information officer) of the company presents current information systems and planned projects. In case of this Master/ Diploma Thesis, a conversation with the CIO about the objectives and expected results of the Thesis is hold. Then the research is started.

4.3.5 Step 4: Defining business processes

Step four of the BSP approach is defining business processes. The processes are identified during the internships and through conversation with employees of the company. Figure 4.3 published by IBM Corporation shows an overview of process groups and processes, which are often found in enterprises. Table 4.1 illustrates the process groups and processes, which actually exist in the sales group "VTG Eifel-Mosel-Hunsrück". For every process a further explanation is given for better understanding. Afterwards the defined processes are linked to the responsible employees with respect to their responsibility and participation in the specific process.

Figure 4.3: Corporate processes (Source: IBM, found in Heinrich/ Burgholzer, 1990)



Three process groups, which are presented in figure 4.3, are not respected in the overview below (table 4.1). The process group engineering is unaccounted because whether the processes design and development, product specification nor information search plays any role within the sales group. All processes in touch with investment management are also ignored because the responsibility of these lies completely in the main financial department located in corporate headquarters. This is the same case for the process group finance. Financial planning, financing and capital account management is centralised in the main accounting department and therefore left out.

Table 4.1: Process groups and processes of the sales group

Process Group	Process	Examples
Marketing	Planning	• Planning sales deals and publishing these • Planning the future of subsidiaries • Commercial planning
	Research	• Knowing customer demands and business change in order to fulfil these demands best
	Forecasting	• Forecasting the customer demands in value and product specification (which product is wanted in which amount) • Forecasting market trends in order to purchase the right materials
Distribution	Business area mgmt	• Planning and leading field staff, planning of logistics
	Selling	• Selling products to their own subsidiaries • Serving as wholesale trader for other companies • Selling directly to customers • Supporting subsidiaries in selling processes
	Administration	• Leading the subsidiaries • Supporting them in selling processes
	Order processing	• Writing bills • Often as a wholesale trader • Checking the amount, value, etc.
Production:	Scheduling	• Scheduling when which materials are needed • Planning when which product has to be finished
	Capacity planning	• Utilisation of existing capacity • Using capacity most efficient • Not accepting to many orders
	Material requirement planning	• Demand planning of different materials • Quality planning
	Production	• Monitoring and leading production processes • Quality management of produced goods
Material management	Purchasing	• Purchasing products as a wholesale trader • Purchasing for the whole sales group
	Receiving	• Receiving products • Recording arrives of products in database • Controlling the delivery/ products • Normally products are directly delivered to the subsidiaries
	Inventory management	• Controlling the inventory in the whole sales group • Monitoring possible old inventory which is close to expiration • Keeping inventory low
	Shipping	• Organising shipping from suppliers to the point of demand (locations) • Organising shipping from subsidiary to subsidiary
Admin-istration	Cost accounting	• Calculating and monitoring costs • Cost allocation • Keeping costs low
	Cost planning	• Planning costs for next years • Managing that costs stays in an accounted limit
	Budget planning	• Setting the budget for the following years • Controlling the budget, keeping the budget in line
Human resources	Human resource planning	• Forecasting human resource demand • Planning the labour utilisation
	Recruiting and advancement	• Hiring employees • Corporate headquarters does advancement
	Payment	• Salary, pay negotiations • Corporate headquarters is responsible for payments
Management	Corporate planning	• Setting target contribution margin • Main objectives are given by the board of the company
	Organisation analysing	• Writing and maintenance of organisational charts • Corporate headquarters does organisation analysing • Checking possibilities of economising
	Controlling	• Controlling the business area, subsidiaries, field worker, sales deals, etc.
	Risk management	• Judging business involved risks

These process groups themed processes are now linked to the executive employees of interest, i.e. the group director, the business controller, the sales manager (SM) Fertiliser/ pest management/ viniculture, the SM energy, the SM retail and the SM seed/ animal feed.

Figure 4.4 shows if one has the main responsibility of the process or if he is strong or minor participating in the process. Main responsibility is marked by a black spot, strong participation can be recognised by a cross, and a line from top left to down right expresses minor participation. The grade of liability is identified by organisational charts and job descriptions. Furthermore conversations with employees assist completing the chart.

Analysing figure 4.4 can help to identify problems and redundancies in the company. If more than one employee has the main responsibility for one process, it can be a sign that work is done twice and therefore not as efficient as possible anymore. Furthermore power struggles can come up easily. Following, the figure “business processes linked to responsibilities” is analysed regarding the responsibility breakdown and possible resulting problems.

In the process group marketing, the sales managers (SM) and the business controller are mainly responsible. For the process planning SMs of the divisions fertiliser/ pest management/ viniculture, retail, seed/ animal feed, and building materials are mainly responsible employees. The business controller participates strongly by supporting the sales managers. The group director simply observes it and therefore has a minor participation. The fact that four employees have main responsibility is not problematic, because all do it only for their special business. They already have their required knowledge for planning, like stiff market knowledge and knowledge about their goals and customers. The business controller supports them with special techniques and know-how of general planning skills. This breakdown does not lead to more work compared to if one person would have main responsibility for all divisions, because one has to be familiarised with every topic. The main response for researching and forecasting lies in the area of the business controller. In these processes corporate headquarters supports him. The sales managers of the divisions fertiliser/ pest management/ viniculture, retail, and seed/ animal feed participate strongly in the process forecasting.

The process group distribution, with the processes sales area management, selling, administration and order processing, shows some intersections. Both, group director and

business controller, currently have main responsibility for sales area management. This can become a problem if not both exactly know their boundaries and their field of duty. Otherwise the same work would be done twice and for example the same employees in the sales area would be contacted for the same problems twice, once from the group director and once from the business controller. This would cast a damning light on their professionalism and would waste time. In future, it would be better to give main responsibility to a group director and let him decide in how far the business controller should support him. Dividing the process sales area management into two areas would not utilise work. If a breakdown is necessary, it would be better to split up the process into sub-processes. This would enable employees to become experts in special sub-processes instead of working in a broad range with basic knowledge.

Because of the fact that the sales manager for energy is the only one who is directly involved in the selling process, he is also the only one who is fully in charge of it. The other sales managers are mainly wholesale traders for subsidiaries and purchase more for the whole sales group instead of selling to customers.

The group director has the main responsibility for administration. All sales managers have strong participation in this process, but only for their own business division. The breakdown of the responsibilities is not critical, because the group director needs to have the overview, but at the same time requires expertise from his sales manager.

Order processing comes in the limits of the business controller. An increasing part of the process order processing is centralised in corporate headquarters and is done there for the whole company. The sales managers just have a minor participation.

Within the process group production no intersections between employees exist. The sales manager for seed and animal feed is the only one, who is responsible for the processes scheduling, capacity planning, material requirement planning and production. The reason for this is easy: Animal feed is the only product, which is processed, in the sales group. All others are raw materials or already manufactured products.

A different picture shows the group material management. SM fertiliser/ pest management/ viniculture, SM energy and SM seed/ animal feed are fully in charge for purchasing in their area. Purchasing of products for the retail division is mostly done by corporate headquarters, purchasing of products for building materials is mostly done by subsidiaries. By centralising the purchase, supplier relationships can be utilised and better

conditions can be negotiated. Furthermore centralisation could decrease the costs for logistics, because loads could be combined. The centralisation should not combine energy division. Products like heating oil, diesel, or petrol can only be transported separately and they are bought as full loads anyway. The purchases of fertiliser, pesticides, viniculture, vine cellars, cereals, seed, and animal feed should be combined in order to utilise logistic and market power. This means that the business controller should have the main responsibility and sales managers should have a strong or minor participation.

Currently, most products are directly delivered to the subsidiaries. Only energy products are reloaded at the sales group's central Wittlich. Therefore SM energy is responsible for receiving. The inventory management lies completely in the hands of sales managers. The group director only has a minor participation, the business controller a major participation. This breakdown of responsibilities is necessary, because sales managers are in charge concerning these products. In order to calculate prices and fulfil customer demands, they need to know where products are located and how much is in stock. Because of borderlines between divisions, the business controller has to keep an overview of all inventories to see free stock grounds and arrange interconnections. Therefore his participation is required.

The breakdown of shipping process is already optimised in the company. SM energy is fully in charge of its logistic, because it is only possible to load heating oil, petrol, or diesel in his trucks. All other logistic is centralised. That means that all sales managers only have a minor participation, they send delivery orders to the centralised logistic department.

For all processes within the administration group, the business controller has the main responsibility. In the process cost accounting and cost planning sales managers just have a minor participation. The group director has a strong one. For budget planning, group director and business controller have the main responsibility, the sales managers have a strong participation. Nevertheless that the group director is more in charge for goals and objectives and the business controller more for making and calculating the budget, the breakdown of it could lead to problems. It is necessary that both work hard together in order to make a realistic budget with powerful outcome.

Planning and recruiting of human resource is part of the group director's field of duty. Together with the business controller and the sales manager, for whom they are searching an employee, he hires employees. Both processes do not take place regularly

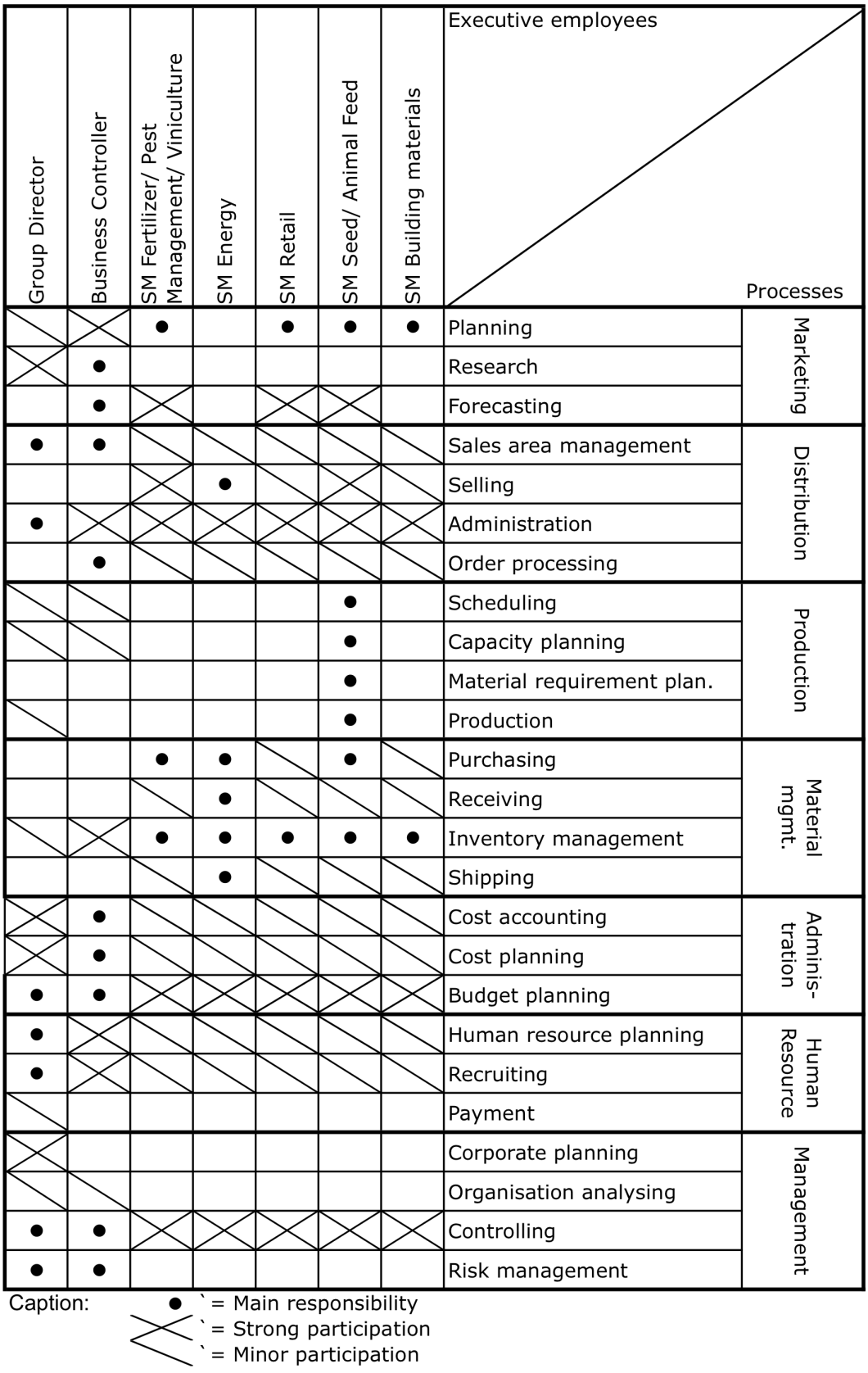
and is therefore not critical. The payment is completely centralised for the whole company in corporate headquarters. Therefore responsibilities do not lie in the sales group anymore.

Because of the strong participation of the board, only the group director is strongly involved in corporate planning. The board of the company in cooperation with the group director does the planning of the sales group, but the last decision rests by the board. The responsibility for the process organisation analysing lies mostly by the organisation department located in corporate headquarters. The group director and business controller act as an advisor for them and have therefore only minor participation.

For the process controlling, group director and business controller are mainly responsible. Furthermore all sales managers have strong participation. Because of few controlling tools at the moment, overlappings are not crucial, but with respect to new functions and possibilities, an arrangement of responsibilities is necessary. Especially the information flow must be defined in order to decrease redundancies. Group director as well as business controller should get only critical information and the possibility to check everything, if they want to. The sales managers should get deeper information about their area of response in order to observe the performance of the division and status quo.

At the moment, risk management is only built up rudimentary. This is the reason why the responsibilities are not completely clear. After the rearrangement of the ERP System, this process must also be improved and thereby responsibilities rearranged as well. The group director as the person in charge for success of the company should also be responsible for risk management. Furthermore, the sales manager should participate in this process, because they know their business best and see critical changes first. The business controller can help with the achievement.

Figure 4.4: Business processes linked to responsibilities



4.3.6 Step 5: Defining data classes

In step five logical data is summarised to data classes. The summarisation is necessary to decrease redundancies in the new system. Furthermore the identification of data classes is required in order to define the information architecture in a further step. (Heinrich/ Burgholzer, 1990)

The identification of data and data classes was done by a so-called data usage analysis. In this analysis every identified process is discussed regarding creation and usage of data. (IBM Corporation, 1984) In appendix 1 an overview of processes with associated data can be found. Afterwards this list is compared to literature and is discussed with employees within the company. Thereby the lists is proved and, if necessary, expanded. Following, all identified data classes are shown and shortly explained in table 4.2. The illustrated data is currently not complete included in the present ERP System, but available in any other form in the company.

Table 4.2: Data classes of the sales group

Data class	Description	Examples
Assets	Overview of all assets the company/ sales group has with storage information and ownership	• Value of assets, depreciation of assets. • Location of assets, condition of assets
Business area	Information about size, subsidiaries and market power within the business area	• Subsidiaries, size, number of customers, purchasing power of customer • Key figures of parts of the business area
Capital	Data related to the financial situation of the company, sales area or department	• Status quo of capital use • Liquidity, solvency, balance sheet, profit and loss account
Competitors	Information about competitors with respect to their business and direct competition	• Location of competitors, product portfolio, business area of direct competitors • Market power of competitors, customer amount, differences to own business
Cost forecast	Financial forecast for each department, division and subsidiary	• Expected cost for upcoming projects • Budgeting costs
Costs	Data regarding costs in previous periods or years arranged by departments, divisions or subsidiaries	• Overall costs, cost of sales • Comparison of costs with budget, expenses for office equipments
Customer	Data required for identifying and classifying customers	• Name, address, personal information • Credit limits, payment agreements, discount, liquidity • Estate of the customer like farm size, area under cultivation, live stocks • Turnover and margin of the customer
Employee develop-ment	Information about required employees, as well as required skills and benefits	• Number of needed employees, location where employees are needed • Required skills, information about how to get the right employees

Employees	A record of information about individuals work for the company/ sales group	• Name, address • Job, responsibilities
Errands	Data regarding ordered products and raw materials as well as information about the delivery	• Amount, value, delivery time of orders • Urgency, margin of orders
Human resource costs	Information about how much one employee costs as well as which position in the company costs	• Salaries, jobs, responsibilities • Costs of trainings, cost caused by absent due illnesses, cost for retirements
Inventory	Data on the location, quantity and value of stored raw materials and products	• Stocks, value of inventory, where is inventory located • Inventory turnover, days in inventory
Market development	Forecasting market demand and requirements	• Forecasting demand, forecasting market and price trends • Creation of new markets, change of markets
Market information	Data about the current market the company performs on	• Actual prices, sales history in the market, market share • Possible customers in the market
Open demand	Information of required materials and products in quantity and quality	• Amount of needed materials and products, quality of needed products • Information about substitute products
Organisation	Information about company's organisation with respect to working places, hierarchies, and decision-making processes	• Organisational charts, company overviews • Summary of departments and division with responsibilities
Output	Data on the location and quantity of manufactured products before their release for shipment	• Amount of produced goods, characteristics of produced goods • Storage of produced goods
Planning	Data regarding corporate or sales group's goals and objectives	• Productivity information, plans for the company, department, division, or sales group • Goals and objective for the company, department, division, or sales group
Planning sales deals	Information about possible sales deals as well as previous sales deals	• Key figures of previous sales deals, information about advertisements • Purchase prices, customer demand
Production capacity	Current data regarding availability and capacity of equipment and operators	• Available raw materials, available storage • Available machine hours, capacity of machines
Production volume	Amount overview of produced goods in a period or year	• Scarce commodities, duration of production • Demand for the produced volume, producing the most economic volume
Products	Data regarding product characteristics and availability of products	• Specification and quality of products, number of articles, expiration date • Value, demands and availability of products
Risks	Information in order to judge business regarding risks	• Level of insurance, what is insured • Market changes, risks of inventory, production risks
Shipment	Data related to the distribution of products from subsidiaries or plants to customers of other subsidiaries	• Destination of cargo, characteristics of cargo (dangerous goods, etc.) • Logistic information, transporting firms, own possibilities to transport
Statistic	Summary records of information, which are necessary for forecasting, budgeting, controlling etc.	• Historical revenue collections • Success of previous sales deals • Sold goods
Supplier	Information about actual and possible supplier of the company related to their offered products and their location	• Which supplier delivers which product, competitors, number of suppliers • Credit limits, payment agreements, market power

4.3.7 Step 6: Defining information architecture

An information architecture is a matrix to visualise major information categories used within an organisation. It provides a way to map information needs, relate them to specific business function and document their interrelationship. (Brancheau, 1998)

Basis of the information architecture is the process/ data class matrix. In this matrix all before identified processes are listed down the vertical axis. First processes of planning and management control, then processes associated with product/ service life cycle sequence and finally supporting processes are listed. The data classes are listed across the horizontal axis. That data class is listed first, which is created by the first process; that data class, which is created by the second process, is listed secondly and so forth. To mark the creation of data, a “C” is put at the intersection of the appropriate process row and data class column. (IBM Corporation, 1984)

After arranging all data classes, a “U” is placed in the process column for each data class used by that process. The result of this is an overview of creation and usage of data classes by processes. When completed, the process/ data class matrix becomes an analytical tool for:

- Verifying data class identification.
- Communicating data sharing concepts.
- Analysing data problems.
- Determining dependencies between applications in the architecture. (IBM Corporation, 1984)

The next step to visualise interrelations of business functions is the inclusion of information flow between processes themed process groups. For developing such a chart, it is necessary to rearrange the axes of the process/ data class matrix. First processes, which share a lot of data, are arranged next to each other. The main order of the processes is the same as the order before: First planning and management control, then product/ service life cycle processes and finally supporting processes. The data classes are arranged just as before: the “C”s shows a kind of line from the upper left corner to the lower right corner again. The rearranged matrix with data creation and data usage can be seen in figure 4.5.

Afterwards process groups have to be identified. Process groups can be identified by their same patterns of data usage. All data classes, which are created by one process in the

group, also belong to the group. To picture this, the newfound business units are marked by a box. Simultaneously, these boxes represent MIS, which should be implemented, if it is not done so far.

The identification of information flow between processes and process groups is easy. Whenever data is used by a process, which is created by a process in some other process group, information flows from the creating group to the using group. Arrows from one group to another illustrates the information flow (see appendix 2.4).

For the purpose of clarity all C's and U's are removed and all arrows are replaced by the two-sided arrows, which just shows the data flow between the process groups. The whole development, from the process/ data class matrix to the simplified information architecture matrix, can be found in appendix 2. In this chapter only the rearranged process/ data class matrix and the simplified information architecture is shown and dwelled.

The figure "process/ data class matrix rearranged" (figure 4.5) shows creation and usage of data by business processes in the sales group "VTG Eifel-Mosel-Hunsrück". Furthermore the processes are grouped to main business function. The business function with the most processes and data classes is management, which is a combining of management and administration processes. The unit includes strategy related processes like corporate planning as well as control related processes like controlling and cost accounting. As it can be seen in figure 4.6, "simplified information architecture", this business function is the only one, which interacts with all other units. Furthermore, the management and administrative character of the unit is underlined by the amount of incoming and outgoing information to the units (see appendix 2.5).

The business function requirements combines the same number of processes and almost as many data classes as the management unit. Typical processes for the unit are purchasing, inventory management and shipping. The size of the unit shows the company's focus on trading. The unit requirement interchanges information with the management as well the distribution unit, it just uses data which is created by the production unit. No interaction with human resource exists.

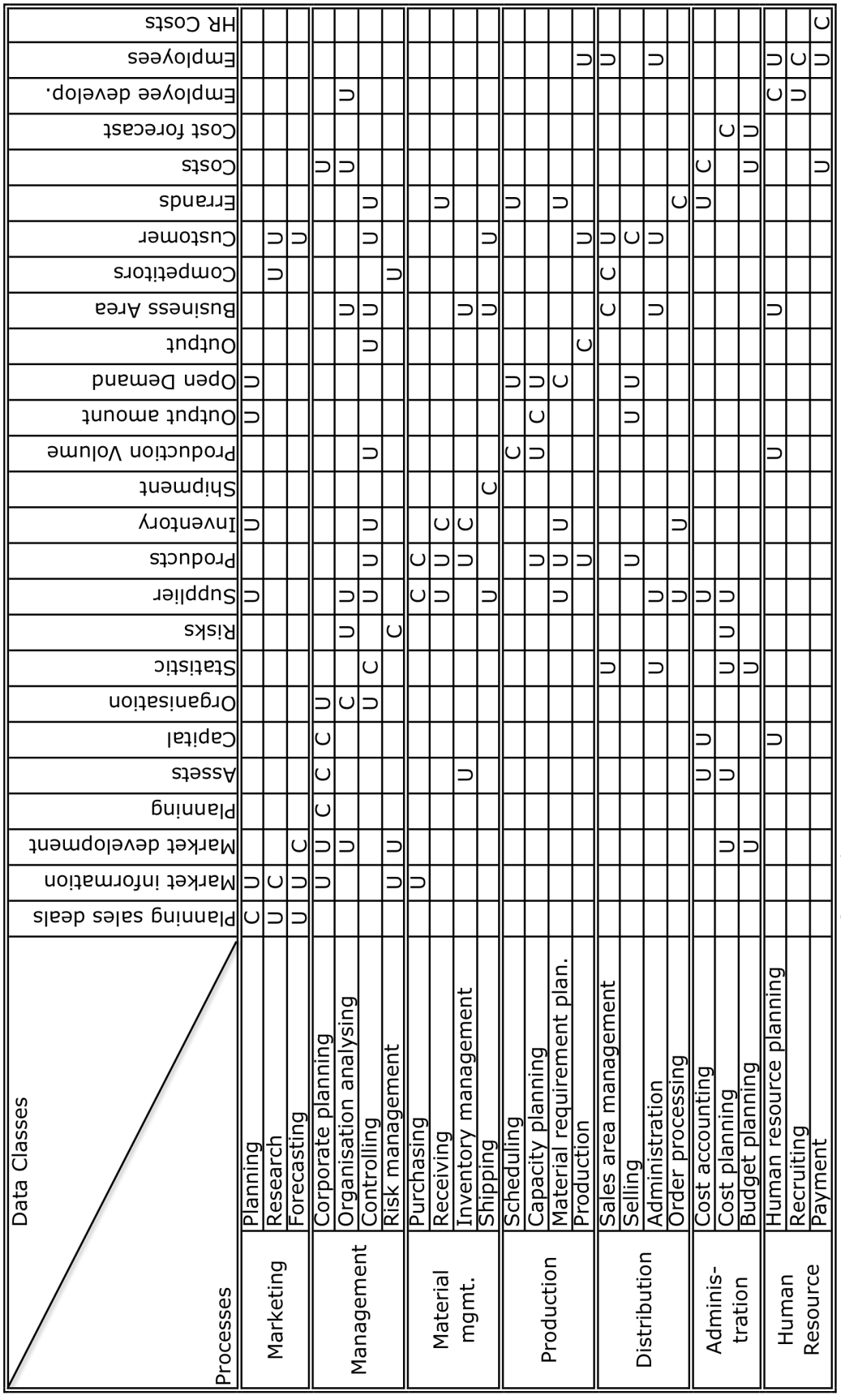
The distribution unit comprehends only four processes, but therefore very important ones: Sales area management, selling, administration of distribution and order processing. Because of these critical processes a lot of information exchange takes place between the

distribution unit and the other units. Interaction between management and requirements exists. Furthermore information for human resource is used in the unit.

The two smaller units, production and human resource, interchange less data. The production unit just provides information for the business functions management and requirements. Human resource interchanges information with management and creates data for the distribution unit.

The whole information architecture is discussed with executive employees of the sales group “VTG Eifel-Mosel-Hunsrück” in step seven. All six interviewees studied the presented information architecture and the information flow between the business functions. Except small remarks concerning the information flow, the information architecture is confirmed and approved by the employees. The architecture, which is illustrated below, is adjusted with respect to the remarks.

Figure 4.5: Process/ data class matrix rearranged

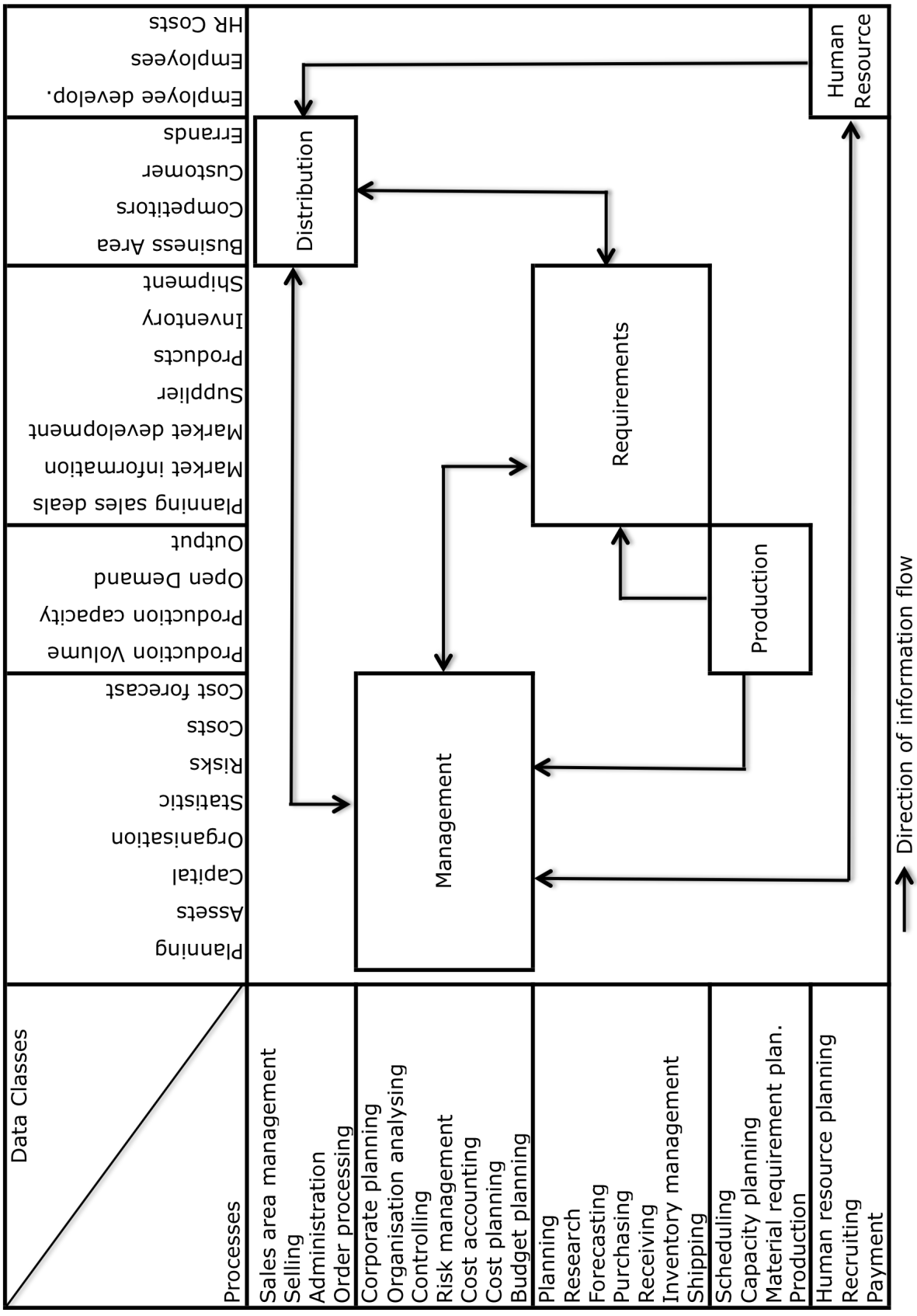


Processes \ Data Classes	Planning sales deals	Market information	Market development	Planning	Assets	Capital	Organisation	Statistic	Risks	Supplier	Products	Inventory	Shipment	Production Volume	Output amount	Open Demand	Output	Business Area	Competitors	Customer	Errands	Costs	Cost forecast	Employee develop.	Employees	HR Costs
Marketing																										
Planning	C	U								U		U			U	U										
Research	U	C					C		U	U									U	U						
Forecasting	U	U	C				U	C									U				U					
Management																										
Corporate planning		U	U	C	C	C	U															U				
Organisation analysing			U				C		U	U								U				U		U		
Controlling							U	C		U	U	U		U			U	U		U	U					
Risk management		U	U						C										U							
Material mgmt.																										
Purchasing		U								C	C															
Receiving										U	U	C									U					
Inventory management					U						U	C						U								
Shipping										U			C					U		U						
Production																										
Scheduling														C		U					U					
Capacity planning											U			U	C	U										
Material requirement plan.										U	U	U				C					U					
Production											U						C			U						U
Distribution																										
Sales area management								U										C	C	U					U	
Selling											U				U	U				C						
Administration								U		U								U		U					U	
Order processing										U		U									C					
Adminis-tration																										
Cost accounting					U	U				U											U	C				
Cost planning			U		U			U	U	U													C			
Budget planning			U					U														U	U			
Human Resource																										
Human resource planning						U								U				U						C	U	
Recruiting																								U	C	
Payment																						U			U	C

C = data create

U = data use

Figure 4.6: Simplified information architecture



Regarding to IBM Corporation (1984) the complete information architecture is a useful management communication tool because:

- It is the recommendation for long-range Information Systems implementation.
- It identifies the IS (see boxes or block in figure 4.6) that form the long-range plan.
- It shows the data controlled by each information system (reading the matrices vertically).
- It shows the business processes supported by each Information System (reading the matrices horizontally).
- It shows the flow of information between the various IS and thus shows the information flow through the business itself. (IBM Corporation, 1984)
- By comparing the information architecture to the process staff matrix, employees involved in the IS can be identified easily.

In the following, these possibilities are analysed for the sales group “VTG Eifel-Mosel-Hunsrück”.

Regarding IBM Corporation (1984) every box or block in the information architecture represents one Management Information System. For the company “RWZ Rhein Main eG” this means that they should implement MIS regarding the business functions distribution, management, requirements, production, and human resource. Furthermore, it is depicted in figure 4.6 which data classes and thereby which data should be included in the specific MIS. Also the necessary processes are shown.

By doing a cross-comparison with the figure business process linked to responsibilities (figure 4.4), it is also possible to identify the main addressees and the partly addressed employees of the specific MIS. The addressees regarding the MIS are presented in table 4.3.

Table 4.3: Overview MIS with addressees

Management information system	Main Addressee	Partly involved
Management	• Group Director • Business Controller	• Sales Managers of all divisions
Distribution	• Group Director • Business Controller	• Sales Managers of all divisions
Requirements	• Sales managers of all divisions • Business Controller	• Group Director
Production	• Sales managers Seed/ Animal feed	• Group Director • Business Controller
Human Resource	• Group Director	• Business Controller • Sales Manager of all divisions

The main addressees are the employees with the main responsibility in the specific process. The partly involved staffs have strong or minor participation in the processes. Main addressees should be informed more often and should get deeper information about the business function, for partly involved most of the time an overview of the business with the possibility to fetch more information is enough. The allocation of employees to sub-systems within the MIS can be done more precisely with respect to the processes and the creation and usage of data classes. This step is left out in this Master/ Diploma Thesis to keep the overview. The elaboration will be done afterwards together with the company "RWZ Rhein-Main eG".

The interactions between the MIS are very interesting for designing such a system as well. By knowing information flows through the organisation, weaknesses and risks are easier to detect and easier to smooth. Furthermore information flows can be optimised and interfaces can be built easier.

Another advantage of knowing the information flow is to give employees an overview of the information flow. This would enable them to find easier solutions for problems which are linked to other divisions and business function. Also, it would ease to find the origin for errors and irregularities in data or data classes.

4.3.8 Step 7: Interviewing executive employees

As it is mentioned before the employees of interest are the group director, the business controller and four sales managers. The researcher interviewed all six employees

personally. In order to find out their information use and possible information needs, a semi-open questionnaire is developed. The questionnaire consists of 17 questions. Content of these were for example questions about their goals and objectives, their controlling tools, critical areas which have to be observed constantly and chances and problems with a new ERP System. All interview partners were asked the same questions to ensure the comparability of findings. The whole questionnaire is attached in Annex 1.

After going through the questionnaire, the previous steps of the BSP approach were discussed with the interviewees. In the conversation the identified processes and data classes were checked a second time and the information architecture was discussed. As mentioned before, all previous steps are verified and approved by the executive staff of the sales group “VTG Eifel-Mosel-Hunsrück”.

4.3.9 Step 8: Analysing the interviews

The interview analysis has various objectives. One aim is to identify current information use and information needs of the executive staff. Another aim is to confirm the findings, analysis and information of the previous steps.
This section is structured as follows: First general statements regarding information use and information needs of executive employees are presented. Afterwards all six interviews are analysed consecutively beginning with the group director. First a table gives an overview of the employee’s responsibilities, information use and information needs. Then the different aspects are briefly explained. Furthermore bottlenecks for their specific area of response are mentioned. At the end of the eighth step, similarities and dissimilarities are pointed out and an overview of identified information is given.

4.3.9.1 Information use and information needs of executive employees

Current information use and information needs of executive employees differ on behalf of various reasons. On the one hand, usage obviously depends on the responsibility of the staff. The sales manager for retail for example does not require information about pest management, but about changes in his area of expertise. On the other hand, the information use depends on the employee’s vicinity to customers. If someone is responsible for a whole sales group and has to administrate this area out of his office, it can quickly happen that one looses the market overview. Therefore these employees are more dependent on market information and colleges than staff, who are directly involved in selling processes.

Another reason for using different information goes back to the span of control. Span of control means the number of e.g. subsidiaries or people one employee is responsible for. If one is in charge for many different locations or a high number of staff, it is more difficult to observe them all. It is not possible to visit or speak with everybody personally, so the executive relies more on good information provision. This is also in case of heterogeneous business areas, because many varieties have to be taken into account. Homogenous areas are easier to control.

Obviously, the availability of information causes the information use. One reason for unavailable information can be, that the current ERP system themed Information System does not provide such information, so it is not possible to receive them. Another reason could be that benefit of information is not in balance with costs to get these pieces of information.

4.3.9.2 Group director

Responsibilities:

The group director is mainly responsible for the group's success with all corresponding facilities. He is in charge of customers and adherence of their credit limits. Additionally, he has to control sales deals. Planning and controlling the budget is also one of his duties.
73 full-time, 6 part-time and 20 temporary employees work in his area of response.

Table 4.4: Overview group director

Group Director		
Responsibilities	Information use	Information needs (additional to information use)
Group success	• Monthly good lists • Monthly conversation with sales managers • Three times a year KIS lists	• Real-time balance sheet, profit-loss account, and margin • More frequent and more detailed information • Inclusion of KIS lists in ERP system and improve maintenance
Observing credit limits	• Monthly overview of customer's credits and blocked customer	• Pop-up windows for customer credits • More frequent information
Budget planning	• Objectives for business year • Budget of previous years • Available capital	• Better support by the system • Budget inclusion in the ERP system • Automatic comparison
Monitoring sales deals	• Calling responsible employees • Information on the basis of impressions	• Reliable data about success of sales deals • Real-time data

Information use:

The group director uses good lists in order to control the success of the sales group. Good lists are overviews of all subsidiaries and divisions of the sales group with information about the amount of sold goods, turnover, gross profit and margin of the specific subsidiary or division. Furthermore, corresponding figures of the previous two years are published in order to monitor the development. The group director analyses the lists by doing a cross comparison. Thus it appears which subsidiary performs how effectively in the different divisions. The good lists are generated by the main accounting department in corporate headquarters monthly. The information is used in monthly meetings with the sales managers. In these meetings, problems and the causes of the problems in business are briefly discussed. Another information source for controlling the success are the so-called KIS lists, which stands for Customer Information System (the abbreviation is German) lists. This list is an Excel sheet that includes all registered agriculture customers with information about their agriculture area, kind and size of species they will probably seed, live stock, and what they bought from the company. This information enables the group director to compare actual turnovers of the customer with theoretical possible turnover of this customer. Furthermore, he checks the development of customers by comparing actual data with previous ones. The KIS list, which is updated thrice a year, also includes the allocation of field workers to every customer. After analysing key figures in the list, the development and performing is discussed with the responsible field worker. Because of structural changes in agriculture, difficult information acquiring and the omitting in the current ERP System, the lists are hard to maintain. This leads to an imperfect utilisation of the possibilities the list could provide.

In order to fulfil the requirement of observing credit limits, the group director also uses monthly lists. These lists include customers with high credits as well as blocked customers. The main accounting department also produces this information. After studying the list and identifying “problem” customers, the group director speaks with that employer, who is responsible for the customer. Together they decided how to proceed with the customer. On the one hand they can enhance ones credit limit after consultation with the main accounting department, or they contact the customer to get the money back. This process is individual in most cases.

Another duty of the group director is planning the budget for the years to follow. He does that in line with the objectives for the upcoming year, with respect to previous budgets and available capital. First problems themed urgent topics are discussed with managers within

the sales group. Then an allocation of the budget is prepared in order to utilise capital most efficiently.

Throughout the whole year, sales deals are taken place in many divisions. Because of the short term of sales deals, they need to be controlled daily. To do so, the group director calls the relevant subsidiary or division to inform him of the performing and if necessary, counteract.

Information needs:

The group director uses a lot of information in order to meet his responsibilities best. Nevertheless some information is currently not accessible, unless the current information system cannot produce the information or the cost benefit relation to get this information is not efficient.

The group director requires information more frequently about the success of his sales group. In addition, he needs the information whenever he wants, and not on a fixed date once a month. Real-time information about balance sheet, profit-loss account, and margin are required. This information should be available on the one hand about the whole group as an overview, on the other hand detailed from divisions and subsidiaries to product groups and articles. That would also improve the monitoring of sales deals a lot.
The group director also requests an enhanced and improved use of the KIS list. The list should be included in the ERP System and hereby ease the acquisition of customer information. Furthermore an inclusion would enable a better monitoring, so that field workers utilise existing data and the group director would know the current situation better.

An urgent information need is an improved customer credit observation. Current data about credits and credit limits should be accessible all time. Furthermore warnings should come up if a customer nears his credit limit or passes it. This data can be used for early counteraction and in this way permits a better communication with customers and a decreased risk of illiquidity of customers.

The information about budget planning is more or less satisfactory, but the budget itself should be included in the ERP System. This would enable a direct comparison of current costs and success with the set budget. Therefore a much better controlling of goals and objectives would be achieved.

Bottlenecks:

For defining the term ‘bottleneck’ Mukherjee and Chatterjee can be quoted: “A bottleneck constrains the performance of a system.“ (Mukherjee/ Chatterjee, 2006) Meant by this basic definition is that one point in a complete system, which is 100% occupied, causes the throughput of the entire system. This point is therefore a constraint. The path on which the constraint lies is often called critical path. The whole idea of this theory goes back to the fact that the bottleneck of a bottle of water controlling the run-out speed. (Goldratt, 1990) In this Master/ Diploma Thesis the term is used in an information flow perspective. Which information provision restricts the work of the executive employees is thereby the central question.

Bottlenecks of information use in the sales group “VTG Eifel-Mosel-Hunsrück” are the access and the frequency of information. Good lists are available once a month, during the month no control of divisions or subsidiaries by key figures is possible. Controlling is done by experience and sometimes by own notes during this time. Additionally the provided information is not detailed enough. Good lists simply show the key figures for divisions and subsidiaries, but not on product groups or article basis. Getting such detailed information requires a lot of effort.

Another bottleneck is the way information shows up. Monthly lists are generated in the accounting department in corporate headquarters and sent to the sales group. However, critical information like an exceed of credit limits should come up more frequently and automatically.

4.3.9.3 Business controller

Responsibilities:

The business controller of the sales group “VTG Eifel-Mosel-Hunsrück” is in charge for all kinds of commercial questions within the sales group. He is responsible for success of vine cellar division as well as for cost management of the sales group. He supports the subsidiaries with budget planning and he schedules meetings and training courses. Another part of his duties is the monthly publication of advertisements in newspapers. He also makes the organisation charts. Four employees are located in the central office and 14 employees in other locations belonging to his staff.

Table 4.5: Overview business controller

Business Controller		
Responsibilities	Information use	Information needs (additional to information use)
Handling of commercial questions	• Monthly good lists • Conversation with sales managers and subsidiary managers • Extrapolation of inventory	• More frequent information about problems (turnover, margin, etc.) • More detailed information about problems (which products in which subsidiary, etc.) • Automatic extrapolation of inventory
Success of the division vine cellars	• Monthly good lists	• Real-time information of turnover, gross-profit, and margin • Real-time information about specific articles
Cost management	• Monthly lists of cost • Cost development of the whole sales group	• Real-time information about costs • Direct comparison of costs with budget
Setting training courses and scheduling	• Lists of periodic meetings • Agenda of other employees (extra system) • Conversation with colleges	• Agenda included in ERP system • Better publication of appointments
Supporting subsidiaries	• Budgets from previous years • Costs of previous years	• Inclusion of budget in ERP system • Direct comparison of costs and budget
Advertising	• Information about advertising products	
Maintenance of organisation chart	• Job description from organisation department • Conversation with colleges	• Inclusion of organisation charts in ERP system • Inclusion of job characteristics

Information use:

The business controller monitors success of the whole sales group by analysing good lists. He observes actual results and development of key figures and discusses the outcome with the group director. Both confer possible consequences and discuss them with responsible sales managers or subsidiary managers. Furthermore he extrapolates the inventory and consequently sees critical areas early. The control of his own division, the vine cellar division, is also realised by monthly good lists.

Another of his duties is cost management. Monthly, the accounting department in corporate headquarters provides lists with actual costs and cost development. By comparing the lists with the approved budget, deviations can be identified.

The Business director's response is also to set training courses and to schedule meetings. Periodic meetings like monthly dialogues between the group director and sales managers are fixed dates and set long before. For scheduling near term meetings, he first checks the open agendas of involved people and then publishes the dates in their agenda or by sending Emails. Training courses are normally supported by corporate headquarters and needs therefore normally coordination.

Maintenance of organisation charts in the sales group does not require much information. The charts are just overhauled if employee changes or structural changes come up, but both are not periodic.

Advertisements are discussed with main departments as well as with divisions within the sales group. The design of the advertisement is made in corporate headquarters. The business controller publishes the advertisements mostly in the same newspaper.

Information needs:

Comparable to the group director, the business controller requires more frequent and more detailed information about profitability of the vine cellar department as well as of the whole sales group. Information about turnover, gross-profit and margin should be available in real-time. It should also be possible to analyse these data regarding specific subsidiaries and divisions in order to identify reasons for decreasing turnovers or margin. Furthermore it would be possible to compare real-time data during the month with goals and objectives and counteract if the achievement of the goals is critical. As well as data about profitability, cost information should be accessible in real-time, too.

Through a similar comparison of costs with the approved budget, success would be easier. The inclusion of such data in connection to easy access of these data would increase the efficiency of subsidiary support as well, because problems could be identified objectively and discussed with the same information base.

Setting training courses and meetings acquires more information. If the business controller sets meetings or training courses for a specific employee group, information about concurrent meetings of the attendants should come up. This would ease scheduling

and spare searching time for an appropriate date. The Information use for advertising and maintenance of organisation charts are already quite good, only the organisation charts should be included in the ERP System to obtain a better overview.

Bottlenecks:

The main bottlenecks for the business controller are the low frequency of information and the quite general characteristic of provided information. The available data at the moment gives the business controller a good overview, but to identify problems quickly he relies on his experiences and the expertise of other employees.

4.3.9.4 Sales manager for pest management, fertiliser and viniculture

Responsibilities:

The sales manager is responsible for the results of all products in touch with pest management, fertiliser and viniculture. Furthermore he has to observe prices for products, calculate prices and monitor sales deals. Additionally, inventory management belongs to his duties. Twelve sales representatives are selling products in his area of response.

Table 4.6: Overview sales manager for pest management, fertiliser, viniculture

Sales Manager for pest management, fertiliser, and viniculture		
Responsibilities	Information use	Information needs (additional to information use)

Success of products in touch with
• Pest management
• Fertiliser
• Viniculture
	• Monthly good lists
	• Inventory
	• Market information
	  ○ Exchange with main department
	  ○ Field workers
	  ○ Technical literature
		• Real-time information of turnover, gross-profit, margin
		• Real-time inventory and open-demand
		• Real-time information about specific articles
		• Inclusion of market trends and developments in ERP system

Price calculation and observation	• Purchase price • Price lists • Price of competitors • Market power of customer	• Inclusion of real purchase prices • Information about market prices
Monitoring sales deals	• Conversation with responsible employees • Information on the basis of impressions	• Reliable data about success of sales deals • Real-time data • Information about inventory
Inventory management	• Inventory lists • Stock information in ERP system	• Real-time inventory information • Easier localisation of inventory themed articles in stock

Information use:

The sales manager controls his main objective, the success of the division pest management, fertiliser and viniculture, by dint of good lists. Through a cross comparison of the good lists regarding subsidiaries and division, he gets to know which location performs well in his divisions. This procedure also gives hints for possible selling price deviation. Also market information is vital for performing well. Therefore exchange with the main department and field workers as well as reading technical literature is an important information source. Stiff market knowledge is needed for forecasting demands, purchasing the right products and identifying problems early.

The price calculations for pesticides and fertiliser are also critical. Especially price calculations for pesticides are very difficult, because the purchase prices at the beginning of a season are renegotiated at the end of the season. This means that the sales manager buys products for a specific price, but gets money back from the wholesale trader with respect to the amount of sold goods. Therefore it can happen that a selling price lies beneath the first purchase price. Nevertheless the deal can be profitable because of the renegotiation. For setting an efficient price, he uses his own purchase price, prices and price developments of previous years, prices of competitors and estimations of customer's market power. Furthermore inventory information in form of lists or stored in the ERP System helps him to forecast the demand and the supposed end-purchase price.

The sales manager chooses products for sales deals on basis of inventory, purchase prices and, of course, on the basis of customer wants. Monitoring of the sales deals is done by conversations with employees at the point of sale. This information is mostly based on their experiences and estimations.

Information needs:

The sales manager would like to make use of more detailed and more recent data for observing success of his three divisions. Real-time data of profitability would enable to compare goals and objectives with the status quo, better information of inventory would enhance his knowledge of open demand and forecasting end-purchase prices. The sales manager also needs information about price deviations, which means who sold which product at which price. The information should be filtered before the sales manager gets the information, for example he should only get a list of sold goods, which diverge more then 5% from his before given selling price. On the one hand, it would ease to keep a targeted margin, on the other hand, it makes it possible to enforce same prices in the whole sales group.

For controlling sales deals, real-time data of the articles in the sales deal is needed. For a better inventory management, more detailed and more recent information is required, too. A better inventory management can lead to a lower inventory at all and to a more efficient utilisation of stocks. Additionally, wrong information about products on stocks and the location of inventory could decrease significantly.

Bottlenecks:

As mentioned before, the low frequency and the high degree of aggregation are bottlenecks. In the case of the sales manager for pest management, fertiliser and viniculture, the difficult selling price calculation is also a bottleneck. The inclusion of approximate selling prices would help to perform with less risk.

4.3.9.5 Sales manager for energy

Responsibilities:

The sales manager for energy is responsible for the success of the products heating oil, petrol, diesel and lubricants. Steering distribution and logistics is a part of his duties. Besides that, he serves as a wholesale trader for other subsidiaries within the sales group. The sales manager is in charge for budgeting sales volumes and earnings for the upcoming year. Two commercial clerks and four truck drivers belong to his division.

Table 4.7: Overview sales manager for energy

Sales Manager for Energy		
Responsibilities	Information use	Information needs (additional to information use)
Success of products in touch with • Heating oil • Petrol • Diesel • Lubricants	• Overview of sold and ordered goods (kind of good list) • Inventory • Experiences • Monitoring credit limits by lists	• Better overview of inventory • Real-time information of turnover, gross-profit, margin • Better overview of credit limits within the ERP system, automatic warning • Information about customers o Previous orders o Previous deliveries o Credit limits o Period between orders
Steering distribution and logistics	• Order • Delivery time • Inventory • Urgency	• Inclusion of logistics in ERP system
Purchasing and price calculation	• Bourse • Exchange with trader and colleges • Purchase prices	

Wholesale trader for other subsidiaries	• Conversation with colleges • Price lists	• Automatic transfer of actual prices to subsidiaries
Budgeting volume and earnings	• Budget of previous years • Earning of previous years • Sold goods of the previous years • Market development	• Direct comparison of budget and actual sales

Information use:

The sales manager of the division energy uses good lists for observing monthly sold goods and earnings. Because of the high amount of traded goods and changing demand caused by whether changes and use of alternative energy sources, it is hard to keep lists up to date. Therefore he controls a big part of his business by experiences. In his field of duty this is possible, because he gets to know almost every transaction. Moreover, he is responsible for the business since thirty years and therefore knows strong and weak periods and can adjust.

He is also in charge of purchasing and price calculations. The main products in his division are heating oil, petrol and diesel. These goods are traded at bourses or purchased directly at a few wholesale traders. Price calculation is done on the basis of bourse prices, own purchase prices, information exchange with colleges and traders and prices of competitors. Bourse prices and competitor's prices are available on the Internet, information exchange with colleges and traders normally takes place in form of callings. Based on this information and his knowledge about market, spending power and freight costs, he sets selling prices for the subsidiaries and for direct customers and publishes these prices via fax.

Another duty of his is to establish the budget for the next periods. Group director and business controller support him with that. For setting the budget he uses budgets and earnings of previous years on the one hand, on the other hand he includes market trends and developments in his forecast.

Information needs:

The sales manager for the division energy controls and manages his business mainly by own experiences. He knows all trading partners for years and works in the business since 30 years.

In order to better up the selling process, he would like to receive more selling supporting information. This should include the last dealings of every customer, last orders and deliveries of every customer, and ideally periods between the delivery of heating oil, petrol

or diesel. This data can help the distribution in various ways. Data about previous orders can alleviate writing offers with specific demand of the customer. Information about whole turnovers of one customer makes it easier to identify good customers who should profit from a larger discount in order to establish customer loyalty. The time span between for instance the deliveries of heating oil could enable to estimate when the customer needs heating oil the next time. This could lead through customised offers or phone calls to a bigger clientele and better customer loyalty. All these pieces of information have to be accessible very fast, because otherwise a cost-benefit calculation would not be effective.

The business as a wholesale trader could be improved if daily prices would be included in the ERP System and available in real-time in the subsidiaries. This would not cause more effectiveness of the business of the sales manager directly, but it would decrease the requests from subsidiaries for actual prices. The actual earnings and costs of the division should be included in the ERP system and a direct comparison with the budget should be possible. It would help to control business better.

Bottlenecks:

In case of the sales manager for energy, one bottleneck is the availability and easy access to customer-oriented data. He requires information about credit limits, previous orders and the turnover of customers, which is not available yet. Furthermore a lot of information is unrepresentable, the information is only based on experiences and stiff knowledge of the sales manager. This could become a problem when the sales manager becomes ill or changes the company.

4.3.9.6 Sales manager for retail

Responsibilities:

The sales manager for retail is in charge for all “Raiffeisen Märkte” located in the sales area “VTG Eifel-Mosel-Hunsrück”. “Raiffeisen Märkte” are shops for agrarian demand as well as for the demand of every other customer. They are selling a wide range of products like small animal feed, garden technique and accessories, work and free-time clothes, fertiliser and pesticide for famers as well for gardeners, etc. The sales manager is responsible for the development of turnover and earnings and supports all 15 shops in his area in questions of marketing, restructuring and improvements. Furthermore, he plans and observes sales deals. 15 shop managers belong to his staff, each with one to three assistants.

Table 4.8: Overview sales manager for retail

Sales Manager for Retail		
Responsibilities	Information use	Information needs (additional to information use)
Development of turnover and earnings of "Raiffeisen Märkte"	• Monthly good lists • Customer frequency in comparison to previous periods • Availability of products	• Real-time information of turnover, gross-profit, and margin • Real-time inventory and open-demand • Real-time information about specific articles
Support retail shops in question for • Marketing • Restructuring • Improvements	• Conversation with shop managers • Visiting of the shops • Exchange with main department	
Planning and observing sales deals	• Information exchange with main department • Calling shop managers • Controlling success by good lists	• Real-time and reliable information about sales deals

Information use:

The sales manager of the retail division controls success and development of 15 different "Raiffeisen Märkte" by using monthly good lists. Further on, he checks customer frequencies in comparison to previous periods to judge development on a non-profit related figure. Because of the large number of articles (ca. 50.000) in the retail division, it is very important to be up to date about changes in product groups and articles. Thereby the retail department in corporate headquarters supports him with information and prices.
To know problems and supporting demand, he often visits shops and has conversations with shop managers and employees. This impression is necessary to plan marketing, restructuring or improvement campaigns.

The sales manager normally plans sales deals simultaneously for all shops in the sales group with help of corporate headquarters, but the sales deals run in different periods. Various climate and articles in the retail shops cause this. The coordination of sales deals and later on controlling of them is done by conversation and callings between the sales

manager and shop manager. The overall success of the sales deal is analysed by good lists one month later.

Information needs:

Because of different locations and characteristics of the subsidiaries in the sales group, the sales manager requires better information about possible demands and profitability problems. In order to observe this, real-time information about turnover, gross-profit, margin, customer frequency, inventory and information about specific articles would be helpful. By using these kinds of information, the sales manager could visit problem markets more often and could identify causes for it faster. Additionally, it would be easier to identify products which are sold well in one region or products with too low margins. It is obvious that real-time data about articles would also improve the controlling of sales deals.

Bottlenecks:

The main bottleneck of the sales manager for retail is also the low frequency and the high aggregation of information. Especially in his case a better information access is vital, because visiting the different retail shops costs a lot of time and is therefore inefficient.

4.3.9.7 Sales manager for animal feed and seeds

Responsibilities:

Purchasing, producing, and selling all kinds of animal feed and seeds belong to his responsibilities. Furthermore the whole agricultural business at the sales group's central "Wittlich" is part of his duty. The division animal feed includes all fodder for poultry, cattle, pigs, and similar animals. Seeds contain all seeds for the agrarian demand, meaning wheat, maize, etc. Purchasing and selling grains and other raw products characterise the agricultural business in Wittlich, but also stocking and processing belongs to it. The sales manager is in charge of the turnover and earnings in all mentioned areas. Price calculation and setting the budget is also his responsibility. Furthermore, he supports other subsidiaries with his expertise. Six employees work for him at the central location in Wittlich.

Table 4.9: Overview sales manager for animal feed and seeds

Sales Manager for animal feed and seeds		
Responsibilities	Information use	Information needs (additional to information use)
Success of wholesale products in touch with • Seeds • Feed • Agriculture business in Wittlich	• Monthly good lists • Inventory • Market information o Exchange with main department o Field workers o Technical literature	• Real-time information about turnover, gross-profit, margin • Better information about inventory and stockyards
Price calculation	• Purchase prices by lists • Market information o Exchange with main department o Field workers o Technical literature	• Inclusion of purchase prices in ERP system • Inclusion of important market information/ trends in ERP system
Budgeting	• Budgets of previous years	• Direct comparison of budget with actual state

Information use:

As the person in charge for animal feed, the sales manager needs to know price changes of produced feed ingredients. The information sources for this are generally colleges, main department in corporate headquarters and the Internet. This information is also required for managing the agriculture business in Wittlich.

In order to observe success of his divisions, he uses monthly good lists. Furthermore stiff market knowledge is needed for good performance. For knowing the market, he continuously exchanges information with colleges, field workers and reads technical literature. The importance of market knowledge increased in the last years. Through rapidly changing raw material prices and shortage of products, risks of loosing money increased significantly.

Another key figure for the sales manager of animal feed and seed are the costs. He monitors current costs and development of costs by monthly lists. Furthermore he compares these with the approved budget. If major differences come up, which influence the selling price of produced goods, he has to assimilate these changes to the products.

Information needs:

The sales manager requires easy access to key figures regarding profitability as well as information about inventory and stockyards. Especially in case of fast changing raw material prices, real-time observation of gross-profit and margin could enable a much faster identification of profitability problems. Furthermore exact information about inventory and value of inventory, which means first purchase value and second current market value, could make a difference to competitors in the market. An inclusion of budget in the ERP System and a direct comparison with current costs and earnings would help to picture achievement of goals and objectives.

Bottlenecks:

Bottlenecks in the division animal feed and seeds are once more the frequency and the detail level of the available information. Furthermore the assessment of inventory is very difficult. Big amounts of cereals and other raw materials are in stock. Because of fast changing prices at the moment, an unrealistic estimation of the inventory could show a totally wrong picture of reality.

4.3.9.8 Similarities and dissimilarities in information use

All five sales managers, the business controller and the group manager use monthly reports. These so-called good lists provide an overview of amount of sold goods, turnover, gross profit and margin of the last month. Additionally, the list enables staff to compare the data with key figures of the previous two years. By doing this, developments and trends in the specific division can be analysed and, if necessary, counteract. Also the objectives and the budget can be monitored with the good lists.

Because of the seasonal character of agriculture, the higher amplitude of prices in the last years and the lower subsidies for agriculture from the European Union, the relevance of observing customer's credit limits increased. Therefore managers check monthly credit limits and blocked customers. Corporate headquarters provide an overview of problem customers and blocked customers with information of their current credit and credit limits monthly.

An important source of information they all use, is the exchange with other employees. These are the employees in the subsidiaries on the one hand, on the other hand employees in corporate headquarters as well as in their own division. This information is difficult to illustrate, but it is widely used.

Summarised it can be concluded that the executive staff uses good lists, budget and credit lists as a main information source. Through meetings and callings they exchange a lot of information for example about market trends, new products or sales deals with colleges and staff. This information are not standardised and so it is not possible to research if everybody gets the same information.

Dissimilarities of information use exist mainly in the relevance of different information sources between the employees. Some use more hard facts, some rely more on their own experiences. Furthermore the staffs differ in the intensity of how often they are using these pieces of information and how they use them. Table 4.10 shows an overview of all main pieces of information, which is used or required within the sales group.

Table 4.10: Overview of information use and information needs regarding tasks

Overview		
Tasks	Information use	Information needs (additional to information use)
Active selling	• KIS lists • Information of the market • Forecasting the demand	• Easy access to customer-related information like last orders etc. • Inclusion of market-related information in the ERP System
Budget planning	• Objectives for the business year • Budget of previous years • Available capital	• Better support by the system • Inclusion of Budget in the ERP System • Easier comparison of budget and status quo
Controlling success	• Monthly good lists • Conversation with colleges • Customer frequency • Monthly lists of costs	• Real-time information about turnover, gross-profit, margin and costs • Access to current information anytime
Inventory management	• Inventory lists • Stock information in the ERP System	• Real-time information of inventory • Easier localisation of stock
Maintaining organisation charts	• Job description from organisation department	• Inclusion in the ERP System
Monitoring sales deals	• Calling responsible employees • Information on the basis of impressions	• Reliable data about success of sales deals • Real-time data
Observing credit limits	• Monthly overview of customer's credits and blocked customers	• Pop-up windows for critical credit value • More frequent information • Easier access to information
Price calculations	• Purchase price • Price lists • Price of competitors • Market power of customers • Bourses • Conversation with trader and colleges	• Inclusion of real purchase prices • Information about market prices
Setting training courses	• Lists of periodic meetings • Open agenda of employees	• Agendas included in the ERP System • Better publication of appointments

4.3.10 Step 9: Determining priorities

Important for the relevance of implementing Management Information Systems are the possible benefits of it compared to the current situation. (IBM Corporation, 1984) By having a closer look on the interviews and on the Critical Success Factors for identifying

information needs, priorities can be recognized. Three main areas are detected, named controlling, customer orientation and market knowledge.
These three areas belong to the MIS distribution, management, and requirements. In the following it is explained, how executive employees are currently supported by data and processes in these units. Then recommendations are given which information the new designed MIS should combine.

4.3.10.1 Controlling

During the interviews two main facets of controlling are discovered, controlling the profitability and controlling credit limits. Next, current-controlling mechanisms are explained and pieces of information, which should be included in the MIS, are identified.

The sales managers, the business controller and the group director currently control their area of response mainly by good lists. The problem with this controlling tool is that one can hardly find out why the data is as it is. Products are not listed separately, but only summarised to product groups or division. Moreover, it is not possible to find reliable data during the month or during the business year, why for example the margin drops or gains. This can have various reasons like higher purchase prices or lower selling prices. Therefore it is essential to know these reasons to counteract.

Credit limits are controlled by monthly lists, which are generated by the main accounting department. These lists include blocked customers as well as customers with high credits. If one wants to check the actual credit and credit limit, four work steps are required. First the customer has to be retrieved within the ERP System, second a specific number has to be typed in to enter the accounting menu, third information about the actual credit has to be inquired with a specific number and last the credit limit has to be inquired with another transaction number.

During the interviews, following information needs regarding controlling were identified:

- Real-time information about profitability including balance sheets, profit-loss account and margin.
- Real-time information about the success of specific products.
- Comparison of budget and status quo during a month or period.
- Easier control of credit limits.
- Automatic reminder for critical customers regarding their credit limits.

The information the current system provides, is quite basic and only gives an overview, but is not the basis for good controlling. The new designed MIS regarding *management* should provide employees the possibility to control data and processes in real-time. This includes not only profitability figures, but also the reasons for success or failure. In MIS based on SAP Systems it is possible to control the purchase price and selling price of every article of the enterprise. This function can be used to see deviations in prices between the subsidiaries within the sales group and it also helps to understand the status quo of the margin. The customer satisfaction can be increased with it as well. Customers do not understand if prices differ between two shops of the same company, which are only ten kilometres away from each other. They suppose that the company cheats them. With the price deviation analysis such mistakes can be externalised and corrected.

A function to monitor the selling frequency of various products is also very interesting. Executive employees can check which products are really relevant for the business and which products function more or less as placeholder and should be replaced. Another opportunity within the new system are the real-time balance sheets and profit-and-loss account. Executive staff can observe profitability and can compare it with the before outlined objectives. This option should make a significant difference in achieving goals.

Nowadays, credit limits are getting more and more important for the whole company. This is caused by the seasonal character of agriculture on the one hand, on the other hand by strong price deviation in the last years as well as lower subsidiaries by the EU.

In order to observe credit limits better, two mechanisms should be included in the new MIS. First observing credit limits must be eased and it must be possible to check credits and credit limits in real-time. Because of the confidential character of credits, not everybody should have access to the data, but only the responsible executive and the business controller. The second mechanism, which should be built up, is a pushing information system about credits. If a customer exceeds his credit or is just shortly before doing so, an automatic warning should come up. This can be in a form of a pop-up window or in some other ways. The warning should come up at the screen of the employee, who is just selling the product and at the screen of the responsible executive. It is important that the executive employee gets the information directly. Only in this way one can counteract directly, be it that one blocks the customer or that one increases the credit limit.

Controlling credit limits stand also in line with an active risk management, which is another process within the MIS management. Furthermore, data created by the process controlling is useful for corporate planning and organisation analysing.

Concluding it is to say, that a new designed MIS should give the opportunity to control data more frequent and more precisely. Additionally, risk related information like credits should show up automatically to decrease the possibility of non-observance.

4.3.10.2 Customer orientation

The second critical area, which is identified in the interviews and especially through the CSF study, is customer orientation. Customer orientation belongs to the MIS distribution and is mainly in touch with the process selling and the data class customers. All interviewees respond to the question “Which factors have to be considered for the new designed ERP System?” that the system should support distribution better and provide better customer related information. The high score of customer related CSFs, which are the most important ones in the whole study, stands in line with these answers

Currently only master data are included in the ERP System, i.e. information about customer’s address, account number and other basic data. Furthermore, it is possible to exclude turnover and bought articles out of the system, but this requires personal time investment and is therefore not done continuously. More precise information is captured in the so-called KIS lists. These lists comprise agricultural customers with information about their farmland, live stock, agricultural crop which they plant and are probably going to plant and the responsible field worker. The advantage of this list is that it enables active customer maintenance and individual offerings. Additionally, the identification of good customers and existing possibilities regarding customer’s open demand is possible. Moreover, the success of field workers can be judged by the lists.

The KIS list’s weaknesses are the low frequent maintenance (thrice a year) and the fact that it is not included in the ERP System. This leads to a lower use and a rare utilisation, because the lists are not always present and the combination of the provided information with data within the ERP System requires effort.

The company “RWZ Rhein-Main eG” does not only trade with products for the agrarian demand, but also with energy related materials. The sales manager for energy currently only uses customer master data. The turnover and information about last deliveries and bought products is not available or only aligned with a lot of personal effort.

In order to improve the information use of executive employees, the new designed MIS regarding distribution should include:

- Customer related information, which is currently included in the KIS list.
    - Information about farmland, live stocks, agricultural crop which they plant and are probably going to plant.
    - Turnover of a customer and theoretically possible turnover of specific customer.
    - Direct relation of the responsible field worker to the customer.
- Easy access to last orders.
    - Delivery date, product specification and delivered amount.
    - Forecasted date of next delivery.

The inclusion of information in the MIS, which is currently only available in the KIS list, would have several preferences. On the one hand it would facilitate to maintain information. The directly involved employees (field workers or others) should have rights to change data in the database when they are with the customer. This would lead to better data and therefore to a better distribution support. In addition, the inclusion would make an automatic evaluation possible regarding the degree of sold goods in comparison with possible turnover, regarding personal product preferences and regarding the actual demand. Using this information is indispensable, because it gives the company a significant advantage in competition. All mentioned customer oriented CSFs (active marketing, installation and maintenance of customer relationships, expansion/ diversification of customer relationship, customer oriented adjustment of trading activities), which are the most important ones for the executives, can be improved. Also, customer loyalty can increase, because the company only has access to this specific information and not their competitors.

A similar advantage can result of facilitating access to information about last orders. On the one hand, it is easier to advise customers with this knowledge, on the other hand, it gives customers the feeling that the company takes care of them. By including the forecasted next delivery, it is possible to submit an offer actively.

Most of the data presented above can be included in a SAP based MIS. All customer related data can be integrated in the SAP System by customising the customer masks. The turnover and the bought goods related to customers are already a basic function of

SAP Systems. Only interfaces have to be developed in order to relate information like farmland, live stock etc. to the bought products. The last orders are listed as well and easily accessible in SAP Systems, only the installation of an easy to read overview of periods between deliveries can be problematic. It is probably necessary to collect first data over a longer period and then monitor the periods between the orders. In that way, it is possible to forecast the next demand. An automatic reminder is also imaginable through customisation, but thereby the cost-benefit relation has to be observed.

4.3.10.3 Market knowledge

Because of increasing market competition and structural changes in the agricultural branch, stiff market knowledge is becoming more and more important. The data class market knowledge belongs to the MIS requirements and is directly connected to the processes purchasing, planning and forecasting, as well as to the data classes market development and supplier. Regarding the open question for factors, which are crucial to success in their area of response, market knowledge was often mentioned. Also, regarding the external CSFs market knowledge and corresponding factors like customer power and market changes are often mentioned.

Market information can have various sources and different characteristics. On the one hand one achieves market expertise because of his long-term experiences and its assessment. Furthermore, one's knowledge can be increased in conversation with colleges, competitors and experts. Also technical literature is an important source. This so achieved information has a soft character, i.e. it is not based on hard facts but on valuations. On the other hand market characteristics can be observed by figures and ratios. For example data like market share, market volume, market growth rates, market segmentation (number of farmers, number of urbanites etc.) and overall margin in the market belong to these pieces of information. Because of the measurability these pieces of information have a hard character.

Currently the executive employees of the company most often use soft-character information. This information is gathered through monthly conversation with colleges and discussions with the main department. Furthermore, experts from third parties are invited to speeches about new products and trends in the market. The problem with this kind of data is that it is hardly representable and it is consequently difficult to insure that everybody gets the same information level. The only possible way to publish it, is to write reports and send them around via Email, but this is related with a lot of effort. In addition, it is difficult to reach the right employees when they really need the information. To ensure

a same information level of soft characterised information, regular meetings with all employees in touch with the specific product groups are necessary. Reports about the market and previous meetings should also be published in the new designed MIS and arranged regarding published date and topic. Thereby it is very important to announce only that information, which fulfils the general assumptions of information mentioned in chapter 2.2.1 and 3.5. This is important in order to give relevant information and not to overload the employees.

Hard characterised information is easier to transfer, but at the moment hardly used. This data can be included in the MIS System and the employees can access whenever they need it. The problem with this kind of data is that they are difficult to obtain. Two possibilities exist: First it is possible to research the market by their own and calculate key figures, which help clarify the market position and possibilities. Second data can be bought from research departments or in other form. Both options are quite expensive, but make an improved set of goals and objectives and a better estimation of the own performance possible. Moreover, weaknesses are easier to detect through benchmarking to the overall market or to competitor. Once the data exists, a further maintenance is essential.

As it is mentioned above, market knowledge is necessary for processes like purchasing and forecasting. With stiff market knowledge demands can be better assessed. This brings ones in a better negotiation position to supplier, because it is possible to buy directly the expected amount. It is also possible to forecast upcoming market changes and develop scenarios based on the actual market situation.

4.3.10.4 MIS for production and human resource:

The business function production is quite small in the sales group “VTG Eifel-Mosel-Hunsrück”. Only animal feed is produced by themselves, everything else is bought manufactured. The production of animal feed is computerised and supervised with help of older programs. These programs work well in the whole company. To include production in SAP it is necessary to build interfaces between the systems. The interface is required because of two reasons. On the one hand, it is important for inventory management to know which products are already used and which are required. On the other hand, it is important to picture the origin, quality, and charge of the used goods in a centralised database. Because of the low importance and the already well working solution with older application, which are customised for the machines, a new designed MIS is not urgent.

The human resource department was the first one in the company, which implement SAP HR (human resource) eight years ago. From the very beginning they were satisfied and successful with this system. Most work in touch with human resource is done in corporate headquarters. Furthermore information about staff is only needed infrequently within the sales group. Consequently, the implementation of a MIS human resource is not urgent.

4.3.10.5 Conclusion

Based on the possibilities presented above it is advised to implement first the MIS for management, second for distribution, and third for the business unit requirements. The MIS production and human resource are not urgent and can be done easily at a later point of time.

Because of two reasons the MIS for management should be implemented first. On the one hand, the step from the current basic functions of the old system to all spanned SAP based MIS is quite big. All profitability and credit related key figures are directly accessible in real-time. Furthermore almost all processes within the business unit management can benefit from the implementation. On the other hand, the benefit of the new designed MIS is available in short-term. No big modification or customisation has to be done, because most functions are already included in SAP Systems. Also the master data and transaction data are assumed from the old system. The access rights, the addressees as well as the boundaries of the MIS have to be set up.

Implementing a MIS for distribution requires more effort. First a customer mask has to be developed in order to enable the inclusion of all available data. Second the information stored in the KIS lists has to be override to the MIS. Then the system has to be customised to relate data regarding farmland, live stock, etc. to the sold goods and to the possible turnover of a specific customer. Also the benefits will be only recognisable in longer period, because it requires time till everybody is able to work with the data efficiently. That’s why the MIS should be included secondly.

The MIS regarding requirements shows the biggest problems. Much soft information should be included in the MIS, but this is difficult to visualise. For including these pieces of information reports are necessary to picture current situation. It will take some time till it becomes a matter of routine. The second problem of the MIS is, that the hard information mentioned above is not available yet. The company should make a cost-benefit analysis for judging the benefits. Nevertheless the difficulties, the MIS should be developed and implemented middle-term, because important processes like purchasing and forecasting

are part of it. Also the included data classes inventory, products, and supplier are very important. These data are directly overwrite from the old system to the new one and are therefore available in the beginning.

4.3.11 Step 10: Formulating an action plan

The action plan contains a time schedule, involved people or groups for the implementation, and the expected profit. This step can only be worked out in direct contact to the company, because available employees for the implementation must be known. Furthermore experiences are required in order to estimate the required workload. The expected profit can be done by a benchmark to other companies. This is left out of the Thesis, caused by lack of required data and time.

4.3.12 Step 11: Presenting final report

Aim of the presentation is to persuade top-level management to support and participate in realising the action plan. The final report will be presented in the company. Nevertheless, the whole Master/ Diploma Thesis is already discussed with the company and the sales group. The findings are judged to be very interesting for the involved people, but especially for the employees from the IT department. These employees are developing, customizing and designing the new systems and can use this Master/ Diploma Thesis as a basis for setting the Information Systems. They can simply read who is the addressee of which information on the one hand, on the other hand they see which possibilities the system provides and which part is the most urgent one to develop. Moreover, the employees are pleased to have a written analysis of all their processes and data classes related to employees. Also, the identification of critical factors and information flow between business units is very helpful for them, because it was never visualized before.

5 CONCLUSIONS

Information became an important factor in enterprises nowadays. For companies it is vital to utilize their available information, but this is only possible if the information requirements of employees are known. Therefore the objective of this Master/ Diploma Thesis is to analyse information use and information needs of executive employees in enterprises.

By analysing the sales group “VTG Eifel-Mosel-Hunsrück”, which is chosen as a Case Study, weaknesses as well as possibilities appeared. The information use of executive employees is currently rare. Especially the available controlling tools have just a basic character. Monthly good lists are the most used controlling source. In these lists information of amount of sold goods, turnover and margin of divisions and subsidiaries are presented. Information about customer’s credits are only monthly available, too. Sales deals are monitored by phone calls with employees at the point of sale. They judge the success of the sales deals mostly by their impression or hand made lists. The customer-related information, which exists in the sales group, is quite good. In so-called KIS lists agrarian customers are mentioned with respect to their farmland, live stock etc. These lists could be of competitive advantage for the company, but they are not utilized at the moment. Information about the market are normally exchange in conversation with colleges, wholesale traders and customers.

Generally, the executive employees of the sales group request more frequent and more precise information. All executives within the sales group require real-time information. This includes balance sheets, profit-and-loss accounts and margins in real-time for articles, article groups and whole divisions or subsidiaries. To counteract the increasing risk of illiquidity of customers, they need a system for better credit observation. Through the CSF analysis it turned out to be that the customer-orientation has to be improved as well. Stiff market knowledge is also a critical factor for the staff. Because of these facts the supply of market-related Information should be expanded.

By applying the BSP approach, an information architecture is developed in this Thesis. Based on that, three Management Information Systems are identified in order to better the information provision of the executive employees. The MIS, which are explained more briefly in the recommendation, are systems regarding the business functions Management, Requirements and Distribution.

The in the Case Study analysed sales group is quite similar to all other sales groups of the company “RWZ Rhein-Main eG”. By adapting possible small differences between the sales groups, the findings of this Thesis can be generalised to the whole company. Furthermore, it is possible to transfer the following recommendation to other companies, which have similar processes and data classes. Thereby not the current information use is essential for the generalisation, but the information needs and the design of the MIS is important.

6 DISCUSSION AND RECOMMENDATION

The chapter discussion and recommendation is divided in three paragraphs. In the first one the important phases of the research framework are discussed and the used approaches are critical reflected. The second paragraph comprises advices for the company “RWZ Rhein-Main eG”, the third one gives suggestions for further research.

6.1 Discussion

The objective of this Master/ Diploma Thesis is to analyse information use and information needs of executive employees in enterprises. Two different methods, named CSF and BSP approach, are used to achieve this objective. The approaches are applied in a Case Study. As described in chapter 1.4, seven phases are necessary to finish the Thesis. In this section the most important phases are discussed.

The first three phases of the research framework are necessary to set the objective of the study and acquire knowledge and data about the topic. In the face of the internship and the data collection in the company, it is vital to be sure about the aims and the way to reach these aims of the research. In the beginning of the Thesis the researcher focused on acquiring theoretical knowledge instead of understanding the problem and the approaches. This lead to a collection of many enterprise related data, which turned out to be irrelevant for this study. Consequently, the necessary data and information had to collected again, which was a lot of additional work. Looking backwards it is to say, that it is essential to work at a plan including where to gather which data at which point of time. This would lead to a more efficient information collection and reduced rework.

Working on the two approaches and interviewing the executive employees (phase four, five, six) went really well. The available literature was helpful for applying the selected methods and gives hints for setting the questionnaire. Furthermore, it turned out to be supportive to talk with the interviewees in pre-meetings, in which the objective was explained and the people became acquainted to each other. This made the interviews easier and more efficient.

Reflecting the CSF and BSP approach it is to say, that both methods have their advantages, but also disadvantages. The CSF method enables to reveal key areas that are necessary to achieve the objective and the most important information required by the executive employees. Furthermore, a lot of literature and former studies about CSFs in

different branches is available, which enables a comparison of own findings with other researches. The BSP approach provides a complete analysis of the enterprise including processes, data classes, information flows and priorities. The method focuses more on understanding the company and extracts from that the information needs and the required MIS. In order to apply this method, a lot of corporate knowledge and data is required. This makes the method quite complex and time intensive. Furthermore, results have to be discussed between the different steps. In these discussions findings are confirmed and the report is improved, but it costs a lot of time and therefore money for a company.

Generally, the CSF approach is easier and faster to use. The identified critical factors are beneficial for getting to know information requirements and improving Information Systems in enterprises. For understanding interrelationships and the information flow in companies the method alone is not practical. The BSP approach gives a manual for discovering used and required information and assist in establishing IS. Using both techniques simultaneously was in case of this Master/ Diploma Thesis very helpful. By comparing identified CSFs with other studies, findings could be confirmed. Additionally, the CSFs could be matched with the information requirements detected in the BSP study. The BSP approach helped to understand the whole sales group and detecting needed Information Systems. Concluding, the two methods complement one another quite well.

Within this Master/ Diploma Thesis the information use and information needs as well required MIS for the company “RWZ Rhein-Main eG” are identified. The results can be used for developing and designing MIS in the company. Additionally the applied approaches can be used as a basis for analysing other organisation or companies. The way of implementing and designing such systems is left out of this study. Also the final adjustment of the identified MIS still has to be done. This is skipped because of a lack of information, time and experiences.

6.2 Recommendation for the company

With respect to the worked out information architecture in the fourth chapter the company should implement three different Management Information Systems (MIS) for improving information usage of their executive employees. The MIS, which should be implemented in short or middle period, are systems regarding the business function Management, Distribution and Requirements.

MIS Management: The MIS management comprise real-time information about profitability and credit limits. It enables a largely better controlling of all key figures and reduces risks regarding illiquidity of customers. Furthermore it eases to achieve goals and objectives by comparing the status quo with them at every point of time. With respect to increasing competition and higher responsibilities of executive employees it makes it also possible to observe more efficiently the business.

MIS Distribution: The MIS distribution is important because of the inclusion of customer-related data. On the one hand, the MIS should contain all available data about customers, which are master data as well as information about farmland, live stock etc. The insertion makes it possible to build up an active marketing and to increase customer's loyalty. On the other hand, maintenance of these data should be as easy as possible in the MIS. That would help keeping such important data up to date and would decrease costs for maintaining. Both together can lead to a significant benefit for the whole company.

MIS Requirements: Market knowledge and detection of market changes it vital for the company in order to purchase right products, forecast customer demands and identify new market opportunities. These data should comprise the new designed MIS requirements. Because of many soft characterise information belonging to market knowledge, reports should be included in the MIS to give every employee the same information level. Hard characterise information about the market should be developed and include in the MIS.

While designing a MIS the company has to take care of user-specific aspects as well. The information system should be user-friendly and information should be easy to acquire. This is important for the daily usage of the system and for enabling new employees to work quickly with the MIS. The provided information should be up to date in order to be of benefit to the employees. Also the user interfaces should be similar in all MIS. It facilitates an exchange of employees between divisions and departments and eases the training of all staff working with the MIS. Furthermore, it is necessary that the Information System warns automatically, support decisions and is economical. The system should warn automatically if specific key figures like credits exceed a before defined mark. Often used and critical information should also come up automatically in order to ensure that these pieces of information are taken into account. The MIS can support decisions by simulating possible scenarios. Analysing different scenarios helps to distinguish the results of a decision and supports it therefore. Of course a MIS have to be economical. Aim of implementing a MIS is to increase efficiency and effectiveness.

6.3 Suggestions for further research

The first suggestion for further research is to describe and develop a MIS based on the findings in this Master/ Diploma Thesis. The research should comprise the development of user interfaces and automatic periodic reports as well as an explanation for a further customisation of the system with respect to the involved people.

Another very interesting research could be the cost-benefit calculation of implementing an ERP System. The company SAP Deutschland AG & Co. KG already published return on investment calculations for their software. They calculated it by applying Case Studies in companies, which rearranged their whole ERP System to SAP Systems. These studies have two disadvantages. Most figures are based on interviews with employees, who forecast the possible benefits of the new systems by their own impression and feelings. The other disadvantage is that SAP did these calculations by themselves. Thereby it is always difficult to know if the figures are judged objectively and if all facets are taken into account. In the suggested research a framework for quantifying and rating information should be build up. This could be done by rating every information on the basis of costs for getting the information on the one hand, on the other hand compare these costs with the benefits of using this information. Furthermore the costs of maintenance before, during and after the implementation of a new ERP System should be reflected. Based on these findings it can be concluded if the rearrangement was the right decision and in which phase of the implementation the costs were highest.

The last suggestion is to research the effects of implementing a MIS on employees. A well-designed MIS provides a lot of information, especially regarding controlling. If controlling tools are just used for observing and penalise errors of employees, the motivation will drop significantly and therefore the success of the company. It would be very interesting to know in which way provided information should be published and used in order to keep the motivation high.

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ANNEX

Questionnaire:

Fragebogen zur Bearbeitung der Diplomarbeit:

I. Fragen zum Verantwortungsbereich

1. Was ist Ihr Aufgaben- und Verantwortungsbereich innerhalb der RWZ Rhein-Main eG? Bitte nehmen Sie zur Beantwortung der Frage auch Bezug auf die von Ihnen wahrgenommen **Planungs-** sowie **Steuerungs-** und **Kontrollaufgaben.**

2. Wie **viele Mitarbeiter** sind in Ihrem Verantwortungsbereich beschäftigt?

3. Wie viele verschiedene **Artikel** umfasst Ihr Verantwortungsbereich?

II. Fragen zu allgemeinen Unternehmens-/ Spartenziele

4. Welche der nachfolgend genannten **allgemeinen Ziele** sind für Ihren Verantwortungsbereich zutreffend? Bitte kreuzen Sie an und ergänzen Sie die Liste gegebenenfalls. Bitte geben Sie auch eine Rangfolge der Ziele an.

Ziel:	trifft	zu:
Rangfolge:		
Langfristige Gewinnmaximierung:	( )	( )
Kurzfristige Gewinnmitnahme:	( )	( )
Existenzsicherung:	( )	( )
Umsatz(steigerung):	( )	( )
Rendite(steigerung)	( )	( )
Kundenzufriedenheit:	( )	( )
Weiter Ziele:		
.....	( )	( )
.....	( )	( )
.....	( )	( )

III. **Fragen zur Warenwirtschaft allgemein**

5. In welchen Bereichen (z.B. Einkauf, Lager/ Logistik, Verkauf, Rechnungswesen etc.) würden sich **Fehler** und **Mängel** am schnellsten und gravierendsten auswirken?

6. Wenn Sie sich einen wöchentlichen oder monatlichen **Überblick** über den Geschäftsverlauf verschaffen wollen, welche **Daten** kontrollieren Sie dann?

7. Um welche **Fragestellungen** bzw. **Bereiche** würden Sie sich nach einer längeren Abwesenheit am ehesten kümmern? (In der Reihenfolge der Wichtigkeit)

8. Welche **Vorgänge, Probleme** oder **Aufgaben** sind im Moment in Ihrem Verantwortungsbereich wirklich erfolgsentscheidend, auch wenn sie nur für einen kurzen Zeitraum von Bedeutung sein werden?

9. Welche der nachfolgend genannten **Entwicklungsrichtungen** sind für Ihren Verantwortungsbereich relevant bzw. von Bedeutung? Bitte kreuzen Sie an und ergänzen Sie die Liste gegebenenfalls. Bitte geben Sie auch eine Rangfolge der Ziele an.

Entwicklungsrichtungen:	trifft zu:	Rangfolge:
Ausweichen auf neue Märkte:	( )	( )
Verstärkte Marktorientierung:	( )	( )
Verbesserung des Beratungs-/ Servicebereichs:	( )	( )
Erhöhung des Marktanteils:	( )	( )
Diversifikation durch Sortimentsverbreiterung:	( )	( )
Verstärkte Kundenorientierung:	( )	( )
Bildung von Kooperationen:	( )	( )
Ausdehnung des Vertragsanbaus:	( )	( )
Verstärkte Nutzung externer Angebote (z.B. Beratungen):	( )	( )
Weiter Entwicklungsrichtungen:		
.....	( )	( )
.....	( )	( )

10. Welche Faktoren sind speziell **intern** für das **Erreichen** Ihrer Unternehmensziele/ Spartenziele wichtig? (In der Reihenfolge der Wichtigkeit)

11. Welche der nachfolgend genannten **intern orientierten Kritischen Erfolgsfaktoren** sind für Ihren Verantwortungsbereich zutreffend? Bitte beurteilen Sie die Liste der Kritischen Erfolgsfaktoren für Ihr Unternehmen anhand einer Skala von 1 bis 5 und kreuzen Sie den zutreffenden Skalenwert an

1 = sehr erfolgskritisch.....5 = nicht erfolgskritisch

Kritische Erfolgsfaktoren:	Bewertung:
Bilanzorientierung:	1 2 3 4 5
EDV-Einsatz:	1 2 3 4 5
Flexibles und situationsgerechtes Finanzmanagement:	1 2 3 4 5
Kosten- und Erfolgsorientierung:	1 2 3 4 5
Verbesserung der Personalqualität:	1 2 3 4 5
Weitere Erfolgsfaktoren:	
.....	1 2 3 4 5
.....	1 2 3 4 5
.....	1 2 3 4 5

12. Welche Faktoren sind speziell **extern** (z.B. Markt- und Strukturentwicklungen) für das Erreichen Ihrer Unternehmensziele/ Spartenziele wichtig? (In der Reihenfolge der Wichtigkeit)

13. Welche der nachfolgend genannten **extern orientierten Kritischen Erfolgsfaktoren** sind für Ihren Verantwortungsbereich zutreffend? Bitte beurteilen Sie die Liste der Kritischen Erfolgsfaktoren für Ihr Unternehmen anhand einer Skala von 1 bis 5 und kreuzen Sie den zutreffenden Skalenwert an

1 = sehr erfolgskritisch..... 5 = nicht erfolgskritisch

Kritische Erfolgsfaktoren:	Bewertung:
Aktive Gestaltung der Lieferantenbeziehungen:	1 2 3 4 5
Aktives Marketing:	1 2 3 4 5
Aufbau und Pflege der Kundenbeziehungen:	1 2 3 4 5
Expansion/ Diversifikation der Kundenbeziehungen:	1 2 3 4 5
Kundenorientierte Ausrichtung der Handelsaktivitäten:	1 2 3 4 5
Qualitätsvorsprung gegenüber Mitbewerbern:	1 2 3 4 5
Weitere Erfolgsfaktoren:	
.....	1 2 3 4 5
.....	1 2 3 4 5
.....	1 2 3 4 5

14. Angenommen Sie möchten den **Verkaufsprozess** (z.B. Auftragsabwicklung etc.) in Ihrem Verantwortungsbereich **neu ausrichten**, nach welchen Prinzipien würden Sie es tun? Bitte beurteilen Sie die Liste der Kritischen Erfolgsfaktoren für Ihr Unternehmen anhand einer Skala von 1 bis 5 und kreuzen Sie den zutreffenden Skalenwert an

1 = trifft vollkommen zu..... 5 = trifft gar nicht zu

	Beurteilung
Bessere Deckungsbeiträge pro Auftrag:	1 2 3 4 5
Vertriebskosten messbar reduzieren:	1 2 3 4 5
Anfragen schneller und Kostengünstiger bereitbar machen:	1 2 3 4 5
Den Kunden aktiv am Kauf-/ Verkaufsprozess beteiligen	1 2 3 4 5
Kundenorientierte Ausrichtung der Handelsaktivitäten:	1 2 3 4 5
Qualitätsvorsprung gegenüber Mitbewerbern:	1 2 3 4 5
Weitere Prinzipien:	
.....	1 2 3 4 5
.....	1 2 3 4 5
.....	1 2 3 4 5

IV. Umstellung des Warenwirtschaftssystems

15. Welche Faktoren müssen bei der **Umstellung** auf das neue SAP System Ihrer Meinung nach **beachtet** werden?

16. Wo sehen Sie im Bereich des neuen Warenwirtschaftssystem die größten **Chancen** und wo die größten **Probleme**? Wo sehen Sie die **Ursachen** für diese Probleme?

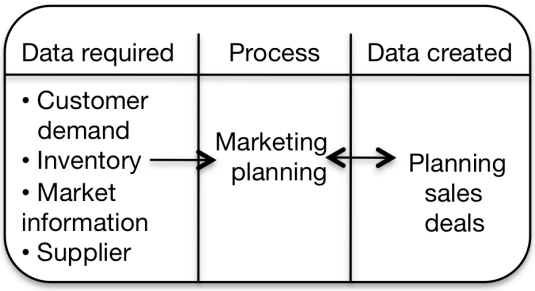
Chancen: Probleme: Ursachen:

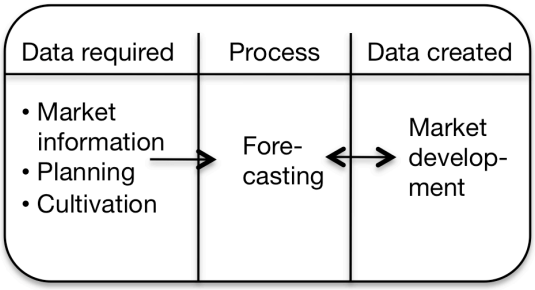
17. Welche **Umweltgegebenheiten/ Umfeldgegebenheiten** beeinflussen Ihren Verantwortungsbereich besonders stark?

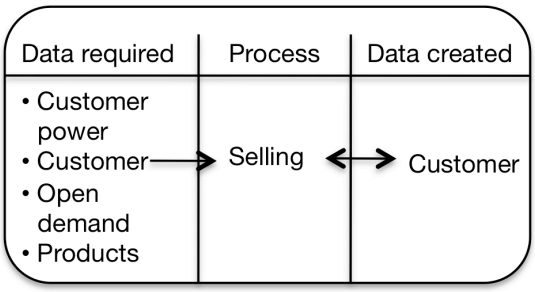
Vielen Dank für Ihre Mitarbeit!

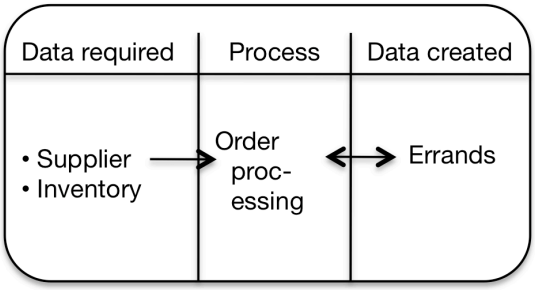
APPENDIX

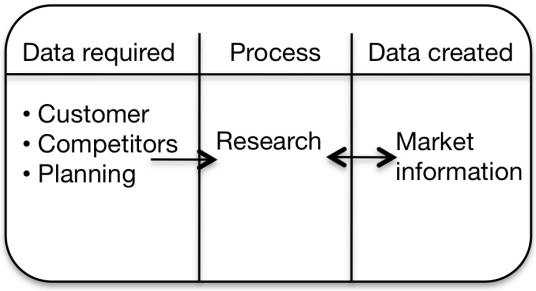
1. Data usage analysis

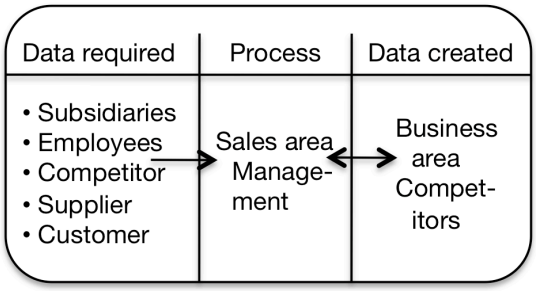


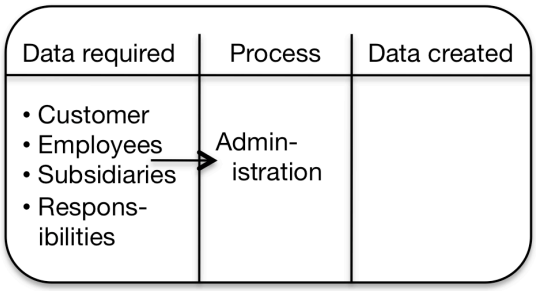


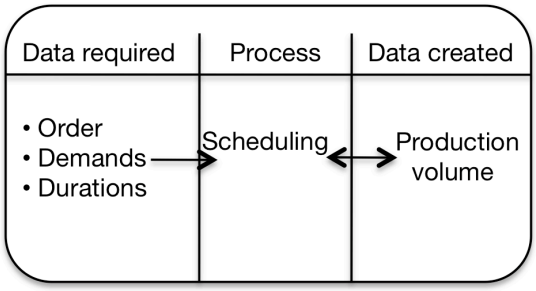


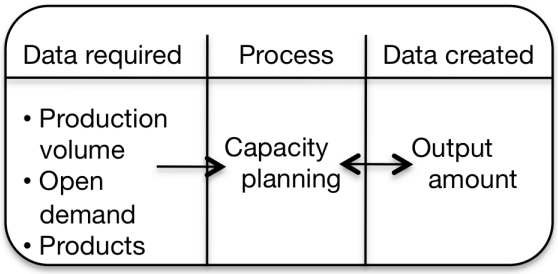


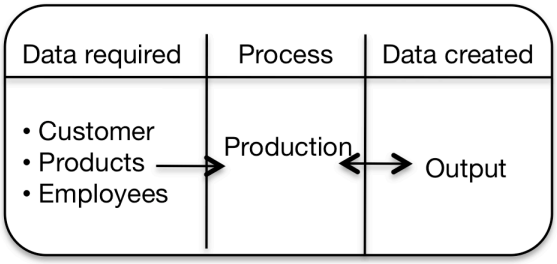


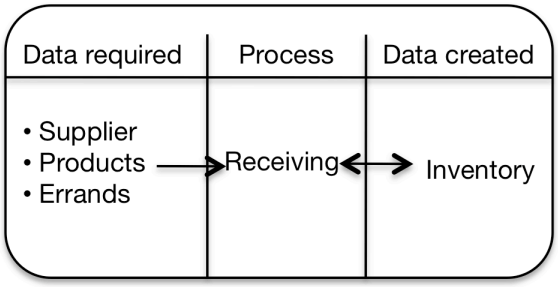


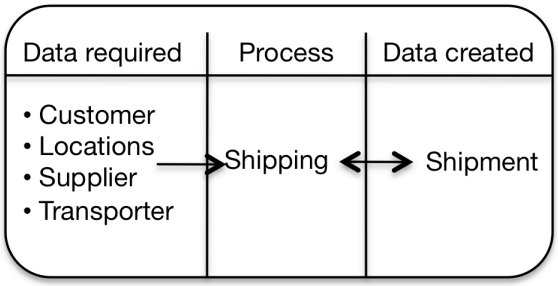


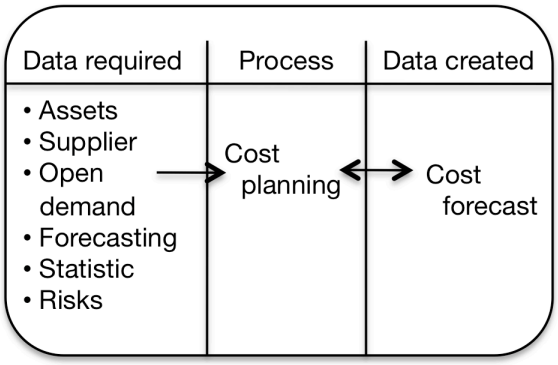


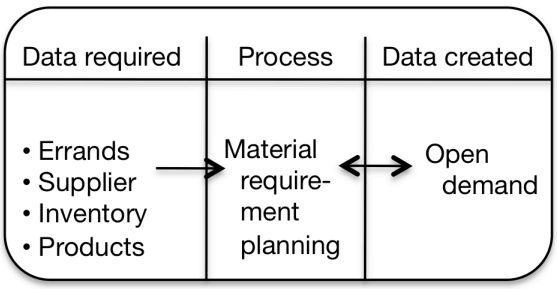

Data required
Process
Data created
• Production volume
• Open demand
• Products
Capacity planning
Output amount

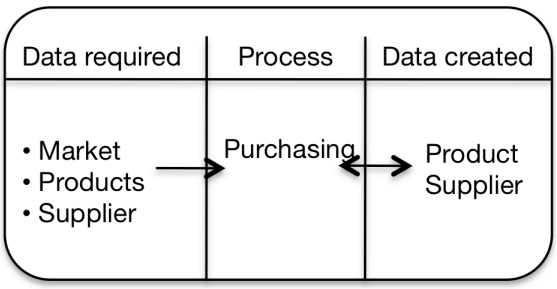

Data required
Process
Data created
• Customer
• Products
• Employees
Production
Output

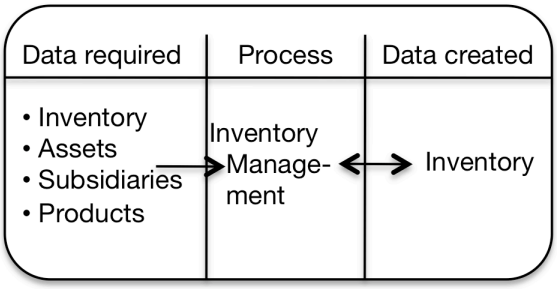

Data required
Process
Data created
• Supplier
• Products
• Errands
Receiving
Inventory

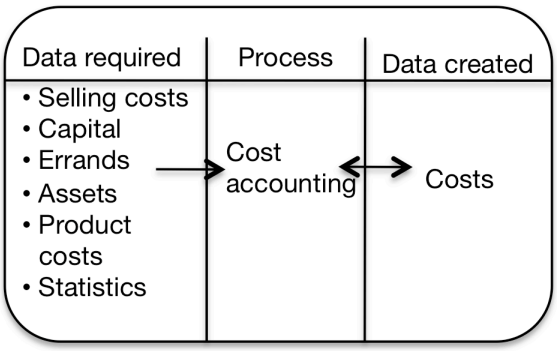

Data required
Process
Data created
• Customer
• Locations
• Supplier
• Transporter
Shipping
Shipment

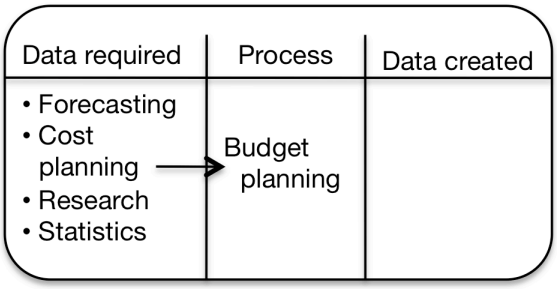

Data required
Process
Data created
• Assets
• Supplier
• Open demand
• Forecasting
• Statistic
• Risks
Cost planning
Cost forecast

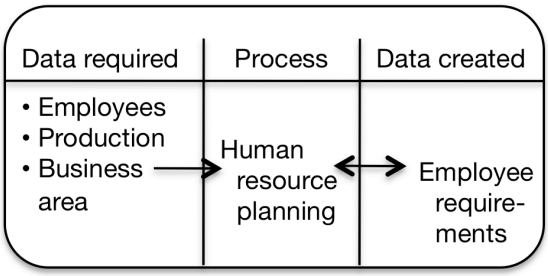

Data required
Process
Data created
• Errands
• Supplier
• Inventory
• Products
Material require-ment planning
Open demand

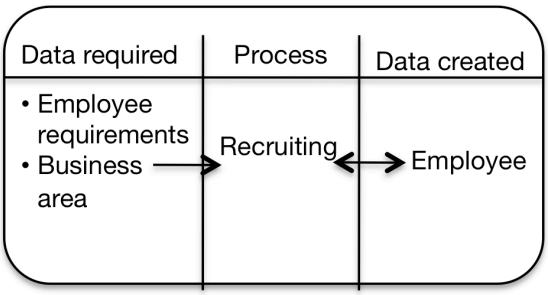

Data required
Process
Data created
• Market
• Products
• Supplier
Purchasing
Product Supplier

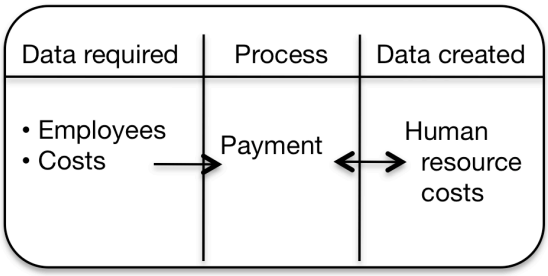

Data required
Process
Data created
• Inventory
• Assets
• Subsidiaries
• Products
Inventory Manage-ment
Inventory

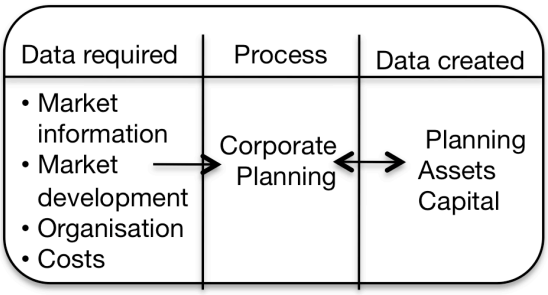

Data required
Process
Data created
• Selling costs
• Capital
• Errands
• Assets
• Product costs
• Statistics
Cost accounting
Costs

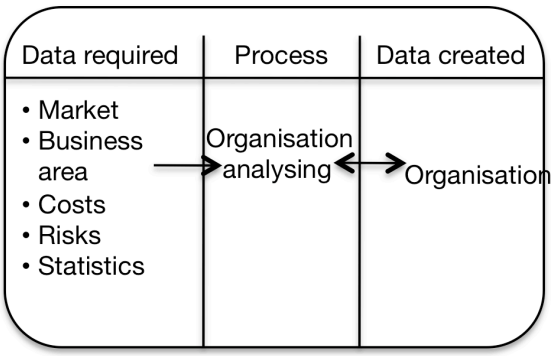

Data required
Process
Data created
• Forecasting
• Cost planning
• Research
• Statistics
Budget planning

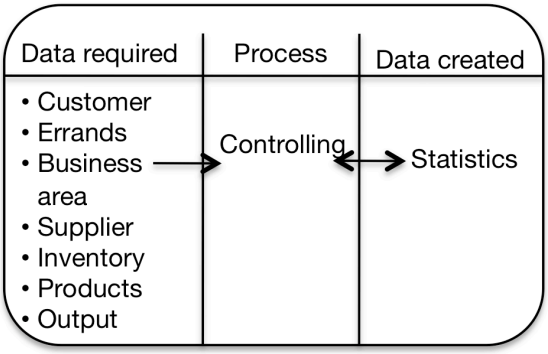

Data required
Process
Data created
• Employees
• Production
• Business area
Human resource planning
Employee require-ments

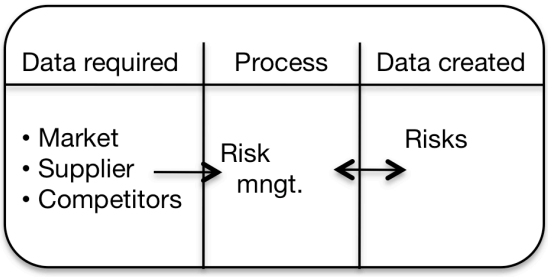

Data required
Process
Data created
• Employee requirements
• Business area
Recruiting
Employee


Data required
Process
Data created
• Employees
• Costs
Payment
Human resource costs


Data required
Process
Data created
• Market information
• Market development
• Organisation
• Costs
Corporate Planning
Planning
Assets
Capital


Data required
Process
Data created
• Market
• Business area
• Costs
• Risks
• Statistics
Organisation analysing
Organisation


Data required
Process
Data created
• Customer
• Errands
• Business area
• Supplier
• Inventory
• Products
• Output
Controlling
Statistics


Data required
Process
Data created
• Market
• Supplier
• Competitors
Risk mngt.
Risks

2. Different matrices to information architecture

2.1 Process/ data class matrix

Processes	Data Classes	Customer	Market information	Market development	Competitors	Errands	Business Area	Shipment	Planning	Capital	Production Volume	Open Demand	Assets	Statistic	Risks	Supplier	Inventory	Organisation	Products	Output	HR Costs	Employee develop.	Product costs	Employees	Costs
Marketing	Planning		U						C			U				U	U								
	Research	U	C		U				U																
	Forecasting	U	U	C					U																
Distribution	Sales area management	C			U		C							U										U	
	Selling	U										U							U						
	Administration	U					U							U		U								U	
	Order processing					C										U	U								
Production	Scheduling					U					C	U													
	Capacity planning										U	U								C					
	Material requirement plan.					U						C				U	U		U						
	Production	U																	U	C				U	
Material mgmt.	Purchasing		U													U			U			C			
	Receiving					U										U	C		U						
	Inventory management						U					C	U				U		U						
	Shipping	U					U	C								U									
Adminis-tration	Cost accounting					U				U			U			U							U		C
	Cost planning			U										U	U	U									
	Budget planning			U										U											U
Human Resource	Human resource planning						U			U	U											C		U	
	Recruiting								U													U		C	
	Payment																				C			U	U
Management	Corporate planning		U	U														U							U
	Organisation analysing			U			U								U	U		C				U			U
	Controlling	U				U	U				U			C		U	U	U	U						
	Risk management		U	U	U										U										

C = data create
U = data use

2.2 Process/ data class matrix rearranged

Processes	Data Classes	Planning sales deals	Market information	Market development	Planning	Assets	Capital	Organisation	Statistic	Risks	Supplier	Products	Inventory	Shipment	Production Volume	Output amount	Open Demand	Output	Business Area	Competitors	Customer	Errands	Costs	Cost forecast	Employee develop.	Employees	HR Costs
Marketing	Planning	C	U								U		U			U	U										
	Research	U	C																	U	U						
	Forecasting	U	U	C																	U						
Management	Corporate planning		U	U	C	C	C	U															U				
	Organisation analysing			U				C		U	U								U				U		U		
	Controlling							U	C		U	U	U		U			U	U		U	U					
	Risk management		U	U						C										U							
Material mgmt.	Purchasing		U								C	C															
	Receiving										U	U	C									U					
	Inventory management					U						U	C						U								
	Shipping										U			C					U		U						
Production	Scheduling														C		U					U					
	Capacity planning											U			U	C	U										
	Material requirement plan.										U	U	U				C					U					
	Production											U						C			U					U	
Distribution	Sales area management								U										C	C	U					U	
	Selling												U			U	U				C						
	Administration								U		U								U		U					U	
	Order processing										U		U									C					
Adminis-tration	Cost accounting					U	U				U											U	C				
	Cost planning			U		U			U	U	U													C			
	Budget planning			U					U														U	U			
Human Resource	Human resource planning						U								U				U						C	U	
	Recruiting																								U	C	
	Payment																						U			U	C

C = data create

U = data use

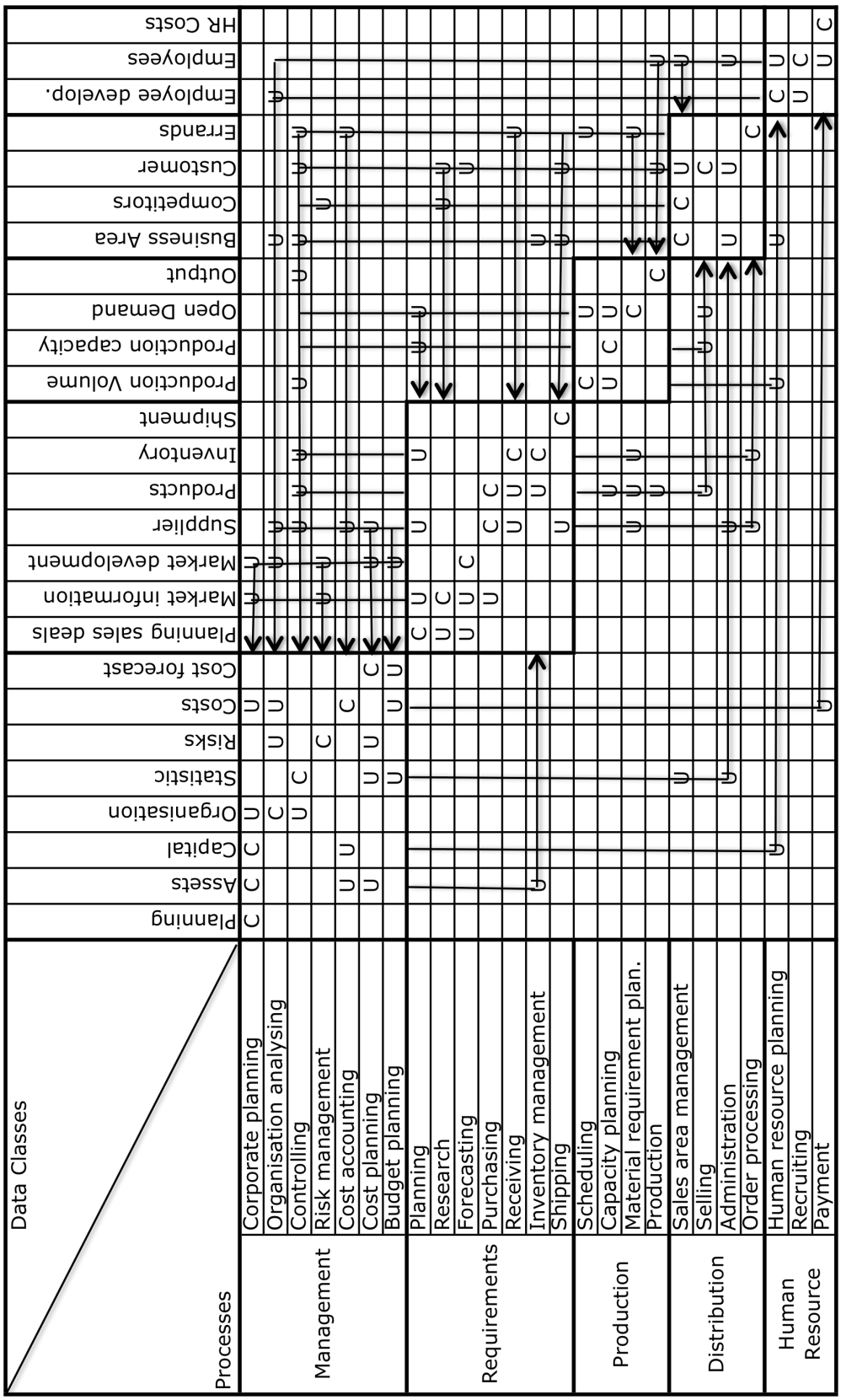
2.3 Process/ data class matrix with process groups

Processes	Data Classes	Planning	Assets	Capital	Organisation	Statistic	Risks	Costs	Cost forecast	Planning sales deals	Market information	Market development	Supplier	Products	Inventory	Shipment	Production Volume	Production capacity	Open Demand	Output	Business Area	Competitors	Customer	Errands	Employee develop.	Employees	HR Costs
Management	Corporate planning	C	C	U				U			U	U															
	Organisation analysing			C			U	U				U	U								U				U		
	Controlling			U	U	C							U				U			U	U			U			
	Risk management						C				U	U										U		U			
	Cost accounting		U	U				C					U												U		
	Cost planning		U			U	U		C			U	U								U						
	Budget planning					U		U	U			U				C					U					U	
Requirements	Planning									C	U		U		U			U	U								
	Research									U	C																
	Forecasting									U	U	C															
	Purchasing										U		C	C													
	Receiving												U	U	C									U			
	Inventory management		U											U	C						U						
	Shipping												U			C					U						
Production	Scheduling																C	U	U					U			
	Capacity planning													U			U	C	U								
	Material requirement plan.												U	U	U				C					U			
	Production													U						C						U	
Distribution	Sales area management					U															C	C	U		U		
	Selling													U				U	U				C				
	Administration					U							U								U		U		U		
	Order processing												U		U									C			
Human Resource	Human resource planning			U													U				U				C	U	
	Recruiting																								U	C	
	Payment							U																		U	C

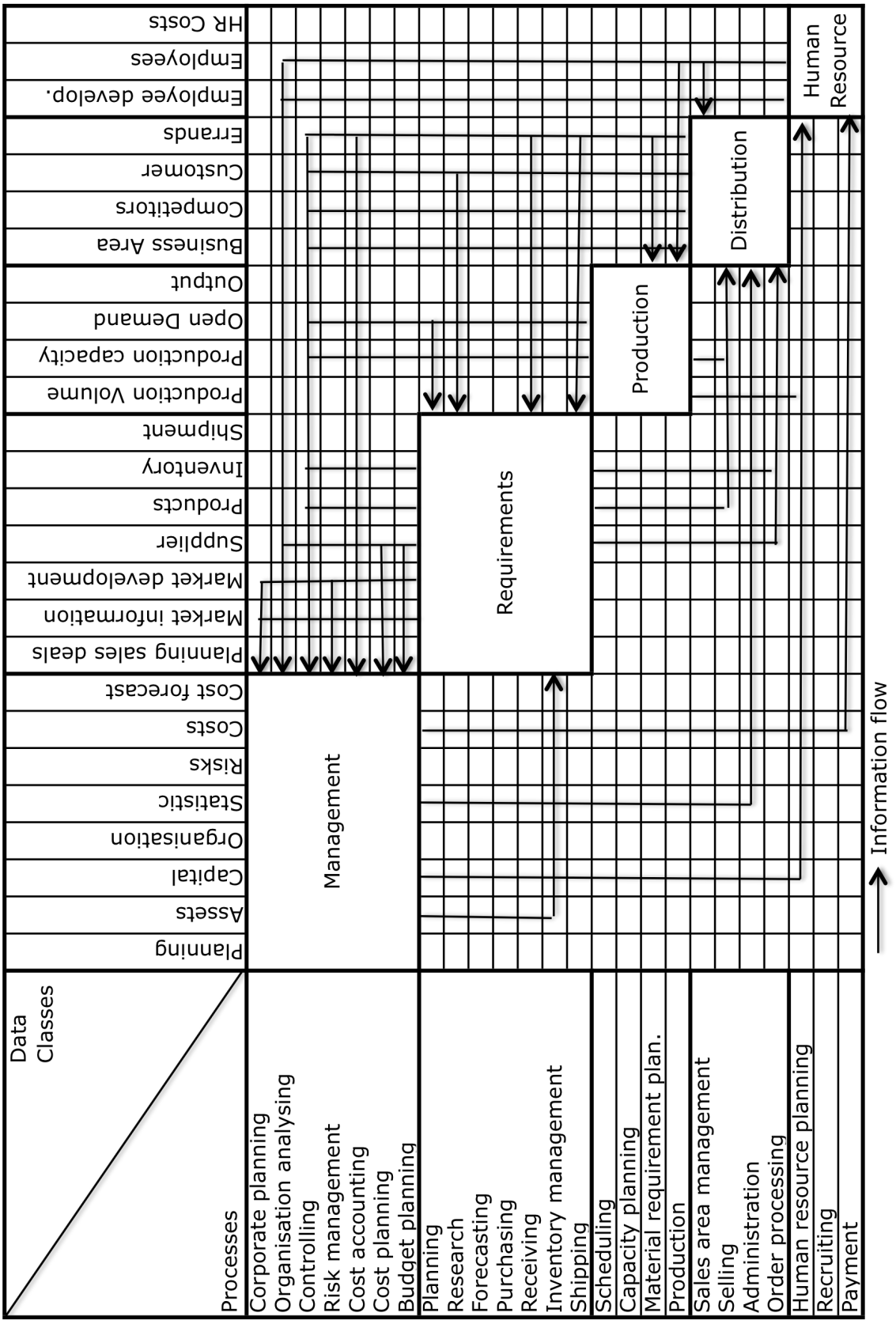
C = data create

U = data use

2.4 Process/ data class matrix with information flow



2.5 Information architecture



2.6 Simplified information architecture