



**FUNDAÇÃO EDSON QUEIROZ  
UNIVERSIDADE DE FORTALEZA - UNIFOR**

Robert Josef Rossberger

**ECOMMERCE IN THE GEMS AND JEWELRY INDUSTRY**

( COMÉRCIO ELETRÔNICO NA INDÚSTRIA DE JOALHERIA  
E PEDRAS PRECIOSAS )

Fortaleza

2009

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## **ECOMMERCE IN THE GEMS AND JEWELRY INDUSTRY**

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Dissertação apresentada ao Curso de Mestrado em Administração de Empresas da Universidade de Fortaleza, como requisito parcial para obtenção do Título de Mestre em Administração de Empresas.

Orientador: Prof. Dra. Danielle Miranda de Oliveira Arruda

Fortaleza

2009

Robert Josef Rossberger

## **ECOMMERCE IN THE GEMS AND JEWELRY INDUSTRY**

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Dissertação julgada e aprovada para obtenção do  
Título de Mestre em Administração de Empresas pela  
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## **I. Resumo**

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O comércio eletrônico (E-commerce) vem trazendo mudanças significativas em diversos setores no mundo de negócios, e atualmente afeta em alto grau de intensidade quase a totalidade de indústrias. O objetivo desta dissertação consiste em entender e solucionar o problema de uma empresa de joalheria e pedras preciosas que utiliza do comércio eletrônico como um de seus canais de venda.

Este projeto é dividido em duas áreas de pesquisa, que são em primeiro lugar, os fatores internos que estão relacionados diretamente com o canal de comércio eletrônico da empresa; e em segundo lugar, os fatores externos que são influenciados por forças fora do controle direto da empresa investigada. Para alcançar este objetivo, primeiramente esta pesquisa examina os fatores internos da empresa no sentido prático e uma pesquisa analítica de negócios; em seguida, utiliza uma combinação de abordagens teóricas para investigar o que está fora da empresa.

Partindo da perspectiva prática, algumas lacunas de conhecimento sobre a empresa investigada são desconhecidas e importantes sinais são gerados para as causas do atual problema. Partindo da perspectiva teórica a combinação de três *frameworks* teóricos, denominados Visão Baseada no Mercado (*Market-Based View*), Visão Baseada em Recursos (*Resource-Based View*), e Economia de Custo de Transação (*Transaction Cost Economy*), e focando estes *frameworks* com a indústria de joalheria e pedras preciosas com relação a influência do comércio eletrônico nas características específicas da indústria, preenchem as lacunas na literatura e contribuem para o conhecimento.

Ao combinar esta abordagens de forma operacional e estratégica, proposições bem fundamentadas e precisas podem ser realizadas para a investigação da empresa, o que ajuda o entendimento e solução do problema atual, e possibilita guiar para um comportamento estratégico que irá deparar no futuro. A nova perspectiva oferece um auxílio para outras companhias que pertencem a esta tradicional indústria, que está atualmente deparando com uma rápida mudança no ambiente de negócios.

**PALAVRAS-CHAVE:** Comércio eletrônico, Visão Baseada em Mercado, Visão Baseada em Recursos, Economia de Custo de Transação, Indústria de joalheria e pedras preciosas.

## **II. Abstract**

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Ecommerce has brought significant changes in several sectors of the business world, and today it affects nearly every industry to a high degree. The aim of this thesis is to understand and solve the problem of a company in the gems and jewelry industry which uses Ecommerce as one of its sales channels.

This project is divided into two general fields of research, which are, first, the internal factors that are directly related to the Ecommerce channel of the company and second, the external factors that are influenced by forces outside of the direct control of the investigated company. To achieve this aim this thesis first examines the internal factors of the company by means of practical, analytical business research and second, uses a combination of theoretical frameworks to investigate the outside of the company.

From the practical perspective gaps of knowledge about the investigated company are closed and important insights are gained into the causes of the actual problem. From the theoretical perspective the combination of the three theoretical frameworks, namely the Market-Based View, the Resource-Based View and Transaction Cost Economics, and by focusing with them on the gems and jewelry industry concerning the influence of Ecommerce on industry-specific characteristics, closes gaps in the literature and contributes to knowledge.

By combining these approaches both operationally and strategically well-founded and sharp propositions can be made for the investigated company, which helps to understand and solve the current problem, and gives guidelines for strategic behavior that will meet future requirements. The new perspective offered is helpful for other companies belonging to this traditional industry, which is facing a rapidly changing environment.

**KEYWORDS:** E-commerce, Market-Based View, Resource-Based View, Transaction Cost Economics, Gems and jewelry industry.

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## **V. List of Abbreviations and Explanations**

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B2C Business to Consumer

B-Web Business Web

CRM Customer Relationship Management

CSF Critical Success Factors

E&I Ecommerce and Internet

ERM Entity relationship model

G&J Gems and Jewelry

GA Google Analytics

GAW Google Adwords

GFK Gesellschaft für Konsumforschung (GFK Audit and Surveys)

IBV Product Visible to the customer, not possible to purchase and not in stock

IBV Products Visible (to the visitors) but not available for sale

IC Investigated company

IDI Individual in-depth interview

INV Product Invisible and deactivated product

INV Products Not visible (to the visitors)

IT Information Technology

Java Object-oriented programming language

KPI Key performance Indicator

MBV Market-based view

OSS Online Shopping Survey

php Hypertext Preprocessor (recursive acronym)

RBV Resource-based view

RCC Resources, Competences and Capabilities

RCP-Paradigm Resource–Conduct–Performance Paradigm

ROI Return on Investment

RQ Research Question

SCP-Paradigm Structure-Conduct-Performance-Paradigm

SME Small and medium enterprise

TCA Transaction Cost Analysis

TCE Transaction Cost Economics

URL Uniform Resource Locator

VA Product Visible to the customer, possible to purchase and in stock

VA Products Visible (to the visitors) and available for sale

VC Value Chain

VCA Value Chain Analysis

VRIO Framework Value-Rareness-Imitability-Organization Framework

## **VI. Table of Contents**

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# 1 Introduction and Overview

## 1.1 Practical Objective and Contribution

The practical objective of this thesis is to investigate the decrease of sales in the Ecommerce distribution channel of a company in the Gems and Jewelry (G&J) Industry. After the exploratory research phase it becomes clear that two general factors have to be investigated and be combined to understand the nature of the problem.

Therefore, the first objective of this thesis is, by the appropriate combination of research approaches, to find out the roots of the problem of the investigated company internally, localize and understand the components of the problem and combine these findings with an investigation of the external environment to have a well-founded base for arriving at propositions how to resolve the actual dilemma.

This contribution is of very tangible and definitive nature for the investigated company (IC). The results of the described approaches will yield guidelines and propositions for the IC, which help solve the actual operational problem concerning the management of the Ecommerce sales channel as such.

By investigating the external environment a clearer vision of the future challenges is derived and the focus for future conduct is given. By the combination of these approaches both, operational as well as strategic, well-founded and sharp propositions can be stated for the IC.

The knowledge developed during the course of the internal investigation of the sales channel and the manifestation of it in the several developed software tools now represent a highly valuable analyzing and steering tool which is, as an additional and mention worthy benefit of this thesis, permanently installed and actively used in the investigated Ecommerce sales channel.

The investigation of the external environment and the application of the employed three theoretical bodies of thoughts and frameworks, namely the Market-Based View (MBV), the Resource-Based View and Transaction Cost Analysis (TCA) on the investigated G&J Industry lead to the theoretic objective and contribution of this thesis.



## 1.2 Academic Objective and Contribution

Using the three theoretical frameworks mentioned above for focusing on the G&J industry in the context of this thesis is the appropriate method for developing guidelines for the management of the IC concerning the future external influences on the IC. Furthermore, this thesis closes a gap in the literature as little is known about the influence of Ecommerce on Small and Medium Enterprises (SMEs) in the Gems and Jewelry (G&J) industry.<sup>1</sup>

These influences and the resulting managerial and strategic implications are the unit of analysis of the investigation of the changes in the external environment due to Ecommerce. By doing so the focus of investigation is not the internal, operative problem of the IC, but the forces which influence the IC from outside. This consideration separates the actual operative problem from the strategic uncertainty about the future development.

To achieve this objective it is essential to have a complete understanding of the inherent interrelations; therefore, the following aspects have to be considered:

- ✚ Ecommerce and the internet (E&I) are influencing the external environment as they highly increase industry competition. This becomes very clear when applying Porter's Five Forces model (Porter M., 2001) and the influence of the internet on it.
- ✚ Participating successfully in Ecommerce often requires a change in the core competences of the company. This change affects the "inside" of the company to an immense degree (Prahalad & Hamel, 1990).
- ✚ SMEs in particular have traditionally a disadvantage regarding their strategic orientation due to limited resources. In times and situations of increasing complexity and rapid changes (Fueglistaller, Frey, & Halter, 2003) strategic management becomes more important. This, in connection with the fact that the internet makes it "more important than ever for companies to distinguish between themselves through strategies" (Porter M., 2001), rises the importance of strategic management.

Regarding these factors, one of the major academic challenges and contributions of this thesis is to link the different concepts and theories, and investigate their relevance to the IC and the G&J industry.

For members of the industry, the understanding of the interrelation of these key factors is essential, no matter whether they participate directly in Ecommerce or not. By integrating these

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<sup>1</sup> For this thesis the term SME is applied to all enterprises with a staff of 1 to 250, thus including so-called micro-enterprises (1-10 staff), as many of the companies in the G&J Industry fall into this category.

considerations this thesis provides the necessary theoretical background, indicates possibilities and provides insights into how SMEs in the G&J industry can successfully participate in Ecommerce despite their limited resources.<sup>2</sup>

### 1.3 Research Question and Methodology

The structure of this research project suggests placing and explaining the applied methodologies and theories in the corresponding chapters. Here an overview of the systematic methodological approach and background is given.

The overall research can be termed a multiple methods case study. Inductive empirical methodologies, containing qualitative and quantitative elements, are employed to investigate the internal factors which are influencing the central problem. Subsequently this view inside of the IC is extent by theory based considerations focusing on industry characteristics and the changing environment to approach the external factors.

The Research undertaken in this Master Thesis consists of three phases:

#### Phase 1 (Chapter 2):

Research Question 1: **What are the reasons for the decrease in sales of the Ecommerce channel of the IC?**

Unit of Analysis: **Causes of the investigated problem.**

In the exploratory phase a systematic approach of qualitative empirical methods is used to understand and comprehend the different aspects of the problem. This is done because of the fact that from the company interior, the management and the IT department only “practical workday knowledge” was apparent about the nature of the investigated problem, which suggests the danger of selective perception and simplification considering interpretation and generalization (Diekmann, 2005). Focusing on the presumptions considering the customers side the same level of uncertainty was apparent. To arrive at a better understanding of the context and the underlying relationships exploratory research (Chapter 2) is undertaken. This is done by using:

- ✚ Individual in-depth interviews (Chapter 2.2)
- ✚ Qualitative and observational methods (Chapter 2.3)

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<sup>2</sup> This thesis follows the most popular resource-based theorists and uses the words “resources” and “capabilities” interchangeably and often in parallel (see Barney J., 2002, p. 157 and Collis & Montgomery, 2004).

- ✚ Interpretation of the results using expert knowledge (Chapter 2.4 and 2.5)

The use of expert knowledge in the phase represents a logical interpretation of these early empirical qualitative findings and provides a more precise idea about the further course of investigation, by understanding of the kernel of the problem and helping separate possible subjective factors derived from the internal interviews from probably more objective influencing factors, by reconstructing and interpreting the situation.

The results of the exploratory research and the interpretation of them lead to two distinct fields which influence the actual problem:

- ✚ Company internal factors (Chapter 3)
- ✚ External factors (Chapter 4)

### **Phase 2 (Chapter 3):**

Concerning of the internal factors analytical business research using empirical qualitative and quantitative methods is applied in combination with literature review on interrelated and necessary topics.

Research Question 1.1: **What are the internal, operative factors influencing the decrease in sales of the Ecommerce channel of the IC?**

Unit of Analysis: **Company internal factors, especially the sales channel Juwela.**

The study of the company internal factors investigates the online store Juwela.de to understand the incidents, processes and causal interrelationships happening on this Ecommerce sales channel. This is done by a combination of different methods (Chapter 3.1). The methodologies used are:

- ✚ Research and literature review on usability using scan path and click path analysis, as well as considerations on design structure and search functionality (Chapter 3.3)
- ✚ Quantitative methods using data from Google Analytics (Chapter 3.6)
- ✚ Quantitative methods using data from internal tracking tools (Chapter 3.7)
- ✚ Analysis on a process-based perspective (Chapter 3.8)

The data analyzed represent all events and actions happening on the server of Juwela.de during a timeframe investigated of more than two years. Thus, this data can be considered a longitudinal census of the relevant data (Hofmeister, 1997, p. 41), as well as primary collected

data as the data used was gathered in the course of this project by the researcher (Blaxter, Hughes, & Tigh, 2nd edition, p. 153), partly by the use of own, during the course of this project developed, software tools.

### **Phase 3 (Chapter 4):**

The research of the external environment investigates the underlying economic factors and the strategic and managerial implications which can be derived from them.

Research question 1.2:       **What are the external factors influencing the decrease in sales of the Ecommerce channel of the IC?**

Unit of Analysis:           **The influence of Ecommerce on the G&J industry.**

By combining the theoretical frameworks and directing the focus of them on the characteristics and attributes of the G&J industry considering the influences due to ecommerce, logical considerations based on theory are conducted to construct a image of the external environment for the IC and the G&J industry considering the current and future influences.

This is realized by investigating:

- ✚ The development and status quo of Ecommerce (Chapter 4.2 )
- ✚ The characteristics of the retail sector of the G&J industry (Chapter 4.3)

The theoretical frameworks used for understanding the changes which are induced by Ecommerce and affect the G&J industry are:

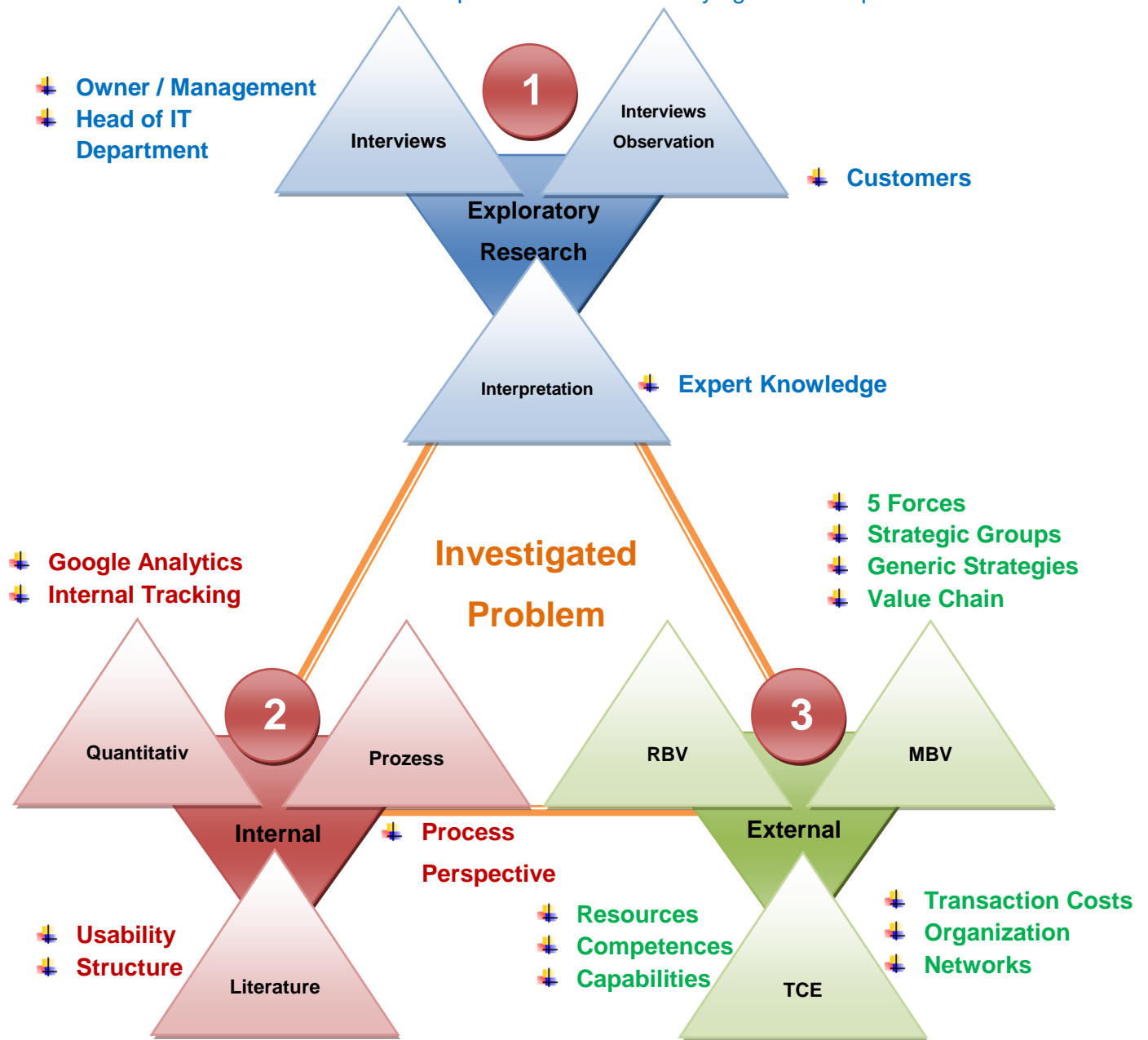
- ✚ The market-based view (Chapter 4.6)
- ✚ The resource-based view (Chapter 4.7)
- ✚ Transaction cost economics (Chapter 4.8)

The considerations of the external environment give a basis to derive appropriate sharp propositions for the IC. They are not focusing on inter-subjective generalization. The deductive empirical verification (Cooper & Schindler, 2006) of these considerations is the task of further research, for which this thesis provides a solid basis (see Chapter 5.6).

The illustration on the next page gives an overview of the combination of research methods.

## Empirical Qualitative Exploratory Research

to understand and interpret context and underlying relationships



### Empirical Quantitative and Qualitative Research combined with literature review

to understand incidents, processes and causal interrelations

### Combination of theoretical frameworks, focusing on industry characteristics and deductive-logical derivation

to sketch picture of the current and future external environment and influences

Figure 1 – Research methods

Source: Own source

## 1.4 Thesis Structure

The following figure illustrates the overall structure of this thesis and the relation of the different approaches adopted to reach the thesis's objective.

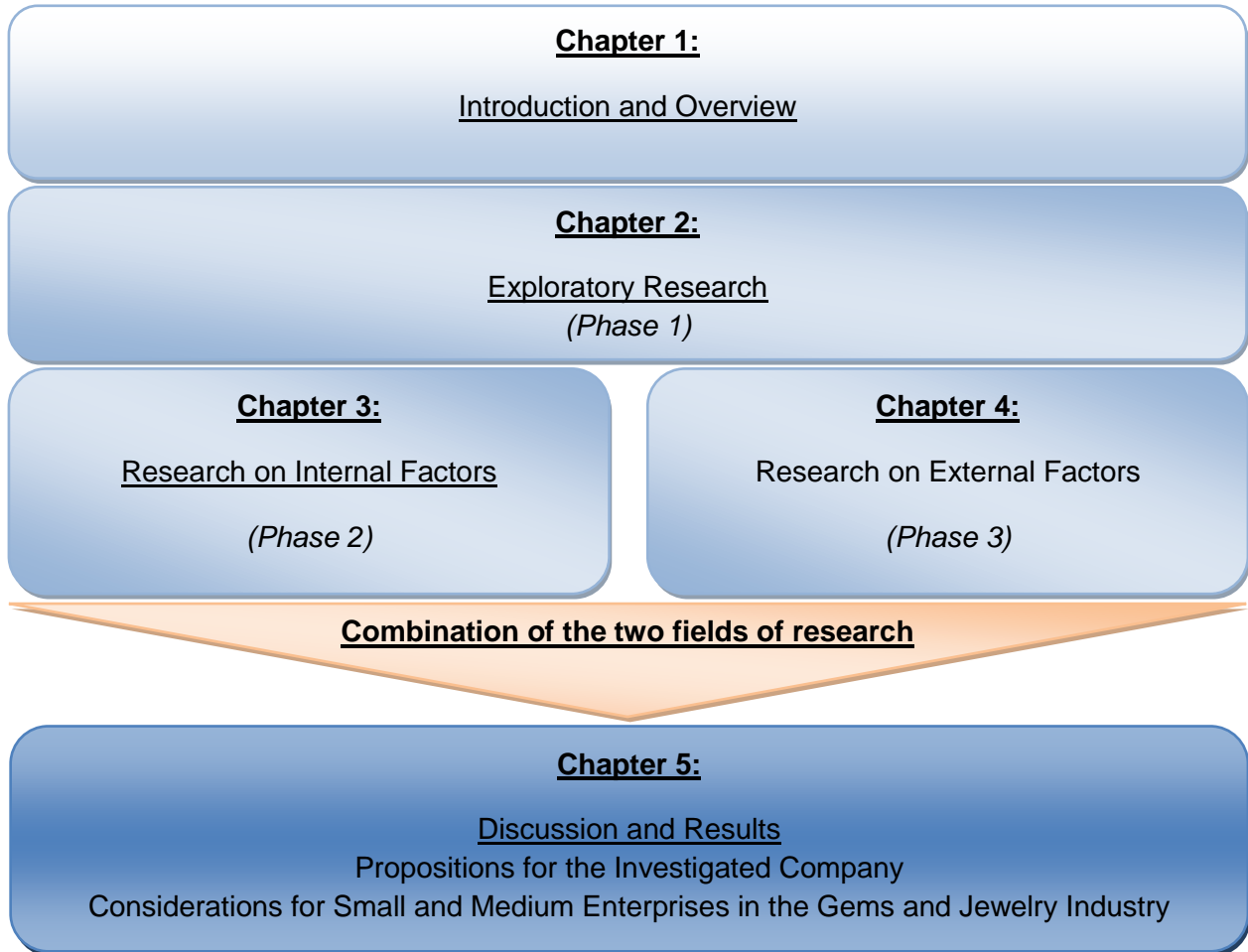


Figure 2 – Thesis structure

Source: Own source

## 1.5 Chronological Illustration

The following table is a chronological illustration of the time periods of collection and the sources of the data analyzed in this thesis.

| <u>Year</u> | <u>Month</u> | <u>Data Internal Tracking</u>   | <u>Data Google Analytics</u>                            | <u>Research Project Internal Factors</u>                          | <u>Investigation of External Factors</u>  |
|-------------|--------------|---|---|---|---|
| <b>2006</b> | Jan          | <b>Sourcing of Data</b><br>from internal tracking with special and self developed software tools.<br><br>Tools were modified and extended during the actual research project. |   |   |   |
|             | Feb          |   |   |   |   |
|             | Mar          |   |   |   |   |
|             | Apr          |   |   |   |   |
|             | May          |   |   |   |   |
|             | Jun          |   |   |   |   |
|             | Jul          |   |   |   |   |
|             | Aug          |   |   |   |   |
|             | Sep          |   |   |   |   |
|             | Oct          |   |   |   |   |
|             | Nov          |   |   |   |   |
|             | Dec          |   |   |   |   |
| <b>2007</b> | Jan          | Data used for quantitative analysis in <b>Chapter 3</b>   | <b>Sourcing of Data</b><br>using Google Analytics.      |   |   |
|             | Feb          |   |   |   |   |
|             | Mar          |   |   |   |   |
|             | Apr          |   |   |   |   |
|             | May          |   |   |   |   |
|             | Jun          |   |   |   |   |
|             | Jul          |   | Data used for quantitative analysis in <b>Chapter 3</b> |   |   |
|             | Aug          |   |   |   |   |
|             | Sep          |   |   |   |   |
|             | Oct          |   |   |   |   |
|             | Nov          |   |   |   |   |
|             | Dec          |   |   |   |   |
| <b>2008</b> | Jan          | Tracking of internal data and Google Analytics is still going on and used on the basis of the results of the internal research project as a basis for decision-making.        |   | <b>Execution</b><br>of Internal research project <b>Chapter 3</b> | <b>Execution</b><br>of investigation into external factors and results <b>Chapter 4</b> |
|             | Feb          |   |   |   |   |
|             | Mar          |   |   |   |   |
|             | Apr          |   |   |   |   |
|             | May          |   |   |   |   |
|             | Jun          |   |   |   |   |
|             | Jul          |   |   |   |   |
|             | Aug          |   |   |   |   |
|             | Sep          |   |   |   |   |
|             | Oct          |   |   |   |   |
|             | Nov          |   |   |   |   |
|             | Dec          |   |   |   |   |
| <b>2009</b> | Jan          | <b>Writing and finishing the thesis</b>   |   |   |   |
|             | Feb          | <b>Chapter 5</b>  |   |   |   |
|             | Mar          |   |   |   |   |

Table 1 – Chronological illustration of research project and Master’s thesis

Source: Own source

## **1.6 Limitation and Focus**

The topic of this thesis requires some limitations to ensure the significance of the propositions and suggestions for the future conduct of the IC.

First, the propositions are significant for the IC, as they are based on a reasonable amount of underlying data and insight in the IC. The aim is to translate them into appropriate action for the benefit of the IC, which is a justification of the research project as such.

Second, discussing the possibility of generalization and transferability of the results to comparable companies in the G&J industry is not the main focus of the thesis, and validity of the results is of different, weaker nature, as they are mainly based on theoretical considerations which do have a practical background but, due to the nature of the way they have been investigated, their level of significance is bounded to one case study, namely the one of the IC.

The transferability of the results to other companies therefore can only be considered as based on one case study. Hence, the transferability of the insights and suggestions, and the possibility of their generalization have to be made the focus of further research.



## 2 Exploratory Research

Exploratory research is undertaken when relative little is known about something (Singleton, 2005, p. 68) and when the real nature of a problem is unclear and diffuse. In an unclear situation, as is the case of the IC, it is essential to find out the potential roots of the problem and provide direction for the further case of investigation.

### 2.1 Methodology

In the case of the IC there are three main sources of information available in this exploratory phase, which can be accessed in a direct manner, using interviews and observational techniques (Kiss & Tesch, 1995). Considering the company's internal perspective, the executive personnel in the relevant positions can be interviewed directly. They are the company management and the head of the IT department. From the external perspective, the most important source of information is the customers. In addition to these two sources, expert knowledge is used to interpret and integrate this exploratory research approach.

To access the first source individual in-depth interviews are chosen to obtain information from company internal sources (owner/management), as this provides the best chances to achieve useful results at the current exploratory state of investigation (Kumar, Aaker, & Day, 2002, p. 181). To access the second source, the customers, a combination of interviews and observational studies is chosen to obtain the required information. The third source of information in Phase 1 of the research project is the use of the expert knowledge and experience of the researcher.<sup>3</sup>

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<sup>3</sup> This source requires explanation. The ecommerce sales channel of the IC was originally designed, constructed and developed in 2002 and managed actively until 2004 by the author of this thesis

The expert knowledge which justifies the interpretation of the results in this exploratory phase of research is therefore based on (1) in-depth knowledge of the processes and the underlying technical and operational system of Juwela.de, (2) extensive work experience in the analyzed industry sector, and 3) higher (Bachelor of Business Administration BBA and Graduate Gemologist G.G.) as well as vocational (vocational training and degree as a goldsmith and graduated jeweler) education.

These facts justify the author's consideration of his own knowledge as the third source of information for the exploratory research phase. Neglecting this source would be greatly disadvantageous for the further research. The fact that the person who is the source of this expert knowledge is the same as the author of this thesis therefore does not affect the validity adversely; instead, it increases the further focus of the research project.

The following graphic provides an overview of the exploratory research phase:

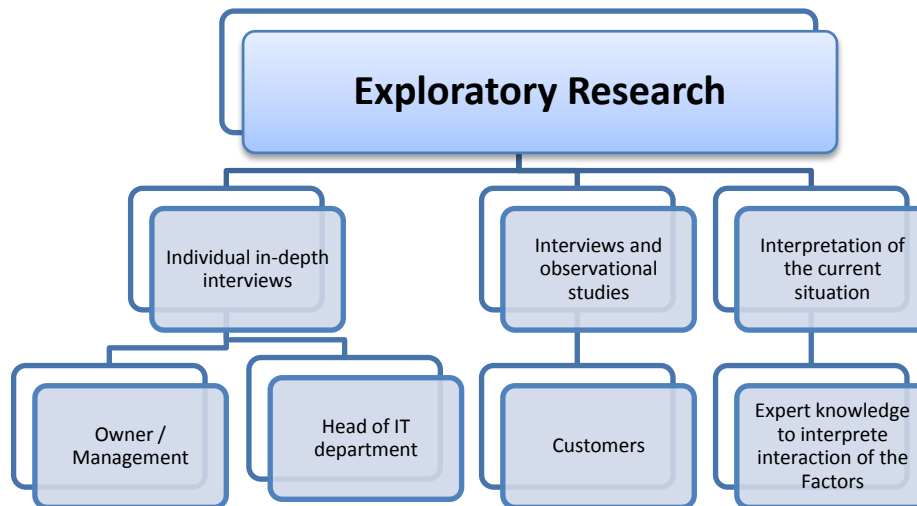


Figure 3 - Exploratory research - Overview

Source: Own source

## 2.2 Individual In-Depth Interviews (Company Internal)

In the 1980s, there was a considerable growth in using interviewing as a method for business research. Today it is generally agreed that interviewing is a key method of data collection (Berry, 1999). The literature describes many types of interviews and differentiates them based on the amount of guidance which is provided by the interviewer (Kumar, Aaker, & Day, 2002, p. 181). A useful way to differentiate the types of interviews is using the categories of structured interview, unstructured interview, and non-directive and focused interview (Cohen & Lawrence, 2000).

For the exploratory phase of this research project the form of a semi-structured interview is chosen as some of the questions which have to be included in the interview are already known, therefore a rough outline of the direction of the interview is already predetermined, but the advantages of a free dialogue between the interviewer and the interviewee should also be exploited. (Cooper & Schindler, 2006, p. 204)

The interviews took place in a traditional interview setting, in a face-to-face situation. The opening question was “What do the interviewees think is the main reason for the decrease in sales” in order to start the dialog with a free discussion. Subsequently the questions became more specified, addressing individual areas of interest to obtain detailed information (Cooper & Schindler, 2006, p. 207).

The outcome of these interviews was later separated in three categories according to their nature. The findings will be disclosed and discussed in the next chapters. The individual in-depth interviews (IDI) and a summary of the results are included in Appendix 1.

### **2.3 Interviews and Observational Investigation (Customers)**

Concerning the customers, another approach had to be chosen, as different information was required from them. The main aim of these customer interviews is to understand the general attitude towards shopping online at Juwela.de. This approach can be specified into three different objectives:

- ✚ First the general attitude of the customer towards the online shop, the product portfolio and the company has to be revealed.
- ✚ The critical factors which are most likely to have a negative effect on the whole shopping and buying process (be it technically, operationally or regarding the product portfolio) have to be elucidated.
- ✚ These critical factors have to be examined more closely, as a crucial aspect for the subsequent research.

To approach this topic, a group of 10 customers was observed when browsing, searching and buying some predetermined products on Juwela.de. This observation was performed in the retail outlet of the company.<sup>4</sup>

The customers were observed and interviewed during this process.<sup>5</sup> They were asked to give comments about what they like, dislike and if they felt confident when browsing the online shop of Juwela.de. Therefore, a combination of qualitative and direct observational methodologies was used (Kumar, Aaker, & Day, 2002, p. 198). Furthermore, the subjects were asked to give suggestions on additional functions and general improvement of the website.

In this exploratory phase, much fundamental information was gathered by conducting interviews and observational studies simultaneously, which gave a basic understanding about the nature of

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<sup>4</sup> This phase of the exploratory research is performed to understand possible roots of the problem concerning the ecommerce sales channel of the company. Thus, the focus of analysis is the customers' behavior when they are already shopping online. Hence, the question why the observed customers are already in the retail outlet of the IC is neglected. Furthermore, the analysis does not consider representative sample sizes, or later statistically significant and relevant arrangement of the test persons, the purpose of it was solely to find the fundamental, relevant critical points to have a basis for the subsequent research.

<sup>5</sup> The customer interviews were conducted in an individual and customized way. They started with the interviewee giving their general opinion on ecommerce and buying jewelry products online (Cooper & Schindler, 2006, p. 204). Thereupon the further course of the interview was based.

the problem and indicated possible directions for further research. A summary of the interviews and observational studies is attached in Appendix 3.

## 2.4 Results of the Interviews and the Observational Studies

The fundamental outcomes of the first two pillars of the exploratory research can be separated into three different problem areas. These three areas are:

- ✚ The shop system as the main connection point with the customers
- ✚ External factors and stakeholder management
- ✚ Internal processes

### The shop system

The interviews and observational studies with the customers showed that there are several factors which complicate the shopping experience at Juwela.de. In essence, it can be said that there are five critical areas and factors that are of interest for the further research:

- ✚ The ordering process itself is perceived as too long and there is too much distracting information. This is also the case concerning the log in and ordering process.
- ✚ There are inappropriate products, especially in the promotion activities.
- ✚ Prices for some products are perceived as too high, while others are perceived as too low, which might suggest bad quality. Thus, an overall pricing problem exists.
- ✚ There are problems with finding the right products, even if they were available. Thus, the design of the shop itself and the shop's search engine create difficulties.
- ✚ Customers demand more guidance and product advisory services.

As the shop system is the cardinal, and sometimes the only connection point with the visitors<sup>6</sup> and customers,<sup>7</sup> in the often anonymous world of the internet, the usability and the perceived seriousness (Loshin & Vacca, 2004) are of the highest importance.

The above-mentioned critical factors give a first insight into the problem and a basis for the analysis of the shop system the following chapters.

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<sup>6</sup> The identity of a visitor is unknown to the system (no customer account created yet).

<sup>7</sup> The identity of a customer is known to the system.

## External factors and stakeholder management

The IDIs with the management as well as with the head of the IT department revealed some critical areas which can be grouped together as the field of external processes and stakeholder management. Here again the essence of the interviews can be summarized to the following critical areas and factors that are of interest for the further research:

- ✚ Non-availability of important products, which causes disturbances in many areas.
- ✚ Prices are too high for some goods, because of highly specialized online shops (they have a narrower product range) which are able to offer lower prices.
- ✚ Inefficient usage of online marketing tools like Google Adwords (GAW).
- ✚ Visitors and customers<sup>8</sup> are “scared” because of the delivery of wrong alternative articles.
- ✚ Inefficient customer and service management when technical problems arise during the ordering process.
- ✚ Problems with the regular newsletter: it is unclear how many of the more than 20,000 newsletter sent are received by the customers.
- ✚ Problems concerning the optimization of the search engine, and the evaluation and analysis of visitors and their behavior as such.
- ✚ Problems concerning affiliate marketing.
- ✚ In general, greater competition in the gems and jewelry sector in ecommerce, many new participants on the market.

## Internal factors

Finally the IDIs with the management as well as with the head of the IT department revealed some critical areas which can be grouped together as internal factors. Here again, as the essence of the interviews, the following factors form the basis for further considerations:

- ✚ The main problem is the temporary and constant unavailability of some products. This is regarded the main culprit of most of the problems.
- ✚ In general, there is a lack of transparency concerning overall stock management, and a clear structure of the different Key Performance Indicators (KPI) is necessary.
- ✚ Sometimes handling times are very long, especially when products are not available directly, and have to be repurchased.

These three areas are also interrelated and strongly depend on each other. They represent the basis for conducting this business in an efficient manner. Improvements here are not merely

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<sup>8</sup> In this paper in the most cases the terms visitors and customers are used interchangeably. Whenever the identity of the visitor is known to the system, which means that the visitor has a customer account and is logged in, the necessary differentiation in terminology is made.

desirable, they are necessary. They will most probably have the greatest effects on the business's profitability, or the other way round, the optimization in all other areas is more or less useless if internal processes are not improved.

## 2.5 Interpretation of the Results and Focus of Further Research

The results of the exploratory research point out two different areas for further research, which are explained in the following figure.

|                                      | <u>Customers</u> | <u>Management and IT Department</u> | <u>Expert Knowledge</u> |
|--------------------------------------|------------------|-------------------------------------|-------------------------|
| Internal Factors General             |                  | (1)<br>Chapter 3                    | (1)<br>Chapter 3        |
| Internal Factors - Ecommerce Channel | (1)<br>Chapter 3 | (1)<br>Chapter 3                    | (1)<br>Chapter 3        |
| External Factors                     | (2)<br>Chapter 4 | (2)<br>Chapter 4                    | (2)<br>Chapter 4        |

Figure 4 – Interpretation of the results of the exploratory research

Source: Own source

✚ **Company Internal Factors (1)** - especially the Ecommerce Channel Juwela.de.

It is necessary to analyze and understand the performance, events and customer behavior on the online shop of the IC.

✚ **External Factors (2)** – the underlying economic and environmental factors influencing the IC and the industry the IC is operating in.

It is necessary to understand the driving forces of the business of the IC.

To fully understand these factors and the resulting situation the further research is divided into two distinct units of analysis.

## 2.6 Consolidated Results of the Exploratory Research and Further Course of Research

Summing up the results of the exploratory phase gives direction for the further course of research. The following table provides an overview of the required further course of research.

| <u>Chapter 3: Internal Factors</u>  | <u>Chapter 4: External Factors</u>  |
|---|---|
| <p><b>RQ:</b><br/>What are the reasons and causes of the decreasing sales of the ecommerce sales channel?</p> <p><b>Unit of Analysis:</b><br/>Company internal factors, especially the sales channel Juwela.de</p> <p><b>Justification:</b><br/>Investigation of external environment is useless without understanding internal problems, operative behavior and processes.</p> | <p><b>RQ:</b><br/>What are the underlying economic and environmental factors influencing the IC and the industry the company is operating in?</p> <p><b>Unit of Analysis:</b><br/>The influence of Ecommerce on the G&amp;J industry</p> <p><b>Justification:</b><br/>Investigation of internal factors has to be interrelated with the external factors due to the technological developments that change the company's environment, namely the G&amp;J industry and the changes induced by Ecommerce.</p> |
| <p><b><u>Research Approach:</u></b><br/>Using existing literature, qualitative and quantitative analytical methodologies.</p> <p>Explained in detail in Chapter 3</p>   | <p><b><u>Research Approach:</u></b><br/>Using existing knowledge, literature and theoretical frameworks to investigate the external changes.</p> <p>Explained in detail in Chapter 4</p>  |

Table 2- Overview of further course of research

Source: Own source

### 3 Internal Factors: Investigation of the Ecommerce Sales Channel

The investigation of the internal factors of the IC contributing to the researched problem focuses on the sales channel Juwela.de to find out what exactly the nature of the problem is and how the different internal factors and variables are interrelated.

Some of the problems mentioned in the IDIs require only changes on operational or functional bases. These changes and improvements can be performed on the basis of current knowledge, and no further investigation is required. Therefore, the research on internal factors is limited to the following topics which are:

- ✚ Research on usability, literature review and analysis of the actual situation of the researched subject.
- ✚ Research on visitors and customers, their nature, quality and quantity, their impact on revenue creation and sales.
- ✚ Research on the influence of stock of merchandise management on sales and processes.

#### 3.1 Overview of Methodology

Employing this combination of different approaches and methodologies is necessary and has to be done in a simultaneous way to meet the purpose (Blaxter, Hughes, & Tigh, 2nd edition, p. 9). Literature and secondary data research on web usability and how it influences customer behavior gives a guideline for interpreting the analyzed data, shows the main influencing factors and the common pitfalls.

This is necessary for understanding the underlying system and theory. Therefore, a literature review is performed simultaneously throughout the whole internal research process, but to provide an overview is summed up in one chapter. Current literature on Ecommerce describes mainly three different ways to analyze the behavior of the visitors and customers.

- ✚ Data collected from activity on the web server
- ✚ Data collected from panel surveys
- ✚ Data collected from the client (through the browser) using web tabs and bugs<sup>9</sup> (Fletcher, Poon, Pearce, & Comber, 2002)

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<sup>9</sup> Commonly known as cookies.



All of these techniques have to be used and combined to reveal the needed information to the required depth. To give an overview, the approaches which will be used and combined in the following chapters are briefly described below:

- ✚ To reveal the activities of the users on the website Google Analytics is used.<sup>10</sup> This data is extracted with functionalities provided by Google Analytics and subsequently analyzed in combination with data from internal tracking to create a comprehensive picture of the situation.
- ✚ Custom-tailored tracking code using session-based tracking is used to obtain data which cannot be collected from log file analysis or via Google Analytics. This data is used to analyze and understand internal factors of the IC.

The following figure illustrates the combined approaches.

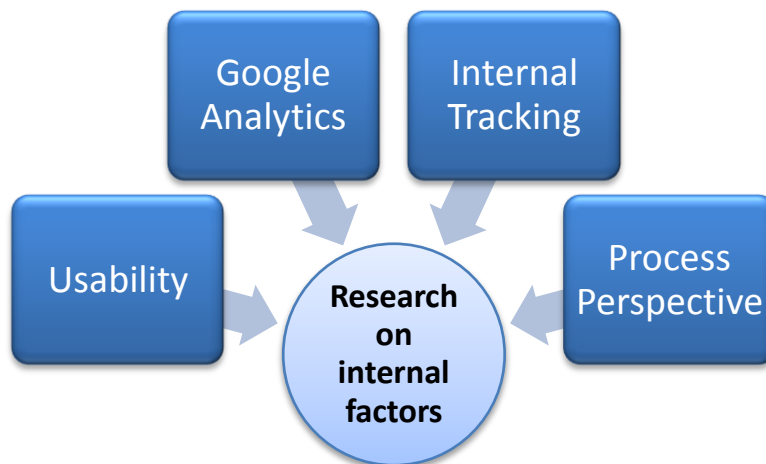


Figure 5 - Combination of methods and techniques

Source: Own source

<sup>10</sup> <http://www.Google.com/analytics/index.html>.

### 3.2 Chronological Illustration of the Research on Internal Factors

The following two tables give a chronological overview. Table 3 shows the pre-research project phase and the time periods in which the analyzed data was gathered.

| <u>Year</u> | <u>Data Internal Tracking</u> | <u>Data Google Analytics</u> |
|-------------|-------------------------------|------------------------------|
| 2006        | Used in Chapter 3.7           |                              |
| 2007        |                               | Used in Chapter 3.6          |
| 2008        |                               |                              |

Table 3 – Chronicle illustration of the data collection phase

Source: Own source

Table 4 shows the timeframe of the project itself. The tracking and recording of the relevant data exceeds (actually it is still tracking and the data is used by the company) the timeframe of the research project.

| <u>Year</u> | <u>Month</u> | <u>Literature Review</u> | <u>Exploratory Research</u> | <u>Qualitative Analysis of Data from Google Analytics and Internal Tracking</u> |
|-------------|--------------|--------------------------|-----------------------------|---|
| 2008        | J            | Chapter 3.3              | Chapter 2                   | Chapters 3.4, 3.5, 3.6 and 3.7  |
|             | F            |                          |                             |   |
|             | M            |                          |                             |   |
|             | A            |                          |                             |   |
|             | M            |                          |                             |   |
|             | J            |                          |                             |   |
|             | J            |                          |                             |   |
|             | A            |                          |                             |   |
|             | S            |                          |                             |   |
|             | O            |                          |                             |   |
|             | N            |                          |                             |   |
|             | D            |                          |                             |   |

Table 4 – Chronological illustration of the research project

Source: Own source

### 3.3 Review on Usability, Design and Click and Scan Path Analysis

In recent years great development and evolutionary changes have been made in Ecommerce and other internet-related technologies. Much knowledge has been advanced in this sector as well as in the sector of web usability, including crucial studies on various topics related to this field (Shneiderman, 2005).

To approach this area in a proper way, systematic and intensive literature review has to be conducted to identify, evaluate and interpret the existing body of work produced by researchers, scholars and practitioners (Fink, 1998, p. 3). This review is important to achieve the necessary understanding of the topic, to be up to date with current knowledge and have a solid basis, meaning to become an expert on the required topics (Hart, 1998, p. 1). This background is necessary for the subsequent efficient generation of new knowledge and for adopting it to the researched problem.

#### 3.3.1 Usability Analysis

High termination rates during online purchases are one of the central problems of virtually all online shops. According to different sources, the amount of incomplete purchasing processes lies somewhere between 40 and 70% (conv. Sauer D., Schmeißer M).

Because of this fact, it is important to find out how to lower this rate, and in order to do so, it is necessary to understand the customer's attitude and behavior. According to the baseline study conducted by the Phaydon Institute (Sauer & Schmeißer, 2003) in collaboration with the Quelle AG (a big German mail order company), there are three fundamental phases of online purchases:

 **Orientation on the website:**

The users orient themselves on the website, get a general idea about the products and the basic functions of the online shop. If this is too difficult, most users leave the website already at this early stage.

 **Product search:**

The users navigate through the assortment displayed on the shop, they browse through the overviews and read detailed information about the different products in which they are interested. At this stage mainly inefficient search functionalities or unstructured product overviews increase the risk of terminations and of customers leaving the website.

 **Order process:**

This phase of the purchasing process begins as soon as someone puts an article in the shopping cart and takes the way to the pay desk. In this phase there is the highest risk of

termination, and this risk increases progressively on the way to the pay desk and the subsequent check out sequence. The slightest irritation of the customer in this phase can lead to terminating the whole purchase before completion (Sauer & Schmeißer, 2003).

The subsequent literature review aims to uncover what crucial points according to current knowledge in Ecommerce and web usability research have influenced the performance of the analyzed online shop. From the vast amount of information and literature the appropriate knowledge is extracted and the influence of these factors on the observed problem is discussed. At first the visitor's perception of the online shop is explained.

### **3.3.2 Scan Path Analysis**

The first seconds of contact are the most important; here the interest and desire of the customer have to be raised and the orientation must be facilitated (Sauer & Schmeißer, 2003). If the visitors perceive browsing on the shop difficult, it is very likely that they will leave the shop without purchasing anything. The visitors and prospective customers have to first find it easy to navigate around the website, feel comfortable and be motivated to browse through the products in which they are interested.

As these processes are to a great extent performed unconsciously, the study conducted by Phadyon uses a method for tracking the eye movements of the customers and has developed a so-called "scan path". Technically this is the same as the usage of eye movement recorders, which were used successfully in marketing research on advertisements, packages and signs (Kumar, Aaker, & Day, 2002, p. 200). Two scan paths for prominent websites are shown in the following two figures to give an impression of the ways the eyes of the customers are moving when first entering a website or a online shop.

## Eye of the beholder movements on Amazon

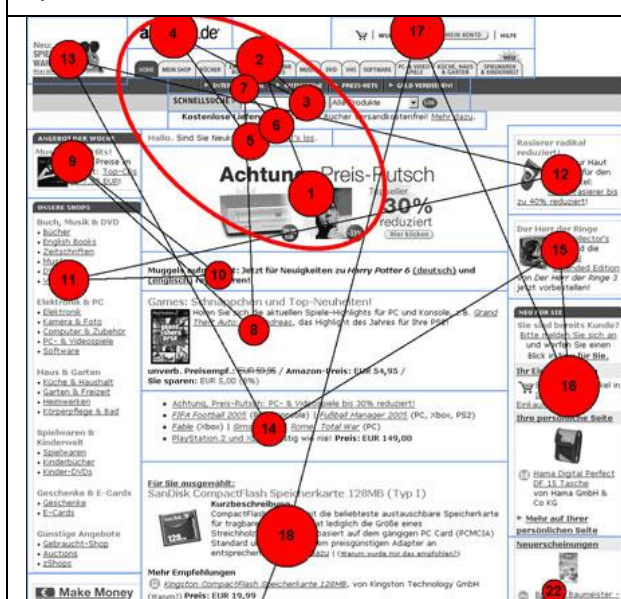


Figure 6 – Scan path of Amazon  
Source: (Schmeißer & Sauer, 2006)

## Eye of the beholder movements on Neckermann

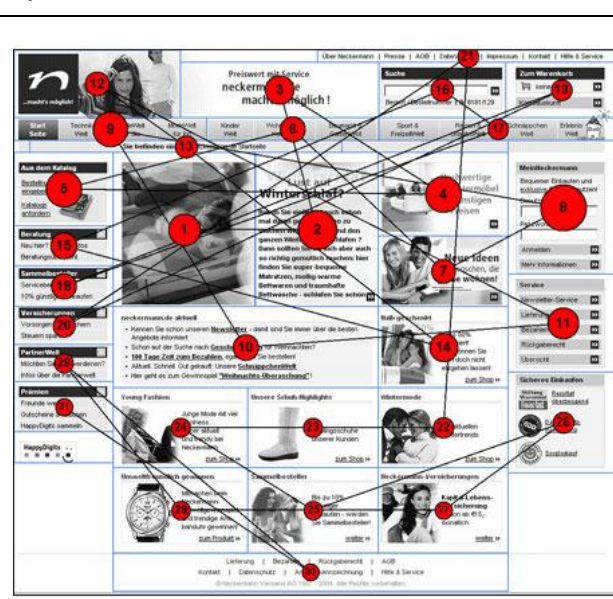


Figure 7 – Scan path of Neckermann  
Source: (Schmeißer & Sauer, 2006)

By comparing the scan path of Amazon.de with the one of Neckermann.de, it becomes apparent that the website of Amazon is much more customer friendly. On the website of Amazon the customer needs only 7 glances (the red spots with the respective numbers) to arrive at the first product-related area; on the Neckermann website the customer needs nearly the double amount of glances to arrive at this area.

Another interesting finding is that the website of Amazon is scanned by the customer in a systematic manner, while the orientation on the Neckermann website is not continuous. Thus, overall the latter site appears much more confusing to the user. This is mainly due to the high amount of information boxes in the right- and left-hand side of the website; the glance of the customer is disturbed by the high number of these information elements (Sauer & Schmeißer, 2003).

It can be said that if little orientation<sup>11</sup> is provided to the customer, the probability that the customer will leave the shop without staying for a longer time and purchasing a product increases (Angeli & Kundler, 2006, p. 487). This becomes clear when comparing the website of Amazon to the website of Neckermann, which shows a much more fragmented scan path. This scan path is typical for sites which are divided in small fragments, which does not offer support to the eye of the beholder (Sauer & Schmeißer, 2003).

<sup>11</sup> Which can be described as the construction of a for all customers common scan path

When applying this knowledge to the website of Juwela, it becomes apparent that the great number of information boxes which have “grown” in the last years is confusing the customer and causes more negative than positive side effects. In particular the three boxes on the right-hand side displaying external advertisement are disturbing without providing any use for the customers and should be removed. The same is true for the “Sicher Einkaufen” (secure shopping) information box, which should be removed to the top banner. The big banner with the Juwela Bazaar functionality is also too big and should be adjusted in size and take the place of the “Sicher Einkaufen” information box.<sup>12</sup> The following figures show the homepage of the Juwela.de website as it is right now and as it would look after it has been optimized according to the suggestions derived from the secondary data analysis of the scan path analysis.

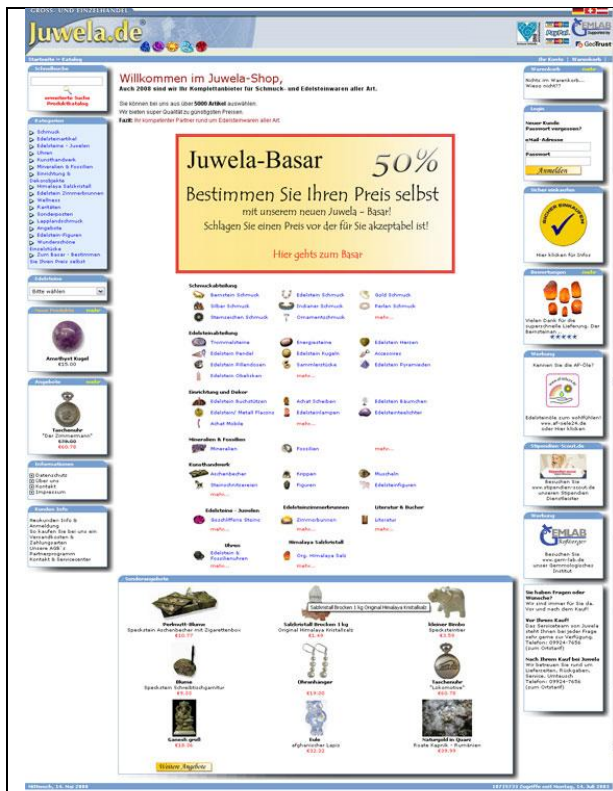


Figure 8 - Current homepage of Juwela  
Source: Screenshot Juwela.de



Figure 9 - Optimized homepage of Juwela.de  
Source: Screenshot Juwela.de

### 3.3.3 Click Path Analysis, Design Structure and Search Functionality

Finding the desired product is one of the basic requirements for an ordering process. It is essential to optimize the different ways a customer can use to find the product. A logical and intuitive navigation which is geared to the requirements of the customer is much more important than an outstanding design of the website (Rosenthal, 1999).

<sup>12</sup> The Juwela Bazaar function offers the customers the possibility to make an offer for some products.

According to the study of the Phaydon Institute regarding Usability in Ecommerce (Schmeißer & Sauer, 2006), this aspect is highly dependent on the transparency, preparation and detectability of the relevant products. Additionally, the study clearly distinguished between experienced and inexperienced online shoppers as regards the way they are searching for products and finding the right ones.

Visitors who already have experience in shopping online act much more focused than inexperienced online visitors, who tend to make much more use of the menu structure and need clear and well-arranged user guidance and navigation to feel comfortable. Here, especially the table structure is superior to a catalog-like design (Sauer & Schmeißer, 2003). As a basic principle, it can be said that an attractive design, neither the design of the individual website nor the structural design (catalog vs. table structure) of the website should be the major base for usability optimization of an online shop (Alderton, 2007).

This fundamental assertion is true for all users. Furthermore, the distinction between experienced and inexperienced users also influences greatly the path the customer is following while shopping online. This path is called click path, and its analysis is an important tool for finding what the customer is exactly doing on a website (Berendt & Spiliopoulou, 2000, p. 855-874).

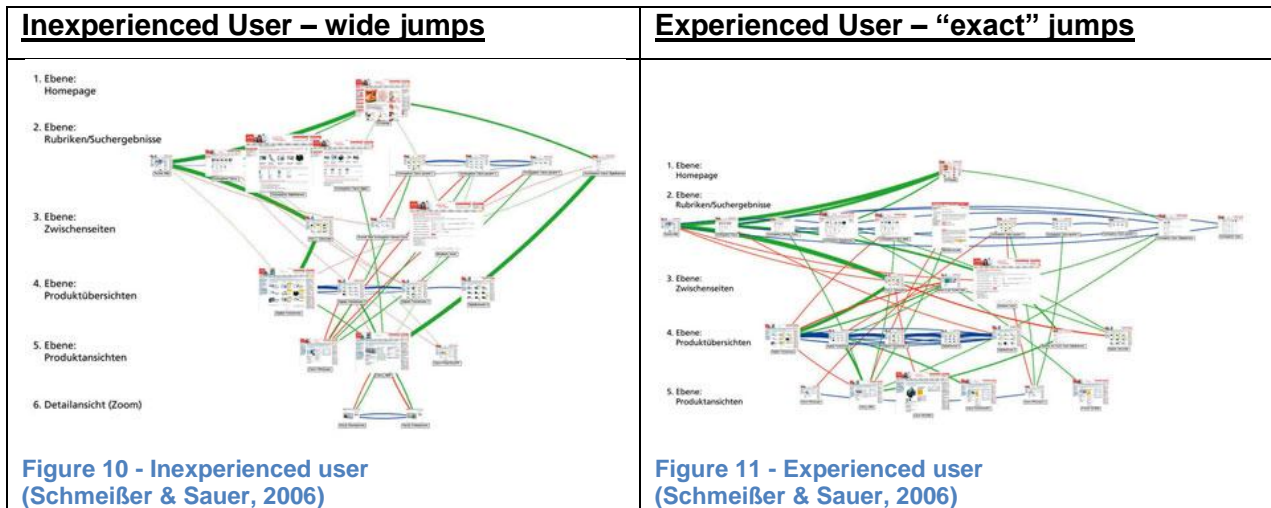
The other important way a customer takes to find the product he is looking for is the shop's internal search function. Here again it can be said that experienced users are much more focused in the usage of a particular way, while inexperienced users prefer the supposedly easy way and browse randomly through the shop, especially in shops with a catalog-like design, until they find, often by accident, the products they are searching for. These factors have to be considered in relation to the age structure of the customer portfolio of Juwela.de (see Appendix 18).

It can be said that path analysis reveals a general structural problem of catalog-like designed shops, especially for inexperienced users. For this kind of users it is much easier to navigate around a website when the shop uses a simple, table-like design. To understand how click path analysis works and how it can be visualized the following two figures give examples of click paths.<sup>13</sup> The left figure shows the click path of an inexperienced user and the right one shows the click path of an experienced user.

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<sup>13</sup> The size of the screenshot pictures shows the time the customer spends on the respective website, the number of people who use the respective path is indicated by the thickness of the path, and a green path indicates the users are on the way up one level in the hierarchical system of the website and the red one that the users are moving one level down (Schmeißer & Sauer, 2006).





### 3.3.4 Application of the Literature Research Results to the Actual Focus of Analysis

The literature and secondary data research on web usability and its influence on customer behavior give a guideline for how an optimal online shop should look like, the main influencing factors and potential common pitfalls. By overcoming these obvious barriers a real improvement is possible. It is clear that the obvious failures have to be corrected immediately. More importantly, the knowledge gained so far has also shown that, despite the fact that there is room for improvement, which is necessary to increase the performance, there are other factors that contributed to the problem of the investigated online shop.

To find out the exact problem of the shop, different analytical approaches have to be combined to arrive at a picture that is precise enough to be useful. The current literature describes mainly three different ways to analyze the behavior of the visitors of a website or of an online shop. These are data collection from the activity on a web server, data collection from panel surveys, and data collection from the customers (through their browser) using web tabs and bugs<sup>14</sup> (Fletcher, Poon, Pearce, & Comber, 2002).

### 3.4 Quantitative Research

The analysis of customer behavior is vital for every website with a commercial intent and every online shop. Knowing the amount of online traffic and the part of the shop which experiences the most traffic is the basis for understanding what the customers expect from the website.

<sup>14</sup> The so called “cookies”



By using server logs or other techniques for user tracking it is possible to discover that the users are doing things which were never expected. It is essential to understand this pattern, to be able to iron out the problem areas and improve overall shop performance (Fletcher, Poon, Pearce, & Comber, 2002). This approach is especially useful and practical for smaller online shops, as costs are low and the usage of such an analysis can be regarded standard.

For the analyzed online shop, as one of the main source of data for this research project, Google Analytics (GA) was chosen, as, besides several other positive aspects that supported this decision, the main advantage was that the tracking code for GA was implemented already one year ago, so enough data for subsequent analysis was already available.

### **3.5 Methodology Quantitative Research**

The data analyzed represent all events and actions happening on the server of Juwela.de. Thus, this data can be considered a census for the relevant data (Hofmeister, 1997, p. 41), as well as a form of primary data collection because the data used was gathered in the course of this project by the researcher (Blaxter, Hughes, & Tigh, 2nd edition, p. 153).

#### **3.5.1 Google Analytics**

Google Analytics (GA) was chosen as the primary source of data collection about the customer behavior on the web server.<sup>15</sup> GA was essentially chosen because of its strong interface and connection to Google Adwords. GA is not the only comparable tool on the market; there are several others available. However, GA is free of charge and everyone who has a GAW account can register for it.<sup>16</sup> It has a function volume which is comparable, or even better, than the volume many expensive commercial products offer. Here just a short description of GA is given as an overview of how it works and the functionalities it has. GA works by including a short Java

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<sup>15</sup> According to Tyler & Ledford, GA is much more than “website statistics on steroids”; it is a tool which can help even a layman webmaster to measure and improve the performance of the marketing efforts and the website (Tyler & Ledford, 2006). Despite this quite subjective opinion, it can be objectively stated that the main difference between GA and most other website statistics tool is that ordinary website statistics provide numbers and GA provides already information.

<sup>16</sup> Some background information on GA: In 2005 Google bought a small company called Urchin which was the winner of the “2004 Excellence Award for Best Small Business Analytics Tools”. The product of this company, Urchin Analytics, was positioned at the low end of the price scale of the analysis market at about \$200 per month. Six months later, Google did something completely unpredicted; they rebranded Urchin’s service and released it as a free application. The reaction to this step was totally underestimated by Google, because within two days 250,000 people wanted to register for this service. It took Google much effort to handle this run. Thus, access and registration to GA was limited and not possible for everyone for months (Tyler & Ledford, 2006, p. 5). The connection to GAW explains how Google is now making money with it.

script<sup>17</sup> and a so-called “third-party” cookie on each page that should be tracked. This Java script communicates with the Google server and transfers the relevant data, identified by the user account number, to the Google server, where it is tracked and interpreted.

From the side of the online shop owner, just the following piece of source code has to be included in the pages of the online shop. How to include it depends on the shop system which is used; on Juwela.de it was included in the file footer.php:

### **Source Code for Google Analytics**

```
<script type="text/javascript">
var gaJsHost = (("https:" == document.location.protocol) ? "https://ssl." : "http://www.");
document.write(unescape("%3Cscript src=" + gaJsHost + "Google-analytics.com/ga.js"
type='text/javascript%3E%3C/script%3E"));
</script>
<script type="text/javascript">
var pageTracker = _gat._getTracker("UA-736211-1");
pageTracker._initData();
pageTracker._trackPageview();
</script>
```

The code collects data about how the users interact with the website. It tracks in detail where they come from, what actions they perform on the website, and if they reach the conversion goal, the goal the owner of the website want them to reach.

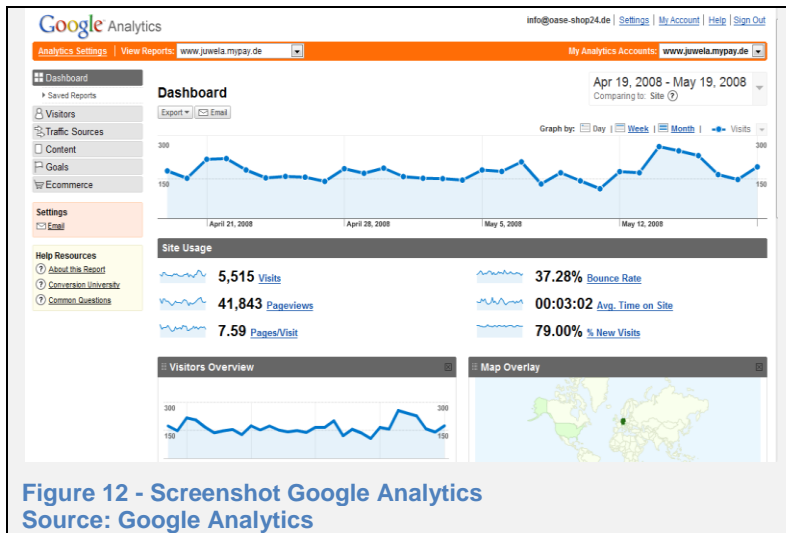
Additional analytics gathers an immense amount of Ecommerce-relevant data and relates them to campaigns (for example GAW campaigns) and conversion information to give an insight into the performance of the different marketing activities and the website as such (Google Adwords, 2008).

GA provides not only an immense amount of data, but also of already processed information to be analyzed. As Tyler and Ledford state, it is one thing to have web statistics, but another to understand and know what you should do with them (Tyler & Ledford, 2006).

This analytical software provides the webmaster metrics and measurements. There are all sorts of possible website metrics for measuring and analyzing, but the important point is to understand which metrics matter. This is highly dependent on the kind and nature of the business. The figure below shows the dashboard of GA, which provides an overview of the main functions of GA.

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<sup>17</sup> Java is an object-oriented programming language. Java applications work on nearly any Java virtual machine and by that they are independent from the computer architecture.



The main field of analysis and information provided by Google Analytics are:

- ✚ Visitors
- ✚ Traffic sources
- ✚ Content
- ✚ Goals
- ✚ Ecommerce

For detailed information of the entire functionality, the help page “Functionality of Google Analytics”.<sup>18</sup> Here only a brief overview is given.

- ✚ In the **visitors section** statistical information is provided about the number of visitors, page views, average time of page view, bounce rates, visitor loyalty, languages, technical information about the hard- and software used by the visitors and geographic information about where the customers are from.
- ✚ In the **traffic sources** section information is provided about which website the visitors come from, what are referring sites, from which search engines the customers come, and what are the most important keywords that are guiding visitors to the site.  
In the traffic sources section also immense statistical information about the performance of marketing campaigns with GA is provided, and this section is indispensable when using GA.
- ✚ In the **content section** statistical data is gathered about the best performing pages and further analysis of this data is given. In addition, in-depth information about landing and exit pages, and information about internal and external search functions is provided.
- ✚ In the **goal section** processed data can be analyzed, including total conversions and conversion rates. Goal verifications can be performed, goal paths can be examined, and analyses of pre-defined funnels are possible
- ✚ In the **Ecommerce section** statistical data about overall and average revenues, numbers of transactions and other relevant data such as visits necessary to purchase and days between visits and purchase are shown.

<sup>18</sup> [http://www.Google.com/support/Google-analytics/?hl=en\\_US](http://www.Google.com/support/Google-analytics/?hl=en_US)

### **3.5.2 Internal Tracking – Development of Appropriate Tools and Analyses**

A gap in the analysis with GA is that it can only track what the customers really and finally buy. However, it is also very important to obtain more information about the goods the customers are trying to buy but which are not in stock.

To overcome this problem special tools have been developed to record and analyze consumer behavior on the Juwela.de server.<sup>19</sup> This happens mainly by session-based tracking. To understand this chapter, a short explanation of session-based tracking is provided.

Whenever a user enters a website a new session begins as its own entity to track. The session lasts as long as this visitor stays on the website, which means that information about visitor behavior can be carried through to the whole session (ITtoolbox Wiki - Professional IT Community, 2007). With the help of pre-defined store session variables tracking and monitoring of the behavior is possible to a great extent (Greant, Merral, Wilson, & Michlitsch, 2002).

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<sup>19</sup> These tools are running under and using the open source tool phpMyAdmin and using the MySQL databases of the online shop.

### 3.6 Quantitative Analysis Using Google Analytics

One of the basic assumptions of the management of the IC is that the decrease in sales goes hand in hand with a decrease in the overall quantity of visitors on the website.

#### 3.6.1 Overall Number of Visitors and Sources of Visitors

Reliable historical data about traffic on the online shop was available back until May 2007, the time when the tracking code of GA was installed. The analysis showed that there was in fact a decrease in the overall number of visitors visiting the online shop of Juwela.de. The following figure shows the development in the analyzed timeframe.

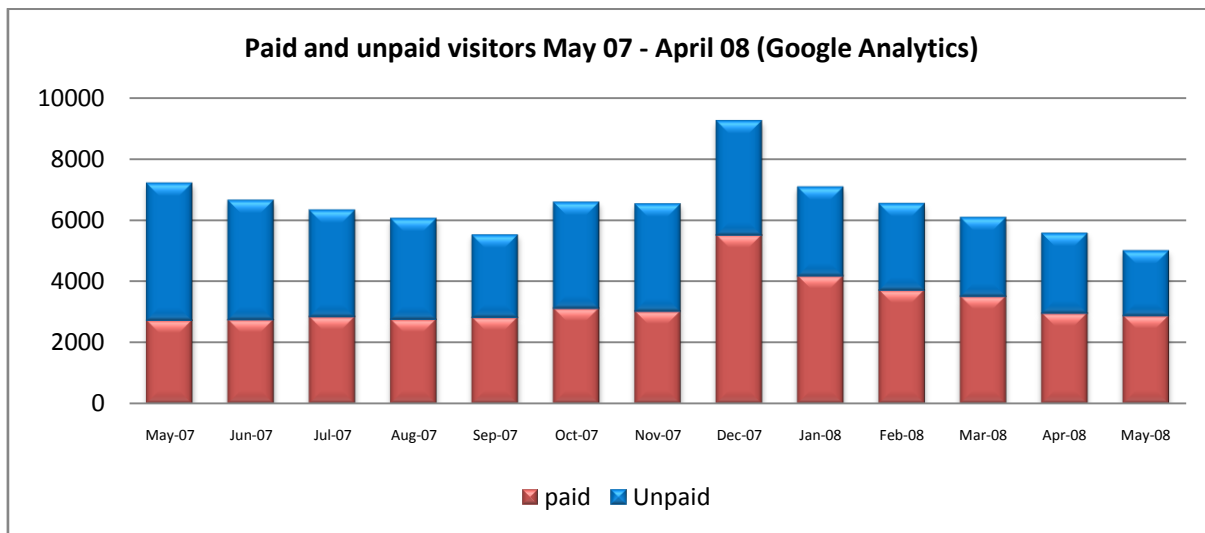


Figure 13 - Paid and unpaid visitors May 2007 to May 2008  
Source: Own source (using Google Analytics)  
The data used for this diagram can be found in Appendix 4.

The analysis showed that not only the quantity of visitors decreased, but also the quality regarding the sources they were coming from. The following figure shows the development of the ratio of visitors arrived from paid or unpaid sources.<sup>20</sup> These two developments have to be considered in context as they amplify each other.

<sup>20</sup> "Paid" visitors arrive at a website via clicking on an ad posted on another website; for example, a Google Adword which charges for every click. "Unpaid" visitors come from any other source; for example, organic searches and newsletters or by typing in the Uniform Resource Locator (URL) of the online shop.

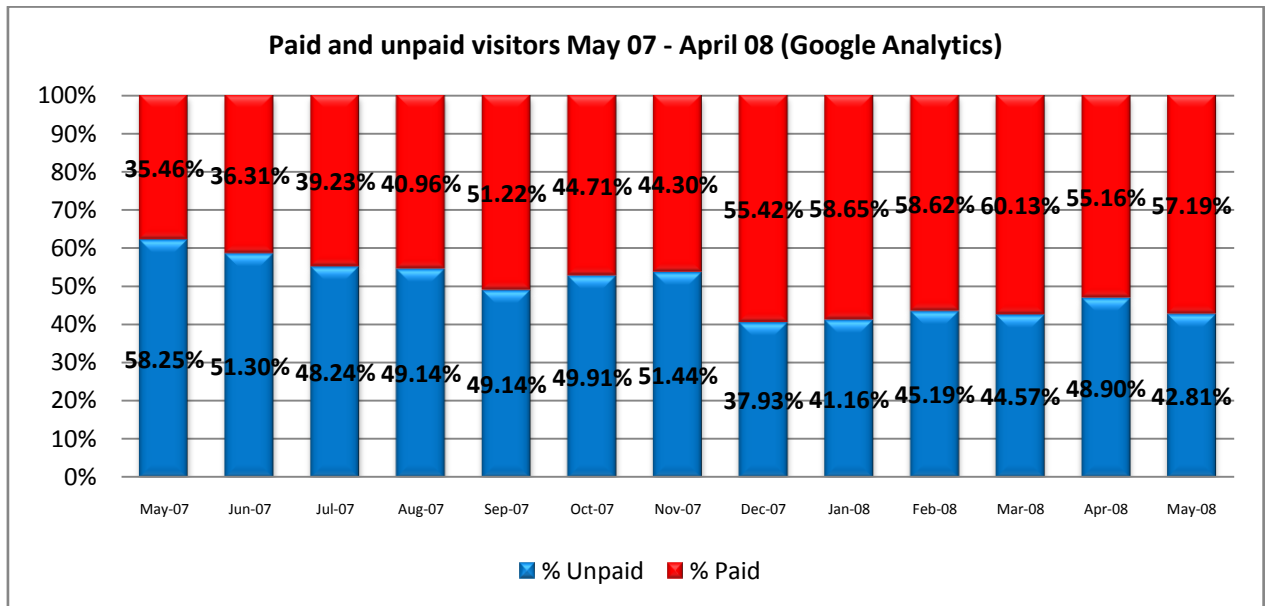


Figure 14 - Relationship between paid and unpaid visitors May 2007 to May 2008

Source: Own source (using Google Analytics)

The data used for this diagram can be found in Appendix 4.

Putting these two factors together shows that:

- ✚ There was a significant decrease in visitors which explains partly the decrease in sales.
- ✚ There was a decrease in the quality of visitors; the percentage of paid customers has increased significantly.
- ✚ These two factors amplify each other as they both increase the total amount of the visitors of the source “unpaid”.

The last point refers to the “double conversion rate” which relates to the fact that visitors which arrive at the shop by the usage of an organic search result,<sup>21</sup> tend to create much more conversions; approximately twice as much as paid customers, which arrive via an ad or a banner advertisement (Sinka & Stuber, 2006).

### 3.6.2 Source and Origin of Visitors and Revenue Relationship

For the subsequent research, data stemming from the time between May 1, 2007 and April 30, 2008 is analyzed. The following figure shows the place where the visitors actually come from.

<sup>21</sup> Search engine results which are not sponsored or paid for in any way and are attained through ethical search engine optimization efforts.

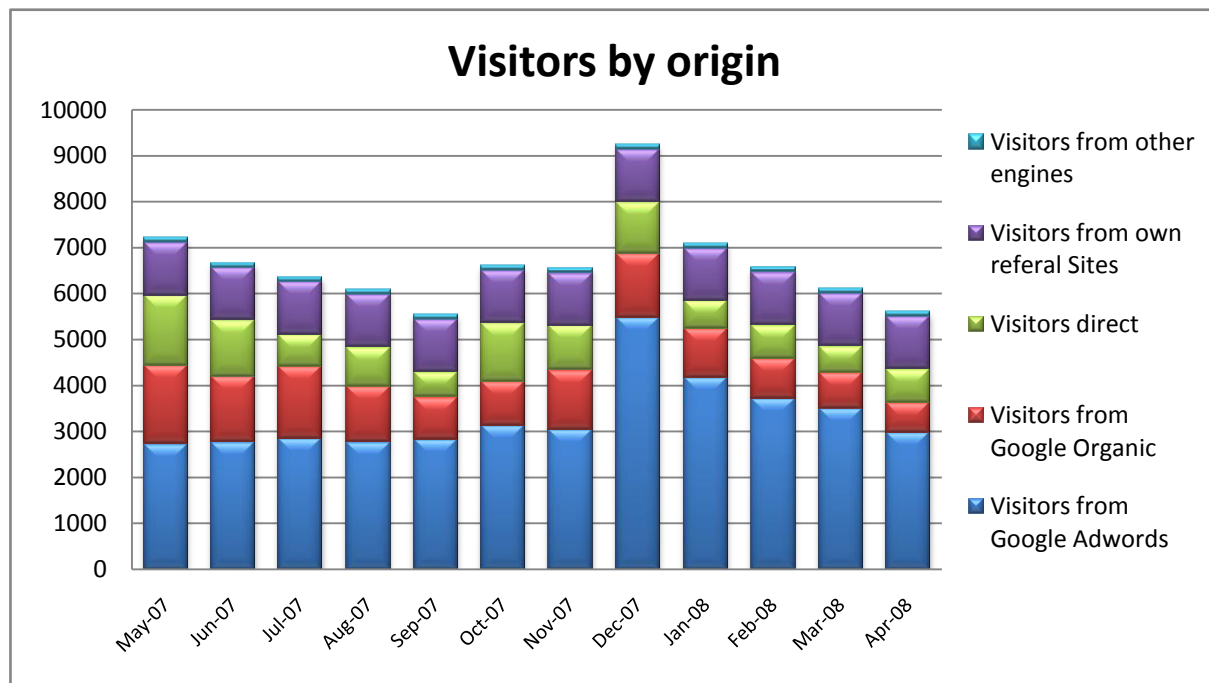


Figure 15 - Visitors by origin

Source: Own source

The data used for this diagram can be found in Appendix 5.

The visitors from Google Adwords represent the biggest group with **39,952** (equivalent to 47.98%). The other three important groups where the customers came from are:

- ✚ Visitors from Google organic<sup>22</sup>: **13,533** (16.64%).
- ✚ Direct visitors<sup>23</sup>: **10,873** (13.06%) (This group also includes the visitors attracted by newsletters).
- ✚ Visitors from the company's own referral sites: approx. **13,800** (16.57%).
- ✚ A minuscule amount of visitors from other engines or sources.

The detailed list of the 50 most important visitor sources and referral sites is attached in Appendix 6.

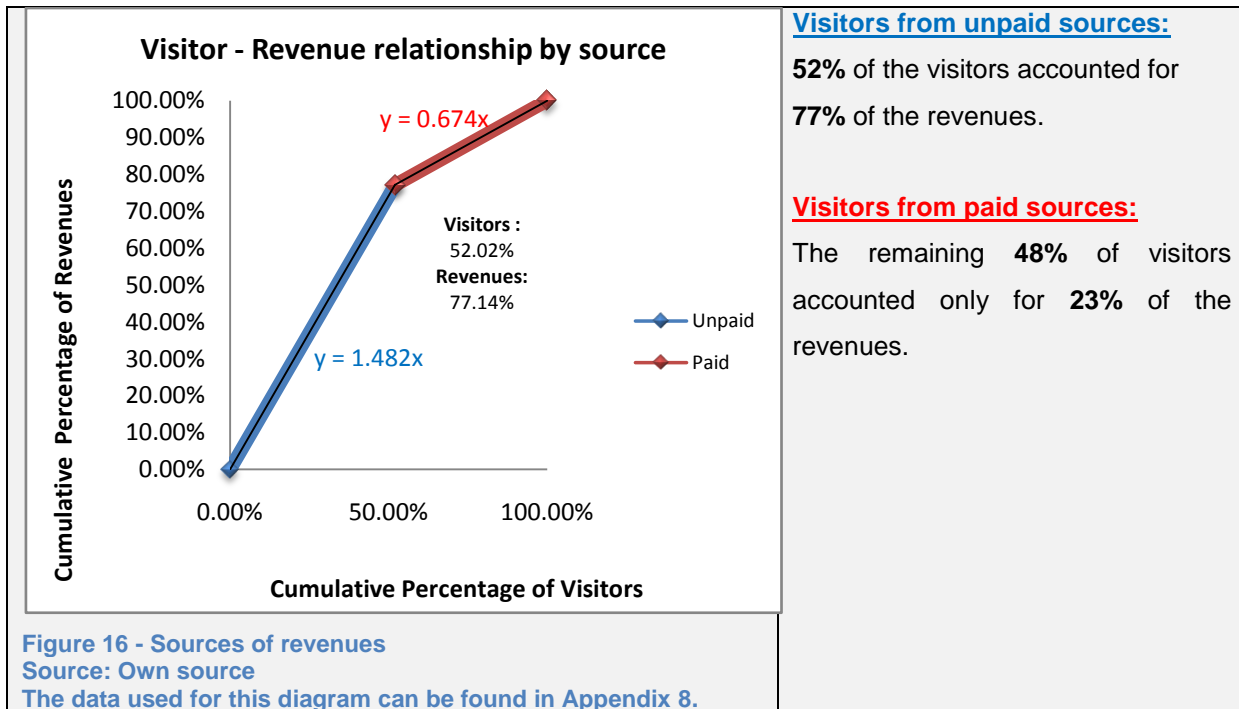
By analyzing the relationship between the sources of where the visitors come from and the revenues created by them, the following pattern became apparent (as illustrated by the following figure). The group of the unpaid visitors (52%) accounted for approx. 77% of the revenues, but this group decreased significantly, as described in the previous chapter. In contrast to that, the

<sup>22</sup> The "free" visitors supplied by Google.

<sup>23</sup> Visitors who accessed the website directly.

group of paid visitors (48%), which increased significantly during the last year, just accounted for approx. 23% of the revenues.

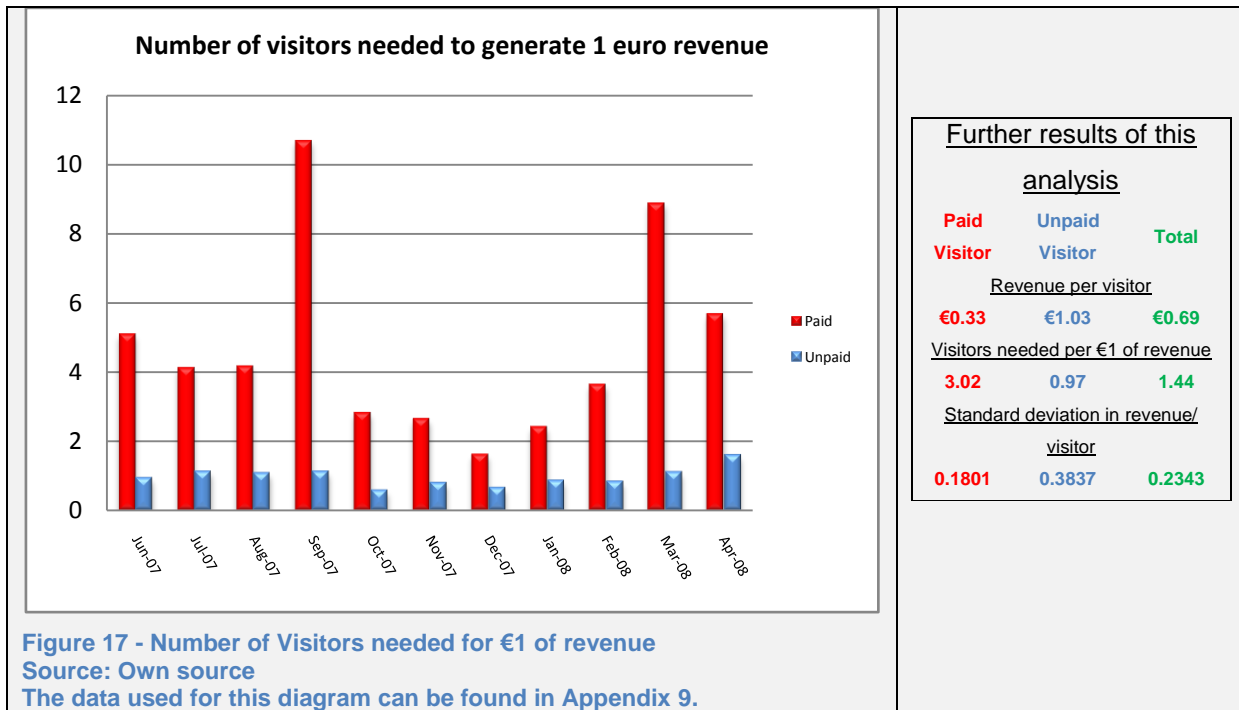
Additionally, it is important to note that the visitors from “paid” sources are not only of poor quality concerning revenue generation, but they are also quite expensive, compared with “free” customers. The combination of these factors and the overall decrease in visitors can be considered as one of the main factors responsible for the decrease in revenues.



Another influencing factor discovered when conducting the IDIs is the observed strong seasonal deviations in the buying behavior of the customers. Therefore, the historical data is analyzed as regards the relationship of this characteristic and the differences in the buying behavior of the visitors according to their point of origin described above.

This analysis shows that the source the visitors coming from has an unexpected strong impact on these seasonal fluctuations. The following figure illustrating the number of visitors needed to generate one euro of revenue clearly demonstrates this impact. Only in the winter months the visitors coming from Google Adwords spent performed better considering revenue generation. However, the revenue they generated was still far below the “unpaid” visitors.





**Figure 17 - Number of Visitors needed for €1 of revenue**  
 Source: Own source  
 The data used for this diagram can be found in Appendix 9.

**Interpretation of the results:**

- ✚ **Average revenue per visitor and visitors needed per euro in revenue:**  
 This analysis shows that the visitors that come from free sources are generating a distinctly higher average revenue than the ones coming from paid sources.
  
- ✚ **Standard deviation in revenue per visitor:**  
 There is much lower variation in the revenue created by the “paid” visitors. This can at least be partly explained by the lower average value of sales per visitor.

The main problem discovered by this analysis is that the return created by GAWs is much too low. The way GAWs was used in the observed timeframe can be considered as “throwing money out the window”. Therefore, in the next chapter the performance of the marketing activities using GAW are investigated in detail.

### 3.6.3 Analysis of the Usage of Google Adwords

Due to the integration of Google Adwords in Google Analytics, it is now much easier to track the performance of each Adword than it used to be (Tyler & Ledford, 2006, p. 95).<sup>24</sup> Before analyzing the usage of Google Adwords, a brief description of this advertising tool is given.

Adwords are the paid ads which Google displays when displaying search results to the user. They appear on the top and on the left side of the search results on the Google website, but also on a large amount of partner websites of Google. Thus, it is possible that the ads appear, for example, on the website of eBay in the appropriate product section.



Figure 18 - Screenshot Juwela.de Adword

Source: Google Screenshot

The more the advertiser is paying, the better the position of the Adword (Kaiser, 2006), and the more visitors are guided to the linked online shop. As the previous analysis of the visitors attracted to Juwela.de by Google Adwords showed, they are not worth the money they cost. The following figure shows the performance of the used Adwords in the last twelve month.

<sup>24</sup> Adwords are the means with which Google makes money. Of the companies \$6.2 billion revenues in 2005 more the \$6 billion resulted from ads (Sullivan, 2008). By using Adwords, it is possible to bring customers to the online shop in real time, which is a big advantages compared to traditional marketing. However, although the number of visits to a website can be increased, using Google Adwords also entails the big risk of spending a lot of money for inefficient advertisement (Fischerländer, 2003).

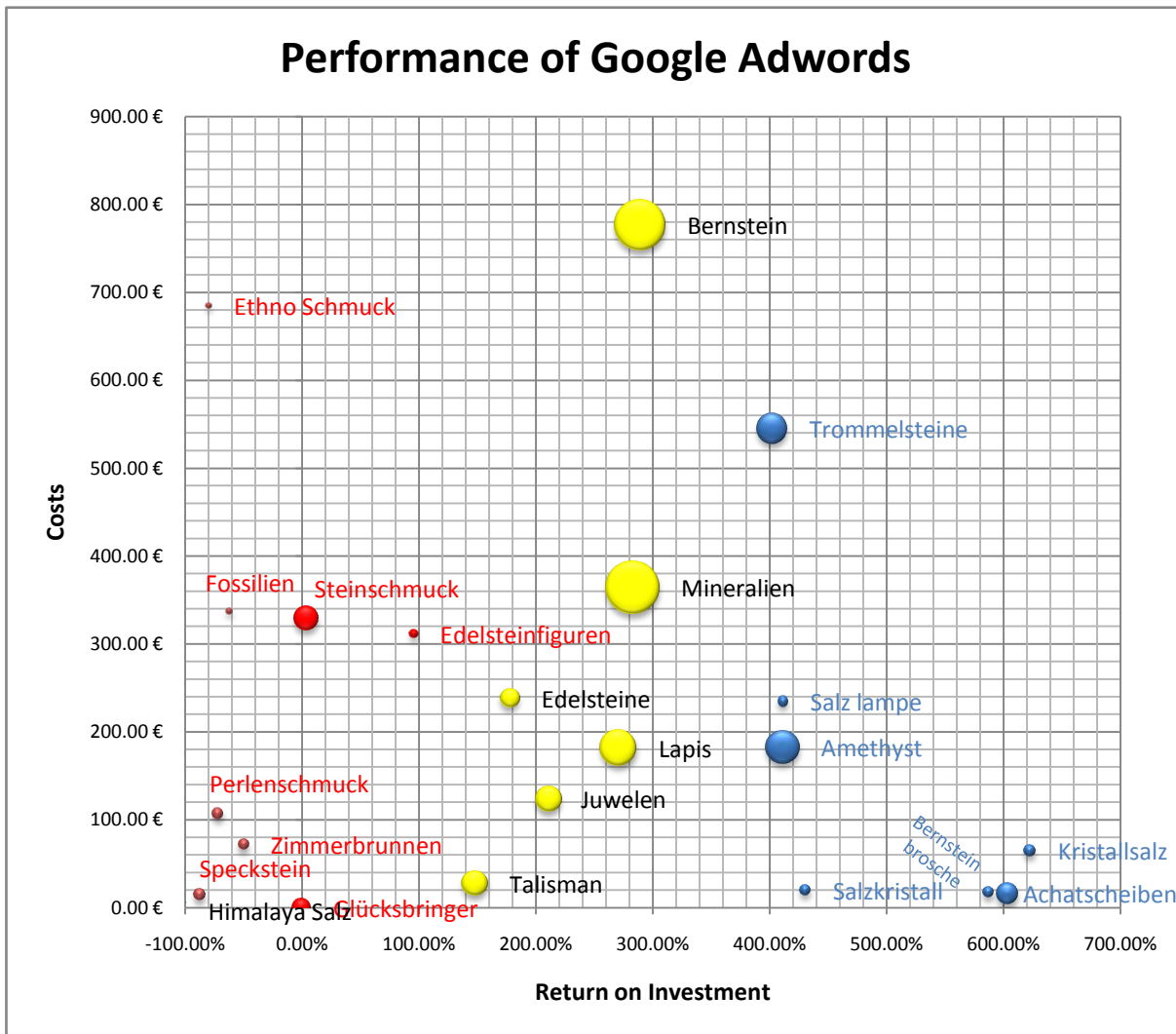


Figure 19 - Performance of Adwords

Source: Own source

The data used for this diagram can be found in Appendix 10.

Explanatory note:

- ✚ The size of the bubbles indicates the revenues created by the respective Adword. (The color of the bubbles illustrates the Return on Investment<sup>25</sup> (ROI)).
- ✚ The x-axis indicates the ROI of the respective Adword.
- ✚ The y-axis shows the costs created by the respective Adword.

<sup>25</sup> The term ROI as Google Analytics indicates it means:

$$\frac{\text{Ecommerce Revenues} + \text{target value} - \text{Costs of Adword}}{\text{Costs of Adword}}$$

The analysis of GA and the behavior of the visitors attracted by them showed that there is a great need for changes in the advertising behavior of the IC.

- ✚ Adwords with a ROI below 300% have to be changed or canceled.
- ✚ Adwords have to be matched with the stock available for sale (to be explained in the following chapters).
- ✚ Adwords have to be matched with the demand of customers (to be explained in the following chapters).

To find out how optimization can be reached other data have to be analyzed:

- ✚ Internal processes, especially stock management, missing stock and accompanying lost sales
- ✚ Shop internal customer behavior, especially data from the in-shop search engine

### **3.6.4 Consolidated Results of the Quantitative Analysis Using Google Analytics**

The overall results gathered in Chapter 3.6 are:

- ✚ The decrease in sales was not only the result of an overall decrease in the quantity of visitors.
- ✚ The observed change in the quality of customers definitely has a strong impact on the decrease in revenues, as well as the overall inefficient and wrong usage of Google Adwords.
- ✚ The source (paid or free) of the visitors has a very strong influence on the sales and revenues which are generated by them.
- ✚ A strong seasonal influence has been observed, especially concerning the usage of Google Adwords.

The results of this analysis provide only one part of the picture as they neglect internal factors which are of high importance to understand the IC's problem. To gather this data Google Analytics could not be used and additional tools had to be developed. The data gathered have to be included in the research process.

### 3.7 Internal Tracking – Development and Analysis of Appropriate Tools

The most important data which the developed tool is tracking are<sup>26</sup>:

- ✚ New customer accounts day / month
- ✚ Orders day / month
- ✚ Revenues day / month
- ✚ Lost revenues day / month
- ✚ Potential revenues day / month
- ✚ Most important ratios of these variables
- ✚ Lists of the products sold and potentially sold day / month

The tool is designed to track and show the mentioned data on a monthly basis and to export it into an Excel table for further analysis. For this research project, only the relevant data provided by this functionality is used. The following two figure illustrates the proportion between the sales and the due to unavailability of products lost sales.

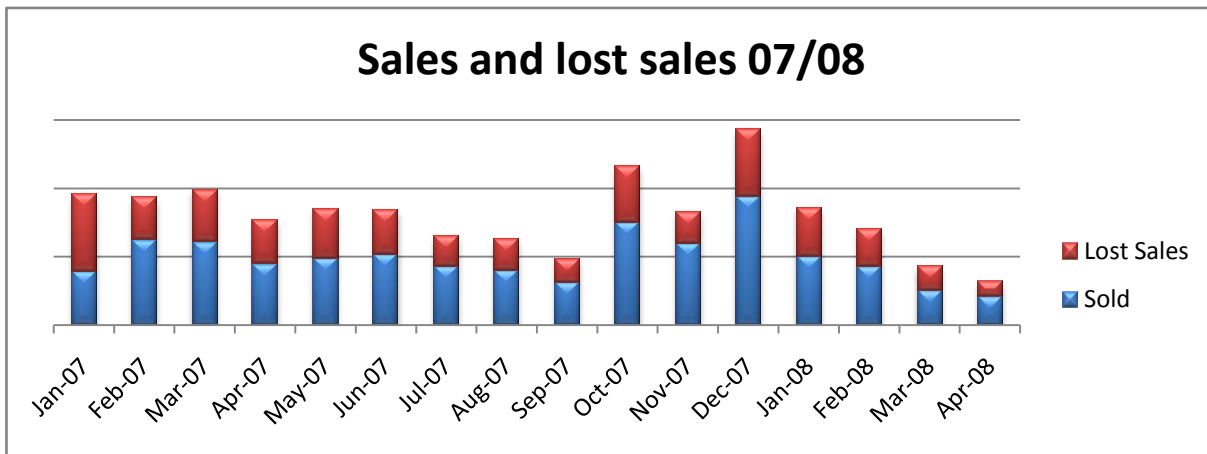


Figure 20 – Sales and lost sales 07/08

Source: Own source

The data used for this diagram can be found in Appendix 10.

The analysis of the data showed that not only the revenues decreased, but also the potential revenues, while the relationship between them remained fairly constant, as shown in the next figure.

<sup>26</sup> Several integrated tools have been developed in the course of this thesis. As they are all integrated into one administrative online panel, and for reasons of simplification, the singular form of tool is used during the further course of this thesis.

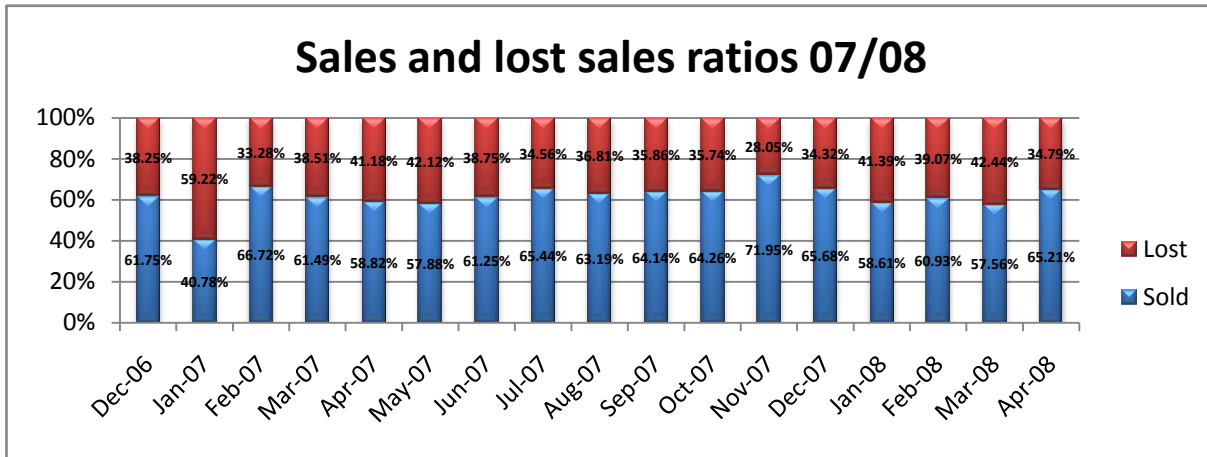


Figure 21 - Sales and lost sales ratios 07/08

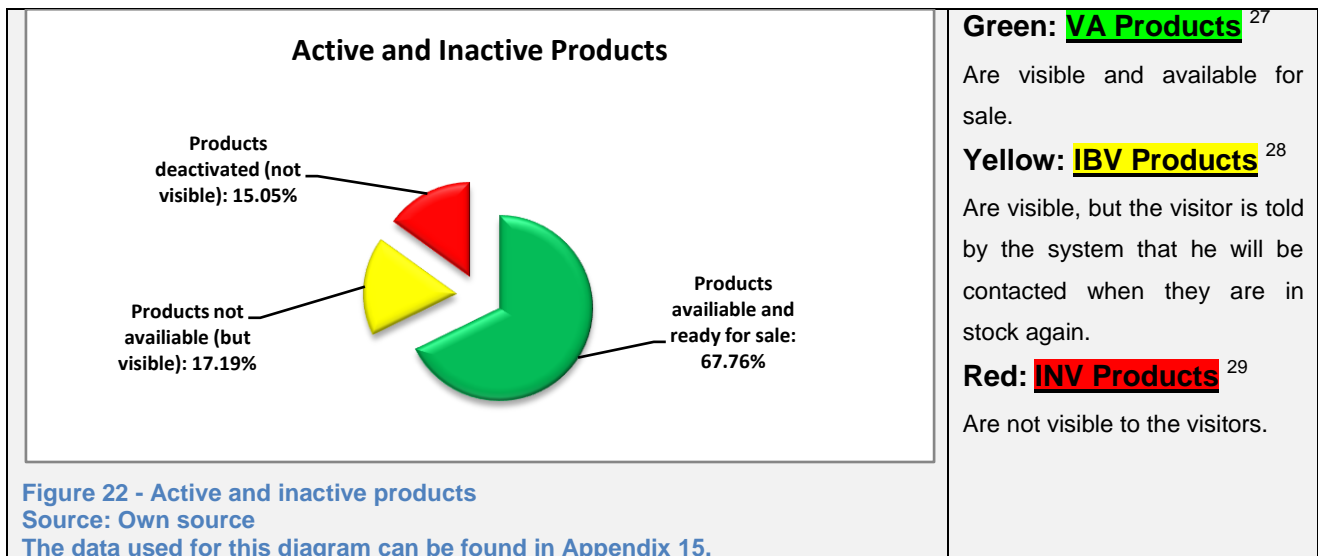
Source: Own source - The data used for this diagram can be found in Appendix 10.

From this data it can be derived that the visitors attracted generally have a lower interest in buying the products displayed (both available and unavailable products) in the online shop.

- ✚ This is most probably caused by the changed quality of customers, as described above.
- ✚ Another reason might be the changes in the product portfolio displayed online.

### 3.7.1 Best-Selling Products and Demanded Products

Before discussing this part of the problem, an overview of the amounts of the active and inactive products is provided in the following figure.



27 A VA product is visible in the shop system for the customer and ready in stock.

28 An IBV product is visible in the shop system but not ready in stock. The customer is given this information when he tries to buy this product. The attempt to buy this product is tracked by the system.

29 An INV product is deactivated and not longer visible in the shop system.

As the figure shows, at the moment around 32% of the products are not available for sale. It can be assumed that these products are in heavy demand, as in the past the purchase of stock was nearly equal to zero because of financial problems. To find out what exactly are the products which would have been demanded, the described tool was enhanced with another functionality which tracks the goods that visitors asked for but that were out of stock.<sup>30</sup> This functionality generates the following data:

- ✚ Product is deactivated since when (time in between)
- ✚ Product turnover, potential product turnover
- ✚ Visitors for product, average number of visits which lead to a sale

A screenshot of this tool can be found in Appendix 12.

### 3.7.2 Visitor Tracking, Products and Revenues

As the next step another session-based tool was developed which provides exact data about what the visitors are doing in the shop online concerning active and inactive products. Technically the process used is equal to the one described in Chapter 3.7.

A screenshot and a sample of the data the tool is gathering is included in Appendix 13 and 14.

The following data is tracked and recorded<sup>31</sup>:

- ✚ Visitor ID (Identification Number)
- ✚ Visitor IP (the Internet Protocol address of the visitor)
- ✚ Sites visited (the exact sites visited and the sequence)
- ✚ Visit date (exact date)
- ✚ Visit time (exact time)
- ✚ Visitor referrer (where does the visitor come from)
- ✚ Visitor logon (if the visitor has logged on to the system)
- ✚ Visitor purchase (if the visitor has bought something)

By using this tool, it was possible to track the percentage of active or inactive products which the visitors are looking at. It has to be mentioned that these percentages are different from the ones

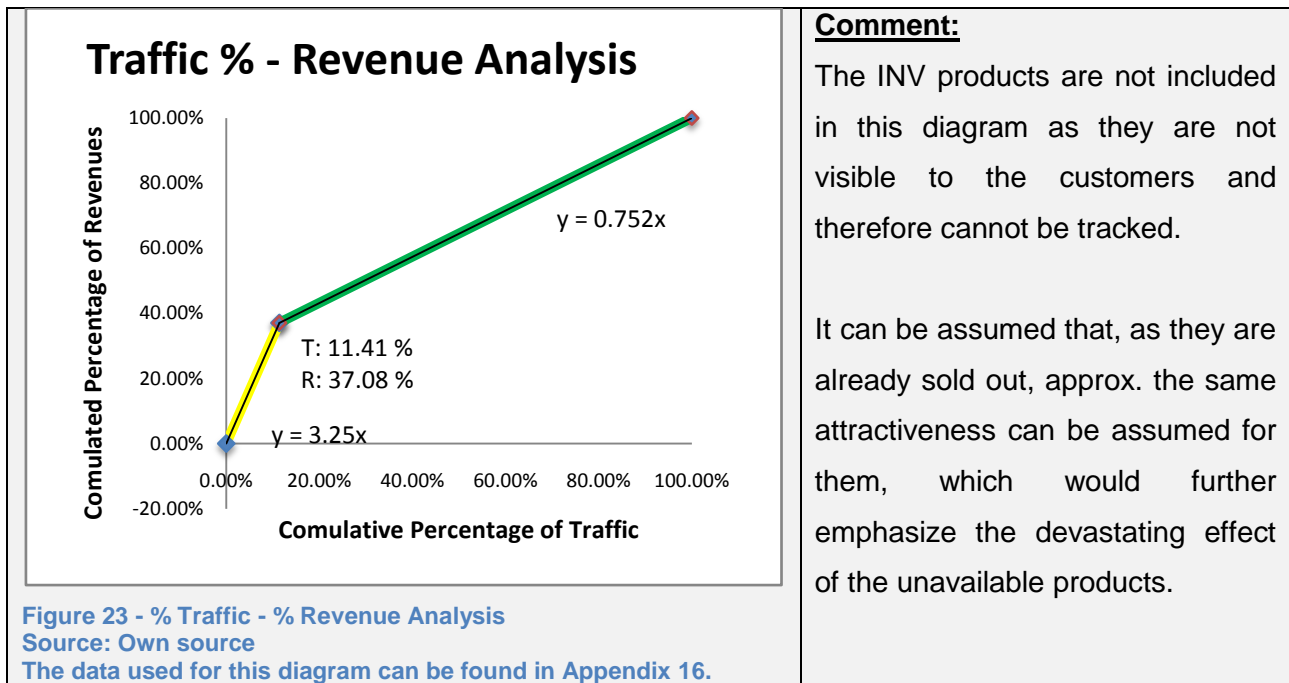
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<sup>30</sup> In this context it has to be mentioned that in the course of this research project a very important tool was developed which helped to increase the transparency of product management. For completeness, an overview of this tool is included in Appendix 12.

<sup>31</sup> Again, it has to be mentioned that this tool was developed in the process of this research project and if, during the usage of the tool, further variables appear to be important they can be added to the system easily.

of the overall products, as, of course, the invisible products cannot be visited and are therefore not part of this analysis.

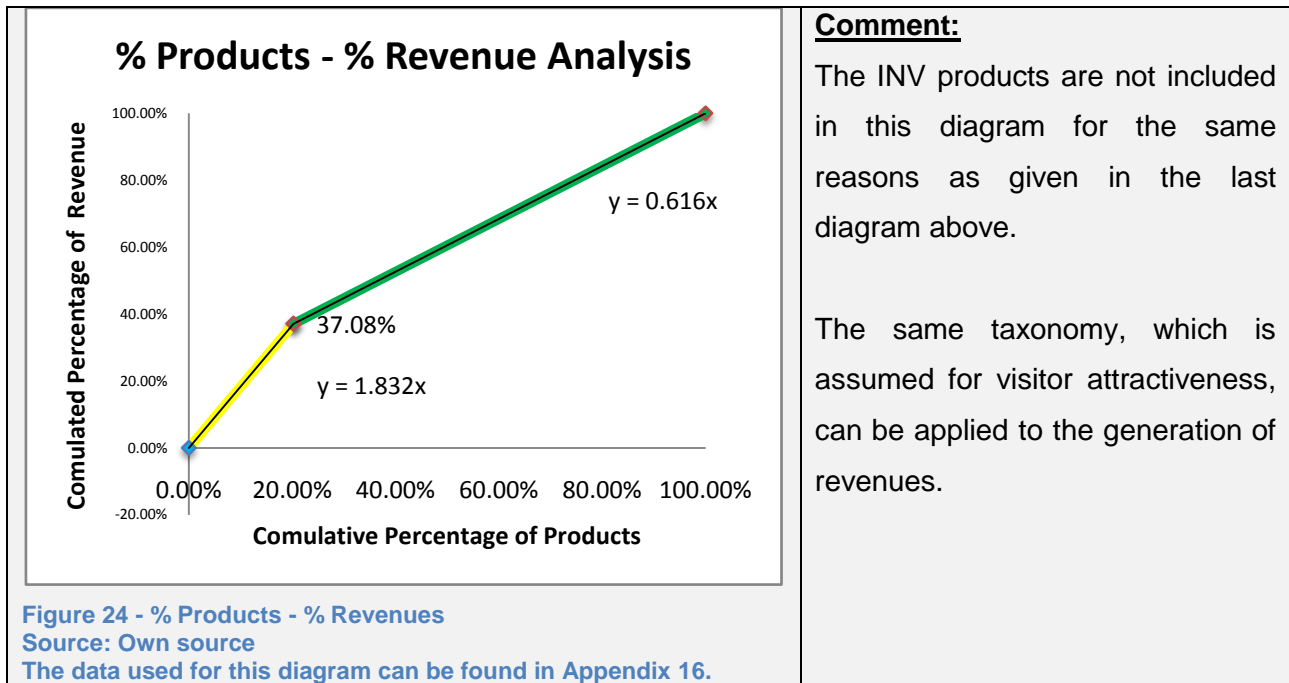
The next figure shows that the IBV products are in fact much more attractive to potential buyers than the AV products are. These unavailable products only accounted for 11% of the traffic on products. With this 11% of traffic they would have been able to create 37% of the potential revenues, while the other, remaining products needed 88% of the traffic to create 63% of the revenues.



A similar relationship was revealed when analyzing the percentage of products - percentage of revenue relationship. The 38% of potential revenues which would have been generated by IBV products only represent 20% of the overall product portfolio.

From these findings it can be derived that a huge percentage of the best- and well-selling products is already sold out, and has not been restocked, leaving only the remaining products available for sale. This disadvantageous relationship concerning the generation of revenues is illustrated in the following figure.





Altogether this situation can be compared with the situation of a retail shop in which the customers are standing in front of empty shelves willing to buy but not finding what they desire. In the “real” world this situation is difficult to imagine, everyone would see and recognize the problem immediately; in a virtual store, however, this is not as easily discernible. This makes it easier to ignore the problem.

The cause of this problem are the unavailable products, which have a devastating impact on revenues. Now it is important to analyze this group of unavailable products in detail to find out how this problem can be solved. It is assumed that not all the products are of equal importance to the generation of revenues and do not have the same influence on the overall problem. In fact, the researcher is of the opinion that by purchasing just a little percentage of the overall missing stock the problem can be solved to a large extent.

An ABC analysis was chosen and adopted to find a solution to the problem. For a classical ABC analysis the relevant variables are value percentage and amount of merchandise percentage (Hofmeister, 1997, p. 21). In this case, the analyzed variables were value percentage and the percentage of overall turnover rate of the products.

These variables were chosen because the aim of this analysis is to find out with which products the time to sale – revenue relation can be optimized. These are the ones which have to be repurchased at first. Again, the analysis shows that with restocking the right products, following the suggestions of this analysis, the lion’s share of the missing stock problem can be solved. The following two figures illustrate the situation.

The left figure illustrates the past, which means the relationship between revenues and IBV products, concerning their contribution to the overall turnover time. Only the fast selling IBV products have to be repurchased, and as this analysis shows, only 40% of these products would have contributed to the revenues to a reasonable amount.

The right figure shows the relationship between the turnover time of the IBV products and their value generation. This demonstrates that by repurchasing only the 25% of the IBV products with the fastest turnover, 56.90% of the otherwise lost revenues could be gained.

| IBV Products – Analysis of the past  | IBV Products – Estimation <sup>32</sup> for the future  |
|--|---|
|  |   |
| <p><b>Figure 25 - Analysis of importance of inactive products</b></p> <p>Source: Own source<br/>The data used for this diagram can be found in Appendix 17.</p>  | <p><b>Figure 26 - Analysis of importance of inactive products</b></p> <p>Source: Own source<br/>The data used for this diagram can be found in Appendix 17.</p>   |
| <p><b>Interpretation:</b></p> <ul style="list-style-type: none"> <li>✚ With <b>10%</b> of the fastest selling IBV products it would have been possible to gain <b>54%</b> of the lost revenues.</li> <li>✚ With the next <b>30%</b> another <b>30%</b> of the lost revenues would have been gained.</li> <li>✚ The last <b>60%</b> of the IBV products only account for <b>13%</b> of the lost revenues and therefore can be neglected.</li> </ul> | <p><b>Interpretation:</b></p> <ul style="list-style-type: none"> <li>✚ With the <b>25%</b> of the IBV products which have the highest turnover rate <b>57%</b> of the potential revenues can be gained. These are the products which have to be repurchased.</li> <li>✚ Only after these products are in stock, the company can think about restocking the remaining products according to their importance.</li> </ul> |

<sup>32</sup> This estimation is based on historical values from the analysis of the tracked data. Therefore, it is just a rough estimation, but provides an indication and shows that the main part of the problem with the unavailable goods can be solved by repurchasing only a small proportion of the relevant products.

The unavailable products have to be repurchased according to this results. Because of the overwhelming importance of this results; if the repurchasing of this missing stock is not performed properly, all other all other measures are likely to fail.

Despite this factor, to complete the picture of the situation, it is necessary to perform the last step of this part, which is to analyze the shop-internal search functionality. Analyzing the shop-internal search functionality is like digging in a mine of relevant data (GREEN, 1999). The customers literally note down what they are looking for, and not utilizing this source of data is a great negligence when doing Ecommerce business.

Additionally, it is important to acknowledge that the standard a customer expects from a shop search engine today is much higher than it used to be. Current studies have proved that the performance and usage of the shop-internal search engine is of the highest importance (Holland, 2006).

### 3.7.3 Analysis of the Shop-Internal Search Functionality

According to Jakob Nielsen (Nielsen, 1997), more than half of the users are search dominant, which does not necessary mean that they solely use the search engine, but several studies indicate that the shop-internal search engine is:

- ✚ crucial regarding the conversion rate, that is, sales
- ✚ an amazing source for data about customer demands and wishes

The following figure, representing the outcomes of a study conducted by Marketing Sherpa (Marketing Sherpa, 2007) in 2007, indicates the first thing a consumer does when he arrives at a retail website.

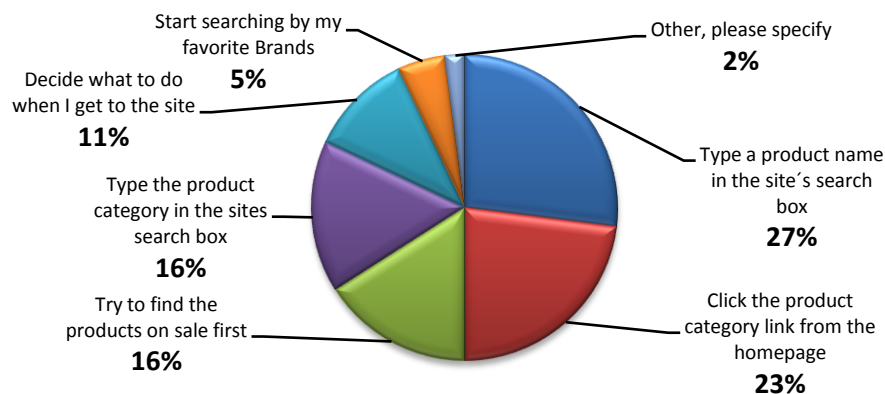


Figure 27 - Importance of the in-store search engine

Source: Marketing Sherpa Inc.

The impact of the search functionality becomes even more important when taking the age structure of the customers of Juwela.de in account. Extensive studies conducted by the Nielsen Norman Group (called “the usability research institution”) indicate the strong negative relationship between the age of visitors and their ability to orient themselves on a website, that is, their web performance (Pernice & Nielsen, 2005).

The analysis of the age structure, shown in the next figure, of the customers of Juwela.de demonstrates a bias towards:

**Older Customers**

Approximately 85% of the customers are older than 30 years and about approx. 57% are older than 40 years of age.

**Female Customers**

More than 60% are female, and more than 85% of these females are older than 30 years.

This can be explained by the product portfolio of the IC, as these kinds of products tend to attract older and female customers. Besides the need for easy-to-handle usability, without any kind of confusing element, both factors indicate the high importance of an efficient search functionality to make the shopping experience as good as possible. In the case of the analyzed shop this criterion is even more important than for the average online shop.

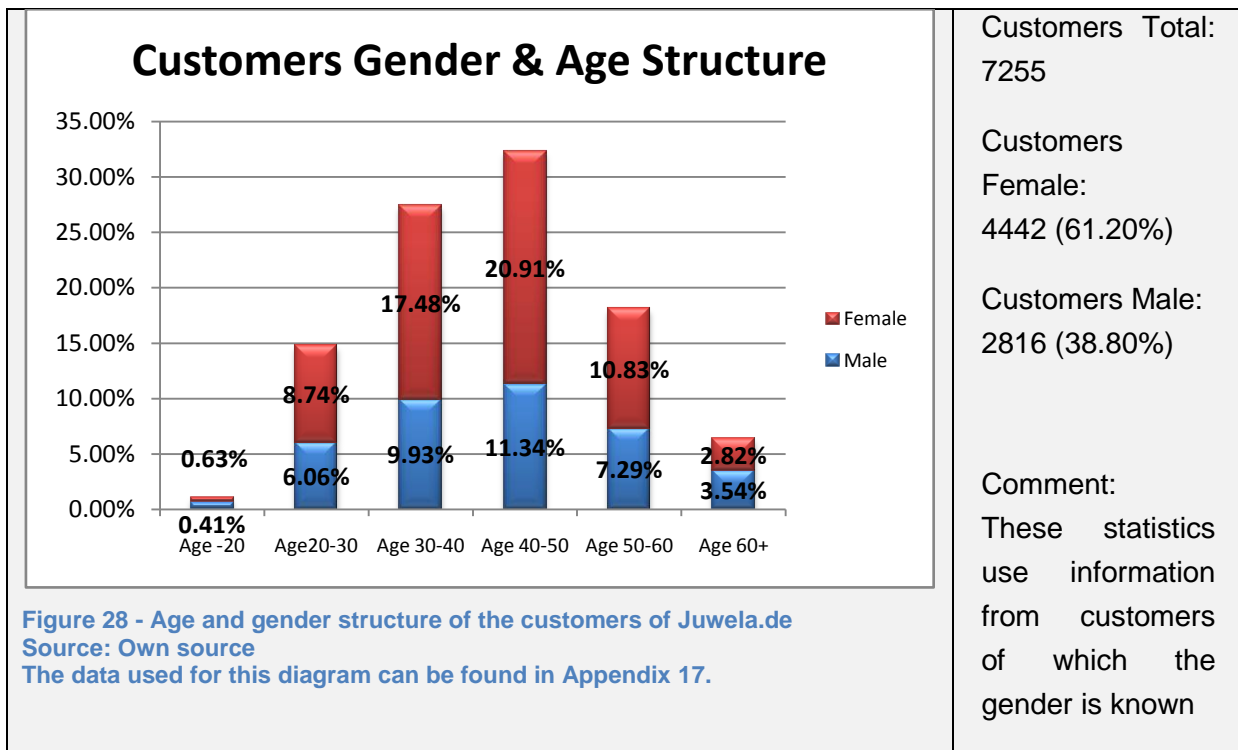


Figure 28 - Age and gender structure of the customers of Juwela.de  
 Source: Own source  
 The data used for this diagram can be found in Appendix 17.

Using the internal search function as a source of data, the analysis and tracking of the phrases typed in the search field showed that there was again a high convergence of the requested products and IBV and INV products. This could not be directly tracked as the as the visitor does not necessarily use the same terminology as the one used in the online shop.

Because of the importance of the usage and the efficiency of the shop performance on the one hand and gathering data about the customer's wishes on the other hand, additional tracking has to be done. As this functionality does not exist yet and the programming necessary for it to work in the required way, only the design and outline of what it should look like and how it should work is given here. The analysis of this functionality can be performed when enough data is gathered to enable valid research.

#### **Information that has to be tracked<sup>33</sup>:**

- ✚ How many percent of the visitors are using the in-store search engine?
- ✚ How many percent of the search queries lead to VA and IBV products?
- ✚ How many percent would have led to INV products?
- ✚ How many percent of the queries lead to a sale or a new customer account?
- ✚ And in general: What are the products most requested? In which frequency are which search queries typed in? Which of the queries can be used, according to the availability of products be used for advertising?

### **3.7.4 Consolidated Results of the Analysis of the Internal Tracking**

The research and analysis of the internal tracking conducted yielded the following findings.

#### **The unavailability of certain products has disastrous effects in many forms:**

- ✚ By repurchasing the 25% of the IBV products with the fastest turnover rate more than 50% of the otherwise lost revenues can be gained.
- ✚ The product portfolio consist of:  
**68% VA products    17% IBV products    15% INV products**  
When analyzed for tracking (which means without the INV products):  
**80% VA products    20% IBV products**
- ✚ On average approx. 40% of the possible revenues were directly lost due to the unavailable products; this ratio remained constant during the last year and was not affected by the overall number and quality of visitors.

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<sup>33</sup> This list is not exhaustive; further in-depth analysis of the search functionality justifies a research on its own, as there is great potential for optimization here.

- ✚ The 20% IBV products only needed 11% of the traffic to generate 37% of the possible revenues.
- ✚ A similar underlying ratio can be assumed for the INV products if they had also sold out quickly and had not been repurchased.

It seems that only the really unattractive products are left, which means the product portfolio has lost greatly in attractiveness. This, in combination with the other factors discussed in the previous chapters, explains the current situation to a large extent.

Furthermore, from the usability perspective, the following findings have to be considered:

- ✚ Insufficient transparency regarding product management from the administrative side, which can be regarded as inside usability, makes it “easy to oversee things which people want to ignore”.
- ✚ Bad functionality of the in-store search functionality and complicated usability have great influence on sales and revenues; this is especially important concerning the age structure of the customer portfolio.

### 3.8 Considerations from a Process-Based Perspective

The findings of Chapter 3.7, including the immense negative aspects due to unavailable products, suggest an investigation into the effects of these factors from a process-based point of view. This chapter investigates the additional work which is created by these factors and identifies and indicates the sources of inefficiencies on the technical and operative level.

For the illustration of the processes in the graphical notation of an ERM Model<sup>34</sup> MS Visio<sup>35</sup> is used and Figure 29 shows the process as they occur in the IC in two distinct situations after receiving a customer order.

- ✚ The product is in stock and ready for shipment (In the diagrams, this part is illustrated in green colors)
- ✚ The product is not in stock (In the diagrams, this part is illustrated in red colors)

If the product is in stock (the green part) there is practically no un-automatized communication with the customer required and little human interaction necessary. If the product is not available (the red part), problems arise and action is needed.

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<sup>34</sup> An entity-relationship model (ERM) is an abstract conceptual representation of structured data. Entity-relationship modeling is a relational schema database modeling method used in software engineering to produce a type of conceptual data model (or semantic data model) of a system, often a relational database, and its requirements in a top-down fashion. Here it is used to visualize the process itself and the neuralgic points of human and/ or system interaction.

<sup>35</sup> <http://office.microsoft.com/en-us/visio/HA101656401033.aspx>

Then there are several breaks in the process chain, changes in the media and other disturbing aspects which limit the efficiency of the Ecommerce process, thereby limiting its fundamental benefits and use (HRM.de, 2005).

Ideally Ecommerce processes should lead to the opposite and support an undisturbed process without breaks, many human interactions, possibilities of failure and changes in media (Lindemann & Runge, 1997).<sup>36</sup>

For explanation purposes, a short description of the graphic notation of ERM diagrams has to be given.<sup>37</sup>






| <u>Symbol</u>   | <u>Explanation</u>  | <u>Symbol</u>  | <u>Explanation</u>                                    |
|---|---|--|---|
|  | <b>Event</b> (for example a customer places an order)                       |   | <b>AND</b> connection                                 |
|  | <b>Process</b> (for example the company or the system performs an activity) |   | <b>OR</b> connection (more than one possibility)      |
|   |   |  | <b>Exclusive OR</b> connection (only one possibility) |

Table 5 – Graphic notation of ERM diagrams

Source: Own source

<sup>36</sup> The other consequences of this problem, in addition to unprofitable extra work and lost sales, is the adverse effect on customer loyalty and other factors influencing the competitive situation pointed out by Brandstetter and Fries (Brandstetter & Fries, 2002, p. 50ff).

<sup>37</sup> Only the notations necessary for explaining the diagram are given.

# Process after receiving an order from the Customer – Product not available

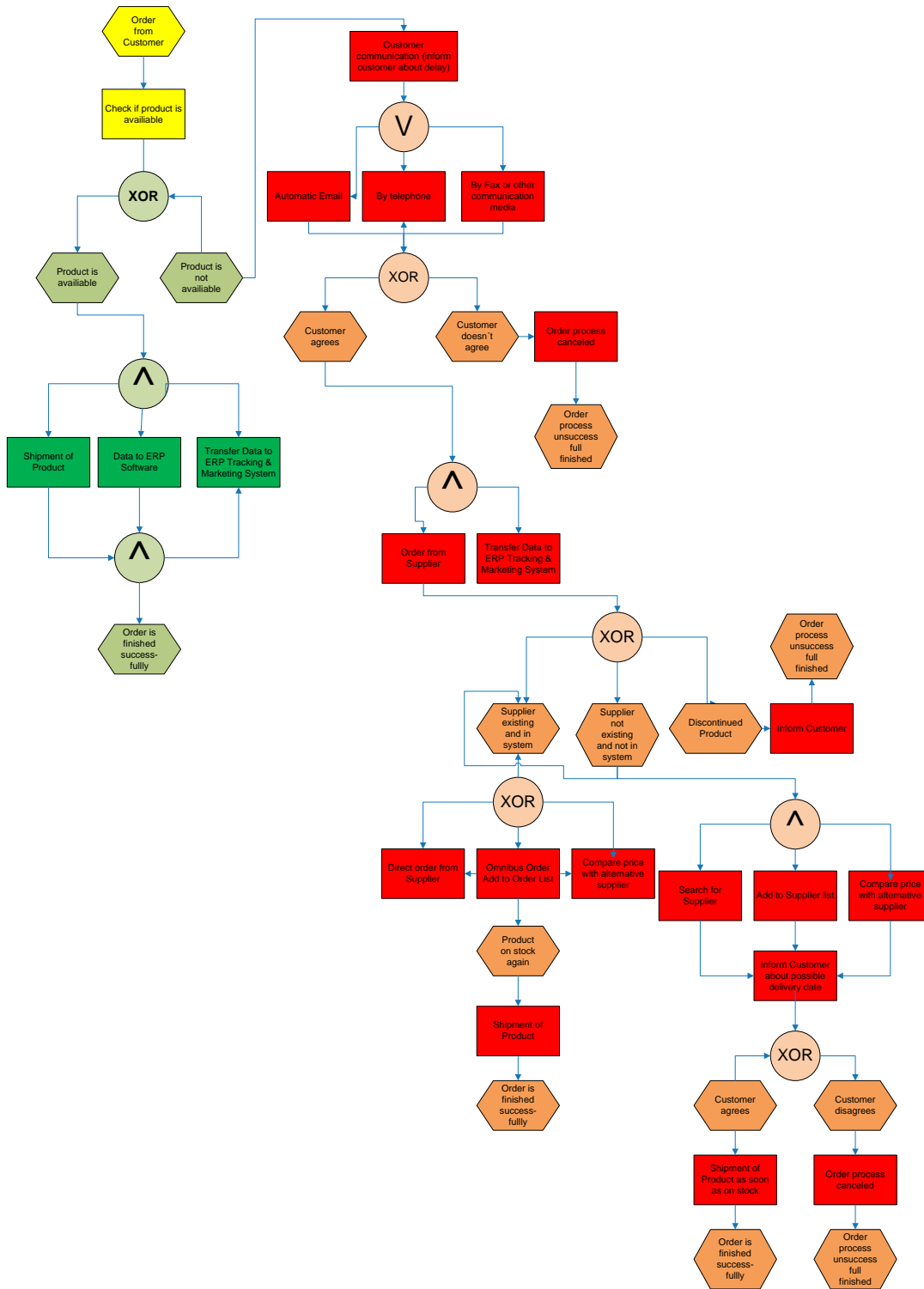


Figure 29- Process after receiving an order from the customer – Product not available

Source – Own source



### 3.9 Summary of the Results of the Internal Research Project

When summing up the results of the research done the picture becomes clear. Even if the results are not pleasing, the research can be considered very successful as it brought light into the darkness. It unveiled the internal factors which have caused the problem researched, and this knowledge has provided a basis for finding a solution.

The usability of the online shop has weaknesses which need to be improved, as described in this thesis. However, this improvement only has minor effects on the performance and is definitely not the solution to the problem. The real cause of the problem is the interaction of the following factors:

- ✚ **The overall decrease in visitors to the online shop** (Chapter 3.6.1).
- ✚ **The change in quality of the visitors, which means a shift from organic to paid customers** (Chapter 3.6.2).
- ✚ **The inefficient and wrong usage of Google Analytics** (Chapter 3.6.3).
- ✚ **The unavailability of stock, which is accountable for the lion's share of the dilemma** (Chapter 3.7).
- ✚ **The inefficiency of processes due to the bad stock management** (Chapter 3.8).

The interaction is depicted in the following figure.

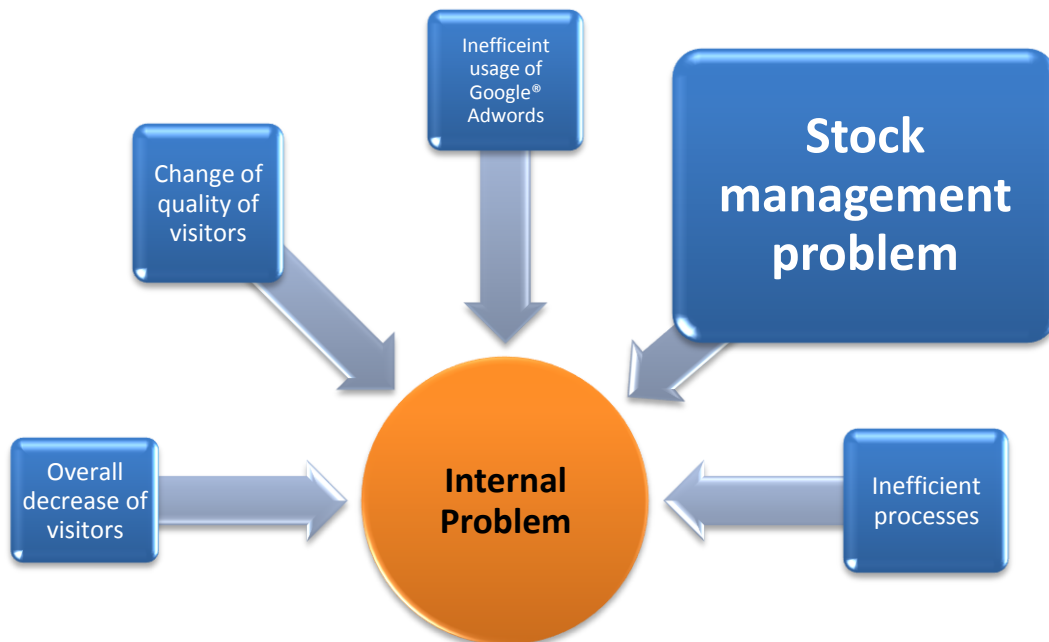


Figure 30 - Influencing factors of the researched problem

Source: Own source

These factors are all enforcing each other, thereby causing the internal problem. They all interact and add up to the existing problem. With the detailed results of this research project it is possible for the IC to solve its problem and improve its profitability, if it will follow the actions recommended in this thesis.

The following table sums up the most important results of Chapter 3 in headwords:

| <u>Decrease of Visitors</u>  | <u>Change in the quality of visitors</u>   | <u>Inefficient use of Google Adwords</u>   | <u>Stock Management</u>  | <u>Inefficient Processes</u>  |
|--|--|--|--|---|
| <b>Result:</b><br>Significant decrease in number of visitors   | <b>Result:</b><br>Decrease in quality of visitors – shift from organic to “paid” customers | <b>Result:</b><br>Most of the Google Adwords are used in a highly inefficient manner | <b>Result:</b><br>Unavailability of products has devastating effect on revenues  | <b>Result:</b><br>Unavailability of products has devastating effect processes |
| <b><u>Combination of these factors:</u></b>  |  |  | <b><u>Combination of these factors:</u></b>  |   |
| Decrease in the total amount of organic visitors and increase in the total amount of visitors from paid sources<br>Strong influence of the origin of visitors on sales<br>Strong seasonal influence, especially on visitors from paid sources<br><br><u>Visitors from unpaid sources:</u><br>52% of these visitors accounted for 77% of the revenues<br><br><u>Visitors from paid sources:</u><br>The other 48% of the visitors accounted for only 23% of the revenues |  |  | Highly differentiated influence of the different products which are not in stock concerning turnover time<br><br><u>Demanded Products:</u><br>10% of fastest selling IBV products would have contributed approx. 55% of lost revenues<br><br><u>Other Products</u><br>The remaining 90% of IBV products would have contributed approx. 45% of lost revenues.<br><br><u>Process perspective:</u><br>The fact that these products were demanded but not available leads to a highly inefficient order fulfillment process. |   |
| <b><u>Underlying Data &amp; Analysis:</u></b>  |  |  |  |   |
| Google Analytics<br><br>Chapter 3.6.1  | Google Analytics<br><br>Chapters 3.6.1 and 3.6.2   | Google Analytics<br><br>Chapters 3.6.1 and 3.6.2                                     | Internal Tracking<br><br>Chapters 3.7.1 and 3.7.2  | Process Analysis<br><br>Chapter 3.8   |

Table 6 – Summary of results of internal research project

Source: Own source

## 4 External Factors: Investigation of the Influence of External Factors

After having explored the company's internal problem in Chapter 3, it is necessary to investigate the "outside" environment to understand the external factors influencing the researched problem. Therefore, Chapter 4 leaves the internal field of research and investigates the bigger picture to generate insight into the forces that influence the IC and the respective industry. For this purpose, this chapter focuses on the question "What are the underlying economic and environmental factors influencing the IC and the industry in which the IC is operating". Therefore the unit of analysis is the influence of Ecommerce on the G&J industry.<sup>38</sup>

### 4.1 Methodology

This task is performed by a combination of different approaches.

- ✚ **First**, a short overview of the development and status quo of Ecommerce is given to provide an understanding of the current situation.
- ✚ **Second**, the nature and characteristics of the G&J industry are illuminated to understand what the specific features of the industry are and how they are subjected to the changing environment.
- ✚ **Third**, these influences are investigated by using three theoretical lenses to explain the changes and consequences on the unit of analysis. This theoretical frameworks are the Market-Based View (MBV),<sup>39</sup> the Resource-Based View (RBV)<sup>40</sup> and Transaction Costs Economics (TCE).<sup>41</sup>

These three theoretical frameworks are used because this approach promises to provide a comprehensive perspective to understand the nature of the current development and combining them with the properties of the investigated industry provides insight into the forces that direct and influence the future of the investigated industry.

The following figure gives an overview of the investigative approach of Chapter 4 and the interaction of the three theoretical frameworks.

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<sup>38</sup> More details given in Chapter 4.4

<sup>39</sup> Explained in detail in Chapter 4.6

<sup>40</sup> Explained in detail in Chapter 4.7

<sup>41</sup> Explained in detail in Chapter 4.8

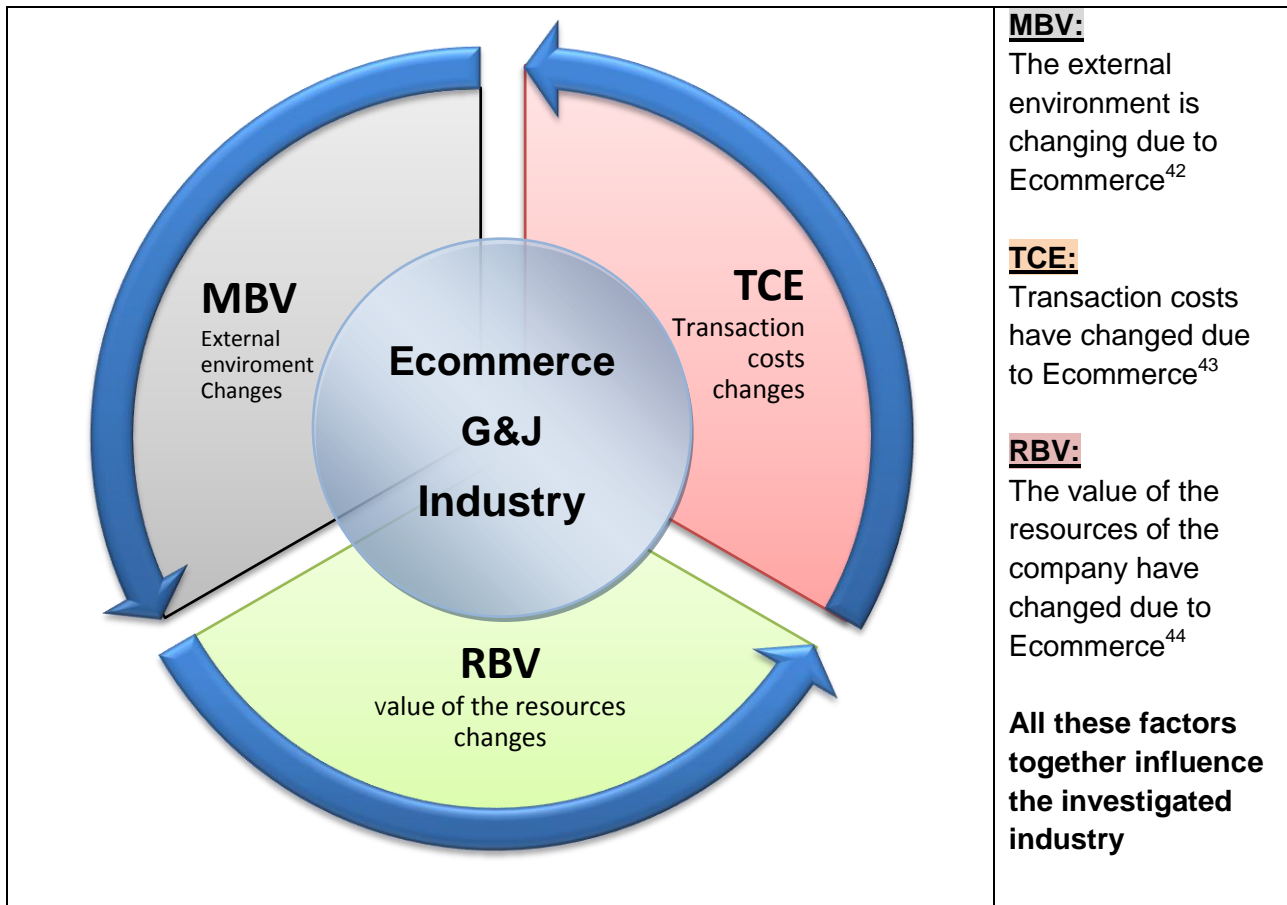


Table 7 – Influence of Ecommerce on G&J industry

Source: Own source

## 4.2 The Development of Ecommerce and its Status Quo

The main focus of this chapter is to illuminate the relevant historical and technical factors mainly for the Ecommerce in Germany. Defining all technical terms and explaining the knowledge behind the concept would however exceed the scope of this thesis. Therefore, only the factors that are relevant for the understanding of this thesis's topic are explained in detail. Basic background knowledge of computer technology and the internet is a prerequisite.

### 4.2.1 Technical Development of the Internet

In the last decades the world has experienced a vast amount of changes, which had major influences on nearly all sectors of business and private life. To understand this development, the changes which came along with it and its implication on the topic of the thesis a short overview

<sup>42</sup> Based on the basic idea of and referring to Porter 2001 and others.

<sup>43</sup> Based on the basic idea of and referring to Coase 1937 and Williamson 1985 and others.

<sup>44</sup> Based on the basic idea of and referring to Prahalad and Hamel 1990 and others.

of the main milestones in this process of technical development have to be provided first. This overview also shows the acceleration of the growth and power of these technologies, processes and structures, which makes it possible to have an idea of its actual and future influences.

The developments until 2003 is shown in a chronological table and the recent developments, from 2003 to the present, are explained in more detail afterwards. The following figure shows the most important milestones in the development of the internet and Ecommerce.

| <u>Early Development and Pioneer Phase</u>                  |  |
|---|--|
| 1969  | <b>International:</b> Apranet (First Network, developed by the US Ministry of Defense)   |
| 1982  | <b>International:</b> After adaption of the TCP/IP protocol, the name Internet wins recognition, in Germany BTX is introduced by the Deutsche Telekom  |
| 1984  | <b>Germany:</b> First commercial transaction takes place via BTX in Germany like transfers, sales  |
| 1989  | <b>International:</b> CERN develops the www, In Germany BTX has 200.000 users  |
| 1993  | <b>International:</b> Immense growth of the www due to the first free graphical webbrowser   |
| 1995  | <b>Germany:</b> BTX and Compuserve have 1.2 m Customers in Germany, T-Online and AOL starts their services > this can be seen as the start of the Ecommerce pioneer phase in Germany, also the first German search engines and online directories emerged (Web.de, Eule.de)  |
| 1996  | <b>Germany:</b> First big mail order companys (Karstadt, Quelle) entered Ecommerce with entities which we would call today "online shops"  |
| 1997  | <b>Germany:</b> Branches of American and international serach engines (Yahoo, Lycos, AltaVista) start their German sites, only a few and mainly specialized suppliers are offering there products online.  |
| 1998  | <b>Germany:</b> Banks use the internet more and more and create online revenues of 55 m euro, they also discover the Internet for rationalization (online brokerage), all together 70% of all Ecommerce revenues are created through computer, electronics, books, tarveling and brokerage   |
| <u>Ecommerce Hype and Entrepreneuerial Euphoria</u>         |  |
| 1999  | <b>Germany:</b> 8.4 m online user, 2.4 m of them buy online, spectacular business stories take place (ricardo.de New Economie), venture capital enters Ecommerce, competition increases immensely  |
| 2000  | <b>Germany:</b> Disillusion in the market, breakdown of the New Economy: first companies correct their growth prognoses downwards, according to MerrillLynch 75 % of these companies will never reach profitability, number of insolvencies rising   |
| 2001  | <b>Germany:</b> 28 m internet users, Germany is in top position in Ecommerce in Europe: Ecommerce revenues 5.3 bn, 28% of the users are online shoppers, the strong companies survive and get sustainably profitable (Otto, mobile.de, Expedia) According to PriceWaterhouseCoopers the German eCommerce Companies are the most profitable in Europe |
| <u>The situation normalizes - back to ordinary business</u> |  |
| 2002  | <b>Germany:</b> More and more SMEs enters Ecommerce, the number Ecommerce solutions for smaller companies rises dramatically, both commercial (GS-Shopbuilder, Smartstore) and open source solutions (osCOMMERCE), dynamic or static > entering the field of ecommerce becomes more and more easy for SME 's   |
| 2003  | <b>Germany:</b> In the following years both the usage of the internet as well as, the acceptance of Ecommerce rise constantly, ecommerce becomes a new, but also an essential part of the business world   |

Figure 31- The internet - overview and chronological development

Source: Different sources (Albers, Panten, & Schäfers, 2002)

From the early years until 2003, Ecommerce “grew up” and became an essential, and also normal part of the business world, for which the same principles and laws apply as for other sectors of the business environment. Reaching the status of being mature, the growth rates were decreasing, but the overall usage of the internet is still growing, and nowadays the internet and all the related technologies are omnipresent in nearly any aspect of the business world in Germany.

The following illustration shows the recent development of the usage of the internet in Germany.

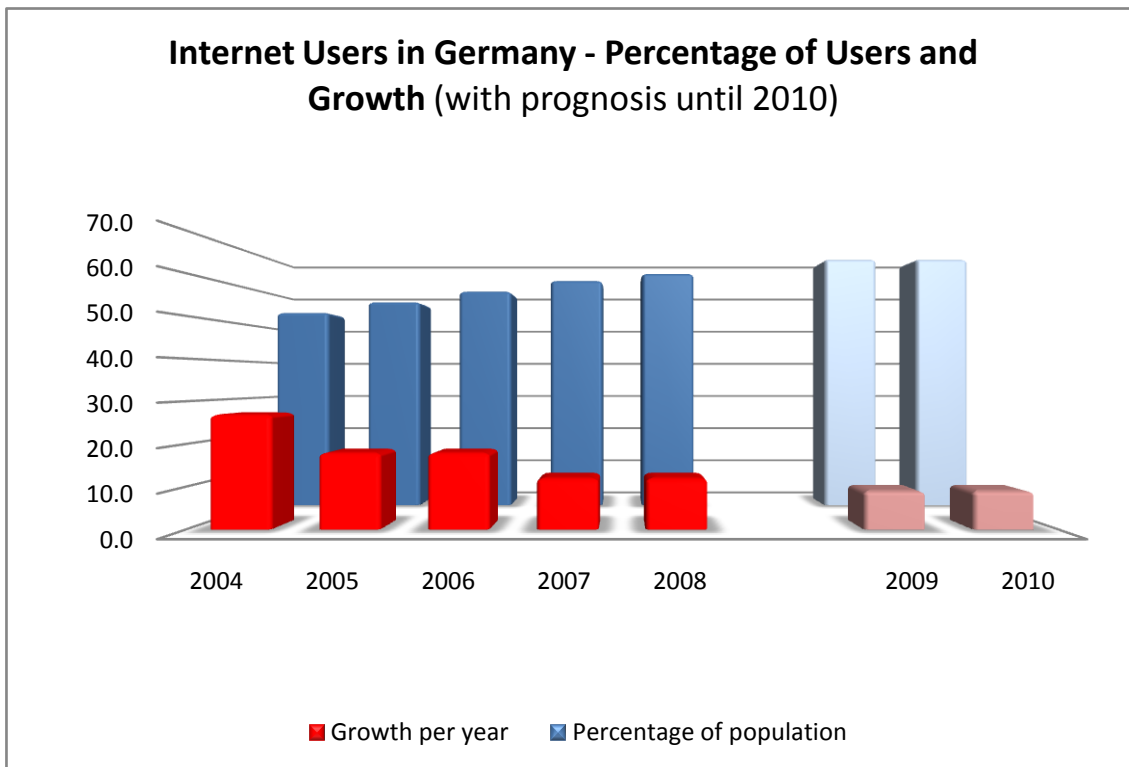


Figure 32 - Internet users in Germany 2004 – 2010

Graphic illustration: Own source

Data source: Bundesverband für Informationswirtschaft und neue Medien e.V., 2007

The increasing usage of the internet is even overtaken by the increase in overall revenues of the Ecommerce in Germany. The next illustration shows the development of the revenues generated by Ecommerce activities in the recent years and includes a prognosis of the further development until 2010.

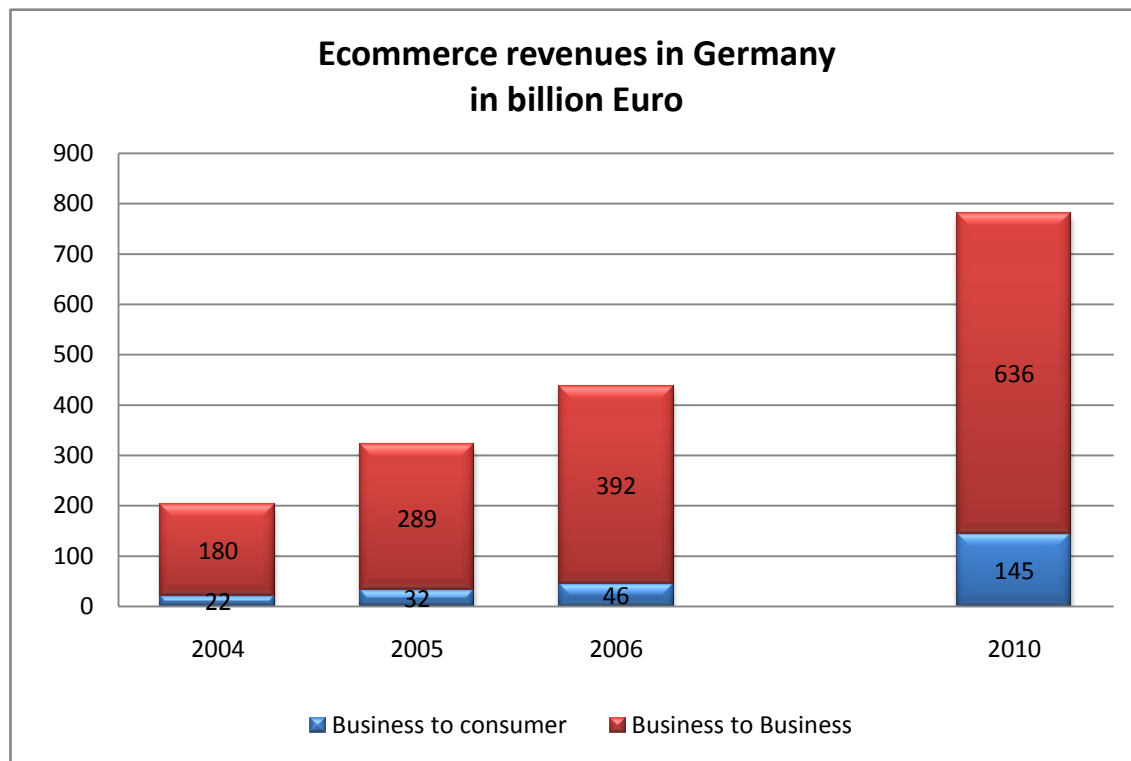


Figure 33- Ecommerce revenues in Germany

Graphic Illustration: Own source

Data source: Bundesverband für Informationswirtschaft und neue Medien e.V., 2007

The two previous figures show the current importance of Ecommerce and give an idea about its future development.

#### 4.2.2 Electronic Commerce and Electronic Business

This rapid advancement in technology and the immense growth of the importance of the internet in all areas of daily life have been accompanied by the same rapid changes and growth in the corresponding terminology.<sup>45</sup> Ecommerce is often thought to be simply buying or selling by using the internet, by using online shops like the famous bookstore Amazon or by online auction houses like eBay. But to understand the complexity of the Ecommerce sector and to show that there is much more involved in it, it is helpful to have a look at some famous definitions of Ecommerce.

<sup>45</sup> The term “electronic commerce”, has been supplemented by many other terms like “e-marketing”, “e-procurement”, and “e-CRM”. All these “e”-words might confuse managers who now have to deal with them, especially the older ones, and the ones having no sufficient IT background, but all in all a basic knowledge of this terminology today is necessary to be able to communicate with the relevant stakeholders in today’s business world.

One definition describes Ecommerce as “all electronically mediated transactions between an organization and any other party it deals with” (Chaffey, 2002, p. 5). This definition is interesting because it includes also all non-financial transactions and considers them being a part of Ecommerce. On the basis of the broad definition by Kalakota and Whinston (1997), a range of different perspectives on Ecommerce can be defined.

- ✚ **A communication perspective** – the delivery of information, products and services or payments by electronic means.
- ✚ **A business process perspective** – the application of technology to the automation of business transactions and workflows.
- ✚ **A service perspective** – enabling cost cutting at the same time as increasing the speed and quality of service delivery.
- ✚ **An online perspective** – the buying and selling of products and information online.

(Kalakota & Whinston, 1997)

This four perspectives suggest that nearly any business transaction in today’s world is to a certain extent Ecommerce, or has at least a connection to Ecommerce activities. Another approach to describe Ecommerce should be mentioned here to give a sound picture what is included in the term. Zwass (1998) refers to Ecommerce as “the sharing of business information, maintaining business relationships, and conducting business transactions by means of telecommunication networks”.

For managers Ecommerce is about using the power of digital information to understand the needs and preferences of each customer and each partner to customize products and services for them, and then to deliver the products and services as quickly and easily as possible (Loshin & Vacca, 2004).

### 4.2.3 Status Quo in Ecommerce

In recent years the technical barrier to enter Ecommerce has been decreasing rapidly, and basic background knowledge of the technical and financial requirements is necessary to approach the topic. There are countless different online shop software solutions available, and nearly all of them can be considered as working well. The decision about which solution is the right one is affected by a large number of variables, such as the proficiency, knowledge, capacity and ambition of the company concerning information technology and the need for special- and custom-tailored solutions. Prices range from €0 for open source solutions<sup>46</sup> up to more than

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<sup>46</sup> For instance, osCommerce (<http://www.osCommerce.com>) as used by the IC.



€10,000 for complex but still standardized solutions<sup>47</sup>. Custom-tailored solutions can cost millions of euro.

The same factors and development, the decreasing difficulties to participate in Ecommerce from a technical perspective, apply to all related topics, such as e-payment<sup>48</sup> solutions, marketing, shipment and logistic supporting tools<sup>49</sup> and the whole field of CRM and ERP<sup>50</sup> software. Summing up these factors shows that, from a purely technical perspective, it is now much cheaper and easier to enter Ecommerce than it used to be.

This development has led to a dramatic increase in the number of online shops in Germany in the recent years. In the year 2004 the “Bundesverband digitale Wirtschaft” conducted the first large-scale and representative survey analyzing commercial German websites. The study examined 15,089 “.de” domains randomly selected from 6,936,413 domains which were available at the beginning of the investigation. The examined websites were analyzed concerning their content and basic activities.

**The main outcomes of this study were that:**

- ✚ about two-third of the websites are related to business
- ✚ 33% are from the B2C sector, 21% are B2B
- ✚ only 3% are from the erotic industry
- ✚ about 13% of the websites are potentially creating direct revenue, and nearly half of these websites (47%) are online shops (Bundesverband für Informationswirtschaft und neue Medien e.V.)

Since this large survey the number of online shops has continued to rise. A recent study from July 2007, the Online Shopping Survey (OSS) of the Enigma GfK<sup>51</sup> indicated that the online shoppers, as well as the internet users which use the internet as a source of information in the pre-purchasing phase has increased by 6% from 2006 to 2007 and that the number of the users which use the internet as a source of information and compare prices between merchants even increased by 8% (GfK , 2007). This indicates that the consumers are becoming more and more sophisticated in using the benefits of the internet to maximize their advantages when shopping online.

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<sup>47</sup> For instance, e.pages, (<http://www.epages.de>) as used by the subsequently analyzed company.

<sup>48</sup> For instance, Worldpay and paypal (xxx) as used by the subsequently analyzed company.

<sup>49</sup> For instance, DHL (xxx) as used by the subsequently analyzed company.

<sup>50</sup> For instance, AFS Kaufmann (xxx) as used by the subsequently analyzed company.

<sup>51</sup> Enigma GfK is a company which belongs to the business Unit Media of the GfK (Gesellschaft für Konsum Forschung) Group, the world's number 4 market research organization.

The next figure shows the increase from 2006 to 2007 of the different types of users who use the internet for pre-purchase information decisions.

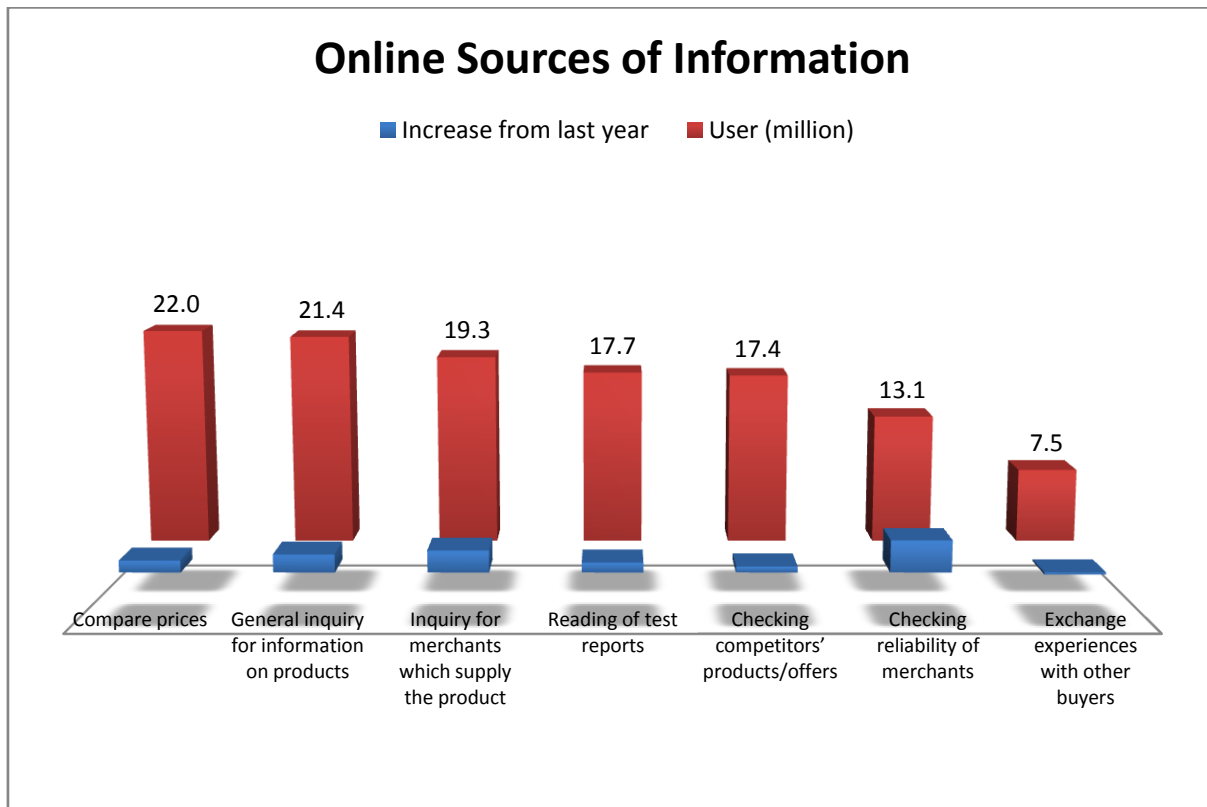


Figure 34 – Usage of online sources of information in Germany

Source: Own depiction, adopted from GfK, 2007

The real task therefore is no longer, or has never been to a large extent, to consider participating successfully in Ecommerce as a technical one. It is indeed a task which requires abilities and competences in many different sectors of business administration and an understanding of the underlying economic factors.

To investigate the influence of Ecommerce on the G&J industry the next chapter provides insight into the relevant characteristics of this sector.

## 4.3 The Gems and Jewelry Industry

### 4.3.1 Overview Gems and Jewelry Industry

The G&J industry is a very old and traditional industry, but concerning several characteristics it is also an unusual industry. The aim of this chapter is to give the necessary understanding of the nature of the G&J industry, examine its relevant characteristics and subsequently investigate these specific features from the above-mentioned three theoretical perspectives. In order to do so, after an overview of the complete sector, the focus will be narrowed and only the relevant characteristics of the segment in which the IC is active will be discussed.

For centuries the G&J industry has been by nature an inhomogeneous industry; it combines elements from arts to commodity products, from workmanship to high tech, and touches areas of both the highest emotionally and investment-driven considerations.<sup>52</sup>

#### **Jewelry Sector:**

Combines technique, experience, lure, trust, history, art and a broad spectrum of values. The jewelry sector is also separated into different price and quality segments, and the factor whether the focus is on value or on art, or both.

#### **Gems Sector:**

Combines miracles of nature, worldwide sources in often remote (geographical as well as psychical) areas, with an ambiguous, and for outsiders highly intransparent pricing mechanism. A natural separation of the gem sector also exists because of the distinct differences between the colored stones<sup>53</sup> and diamonds sectors.

Each one of these big fields is itself highly fragmented and in many areas they are overlapping both. From another point of view the industry can be structured in:

#### **Producers**

Big multinationals,<sup>54</sup> micro-companies,<sup>55</sup> mine owners,<sup>56</sup> and manufacturing and processing companies<sup>57</sup>

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<sup>52</sup> It would exceed the scope of this thesis to describe this diversified and colorful sector of the industry in its entirety. Instead, only the characteristics necessary for understanding the industry's mechanisms, the characteristics and the derivative effects connected to Ecommerce will be described here.

<sup>53</sup> Colored stones are all stones which are considered gems but which are not diamonds.

<sup>54</sup> Like De Beers (diamond mining and monopoly-like distribution (<http://www.debeers.com>)) and global players like Richemont S.A. (owning global companies and brands like Cartier (<http://www.richemont.com>)).

<sup>55</sup> small, jewelry producing goldsmith-designer-artist jeweler working alone in his atelier.

<sup>56</sup> From micro- to large-scale mining, virtually without technical support (like 100 years ago) often in highly hostile and remote environments to high-tech supported exploitation of natural deposits.

<sup>57</sup> Operating in different areas of the value chain, differentiated also across different countries

**✚ Wholesalers**

International importers and exporters,<sup>58</sup> as well as domestic wholesalers<sup>59</sup>

**✚ Retailers**

Retail chains,<sup>60</sup> big traditional mail order retailers,<sup>61</sup> and individual micro-retailers<sup>62</sup>

This list is definitely not exclusive, but it provides a basic understanding of the confusing interrelation and network of the industry. All together this makes up a highly intransparent and fragmented industry, which consists mainly of micro-, small and medium-sized companies. The following table tries to give a rough overview of the basic structure underlying the G&J industry and its main actors.

| <b><u>Gem Industry</u></b>     |                         |                           |   |  |   |
|--------------------------------|-------------------------|---------------------------|---|--|---|
|                                | <b>Size</b>             | <b>Field</b>              | <b>Operation</b>  | <b>Distributes to:</b>                               | <b>Comment:</b>   |
| <b>Producers</b>               | Big<br>SME<br>Micro     | International<br>National | Mining<br>Processing<br>Cutting                               | Wholesalers<br>Jewelry<br>Manufacturers<br>Retailers | <u>In the past:</u><br>Great number of intermediaries were necessary to enable business<br><u>Today:</u><br>Many producers and wholesalers use the possibilities of forward integration                                 |
| <b>Wholesalers</b>             | Big<br>SME<br>Micro     | International<br>National | Distribution B2B  | Jewelry<br>Producers<br>Retailers                    |   |
| <b>Retailers</b>               | Mainly:<br>SME<br>Micro | Mainly<br>national        | Retailing and often<br>custom-made<br>production              | Final customers                                      |   |
| <b><u>Jewelry Industry</u></b> |                         |                           |   |  |   |
|                                | <b>SIZE</b>             | <b>Field</b>              | <b>Operation</b>  | <b>Distributes to:</b>                               | <b>Comment:</b>   |
| <b>Producers</b>               | Big<br>SME<br>Micro     | International<br>National | Mass production<br>also custom-made<br>production             | Wholesalers<br>Retailers                             | <u>Same development as described above</u><br>(Gem Industry) <b>BUT:</b><br>Stronger potential for forward integration due to higher possibility of selling jewelry (as a finished product) directly to final customers |
| <b>Wholesalers</b>             | Big<br>SME<br>Micro     | International<br>National | Distribution B2B  | Retailers  |   |
| <b>Retailers</b>               | Mainly:<br>SME<br>Micro | Mainly<br>national        | Retailing often<br>combined with<br>custom-made<br>production | Final customers                                      |   |

Table 8 – Actors in the G&J industry

Source: Own source

<sup>58</sup> Different products, some of them are also operating as producers and retailers.

<sup>59</sup> Most commonly as wholesalers of raw and supply products (to producers) and merchandise goods (to retailers).

<sup>60</sup> Like Christ (part of the Douglas Group, more than 200 retail shops and also active in Ecommerce, <http://www.christ.de>.)

<sup>61</sup> Like the big German mail order companies Quelle and Neckermann.

<sup>62</sup> Like the above-mentioned goldsmith-designer-artist jeweler who is also selling jewelry.

Generally, gemstones and jewelry are low liquidity products,<sup>63</sup> a factor which is based on several characteristics.

- ✚ Gemstones as well as a high percentage of the jewelry are un-standardized products, which makes it difficult to compare prices and quality aspects, especially for the customer.<sup>64</sup>
- ✚ G&J are often luxury goods which are purchased highly infrequently and seldom.
- ✚ G&J is often highly related to emotions, which might give the product a perceived value that is often not related to the objective monetary value.
- ✚ The difficulty of objective value assessment is often increased by the custom-made, rare and unique nature<sup>65</sup> of the products.
- ✚ Regarding gemstones in particular, the immense amount of different types in different qualities and the complex supply chain lead to a highly fluctuating pricing which indeed is often even unclear to the members of the industry. For the customers this is more than complex to understand, it is confusing.

All these factors result in a highly intransparent pricing structure, a fact which in recent years has been amplified due to a growing amount of synthetics, imitations and treatments which have become available on the market (Liddicoat, 1993).<sup>66</sup>

Considering the industry as such this intransparency was one of the main reasons why very high margins could be achieved by some industry members. These high margins were necessary and justified by high operating expenses<sup>67</sup> and low inventory turnover rates. The high margins were necessary to achieve an acceptable return on investment in the stock (Buffet, 2007). Moreover, in the past the G&J industry used to be a fairly impenetrable “insider” business, and this situation was beneficial for the members of this industry.

In recent years the G&J industry has been affected by the changing global environment and technological developments.

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<sup>63</sup> This is changing due to Ecommerce and the appearance of new secondary markets like eBay.

<sup>64</sup> In this industry the customer is much more a layman than in others and has to trust the expert, which is most often the vendor, to a high degree.

<sup>65</sup> Considering jewelry, the question arises how to assign a value to art and beauty, considering gemstones how to assign uniqueness, rarity and beauty. This is different for the diamond sector which has objective grading procedures, which makes diamonds much more assessable than other gemstones.

<sup>66</sup> For further information on these aspects of the gem sector see Liddicoat, Themelis, and Gems Reference Guide.

<sup>67</sup> The advisory service for customers is highly time-consuming and requires also from the sales team relatively high product knowledge compared with other industries.

### **Changing global environment:**

Internationalization and globalization<sup>68</sup> have altered the whole production and distribution process of goods and services (David, 2005, p. 27). Concerning the G&J industry, fundamental changes have occurred because of the increasing availability of the different goods traded by the industry in the source country as well as in Germany.

This increasing supply has also lowered the possible margins substantially. G&J products by their nature have a relatively high value compared to their size and weight, which makes them very easy and lucrative to ship. This in combination with the much easier possibilities to communicate and travel internationally<sup>69</sup> made these once relatively scarce products now abundant in Germany.

According to data from the Bundesverband Schmuck, Uhren, Silberwaren und verwandte Industrien e.V., the demand for and sales of G&J products have remained unchanged, and for some sectors of the industry even has decreased (2007). However, the oversupply, applying economic basics, shifts the equilibrium and makes prices fall (Samuelson & Nordhaus, 1998).

### **Technological Developments**

Technological changes have had effects on any business sector and on the overall economy. Here especially Ecommerce is a very important factor. This topic and the influence of it on the G&J industry is the focus of analysis of Chapter 4 and will be examined in detail in the subsequent sections.

From the consumer perspective, these changes have been beneficial, as the higher supply and the higher competition and transparency have led to lower prices. For some members of the trade, however, this development has created fatal problems. Mainly small companies in the production and the retail fields have been adversely affected because, unlike big companies that can play this global game, the smaller members of this industry do not have the financial means to compete on this global market.

As the IC is operating mainly in the retail sector with a combined product portfolio of gemstones and jewelry,<sup>70</sup> especially this sector will be investigated in the subsequent work. The following table sums up the general attributes which can be assigned to the G&J industry.

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<sup>68</sup> Globalization can be described as an umbrella term referring to an increased interdependence in the economic, social, technological, cultural, political, and ecological spheres. In the view of global trade, the term globalization is the opposite of protectionism.

<sup>69</sup> This influences had also other Influences of the Industry, as for example general lowered barriers to enter the business, and by this on competition, but this considerations are not topic of this thesis.

<sup>70</sup> With focus on retailing, even if the IC is also performing production and wholesale activities. As described above in the investigated industry a stricter differentiation is often not possible and useful.

| <b>Attributes of the Industry</b>  |  |
|--|--|
| <b>General Nature</b>  | <b>Economic</b>                        |
| ✚ Based on traditions, somehow slow business   | ✚ Intransparent                        |
|  | ✚ Supply often difficult               |
| ✚ Trust and reputation often considered to be highly associated with the business owner                  | ✚ High margins                         |
|  | ✚ Difficult pricing structure          |
| ✚ Based on trust   | ✚ Low inventory turnover rates         |
| ✚ Based on reputation and expert knowledge   | ✚ High operating costs                 |
| ✚ Impenetrable insider business  | ✚ Luxury goods                         |
|  | ✚ Many small actors, fragmented market |
| ✚ For some members of the industry often other values are more important than solely profit maximization |  |

Table 9 – Attributes of the G&J industry

Source: Own source

### 4.3.2 Traditional Retail Gems and Jewelry Industry

The retail sector of the gems and jewelry industry has traditionally a high connection to trust, reputation and expert knowledge. There are several big players, which can be divided into:

- ✚ Jewelry retail chains<sup>71</sup>
- ✚ Mail-order companies<sup>72</sup>

Besides these bigger players, there is an enormous amount of small companies, often family-owned, making up the bigger percentage of the industry, which uses different channels to distribute their merchandise.

- ✚ Independent jewelry stores<sup>73</sup>
- ✚ Independent retailers<sup>74</sup>

These small players provide additional benefits for the customers, and this is a basis for their success. These small businesses are often family-owned and traditionally well-established businesses with many years, often generations of reputation for exceptional service. The owners of these businesses often represent highly respected members of the communities they are

<sup>71</sup> Focusing on retail stores.

<sup>72</sup> Using different channels to distribute their offer, including catalogs, TV sales and also Ecommerce channels.

<sup>73</sup> With their own production facility, focusing mainly on individual custom-tailored jewelry.

<sup>74</sup> Solely retailers without associated production.

operating in, and the cornerstones of their business are service, trust and reputation (Ideal Diamond Solutions, 2008), which requires a high level of product knowledge and practical skills. These aspects compensated in the past often other resources, which are often limited due to the fact of being a small company.<sup>75</sup> Because of these factors, the traditional jeweler is not a common businessman; he is often a hybrid of different elements like:

- ✚ Artist
- ✚ Designer
- ✚ Goldsmith
- ✚ Gemologist
- ✚ Service provider
- ✚ Style consultant
- ✚ Businessman

This list is not exhaustive; the most important aspect is that often the business aspect was considered one of the less important of all these elements and only due to the nature of the G&J industry, this approach worked out well.

### **4.3.3 Recent Development of the Retail Sector of the G&J Industry**

Due to the developments described above, the situation in the G&J industry has become tense. The factors mentioned are amplified by the cautious buying behavior of the German customers and the trend towards cheap jewelry produced in low wage countries.<sup>76</sup> This affects mainly traditional companies, which are operating in the low to medium jewelry price segment (Industriekompass 2006, 2006, p. 132). The tense situation is even worsened for the traditional jeweler due to competition from (former) industry outsiders like supermarkets, mail-order companies, fashion stores, online shops and auction houses (online and offline) (Industriekompass 2006, 2006).

All this contributes to a development which some sources describe a paradigm shift in the way jewelry is sold (Ideal Diamond Solutions, 2008), and this relates to the topic of this thesis – the influence of Ecommerce on the G&J industry.

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<sup>75</sup> According to the Statistisches Bundesamt Deutschland, the average number of employees per company in the G&J industry in Germany is 3 (2006).

<sup>76</sup> Mainly from China, Taiwan, Thailand and South America.



#### 4.4 The Influence of Ecommerce on the Gems and Jewelry Industry

The influence of Ecommerce on the G&J industry is a complex topic. Before explaining and applying the underlying theoretical and strategic concepts, the following table will give an overview of how the characteristics of the G&J industry connect to the respective theoretical framework.

| <u>MBV</u>  | <u>RBV</u>  | <u>TCE</u>   |
|---|---|--|
| Ecommerce and the internet influence the external environment as it highly increases industry competition (Porter, 2001).   | Participating successfully in Ecommerce requires often a change in the competences of the company.<br><br>This change in competences affects the “inside” of the company to an immense degree (Prahalad & Hamel, 1990). | Ecommerce generally has the ability to lower transaction costs.<br><br>Technical innovations which tend to bring factors of production closer together (like the telephone or telegraph) tend to reduce transaction costs (Coase, 1937). |
| <u>Main Influence:</u>  | <u>Main Influence:</u>  | <u>Main Influence:</u>   |
| The intransparent industry becomes transparent, many new actors due to lower entry barriers, higher bargaining power of customers.<br><br>Possibility of forward and backward integration lowers demand for intermediaries and decreases margins. | Location advantages are losing value, expertise and knowledge have to be transferred in an efficient way over the net, additional resources have to be built.   | The G&J industry is based on reputation and trust, which are values that are difficult to mediate over the internet.<br><br>Technology has to be used in an efficient manner, otherwise others have a better advantage.                  |

Table 10 – Influence of Ecommerce on investigated industry sector

Source: Own source

#### 4.5 Three theoretical frameworks

The next sections will provide the theoretical background of the employed theoretical frameworks, indicating the interaction of them considering Ecommerce. Subsequently, these three perspectives will be used to focus on the retail sector of the G&J industry.

The following table gives an overview of the three theoretical frameworks used in the following three sections.

|                                   | <b><u>MBV</u></b>  | <b><u>RBV</u></b>   | <b><u>TCE</u></b>   |
|-----------------------------------|--|---|---|
| <b>Basic assumption</b>           | <b>Structure-Conduct-Performance Paradigm</b>  | <b>Resource-Conduct-Performance Paradigm</b>  | <b>Economic exchanges generate costs</b>  |
| <b>Important works</b>            | <b>Barriers of new competition</b> (Bain, 1956)<br><br><b>Competitive strategy, Competitive advantage, the competitive advantage of nations</b> (Porter)                 | <b>The theory of the growth of the firm</b> (Penrose, 1995)<br><br><b>The resource-based view of the firm</b> (Wernerfelt, 1984, 1995)<br><br><b>Firm's resources and sustained competitive advantage</b> (Barney 1991) | <b>The nature of the firm</b> Coase (1937)<br><br><b>The Economics of organizations, the economic institutions of capitalism, the mechanisms of governance</b> (Williamson 1981-1996) |
| <b>Unit of analysis</b>           | The <b>external</b> of the firm  | The <b>internal</b> of the firm   | The <b>transaction</b> itself, the <b>contract</b>  |
|                                   | <b><u>Economic Background</u></b>  |   |   |
| <b>Theoretical roots</b>          | <b>Industrial economics &amp; industrial organization</b>  |   | <b>New institutional economics</b>  |
| <b>Underlying body of thought</b> | Humans are rational, perfectly informed and self-interested actors who desire wealth, avoid unnecessary labor and have the ability to make judgments towards those ends. |   | New institutional economics assume asymmetric and imperfect information, bounded rationality and opportunism.   |

Table 11 – Overview - MBV, RBV and TCE

Source: Own depiction, adopted from several sources

## 4.6 Market-Based View

### 4.6.1 Foundation

The Market-Based View (MBV) was mainly influenced by the work of Porter. Its basic assumption is the Structure-Conduct-Performance (SCP) Paradigm which states that in the long run performance is governed by the structures of the industry (structure) as well as by the behavior of the firm (conduct) but also by the selection and application of the appropriate competitive strategies. The following figure depicts the SCP Paradigm.

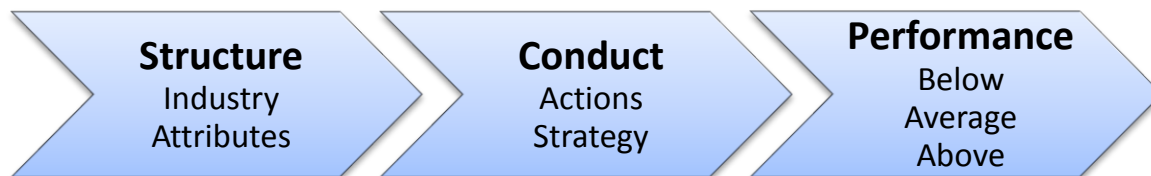


Figure 35 – Structure-Conduct-Performance Paradigm

Source: Own depiction, adopted from different sources

This means that the characteristics of the industry do not only influence the behavior of the company, they also have direct influence on performance. Interestingly, the original intention of this model was to avoid above-average profits. Strategists have turned the SCP model upside down and use its insights for optimizing the performance of companies (Peng, 2006, p. 41).

Porter explains the cause and effect relationships inside an industry by using four models:

- ✚ The five forces model
- ✚ The concept of strategic groups
- ✚ The generic strategies
- ✚ The value chain

These models help to explain and understand the great influence that E&I have on the business world as such.

### 4.6.2 Porter's Five Forces Framework and Ecommerce

Porter's Five Forces framework explains and analyzes the major economic and technological forces that will ultimately influence the industry's profit potential. The following figure depicts the 5 forces and their interrelation.

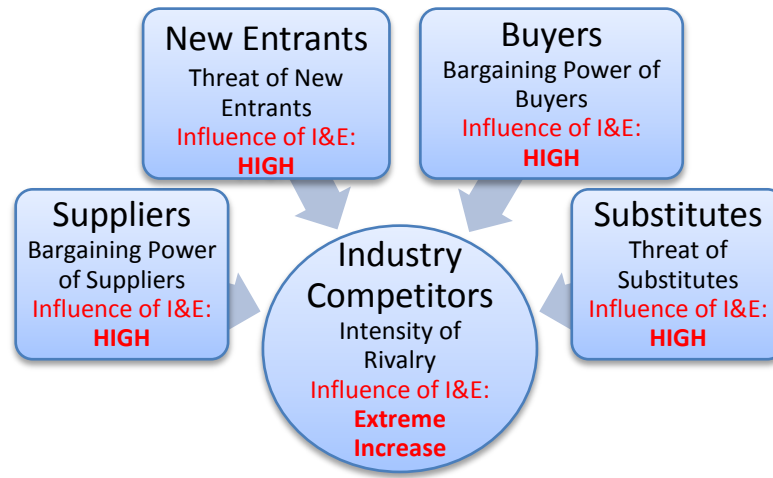


Figure 36 – Porter's Five Forces Model

Source: Own depiction, adopted from Porter, 1980 and Porter, 2001

If the five forces are weak, the industry is lucrative and profitable. This assumption can also be economically derived from the fact that if the forces are weak, the completion in this industry is imperfect, which makes it possible to make above-average profits. This assumption is coherent with the one of Bain who concluded that these abnormal profits are explained by the existence of mobility barriers which create market power of the companies concentrated in the industry (Bain, 1956).

### The influence of E&I on the five forces:

Each of these forces is highly influenced by the new "reality" which is created by the E&I. Therefore, they have to be examined separately with regard to the changes. The following considerations are based on and adopted from the table "The five forces and the internet" (Peng M, 2006, p. 52).<sup>77</sup>

✚ **The threat of new entrants** is the level of difficulty which new participants face when entering an industry (Porter, 1980). High barriers of entry mean low risk of new, additional competitors and make up a safe and profitable environment for the existent companies. Traditional entry barriers are economies of scale, brand identity and switching costs.

**E&I reduce these entry barriers substantially.** The easy and little capital requiring technical possibilities reducing the capital requirements to participate in Ecommerce substantially. Regarding the retail business, there is a strong reduction in the need of sales force and physical assets like buildings in prominent locations. Shop systems,

<sup>77</sup> This summary is based on the following sources: (1) Canzer, 2003, *E-Business: Strategic Thinking and Practice*, Boston: Houghton Mifflin (Canzer, 2003); (2) Porter, 2001, "Strategy and the Internet", *Harvard Business Review*, March, 63-78; (3) Ragan & Adner, 2001, "Profits and the Internet: Seven Misconceptions", *MIT Sloan Management Review*, Summer, 44-53.

technologies and most other kinds of internet applications are easier to acquire than physical assets, which make it easy for newcomers to start participating in Ecommerce. This and many other factors lower entry barriers substantially, which subsequently means that the advantage existing companies might have had is much less important than it used to be.

✚ **The bargaining power of buyers** is the influence which the company's customer has to control the performance of the firm. Low bargaining power of the customer is favorable for the company as the company is able to a larger extent to raise prices or decrease the quality of the products without having to fear undesirable consequences. Traditionally the bargaining power of suppliers is determined by factors including the number of buyers, concentration of buyers, the access of buyers to relevant information and the switching costs of the buyers relative to the ones of the firm.

**E&I increase bargaining power of buyers substantially.** Buyers have now much more and easier access to information about the company's products. They even can now comfortably compare prices without much effort by using specific price search engines<sup>78</sup> and websites specialized on price comparison,<sup>79</sup> which leads to a transparency that has never been available to the customer before. From an economic perspective, this increases transparency and market efficiency, thereby decreasing the possibility to achieve above-average profits. Even if the total number of potential buyers is increasing due to the participation in Ecommerce, this advantage is destroyed by the increase of competitors.

✚ **Bargaining power of suppliers** is the ability of suppliers to influence cost, availability and quality of input materials. Low bargaining power of suppliers is favorable for the company as they cannot be threatened by the suppliers easily. Traditionally the bargaining power of suppliers was influenced mainly by switching costs and the presence of substitute products, but concerning Ecommerce, the most important factor is the relationship of the threat of backward integration and the threat of forward integration.

**E&I increase the bargaining power of suppliers (indirect) substantially** by offering an easy and comfortable way to reach end users directly. Thus, the leverage of the intermediaries is reduced, and their profitability directly decreased. If the suppliers can take advantage of the whole profit margin with relatively low effort, there is no need for intermediates. Furthermore, the factor of increasing transparency gives all the competing companies equal access to suppliers, which is especially important for industries where a "good" relationship to suppliers is of high value.

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<sup>78</sup> Such as <http://www.preissuchmaschine.de>.

<sup>79</sup> Such as <http://www.guenstiger.de>.

✚ **The threat of substitutes** refers to the risk a company faces due to the appearance of possible or existing substitutes. A low threat of substitution is favorable for existing companies in an industry as they do not have to fear to be kicked out of the market by a competitor offering a “more valuable” substitute. Traditionally, the threat of substitutes is determined by propensity to substitutes, switching costs and the price-performance ratio of the substitutes.

**E&I increase the threat of substitution immensely**, as it makes substitution generally much easier, which often reduces switching costs substantially.<sup>80</sup> This is amplified by the increase of transparency which enables customers to find products with a better price-performance or price-value ratio, making the market more efficient and thereby reducing the companies’ ability to earn above-average profits.

✚ **Industry competition** is the most influential of the five forces and describes the intensity of competition itself in the industry. Traditionally, the determinants of competition are industry growth, product differences and informational complexity.

**E&I increase industry competition immensely**. In addition to the factors explained the level of differentiation among the competing companies is decreased, which drives the basis of the competition to price. This is amplified by the factor that the amount of competitors increases dramatically as the importance of geographical factors decreases substantially.

To sum up, E&I are increasing the power of all of the five forces, thereby increasing dramatically the competition between the providers operating in the industry.

### 4.6.3 Strategic Groups and Ecommerce

The concept of strategic groups explains the differences within an industry. The firms in an industry are differentiated by the different strategies they are following with differing success. This concept segments the companies into different groups which are relatively equal concerning their strategic behavior and profits (Peng, 2006, p. 55ff). Similar to the five forces framework, there are barriers which make switching from one group to another difficult or impossible.<sup>81</sup>

From this can be derived that in addition to the characteristics of the industry, the structure of the industry is of high importance, as the five forces have an asymmetric influence on different

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<sup>80</sup> In particular for the customers and buyers in B2C as well as in B2B switching costs are reduced. For B2C customers it is possible that switching cost arise as the next competitor is literally just one mouse click away.

<sup>81</sup> Mobility barriers and switching costs

strategic groups within one industry (Fleisher & Bensoussan, 2002, p. 75). Members of a strategic group face the same dangers and have the same opportunities and similar competitive approaches and positions (Barney, 1997). Strategic groups can be depicted graphically within a two- or three-dimensional graphic.<sup>82</sup> The following figure shows an example of a strategic group analysis using quality and price segment and company size as variables.

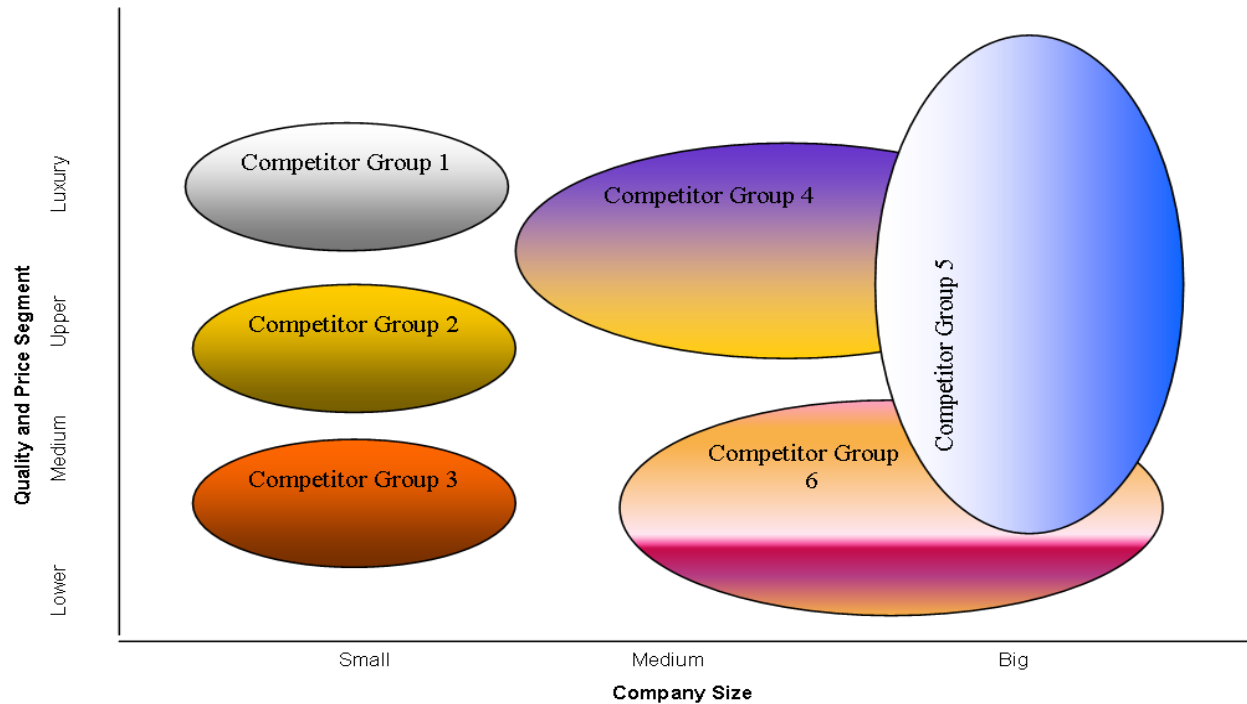


Figure 37 – Strategic groups  
Source: Own depiction

### The influence of E&I on strategic groups:

As Ecommerce is highly influencing the five forces, Ecommerce has also great influence on strategic groups. Inter- and intra-group competition increases and new strategic groups are formed due to the increasing transparency. Also, direct competition arises between companies which did not compete directly before because of new technological opportunities.

<sup>82</sup> The variables which are underlying the different axes have to be as independent as possible. They should be the strongest strategic variables which differentiate the strategic groups.

#### 4.6.4 The Three Generic Strategies and Ecommerce

As mentioned above, the behavior (conduct) of a company has great influence on the success of the firm. As a guideline for the market behavior, Porter developed the model of the generic strategies. Generally, there are three essential generic strategies:

✚ Cost leadership:

Emphasizes on cost reduction and efficiency. The firm produces high volumes of standardized products and exploits economies of scale and experience curves. The products are sold to a large customer base.

✚ Differentiation:

Focuses on products and services which are perceived to be different and unique. This allows the company to charge a premium. Differentiation criteria can be design, brand image, technology or customer service.

✚ Focus:

Concentrates on few target markets. By focusing on narrow segments, this strategy allows a company to fulfill the needs of these niche markets. By doing so, the firm aims to gain a competitive advantage through effectiveness rather than efficiency. This strategy is often applied by small firms.

These generic strategies depict fundamental strategic dimensions, and E&I is highly influencing this model. The following table depicts the generic strategies and their relevant distinctions.

|                               | <u>Differentiation</u>                                       | <u>Market Segmentation</u>            | <u>Characteristics</u>   |
|-------------------------------|--|---------------------------------------|--|
| <b><u>Cost leadership</u></b> | <u>Low</u><br>(price)  | <u>Low</u><br>(mass-market)           | <b>High volume and high margin</b><br>(Low cost, low price, average customers, mass market)              |
| <b><u>Differentiation</u></b> | <u>High</u><br>(uniqueness)                                  | <u>High</u><br>(many market segments) | <b>Low volume and high margin</b><br>(Customer perceives product and services as valuable and different) |
| <b><u>Focus</u></b>           | <u>Low</u><br>(price)      or<br><u>High</u><br>(uniqueness) | <u>Low</u><br>(one or a few segments) | <b>Particular segment or niche of industry</b>   |

Table 12 – Generic strategies

Source: Based on Peng (2006)

**The influence of E&I on the generic strategies** is discussed controversial in the literature. Michael Porter's core proposition is that by reducing industry profitability without providing



additional operational advantages, the distinction between companies through strategy becomes more important. In many branches industry profitability becomes eroded due to the behavior of many companies who use E&I to shift their basis for competition away from quality, features and services toward price, which makes it harder for the industry members to make profits (Porter, 2001, p. 63). This statement implies that there is a trend toward cost leadership strategy due to the influence of E&I. On the other hand, E&I offer a huge potential for differentiation due to the diminishing influence of geographic distances and the possibility to reach a much higher number of customers and the reduction of search and other transaction costs (Tapscot, 2001).<sup>83</sup>

#### 4.6.5 The Value Chain and Ecommerce

The Value Chain (VC) is a tool to find out sources of competitive advantage by suggesting how the firm's internal core competences can be exploited in the company external environment. Within this Value Chain Analysis (VCA) the firm is divided into strategically relevant value creating activities which are then related to the industry context (Fleisher & Bensoussan, 2002, p. 104). This also was the main aim of Porter when he created the VC Concept to close the strategic gap between the firm's internal capabilities and the external competitive environment (Porter, 1985). The following illustration shows the traditional value chain according to Porter.

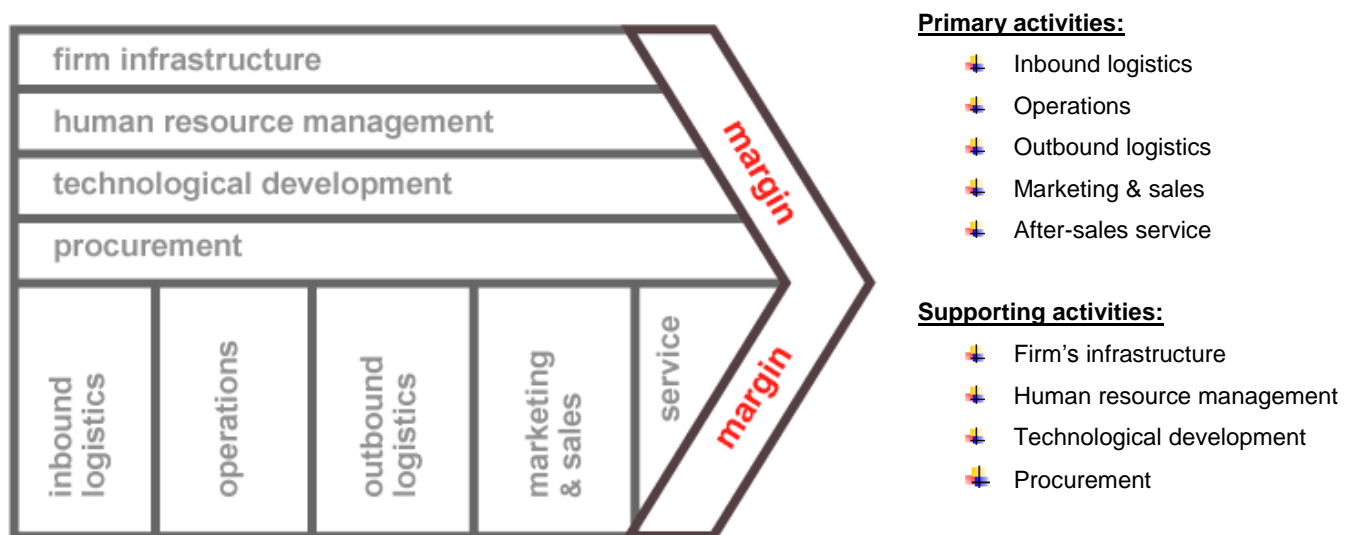


Figure 38 – The value chain  
Source: provenmodels.com

In his famous article “Strategy and the Internet”, Porter depicted prominent applications of the internet in the value chain. He sees the “special advantage of the Internet as the ability to link one activity with others and make real time data in one activity widely available (Porter, 2001, p. 74). The following figure, taken from the above-mentioned article, illustrates that.

<sup>83</sup> This topic is covered in depth in Chapter 4.8.

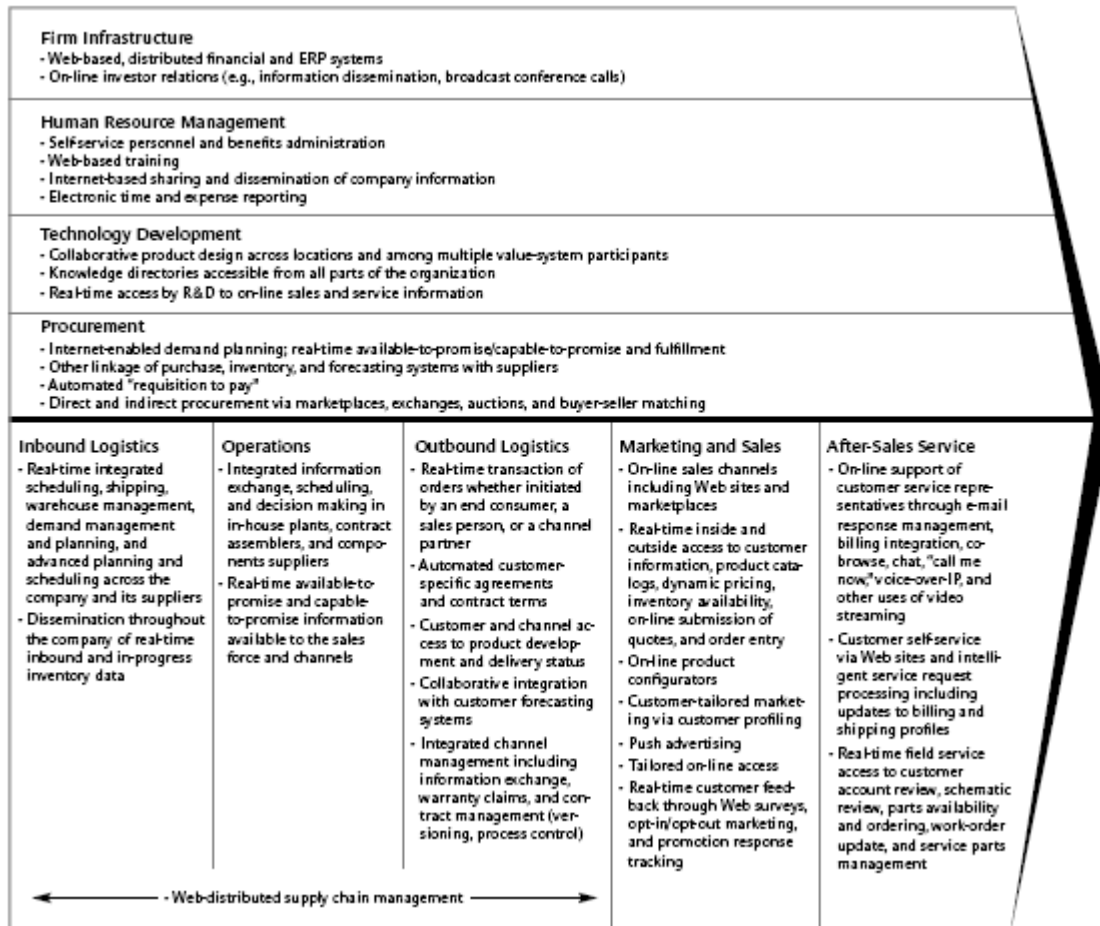


Figure 39 – Prominent applications of the internet in the value chain  
 Source: Strategy and the Internet (Porter, 2001)

Depending on the degree of exposure and influence of the E&I, not all firms and their VC are affected to the same degree by the changes induced by E&I. According to Schmied (2000), there are two general transformations which can be induced by E&I:

**✚ Evolutionary**

An evolutionary transformation changes the VC not completely but certain parts are changed and influenced. The structure itself will not be changed.<sup>84</sup>

**✚ Revolutionary**

A revolutionary change means that large parts or the whole VC are influenced by E&I. Such changes are mainly temporary phases of transformation.<sup>85</sup>

Transformations which have an evolutionary character for some firms can have a revolutionary character for other firms in the same industry depending on their value chain.

<sup>84</sup> This happens if a retail shop uses the I&E as a additional way of distribution, the business concept itself is not touched and changed seriously

<sup>85</sup> Revolutionary changes are highly influencing the business models of the affected firms.

#### 4.6.6 The Influence of Ecommerce on the G&J Industry from a MBV Perspective

Focusing with the market-based view on the G&J industry and the changes induced by E&I reveals important influences. E&I increase the influence of all of the five forces, which changes the whole industry environment for existing companies.

The **threat of new entrants increases** due to decreasing entry barriers<sup>86</sup> as it is now easier for newcomers to enter the industry. On the one hand, this increases the supply but on the other hand, it leads to a losing of the former competitive advantage of the existing firms.

The **increasing bargaining power of buyers** decreases the profitability of the G&J industry. The increasing transparency<sup>87</sup> suggests to the customers that they now can compare prices and find the best offer. Theoretically this should make the market more efficient, which would be beneficial for the customers, and for the companies it would decrease the possibility of reaping above-average profits. Due to the complexity of the G&J industry, this is only partly true, as the increase in transparency due to E&I leads superficially considered to the possibility for the customers to compare prices, but due to the problems in comparing quality, and by this the value of the product, comparing only prices is just one side of the coin.

The **increasing bargaining power of suppliers** also increases the competition, thereby decreasing profits. The possibilities induced by E&I<sup>88</sup> make it easier for suppliers and producers to directly reach the final customers, which has a great impact on the G&J industry, which is traditionally composed of a complex network of importers, exporters, producers, suppliers, intermediaries, wholesalers and retailers.<sup>89</sup> Because of the possibilities of forward integration many, producers and suppliers will now aim to reap the margins which were formerly earned by intermediaries and retailers. This development is not limited to national borders and offers opportunities to producers and suppliers in the source country as well as in cheap labor countries. All together this strongly influences the G&J industry.

The increasing **threat of substitutes** due to E&I also affects the G&J industry. Regarding the retail business in particular, switching costs from one vendor to another are reduced, as the next vendor is literally just one mouse click away. As no physical relationship was developed with the jeweler, as it traditionally used to be the case in the G&J industry, the customer does not feel bound to the respective company. In the case of the G&J industry the threat of substitutes is

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<sup>86</sup> Because of technological developments, decreased capital requirements, decreased need for sales force and physical assets, especially retail outlets and offices in prominent locations. These assets were much more difficult to copy compared to an online outlet.

<sup>87</sup> Because of a higher access and availability of information about the companies and the offered products due to E&I.

<sup>88</sup> For this point especially communication and data exchange possibilities provided by E&I are important.

<sup>89</sup> This list is not exclusive.

even amplified because the product has not be substituted by the exact same product; instead, the customer is in most of the cases searching for a somehow comparable product.<sup>90</sup> Thus, as the products do not have to be exactly the same, sometimes not even equal, the threat of substitutes rises drastically compared to the previous, traditional situation in which the customer had a limited supply, for example, in a jewelry shop.

All these factors **increase the competition within the industry**. The main source of differentiation, which was for many jewelry retail outlets often simply their location, loses its role. The fact that the revenues of the G&J industry in Germany have not grown in the past years,<sup>91</sup> and the fact that new competitors have established themselves due to the above-described reasons have contributed to the increase in competition in this industry.

Another influence of E&I on the G&J industry is that because of the increasing transparency and availability of information for the customers **strategic groups** arise where they have never been before. The classical retail jeweler is now competing not only with mail-order and TV sales companies, but also with his remote peers and colleagues. It does not matter too much whether the respective company is participating actively in Ecommerce or not, but as many SMEs with equal resources and focus participate and start participating in Ecommerce, new strategic groups emerge. In summary, this also increases the competition for the individual participants.<sup>92</sup>

Analyzing the influence of E&I on the G&J industry by focusing on the **three generic strategies** shows that most probably the differentiation of focus strategies are appropriate for the SMEs of the G&J industry. Porter argues that E&I general decreases industry profitability without providing additional advantages, and the general shift from quality, features and service toward price leads to an increase in cost leadership strategies (Porter, 2001, p. 63). This strategy is not recommendable for the SME companies of the analyzed industry. Considering the characteristics of the G&J industry and the companies who are active there,<sup>93</sup> differentiation and focus strategies are more appropriate, because with these strategies the companies can exploit the opportunities<sup>94</sup> of E&I and at the same time decrease the threats<sup>95</sup> of it.

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<sup>90</sup> For example, a customer is not searching for the exact same pendant; he only has an idea but does not know what exactly he is searching for.

<sup>91</sup> According to data from the Bundesverband Schmuck, Uhren, Silberwaren und verwandte Industrien e.V., the demand and sales for G&J products have remained unchanged at best, and for some parts of the industry have decreased (2007).

<sup>92</sup> This again is amplified as the members of the respective strategic groups face the same opportunities and threats, which in turn increases competition.

<sup>93</sup> As most of the companies in the G&J industry are SMEs they are simply too small to apply a cost leadership strategy which is based on the production and processing of standardized products and exploitation of economies of scale and experience curves. The attributes do not support this strategy.

<sup>94</sup> Which is reaching a high number of customers interested in a very differentiated and niche product and product bundle due to the diminishing influence of geographic distances.

<sup>95</sup> Which is the explained increase of competition that makes cost leadership a strategic alternative not recommended in the case here.

Basing the considerations about the influence of E&I on the G&J industry on **value chain analysis** shows that, depending on the importance of E&I to the respective company, the company value chain will be affected evolutionary or revolutionary. In particular, retail companies and companies who just operate in a narrow part of the industry value chain are in danger of being passed over by their former suppliers as they might exercise forward integration and start selling direct to the customers. This danger is high especially because of the traditional high margins<sup>96</sup> which the retailers earn in the G&J industry, which makes forward integration very interesting for the former producers and suppliers.

In addition to these external factors, several other factors have to be considered. Online auctions like eBay create a secondary market for many of the products of the G&J industry which have not existed before. In the past these products, once sold, were private property and only seldom came back onto the market. This factor further increases supply, decreases demand and increases the liquidity of the formerly illiquid products, thereby decreasing the achievable margins. For smaller industry members, the increasing supply of the mentioned products causes serious problems.

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<sup>96</sup> The high margins are not the only reason for this as many other attributes of E&I also support the exploitation of the opportunity of forward integration.

## 4.7 Resource-Based View

The Resource-Based View is (RBV), like the MBV, based on a paradigm. The Resource-Conduct-Performance Paradigm (RCP) assumes that firm-specific resources determinate to a large degree the performance of the firm (Buhmann, 2006). The following figure illustrates the RCP Paradigm.



Figure 40 – Resource-Conduct-Performance Paradigm

Source: Own depiction

### 4.7.1 Foundation

Important contribution to the development of the RBV were made by Edith Penrose with her book *Theory of the Growth of the Firm* published in 1959 and by Selznik (1997) who investigated the interaction between company management and competencies. The basis for the current RBV theory was established in 1984 with the two publications *A Resource-Based View of the Firm* by Wernerfelt (1997) and *Towards a Strategic Theory of the Firm* (Rumelt, 1984).

The RBV can be used to identify the resources which lead to a sustainable competitive advantage. The source of a competitive advantage lies in the possession or the better usage of resources<sup>97</sup> compared to the competitors. Sustained and superior financial performance, the hallmark of competitive advantage, is derived from four different types of economic rent,<sup>98</sup> the returns generated through the firm's opportunity costs<sup>99</sup> (Mahoney & Pandian, 1992). These four types of rents are:

- ✚ Ricardo rent<sup>100</sup>
- ✚ Schumpeter rent<sup>101</sup>

<sup>97</sup> According to Barney, the term „resource includes all assets, capabilities, organizational processes, firm attributes, information, knowledge etc. controlled by a firm that enable the firm to convince of and implement strategies” (Barney, 1991).

<sup>98</sup> Economic rent is a measure of market power: the difference between what factor of production is paid and how much it would need to be paid to remain in its current use (Economist.com, 2008).

<sup>99</sup> Opportunity cost is the value of a product forgone to produce or obtain another product.

<sup>100</sup> Named after David Ricardo, a British political economist (1772-1823); generated due to the ownership of rare resources, this type of rents are rare, more long term as Schumpeter rent.

<sup>101</sup> Named after Josef Alois Schumpeter, an Austrian economist and political scientist (1883-1950); monopolian rents, returns, short term, due to technical development and innovation, this process is called creative destruction, this rent is always temporary.

- ✚ Entrepreneurial (from risk or innovation)
- ✚ Quasi rent (from firm-specific or heterogeneous resources)

The Quasi rent is critical to understand the RBV. To earn above-normal economic rents a firm must earn quasi rents. This means in order to increase the other three rents to a higher level than average profits the firm must own or control resources which have several characteristics that make them completely superior (Fleisher & Bensoussan, 2002). The following illustration shows the interaction of the different types of economic rent in the RBV framework.

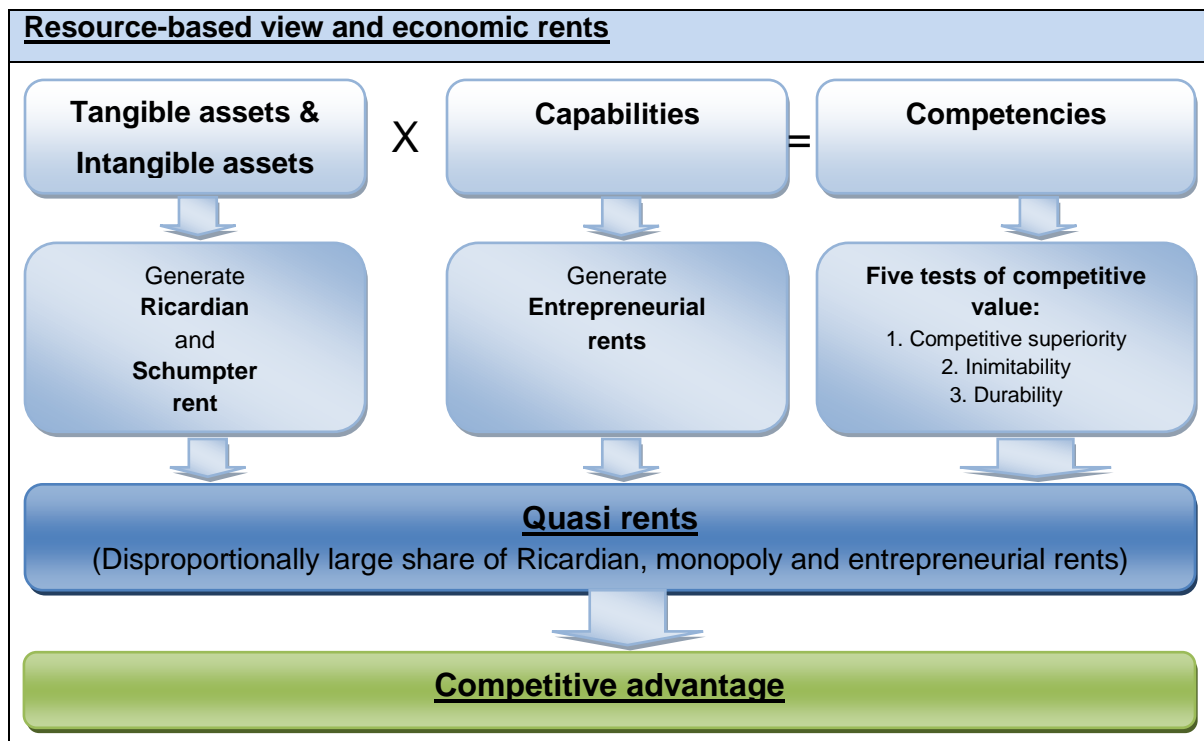


Figure 41 – The resource-based view of the firm and the influence of economic rents

Source: Own depiction, adapted from Fleisher & Bensoussan, 2002

#### 4.7.2 Basic Assumption

The MBV assumes that firms in the same industry are alike except for size. The RBV challenges this unrealistic assumption by assuming that all firms, even those within the same industry, have different resources and capabilities. Therefore, one of the basic assumptions of the RBV is **resource heterogeneity** (Peng, 2006, p. 84). According to the RBV, a firm is a collection of heterogeneous resources. The different characteristics of the resources which are owned or controlled by the firm partially explain why some firms are able to make above-average profits (Barney, 1997, p. 99ff).

The second basic assumption is **resource immobility** which states that resources cannot easily immigrate to competing firms. Markets for resources are imperfect or non-existing and this

explains the fact that resource heterogeneity exists. Resource immobility means that resources are bound to a firm and difficult to be replicated elsewhere (Peng, 2006, p. 85)

### 4.7.3 Resources

To investigate the characteristics of competitive, valuable resources it is reasonable to categorize the resources first. According to the literature, there are different approaches to do so. Barney suggests four different “capital” categories:

- ✚ Financial capital
- ✚ Physical capital
- ✚ Human capital
- ✚ Organizational capital (Barney, 1997, p. 155).

Whereas Collies and Montgomery subdivide resources in three different categories:

- ✚ Tangible
- ✚ Intangible
- ✚ Operational assets (Collies & Montgomery, 1997, p. 28).

This thesis uses a broad classification which is based on the classification used in Peng’s book *Global Strategy*, in which it is also stated that “the source of competitive advantage within a firm is often multi factorial.<sup>102</sup> Rather it is an interaction between these four different categories of resources within the competitive context that drives a firm’s competitive advantage” (Peng, 2006, p. 208). The following table depicts and explains these categories.

|                                    |   |
|------------------------------------|---|
| <b>Tangible assets physical</b>    | Physical factors of production consumed in the delivery of customer value.  |
| <b>Intangible assets</b>           | Factors of production that cannot be seen or touched and contribute to the delivery of customer value without being consumed.   |
| <b>Organizational capabilities</b> | Processes and activities that transform tangible and intangible assets into goods and services.   |
| <b>Core competencies</b>           | Individual human skills and talent, collective organizational capacities, and learning that allow the firm to act on critical processes and activities to transform its tangible and intangible assets into completely superior customer value. |

Figure 42 – Categories of resources

Source: Own illustration based on Peng, 2006

<sup>102</sup> Multi-factorial here means it usually cannot be attributed to only one type of resource.



## 4.7.4 Characteristics of Competitive Valuable Resources

To explain the characteristics of competitive valuable resources and evaluate their value Barney maintains that four characteristics are important; these are:

- ✚ Value (V)
- ✚ Rareness (R)
- ✚ Imitability (I)
- ✚ Organization (O)

### 4.7.4.1 Value

The resource must be able to create value. This can be a value which is perceived by the customer as “valuable” because the resource meets his demand, which makes the customer willing to pay the price asked for. From a more abstract point of view a resource adds value if the resource helps to exploit opportunities or reduce risk. On the most basic level of consideration the resource has to be useful for the company, to be considered valuable. This consideration is also important as companies tend to accumulate resources which do not add value if not proper attention is paid to this characteristic (Rasche, 1994).

### 4.7.4.2 Rareness

It is crucial that the resource is not only valuable, but that it is also rare. Only rare resources lead to a competitive advantage. Resources are rare when they are currently not possessed by many other organizations. This allows the small number of firms which possess this resources to achieve monopolistic<sup>103</sup> and oligopolistic<sup>104</sup> returns. If the resource is not rare, it does not lead to a competitive advantage, it just leads to parity. This is also reflected in the saying, “when everyone has it, you cannot make money with it” (Peng, 2006, p. 87).

### 4.7.4.3 Imitability

Rarity usually refers to the present nature of the resource whereas imitability refers to its future. There are basically two ways to substitute a valuable and rare resource:

- ✚ Duplication (which tend to be more difficult and is often attempted by the acquiring of whole companies)
- ✚ Substitution (which tend to be less challenging and refers to the usage of similar and related capabilities)

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<sup>103</sup> A monopoly exists when a specific individual or enterprise has sufficient control over a particular product or service to determine significantly the terms on which other individuals shall have access to it (Friedmann, 2002).

<sup>104</sup> An oligopoly is a market form in which a market or industry is dominated by a small number of individuals or enterprises. Compared to monopoly, oligopoly is a more common market form. As a quantitative description of oligopoly, the four-firm concentration ratio is often used.

The competitive value of the resource is determined by how difficult and expensive it is to imitate the resource. According to several authors,<sup>105</sup> this is influenced by several factors:

- ✚ **Path dependencies:** refers to unique historical conditions which made the resource what it is now. A process is path dependent if earlier events have significantly shaped the resource and affects the subsequent events.
- ✚ **Casual ambiguity:** refers to the fact that it is often difficult to identify the causal determinants of the success of the firm. Because the manager of a company rarely knows what the success factors are, it is very difficult for competitors to imitate them.<sup>106</sup>
- ✚ **Social complexity:** refers to the cultural and social phenomena and dynamics influencing the resource.
- ✚ **Time compression diseconomies:** refers to the fact that it is difficult to acquire resources in a short period which have been developed by the original firm over a much longer period.

#### 4.7.4.4 Organization

In addition to being valuable, rare and difficult to imitate, a resource has to be embedded in the appropriate organizational context to contribute to the company's competitive advantage. The firm has to be organized so that it develops and leverages the full potential of its resources. If there is a deficit in this organizational surrounding, the firm cannot exploit the resources to the full extent. Behind this lies the fundamental question of "Why do firms exist", and the RBV answers this question by saying that firms exist to develop and leverage resources and capabilities better than individuals could (Kostova & Roth, 2003; Peng, 2006, p. 96).

To sum up, it is not only a few resources and capabilities that enable a firm to gain a competitive advantage, but many organizational attributes such as complementary assets<sup>107</sup> and the underlying factors of social complexity<sup>108</sup> together are determining the overall output and success of a firm.

#### 4.7.5 Resource-Based Strategy under the Influence of Ecommerce

To understand the Influence of E&I from the RBV perspective RBV based strategy formulation have to be investigated which is described from Collies and Montgomery(1997, p. 44) in the following four steps:

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<sup>105</sup> Barney, 1991 and Peng, 2006, p. 87.

<sup>106</sup> Unfortunately this also holds true for the factors and roots of company failure.

<sup>107</sup> The many supporting assets which are necessary for the firm to perform well (referring to different authors).

<sup>108</sup> The social complex ways of organization typical for many firms (referring to different authors).

- ✚ Identification of valuable resources
- ✚ Investment in resources
- ✚ Extension of resources
- ✚ Leveraging of resources

More detailed, the process is adopted from Fleisher and Bensoussan (2002) as depicted in the following figure.



Figure 43 – Resource-based strategy

Source: Own depiction, according to Fleisher & Bensoussan, 2002

#### 4.7.5.1 Determine Critical Success Factors

Critical Success Factors (CSFs) are the few factors that are necessary to secure and sustain a competitive advantage. If a company possesses these critical success factors, it will be competitive; if it does not, the firm's competitiveness will decline. The major sources of CSFs are:

- ✚ Macro-environmental characteristics<sup>109</sup>
- ✚ Industry characteristics<sup>110</sup>
- ✚ Competitive position<sup>111</sup>
- ✚ Firm specific<sup>112</sup>

<sup>109</sup> CSFs are political, environmental, social and technological characteristics.

<sup>110</sup> CSFs are not generic but extremely industry specific; they are a function of the industry structure.

<sup>111</sup> CSFs are a function of the firm's position among its rivals.

<sup>112</sup> CSFs are internal success factors; if the organization as such does not work, the other CSFs will not work either.

## **E&I and the influence of the CSFs of the firm:**

Depending on whether E&I have an evolutionary or revolutionary influence on the firm, <sup>113</sup> the CSFs change in different ways and to different extents. As described in Chapter 4.6, the E&I have a great influence on the external environment of the firm, which is reflected in the change of CSFs. CSFs and E&I have been the topic of several publications,<sup>114</sup> and three of the most important ones should be mentioned in this place:

### **+ Dynamics and flexibility**

Innovations and market changes can lead to a decrease in the value of the former core competencies. Therefore, flexibility as a success factor can help the firm to cope with a changing environment. This ability is also often called meta-competency.<sup>115</sup> This is highly dependent on company culture. To have this flexibility a culture is needed which is able to accept and foster continuous change. It is highly important to adopt, extend and improve core competencies according to the changing environment.

### **+ Networking and concentration on core competencies**

This topic refers to the collaboration of different firms in networks often called business webs,<sup>116</sup> which enables them to concentrate on the tasks and processes which they can perform in an efficient and effective manner. By doing so, the product is not created by one firm but by several, which enables each firm to concentrate on its own core competencies, thereby lowering the transaction costs.<sup>117</sup> This can be explained by a segmentation of the value chain which helps the companies to focus more on and perform better the part that they can do most efficiently.

### **+ Customer integration**

As E&I grow, customer integration becomes increasingly important. This can be explained by the increase in bargaining power of buyers, as mentioned in Chapter 4.6.2. In order to meet customer needs, thereby increasing customer value, it is necessary to focus more on customer demand. If this is done successfully, higher customer loyalty will

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<sup>113</sup> Compare Chapter 4.6.5.

<sup>114</sup> With respect to different authors, especially (Wirtz, 2001) and (Eggers, 2001).

<sup>115</sup> Meta-competencies are the potential of a firm to learn, adopt change and self-renewal (Rasche, 1994, p. 160ff). These abilities are increasing the strategic scope of the company by increasing the ability to overcome problems. Therefore, meta-competencies can be compared with dynamic capabilities (Teece, Pisano, & Shuen, 1997).

<sup>116</sup> According to Tapscott, a Business web (B-web) is any system composed of suppliers, distributors, service providers, infrastructure providers and customers that uses the internet for business communications and transactions. B-webs across industries, in which each business focuses on its core competence, are proving to be more subtle, innovative, cost efficient, and profitable than traditional vertically integrated competitors (Tapscot, 2001).

<sup>117</sup> A transaction cost is the cost incurred by a strategic choice. A more detailed definition will be given in Chapter 4.8.

ensue, which helps fight the rising danger of losing customers due to the transparency induced by E&I, as described in Chapter 4.6.2.

#### 4.7.5.2 Identify the Firm's Resources

When identifying the resources and capabilities the firm possesses, the most challenging step is to identify its core competencies,<sup>118</sup> another CSF that can give the firm a competitive advantage over its rivals. According to Prahalad and Hamel (1990), a core competency has to have the following characteristics:

- ✚ Provides consumer benefits
- ✚ Not easy for competitors to imitate
- ✚ Can be leveraged widely to many products and markets

#### **E&I and the influence of the resources and core competencies of the firm:**

As described in the previous section, the CSFs are often greatly influenced by E&I. This does not only affect the value of the resources, which will be explained in the next chapter, but also the resources themselves. This is a logical assumption that can be derived from the changing CSFs. Over time certain resources can lose their value for a company. This again is dependent on whether the firm is facing evolutionary or revolutionary changes.

#### ✚ Evolutionary changes:

When facing evolutionary changes most of the existing resources can be deployed. However, entering the Ecommerce business means that the firm needs to reassess these existing resources and adopt new resources. Because of the changing environment the dynamic capabilities and meta-competencies mentioned above (which are here considered a resource) are becoming more important and increase or decrease the value of all other resources (Chaharbagi & Lynch, 1999).

#### ✚ Revolutionary changes:

When facing revolutionary changes the resources of the company can be influenced in two basic ways. It is possible that the resources of the firm are not affected to a large extent by the changes. Or, it is possible that they lose their value and therefore cannot be considered valuable resources any more.

Therefore, depending on the firm and its resources as well as the changes induced by E&I, it is possible that the firm faces a loss or change in its former resources. Only the resources which survive this transformation are still useful and can be evaluated in the next step. This evaluation

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<sup>118</sup> Core competencies emerge over time through an organizational process of accumulation and learning how to deploy different resources and capabilities (Hanson et al., 2008). Normally a firm does not possess more than five or six core competencies.

will explore not only whether they are still useful, but also whether they qualify as supporting sustainable competitive advantage.

#### 4.7.5.3 Evaluate the Firm's Resources

An excellent framework for evaluation whether the resources can be considered a source of the firm's competitive advantage is the Value-Rareness-Imitability-Organization (VRIO) framework developed by Barney. It is based on the four characteristics of competitive resources which have been explained previously. The following figure illustrates the VRIO framework.

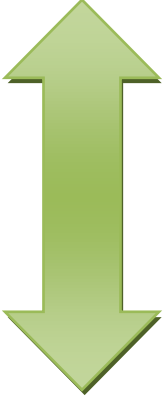
| Value      | Rare       | Costly to imitate or substitute | Exploited by the organization   | Competitive implications        | Firm's performance         |
|------------|------------|---------------------------------|---|---------------------------------|----------------------------|
| <u>No</u>  | =          | =                               |  | Competitive disadvantage        | Below average              |
| <u>Yes</u> | <u>No</u>  | =                               |   | Competitive parity              | Average                    |
| <u>Yes</u> | <u>Yes</u> | <u>No</u>                       |   | Temporary competitive advantage | Above average              |
| <u>Yes</u> | <u>Yes</u> | <u>Yes</u>                      |   | Sustained competitive advantage | Persistently above average |

Figure 44 – The VRIO framework

Source: Own depiction, based on Barney, 1997

Only a few resources pass the test of the VRIO assessment, and only those resources that pass can be deemed competitive valuable resources. This fact also explains the observation that few firms possess a strong competitive advantage (Fleisher & Bensoussan, 2002, p. 214). Most often valuable resources are of intangible nature, capabilities or competencies (Fleisher & Bensoussan, 2002, p. 218).

#### E&I and the influence of the competitive value of the resources of the firm:

The VRIO framework is also useful for explaining the influence of E&I on the individual characteristics of the competitive valuable resources.

#### Influence on value:

As described in the previous chapter, E&I can have a great influence on the ability of the

resources to generate value.<sup>119</sup> If the value creating ability is lost due to this transformation “the VRIO game for the respective resource is over”. This has to be seen in connection with the characteristics described in Chapter 4.7.4.1.

**Influence on rarity:**

E&I have a diverse impact on the rarity of certain resources. Again, the higher transparency and diminishing importance of geographical factors can strongly decrease the rarity of the existing resources of a company.<sup>120</sup> This has to be seen in connection with the characteristics described in Chapter 4.7.4.2.

**Influence on imitability and substitutability:**

E&I have strong influence on this factor, which lies in the nature of E&I itself. E&I make it easier for competitors to copy certain resources.<sup>121</sup> This has to be seen in connection with the characteristics described in Chapter 4.7.4.3.

**Influence on the efficiency of the exploitation through the firm:**

Even if the analyzed resources have passed the test of the VRIO framework, regarding the changing environment, it is still questionable whether the resource is exploited by the company in the most efficient way. This is strongly dependent on whether the environment is changing in an evolutionary or in a revolutionary manner due to E&I.

When the changes are of evolutionary character the organization might be more capable of exploiting the resources to a higher degree as the whole system does not change so much. But even the evolutionary changes will require a change to a certain extent in the exploitation of the resources of the firm. Revolutionary changes might have the strongest influence on the ability to exploit the resources and might require fundamental changes in the organizational structure of the firm.<sup>122</sup>

**4.7.5.4 Identify Discrepancies between the Firm’s Resources and Success Factors**

After identifying and evaluating the resources of the firm, they have to be compared with the CSFs identified previously. If the company was successful in the past, the CSFs and the firm’s resources will overlap greatly. This information provides the foundation for the analytical

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<sup>119</sup> An example for this is a prime location or the existing valuable resource of being the only supplier of a certain good. Due to the increasing supply, the higher transparency and diminishing geographic boundaries, this resource can lose its value.

<sup>120</sup> An example for this is expert knowledge or formerly rare products and services which become abundant due to the previously described developments.

<sup>121</sup> An example for this is an online shop system like Amazon (<http://www.amazon.com>), which can be, compared with a physical, real world company of the size of Amazon, copied with amazingly little efforts.

<sup>122</sup> Which is highly dependent on the exposure of the firm to the changing environment. Please note that, as described in Chapter 4.6.5, changes can be evolutionary for one firm but revolutionary for another depending on the firm’s value chain.

framework to correctly match the components of the SWOT<sup>123</sup> analysis (Fleisher & Bensoussan, 2002, p. 218).

#### **E&I and the influence on the discrepancies between the resources and the CSFs of the firm:**

These discrepancies will be determined by whether the changes are of revolutionary or evolutionary nature. If they are evolutionary changes, the influence of the discrepancies between the firm's resources and the CSFs will not be as strong as in a situation where the changes are evolutionary.<sup>124</sup>

##### **4.7.5.5 Assess Current Strategy**

Based on the knowledge gained, the competitive strength of the current strategy can be tested. Now two basic options occur:

- ✚ If the firm's current strategy is successful, the analysis will show clearly which of the resources the most important assets are and how they can be protected and extended.
  
- ✚ If the firm's strategy is not successful, the results will clearly indicate the strategic discrepancies that exist between the firm's resources, its strategy and the competitive environment.

#### **E&I and the influence of the current strategy of the firm:**

Again, the influence greatly depends on whether the changes are of evolutionary or revolutionary nature. It is possible that the current strategy is successful but, as the environment is changing, this may not be the case in the future. The firm has to assess the current strategy under consideration of the changing external environment and the described influences on the company internal factors. Due to the influence of E&I, the level of uncertainty is most probably rising for most companies which have to be included in this consideration.<sup>125</sup>

##### **4.7.5.6 Formulate Future Strategy**

As the competitive environment is constantly changing, the firm's competitive valuable resources are in constant danger of becoming obsolete, being bargained away or being surpassed by competitors. Besides these negative factors, the firm has a high potential of growing and

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<sup>123</sup> SWOT stands for Strengths, Weaknesses, Opportunities, and Threats; an analysis framework relating the internal factors of a company with its environment (MBV with RBV).

<sup>124</sup> Also highly depending on the respective value chain of the firm. It is possible that the whole value chain changes evolutionarily, but parts of it change revolutionarily.

<sup>125</sup> According to different authors, there are 4 levels of uncertainty. Evolutionary changes are mainly classified in level 1 to 3 and revolutionary transformations in level 4. The changes induced by Ecommerce are classified as level 3 and 4 (Courtney, Kirkland, & Viguerie, 1997).



diversifying. According to Collies and Montgomery, the RBV analysis provides the following strategic choices:

- ✚ Investing in resources: Only competitive valuable resources should receive substantial investment.<sup>126</sup>
- ✚ Upgrading resources: This can be divided into strengthening existing resources,<sup>127</sup> adding complementary resources<sup>128</sup> and developing new resources.<sup>129</sup>
- ✚ Leveraging resources: This means that the reach of the firm's resources are extended into other markets. This is important because often valuable resources are not used in the most efficient way.

### **E&I and the influence on the future strategy of the firm:**

The previous five steps determine the direction for the future. While the three strategic choices stay the same, the main influence of E&I and the increasing need for dynamics and flexibility play the most important role in this step. Depending on the extension of the changes, the firm has to increase, reduce and adopt resources, which is difficult especially for SMEs. As information and knowledge<sup>130</sup> become more important resources, especially the importance of human resources rises and thus the significance of human resource management (Leopold, Harris, & Watson, 2005, p. 4).

### **4.7.6 The influence of Ecommerce on the G&J Industry from a RBV Perspective**

Employing the RBV perspective and focusing on the G&J industry and the changes induced by E&I reveals important influences. Due to the changes induced by E&I, many of the traditional resources<sup>131</sup> of the companies in the G&J industry change their value and in many cases the value is decreasing. The new requirements which come with Ecommerce cause problems especially for the companies in the G&J industry as most of them are SMEs and have limited resources to adapt to changing environments. This factor is often amplified due to the traditional nature of the industry which makes rapid adoption to change not something that is regarded a

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<sup>126</sup> This decision is in reality much more complex within a dynamic, competitive context and involves difficult tradeoffs between continuity vs. adaptability and commitment vs. flexibility (Fleisher & Bensoussan, 2002, p. 219).

<sup>127</sup> Increasing quality of the resources currently used (Collies & Montgomery, 1997).

<sup>128</sup> Enhancing the firm's position in its existing markets through networks, alliances and strategic outsourcing (Collies & Montgomery, 1997).

<sup>129</sup> To enter new and more attractive markets (Collies & Montgomery, 1997).

<sup>130</sup> "Knowledge is the meaningful interrelation of information" (author's own translation) (Reimann, Müller, & Starkloff, 2000).

<sup>131</sup> Here the term resources covers resources, capabilities and competences (RCC).

general strength of this industry. The fact that many of the traditional valuable resources have lost rapidly in value<sup>132</sup> causes additional problems to many of the members of the industry.

However, the RBV perspective does not only reveal negative aspects, but also suggests that especially the managerial requirements increase in many areas and arise in new areas. This development is a revolutionary change for many companies. Many of the managerial competencies and company capabilities of companies in the G&J industry in the past were much more focused on G&J-related topics than on pure economic and business considerations.<sup>133</sup> Even if all the companies are affected by the changing environment to a certain degree, the degree of exposure to the changing environment is important for each individual company.

This becomes clear when using analytical tools like the VRIO framework for considering the pre- and post-Ecommerce environments and requirements to access which resources have still the same value, which resources increased and which ones decreased in value.<sup>134</sup> The companies in the G&J industry have to acknowledge that it often is not a single resource, but a combination of different resources, competencies and capabilities which might lead to a sustainable competitive advantage. This can be also explained by applying VRIO considerations on the transformation process the industry is undergoing due to Ecommerce.

On the one hand companies possess the traditional G&J-related Resources, Competencies and Capabilities (RCC) that they developed in the past and that underwent a development process which makes them rare and difficult to copy due to path dependencies and time compression diseconomies. On the other hand, there are the RCC which have become important now and which are related to Ecommerce. They have to be adopted quickly for the company to be able to be competitive.

This leads to the basic consideration that, from a RBV perspective, if planned strategically wise and executed properly, it should be easier for companies rooted in the G&J industry to learn how to deploy Ecommerce than for Ecommerce companies to learn about the G&J business. If doing so, the company could design and generate a really sustainable competitive resource bundle which would be difficult to imitate by both industry insiders and industry outsiders.

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<sup>132</sup> Here especially prominent locations have to be mentioned, which are loose their importance due to ecommerce.

<sup>133</sup> As mentioned many of the owners and CEOs of these companies are artists, gemologists or goldsmiths, and not so close to pure managerial and economic thinking as executives in comparable positions in other industries.

<sup>134</sup> Which means nothing else than for which the customer is still willing to pay the required price. Due to the changes it is also possible that previous valuable resources became so useless that they even can be considered ballast.

To stay competitive this bundle of RCC must be exploited in an efficient manner, which requires a proper organizational context. The above-mentioned lack of managerial and economic focus apparent in SMEs in the G&J industry has led to problems for many of the industry members, also bears opportunities, waiting for the ones able to exploit them.

As the environment is changing due to Ecommerce, the CSFs of companies in the G&J industry are changing as well, as explained in the evolutionary or revolutionary manner. The company has to adapt these changes, which means it has to restructure the RCC bundle it possesses. Due to limited resources, this may be difficult, but inevitable since it can be assumed that in the future the propensity of the external environment to change will not decrease. Compared to the past, the companies in the G&J industry will have to develop new RCC, to change and to adopt them on a much more regular basis than they used to. Therefore, the ability to do this, despite being an SME, will be a highly important key success factor in the future. Being small is not always a disadvantage; it can also be used for creating and exploiting the advantages of being much more flexible and able to react quickly. This refers to the requirements of being dynamic and flexible and to generate meta-competences,<sup>135</sup> which means being able to quickly generate the competencies required in a new environment. Therefore, the importance of organizational learning will increase further in the future. These abilities strongly will influence the value of all other resources in the future.

By doing so the company will be able to transfer the former valuable competencies<sup>136</sup> over the internet in an efficient manner. If the company fails in this task, it will not be able to exploit its strength against industry outsiders like Amazon or eBay, as exactly these RCC separate it from these much more powerful competitors. Considering today's environment makes it highly important to develop the organizational learning capacity mentioned above, which enables to learn and be innovative for the organization as such. How successful a company can be in adjusting to a changing environment in this respect is highly dependent on the company culture and, especially in the case of the SMEs in the G&J industry, on the ability, willingness and readiness of the company's management. This in turn requires entrepreneurial competencies of the executives, which have to constantly develop, arrange and govern<sup>137</sup> the resources, thereby creating the RCC bundle which fits best the complex requirements of a changing environment.

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<sup>135</sup> Which includes learning capacity and innovative capacity which are closely tied together. The ability to learn relates to the creation of resources, routines and capacities (Rasche, 1994) whereas the innovative capacity means to combine existing potentials and to apply them.

<sup>136</sup> These are the traditional competencies like product knowledge, expertise and the ability to create the feeling of buying something special.

<sup>137</sup> Govern comprises investing in resources as well as upgrading, strengthen existing ones and adding complementary ones, and leveraging them to their best possible use.

## 4.8 Transaction Cost Economics

As a third perspective to understand the external changes which are influencing the IC Transaction Cost Economics (TCE) is used. TCE belongs to the field of New Institutional Economics.<sup>138</sup> TCE provides a different approach to the investigated issue than the MBV and the RBV, and Transaction Cost (TC) related topics have a strong influence on Ecommerce in the context of the G&J industry.

### 4.8.1 Foundation

TCE is an organizational theory which is mainly associated with the work of Roland Coase, *The Nature of the Firm* (1937) and later Williamson, *The Economic Institutions of Capitalism* (1985). TCE is one of the first and most influential attempts which consider seriously the structure of the firms. Coase deals in his work with the questions “Why do firms exist” and “What determines the size of a firm”; questions which appear at first glance strange, but offer a new, valuable and different viewpoint on microeconomic issues. With his questions, Coase explores why transactions in market economies happen to a high degree in firms and not, as the neoclassic theory<sup>139</sup> would postulate, by using the price and market mechanism (Adolphs, 1996, p. 117). Coase postulated the difference between firm internal and firm external contracts<sup>140</sup> and processes.

Inter-firm contracts are based on one, quite unspecific work contract, and control is executed by order in the hierarchical structure of the firm with dependent partners. Firm external transactions are based on more specific and changing contracts between independent contracting partners (Dietrich, 1994). Due to these internal and external coordination processes, TC arises, which are the cost of governance of economic activities. At the point where TC in the market are the same as TC in the hierarchy that is, the point of equilibrium, efficiency is reached.<sup>141</sup>

Williamson extended and specified the work of Coase by introducing underlying assumptions and the determinants of TC, which will be explained in the next chapter (Fontanari, 1996, p. 97).

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<sup>138</sup> Other theories of New Institutional Economics are the Agency Theory and the Property Rights theory.

<sup>139</sup> The basic assumption of the neoclassic theory is the “homo oeconomicus”, a fictive economic subject who has fixed preferences, has access to all information and acts fully rational in the way that guarantees him maximum benefit (Franz, 2004). Other assumptions are a fully efficient market and full access to information.

<sup>140</sup> Transactions and contracts are the focus of analysis in TCE, not the economic activity itself.

<sup>141</sup> This answers the question “What determines the size of the firm” and also why firms integrate vertically.

## 4.8.2 Basic Assumption

If the transaction happens in the firm, it is called internal transaction.<sup>142</sup> If the transaction happens on the market, by using the price mechanism, it is called external transaction.<sup>143</sup> A very interesting statement of Coase is that “the metaphor of the ‘invisible hand’ which was postulated by Adam Smith and which governs the market mechanisms might be invisible but not for free.”<sup>144</sup>

According to Coase there are several types of transaction costs which occur when using the market. These types can be grouped in ex-ante<sup>145</sup> and ex-post<sup>146</sup> transaction costs. The following table illustrates the most important of these costs.

| Type of Costs     |   |
|-------------------|---|
| <b>Ex-ante TC</b> | <ul style="list-style-type: none"> <li>✚ Searching costs<br/>Suppliers and customers have to search for each other on the market.</li> <li>✚ Information costs<br/>Customers search for information about the supplier; suppliers demand information about the customers</li> <li>✚ Bargaining costs &amp; contract costs<br/>Time and communication costs</li> </ul> |
| <b>Ex-post TC</b> | <ul style="list-style-type: none"> <li>✚ Policy</li> <li>✚ Enforcement</li> <li>✚ Law</li> <li>✚ Contractual adoption<br/>(decisions, process, observation and enforcement)</li> </ul>  |

Table 13 – Additional transaction costs when using the market

Source: Own illustration, based on Coase, 1937

Generally, transactions can take place in the market, in hybrid forms and by the use of hierarchies. By arguing that firms want to minimize their total costs, the best fitting and therefore most efficient one of these alternative forms of governance<sup>147</sup> is chosen. By this the relative

<sup>142</sup> The form of governance of internal transactions is the hierarchy.

<sup>143</sup> The form of governance of the external transaction is the price mechanism of the market.

<sup>144</sup> Adam Smith paraphrases with this metaphor the self-organization of the market, which behaves as if it was governed by an “invisible hand” (1776).

<sup>145</sup> Ex-ante transaction costs occur before the actual transaction.

<sup>146</sup> Ex-post transaction costs occur after the actual transaction.

<sup>147</sup> The term governance has different meanings and definitions. Fuller (1954) describes it as “science, theory or study of good order workable arrangements.” Williams (1996) defines it as “an exercise in assessing the efficacy of alternative modes (means) of organization.” And Williamson (1985) describes it as organizing “transactions so as to economize on bounded rationality while simultaneously safeguarding them against the hazards of opportunism”.

efficiency, the lowest overall TC, determines the form of governance. The three generic modes of governance are

- ✚ Market
- ✚ Hybrid
- ✚ Hierarchy

The following figure gives an overview of different forms of governance and explains how they relate to different forms of companies. It is important to note that the more the form of governance approximates the hierarchical structure the degree of interdependence rises.<sup>148</sup>

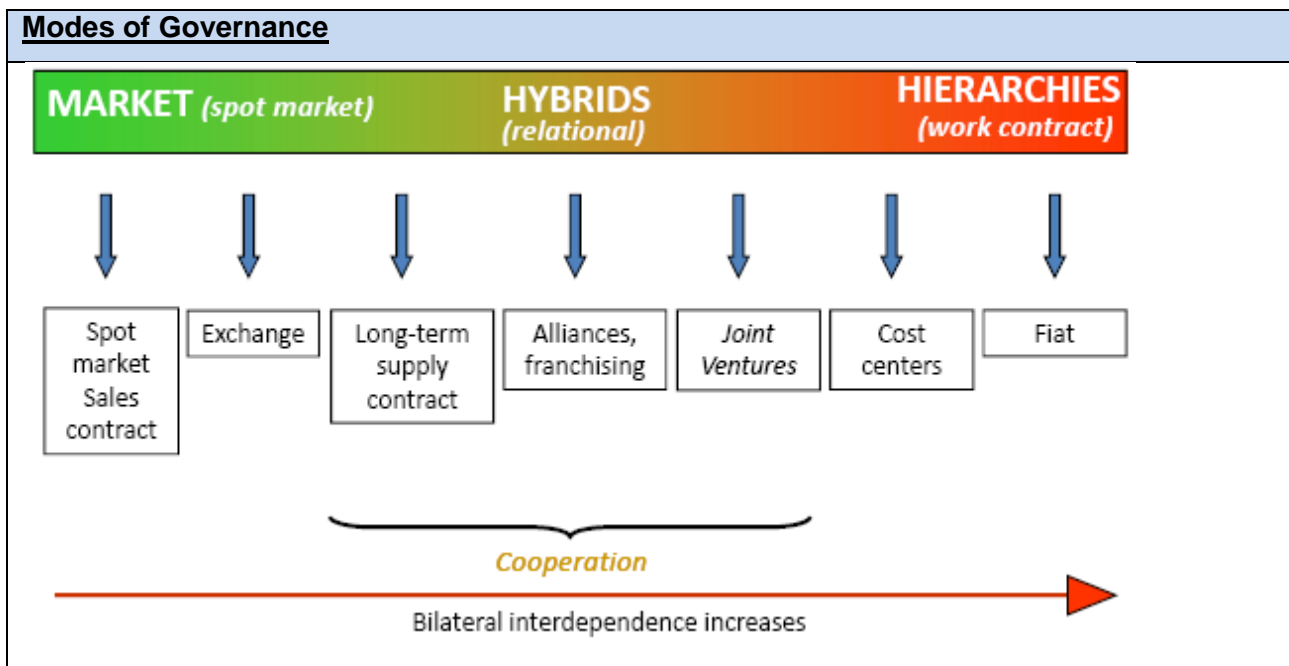


Figure 45 - Modes of governance

Source: Peng, 2006

#### 4.8.2.1 Assumptions of TCE

TCE is based on 2 general assumptions:

- ✚ Opportunism
- ✚ Bounded rationality

These assumptions are unchanging contextual factors. They are important because if these assumptions are not valid, arguments of the effects of the variable would not be valid either. The

<sup>148</sup> This gradual loss of independence and rising bilateral dependence is also called fundamental transaction.

assumptions themselves do not vary; therefore, they cannot explain variation in the organizational structure.

The following table shows the assumptions of TCE.

| <b><u>Assumptions</u></b>  | <b><u>Explanation</u></b>   |
|----------------------------|---|
| <b>Bounded rationality</b> | <p>People have limited memories and cognitive power.</p> <p>Therefore, individuals are not able to perceive process, transfer and store all information of a transaction (Paquin, 1998).</p>  |
| <b>Opportunism</b>         | <p>Possibility that people will act in a self-interested way while guile.</p> <p>Not necessarily, but there is the possibility of opportunistic behavior (Williamson, 1985). It is difficult to say in advance whether opportunities for opportunistic behavior will be exploited or not.<sup>149</sup></p> |

Table 14 – Assumptions of TCE

Source: Paquin, 1998 and Williamson, 1985

#### 4.8.2.2 Determinants and Variables of TC

The three different variables which directly determine and influence the extent of TC are:

- ✚ Asset specify
- ✚ Uncertainty
- ✚ Frequency

These determinants and their influence are shown in the following table.

| <b><u>Determinants and Variables</u></b> | <b><u>Description</u></b>   | <b><u>Influence on TC</u></b>  |
|--|---|--|
| <b>Asset specificity</b>                 | <p>The difference between the best use and the second best use of a specific asset.</p> <p>It is central determinate of TC.</p> <p>Different types of asset specificity include site specificity, physical asset specificity and human asset specificity.</p> | <p>The higher the asset specificity, the higher the transaction costs.</p> <p>Higher asset specificity also increases the danger of opportunism due to dependency.</p> |

<sup>149</sup> This again is related to bounded rationality.

|                    |   |   |
|--------------------|---|---|
| <b>Uncertainty</b> | The possibility of the occurrence of unpredictable external influences and opportunism. | The more complex an environment, the higher the possibility of opportunism. The more stable an environment, the lower the TC. The higher the uncertainty, the higher the transaction costs. |
| <b>Frequency</b>   | How often a transaction takes place.  | The higher the frequency, the lower the average transaction costs mainly because of a decrease in ex-ante TC and increasing trust but also because of learning effects.                     |

Table 15 – Variables and determinants

Source: Own source, based on Williamson, 1985

Especially asset specificity has a great influence on TC. As Williamson states, “it is true that asset specificity is the big locomotive to which transaction cost economics owes much of its predictive content” (Williamson, 1985, p. 56).

For that reason, asset specificity has a great influence on the choice of the best mode of governance. In the fundamental transformation<sup>150</sup> a large number of exchange relation transforms into a smaller number of exchange relation ex post.

In this process the transaction partners become bilaterally dependent; hence, mutual adoptions by contracts are necessary. But these contracts are unavoidably incomplete and entail potential risks; thus, the use of the market becomes increasingly costly. Therefore, vertical integration<sup>151</sup> may become less costly compared to the use of the market, and hierarchy will be preferred over markets (Boehe, 2008, p. 8).

<sup>150</sup> The fundamental transformation can also be considered a form of market failure.

<sup>151</sup> Which means internalizing additional activities.



The following figure shows the form of governance depending on asset specificity.

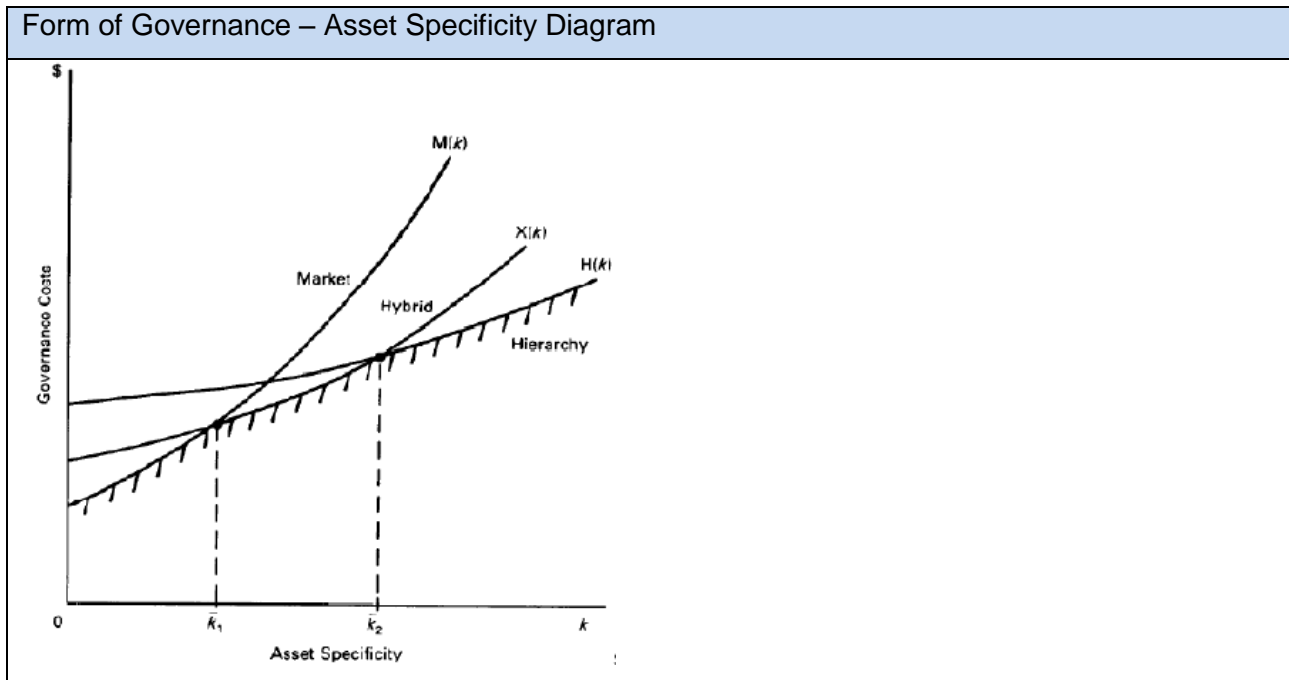


Figure 46 – Form of governance – asset specificity diagram

Source: Williamson, 1985

### 4.8.3 Transaction Costs and Ecommerce

E&I have a great influence on TC. Due to the use of information technology, TC can be lowered (Wilemann, 1999), which applies to Ecommerce to an even higher degree. This lowering in turn can generate an advantage over competitors. If the new possibilities are not used or used in the wrong way, the result will be a competitive disadvantage.

However, nearly all of the different TC can be lowered with the proper use of Ecommerce, as shown and explained in the following table.










| Type of Costs TC and Ecommerce |   |  |
|--------------------------------|---|--|
| Type of costs:                 | Influence:  | Explanation:   |
| Searching costs                |    | Decreased due to abundant information available through E&I.<br><ul style="list-style-type: none"> <li>Examples: search engines, different kinds of information websites, online portals</li> </ul>                    |
| Information costs              |    | Decreased due to abundant information available through E&I.<br><ul style="list-style-type: none"> <li>Examples: information provided in online shop, forums and assessment opportunities through customers</li> </ul> |
| Bargaining costs               |    | Decreased due to technical possibilities.<br><ul style="list-style-type: none"> <li>Examples: extensive automatization of ordering process</li> </ul>  |
| Contract costs                 |    | Increased due to problems in contracting through the medium internet.<br><ul style="list-style-type: none"> <li>Examples: security,<sup>152</sup> legal topics,<sup>153</sup> payment options<sup>154</sup></li> </ul> |
| Control costs                  |  | Decreased due to technical possibilities.<br><ul style="list-style-type: none"> <li>Examples: customer screening,<sup>155</sup> customer database, shipment tracking<sup>156</sup></li> </ul>                          |
| Enforcement                    |  | Decreased due to technical possibilities.<br><ul style="list-style-type: none"> <li>Examples: online debt collecting agencies<sup>157</sup></li> </ul>   |
| Adaption                       |  | Decreased due to technical possibilities.<br><ul style="list-style-type: none"> <li>Examples: self-administration by customers<sup>158</sup></li> </ul>  |
|                                |   |  = Decrease of TC  = Increase of TC            |

Table 16 – Influence of E&I on TC

Source: Own source

<sup>152</sup> SSL connection for the ordering process.

<sup>153</sup> Legal requirements for making a contract online.

<sup>154</sup> Additional costs for online payment modalities.

<sup>155</sup> Possibility do decrease costs due to pre-sales checking of the creditability of the customers (Example: <http://www.mediafinanz.com>).

<sup>156</sup> Possibility do decrease costs due to on time tracking of shipment (Example: <http://www.dhl.com>).

<sup>157</sup> Possibility do decrease risk of default payment due to online debt collecting agencies (Example: <http://www.mediafinanz.com>).

<sup>158</sup> Possibility do decrease effort of later adaption due to possibility of self-administration by customers (Example: usage of Active Server Pages (ASP)).

One of the basic reasons for this lowering of TC is that due to the usage of E&I all information is readily available for the customer or can be transferred rapidly. The customers can administrate, to the degree the company allows it, their own data, which also lowers administrative costs for the company. All this taken together leads to a high degree of automization, which also explains the decrease of TC.

Focusing on B2C Ecommerce, it is important that B2C Ecommerce has the capacity to alter the TC incurred by the company as well as by the customer. The total TC are therefore divided between the company and the customer. The precise impact of B2C ecommerce on transaction costs depends on several factors which are mainly product digitizability, product complexity and sensitivity, and product tangibility (Strebinger & Treiblmaier, 2006, p. 86).

The following table gives an overview (non-exclusive) of the main customer- and company-based transaction costs.

| <b>TC for Customers and Company</b> |  |   |
|-------------------------------------|--|---|
|                                     | <b>Customer</b>  | <b>Company</b>  |
| Ex-ante:                            | Information search, thinking, adjusting to the shop and ordering system.   | Cost of providing product and company information, advertisement costs, cost of concluding the contract and settling the transaction. |
| Ex-post:                            | Related risk:<br>-company delivers the wrong products, bad quality or nothing at all<br>-opportunistic behavior of the company | Related risk:<br>-operational failure of different partners<br>-opportunistic behavior of the customers                               |

Table 17 – TC for customers and company

Source: Own depiction, based on Strebinger & Treiblmaier, 2006

After the explanation of the foundation and basic assumptions of the TCE, the following section investigates the impact of E&I on the G&J industry using the TCE perspective.

#### **4.8.4 The influence of Ecommerce on the G&J Industry from a TCE Perspective**

Transaction costs in the G&J sector have been generally high due to the characteristics described in Chapter 4.3 These transaction costs were also partly causing the abnormal high margins, which the customers had to pay. Ecommerce has changed this as it has lowered transaction costs significantly, allowing industry members who are using the new technological possibilities in a proper way to transfer the decreased transaction costs to their customers and thus to achieve a competitive advantage. For industry members who are not able to use and

participate in E&I, this development causes severe problems, and in the long run it can destroy their competitiveness entirely.

Based on TCE considerations and as different research study show, it is not enough to participate in Ecommerce by only fulfilling the technological requirements, which means optimizing mainly IT-related topics. Ecommerce also influences processes which are not IT related and these processes have to be reengineered as well (Gardner & Ash, 2003). It is highly possible that this affects the organizational structure and the pre-Ecommerce processes, as these components were installed and designed to optimize the internal transaction costs before Ecommerce was introduced (Strebinger & Treiblmaier, 2006, p. 88).

Because of their traditional attitude, which goes hand in hand with a certain aversion to change, Ecommerce may thus constitute a threat to the companies in the G&J industry. In fact, there is the danger that even if the management and the company are able to initiate the necessary changes, they may lack the willingness to do so. As the required changes often affect the organizational structure and processes, they typically face emotional resistance from those who are concerned<sup>159</sup> (Strebinger & Treiblmaier, 2006, p. 104). Due to the nature of the G&J sector, an avoidance behavior is conceivable, leading to the possibility that the Ecommerce operations of the company will never reach the necessary level of efficiency to be profitable.

To sum up, from the TCE perspective, Ecommerce offers many opportunities for companies in the G&J industry, but it also entails the great risk of not participating at all or not participating successfully and thus gaining a bad competitive position in the future.

#### **4.9 Summary of the Theoretical Considerations**

Looking at the investigated industry from the three theoretical perspectives MBV, RBV and TCE reveals important insights into the forces which are shaping the industry, the changes in requirements and tasks for the companies active in it, and the forces which govern the way business is conducted. The significant changes Ecommerce brought to the external environment of the IC entail many threats as well as many opportunities.

To be able to make good strategic decisions, a well-founded understanding of these influential factors is not only helpful but necessary. The following table summarizes the most important results of the investigation of Ecommerce and its influence on the G&J industry in bullet points.

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<sup>159</sup> The cited study focuses on organizational structure and brand architecture, and not on processes, but for SMEs in the G&J industry the adverse behavior applies to changes in internal processes.

| <u>MBV</u>   | <u>RBV</u>  | <u>TCE</u>   |
|--|---|--|
| <p><b><u>Five Forces:</u></b></p> <p><b>Threat of new entrants - increasing</b><br/>(decreasing entry barriers for newcomers, industry outsiders)</p> <p><b>Bargaining power of buyers - increasing</b><br/>(transparency for customers increases &gt; profitability decreases, not only positive for customers because of complexity of Industry)</p> <p><b>Bargaining power of suppliers - increasing</b><br/>(increases competition &gt; decreases profits, E&amp;I increases possibilities of forward integration, decreases need for intermediaries and retailers, decreasing influence of geographic factors)</p> <p><b>Threat of substitutes - increasing</b><br/>(switching costs for customers are reduced, no physical relationship with vendor is developed, product has not to be exactly the same, just comparable product, Radical change compared to previous situation)</p> <p><b>Industry competition - increasing</b><br/>(sources of differentiation decreasing, increasing transparency and supply, newcomers and industry outsiders entering the industry, combined</p> | <p><b><u>Resources, Capabilities and Competencies</u></b></p> <p>Changes in the value of traditional resources, which are often decreasing;</p> <p>Problems as most companies are SMEs with limited resources &gt; problems adapting to changing environment;</p> <p>Amplified due to the traditional nature of the industry, which makes companies reluctant to change.</p> <p>Combination of RCC becomes important; here lies the chance to compete with the stronger industry outsider.</p> <p>Here a RCC bundle can be developed which pass the VRIO criteria and thereby help to achieve sustainable competitive advantage.</p> <p>Proper organizational exploitation is particularly important in the case of the G&amp;J industry. The general weakness of the Industry leads to opportunities which can be exploited.</p> <p><b><u>Today's requirements:</u></b></p> <p>Managerial requirements rising, shifting away from G&amp;J-related, technical knowledge to managerial and economic focus.</p> <p><b><u>Future requirements:</u></b></p> | <p><b><u>Influence on TC:</u></b></p> <p>The G&amp;J sector has relatively high TC due to industry characteristics. Ecommerce changes TC; in many cases it lowers them.</p> <p>The high TC also made in the past abnormal high margin possible, which now the customers are not willing to and do not have to pay anymore.</p> <p><b><u>Influence on the organization:</u></b></p> <p>To exploit the possibility of saving TC due to Ecommerce, not only the IT-related areas of the company have to be changed, but also other processes often have to be reengineered.</p> <p>The organizational structure was in most of the cases optimized for internal TC in the pre-Ecommerce business, so it will not fit exactly post-Ecommerce requirements.</p> |

|   |  |   |
|---|--|---|
| <p>with no growth market leads to rising industry competition)</p> <p><b><u>Strategic groups</u></b></p> <p>Transparency and availability leads to the rise of strategic groups where they have not existed before; also increases competition for the existing SMEs.</p> <p><b><u>Three generic strategies:</u></b></p> <p>Even if E&amp;I in general tends to shift competition to price, for the SMEs in the G&amp;J industry differentiation and focus strategies appear more advantageous.</p> <p><b><u>Value chain analysis:</u></b></p> <p>Depending on evolutionary or revolutionary changes, different influence on the value chain of the company; especially retail companies and others, which just operate in narrow parts of the industry, face problems in their value chain due to the technical possibilities which enable especially forward integration, which is interesting because of the traditional high margins in this segment.</p> <p><b><u>Additionally:</u></b></p> <p>Rise of secondary markets, online auctions like eBay, which additionally increase supply and decrease possible margins.</p> | <p>The companies will have to be able to adopt better to changes, which means, from the RBV-based perspective, to develop and adopt RCC rapidly. This means nothing else than being dynamic and flexible. So-called meta-competencies are becoming more important; the ability to generate and adopt competencies and organizational learning.</p> <p>Only by doing so, the company is able to transfer the former valuable competencies to the new media E&amp;I in an efficient manner, thereby differentiating itself from the competitors.</p> <p><b><u>Additionally:</u></b></p> <p>To succeed in doing so is not easy and depends highly on the company culture and, for the SMEs in the G&amp;J industry, mainly on the ability, willingness and readiness of the management.</p> | <p><b><u>Risks for SMEs in the G&amp;J industry:</u></b></p> <p>Not being able to adapt to the changes quickly enough due to their traditional and slow attitude, a certain aversion to change, often also a lack of willingness and the emotional resistance to change.</p> <p><b><u>Additionally:</u></b></p> <p>Only if executed properly, can the advantages of Ecommerce be exploited efficiently and a favorable competitive position be reached.</p> |
|---|--|---|

Table 18 – Summary - The influence of Ecommerce on the G&J industry

Source: Own depiction

## 5 Discussion and Results

### 5.1 Propositions for the Investigated Company

By combining the research results of the company internal factors with the factors of the external investigation, the underlying nature of the problem and the interaction of the different components become clear. The basic problem which was investigated can be explained as a function of problems concerning the internal conduct of the company as well as the changing external environment. The interaction of these components is, as it becomes clear during the execution of this project, a complex interaction of the different investigated components, but can be explained easily by abstracting it to the following function:

$$f(\textit{Ecommerce Sales}) = (\textit{Internal factors})(\textit{External factors})$$

For the investigated company the operative propositions which can be derived based on the investigation of the internal factors are the main cause of the **current problem**. These factors can be controlled and have to be changed by the company; thus, following the propositions of this thesis will improve the current situation to a high degree.

The second part of the equitation shows the underlying forces that govern the external environment of the industry the company is active in. These forces shape the current external environment and more important will shape the **future requirements**.

Considering those circumstances, based on the results of the research conducted and the relationships suggested by the employed theoretical frameworks, improvement is recommended in the following sectors:

#### 5.1.1 Stock Management

Having the demanded products ready in stock, as suggested in Chapter 3.7, solves the lion's share of the current problem. To reach this it is necessary to focus on the goods suggested by the results and the tools developed in the Chapters 3.4 to 3.7 when repurchasing merchandise.

Doing so in a proper manner will solve the lion's share of the problem and is therefore of highest importance. Solving this problem not only increases sales, it also has a great influence on the process-based problems described in Chapter 3.8 and increases the efficiency of the marketing activities described in Chapter 3.6.

Repurchasing the merchandise stock, as suggested by the results of this internal research (see summary in Chapter 3, Table 6), shows that only 10% of the non-available products are the main cause of the overall problem. Having this merchandise available for sale helps to highly increase customer satisfaction and improve the performance of the company in other areas.

The software tools<sup>160</sup> developed make it possible to clearly show the structure of this component of the actual problem. Used properly, they also help to understand and adapt to the desires and behavior of the customers in the future and to detect future trends at an early stage.

This helps the IC to gain an advantage over its competitors, especially those who suffer from similar problems. To conclude the area of stock management, it can be clearly stated that all following propositions are highly dependent on this factor. Other operative and especially the further strategic recommendations are going to fail if this basic problem is not solved to the proper extent.

### **5.1.2 Additional Measures Based on the Company Internal Research**

In addition to the stock problem, changes in the operational behavior of the IC are necessary. This is especially suggested by the research results regarding the quality of the visitors and the influence of it on sales, discussed in Chapter 3.6. Several measures are recommended for the improvement of the quantity and, more importantly, the quality of the visitors. It is not advisable to stop using Google Adwords for online marketing activities, but they have to be used in the proper way, which means they have to be managed actively, constantly checked and altered to suit the current needs of the company. By doing so, the ROI of Google Adwords can be increased strongly. By canceling the really useless keywords only, great improvements have already been made after the basic problem had been investigated in Chapter 3.6.3.

In addition to Google Adwords, alternative ways of attracting visitors have to be used. Additional measures for further optimization and adaption of the website to the changing search engine requirements are:

- ✚ Content-specific affiliate marketing<sup>161</sup> and personalized newsletters<sup>162</sup>
- ✚ Advertisement on content-specific bulletin boards<sup>163</sup> and creation of a company own bulletin board<sup>164</sup>

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<sup>160</sup> Primarily the tools used and described in Chapter 3.7.

<sup>161</sup> Better choice of affiliate partners regarding the content and products of the IC.

<sup>162</sup> Based on the buying behavior and interests of the respective customer.

<sup>163</sup> Advertise in several (free, which means not operated by a competing company) bulletin boards which cover topics related to the product portfolio.

<sup>164</sup> Financial and technical quite easy to create and highly advisable to generate high-quality visitors.



In general, this all means to pay more attention to the quality of the customers and the use of existing data to improve the quality of the marketing operations. The data necessary for doing so are available and are now being extracted and refined.

After having improved the internal, operative problems, it is important to extend the horizon of conduct of the IC by using the theoretical considerations of Chapters 4.6, 4.7 and 4.8 in relation to the investigation of the external environment in Chapters 4.2 and 4.3 to strengthen the competitive position and exploit the possibilities and opportunities available to the IC.<sup>165</sup>

### **5.1.3 MBV- Based Considerations**

Based on the theoretical considerations of Chapter 4.6 and the influence of Ecommerce on the G&J industry as described in Chapter 4.6.6, there are several factors which the IC has to become aware of due to the current and the future external market development. In particular when taking the internal problems and weaknesses (as investigated in Chapter 3) into this consideration, the strong relationship between the changing external factors and the internal problems and weaknesses becomes obvious.

The above-described influence of Ecommerce on the Five Forces entails threats for most of the members of the G&J industry, especially the small and very traditional companies. This however also entails opportunities to exploit for those members who are able adapt to this new environment.

Because of this, it is strongly recommended for the IC after solving, or at least decreasing, the internal problems, to perform an in-depth competitor analysis to have a better understanding of the behavior of the competitors and about its own competitive position. Due to the broad product range offered on Juwela.de, it is feasible to create “quasi strategic groups” for the different product categories.<sup>166</sup>

This competitor analysis should not stop at analyzing the product- and price-specific terms and conditions; it also has to focus on the Ecommerce-related factors involving the competitors, which means online marketing activities such as affiliate and link partnerships of the respective competitor. Overall, the competitor has to be analyzed as to how exactly he has adjusted to the Ecommerce-related environment and how he is able to transfer his business model online. This

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<sup>165</sup> The general opportunities which lie buried in the general inefficiencies and problems of the G&J sector concerning the changes induced by Ecommerce. The explained structural, strategic and managerial deficits which have been revealed in the investigated industry bear many of them.

<sup>166</sup> A competitor analysis for the IC is not part of this thesis, but to give an overview it has to be mentioned that there are similar competitors which offer a comparable product range and follow a similar business model like Rubinland ([www.rubinland.de](http://www.rubinland.de)) or for other product groups big mail-order companies like Neckermann ([www.neckermann.de](http://www.neckermann.de)) or Bonprix ([www.bonprix.de](http://www.bonprix.de)).

can be achieved by a combination of the research result yielded during the course of this thesis and the data constantly tracked by the developed tools and different external service and software providers.<sup>167</sup> Additionally, especially considering the broad product range the IC is handling, investigations into which part of the industry value chain should be covered in the future are advisable.

#### **5.1.4 RBV-Based Considerations**

Based on RBV considerations, the main threat is that the value of the traditional resources and competencies of the IC have already decreased and will be further decreasing. This is also true for most of the (traditional) competitors in the investigated industry. However, this threat also entails some opportunities that can be exploited if performed properly.

As explained in Chapter 4.7, by the right combination of the “tradition” competencies of the G&J industry with the competencies required in the Ecommerce environment a unique bundle of resources could be created, which passes the VRIO criteria and would be sufficient to create a quasi sustainable competitive advantage.<sup>168</sup> This unique combination of competencies, which can make a small company able to compete with large competitors, is highly recommended to the investigated company. Because of this need, the managerial requirements shift away from solely G&J-related knowledge to a much more managerial, strategic and economic focus (see Chapter 4.7.6).

This leads to the above-described requirement of being dynamic and flexible, as well as constant enhance organizational learning, which enables the IC to react quickly to changes and create new competencies. In this shift, which becomes inevitable for the company, lies a unique opportunity to exploit and create a highly valuable bundle of competencies, which becomes clear when combining RBV considerations with TCE.

This new, required, and latently existing competency would enable the company to link network resources latently available in the G&J industry by the use of the already existing knowledge, competencies and experience of the IC and to connect them with the Ecommerce environment. This would be of the high value, also in terms of possible monetary exploitation, as it would also lower the TC for all members of the network thus created.<sup>169</sup> This network and the ability to

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<sup>167</sup> For example with the “Wettbewerbsradar” <http://www.management-monitor.de/monitor/produkte/wettbewerbsradar/index.php>.

<sup>168</sup> Or generate a series of short-term competitive advantages which in sequence then would lead to a sustainable competitive advantage.

<sup>169</sup> The network created could be compared to what Los Grobos did in Argentina (McAfee & de Royere, 2005).

manage it would present the core competency of the “new” IC. This new competency would be a hybrid of the competencies needed in the G&J industry and the competencies needed in Ecommerce, combined with the ability to manage this newly created network.

### **5.1.5 TCE-Based Considerations**

The considerations based on TCE offer insights into the further strategically recommendable course of action of the IC. As transferred by the propositions based on the RBV perspective, employment of, access to, and the management of network resources bear a high potential for the IC. Based on the nature of the Ecommerce environment (see Chapter 4.2) and the characteristics of the G&J industry (see Chapter 4.3), the traditionally high TC in the G&J industry, the high demand for trust in the contracting parties and the problem of opportunism especially when doing Ecommerce generate overall high TC as soon as the G&J industry gets in touch with Ecommerce. This entails again an interesting opportunity for the IC.

Existing experience, the unique bundle of competencies and specific resources like the gemological laboratory of the IC can be used to create something like an institution which creates trust and lowers the possibility of opportunism. This cannot only be communicated to the customers of the IC and be used for marketing activities, it also bears a high potential when it is combined with the use and exploitation of network resources. Doing so is superior to what the competitors are doing, as the created trust can be transferred to other members of the network according to network theory. This is interesting when taking the structure of the G&J industry into account. In a highly scattered industry composed of many small companies (see Chapter 4.3), such as network is a great opportunities to lower TC for many of the small members, especially internationally.

Only a very small number of German customers are willing to buy from a small Indian, Thai or Burmese company via Ecommerce. This is explained by all the factors increasing transaction costs including the liability of foreignness, different languages and law systems. A small company like the IC could work as a German hub in the described network, making it possible to lower transaction costs by being a proxy between the German Ecommerce customers and many small foreign producers and wholesalers, enabling them to participate in a market which otherwise would not be open to them. For the IC itself this would mean not only to have access to a wide range of network structures, but also to have a certain degree of control over the network itself.

## 5.2 Summary and Synergetic Effects of the Proposed Measures

The following table gives an overview of the recommendations proposed to the IC and the internal research results or theoretical considerations from which they have been derived. The numbers indicate the recommended consecutive execution of them.

| <b><u>Proposed actions and measures based on company internal investigations.</u></b>   | Suggestion supported by internal investigations |          |          |
|---|---|----------|----------|
| Solving of the internal operative problems.   | <b>1</b>  |          |          |
| <b><u>Proposed actions and measures based on theoretical considerations</u></b>   | Suggestion supported by theoretical framework   |          |          |
|   | MBV   | RBV      | TCE      |
| Solving of the internal stock problem (suggested by internal research and additionally because of the amplification of the problem due to the described changes in the 5 Forces). | <b>2</b>  |          |          |
| In-depth competitor analysis using research results of this thesis in combination with external services.   |   |          |          |
| Combine traditional G&J competencies with competencies required by the Ecommerce environment.   |   | <b>3</b> |          |
| Increase dynamic, flexible competencies and willingness to adopt organizational learning.   |   |          |          |
| Focus on the competency to combine the old and new competencies of the IC to manage and access network resources.   |   |          | <b>4</b> |
| Use of the combined competencies to be able to offer lower TC in the investigated industry.   |   |          |          |
| Use of the herby created quasi institution to exploit the general weaknesses of the investigated industry.  |   |          |          |

Table 19 – Proposed actions and measures based on theoretical considerations

Source: Own source

## 5.3 Consecutive and Multi-Layered Sequence of Improvement

Putting these proposed actions together results in the overall recommendation and the recommended subsequent and consecutive sequence of the course of action that the IC should adopt now. This sequence is shown in the following graphical illustration.

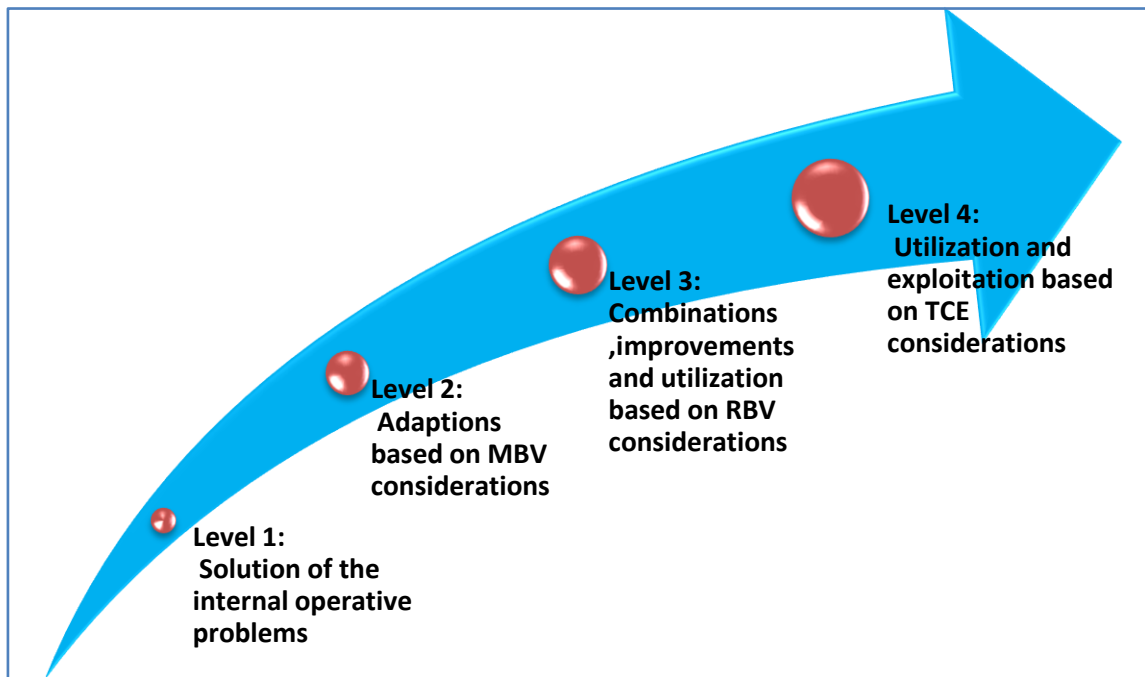


Figure 47 – Overall recommendation for the IC

Source: Own source

## 5.4 Supporting Measures and Suggestions for the IC

To execute the propositions made in a proper way requires a management approach with a highly entrepreneurial attitude, which enables the IC to combine its existing resources and to overcome the existing problems, thereby creating a highly differentiated and competitive company. Based on the investigations of the internal and external situation, the given propositions if executed properly will lead the IC in the desired direction.

Many additional aspects, threats as well as opportunities, will arise during the daily business activities,<sup>170</sup> this means that going in the proposed direction demands high managerial abilities as well as constant adaption and improvement. In particular, if executing the proposed recommendations up to Level 4, internationalization aspects become very important regarding both procurement and sales.

<sup>170</sup> Measures to be mentioned here which are not part of this thesis would be a much higher personalization of the newsletters taking customer-specific needs into consideration, and other Ecommerce-related marketing and customer relationship tools like web forums and affiliate and bonus programs to increase customer benefits and loyalty.

Additionally, it needs to be established what aspects create trust for example membership in the leading European online shop accreditation institutions like Trusted Shops (<http://www//trusted-shops.de>).

**Regarding procurement:**

Most of the G&J producers and wholesalers in foreign, less developed countries are SMEs which have not the resources to operate and sell their goods internationally, even if their products by their nature are designated for markets in developed countries. These companies also suffer from the liability of foreignness which makes it even more difficult for them to sell their goods directly to foreign customers.

Traditionally, here intermediaries and international wholesalers have pocketed the lion's share of the achievable profits as a quasi commission to bridge this gap and to bring remote parties close together to enable them to do business. As this gap represents high TC, a small company like the IC could lower them by functioning as a bridge between these parties, earn a part of the commission formerly earned by intermediaries, and form a network with the IC as the selling base in the target countries. Performed properly, all members of the network would benefit from that scheme.

**Regarding sales:**

Thinking about creating such a network as described above leads to the consideration that it would not be necessary or advisable to limit the target market to Germany. At least the analysis of other European markets would be recommendable regarding sufficient internet coverage and a potential for Ecommerce or even already existing Ecommerce activities. This analysis has to be combined with a competitor and demand screening. If this screening suggests that a foreign market is interesting, expanding to it would be relative easy and cheap<sup>171</sup> as many of the Ecommerce-specific benefits can be exploited and great parts of the existing business can be transferred.

All this together would represent the creation of a new, different company based on the foundations of the IC whose main activity would be to bring remote parties together by lowering their transaction costs and reap entrepreneurial profits by this innovative conduct. This new company would be what Oviatt and McDougall (2005) call an International New Venture (INV), which in an entrepreneurial manner and most often as a small company, exploits the theoretically investigated drawbacks and the complex structure of an industry by supplying the necessary industry-specific expert knowledge and management abilities, lowering transaction costs between otherwise remote parties, and by doing so, enable these parties to do business.

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<sup>171</sup> For such an expansion the main efforts would be adding the respective language to the shop system (with English many European countries could be covered in a first step, even if it is not the official language of the target country, later French, Italian and Spanish could be added), checking shipment conditions and adopting parts of the shop system to country-specific requirements, the institutional framework and domestic laws. All in all, relatively few efforts are needed compared to the overall system behind Ecommerce.

Research on INV cases of the last 20 years<sup>172</sup> has shown that being such a “hub” can be highly profitable (Oviatt & McDougall, 2005)

## **5.5 General Considerations for Other SMEs in the G&J Industry**

Many of the problems and interrelations which were discovered by researching the IC may apply to comparable companies in the G&J industry. Generally, the extent to which a company is affected by Ecommerce will influence how and how much the company has to adapt to the new environment, which creates both opportunities and threats to them. These changes mean that a traditional and slightly old-fashioned industry is now confronted with the technologies, possibilities, risks and speed of the 21<sup>st</sup> century. To all of the companies this means that strategies, business models, values and competences might have to be modified and that flexibility and constant learning, adaption and improvement become more important. As this change has to be initiated and managed, also a shift of importance from G&J industry-specific knowledge to managerial and business-related knowledge has to take place. Ecommerce makes the G&J business more “business” than ever before.

The extensions to which the results of this research project can be generalized have to be termed further research, especially to mention network considerations and business webs. The terms “internet” and “web” already signify the similarity in nature to terms like “network resources” and “business webs”.

## **5.6 Limitations and Implications for Further Research**

The focus of this thesis was an in-depth case study of the IC. This topic was researched as precisely and carefully as possible. The results give insight into the internal and external factors that influence the business of the IC, thereby fulfilling the thesis’s objective to the full extent. Chapter 4 in particular, which dealt with the investigation of the external factors based on theoretical frameworks cannot, by its very nature, yield results which can be regarded as being generally valid for other industry members. Instead, this thesis brought light into this field based on theoretical considerations and by connecting and interlinking accepted and well-known theoretical frameworks and by focusing on an industry which has some very specific characteristics.

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<sup>172</sup> The emergence of INV in the past decades has been enabled by the changing economic, social and technological environment (Porter, 1990) as well as by the dramatic increase in the speed, quality, and efficiency of international communication and transportation (Hedlund & Kverneland, 1985). Other reasons and supporting factors for this development are provided by Patricof (1989), Valeriano (1991), Johnston (1991) and Reich (1991).

At the same time, this thesis offers a basis and starting point for further research. The results of this basic research and the following research will produce valuable insights for all members of the G&J industry, no matter what size the company is.

A subject recommended for further research is the generalization of the relationships observed in this thesis and the research results yielded. “The DMF International -Verband des Deutschen Mineralien- und Fossilien- Fachhandels DMF e.V.,<sup>173</sup>” a Germany-based association of currently 123 to the IC comparable SMEs in the investigated industry sector, is a great source of data for such further research.

Also, the proposed optimization process for the IC regarding the proposed Ecommerce activities which follow a somehow hierarchical and multi-layered optimization process would be another interesting research topic.

1<sup>st</sup> Improvement of internal factors.<sup>174</sup>

2<sup>nd</sup> Adjustment of strategy according to considerations based on the MBV.<sup>175</sup>

3<sup>rd</sup> Adjustment of strategy according to considerations on the RBV.<sup>176</sup>

4<sup>th</sup> Adjustment of strategy according to considerations on TCE.<sup>177</sup>

Abstracted this would mean that, in the case of the investigated company, with further improvement of the general firm performance somehow “higher or more theoretical” frameworks become more appropriate, or that the company is, through its own development and evolution is able to reap the benefits hidden in this theoretical body of thoughts.

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<sup>173</sup> <http://www.dmf-international.de/index.php>

<sup>174</sup> Everything that needs improvement and is under direct control of the company.

<sup>175</sup> Understand the nature of the external environment and needs.

<sup>176</sup> Understand what is needed to adopt and succeed in a sustainably competitive way.

<sup>177</sup> All this enables a company to exploit the opportunities (and inefficiency) inherent in the respective industry.



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## Appendix

### 1 For Chapter 2.2 - Company Internal Individual in-depth Interviews

IDI with the management<sup>178</sup>:

*I: What are in your opinion the main reasons for the decrease in sales?*

M: The main problems are the problem of availability of some products, the changes in the economic situation in Germany and the decrease in the demand of the products which we sell.

*I: Do you think that the decrease in sales is more based on company internal or external factors?*

M: In the beginning of the decrease in sales I was thinking that the decrease is more due to external factors but meanwhile I have realized that the lion's share of the problem is most probably caused by internal factors.

*I: Please tell me more about the external factors and their influence on the decrease of sales.*

M: The main external factors in my opinion are the bad economic situation and the increase in competition. Additionally, there is a strong decrease in demand of our products, which is lowering achievable prices. And wholesalers are now selling directly to the end users due to the possibility of directly selling to them through Ecommerce.

*I: Please tell me more about the internal factors and their influence on the decrease of sales.*

M: It took me quite some time to understand that the problem of unavailable products is maybe the biggest of all, and this is mainly due to financial problems caused by other areas of business of our company, which made the necessary investments in the demanded merchandise impossible.

*I: Do you see problems directly related to the sales channel Juwela.de?*

M: The biggest problem here may lie in the lack of communication with the IT department. To be honest, there is no real transparency in what goes on in the sales channel of Juwela.de.

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<sup>178</sup> Interviews were originally conducted in German and translated into English by the author.

## IDI with the IT Department<sup>179</sup>

*I: What are in your opinion the main reasons for the decrease in sales?*

IT: The main problem is the problem of unavailable products and also of unsuitable products. We simply do not have what we could sell.

*I: What are the different problems caused by the unavailable and wrong products?*

IT: Nearly all of the problems are caused by this core problem, starting from the different marketing activities which attract a lot of people, which are often later disappointed when they do not get what they want. And it ends with a lot of useless and inefficient work mainly due to communication with the customers, discussing substitute or alternative products.

*I: Concerning the different marketing tools, what are the main problems?*

IT: Online Marketing and Advertising Activities, mainly Google Adwords, are not working Properly as the management doesn't provide a proper structure for the IT Department to adjust it to the reasonable Products. The Company tries to sell what is still available on stock and does not react to products customers would like to order.

*I: What can you tell me about other problems related to the sales channel Juwela.de:*

IT: In addition to the problem with the products, but also related to it, we face increasing competition in this industry. Online shops of SMEs in the Gems and Jewelry Industry grow like mushrooms, and even if they themselves might have some problems they increase the competition. And if we tell the customer "Sorry, we don't have the product you want, but maybe next week", we can be sure that he will find it in one of the other shops. The many small shops are often also higher specialized than our shop, whose product range comprises approx. 5000 products.

*I: What are the causes of the problem from a technical perspective concerning the sales channel Juwela.de?*

IT: I think that no one really knows what is happening on Juwela.de. This means the direct behavior of the visitors on the online shop. Insight here would be very helpful. In addition to that, more efforts should be directed to affiliate marketing and search engine optimization. There are also problems concerning search engine optimization.

*I: Why doesn't the IT department do anything about the problems you have just mentioned?*

IT: Because of difficulties to explain the management these connections. I have suggested it several times but I have never received a positive response.

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<sup>179</sup> Interviews were originally conducted in German and translated into English by the author.

## 2 Summary of the Results of the Company Internal IDIs

|  | <u>Management</u>   | <u>IT Department</u>  |
|--|---|---|
| <b>Internal Factors<br/>General</b>                              | Unavailable products mainly due to financial problems in other business sectors   | Non-availability of products and inappropriate products;<br>General communication problem between management and IT department  |
| <b>Internal Factors<br/>Ecommerce<br/>Channel<br/>Functional</b> | Problem of understanding and transparency of the sales channel from a technical and general point of view   | Inefficient usage of marketing tools and online advertising;<br>Substitute and alternative articles;<br>Problems concerning search engine optimization;<br>General problem of analyzing visitors and their behavior;<br>Problems with affiliate marketing |
| <b>External Factors</b>  | Changes in the economic situation in Germany;<br>Decreasing demand of sold products;<br>Increasing competition;<br>Direct sales by wholesalers to customers | High Competition due to higher specialized online shops;<br>General higher competition due to new participants in G&J industry;<br>Ecommerce.   |

### 3 For Chapter 2.3 - Customer Interviews and Observational Studies

| <u>Online Shop System</u>                     |  |  |
|---|--|--|
|   | <u>Customers Interviews</u>  | <u>Customer Observational Studies</u>  |
| <b>Searching Process</b>                      | Difficulties to find products in both navigation and search functionalities  | Observations proved the difficulties mentioned in the interviews, more than mentioned in the interviews                        |
| <b>Shopping Process</b>                       | No comments on problems when putting products in the shopping basking and editing amounts  | Observations showed distraction, thinking, searching for relevant buttons to select, edit, and delete > Insecurity was present |
| <b>Buying / Ordering Process</b>              | Too long, distracting information, too many “clicks” needed  | Observations showed the difficulties mentioned in the interviews, more than mentioned in the interviews                        |
| <u>Product Portfolio</u>                      |  |  |
|   | <u>Customers Interviews</u>  | <u>Customer Observational Studies</u>  |
|   | Do not find the products they want, <sup>180</sup><br>Customers mentioned products were often more expensive than in competitors' shops <sup>181</sup>       | Customers tend to browse in product groups which are known to contain often missing products                                   |
| <u>Suggestions and Criticism of Customers</u> |  |  |
|   | <u>Customers Interviews</u>  | <u>Customer Observational Studies</u>  |
|   | Guidance and advisory functionalities on products as well as on the functionality > especially again ordering / check out process and search functionalities | Observations showed that here indeed confusion exists.   |

<sup>180</sup> Most often because they are unavailable, which means deactivated, which was unknown to the customers.

<sup>181</sup> Price-quality relationship cannot be judged by customers when shopping online, as described in the thesis.

#### 4 For Chapter 3.6.1- Number of Visitors

|               | <u>Visitors</u> | <u>Paid</u> | <u>% Paid</u> | <u>Unpaid</u> | <u>% Unpa</u> |
|---------------|-----------------|-------------|---------------|---------------|---------------|
| <b>May-07</b> | 7713            | 2735        | 35.46%        | 4493          | 58.25%        |
| <b>Jun-07</b> | 7610            | 2763        | 36.31%        | 3904          | 51.30%        |
| <b>Jul-07</b> | 7263            | 2849        | 39.23%        | 3504          | 48.24%        |
| <b>Aug-07</b> | 6756            | 2767        | 40.96%        | 3320          | 49.14%        |
| <b>Sep-07</b> | 5531            | 2833        | 51.22%        | 2718          | 49.14%        |
| <b>Oct-07</b> | 6982            | 3122        | 44.71%        | 3485          | 49.91%        |
| <b>Nov-07</b> | 6851            | 3035        | 44.30%        | 3524          | 51.44%        |
| <b>Dec-07</b> | 9908            | 5491        | 55.42%        | 3758          | 37.93%        |
| <b>Jan-08</b> | 7108            | 4169        | 58.65%        | 2926          | 41.16%        |
| <b>Feb-08</b> | 6325            | 3708        | 58.62%        | 2858          | 45.19%        |
| <b>Mar-08</b> | 5836            | 3509        | 60.13%        | 2601          | 44.57%        |
| <b>Apr-08</b> | 5386            | 2971        | 55.16%        | 2634          | 48.90%        |
| <b>May-08</b> | 5036            | 2880        | 57.19%        | 2156          | 42.81%        |

#### 5 For Chapter 3.6.2– Origin of Visitors

|        | <u>Visitors</u> | <u>Visitors from Google Adwords</u> | <u>Visitors from Google Organic</u> | <u>Visitors direct</u> | <u>Visitors from own referral Sites</u> | <u>Visitors from other sources (approx.)</u> |
|--------|-----------------|-------------------------------------|-------------------------------------|------------------------|---|--|
| May-07 | 7713            | 2735                                | 1711                                | 1532                   | 1340                                    | 382  |
| Jun-07 | 7610            | 2763                                | 1439                                | 1215                   | 1322                                    | 377  |
| Jul-07 | 7263            | 2849                                | 1569                                | 685                    | 1262                                    | 360  |
| Aug-07 | 6756            | 2767                                | 1225                                | 845                    | 1174                                    | 335  |
| Sep-07 | 5531            | 2833                                | 911                                 | 557                    | 961                                     | 274  |
| Oct-07 | 6982            | 3122                                | 962                                 | 1273                   | 1213                                    | 346  |
| Nov-07 | 6851            | 3035                                | 1298                                | 976                    | 1190                                    | 339  |
| Dec-07 | 9908            | 5491                                | 1381                                | 1127                   | 1721                                    | 491  |
| Jan-08 | 7108            | 4169                                | 1067                                | 609                    | 1235                                    | 352  |
| Feb-08 | 6325            | 3708                                | 874                                 | 734                    | 1099                                    | 313  |
| Mar-08 | 5836            | 3509                                | 767                                 | 584                    | 1014                                    | 289  |
| Apr-08 | 5386            | 2971                                | 648                                 | 736                    | 936                                     | 267  |
|        | 83269           | 39952                               | 13852                               | 10873                  | 14466                                   | 4126   |

## 6 For Chapter 3.6.2- List of Referral sites

| Source                          | Visitors | Ø Page / Visitors | Ø Time   | % New Visits | Bounce rate |
|---------------------------------|----------|-------------------|----------|--------------|-------------|
| juwela.de                       | 8.179    | 15.05             | 00:06:56 | 35.92%       | 17.51%      |
| salzkristall-shop.de            | 1.124    | 15.06             | 00:05:05 | 75.36%       | 24.38%      |
| oase-bodenmais.de               | 799      | 15.07             | 00:03:48 | 72.97%       | 18.90%      |
| skulpturshop.com                | 717      | 15.08             | 00:00:48 | 95.40%       | 50.07%      |
| edelsteinschmuck.info           | 632      | 15.09             | 00:05:33 | 75.47%       | 17.88%      |
| oase-shop24.de                  | 465      | 15.10             | 00:05:23 | 57.85%       | 16.56%      |
| suche.t-online.de               | 442      | 15.11             | 00:02:40 | 83.26%       | 34.16%      |
| oase-shop24.mypay.de            | 441      | 15.12             | 00:06:30 | 60.32%       | 19.50%      |
| gold-silber-edelsteinschmuck.de | 370      | 15.13             | 00:02:53 | 82.43%       | 24.05%      |
| edelsteinzimmerbrunnen.de       | 333      | 15.14             | 00:03:41 | 84.68%       | 25.83%      |
| brunnenshop.info                | 328      | 15.15             | 00:01:32 | 96.34%       | 60.98%      |
| schmuck-auktion.de              | 320      | 15.16             | 00:02:12 | 80.31%       | 30.00%      |
| fossilien-versteinerungen.de    | 317      | 15.17             | 00:04:02 | 81.70%       | 23.97%      |
| natur-bernstein.de              | 316      | 15.18             | 00:03:01 | 81.96%       | 25.95%      |
| edelsteineshop.com              | 263      | 15.19             | 00:05:10 | 72.62%       | 11.79%      |
| mineralien-edelsteinshop.de     | 259      | 15.20             | 00:04:06 | 86.49%       | 21.24%      |
| forum.gewinnspiele.com          | 178      | 15.21             | 00:00:19 | 90.45%       | 30.90%      |
| edelsteinshop24.de              | 146      | 15.22             | 00:04:08 | 64.38%       | 15.75%      |
| 18kt.de                         | 135      | 15.23             | 00:04:04 | 85.19%       | 23.70%      |
| figureshop.info                 | 127      | 15.24             | 00:01:35 | 93.70%       | 34.65%      |
| webmail.aol.com                 | 107      | 15.25             | 00:01:57 | 71.03%       | 41.12%      |
| shops.oscommerce.com            | 106      | 15.26             | 00:00:48 | 100.00%      | 66.04%      |
| office2.freenet.de              | 104      | 15.27             | 00:05:38 | 39.42%       | 14.42%      |
| meinstadt.de                    | 103      | 15.28             | 00:01:53 | 94.17%       | 47.57%      |
| geizkragen.de                   | 79       | 15.29             | 00:01:36 | 93.67%       | 46.84%      |
| office1.freenet.de              | 60       | 15.30             | 00:04:20 | 58.33%       | 21.67%      |
| mypay.de                        | 57       | 15.31             | 00:03:21 | 89.47%       | 45.61%      |
| juwela.mypay.de                 | 52       | 15.32             | 00:00:44 | 94.23%       | 75.00%      |
| arcor.de                        | 51       | 15.33             | 00:03:25 | 76.47%       | 27.45%      |
| secure-mypay.de                 | 38       | 15.34             | 00:01:53 | 76.32%       | 34.21%      |
| suche.freenet.de                | 37       | 15.35             | 00:04:40 | 89.19%       | 27.03%      |
| 209.85.135.104                  | 31       | 15.36             | 00:01:36 | 87.10%       | 32.26%      |
| magie-art.com                   | 30       | 15.37             | 00:00:54 | 93.33%       | 76.67%      |
| suche.web.de                    | 30       | 15.38             | 00:03:38 | 83.33%       | 33.33%      |
| suche.fireball.de               | 29       | 15.39             | 00:01:31 | 82.76%       | 34.48%      |
| google.de                       | 28       | 15.40             | 00:03:32 | 67.86%       | 32.14%      |
| de.mongenie.com                 | 27       | 15.41             | 00:01:39 | 100.00%      | 44.44%      |
| allesklar.de                    | 21       | 15.42             | 00:01:43 | 71.43%       | 42.86%      |
| edelstein-lexikon.de            | 21       | 15.43             | 00:02:04 | 90.48%       | 28.57%      |
| suche.aolsvc.de                 | 21       | 15.44             | 00:04:31 | 90.48%       | 33.33%      |
| 216.133.243.28                  | 20       | 15.45             | 00:01:08 | 100.00%      | 40.00%      |
| suche.gmx.net                   | 20       | 15.46             | 00:03:34 | 100.00%      | 25.00%      |
| 209.85.129.104                  | 19       | 15.47             | 00:02:30 | 100.00%      | 47.37%      |
| andoo.de                        | 19       | 15.48             | 00:10:54 | 57.89%       | 15.79%      |
| de.f265.mail.yahoo.com          | 18       | 15.49             | 00:01:57 | 72.22%       | 22.22%      |
| juwela.com                      | 18       | 15.50             | 00:05:33 | 55.56%       | 27.78%      |
| yatego.com                      | 17       | 15.51             | 00:04:44 | 88.24%       | 35.29%      |
| indaxis.info                    | 16       | 15.52             | 00:00:20 | 87.50%       | 50.00%      |
| metager.de                      | 16       | 15.53             | 00:03:53 | 93.75%       | 37.50%      |
| billiger.de                     | 15       | 15.54             | 00:05:07 | 100.00%      | 33.33%      |

## 7 For Chapter 3.6.2 - Quality of Visitors - Revenue Relationship

| Year 07/08 | Visitors | Revenue  | Visitors % | Comulated V | Revenue % | Comulated R |
|------------|----------|----------|------------|-------------|-----------|-------------|
|            |          |          |            | 0.00%       |           | 0.00%       |
| Unpaid     | 43317    | 44580.99 | 52.02%     | 52.02%      | 77.14%    | 77.14%      |
| Paid       | 39952    | 13210.33 | 47.98%     | 100.00%     | 22.86%    | 100.00%     |
|            | 83269    | 57791.32 | 100.00%    |             | 100.00%   |             |

## 8 For Chapter 3.6.2 - Visitor - Revenue Relationship

| Day | Visitors | Revenue | Day | Visitors | Revenue | Day | Visitors | Revenue  | Day | Visitors | Revenue |
|-----|----------|---------|-----|----------|---------|-----|----------|----------|-----|----------|---------|
| 1   | 263      | 138.75  | 102 | 272      | 313.41  | 203 | 254      | 293.63   | 304 | 175      | 0       |
| 2   | 252      | 13.8    | 103 | 242      | 312.16  | 204 | 308      | 290      | 305 | 179      | 81.5    |
| 3   | 243      | 110.31  | 104 | 196      | 137.99  | 205 | 305      | 168.98   | 306 | 178      | 104.07  |
| 4   | 214      | 141.61  | 105 | 204      | 187.45  | 206 | 346      | 235.89   | 307 | 156      | 137.49  |
| 5   | 224      | 200.04  | 106 | 280      | 107.03  | 207 | 360      | 70.21    | 308 | 178      | 278.02  |
| 6   | 180      | 44.03   | 107 | 261      | 239.05  | 208 | 394      | 356.71   | 309 | 180      | 99.96   |
| 7   | 209      | 89.25   | 108 | 216      | 45.17   | 209 | 320      | 346.27   | 310 | 196      | 20.23   |
| 8   | 251      | 216.59  | 109 | 226      | 178.76  | 210 | 401      | 86.85    | 311 | 175      | 70.21   |
| 9   | 283      | 0       | 110 | 208      | 254.66  | 211 | 425      | 488.34   | 312 | 176      | 0       |
| 10  | 313      | 358.15  | 111 | 170      | 54.68   | 212 | 436      | 569.76   | 313 | 188      | 47.66   |
| 11  | 208      | 14.16   | 112 | 198      | 164.22  | 213 | 443      | 1,041.25 | 314 | 190      | 0       |
| 12  | 206      | 134.15  | 113 | 195      | 53.55   | 214 | 364      | 197.46   | 315 | 158      | 0       |
| 13  | 173      | 89.23   | 114 | 222      | 212.71  | 215 | 367      | 597.26   | 316 | 188      | 91.43   |
| 14  | 219      | 34.51   | 115 | 201      | 0       | 216 | 367      | 807.28   | 317 | 180      | 86.72   |
| 15  | 240      | 394.09  | 116 | 197      | 109.6   | 217 | 492      | 657.56   | 318 | 172      | 0       |
| 16  | 294      | 122.57  | 117 | 172      | 42.84   | 218 | 455      | 505.82   | 319 | 153      | 0       |
| 17  | 358      | 13.09   | 118 | 183      | 270.13  | 219 | 355      | 322.8    | 320 | 194      | 656.94  |
| 18  | 824      | 808.18  | 119 | 201      | 173.74  | 220 | 326      | 583.12   | 321 | 171      | 0       |
| 19  | 397      | 298.98  | 120 | 219      | 262.45  | 221 | 256      | 90.44    | 322 | 153      | 123.74  |
| 20  | 273      | 0       | 121 | 192      | 0       | 222 | 225      | 239.19   | 323 | 174      | 23.68   |
| 21  | 263      | 21.42   | 122 | 194      | 128.47  | 223 | 204      | 56.88    | 324 | 160      | 39.23   |
| 22  | 309      | 253.23  | 123 | 173      | 0       | 224 | 225      | 9.52     | 325 | 193      | 54.7    |
| 23  | 240      | 102.07  | 124 | 170      | 236.81  | 225 | 132      | 43.14    | 326 | 160      | 0       |
| 24  | 226      | 27.35   | 125 | 158      | 0       | 226 | 245      | 937.83   | 327 | 148      | 162.3   |
| 25  | 232      | 123.36  | 126 | 154      | 34.46   | 227 | 300      | 140.42   | 328 | 170      | 107.11  |
| 26  | 197      | 322.49  | 127 | 203      | 171.06  | 228 | 275      | 30.94    | 329 | 210      | 116.48  |
| 27  | 225      | 74.23   | 128 | 170      | 23.8    | 229 | 261      | 254.66   | 330 | 159      | 0       |
| 28  | 211      | 82      | 129 | 187      | 35.7    | 230 | 286      | 78.4     | 331 | 184      | 0       |
| 29  | 229      | 179.45  | 130 | 202      | 94.01   | 231 | 355      | 407.5    | 332 | 158      | 30.3    |
| 30  | 265      | 460.29  | 131 | 165      | 30.94   | 232 | 218      | 68.22    | 333 | 171      | 71.4    |
| 31  | 220      | 63.07   | 132 | 148      | 88.66   | 233 | 243      | 193.91   | 334 | 174      | 0       |
| 32  | 209      | 224.22  | 133 | 164      | 67.54   | 234 | 312      | 316.31   | 335 | 157      | 0       |
| 33  | 210      | 61.88   | 134 | 212      | 104.23  | 235 | 316      | 181.48   | 336 | 176      | 0       |
| 34  | 213      | 0       | 135 | 187      | 50.93   | 236 | 216      | 302.47   | 337 | 204      | 14.28   |
| 35  | 225      | 19.04   | 136 | 186      | 49.31   | 237 | 231      | 0        | 338 | 219      | 0       |
| 36  | 284      | 431.17  | 137 | 206      | 139.11  | 238 | 246      | 369.35   | 339 | 220      | 88.17   |

|    |     |        |     |     |        |     |     |        |     |     |        |
|----|-----|--------|-----|-----|--------|-----|-----|--------|-----|-----|--------|
| 37 | 282 | 0      | 138 | 178 | 41.95  | 239 | 252 | 171.34 | 340 | 195 | 61.88  |
| 38 | 279 | 490.04 | 139 | 162 | 0      | 240 | 232 | 77.35  | 341 | 193 | 131.45 |
| 39 | 348 | 623.8  | 140 | 162 | 34.03  | 241 | 222 | 250.92 | 342 | 181 | 0      |
| 40 | 277 | 179.73 | 141 | 210 | 22.61  | 242 | 257 | 0      | 343 | 153 | 0      |
| 41 | 214 | 275.43 | 142 | 228 | 242.28 | 243 | 244 | 39.17  | 344 | 225 | 53.55  |
| 42 | 228 | 477.57 | 143 | 246 | 334.39 | 244 | 227 | 109.43 | 345 | 228 | 317.09 |
| 43 | 275 | 94.01  | 144 | 247 | 439.12 | 245 | 254 | 49.65  | 346 | 184 | 165.29 |
| 44 | 276 | 621.04 | 145 | 261 | 303.63 | 246 | 258 | 170.76 | 347 | 154 | 140.18 |
| 45 | 277 | 72.73  | 146 | 193 | 12.41  | 247 | 233 | 135.49 | 348 | 160 | 76.74  |
| 46 | 236 | 20.88  | 147 | 191 | 370.59 | 248 | 221 | 330.82 | 349 | 157 | 26.18  |
| 47 | 261 | 23.8   | 148 | 233 | 227.75 | 249 | 228 | 271.5  | 350 | 141 | 0      |
| 48 | 229 | 61.88  | 149 | 217 | 92.07  | 250 | 218 | 46.41  | 351 | 189 | 72.57  |
| 49 | 226 | 80.92  | 150 | 191 | 46.41  | 251 | 205 | 53.24  | 352 | 172 | 236.16 |
| 50 | 271 | 57.82  | 151 | 181 | 265.92 | 252 | 202 | 451.95 | 353 | 191 | 83.3   |
| 51 | 265 | 132.03 | 152 | 215 | 188.73 | 253 | 240 | 243.95 | 354 | 159 | 177.3  |
| 52 | 231 | 175.56 | 153 | 179 | 290.12 | 254 | 221 | 187.35 |     |     |        |
| 53 | 247 | 314.9  | 154 | 288 | 728.82 | 255 | 214 | 109.05 |     |     |        |
| 54 | 241 | 195.76 | 155 | 242 | 291.23 | 256 | 213 | 20.23  |     |     |        |
| 55 | 213 | 148.75 | 156 | 199 | 377.34 | 257 | 203 | 0      |     |     |        |
| 56 | 254 | 449.27 | 157 | 201 | 475.05 | 258 | 181 | 0      |     |     |        |
| 57 | 267 | 95.87  | 158 | 211 | 137.83 | 259 | 197 | 227.29 |     |     |        |
| 58 | 258 | 214.8  | 159 | 205 | 159.78 | 260 | 208 | 133.39 |     |     |        |
| 59 | 250 | 101.16 | 160 | 170 | 115.16 | 261 | 206 | 256.49 |     |     |        |
| 60 | 243 | 325.81 | 161 | 217 | 202.28 | 262 | 197 | 167.1  |     |     |        |
| 61 | 221 | 27.37  | 162 | 267 | 112.56 | 263 | 210 | 266.44 |     |     |        |
| 62 | 169 | 81.07  | 163 | 281 | 102.51 | 264 | 201 | 373.59 |     |     |        |
| 63 | 192 | 121.33 | 164 | 227 | 185.64 | 265 | 186 | 80.92  |     |     |        |
| 64 | 270 | 128.27 | 165 | 205 | 164.93 | 266 | 197 | 951.52 |     |     |        |
| 65 | 237 | 102.23 | 166 | 212 | 726.65 | 267 | 199 | 35.4   |     |     |        |
| 66 | 255 | 105.81 | 167 | 242 | 219.31 | 268 | 208 | 111.26 |     |     |        |
| 67 | 226 | 110.67 | 168 | 301 | 213.59 | 269 | 228 | 14.28  |     |     |        |
| 68 | 211 | 64.26  | 169 | 284 | 321.43 | 270 | 194 | 338.78 |     |     |        |
| 69 | 194 | 393.13 | 170 | 225 | 225.91 | 271 | 211 | 200.55 |     |     |        |
| 70 | 238 | 112.69 | 171 | 213 | 111.03 | 272 | 195 | 157.32 |     |     |        |
| 71 | 256 | 36.4   | 172 | 216 | 632.7  | 273 | 221 | 34.51  |     |     |        |
| 72 | 266 | 211.7  | 173 | 190 | 61.88  | 274 | 206 | 34.51  |     |     |        |
| 73 | 222 | 118.88 | 174 | 184 | 83.72  | 275 | 186 | 29.62  |     |     |        |
| 74 | 198 | 64.26  | 175 | 189 | 135.7  | 276 | 183 | 172.53 |     |     |        |
| 75 | 226 | 142.2  | 176 | 239 | 135.66 | 277 | 222 | 0      |     |     |        |
| 76 | 173 | 29.75  | 177 | 238 | 166.6  | 278 | 205 | 82.11  |     |     |        |
| 77 | 292 | 80.92  | 178 | 205 | 506.1  | 279 | 215 | 381.99 |     |     |        |
| 78 | 246 | 215.09 | 179 | 260 | 148.75 | 280 | 228 | 22.61  |     |     |        |
| 79 | 205 | 167.85 | 180 | 258 | 189.75 | 281 | 231 | 24.99  |     |     |        |
| 80 | 230 | 45.22  | 181 | 218 | 308    | 282 | 221 | 44.59  |     |     |        |
| 81 | 234 | 186.71 | 182 | 228 | 39.26  | 283 | 242 | 172.55 |     |     |        |
| 82 | 255 | 261.55 | 183 | 217 | 114.36 | 284 | 237 | 234.72 |     |     |        |



|     |     |        |     |     |        |     |     |        |
|-----|-----|--------|-----|-----|--------|-----|-----|--------|
| 83  | 166 | 192.99 | 184 | 211 | 57.12  | 285 | 296 | 70.52  |
| 84  | 91  | 110.67 | 185 | 289 | 106.31 | 286 | 263 | 158.64 |
| 85  | 123 | 133.85 | 186 | 212 | 168.97 | 287 | 235 | 42.6   |
| 86  | 116 | 45.82  | 187 | 193 | 110.41 | 288 | 236 | 179.38 |
| 87  | 255 | 114.23 | 188 | 159 | 928.32 | 289 | 243 | 51.71  |
| 88  | 251 | 0      | 189 | 218 | 160.67 | 290 | 216 | 0      |
| 89  | 241 | 58.31  | 190 | 217 | 104.05 | 291 | 219 | 143.87 |
| 90  | 201 | 76.23  | 191 | 210 | 121.13 | 292 | 201 | 0      |
| 91  | 201 | 0      | 192 | 192 | 108.27 | 293 | 234 | 0      |
| 92  | 223 | 47.6   | 193 | 211 | 0      | 294 | 236 | 101.64 |
| 93  | 218 | 121.46 | 194 | 195 | 355.32 | 295 | 229 | 80.92  |
| 94  | 233 | 276.08 | 195 | 187 | 76.16  | 296 | 203 | 165.41 |
| 95  | 233 | 127.1  | 196 | 231 | 114.78 | 297 | 227 | 154.7  |
| 96  | 214 | 89.24  | 197 | 228 | 109.48 | 298 | 216 | 0      |
| 97  | 198 | 61.87  | 198 | 253 | 7.09   | 299 | 192 | 0      |
| 98  | 2   | 0      | 199 | 355 | 285.8  | 300 | 193 | 29.75  |
| 99  | 242 | 48.79  | 200 | 382 | 209.19 | 301 | 199 | 82.68  |
| 100 | 317 | 121.36 | 201 | 266 | 347.68 | 302 | 200 | 19.04  |
| 101 | 407 | 461.93 | 202 | 208 | 30.94  | 303 | 193 | 52.37  |

### 9 For Chapter 3.6.2 - Number of Visitors needed per €1 of Revenue

|        | All Visitors | Paid  | Unpaid |
|--------|--------------|-------|--------|
| May-07 | 2.55         | 1.52  | 4.06   |
| Jun-07 | 1.34         | 5.10  | 0.94   |
| Jul-07 | 1.58         | 4.14  | 1.13   |
| Aug-07 | 1.55         | 4.18  | 1.08   |
| Sep-07 | 2.07         | 10.68 | 1.12   |
| Oct-07 | 0.91         | 2.84  | 0.58   |
| Nov-07 | 1.16         | 2.66  | 0.80   |
| Dec-07 | 0.99         | 1.64  | 0.66   |
| Jan-08 | 1.38         | 2.43  | 0.86   |
| Feb-08 | 1.53         | 3.65  | 0.84   |
| Mar-08 | 2.33         | 8.88  | 1.10   |
| Apr-08 | 2.63         | 5.69  | 1.58   |
|        | 1.67         | 4.45  | 1.23   |

## 10 For Chapter 3.6.3 - Performance of Google Adwords

| Keyword         | Visits | Impressions | Clicks | Costs   | Click through rate | Cost per click | Revenue per click | Return on investment | Margin   | Revenues   | Number of Transactions | Average value transaction | Ecommerce Conversion rate | Value per Visit |
|-----------------|--------|-------------|--------|---------|--------------------|----------------|-------------------|----------------------|----------|------------|------------------------|---------------------------|---------------------------|-----------------|
| Kristallsalz    | 139    | 12,367      | 125    | 17.66€  | 1.01%              | 0.14 €         | 1.09€             | 668.65%              | 86.99%   | 135.74 €   | 3                      | 45.25 €                   | 2.16%                     | 0.98€           |
| Achatscheiben   | 482    | 417,935     | 557    | 64.60€  | 0.13%              | 0.12 €         | 0.84 €            | 622.71%              | 86.16%   | 466.87 €   | 12                     | 38.91 €                   | 2.49%                     | 0.97€           |
| Bernsteinbrosc  | 133    | 50,835      | 140    | 16.24€  | 0.28%              | 0.12 €         | 0.82 €            | 603.45%              | 85.78%   | 114.24 €   | 3                      | 38.08 €                   | 2.26%                     | 0.86€           |
| Salzkristall    | 126    | 11,034      | 129    | 17.65€  | 1.17%              | 0.14 €         | 0.94 €            | 586.96%              | 85.44%   | 121.25 €   | 2                      | 60.62 €                   | 1.59%                     | 0.96€           |
| Salz Lampe      | 125    | 15,886      | 147    | 19.88€  | 0.93%              | 0.14 €         | 0.72 €            | 430.53%              | 81.15%   | 105.47 €   | 4                      | 26.37 €                   | 3.20%                     | 0.84€           |
| Amethyst        | 1352   | 269,245     | 1,752  | 234.84€ | 0.65%              | 0.13 €         | 0.69€             | 411.35%              | 80.44%   | 1,200.86 € | 15                     | 80.06 €                   | 1.11%                     | 0.89€           |
| Trommelsteine   | 1363   | 134,693     | 1,365  | 182.80€ | 1.01%              | 0.13 €         | 0.68 €            | 410.92%              | 80.43%   | 933.96 €   | 18                     | 51.89 €                   | 1.32%                     | 0.69€           |
| Bernstein       | 5374   | 710,940     | 5,991  | 544.81€ | 0.84%              | 0.09 €         | 0.46€             | 401.85%              | 80.07%   | 2,734.11 € | 50                     | 54.68 €                   | 0.93%                     | 0.51€           |
| Mineralien      | 7635   | 1,129,770   | 8,614  | 776.52€ | 0.76%              | 0.09 €         | 0.35€             | 289.07%              | 74.30%   | 3,021.23 € | 38                     | 79.51 €                   | 0.50%                     | 0.40€           |
| Lapis           | 2576   | 248,512     | 2,967  | 364.01€ | 1.19%              | 0.12 €         | 0.47 €            | 282.93%              | 73.89%   | 1,393.89 € | 21                     | 66.38 €                   | 0.82%                     | 0.54€           |
| Juwelen         | 1870   | 380,821     | 2,101  | 181.84€ | 0.55%              | 0.09 €         | 0.32 €            | 270.70%              | 73.02%   | 674.08 €   | 4                      | 168.52 €                  | 0.21%                     | 0.36€           |
| edelsteine      | 1220   | 139,449     | 1,374  | 123.62€ | 0.99%              | 0.09 €         | 0.28 €            | 210.93%              | 67.84%   | 384.37 €   | 4                      | 96.09 €                   | 0.33%                     | 0.32€           |
| Talisman        | 1984   | 90,368      | 2,132  | 238.39€ | 2.36%              | 0.11 €         | 0.31 €            | 177.52%              | 63.97%   | 661.57 €   | 7                      | 94.51 €                   | 0.35%                     | 0.33€           |
| Edelsteinfigure | 220    | 93,255      | 256    | 27.86€  | 0.27%              | 0.11 €         | 0.27 €            | 147.74%              | 59.63%   | 69.02 €    | 1                      | 69.02 €                   | 0.45%                     | 0.31€           |
| Steinschmuck    | 2385   | 692,095     | 2,654  | 311.31€ | 0.38%              | 0.12 €         | 0.23 €            | 95.62%               | 48.88%   | 608.99 €   | 11                     | 55.36 €                   | 0.46%                     | 0.26€           |
| Glücksbringer   | 2076   | 339,069     | 2,337  | 328.98€ | 0.69%              | 0.14 €         | 0.15 €            | 3.42%                | 3.30%    | 340.22 €   | 3                      | 113.41 €                  | 0.14%                     | 0.16€           |
| Indianer-Schmuc | 10     | 0           | 0      | 0.00€   | 0.00%              | 0.00 €         | 0.00 €            | 0.00%                | 0.00%    | 0.00 €     | 0                      | 0.00 €                    | 0.00%                     | 0.00€           |
| Zimmerbrunnen   | 941    | 112,030     | 991    | 133.58€ | 0.88%              | 0.13 €         | 0.12 €            | -11.81%              | -13.39%  | 117.81 €   | 1                      | 117.81 €                  | 0.11%                     | 0.13€           |
| Fossilien       | 750    | 314,372     | 882    | 71.57€  | 0.28%              | 0.08 €         | 0.04 €            | -50.12%              | -100.48% | 35.70 €    | 1                      | 35.70 €                   | 0.13%                     | 0.05€           |
| Perlenschmuck   | 2318   | 339,194     | 2,577  | 337.30€ | 0.76%              | 0.13 €         | 0.05 €            | -62.60%              | -167.38% | 126.15 €   | 3                      | 42.05 €                   | 0.13%                     | 0.05€           |
| Ethno-Schmuck   | 697    | 128,730     | 809    | 106.76€ | 0.63%              | 0.13 €         | 0.04 €            | -72.13%              | -258.86% | 29.75 €    | 1                      | 29.75 €                   | 0.14%                     | 0.04€           |
| Speckstein      | 4655   | 562,128     | 5,011  | 684.68€ | 0.89%              | 0.14 €         | 0.03 €            | -79.71%              | -392.81% | 138.93 €   | 5                      | 27.79 €                   | 0.11%                     | 0.03€           |
| Himalaya Salz   | 116    | 16,391      | 104    | 14.39€  | 0.63%              | 0.14 €         | 0.02 €            | -87.68%              | -711.57% | 1.77 €     | 1                      | 1.77 €                    | 0.86%                     | 0.02€           |
| Brunnen         | 43     | 12,231      | 50     | 6.12€   | 0.41%              | 0.12 €         | 0.00 €            | -100.00%             | 0.00%    | 0.00 €     | 0                      | 0.00 €                    | 0.00%                     | 0.00€           |
| Geschenke       | 91     | 31,612      | 97     | 13.97€  | 0.31%              | 0.14 €         | 0.00 €            | -100.00%             | 0.00%    | 0.00 €     | 0                      | 0.00 €                    | 0.00%                     | 0.00€           |
| Kundenwerben    | 197    | 39,596      | 224    | 27.40€  | 0.57%              | 0.12 €         | 0.00 €            | -100.00%             | 0.00%    | 0.00 €     | 0                      | 0.00 €                    | 0.00%                     | 0.00€           |
| Salzteelicht    | 15     | 2,271       | 6      | 0.37€   | 0.26%              | 0.06 €         | 0.00 €            | -100.00%             | 0.00%    | 0.00 €     | 0                      | 0.00 €                    | 0.00%                     | 0.00€           |
| Sibercreolen    | 746    | 144,226     | 798    | 108.66€ | 0.55%              | 0.14 €         | 0.00 €            | -100.00%             | 0.00%    | 0.00 €     | 0                      | 0.00 €                    | 0.00%                     | 0.00€           |

## 11 For Chapter 3.7 - Sales, Lost Sales and Ratios



| Month  | Create Account | Orders | Sold        | % Sold | Not sold due to unavailability | % Lost sales | Potentially Sold |
|--------|----------------|--------|-------------|--------|--------------------------------|--------------|------------------|
| Dec-06 | 193            | 199    | 11,337.36 € | 61.75% | 7,023.56 €                     | 38.25%       | 18,360.92 €      |
| Jan-07 | 115            | 119    | 3,866.74 €  | 40.78% | 5,614.06 €                     | 59.22%       | 9,480.80 €       |
| Feb-07 | 86             | 112    | 6,226.90 €  | 66.72% | 3,106.00 €                     | 33.28%       | 9,332.90 €       |
| Mar-07 | 89             | 111    | 6,063.39 €  | 61.49% | 3,798.00 €                     | 38.51%       | 9,861.39 €       |
| Apr-07 | 112            | 98     | 4,473.98 €  | 58.82% | 3,131.78 €                     | 41.18%       | 7,605.76 €       |
| May-07 | 81             | 96     | 4,889.14 €  | 57.88% | 3,558.26 €                     | 42.12%       | 8,447.40 €       |
| Jun-07 | 90             | 101    | 5,141.08 €  | 61.25% | 3,251.98 €                     | 38.75%       | 8,393.06 €       |
| Jul-07 | 77             | 103    | 4,265.79 €  | 65.44% | 2,252.59 €                     | 34.56%       | 6,518.38 €       |
| Aug-07 | 75             | 96     | 3,989.97 €  | 63.19% | 2,324.68 €                     | 36.81%       | 6,314.65 €       |
| Sep-07 | 67             | 76     | 3,105.19 €  | 64.14% | 1,736.43 €                     | 35.86%       | 4,841.62 €       |
| Oct-07 | 97             | 142    | 7,461.36 €  | 64.26% | 4,149.45 €                     | 35.74%       | 11,610.81 €      |
| Nov-07 | 89             | 111    | 5,958.56 €  | 71.95% | 2,323.17 €                     | 28.05%       | 8,281.73 €       |
| Dec-07 | 132            | 164    | 9,368.00 €  | 65.68% | 4,894.70 €                     | 34.32%       | 14,262.70 €      |
| Jan-08 | 91             | 87     | 5,001.00 €  | 58.61% | 3,531.00 €                     | 41.39%       | 8,532.00 €       |
| Feb-08 | 74             | 76     | 4,251.11 €  | 60.93% | 2,725.37 €                     | 39.07%       | 6,976.48 €       |
| Mar-08 | 43             | 50     | 2,465.47 €  | 57.56% | 1,818.10 €                     | 42.44%       | 4,283.57 €       |
| Apr-08 | 45             | 58     | 2,073.09 €  | 65.21% | 1,105.83 €                     | 34.79%       | 3,178.92 €       |

# 12 For Chapter 3.7.1 - Products Demanded but Unavailable for Sale

**Juwela.de** Supportcenter | Online Katalog | Administration

**Inaktive Produkte - Waren gekauft worden**

Umsatz: 184,00 € Umsatz: 184,00 € Umsatz: 184,00 € Umsatz: 184,00 €

| Nummer | DatCreated              | Ein   | ProduktName                                       | Lieferant         | Produkt-Preis | Umsatz<br>verkauft<br>verbleib | Ingesamt | Umsatz |
|--------|-------------------------|---|---|-------------------|---------------|--------------------------------|----------|--------|
| 21.    | 2007-02-18<br>18.02.07. |    | South-West-C<br>Themenstein<br>Lieferant auflagen | Verfunden!        | 878,0001      | 127                            | 2091     | 2      |
| 22.    | 2008-07-11<br>11.07.08. |    | Reden Themenstein<br>Lieferant auflagen           | Ken<br>Lieferant! | 878,0010      | 69                             | 8411     | 10     |
| 23.    | 2008-07-11<br>11.07.08. |    | Bernstein Themenstein<br>Lieferant auflagen       | Ken<br>Lieferant! | 878,0001      | 67                             | 8219     | 10     |
| 24.    | 2008-07-11<br>11.07.08. |    | Edelstein Perlenkorn<br>Lieferant auflagen        | Ken<br>Lieferant! | 878,00196     | 65                             | 8038     | 17     |
| 25.    | 2008-07-11<br>11.07.08. |    | South-C Themenstein<br>Lieferant auflagen         | Ken<br>Lieferant! | 878,0001      | 67                             | 6682     | 21     |
| 26.    | 2008-02-18<br>18.02.07. |    | Edelstein<br>Lieferant auflagen                   | Ken<br>Lieferant! | 880,0001      | 83                             | 1007     | 30     |
| 27.    | 2008-01-11<br>11.01.08. |    | Red-C Themenstein<br>Lieferant auflagen           | Ken<br>Lieferant! | 887,0001      | 67                             | 2291     | 27     |
| 28.    | 2008-01-11<br>11.01.08. |    | Latin Themenstein<br>Lieferant auflagen           | Ken<br>Lieferant! | 878,0001      | 66                             | 2081     | 27     |
| 29.    | 2008-07-11<br>11.07.08. |    | Wassermelonenkorn<br>Lieferant auflagen           | Verfunden!        | 880,0010      | 68                             | 0        | 18     |
| 30.    | 2008-04-01<br>01.04.08. |    | Amethyst Kugel<br>Lieferant auflagen              | Ken<br>Lieferant! | 800,0001      | 61                             | 6832     | 3      |
| 31.    | 2008-04-01<br>01.04.08. |    | South-West-C Kugel<br>Lieferant auflagen          | Ken<br>Lieferant! | 800,0001      | 60                             | 8478     | 28     |
| 32.    | 2008-10-09<br>09.10.08. |    | Korn<br>Lieferant auflagen                        | Verfunden!        | 880,0001      | 29                             | 0        | 10     |
| 33.    | 2008-01-11<br>11.01.08. |  | Bergkristall umgehärtet<br>Lieferant auflagen     | Ken<br>Lieferant! | 880,0000      | 26                             | 2025     | 24     |
| 34.    | 2008-10-09<br>09.10.08. |  | Opal Perlenkorn<br>Lieferant auflagen             | Ken<br>Lieferant! | 878,0110      | 26                             | 2270     | 17     |
| 35.    | 2008-11-01<br>01.11.08. |  | Ring Chrysothem<br>Lieferant auflagen             | Ken<br>Lieferant! | 880,0000      | 26                             | 2280     | 26     |
| 36.    | 2008-09-11<br>11.09.08. |  | Amethyst<br>Lieferant auflagen                    | Verfunden!        | 880,0000      | 28                             | 0        | 18     |
| 37.    | 2008-02-11<br>11.02.08. |  | Herkules Stein<br>Lieferant auflagen              | Ken<br>Lieferant! | 880,0001      | 28                             | 6138     | 21     |
| 38.    | 2008-07-11<br>11.07.08. |  | Edelstein Themenstein<br>Lieferant auflagen       | Ken<br>Lieferant! | 878,0001      | 28                             | 8003     | 21     |
| 39.    | 2008-07-11<br>11.07.08. |  | Fluorid Edelstein<br>Lieferant auflagen           | Verfunden!        | 830,0000      | 26                             | 2400     | 21     |
| 40.    | 2008-09-11<br>11.09.08. |  | Fluorid<br>Lieferant auflagen                     | Ken<br>Lieferant! | 880,0000      | 22                             | 2803     | 41     |

### 13 For Chapter 3.7.1 - Product Management Tool

As found out in the IDIs, there is a lack of transparency concerning this topic; thus, to solve this problem a new functionality is added to the shop system.

To increase the transparency a new functionality has been developed which projects the relevant data directly in the online shop as soon as the respective user wants it. Technically this is realized by logging in as an “Admin-Product”, a new user status which is linked to this view.

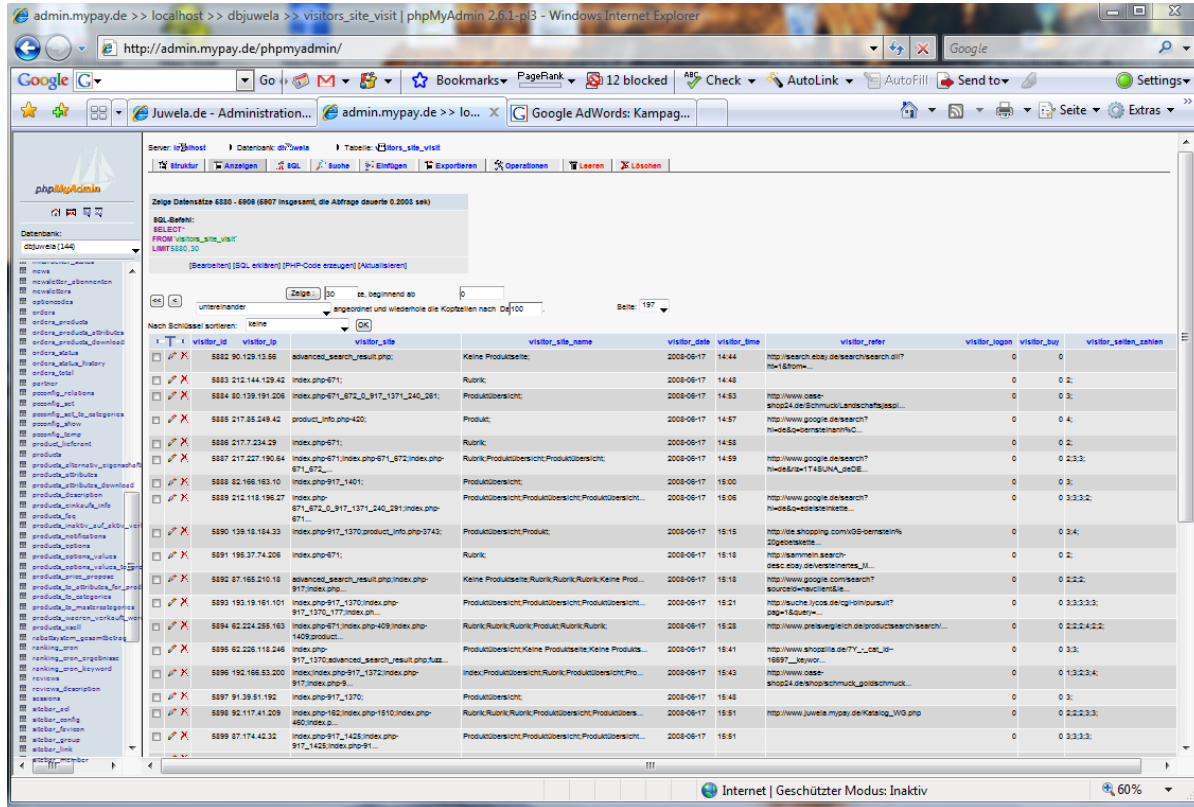
Then the following data is displayed:

- ✚ Not available /Inactive since [date]
- ✚ Supplier (if not existing or stored, this can be added)
- ✚ Purchase costs (if not existing or stored, this can be added)
- ✚ Number of possible sales since deactivation
- ✚ Product visited how many times
- ✚ Average visits needed per sale
- ✚ Turnover rate
- ✚ Development of turnover rate

*Comment:*

*As this tool is useful also for tracking available products, this functionality is projected for all products when logged in as an “Admin-Product”. If during the usage of the tool further variables appear to be important, they can be added to the system easily.*

## 14 For Chapter 3.7.2 - Tracking of Customer Behavior and Movements – Screenshot



## 15 For Chapter 3.7.2 - Products and Traffic 1

|                                       | Number P    | % of all P     | % of traffic   |
|---------------------------------------|-------------|----------------|----------------|
| Products available and ready for sale | 2215        | 67.76%         | 40.00%         |
| Products not available (but visible)  | 562         | 17.19%         | 60.00%         |
| Products deactivated (not visible)    | 492         | 15.05%         |                |
| <b>Total of product pages</b>         | <b>3269</b> | <b>100.00%</b> | <b>100.00%</b> |

## 16 For Chapter 3.7.2 - Products and Traffic 2

|                                       | Number P    | % of all P     | Comulative % of products | % of traffic   | Comulative % of traffic | % sales or sale equivalent (revenues) in Euro | (revenues) in € | Comulative % of revenues |
|---------------------------------------|-------------|----------------|--------------------------|----------------|-------------------------|---|-----------------|--------------------------|
|                                       |             |                | 0.00%                    |                | 0.00%                   |   |                 | 0.00%                    |
| Products not available (but visible)  | 562         | 20.24%         | 20.24%                   | 11.41%         | 11.41%                  | 36,803.34 €                                   | 37.08%          | 37.08%                   |
| Products available and ready for sale | 2215        | 79.76%         | 100.00%                  | 88.59%         | 100.00%                 | 62,443.74 €                                   | 62.92%          | 100.00%                  |
| <b>Total of product pages</b>         | <b>2777</b> | <b>100.00%</b> |                          | <b>100.00%</b> |                         | <b>99,247.08 €</b>                            | <b>100.00%</b>  |                          |

## 17 For Chapter 3.7.2 - Analysis of the Past and Projection for the Future

| <u>Past:</u>    | <u>Turnover time %</u> | <u>Comulative TT</u> | <u>Value</u> | <u>Comulative Value</u> |
|-----------------|------------------------|----------------------|--------------|-------------------------|
|                 | 0.00%                  | 0.00%                | 0.00%        | 0.00%                   |
| Product Group A | 10.02%                 | 10.02%               | 53.62%       | 53.62%                  |
| Product Group B | 30.08%                 | 40.10%               | 34.04%       | 87.66%                  |
| Product Group C | 59.90%                 | 100.00%              | 12.34%       | 100.00%                 |

|                 | <u>Turnover Speed</u><br><u>Days (100 % = 360</u><br><u>days)</u> | <u>Comulated</u><br><u>TT</u> | <u>Value</u> | <u>Comulated</u><br><u>Value</u> |
|-----------------|---|-------------------------------|--------------|----------------------------------|
|                 | 0.00%   | 0%                            | 0.00%        | 0.00%                            |
| Product Group A | 25.00%  | 25%                           | 56.90%       | 56.90%                           |
| Product Group B | 50.00%  | 75%                           | 34.04%       | 80.00%                           |
| Product Group C | 100.00%   | 100%                          | 92.00%       | 92.00%                           |

## 18 For Chapter 3.7.3 - Age Structure of the Users of Juwela.de

|                  | <u>Female</u> |               | <u>Male</u> |               |
|------------------|---------------|---------------|-------------|---------------|
| <b>Age -20</b>   | 30            | 0.41%         | 46          | 0.63%         |
| <b>Age20-30</b>  | 634           | 8.74%         | 440         | 6.06%         |
| <b>Age 30-40</b> | 1269          | 17.48%        | 721         | 9.93%         |
| <b>Age 40-50</b> | 1518          | 20.91%        | 823         | 11.34%        |
| <b>Age 50-60</b> | 786           | 10.83%        | 529         | 7.29%         |
| <b>Age 60+</b>   | 205           | 2.82%         | 257         | 3.54%         |
|                  | <b>4442</b>   | <b>61.20%</b> | <b>2816</b> | <b>38.80%</b> |
| <b>Total</b>     | 7258          |               |             |               |

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