The Transforming Power of Business-to-Business Electronic Business

a research paper by Christoph Wenna

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ABSTRACT

At the beginning of the 21st century Internet-based B2B e-Business is the ultimate driving force and transforming power in traditional business - the Old-Economy - and its continuous evolution toward a truly networked and globalized economic system. This paper develops a holistic definition and classification of e-Business in general and B2B e-Business in particular. It provides concepts to describe and categorise the development of B2B e-Business, the emerging opportunities of B2B e-Business, and how B2B e-Business shapes and transforms the goals, strategies, structures and processes of a traditional firm in the Old-Economy. The paper concludes with a discussion of selected strategic issues of B2B e-Business. The goal is to show that B2B e-Business means the advent of the next generation of business, just as the industrialisation did 200 years ago.
ACKNOWLEDGEMENT

This book is dedicated to my family, in particular to my parents:

*Leo and Renate Wenna*

My special thanks go to my friends:

*Lucia Del Chicca*

*José A. Campos Hernández*
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1 Introduction

The goals of this chapter are:

- Presenting the major areas addressed in this paper.
- Presenting the major objectives of this paper.
- Presenting the major limitations for research and discussion.

1.1 Internet based B2B e-Business - the rise of a new economic era

The Internet and its applications are the most ruling and fascinating topics in today’s business world and will stay at the forefront of economic evolution for a long period of time. Internet technology provides new and frame breaking ways to communicate, interact, transact, and globalise and hence to create new competitive advantages at any level of economic activities, nearly equal for businesses all around the world.

"The most powerful thing in the world is an idea whose time has come." (Victor Hugo)

The widespread acceptance and adoption of the Internet, Extranets and Intranets as business platforms created a solid foundation for the development of business-to-business electronic business [B2B e-Business] which enables organisations to lower costs and improve customer value in dramatic and unprecedented ways (cf. Timmers, 1999). B2B e-Business heralds the real Internet Revolution in business – the advent of the e-Economy where new ways of collaboration are transforming the creation of wealth. Constructive destruction and reintegration of traditional value chains and value systems are leading the way into a networked & globalized Economy, where modular organisations are competing in virtual markets (Figure 1-1). Customer needs, speed and flexibility are the ultimate rules in an emerging competitive environment beyond the traditional perception of sectors, industries and political economies. Traditional borders between people, organisations and nations...
vanish and electronically integrated value systems start to act and compete virtually as single corporations. In the long run, B2B e-Business has a direct or indirect impact on all functional areas and linkages within a value chain and across the respective value system, i.e. B2B e-Business is shaping and transforming the economy as whole - on the microeconomic as well as on the macroeconomic level.

Reading these lines, many practitioners immediately would state that this description is not more than a vague picture of a far future and that the Internet Revolution in business still remains to be seen. There is no doubt about the fact that it still remains to be seen. But the reason is that the incorporation of the Internet and Internet technology into corporate strategies and day-to-day operations is not a revolution changing the world from one day to another. It is, in fact, an evolutionary process where trial & error are dominating the development. In this paper this process will be called e-Business Transformation.

Figure 1-1: Electronic business environment – the e-Economy.

Given the fact that we are just at the beginning of this e-Volution, there is an undeniable need for traditional companies – commonly known as the Old-Economy - to analyse and refocus their goals, corporate strategies, organisational structures, and business processes toward and around the Internet and its opportunities to gain
and sustain competitive advantage. However, there is still a long way to go as for most companies B2B e-Business is still a terra incognita waiting to be explored. The following simple but holistic definition of e-Business by Kalakota and Robinson anticipates the magnitude and complexity of this field and serves well as a foundation for future research and development:

- **e-Business means doing business electronically (2000).**

Consequently:

- **B2B e-Business means doing business between firms electronically.**

B2B e-Business, as defined in this paper, is a concept based on real and virtual intra-organisational and inter-organisational networks of people, information, and business application programs using electronic communication media such as the Internet to create and execute all possible kinds of communication between business partners and the corresponding flow of data.

B2B e-Business represents the next stage in the evolution of the commonly held principle of the division of labour on the microeconomic as well as on the macroeconomic level. Networks of (small / medium sized / large-scale) highly specialised and integrated, independent operational modules and networks, in organisational, technical and legal terms, have started to replace huge, vertically integrated corporations which have been ruling the business world for more than a century (cf. Kalakota & Robinson, 2000).

Why? At the end of the day the objectives are creating new sustainable competitive advantages through cutting costs and increasing customer satisfaction and thus sales. This is a new variety of the classic problem of optimisation. The principles of constructive destruction standardisation and (re-)integration are the underlying concepts. The fact that this is done in a rather frame-breaking way is a welcome side effect but not the ruling idea.
1.1.1 The Automotive Industry – the case for B2B e-Business

The automotive industry has always been a driving force in the field of cutting edge communication processes, intra-organisational and inter-organisational networking and process integration. e-Commerce processed via Electronic Data Interchange [EDI] and Value Added Networks [VAN] has been in use successfully on a large scale for more than 20 years. Today the automotive industry is again a major driving force in the development of Internet based e-Business.

The key aspects of e-Business activities in the automotive industry are currently revolving around the concepts of procurement, cooperative design, development, and production. Within the areas of product development and manufacturing or assembling, the concepts of Simultaneous Engineering, Product Data Management [PDM] and Digital Mock-Up are leading the way. There is a significant trend from simple stand-alone EDI solutions toward integrated e-Business systems as provided by SAP, Baan, i2 Technologies etc. Supply chain integration causes reduction in cycle times and inventories. Real time online information systems inform the customer e.g. about the capacities of the supplier and the supplier about the trends in the demand of its customers. Internally the main fields of applications for e-Business are information systems and knowledge management. Email and workflow systems support internal and external processes and Tele-Working is already in place or at least planned in all major operations. (CHB 2, 2001; CHB 3, 2001, Roland Berger, 2000)

<table>
<thead>
<tr>
<th>The global automotive industry</th>
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<tr>
<td>54 million vehicles per year.</td>
</tr>
<tr>
<td>$3 trillion in sales per year.</td>
</tr>
<tr>
<td>One out of seven people in the US and Germany make a living of this industry.</td>
</tr>
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</table>

Figure 1-2: Facts on the global automotive industry (source: Automobil Cluster OÖ., Linz, Austria).
Manufacturers, suppliers, lobbies, and associations in the automotive value system design and implement e-Business standards, strategies, and systems at an ever increasing pace. The automotive industry and ICT industry have developed various ways of useful cooperation and interaction since they share a great number of common interests. The European Network Exchange [ENX] (www.enxo.com) - a joint Extranet of the European automotive industry - represents a good example for the new spirit of cooperation, providing a well designed and helpful infrastructure to cope with the challenges of the e-Economy.

e-Business gives all players in the automotive industry a chance to make fundamental changes in their approach to the market by considering all members of the value system. All systems, including, for instance, Enterprise Resource Planning [ERP], Customer Relationship Management [CRM], Supplier Relationship Management [SRM], and Product Data Management [PDM] are evolving into e-Business, resulting in the fact that it is no longer a separate discipline simply focused on B2C or B2B marketing and sales (cf. Roland Berger, 2000).

Numerous and extensive studies have shown vast potentials to standardise and streamline logistics, R&D, product design, infrastructure, organisational and process design, procurement, sales, etc. The goal is to integrate people, projects, systems, departments, supply-chain, and channel partners and customers in order to enhance the whole value systems ability by fulfilling consumer requirements in a better and faster way; at the same time, costs are reduced or, at least, kept on the same level.

As concerns the automotive industry supply-chain integration, the use of standardisation and Internet technology generates reduced costs concerning planning, process, transaction, and R&D while improving planning and R&D processes, reducing cycle-time and vehicle order-to-delivery time, lowering inventories, improving quality, hence increasing responsiveness to consumer requirements. These new concepts enable the participants of the automotive value system to think about a product development cycle of two years compared to five years only a decade ago and cars built to order within two weeks (Roland Berger,
This might sound visionary but we are talking about an unstoppable development already under way.

1.1.2 A lack of common definitions and categorisations

e-Business, e-Commerce, e-Procurement, and all those other e-terms mean a lot of different things to many different people. Many diverse, often contradictory definitions and concepts are turning the life of people involved into a confusing nightmare. Moreover, this lack of clear definitions curbs the hyper-evolution of e-Business since it draws an unclear picture of the situation and the emerging opportunities. It is essential for an effective and efficient e-Business Transformation of traditional firms to define the concept of e-Business and consequently of B2B e-Business in a clear and precise manner.

e-Business is about standardisation and automation of communication processes through value chain and value system integration. Yet, how can this ever work out sustainably and cost-effectively if people talking to each other have different perceptions of the words used? How can anyone find reliable sources to take managerial decisions or conduct serious research about e-Business if there are no standardised definitions and classifications and no integrated technical language?

The confusion of definitions and the lack of a common language results in various negative consequences:

- There is not much of a common framework to build on. The wheel often needs to be reinvented when someone wants start a new e-Project. This is true for both, research and business.
- This confusion of definitions leads to an imperfect market, opening up the field for all kinds of people who take advantage of the lack of experience and information in the Old-Economy. Consequently, this means big business for ICT and consulting companies. They promote their respective applications and e-Approach capitalising on this lack of experience and information. This
means that huge amounts of capital are being destroyed (no ROI) as organisations get involved in unstructured and non-strategic e-Projects

- The rapid development and implementation of e-Business has somehow come to a halt as the road became unclear and the driving forces are being re-evaluated.

Therefore, there is a strong need for a common set of vocabulary, definitions, classifications and open standards, i.e. a common language for all participants of the e-Economy. The goal is to build a global basis to explore, develop, and use the opportunities e-Business in general and B2B e-Business in particular.

During the research for this paper the major profit and non-profit organisations started to recognise the importance of this issue and to respond to it. Three of the first comprehensive and sophisticated projects which are publicly available are:

- RosettaNet, a non-profit consortium of major ICT, electronic components, and semiconductor manufacturing companies which can be found at www.rosettanet.org, and
- the Value Chain Mark-up Language website established by Vitria Technology Inc., at www.vcml.net, and

1.2 Objectives

The interplay of B2B e-Business and corporate goals, strategies, structures and processes in traditional (Old-Economy) firms is a key issue in cutting-edge e-Business development. Research on this field has just started to emerge. This paper is a basic contribution to this discussion. It is meant to provide comprehensive and pragmatic information for people new to or familiar with e-Business, e-Commerce, and strategic management and interested or involved in the implementation of B2B e-Business in traditional firms. Moreover, it is intended to build a foundation and give
inspiration for future research and development in this field. To do this the paper has the following major objectives:

- to integrate the concept of electronic business into the evolution of traditional business in recent history (mainly item 4),
- to develop a holistic definition and classification of e-Business in general and B2B e-Business in particular (mainly item 5),
- to develop a concept on how to describe and research the development of e-Business in general and B2B e-Business in particular (mainly item 6),
- to describe and categorize the emerging opportunities of e-Business and discuss a selected practical example (mainly item 7),
- to describe and categorize the role of goals, strategies, structures and process in the implementation of B2B e-Business in a traditional firm (mainly item 8),
- to discuss selected strategic aspects of e-Business and B2B e-Business with reference to M.E. Porters work (mainly item 9).

1.3 Limitations

This research project has the following limitations:

- The work is focused on the strategic level and it does not elaborate on technical details as long as they do not have any major impact on the strategic level.
- Research focuses on B2B e-Business in existing Old-Economy firms. The foundation of a new business operating in the field of B2B e-Business is a totally different issue which, however, is not discussed within the scope of this project.
- The paper covers only selected aspects of electronic business. e-Business refers to all dimension and activities within a firms value chain. Consequently, it is not possible to cover the full rage of the topic within a single paper.
- The lack of empirical research. This paper is meant to provide a foundation for future empirical research. An additional empirical study is the logical continuation of this work but would have exceeded the scope of this paper by
far. However this does not pose significant limitation on the scientific credibility and practical relevance of the paper.

- Security aspects of implementing e-Business will also be disregarded as on the one hand “the reliability and security issues associated with the early use of the Internet have been largely solved to the extent that every business is now adopting the Internet in one form or another” (cf. Sculley & William, 1999, p.4) and on the other hand dealing with these problems would exceed the limits of this paper by far.

- The use of a limited number of qualitative interviews with people who have been randomly chosen among those who were willing to participate in the study.

- The limited geographical area covered by the paper. The work first of all refers to the old world and those organisations and national economies which have sufficient Internet access and the resources to participate in the e-Economy.

- Theory and data used may not be up-to-date because of the constantly evolving ICT Industry and changing economic circumstances. The Internet is changing constantly and growing rapidly, therefore, it is hard to present accurate figures about e.g. electronic commerce.
2 Methodology

The goals of this chapter are:

- Presenting the background and the evolution of the research.
- Presenting the research approach and methods.
- Presenting the information sources.
- Presenting the classic theories and models used.

In today's ever accelerating and changing business environment even the design and implementation of a research projects needs to be adjusted to the new requirements and rules of the e-Economy driven by the Internet, i.e. speed, flexibility, integration, etc. Hence, a well-chosen research topic and an effective and efficient but flexible methodology designed in accordance with the points of interest are key to a successful and value-adding research project.

In order to enhance the understanding of this paper, the methodology chapter starts with the presentation of a roadmap which describes the evolution of the research project from the initial idea to the final results. The lecture of this methodology is dedicated to those interested in the backgrounds and processes of the work involved during the design and implementation of this research project.

2.1 Research Background

At the beginning of this project stood three main goals which determined the decision for the given topic and objectives:

1) to realize this paper in cooperation with a real life company,
2) to work on a real life problem,
3) which will be of major importance for future economic developments.
All three objectives have been achieved in cooperation with GCI Management AG, a medium-sized, international consulting firm headquartered in Munich, Germany which sponsored this paper and supported its implementation.

As the business-to-consumer electronic commerce [B2C e-Commerce] hype started to cool down in spring 2000, at the time when the basic idea for this research project was born, Internet based business to business electronic business [B2B e-Business] or electronic commerce [B2B e-Commerce] appeared to be the new rising star in the New-Economy. This topic seemed to be very interesting and exciting as its future was an promising one. So far, the star has not fallen. In fact, B2B e-Commerce or B2B e-Business have become the new focus of attention in the business world. Some introductory investigations on B2B e-Business led to the idea to write this paper about a problem in this emerging business domain. Even at the beginning of the work some difficulties were encountered as there was hardly any literature or reliable data available about this topic at this early time. This fact considerably complicated research but on the other hand made it much more challenging and interesting. It was necessary to gather first hand information from people in and around the B2B e-Business field. However, during the time this project lasted, books and studies on this topic mushroomed due to its high practical relevance.

The first concept for this paper revolved around the idea to examine the influence of e-Business upon all levels of traditional business between Old-Economy firms in general. After some research and discussions with IT experts it seemed to be a very broad and varied phenomenon split into many different areas where all parts of a company interactively influence each other, often in unpredictable ways. Hence, the need arose to somewhat limit focus.

The automotive industry seemed to be a perfect object for research because of its longstanding experience and expertise in B2B e-Business based on EDI and VANs. The goal was to conduct a study on the influence of Internet based B2B e-Business on objectives, strategies, and structures of traditional automotive suppliers. However, this again proved to be difficult due to two main reasons: the development and implementation of Internet based B2B e-Business in the automotive industry was still
in an early stage. Many firms had a vision on e-Business, some had master plans how to go about e-Business, only a few had feasible e-Business strategies but hardly any organisation could come up with tangible and measurable results.

The second and most important reason was the lack of common definitions and appropriate classifications on e-Business in general and B2B e-Business in particular which could have been used as a framework for empirical research. These circumstances led to the formulation and implementation of the given topic and objectives.

2.2 Research Approach

This paper is, first of all, an explorative and descriptive inquiry based on desk research and a limited number of qualitative semi-structured interviews with experts active in practice and research. The general approach is to give a detailed description and definition of the problems under discussion and an outline of the ongoing developments; furthermore, it will include a number of tentative conclusions which will not be empirically tested. These conclusions are presented in the course of the paper and not in a cumulative form at its end. The concepts, classifications, definitions, norms and advices suggested in the course of this paper are based on secondary data and on the qualitative interviews mentioned above. They have been developed through a profound and thorough research which were merged with classical theories, up-to-date technical literature, existing studies, and day-to-day experience. They are in part congruent with existing definitions and concepts and in part not. However, all in all they represent a new homogeneous and holistic approach on how to view e-Business and B2B e-Business and their impact on traditional business.

The given research approach has been chosen for the reason that the problems and questions raised by e-Business and B2B e-Business are first of all practical issues and not scientific or theoretical ones.
2.2.1 Inductive vs. deductive research approach

The process of research embarks on empirical work and collecting data which initiates, refutes or organises the formulated theories and then enables the understanding or explanation of relevant observations (May, 1997). There are two different ways to achieve this: the deductive approach and the inductive approach. The deductive approach revolves around the collection of theory before actually going into research. Research then functions to produce empirical evidence to test or refute hypotheses deducted from theories. Within the inductive approach, the research comes before the hypothesis or the theory and then one seeks to generate theoretical propositions on social life from data (May, 1997).

In accordance with these definitions, the determination of the research topic and the formulation of the research objectives followed the inductive approach, whereas the secondary and primary research itself applies the deductive approach. This is in accordance with usual proceedings in research since hardly ever either a purely inductive or a purely deductive approach is used. The practical research approaches are normally somewhere in between the two.

The evidence for the existence and importance of B2B e-Business was found in the actual business environment and verified through expert talks and preliminary literature analysis.

For the actual research process itself, deduction is the most suitable approach since the data collection - field research - is based on qualitative interviews with

- people in firms adopting, planning, or executing B2B e-Business, and
- experts on e-Business in research and consultancy.

The secondary data generated and analysed is the frame of reference

- for the design of the field research, i.e. the qualitative interviews,
- for a detailed description and analysis of the status quo and future scenarios,
- for the development of the holistic e-Business concept and definition, and
- for the advices developed in this paper.
2.2.2 Qualitative vs. quantitative research approach

“Qualitative research explores the experience of people in their everyday lives. […] Consequently, a researcher does not attempt to manipulate the research settings by controlling external influences or setting up experiments. One tries to make sense of everyday life as it unfolds without interruption. Qualitative inquiry is similar to building a puzzle. You are not building up a puzzle whose picture you already know. You are constructing a picture that takes shape as you collect and examine the parts.” (Mayan, 2001, p.5) You have the border pieces – the theoretical and practical frame of reference – but you actually build the picture. “Qualitative data comes from a very in-depth look at a phenomenon. Qualitative researchers use the broad definition of phenomenon and include almost any event that a person experiences. […] Because the research is so in-depth only a few individuals and situations are studied, although many contextual variables are considered. […] Generally, qualitative inquiry is most often used:

• to describe a phenomenon about which little is known,
• to capture meaning (Data are collected in the form of feelings, behaviour, thoughts, insights, and actions rather than in form of numbers.),
• to describe a process rather than an outcome.” (Mayan, 2001, pp.5)

The goal of a quantitative inquiry in business and economic science is to learn about the distribution of a characteristic or set of characteristics within an organisation or among a certain number of organisations. (Mayan, 2001) “In quantitative inquiry the researcher knows a lot about the phenomenon. To return to the puzzle analogy, most of the puzzle is visible. One is testing the fit of a piece or two. In other words a quantitative process involves testing a hypothesis (a puzzle piece) within a pre-existing framework (the entire puzzle), to see if it does hold within the framework. Instead of a detailed thick description of the phenomenon, quantitative data comes in the form of numbers that, when interpreted, help to explain the phenomenon. […] Both, qualitative and quantitative inquiry are important and illuminate different aspects of the problem.” (Mayan, 2001, p.6)
The central focus of this paper is the single Old-Economy firm and not the industry or the sector. The strategy and structure of a single firm are most appropriately described by qualitative research methods. The reason is that such methods allow a holistic view of an organisation. Therefore, the qualitative approach is applied to this paper. There is no quantitative inquiry whatsoever. The quantitative data used in this paper exclusively comes from secondary sources. The results of this work are meant to be a framework and inspiration for future qualitative and quantitative research on e-Business in general and B2B e-Business in particular.

2.3 Research Methods

There are several methods available for data collection during research. “Which method is chosen depends on the type of question trying to be answered, the amount of control the researcher has over the events, along with how much emphasis there is on contemporary or historical events” (May, 1989, p.20). Each method contains advantages and disadvantages and that is why the researcher should be aware of them and choose the right kind for the given problem” (Yin, 1989). Sackman (1991) identified the following methods for the generation of information relevant to a research question:

<table>
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<tr>
<th>external perspectives</th>
<th>internal perspectives</th>
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<tr>
<td>observing research</td>
<td>participating research</td>
</tr>
<tr>
<td>questionnaire</td>
<td>document analysis</td>
</tr>
<tr>
<td>semi-/ structured</td>
<td>group discussion</td>
</tr>
<tr>
<td>interview</td>
<td>unstructured interview</td>
</tr>
<tr>
<td></td>
<td>participating observation</td>
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</tbody>
</table>

Due to the given task, the following combination of qualitative research methods has been chosen. These three methods may be subdivided into desk research, categorisation, synpaper and analysis of secondary data, and field research which serves to collect and analyse primary data.
2.3.1 Desk research – document analysis

Document analysis refers to the collection, categorisation, synthesis and analysis of published or unpublished qualitative or quantitative data or information which was produced by someone else than the researcher. Within the scope of this paper secondary data only serves as a source for qualitative research.

2.3.2 Field Research – qualitative interviews

Interviews are essential sources of qualitative information (Yin, 1989). “An interview can be seen as a conversation, such as one conducted by a reporter, in which facts or statements are elicited from each other” (dictionary.com, 2001).

Interviews offer a great number of possibilities to carry out an in-depth study. When conducting an interview, several advantages are apparent - relating to the reasons for its choice:

- the personal contact involved in carrying out an interview results in the interviewers ability to motivate the respondent to supply accurate and complete information immediately, so the answer received is relevant in answering the research questions.
- the ability to guide the respondents in their interpretation of the question. It also includes the means to describe the reasoning and focus behind questions in order to receive a relevant reply.
- Another advantage is the greater flexibility during the interview since follow-up questions may be formulated immediately upon interesting replies by the interviewees.
• Another point worth mentioning is the fact that the interviewer has greater control of the interview situation: The questioning might start on a general level and narrow down to the focus point by using the questions to get from one extreme to another. In addition, certain questions might influence the answering of them. (cf. Leenders et al., 2001)

2.3.2.1 Unstructured interview

“In an unstructured interview, a researcher has identified a research question but knows little about the area of interest. The researcher simply asks participants to tell their story or talk about their experience and listens and learns. […] The purpose of an unstructured interview is to elicit in-depth response from participants. The processes of unstructured interviewing is therefore non-restrictive. […] Unstructured interviewing is near the heart of qualitative inquiry because it allows participants to use their own language to fully describe their own experience. […] In an unstructured interview, the researcher ideally asks one question to encourage participants to share their perspectives without interruption. The researcher keeps the interview on track and tests emerging hypothesis, but does so in a gentle manner so that the participant does not feel dominated or disrupt by the researcher.” (Mayan, 2001, pp.14)

During the initial research phase unstructured interviews with people working in the field of e-Business were used to gain a general understanding of the situation and latest developments. The goal was to narrow down the research focus and find a real life problem which would be of major importance for the future development of e-Business in general and B2B e-Business in particular. These interviews usually had an informal character. They where either held upon appointment or on pertinent occasions such as conferences or workshops - whenever the chance to meet a greater number of highly qualified potential interviewees was given.
2.3.2.2 Semi-structured interview

“Semi-structured interviewing collects data from individual participants through a set of open-ended questions asked in a specific order. In contrast to the unstructured interview, the semi-structured interview is focused on a series of questions to which the researcher asks each participant to respond.” (Mayan, 2001, p. 15) Within this type of interview, you can ask the key respondents about theoretical or factual data as well as inquire about their opinions concerning specific events. The more the respondents assist in this way, the more their role must be considered as one of an informant rather than a respondent. Giving an insight into how it is actually done. Semi-structured interviews are used in two cases:

- firstly, when the researcher knows something about the area of interest, for instance, from a literature review but not enough to answer the questions that are to be asked.
- secondly, when the researcher wants to learn the participants evaluation of a hypothesis built upon previous desk or field research. (Mayan, 2001)

“Having conducted a literature review […] and drawing upon ones experience, the researcher prepares a number of questions in advance of the interview. The questions must be open-ended. […] In addition, when designing the questions, the researcher considers the type of information that is required.“ (Mayan, 2001, p.16)

The following types of question have been employed to obtain specific information required for the production of this paper:

- experience or behaviour questions
- opinion or value questions
- feeling questions
- knowledge questions
- background or demographic questions (Mayan, 2001).

The overall number of questions has been minimized to avoid interrupting the flow of the interview. Questions were of a clear, neutral and non-leading nature.
Furthermore, they were ordered in a logical sequence and addressed only one issue at a time.

During the actual research process semi-structured topical interviews with people working in the field of e-Business were used to gain specific information about the situation and the on-going developments and to test predetermined hypotheses in an non-empirical manner. The objectives of this proceeding are presented in item 1.2. Depending on the participants agreement, interview purpose and time available, some of the interviews were taped; the remaining ones were recorded by taking notes. In general, each participant was interviewed alone to maintain an open and uninfluenced atmosphere. Only in a few cases - when intended or necessary - two or three participants where questioned at the same time. The interviews usually had an informal character and where regularly held upon appointment with interviewees chosen out of those available and ready to participate. Some interviews were also held during pertinent occasions such as conferences or workshops whenever a greater number of highly qualified potential interviewees was available.

2.4 Data Sources

The paper is based on both secondary data generated through document analysis and primary data gained through qualitative interviews.

2.4.1 Secondary data

The collection of secondary data was carried out by untapping many different sources. The majority of the theoretical information was obtained from the following sources:

- articles and books already worked with,
- articles and books of the library and archives the Johannes Kepler University,
- magazines and journals,
- literature ordered from abroad via the Internet,
• Internet:
  - electronic libraries,
  - information providers,
  - websites of universities, organisations, research establishments, businesses, magazines, journals,
• companies and organisations:
  - GCI Management (consulting firm, Munich, Germany),
  - TCG Unitech (automotive supplier, Kirchdorf, Austria),
  - IBM Austria,
  - Siemens Business Services (Linz, Austria)
  - Automobil Cluster Oberösterreich [AC OÖ] (Linz, Austria),
  - etc.,
• conferences attended:
  - Europäische Forum Alpbach 2000 (Alpbach, Austria),
  - Europäische Forum Alpbach 2001 (Alpbach, Austria),
  - EDI in der Automobilzulieferindustrie (December 11th, BMW Motoren GmbH, Steyr, Austria),
• materials from conferences not attended:
  - Automobil Forum 2001: Die neuen Strategien der Automobilhersteller (Stuttgart, Germany),
  - 2. Euroforum: Fachkonferenz: e-Business in der Automobilindustrie 2001 (Frankfurt, Germany),
  - e-Business: Wettbewerbsvorteile für die Automobilzulieferindustrie (March 29th, 2001, AC OÖ, AC Styria),
• workshops attended:
2.4.2 Primary data

Primary data was mainly gained from the information given during 19 semi-structured qualitative interviews with the following persons:

<table>
<thead>
<tr>
<th>TITLE</th>
<th>NAME</th>
<th>ORGANISATION</th>
<th>NoI</th>
<th>COUNTRY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mag.</td>
<td>Wolfgang Pittner</td>
<td>Automobile Cluster OÖ., Linz</td>
<td>2</td>
<td>Austria</td>
</tr>
<tr>
<td>Mag.</td>
<td>Gerlinde Pöchhacker</td>
<td>Automobile Cluster OÖ., Linz</td>
<td>2</td>
<td>Austria</td>
</tr>
<tr>
<td>Dipl.Wirt.Ing</td>
<td>Thomas Peckhaus</td>
<td>GCI Management AG, Munich</td>
<td>4</td>
<td>Germany</td>
</tr>
<tr>
<td>Dipl.Ing.</td>
<td>Peter Weilguni</td>
<td>GCI Management AG, Vienna</td>
<td>4</td>
<td>Austria</td>
</tr>
<tr>
<td>Mag.Dr., a.o.Univ.-Prof.</td>
<td>Johannes Lehner</td>
<td>Johannes Kepler University Linz - Institut für Unternehmensführung - Organisation</td>
<td>1</td>
<td>Austria</td>
</tr>
<tr>
<td>Dr., o.Univ.-Prof.</td>
<td>Volker Gadenne</td>
<td>Johannes Kepler University Linz - Institut für Philosophie und Wissenschaftstheorie</td>
<td>1</td>
<td>Austria</td>
</tr>
<tr>
<td>DDr., a.o.Univ.-Prof.</td>
<td>Johann Höller</td>
<td>Johannes Kepler University Linz - Institut für Datenverarbeitung f. SOWI</td>
<td>1</td>
<td>Austria</td>
</tr>
<tr>
<td>Dipl.Ing.</td>
<td>Christian Hansl</td>
<td>TCG Unitech, Kirchdorf</td>
<td>3</td>
<td>AUT, UK</td>
</tr>
<tr>
<td>Ing.</td>
<td>Wolfgang Fischereder</td>
<td>TCG Unitech, Kirchdorf</td>
<td>1</td>
<td>AUT, UK</td>
</tr>
</tbody>
</table>

Figure 2-3: List of interview partners (NoI = number of interviews).

Beside these planned and semi-structured interviews further valuable information was gathered through approximately 30 informal and unstructured conversations with e-Business experts during the events mentioned in item 2.4.1. These experts were mainly from the following companies and non-profit organisations:

- Ariba
- Austrian Chamber of Commerce
- BMW
- Bolero
- Cap Gemini Ernst & Young
- CommerceOne
- Compaq
- CSC Austria
- Danzas
- Debis
- Ford Motor Company
- IBM Global / Europe / Austria
- Johannes Kepler University Linz, Austria
- Marrakech
- McKinsey & Company
- Oracle
- Roland Berger & Partner
- Seeburger
- Siemens
- SITPRO
- UTA Telekom
- VA Tech Elin EBG
2.5 Data Analysis

“In almost all circumstances, data collection in qualitative inquiry is a systematic pattern of data collection-analysis-collection-analysis ad infinitum. The qualitative researcher collects data, analyses it, collects more data to fill in gaps, analyses it, collects more data and so on to reach saturation. [...] Through this process, the researchers understanding grows so that one can start to create models or diagrams of relationships in the data, connect this with literature, seek relationships between categories; or do whatever the method demands. [...] The circular analysis process described above, however, does not apply to the analysis of semi-structured interviews [...] these strategies consist of set questions that are asked of every participants. It is conducted after all of the interviews are completed.” (Mayan, 2001, p. 21) The answers are then analysed separately and in comparison with each other.

2.6 Frame of reference

Within the scope of this paper classic business literature is the frame of reference used to build on a set of commonly held theories, principles and definitions, which serve to avoid unnecessary work and misunderstandings as much as possible. The use of commonly held theories and research carried out by other experts provides a certain degree of scientific credibility and saves a lot of time. Classic methods, theories and information available in business literature and business press are used in a way that they are in connection with the paper topic and objectives. Research methods and their possibly biased results are not questioned. Furthermore, the results and conclusions are used to bring the paper forward and gain an enhanced and wider overview over the topic. The most important theories and models used as a framework for this paper can be found in:

Porter, M.E.:

Schreyögg, G.:

Waterman, R.H.; Peters, T.J. & J.R. Phillips:

Barney, J.B.:

Mintzberg, H., & Quinn, J.:

Porters work on the value chain, the value system and competitive strategy and Schreyögg's work on the organisation and its interplay with the environment are the two most relevant for this paper. A basic discussion of Porters models can be found in item 3, as it is essential to the understanding of this paper. Schreyögg's work is not discussed in detail within the scope of this paper and can be found at the source mentioned above.
The goals of this chapter are:

- the definition of the value chain and value system.
- classification of terms Value Chain, Value Systems, Supply Chain, and Demand Chain.
- determining the relevance of M.E. Porters work and terminology in this paper.

As e-Business has an effect on all areas of business (Roland Berger, 2000), it seems to be appropriate to use the value chain and value system model introduced by Michel E. Porter as the major frame of reference to describe, define and categorise e-Business, B2B e-Business and their impact on traditional companies. Furthermore, it is the basis for discussing selected strategic aspects of the e-Volution driven by Internet based B2B e-Business.

The use of the terms value chain, value system, supply chain and demand chain frequently cause confusion for people in practice and research. They are often used in different ways or even interchangeably. “Value chain” refers sometimes to the internal situation and internal relationships of a firm, however, sometimes it is also used to describe the external relationships of a firm. Consequently, in this paper the terms value chain and value system as defined by Porter are normally used to avoid misunderstandings and to build on a clear and proven model and terminology.

The following two sections are mainly based on Porters classic book “Competitive Advantages: creating and sustaining superior performance” published in 1985 but also on his work “Competitive Strategy” released in 1980.
3.1 Value chain

Any company - either in the Old-Economy or in the e-Economy - can be defined as the collection of interlocking activities and processes that are performed to design, produce, market, deliver and support its product(s), no matter whether those are goods or services.

These activities are represented in Michael E. Porters value chain concept which was introduced in 1985. They can be subdivided into two major areas: primary activities and support activities. Primary and support activities together encompass nine categories of generic activities within a firm and the linkages in between:

- primary activities:
  - inbound logistics,
  - operations,
  - outbound logistics,
  - marketing and sales,
  - service,

- support activities:
  - firm infrastructure,
  - human resource management,
  - technology development,
  - procurement,
  - inbound logistics,
  - operations,
  - outbound logistics,
  - marketing & sales,
  - service,
• support activities:
  - firm infrastructure,
  - human resource management,
  - technology development,
  - procurement.

Primary activities involve the creation, sales and transfer of the (value added) product as well as customer service. Support activities assist the primary activities and each other. These nine different functional areas are illustrated in the classic value chain symbol shown in Figure 3-1. Although the value chains of firms in the same industry can be similar, it is important to remember that the value chain of competitors often looks different.

![Figure 3-2: The generic competitive strategies by M.E. Porter (1980; 1985).](image)

A firm’s value chain and the way it performs individual activities and structures its organisation are a reflection of its history, strategy, approach to implementing its strategy, and the underlying economics of the activities themselves (Selz, 1999). The value chain model disaggregates a business into its strategically relevant activities in order to better understand the behaviour of costs and the existing and potential
sources of cost reduction and differentiation compared to its competitors. A company gains and sustains competitive advantage by performing one or more of these strategically important activities more cost-effectively and / or better than its competitors. According to Porter, the competitive situation of a firm depends, among other things, on its own competitive strategies (internal situation, mainly controllable) (see Figure 3-2) as well as on the competitive forces in its industry environment (external situation, mainly uncontrollable) (see Figure 3-3). The competitive strategy of a firm and the competitive forces in its respective industry affect its competitive advantages through its impact on the value chain.

![Figure 3-3: The five competitive forces that determine industry competition (Porter, 1980; 1985).](image)

Porter developed this model with the intention to provide a strategic tool to describe the creation of value within in a firm and across its value system and to analyse the influence of competitive strategy and competitive forces on a firms value chain.
competitiveness (i.e. its relative cost positions and existing and potential sources of differentiation). The actual question is where the profits are generated and where a company loses money. Moreover, it is important to identify sources of additional profits and find out how to avoid a surplus of costs.

3.2 Value system

Figure 3-4 shows that the value chain of a single firm is embedded in a larger stream of activities. Porter called this the “value system”. It encompasses the forgoing value chains of suppliers and the succeeding value chains of buyers and channel partners.

From the perspective of a single company, the value system can be subdivided into three different streams of value creation. The first one is the firm's value chain which was described above. The second one encompasses the value chains of all direct and indirect suppliers. They produce and deliver products and services which the firm then purchases and uses in its own value chain for the creation of value. All direct and indirect suppliers taken together represent the upstream value of a firm's value system. Suppliers not only provide goods and services for the firm but may also influence its value chain and hence its performance in many different ways. The third one is the channel value (downstream value) which is generated by the value chains of all channel partners. A product may be directly sold to the end-user or pass through the value chains of channel partners on their way to the buyer (i.e. organisations or consumers) who actually uses it. The latter is usually the case. Channel partners perform additional functions that add value to the product which reaches the buyer, affecting the buyers as well as the firm's own value chain. The ultimate basis for competitive advantage (i.e. lower costs and/or differentiated activities) is a firm and its products role in the buyers value chain, which determines buyer needs. Figure 3-4 shows two different configurations for this model. A firm that focuses on a single product faces different challenges than a firm with a diversified product portfolio.

Gaining and sustaining competitive advantage not only depends on understanding a firm's value chain but also on how the firm may support the value chain of channel
partners or buyers and, ultimately, how it fits into its respective value system. Competing in related industries with coordinated value chains may generate competitive advantages through leveraging inter-organisational integration, collaboration and synergies. A firm can compete by exploiting its own internal competencies or it may form coalitions with other organisations to do so.

![Diagram of the generic value system](image)

Figure 3-4: The generic value system (Porter, 1985, p.35).

Coalitions are long-term alliances that fall short of outright merger, such as joint ventures, licenses, and supply agreements. Coalitions involve coordinating or sharing value chains with coalition partners. The end is to better fulfil customer needs by reducing costs or adding product value. In opposition to Porters model, the definition
employed in this paper not only includes coalitions that effectively enlarge the competitive scope of a firm but also coalitions that serve to better perform the existing value proposition of a company. The latter is important in the e-Economy since it represents a possibility to extensively outsource support or even primary activities.

3.3 Supply chain

The supply chain is a set of approaches utilized to efficiently integrate the value chains of many different suppliers and the own value chain forming a network of business partners (comprised of stores, retailers, wholesalers, warehouses, and manufacturers) to optimise the entire procurement and manufacturing process with emphasis on customer pull vs. supplier push. Supply Chain Management [SCM] allows the customer (end-user or channel partner) to purchase and receive direct and indirect goods and services at the right quantities, to the right locations, and at the right time in order to minimize system-wide costs and maximise responsiveness while satisfying service level requests (Mayer, 2001, Vcml.net, 2001, Infoaccess.net, 2001).

3.4 Demand chain

The demand chain is a set of approaches utilized to efficiently integrate the own value chain and the value chains of many different customers forming a network of business partners (comprised of stores, retailers, wholesalers, warehouses, and manufacturers) to optimise the entire manufacturing and selling process with emphasis on customer pull vs. supplier push. Demand Chain Management [DCM] allows the firm to produce and deliver direct and indirect goods and services at the right quantities, to the right locations, and at the right time in order to minimize system wide costs and maximise responsiveness while satisfying service level requests.
3.5 Value chain & value system vs. supply chain & demand chain

The analysis of relevant literature has led to the following conclusion about the relationship between Porters value chain model and the concepts of the supply chain and the demand chain. As Figure 3-5 shows, the value system of a firm encompasses:

- its own value chain (the inside of the firm),
- its supply chain (the buy-side),
- its demand chain (the sell-side), and
- its non-business partners (the direct environment).

The value system spans vertical and horizontal relationships within and across industries. It addresses relationships and transactions with all parties participating in developing, manufacturing, financing, marketing, delivering, and supporting goods or services. It is a network of all business partners in the supply and demand chain of a firm from raw materials and sub-assemblies to the final product. (cf. vcml.net, 2001)

The supply chain and the demand chain are the two sides of a coin. Ideally, Supply Chain Management [SCM] and Demand Chain Management [DCM] are the plug and
socket in the integration of collaborating value chains. Both concepts are first of all customer-oriented. SCM provides the supplier with the information needed to fulfil customer needs and DCM provides the customer (organisation or end-user) with the goods and/or services the customer actually needs. The supply chain-to-value chain-to-demand chain relationship illustrated in Figure 3-5 is in general a many-to-one-to-many structure.
The goals of this chapter are:

- discussing the development and implementation of e-Business as an evolutionary process.
- discussing the concept that the transforming power of B2B e-Business causes a change of paradigms in traditional business.
- discussing the e as a way to differentiate between the traditional way of doing business and the new emerging way powered by the Internet.

Only a few technological innovations in this world have had a fundamental and sustainable influence on the economy and hence on our life. Even fewer caused a quantum leap in human evolution. The introduction of printing, electricity and the assembly line were three – Internet based electronic Business will be the next.

Since the mid-1990s the Internet and its applications have shaped and transformed more and more traditional areas in business at an ever-accelerating pace. The first one to mention is, of course, Business-to-Consumer [B2C] commerce on and through the Internet which is referred to as e-Commerce. The e has become the dominant driving force and transforming power in todays business environment - faster and more powerful than any other major technological invention before. But what does the e actually stand for? The obvious and general answer one would expect is:

- **e** stands for **electronic**.

True, but in terms of business there is another possible answer which has far-reaching consequences:

- **e** stands for **evolution**.
The term e-Business has been coined in the late 1990s during the dot.com era. Nevertheless, initial concepts of electronic business (electronic commerce) have been in use for about 35 years. During the mid 1960s Electronic Fund Transfer [EFT] and during the early 1970 Electronic Data Interchange [EDI] have laid the foundations for electronic business. But only the advent of the public Internet during the 1990s has set the stage for e-Business as we know it today. Hence, the digitalisation of business in technical, organisational and managerial terms is rather an evolutionary process than a revolutionary one as commonly perceived during the recent years of Internet hype.

The evolution of networking

Many inventions in history which caused a quantum step in human evolution represent in some way a higher level of connectivity and networking of the world: the scripture, the wheel, printing, the train, electricity, the phone, radio, TV, computer, computer networks, the mobile phone, etc.. The Internet and e-Business perfectly fit into this picture and represent a continuation of this development. This evolution has four major levels:

- The physical networking of the world in real-time (e.g. streets, wheel, aeroplane).
- The physical networking of the world in non-real-time (e.g. writing, printing).
- The virtual networking of the world in real-time by distributing information through broadcasting medias (e.g. TV, Radio).
- The virtual networking of the world in real-time and non-real-time, by interactive sharing of storable, analogue and digital information through ICT (e.g. Phone, PC, Internet, etc.).

Figure 4-1: The evolution of networking.

The financial sector (EFT) and the automotive industry (EDI) have been leading innovators of e-Business and today they are still on the forefront of new developments. Firms like BMW and Ford have already established integrated e-Value Chains logged onto the e-Value Systems of the automotive industry. The
objective is a seamless flow of information from e-Procurement over e-Operations to e-Sales – from raw materials to the consumer point of sales. Banks were the first ones which have been able to reach this end as their business is mainly based on information (e.g. bank money, market information) which can easily be stored, processed and transferred electronically.

Tomorrow’s globalized & networked economy will not just be an electronic version of the economy which we know today and which has been in place since the industrial revolution. At the beginning of the new century e-Business based on the Internet and Internet technology initiates a quantum leap in the evolution of business from a microeconomic\(^5\) as well as from a macroeconomic\(^6\) point of view (see item 1.1.1.). In 1999, US Vice President Al Gore said that “the New-Economy has brought a quantum shift in commerce and human condition” (Doyle, 1999).

e-Business contributes to a world with no borders and boundaries between individuals, organisations and states as Information & Communication Technology [ICT] provides a free flow of information around the world between all members\(^7\) of the global digital society - the e-World. It changes the way companies go about conducting business. An emerging interaction paradigm\(^8\) of communication and information transfer is replacing the broadcasting paradigm (Kalakota & Robinson, 2000) which has been ruling the world economy since the introduction of traditional (mass-) marketing during the first part of the twentieth century (Meffert, 1986). e-Business is the next generation of business.

Georg Christoph Lichtenberg once said:

*“There is no telling whether things improve when they are changed, however, if they are supposed to improve, they must change.”*

The concept of e-Business is a cornucopia of new opportunities for business which enables managers to do things differently in many and unprecedented ways. Moreover, it fundamentally and sustainably changes the way we view, define, organise and conduct business. At the end of the day, every little bit of our life will be affected, directly and indirectly, and consequently the look, feel and taste of our
world. Some things may get worse, some may stay the same, but it is a commonly held belief that the whole lot of it will get better.

The road ahead and the vehicles in use continuously evolve while we go forward. It is the hard way of trial and error we have to go while conquering the terra incognita of the cyberspace for business purposes. This evolutionary rule is still in command. How long the e-Business Transformation in the B2B domain is going to last can only be estimated today. Some experts talk about several years, others about two or three decades. Most probably it will happen in different waves. Whereas the first one will come to an end around 2008, as William Mellis, Vice President of Cap Gemini Ernst & Young, said at the Electronic B2B Trade Conference in London, April 2001. When listening to presentations on B2B e-Business issues most pragmatic executives, especially those of small and mediums sized firms get the impression that e-Business is all about future developments. However, it is essential at this point to aver that the Internet Revolution is nothing we are waiting for to happen, we are right in it, especially in terms of B2B e-Business. The real revolution in the B2C sector remains to be seen. It will happen when people are used and familiar to e-Business and e-Commerce in daily business life.

While we are creating this cornucopia of new opportunities we must not forget to develop the appropriate goals, skills, strategies, structures and processes to be able to deploy them in an optimal way, maximising the utility for both, the individual (customer, supplier, consumer) and society, as much as possible.

4.1 Internet Revolution vs. e-Business Evolution

Why is it relevant to discuss whether e-Business is a revolution or an evolution? The answer to this question is very important as an evolutionary development calls for a different kind of management and organisation in terms of goals, strategies, structures and processes than revolutionary change. Moreover, discontinuous change fits to another set of internal and external circumstances than incremental change (Quinn, 1980, Miller & Friesen, 1984).
Present or expected crises have usually been answered by turnaround management and disruptive change. Whereas incremental change is normally considered to be the most pragmatic way of development in stable and secure times.

As always in life the truth lays somewhere in between the extremes, i.e. we need both, evolution and revolution (Hamel, 2001; Wetlaufer, 2001) Improvement day by day is vital to every organisation which seeks to outperform. And disruptive change is often the remedy for a strong disharmony between the internal situation of a firm and its direct environment or a necessity for the introduction of a product innovation, just to name some examples. It depends on each case which approach to adopt. Consequently, we need to find out what the situation is concerning the Internet and B2B e-Business.

A real revolution involves, in a broad and common sense, two things:

- a sudden change of power followed by
- a conscious, continuous and sometimes long lasting transformation of one system into another. (FGVL, 1981)

The sudden change of power, meaning the Internet Revolution as such, has been taking place in the mind of the people and firms within a very short period of time. As the public gained access to the Internet in 1993 it gained access to a simple, cheap, and low regulated technology and infrastructure developed by US military and academic institutions more than 20 years before. Consequently, the commercialisation of the Internet rather caused a consciousness revolution than a technology revolution.

First technicians and later managers have realised that the public Internet is a technology and concept which enables them to do things in and off business in radically different ways. Whether this could be realised at competitive costs or with positive ROI was not of much interest during the initial hype, neither in the New-Economy nor in the Old-Economy. Today bottom line results are again the major decision criteria and still e-Business keeps on going, particularly in the B2B sector.
The fundamental and sustainable changes in business caused by the Internet Revolution do not happen from one day to another. The e-Business Transformation of single companies and whole industries in the Old-Economy is in general an evolutionary process. The transformation of a single company can be revolutionary at times and might enrol rather quick, however, it will not be successful without business partners ready to perform electronic business. This does not only refer to the technical capabilities of customers and suppliers, but also, and even more importantly, to the e-readiness of a firm:

- super-ordinate goals,
- corporate competitive strategies,
- organisational structure and
- business processes.

### Old-Economy

Traditional economy as it has already existed before the commercialisation of the Internet in 1993.

### New-Economy

The New-Economy is actually a new economic sector based on the Internet, Internet technology and Information & Communication Technologies. It consists of all businesses that:

- have established their operations based on the Internet and / or Internet technology (dot.coms), or
- have completely refined their business model based on the Internet and / or Internet technology, and / or
- primarily sell products, services and information necessary to conduct business on the Internet and / or through Internet technology.

The fact that e-Business does not only concern a single company but business partners and / or whole industries makes it difficult and time-consuming. It urges
most companies to apply an evolutionary and cooperative approach when transforming themselves into an e-Company in order to guarantee longstanding success for all parties.

As mentioned above, the development and incorporation of the initial concepts and applications of e-Business into day-to-day business is a evolutionary process and has already been going on for some 30 years before the public Internet brought up the technology and infrastructure necessary for a widespread acceptance and adoption on a global scale. It will take one up to two decades until the best part of the e-Business Transformation in most industries will be over and e-Business will deliver, on a broad scale, the frame breaking results initially expected within a few months or years (CHB, 2001). Consequently, the discussion in this paper is based on the following assumptions:

- the Internet Revolution is, first of all, a consciousness revolution happening in the mind of the people and firms involved, followed by a period of evolutionary change in business and many other areas of life whereas, e-Business based on the Internet and Internet technology is an inherent part and the ultimate driving force.
- the term Internet Revolution is drawn from the era of Industrial Revolution in the 19th century, as the underlying systematic and dynamics are very similar.
- from a microeconomic point of view the e-Business Transformation can be both revolutionary or evolutionary. Some companies have been successful in implementing a revolutionary e-Business Change. But reality proves that, in general, evolutionary change is leading the way into the e-Economy (cf. Kalakota & Robinson, 2001).
- from a macroeconomic point of view the development of e-Business and the e-Business Transformation are evolutionary processes. In this paper, this development is subsumed under the term e-Volution.
4.1.1 The case for incremental change

The days when most Old-Economy firms had a change-or-die attitude are gone. Practitioners and consultancies are no longer promoting radical change at any price. During the dot.com era revolutionary change was an end in itself, regardless of the given circumstances. Now it is time to step back and take a minute or two to get the big picture and act on it. In these days, as the Internet has become part of our daily life, many realistic top executives make the case for incremental change as described, for instance, by Quinn (1980).

One of them is Peter Brabeck, the CEO of Nestlé, the world’s largest food company and an Old-Economy corporation par excellence. In a recent interview he explained his ideas on incremental change in a reasonable and well-founded manner. One of his central statements was: “Technology is not central to Nestlé’s business. It is a tool to produce better products and to better serve the customer every day, but it is not a strategic target. Nestlé has always been on the forefront of technology but it has never let it take the lead. People and products come first. This proposition reflects the
situation and attitude of many traditional firms. Everyone knows technology will play a key role in future business but not over night. Managers running a business need to be pragmatic and a disruptive change program is everything but that. The only exception might be a substantial crisis. One must not underestimate the traumatic impact of abrupt change, the distraction it causes in running the business, the fear in provokes in people and the demand it makes on managements time.” (Wetlaufer, 2001)

In non-crisis situations companies usually have to earn the money before they can invest it in change, or, at least, they need to have a very clear idea on how to make the money after change has been implemented. The latter should regularly be the case for disruptive change happening in a non-crisis situation.

There are, of course, non-crisis situations when disruptive e-Business Change is appropriate. The best example is, when a visionary management has a clear-cut concept for a revolutionary product or service innovation. This means they have an idea on how to fit the current internal situation to a given but not served or a future market opportunity. However, response time needs to be a key factor for success to justify the revolution. In e-Business this is frequently the case as we are still in the land rush period in cyberspace. For some new e-Business Models it is critical to be the first in a new niche but for others it might be a deadly mistake. The early bird may catch the worm but the second mouse gets the cheese. This saying resounded throughout Silicon Valley after the dot.com bubble burst in late spring 2000. In 2001, it very well reflected the situation in the B2B universe. After the hype has come to an end, small and medium sized companies are waiting for the learning curve effect. The attitude has changed. Only a few still have the first-mover-first-prover attitude, as many first movers have become the first loser. A good example is again the auto industry where many sub-suppliers still wait for the silver bullet to come after quite a few competitors burnt their fingers with e-Business
4.2 e-Business – a change of paradigms

For many people e-Business equals e-Commerce and represents only the selling, marketing and maybe buying of goods and services via the Internet. Yet reality shows that this perception does not hold any ground. It is essential to enlarge this understanding of e-Business and to specify its consequences. The topic is much more relevant and complex than many would have expected just two years ago, as B2C e-Commerce was dominating the scene.

At the beginning of the 21st century it becomes all the more obvious that the business world is subject to an evolutionary quantum leap. We are witnessing the transitions from one economic paradigm to a new one. The old one is the post-industrial paradigm (atomic age) the new one is the paradigm of the Networked & Globalized Economy and the Networked & Globalized World. Economic, social and cultural networking and globalisation are manifesting this transition and e-Business is driving it.

Throughout the 20th century the business world of the western hemisphere was dominated by integrated industrial age corporations. A theory of management and a clear model of the firm was established and commonly accepted. Organisations were structured as hierarchies with reporting relationships and an internal economy. During the age of consumptionism, marketing based on print and broadcast medias became central to revenue generation. Industrial manufacturing technologies and processes such as automation and assembly lines were the major focus of economic development. The fundamental principles of industrialisation had many similarities across all sectors. To further improve productivity and customer value information and communication technology applications were created, embodying all these assumptions. However, electronic media, such as the computer, EDI and the Internet have finally started to shift the business world from a broadcast to an interactive paradigm. Within the scope of the e-Business transformation most of the above mentioned assumptions are changing profoundly and sustainably. Customer value and order-driven production are taking over the lead in the development toward an interactive and networked economy. Operational efficiency (as an over all cost
leadership or cost focus [Porter, 1980]) and product quality and service (as a basis for a differentiation or differentiation focus strategy [Porter, 1980]) are no longer central to the establishment of competitive advantage. In many cases optimal manufacturing cost and product excellence will not be more than preconditions for competitive parity. They will not work as strategies to gain and sustain competitive advantage. It is, in general, the quality of service and collaboration that will make the difference in the creation of a firm’s very own USP and hence of customer value.

The new value proposition means delivering:

- what the customer actually needs,
- where the customer needs it,
- when the customer needs it,
- at the lowest possible price.

To support this new value proposition a firm needs rapid and frictionless flow of information and demand fulfilment that is cost-effective and flawlessly executed. In the emerging e-Economy there is a new infrastructure which is based on Information and communication technology such as computer, data warehouses and the Internet, that are causing us to scrutinise most of our assumptions about the respective firm. A skin of real and virtual, personal and mechanic corporate networks which continuously grow in ubiquity, robustness, bandwidth, and function braid our planet. Intranets, Extranets and the Internet are the nervous system of the globalized economy and lay the foundations for new ways of global competition. These new circumstances lead to the emergence of new models of how customer value and hence economic wealth is created. (Kalakota & Robinson, 2000)

The bottom line of e-Business is not only about conducting traditional business online through information and communication technology. It is about a new understanding of what business is and how to perform it. However, not the fundamental economic laws change but the concepts, definitions, business models, goals, strategies, structures and processes which, ultimately, generate more turnover than costs.

e-Business is not just a management trend or technique or philosophy and it is not a technology or an application. It is all of this and much more. It is a transformation concept and process. It changes the business world in a fundamental and
sustainable manner, way beyond technical issues, taking economy as such and the way business is done to a new evolutionary level. e-Business represents the way business is conducted in the e-Economy. It is an integrative step stone on our way to a networked & globalized economy and world. With reference to the hypothesis established under item 1.2.1. I would like to introduce the following metaphor:

- e-Business is the industrialisation of communication.

Just as the industrialisation at the beginning of the 19th century, the Internet revolution, or in other words the e-Business Transformation Period is a transition period in the evolution of business (Figure 4-4). These two eras have much more in common than one would think at a first glance. In essence, two similarities are particularly important for a better understanding of e-Business.

Firstly:

- the industrial revolution entailed the automation of manufacturing processes,
- the e-Business Transformation means the automation or semi-automation of all possible kinds of business communication through the application of Information & Communication Technologies [ICT].

Secondly:

- the industrial revolution was the transition period between the pre-industrial paradigm and the industrial paradigm,
- the e-Business Transformation Period currently under way is the transition from the post-industrial broadcasting paradigm to the interactive paradigm of a networked & globalized economy and world.

e-Business is a technology based concept which enables organisations to reduce costs and increase customer value and satisfaction by giving an organisation the possibility to redefine itself, its strategic position within its industry and its relations with its business and non-business environment. From an macroscopic point of view, e-Business integrates the whole value system of a certain industry including business partners, non-business partners and consumers.
From a microscopic point of view e-Business initiates the streamlining, standardisation, integration, and opening up of a firm’s organisational, operational and managerial structure and processes toward its business partners, non-business partners and consumers. Consequently e-Business represents the evolution of the commonly held principle of the division of labour, on an internal and external level.

Networks of (small / medium-sized / large-scale) highly specialised (core competences) and integrated, independent operational modules (in organisational and legal terms) have started to replace huge, vertically integrated corporations which have been ruling the business world for more than a century (cf. Kalakota & Robinson, 2000).
4.2.1 The birth and death of the e

As long as we are in the process of change from the post-industrial paradigm to the networked & globalized paradigm, the e is necessary to differentiate between the traditional (old) way of conducting business and the new way made possible by the Internet and its applications. One may even call it a fill-in of history. We need the e to research where we are coming from, where we are and where we are going to in terms of e-Business. This advances the understanding of e-Business and helps to optimise future developments. The Internet and its applications offer a myriad of new opportunities for business which enable us to formulate new goals and create new strategies, structures and processes in business. This leads to the emergence of new ideas and concepts on what business is and how it is conducted. e-Logistics is a new concept of logistics, e-Procurement is a new concept of procurement, etc.

"The meaning of a word lies within its application in language." (Ludwig Wittgenstein)

In the course of the e-Business Transformation we will gradually transform, step by step and out of practice, our perception and understanding of the goals, strategies, structures, processes and functions (e.g. marketing, logistics, procurement etc.) in a company, i.e. the new way will not replace the old one. e-Business is not replacing traditional business. The e-Economy and hence the networked & globalized economy will be a result of the merger of the Old-Economy and the New-Economy (Figure 4-5).

![Figure 4-5: The e-Evolution.](image)
Both provide different qualities and competencies for a successful common future. Best practice Supply Chain Execution [SCE], for instance, is a critical capacity of brick-and-mortar firms. It means the ability to actually move the product from the manufacturer over possible channel partners to the end-user. Dot.coms have the (selling) technology but that is only part of the equation. (Infoaccess.net, 2001) The new way will be integrated into the old way of conducting business and hence shape and transform the latter. What is most important, is that this transformation means the transition to a new evolutionary stage of economic progress as mentioned before.

<table>
<thead>
<tr>
<th>PRIMARY ACTIVITIES:</th>
<th>FedEx, Danzas,</th>
</tr>
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<tbody>
<tr>
<td>e-Logistics (inbound and outbound)</td>
<td>Air France, Lufthansa, Charles Schwab</td>
</tr>
<tr>
<td>e-Operations</td>
<td>Procter &amp; Gamble, Porsche</td>
</tr>
<tr>
<td>e-Marketing</td>
<td>Dell, Ryanair, Amazon</td>
</tr>
<tr>
<td>e-Sales</td>
<td>IBM, Intel, Microsoft</td>
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<tr>
<th>SUPPORT ACTIVITIES:</th>
<th>Siemens, IBM, Dell, Microsoft, Datek</th>
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<tr>
<td>e-Firm Infrastructure</td>
<td>Microsoft, Siemens</td>
</tr>
<tr>
<td>e-Human Resource Management</td>
<td>BMW, DaymlerChrysler</td>
</tr>
<tr>
<td>e-Technology Development</td>
<td>Cisco Systems,</td>
</tr>
</tbody>
</table>

Figure 4-6: The components of the e-Value Chain and best practice examples.

e-Business and the e-Opportunities can be described and defined best by looking at all functional parts of the value chain, the value system, and linkages in between separately (Figure 4-6).

As soon as e-Business will be daily business it will not be e-Business anymore, it will just be business taken to a new evolutionary stage. By then, the use of Internet technology will be as essential as the use of a phone for business purposes. e-Economy will become “the networked economy” as Kevin Kelly named it in his widely acclaimed article “New rules for the New-Economy” published in Wired Magazine as early as 1997. There will be no more e. The day the transformation and transition period will be over, the e will vanish as quick as it entered our life. It will no longer be
necessary to differentiate between the old and the new way of performing business. There will be just one integrated way of conducting business in a networked & globalized world, based on Information & Communication Technology.

4.2.2 The EURO metaphor

Old Business and Networked & Globalized Business represent two different paradigms of business, the old and the new one. This situation can somehow be compared to the introduction of the single European currency, the Euro.

It took quite some time to develop the idea and the means needed to introduce the Euro but the final steps enrolled rather quick. The foundations were laid with the Treaties of Rome creating the European Economic Community [EEC] which came into effect in 1958. The EEC was formed with a monetary union as an eventual objective.

The first attempt for a monetary union started in 1971. Although the European Council and the member states took a lot of efforts it was given up during the mid 1970s. The next step was the introduction of the so called “Snake Currency” in 1972. In 1979 the European Council established the European Currency Unit [ECU], which was the first standardised and unified currency unit, used to simplify the financial affairs (e.g. budgeting) of the bodies of the European Community and the flows of money between the member states. Starting January 1st 1999, the European Monetary Union replaced the freely fluctuating exchange rates of the 12 participating European currencies through a system of fixed exchange rates (standardisation) with the Euro as the central calculating unit. Since this historical day the Euro has been in use within Europe and around the world as a legal currency and book money. However, the consumers on the streets did not realise at all that their own national currencies, in fact, was not existing anymore. As the transition continued, all companies, the very small ones as well, had to adopt their systems to the new currency standard or they would go out of business. The first contact between the consumer on the street and the new single currency took place January 1st 2002. After a two-month transition period the single valid currency within the European Monetary System has become the Euro. After this period the national currencies can
be exchanged into Euros under constant conditions at all national central banks for another 30 years (Aktion Euro, 2001; Sparkasse, 2001; Spiegel, 2001). When the Euro was physically introduced and people got used to it on a day-to-day basis, it was not a new currency any more, but the one and only currency of the European Union.

This sounds all too familiar if you think about electronic commerce and electronic business. If one replaces the ECU through EDI and the EURO through e-Business in this section.

There are quite some similarities in the development and implementation of the Euro and e-Business, not only in terms of time but as well in terms of the underlying systematics and dynamics. Firstly, the ECU came into play around the time EDI representing the basic level of electronic business was introduced. Secondly, the introduction of the Euro was decided upon as the World Wide Web and the commercialisation of the Internet have initiated the Internet Revolution. Thirdly, the Euro was launched in 1999 when the dot.com era was entering its hot phase.

The timeframe of the e-Business Transformation and the way it enrols are not yet clear cut, however, it will happen and the overall picture, the reasons and objectives behind are, in a lateral sense, the same as for the Euro; cutting costs, increase customer satisfaction and customer value to maintain or improve competitiveness.

The history, development and introduction of the Euro stand as an example for the transition from the traditional Old-Economy and the traditional way of conducting business to the e-Economy and the new way of conducting business (electronically). In this sense, e-Business and its fundamental standards (e.g. TCP/IP) can somehow be seen as the single global currency in a globalized world and networked economy.
4.3 B2B e-Business – the driving force of e-Business

When looking at the breath-taking speed and depth of the changes e-Business brings about for companies in all economic sectors and industries the world over, one
might wonder what magic force is driving this unprecedented development. First, almost everybody was convinced that B2C e-Commerce would lead the Internet Revolution in business, however, it was only the primer. Only a few critics paid attention to the natural human resistance to rapid change which finally caused the dot.com bubble to burst. As the New-Economy started to tumble, the real driving force of the e-Business Transformations under way appeared in public: Business-to-Business electronic business [B2B e-Business]. Today, the actual fuel for the e-Business engine is the hope of companies in the business-to-business sector:

- to (dramatically) reduce costs within the own value chain and along the value system (suppliers and customers) in a sustainable manner and
- to (substantially) increase the real or perceived value of goods and services offered to the customer.

But what makes all this possible? The two generic benefits of B2B e-Business are:

- a significant reduction of communication and transaction costs\(^\text{18}\), and
- a dramatic increase in
  - the amount and quality of information available and
  - the speed it can be transferred across the globe.

As a result digitised information – available 24 hours a day - 7 days a week - 365 days a year – is replacing and transforming physical goods and services, such as inventory and logistics. All other opportunities growing out of e-Business stem directly or indirectly from the 2 generic benefits of B2B e-Business. Digitised information can be collected, processed and stored through Information and Communication Technology [ICT] and transferred from Moscow to Sidney at the speed of light. Once information and communication systems are up and running the up-date, duplication and transfer of data takes place at practically zero marginal cost (IBM, 2000).

The concept of B2B e-Business enables a firm to reach the above listed goals

- by integrating the different functional areas, linkages and applications of its own value chain internally and,
- by integrating its own value chain with the value chains of suppliers and customers
through Information & Communication Technology, such as computer networks and Internet technology.

Integration is one of the key issues of B2B e-Business in technical as well as in managerial and cultural terms. It is based on two things:

- constructive destruction of existing organisation and industry structures, and
- standards, the smallest common denominators for the reintegration of the organisational, managerial and cultural modules of a firm or an industry which were created through deconstruction. (Evans & Wurster, 2000)

**Business Model**
- An architecture for the product, service and information flows, including a description of the various business actors and their roles; and
- a description of the potential benefits for the various business actors; and
  - a description of the sources of revenues (Timmers, 1999, p.32).

**e-Business Model**
- A business model for an e-Company.

The binding energy released by the de-construction of traditional business and industry models represents an enormous innovative and transforming power which is in turn the inherent engine of B2B e-Business. The incorporation of Internet technology into business has initiated an atomic chain reaction which will provide power to the globalized & networked economy for a long time.

B2B e-Business enables a company to play real organisational Lego (cf. Mintzberg, 1991) beyond traditional perceptions of strategy, structures and processes, not only within a single firm but also across the whole value system of an industry. Constructive deconstruction and reintegration of value chains and value systems are leading the way into the e-Economy. The known borders of companies vanish, while
new business models emerge. The concept of virtual organisations\textsuperscript{21} is dominating current and near-term developments.

The organisational structures and processes within and among firms and across industries have changed in a way that they strongly resemble to computer networks (Intranet, Extranet, and Internet) and enterprise application programs providing the infrastructure (in a broad sense) for global electronic business. Modular and networked structural configurations and business models are most suitable to cope with the challenges of the e-Economy. Thus, the e-Business Transformation is an evolution toward organisational modularisation, not only in terms of technology and structure but also in terms of goals and strategies. This opens new dimensions of outsourcing and collaboration\textsuperscript{22} between companies. Channel partners as well as former competitors start to collaborate in ways and in fields which seemed to be impossible only a few years ago.

On the one hand B2B e-Business powered by Internet technology is a new tool to reach longstanding goals. It lives up to the promises proprietary computer networks and Electronic Data Interchange [EDI] have not been able to fulfil for three decades. On the other hand, it enables us to set new unprecedented goals and create new strategies, structures, and processes to answer the challenges of an uncertain future. The reasons are the simple, flexible, modular, networked, low regulated and global character of the Internet and the relatively low costs involved (compared to e.g. EDI). B2B e-Business is not limited to the externalities of a firm. A company that wants to leverage the promising opportunities of B2B e-Business has to focus not only on its external relationships with channel partners along the value system. It also needs to adopt its value chain internally, to an appropriate extent. Consequently, the transition from the Old-Economy to the e-Economy is inextricably linked to the management of change (Kalakota & Robinson, 2000). However, the best way to deal with the necessary change is to view it as a chance for new competitive advantages and not as an imperative to sacrifice traditions and an assumed safe heaven.

e-Business Transformation within an Old-Economy company is not an all-or-nothing game. Revolutionary e-Business Change just for the sake of change is not an
imperative. It is rather a question of appropriateness as corporate change can be performed incrementally or in a quantum leap (Wetlaufer, 2001). Some companies need to reinvent themselves as a whole to fully leverage the attainments of e-Business. This goes as far as rethinking and redesigning the company's overall goals, and competitive strategies, organisational structures and business processes. Such a disruptive approach equals the implementation of a new business model. Other firms just have to apply a few business processes to become a successful player in the e-Economy. It all depends on the given external and internal situation of the enterprise (Kieser & Kubicek, 1992) before it embarks upon the e-Business Transformation.

**e-Business Transformation**

- A collective term for the approach deployed, the actions taken, the tools used and the time needed to integrate Information & Communication Technology into to the existing goals and / or strategies and / or structures and / or processes of an Old-Economy firm and hence to turn it into an e-Company.
- A realised e-Business Strategy might be the result of an intended and deliberate strategy or of an emerging strategy.

Most firms that have already chosen such a holistic *modus operandi* for their e-Business Transformation range now on the top of best-practice rankings. One of the latest examples is Siemens, a true global player with 440,000 employees in 190 countries. Choosing a well-directed approach and investing about EUR 1 billion, Siemens managed to integrate all its e-Activities to become a true e-Company within less than one and a half years. Siemens e-Business Model is based on the solutions of I2 technology. It now provides Internet access for all its employees. And it is a midterm goal of Siemens to automatically process 50% of its total purchase volume of EUR 35 billion. (Siemens a, 2001; Siemens b, 2001)

In general, expectations in this field are high, however, there is no silver bullet for the transformation as B2B e-Business is not a plug and play solution. It takes a conscious, thorough and extensive internal and external analysis (e.g. SWOT analysis) of the
organisation and its direct environment, clear and appropriate e-Business objectives, a deliberate strategic concept and change management at its best to turn an organisation into an successful e-Company in order to be able to leverage the opportunities of B2B e-Business in a best possible way. One of the major challenges of the e-Business transformation is to find the right equilibrium between:

- stability and change and
- internal and external fit²⁷.

We will learn in the course of this paper that strategic management and its principles and tools (of course applied to the new circumstances) are going to be reinforced in the e-Economy. This stands in opposition to the approaches of several opinion leaders in the New-Economy which foresee the end of strategy and strategic management as a result of the Internet revolution.

### 4.4 B2B e-Business – an innovative and transforming power

The real transforming power of B2B e-Business does not show in the changes of the relationships and processes between companies alone. It encompasses, as mentioned above, all four dimensions of a firm: the buy-side, the in-side, the sell-side and the direct environment.

B2B e-Business promises a myriad of new frame breaking opportunities for business and most executives are well aware of this fact. However, the intention to exploit these new possibilities calls for fundamental and sustainable changes on several different levels within a company’s value chain and its respective value system. B2B e-Business does not only affect the B2B relationships and processes of a firm, it rather calls for much deeper and thorough changes to get the e-Company going. In the e-Business world innovation and success are derived from spotting and serving customer needs and market trends before anyone else does and from the sophisticated exploitation of information and technology to invent and create higher value for both the supplier and the buyer (cf. Kalakota & Robinson, 2000, pp.49), whereas quality and operational excellence are preconditions. It is the task of the
senior management to transform the organisation in a way that allows the company to focus on customer needs and to be on the forefront of trend spotting.

In most cases, B2B e-Business is not a plug and play solution to turn a company into an out-performer in the e-Economy. It takes a lot of effort within an established firm in the Old-Economy and across its suppliers and channel partners to live up to the challenges of the Internet era and its inherent power of invention and transformation. To be able to perform integrated B2B e-Business utilizing its promising new opportunities a company needs to harmonize and integrate or even redefine its existing value chain and organisation.

Most of the business and academic experts I talked to during my research for this paper stated that the business problems an organisation is facing while trying to implement any kind of B2B e-Business concept are first of all inward-facing. This attitude is a consequence of the short period of trial and error since Internet based B2B e-Business has taken off. They emphasized the need to focus on the adaptation and transformation of strategies, organisational structures and business processes while designing a B2B e-Business concept and before logging onto the respective e-Value System. Internal e-Readiness is a precondition for B2B e-Business and represents the first stage of the e-Business Transformation. It is essential during this first, intra-organisational stage to define and implement a clear e-Business concept in terms of goals, strategy, structure and processes as the driver of change. Usually, a company is led in the wrong direction if executives let technology take the drivers seat. The e-Business transformation calls for a holistic view of the firm and its environment as a basis for action. The internal and external situation of the organisation should determine the conceptualisation of the e-Business model. Executives need to focus on clear economics, competences and know-how within the own organisation as well as on the situation in their respective industry to stay on the competitive edge (Miller, 1992). Business should initiate and leverage technology and its innovation and not the other way around. Technologies and applications are changing in an ever accelerating speed and need to be updated continuously. As this development keeps on going, it becomes all the more important to have clearly defined goals and strategies and flexible organisational structures and business
processes at work to succeed in the e-Business Transformation. The second stage, after preparing the own organisation for the e-Economy, is the implementation of the B2B e-Business Strategy based on the internal e-Business backbone. This means the integration of the own value chain with the value chains of channel partners and suppliers by integrating technologies, systems and processes across organisations (across the value system) to create value on both sides. The different technical solutions are not of interest at this point, as it does not matter whether a e-Business Solution is a proprietary one or outsourced to an Application Service Provider [ASP], Value System Service Provider or a Value System Integrator. The issues do gradually change but stay the same in general terms. Thus, intra-organisational as well as inter-organisational change is imperative for a successful e-Business Transformation.

Most management approaches and tools needed for the e-Business Transformation have their seeds in the late 1980s and have been well developed, implemented and exercised successfully during the 1990s by the Old-Economy even before anyone thought of e-Business as we define it today. The use of well-known approaches and tools is an additional argument for the evolutionary character of e-Business. Value chain analysis, introduced by M.E. Porter in 1985 and Business Process Reengineering [BPR] as suggested by Hammer & Champy in 1993, are the most prominent examples of traditional tools which are still of high importance in the e-Economy. Another management discipline which is inextricably linked with e-Business Transformation is the management of change. Its roots date back more than 40 years. Due to limitations of time and resources value chain analysis, BPR and change management cannot be discussed in detail within the scope of this paper. However, it is essential for executives in charge of the e-Business Transformation to develop appropriate skills necessary to successfully manage disruptive as well as incremental change. Both dimensions are inherent to the transition from the traditional to the e-Economy.
5 e-Business – A holistic approach

The goals of this chapter are:

- describing the generic nature of e-Business in general.
- putting e-Business into a large historical and economic context.
- describing the reversion of the traditional value chain and value system.
- developing a categorisation of e-Business.
- developing a holistic definition of e-Business and its categories.
- Presenting Intranets, Extranets and the Internet as the backbones of e-Business.

Nearly all executives and experts I talked to during the research for this paper were convinced that e-Business is the road into the future. Some where enthusiastic about this development and the emerging opportunities, others nostalgic about past times. However, many mentioned that the rapid development of e-Business in the B2B sector has slowed down significantly during 2001. Most of them blamed the lack of tangible bottom line results, others the economic downturn. This is all true but does not provide the full answer to this problem. A major reason is the lack of commonly accepted definitions, terminology and concepts of e-Business and the e-Economy in general. To date, there is a lot of valuable specific and detailed research on e-Business. Yet, before going into detailed analysis on the innovative and transforming power of B2B e-Business, it is necessary to develop a clear and schematic concept and definition of electronic business. It is essential to discuss the position and importance of e-Business within the context of the evolution of business. We need to develop a holistic concept of e-Business and to analyse the role of the Internet in the development of e-Business. Within the scope of this chapter the following basic steps are applied to lay a foundation for this attempt:

- firstly, describing the generic nature of e-Business in general,
- secondly, putting e-Business into a large historical and economic context,
- thirdly, describing the reversion of the traditional value chain and system,
• fourthly, developing a categorisation of e-Business, and
• fifthly, developing a holistic definition of e-Business and its categories.

The e-Business concept developed in this paper is a contingency approach, meaning that there is no one best way for the e-Business Transformation. An organisation on its way to become an e-Company always must consider its internal and external situation (e.g. SWOT Analysis) (cf. Schreyögg, 1998, pp.333; Kieser & Kubicek, 1992, pp.45).

![Figure 5-1: Definition of the term contingency.](https://www.nextgenerationbusiness.net)

Contingency Approach

“Contingency means that one thing depends upon other things, or that an organisation characteristic depends on the total situation. What works in one setting may not work in another setting. There is not one best way. Contingency theory means “it depends”. […] Some organisations may experience a certain environment, use a routine technology, and desire efficiency. In this situation a mechanistic approach to management that uses bureaucratic control procedures, a functional structure, and formal communication would be appropriate. Likewise, organic free-flowing management processes work best in an uncertain environment with a non-routine technology. The correct management approach is contingent upon the organisations situation.” (Daft, 1992, p.20)

Whether the e-Business Transformation results directly or indirectly in an increase in effectiveness and / or efficiency and to which extent it maintains or generates competitive advantages, depends on the internal and external situation of a company. The internal situation refers to the generic value chain developed by M.E. Porter (see item 3). Two of the best and most pragmatic ways to analyse and describe the internal situation of a firm are a Value Chain Analysis (Porter, 1985) and Business Process Reengineering (Hammer & Champy, 1993). The external situation refers to a modified model of the five generic competitive forces as described by M.E. Porter. The main difference between Porters model and the approach suggested in
this paper is that it focuses on the competitive situation (i.e. the competitive environment) of the individual firm and not on industry competition. This is due to the transforming power of B2B e-Business. This company-centric competitive approach will be discussed in item 8.1.1. The five competitive forces determining the external situation of a firm are:

- direct competitors
- indirect competitors
- customers (end-user or channel partner)
- suppliers, and
- the direct environment.

Within the scope of the e-Business Transformation companies need to focus on the quality, appropriateness and implementation of its e-Business strategy relative to its direct and indirect competitors.

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**Figure 5-2: The internal and external situation of a company.**

5.1 The nature of e-Business

Many books and articles have been written about e-Business in spite of its short history. Some brought useful new insights, other argumentations led into a dead-end street. However, none gave an answer to the question which is most important for people dealing with the e-Business Transformation in practice:

- What means e-Business in general and what is it all about?

The concept of e-Business developed within the scope of this paper builds on the following assumptions:

- e-Business, in essence, concerns all possible kinds of business communication, like:
  - application-to-application
  - person-to-person
  - person-to-application
  - application-to-person.

These interactions, taking places at very low or almost zero marginal cost (cf. Garicano & Kaplan, 2000), manage, co-ordinate and support the flow of information, goods, services and capital within a firm’s value chain, and across its network of business and non-business partners.

This hypothesis is based on the following two assumptions. Firstly, an economic transaction - with reference to Coase (1937) and Williamson (1975, 1985) - is a certain kind of communication (Picot et al., 1996; Gibbons, 2000; Schopp, 1999). Secondly, capital is a certain kind of information and the transfer of capital is a transfer of information.

- e-Business stands for the automation and / or semi-automation of all possible kinds of business communication through the application of Information & Communication Technologies whereas the Internet represents the most important tool in the context of the developments in place. The above mentioned business communication may be both, directly and indirectly related to the production of goods and / or services. This classification refers
to the distinction between Primary and Support Activities as defined by M.E. Porter (1985).

These answers seem to be obvious and fairly simple, nevertheless, they are extremely important for a better understanding and strategic reflection of e-Business and the resulting transformation and transition processes.

5.2 The evolutionary context of e-Business

e-Business is neither new nor limited to the Internet. e-Business as defined in this paper has a much longer history than most people would expect. It started in the financial sector with the introduction of Electronic Fund Transfer [EFT] in the mid-1960s and electronic mail [Email] in 1971. The next step was Electronic Data Interchange [EDI], a standardised format for data transfer, which has been used regularly in sectors such as automotive, retail, defence, etc. for application-to-application interaction through proprietary networks. It was the starting point for the development of systems defined as telecommunication applications. These applications - ranging from stock trading and travel reservation systems to CALS [computer assisted lifecycle support or computer aided logistics support] - represent a major step in the evolution of electronic business. Consequently, the number of participating companies grew as not only financial institutions but also manufacturers, retailers, service providers, etc. were connected. Since EDI is very cost intensive and limited in its range of coverage, the use of such systems is limited mainly to large corporations, financial institutions, and some smaller visionary enterprises and take-up until now. Today traditional EDI is used by approximately 50,000 companies in the USA and 44,000 in Europe. This represents less than 1% of the total number of companies. (Turban et al., 2000; Timmers, 1999; PwC, June 2001) These companies still use proprietary technology to communicate with legacy systems or for security reasons.

Only the developments of the early 1990s brought the impetus necessary to lift e-Business to its next level. The World Wide Web [WWW], an invention by Tim
Berners-Lee introduced in 1990, and the commercialisation of the Internet in 1993 marked the advent of the Internet age and the e-Economy powered by e-Business. Within the same year over 100 countries had an online presence and commercial users outnumbered academic users for the first time (Zakon, 2001).

The Internet has become a dominating part of our daily live and business world with an unprecedented speed. It has taken the radio 38 years and TV 13 years to reach the critical mass of 50 million users. The internet has surpassed this number within four years, once the technology has become available for the public in 1993. It took the PC four times as long. (Norris et al., 2000, p.9)

The Internet, Internet technology and the underlying transfer protocol TCP/IP - introduced as early as 1973 - have been the smallest common denominator and the centre of gravitation in e-Business development ever since. The reason is fairly easy. The Internet made e-Business cheaper, easier and therefore more easily accessible. Furthermore, it entailed a myriad of new opportunities for business as it not only
supports application-to-application e-Business similar to the one already known from traditional EDI, but also person-to-person, person-to-application, and application-to-person forms of electronic business.

As the Internet opened itself up to commercial traffic in the early 1990, the first wave of Internet based e-Business hit the market. This was electronic commerce directed to the consumer, known as B2C e-Commerce. During this initial stage the Internet was mainly used as a new marketing channel. By the mid-1990s Internet browsers and online services such as Netscape, Internet Explorer, Yahoo, and Lycos appeared. With advertisers underwriting costs for dot.coms, e-Commerce became attractive to a broad variety of businesses. In 1997, companies such as Amazon.com took the Internet to its next logical step, actually performing real business on and through the web. It was around this time that the term e-Business has been coined by IBM. At the same time, virtually every major company, organisation, government, and news service was present on the web. After four years of public Internet one million web pages were targeted to an audience of as many as 50 million Internet users (PwC, June 2001). No mass media has seen such a growth rate ever before.

These amazing figures and developments happening at a breakneck speed led to the well-known Internet hype of the late 1990s, the so-called dot.com era. B2C e-Commerce promised revolutionary changes in the way the consumer can be defined, influenced and served. In 2000, after an unprecedented roller coaster ride, the new Internet-based consumer focused strategies and business models dramatically hit the ground as they did not meet their lofty promises within the expected short time frame. While the world was still astonished in face of the falling star of the dot.com era, B2B e-Commerce stood in to herald the real Internet Revolution. Starting about 1996, almost unnoticed by the broad public Internet based B2B e-Commerce and many other business-to-business orientated e-Applications, e-Strategies and e-Business Models (e-Procurement, e-Logistics, e-HRM, e-Auctions, Portals, Value Chain Integrators, etc.) have become the hot spot in the global business community paving the way for even deeper and more sustainable changes in the way business in general is viewed, defined, planned and executed.
5.3 The reversion of the traditional value chain and value system

The graphical illustrations in Figure 5-4 and Figure 5-5 are drawn from Porters original concept of the value chain and value system paired with the assumption that the B2B e-Business causes a reversion of the traditional broadcasting and consumption-generating business approach. We need to reverse the traditional inside-out value chain thinking by which firms define themselves in terms of the product they produce and try to market. The conventional model concentrates on being effective and competitive by trying to sell as much as possible of a well-understood and often somehow standardised product. However, e-Business calls for an outside-in business approach and design resulting in a reversion of the value chain (Figure 5-4), since the B2B-Customer has continuously-improving possibilities to interact with its suppliers.

![Diagram: Traditional Business Approach - Traditional Value Chain](image)

![Diagram: e-Business Approach - Reversed Value Chain](image)

Figure 5-4: The reversion of the value chain (drawn from Kalakota & Robinson, 2000, p.60)

In an outside-in business approach the customer needs to become central to competitive strategies and value generation. This is crucial as we live in hyper-competitive and fast-moving times. Sometimes, conditions suddenly change urging a firm to completely rethink the way they do business. The reasons for change are manifold: new entrants, new market conditions, new environmental conditions, etc. If
a firm does not adopt itself and its offerings to the new rules introduced to its industry as a result of B2B e-Business, its applied competitors run away with the business. Only those companies who best understand and respond to customer needs as fast as requested will stay at the competitive edge. (Kalakota & Robison, 2000) Concepts like mass-customisation, built-to-order, built-in-sequence, just-in-time and many others represent the emerging outside-in business approach where the customer stands at the beginning as well as at the end of the value chain and value system.

Information flows in both directions as interaction, collaboration, and problem solving become more important than marketing and selling existing predetermined products. Consequently, the value chain symbol used in this paper points in both directions (Figure 5-4): toward the supplier AND the customer. At the end of the day this results not only in the reversion of the value chain but also in the reversion of the respective value system as shown in Figure 5-7. This can be understood as and evolution of the symbolism introduced by M.E. Porter in 1985.

Moreover, developing an interactive flow of information along the value chain and the value system is a major step in the creation of an e-Value Chain and e-Value System and, hence, in the e-Business Transformation Process.
5.4 The 4 generic dimensions of e-Business – a classification

e-Business turns the business world upside-down, crashes it in little pieces, and assembles them in new flexible ways, creating a multitude of new opportunities. This results in the fact that some new fields in the B2B domain within single companies and whole industries emerge as well as others merge, gain, or lose importance or vanish completely. Various kinds of marketplaces and Value System Integrators are examples for new established players. e-Procurement, e-Logistics, e-HRM represent a broad array of value chain functions under heavy transformation. Service providers of all kinds continuously gain importance as outsourcing has become one of the major strategies in the e-Business Transformation. Disintermediation is the buzzword when talking about functions and sectors loosing importance or even meant to be extinguished. However, in general e-Business can be classified just as traditional business as for the reason that it is in fact the next generation of business.

According to the research and information available up to date, it seems to be appropriate to categorise and integrate e-Business according to the nature and direction of all possible communication and transactions processes within a company’s value chain and along the value system (cf. Turban, et al., 2000). Consequently, traditional business and e-Business can be described through the same four generic dimensions of a company:

- buy-side,
- inside,
- sell-side and
- direct environment.

The first three categories have been frequently used in e-Business Consulting and e-Business Strategy design. The last one, the direct environment, has not been used so far whether in practice nor in theory. However, it is necessary to consider the direct environment to cover all dimensions of a traditional firm as well as of an e-Company. A theoretical background for this categorisation can be found at Schreyögg (1998, p. 316 - 323).
For each of this four dimensions there is an equivalent dimension of e-Business. Two of them, Business-to-Business [B2B] and Business-to-Consumer [B2C] e-Business, are already well known due to the Internet hype in past five years. The other two, Intra-Business [IB] and Business-to-direct-Environment [B2DE] e-Business, are herewith introduced. The goal of this classification is to form a homogeneous and holistic concept of e-Business. This classification is not extensive, however, it represents the four dimensions most important for Old-Economy companies that are about to implement an e-Business Solution. There are other categories as well (e.g. B2G, B2E, C2B) but they are either subcategories of the ones mentioned above (e.g. B2G belongs to B2DE) or are irrelevant for the discussions in this paper (e.g. C2B).

<table>
<thead>
<tr>
<th>4 DIMENSIONS OF e-BUSINESS</th>
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<tbody>
<tr>
<td><strong>buy-side</strong></td>
</tr>
<tr>
<td><strong>inside</strong></td>
</tr>
<tr>
<td><strong>sell-side</strong></td>
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<tr>
<td></td>
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<tr>
<td><strong>direct environment</strong></td>
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</tbody>
</table>

Figure 5-6: The generic dimensions of e-Business.

Figure 5-7 shows the four generic dimensions of e-Business within a company's reversed and integrated value chain and along an industry's reversed and integrated value system as introduced in item 5.3 above.
Figure 5-7: The four generic dimensions of e-Business in a company’s reversed and integrated value chain and value system.
5.4.1 Business-to-Business e-Business

The origin of electronic business was, against all guesses, not the Internet and the dot.com era at the end of the 1990s. It lied, as mentioned before, in the B2B domain during the mid-1960s.

B2B e-Business refers to all electronic communication processes and transactions performed between businesses to co-ordinate the flow of goods, services, and information. B2B relates to both the sell-side and the buy-side of a firm.

Both, sell-side and buy-side B2B e-Business can be performed in two ways which can be distinguished by the nature of the relationships between the business partners:

- single transactions,
- recurring business transactions, unlimited or limited in terms of e.g. time, projects or orders.

The very beginning of B2B e-Business is characterised by permanent business connections and, due to the high cost involved, by the implementation of proprietary EFT or EDI networks. By contrast B2B e-Business based on the Internet was initially focused on single transactions. Examples are basic e-Shops, B2B Internet Marketplaces or e-Auctions. Such services were meant to provide less cost-intensive and less complex electronic business platforms to far more firms than traditional EDI has ever been able to reach.

However, practice during the past six years has shown that initial fragmented B2B online solutions do again not meet expectations as they lack, in most cases an electronic integration with the internal application programs (e.g. ERP, CRM) of business partners. Current developments, for instance, in the automotive industry (e.g. BMW, Daimler-Chrysler, Ford) and high-tech sector (e.g. Intel, Dell) make the case for permanent, electronically integrated e-Business connections as they promise the biggest amount and the most frame-breaking opportunities to gain and sustain new competitive advantages. (cf. CHB 1, 2001; CHB 2, 2001; CHB 3, 2001)
Furthermore, enduring partnerships seem to apply much better to the existing management styles, strategies and structures of most traditional firms. The difference between integrated and fragmented B2B e-Business, IB e-Business, and e-Business will be discussed in detail under item 1.2.5.

B2B e-Business refers to the direct or indirect vertical integration of customers and / or suppliers into the own corporate Extranet. That means it stands for the vertical integration of the industry’s value system (Figure 5-9). The integration may be unilateral as it is often the case for the e-Procurement of MRO articles. Customers are integrated into the Extranet of the MRO supplier. This represents a basic solution of integrated B2B e-Business. The next step is the bilateral integration of the internal application programs of business partners. An approved example therefor is the concept of Vendor Managed Inventory where the supplier has direct and automated access to defined areas of the ERP system of the customer. Through the integration of their networks Coca Cola is able to manage the whole inventory of its soft drinks at the French supermarket chain Carrefour.

Single transaction e-Business is usually performed on and through the Internet, for instance, on fragmented third party B2B Marketplaces, without any direct or indirect electronic integration of corporate Extranets of business partners. This is referred to as fragmented B2B e-Business (see item 6). Contrary to this, limited or unlimited permanent business connections are built on the direct or indirect electronic integration of Extranets. Such Extranets are built on corporate Intranets and provide authorised access to defined functions and data of proprietary application programs such as ERP, CRM or SRM applications programs and are called integrated B2B e-Business (see item 6). A direct integration is an immediate electronic connection of proprietary Extranets. An indirect integration is an oblique connection mediated by a third party like a Value System Integrator, Value Chain Service Provider, or next generation B2B exchanges and marketplaces as, for instance, provided by Bolero.net and Marrakech. For a detailed discussion of Intranets, Extranets and the Internet see item 1.2.6.
B2B e-Business

B2B e-Business is a contingency approach on how to view, define, organise and conduct business between a company and its business partners up to the consumer point of sales,

- focused on customer needs and the optimal design and employment of
  - the functions and linkages within a company’s value chain and
  - the linkages in the respective value system,

WHAT?

- to ENABLE the company to plan, execute and record automatically or semi-automatically all possible kinds of communication with business partners and the corresponding flow of data,

HOW?

- by coordinating and/or integrating the company’s goals and/or strategies and/or structures and/or processes within the own value chain [IB] and, if necessary, with its business and/or non-business partners [B2B, B2DE],
- by allowing business partners [B2B] (channel partners and end-users) to access and, if necessary, to alter relevant information in the company’s digital value chain (e-Value Chain),
- through the use of application programs, real and virtual intra-organisational (Intranets), inter-organisational (Extranets), and open networks (e.g. Internet), which are
- based on commonly accepted standards, rules, process algorithms, and individual authorisations,

WHY?

- to reduce direct and indirect costs [quantity] and/or
- to increase customer value [quality] and thus
- to maintain or improve the strategic options, the effectiveness, and the efficiency of the company.

Figure 5-8: Definition of B2B e-Business.

5.4.1.1 B2B e-Business – integrating the value system

The concept of B2B e-Business stands for the electronic interlocking and integration of business processes between enterprises. The highest level of added value through B2B e-Business can be generated by a digital transformation of the Value System (Nenninger & Lawrence, 2001). This means a constructive de-construction of the value system followed by a re-configuration of traditional and New-Economy firms
into the e-Value System (Wurtser & Evans, 2000). Ideally, the e-Value System consists of multiple, fully integrated e-Value Chains of business partners that function as effectively as a single firm with full information visibility and accountability (Kalakota & Robinson, 2000). Future e-Value Systems will also integrate the consumer. This will happen when B2C e-Commerce will be accepted and performed on a broad scale in daily live. The integration of the customer represents another important quantum leap in the evolution of e-Business.

Figure 5-9: The evolution of the value system (drawn from Kalakota, 2000, p.203).

According to Porter (1985), gaining and sustaining competitive advantage not only depends on understanding a firm’s value chain but also on how the firm may support the value chain of channel partners or buyers and how it fits into the overall value system. This statement represents the most important strategic issue of e-Business
in general and B2B e-Business in particular. The continuously increasing rationalisation and integration (in terms of goals, strategies, structures, and processes) of industrial value systems through Information & Communication Technology seeks to eliminate as much fat as possible from the value creation process. Hence, a firm that does no longer provide significant additional value for the end-user has to reassess its business model and refine it considering the new competitive environment in the e-Economy. It is the major task of CXOs of traditional companies for now and the near future to find out whether the current super-ordinate goals, strategies, structures, and processes of the firm are most suitable to leverage the new opportunities of a networked and globalized economy in an optimal way, while minimising the emerging risks and threats. Old-Economy firms that neglect this reality are living on the edge of failure, at least, on the long run.

5.4.2 Business-to-Consumer e-Business

B2C e-Business encompasses all electronic communication processes and transactions performed between businesses and individual consumers. B2C e-Commerce, as an integrative part of internet based e-Business, triggered the dot.com hype during the second half of the 1990s. It initiated the Internet Revolution in the mind of the people and companies but it is not responsible for the best part of the fundamental changes in business currently under way in the B2B sector. Moreover, it will take a decade until B2C e-Business will live up to the initial expectations formulated during the dot.com hype (Turban, et al., 2000). B2C e-Business is a vast field on its own and will not be discussed within the scope of this paper.

**B2C e-Business**

B2C e-Business is a contingency approach on how to view, define, organise and conduct business between a company and the consumer,

- focused on customer needs and the optimal design and employment of
  - the functions and linkages within a company's value chain and
  - the linkages in the respective value system,
| **WHAT?** |  
|---|---|
| to ENABLE the company to plan, execute, and record **automatically or semi-automatically** all possible kinds of communication with consumers and the corresponding flow of data, | **HOW?**  
|   | by coordinating and / or integrating the companys goals and / or strategies and / or structures and / or processes within the own value chain [IB] and, if necessary, with its business and / or non-business partners [B2B, B2DE], |
|   | by allowing consumers [B2C] to access and, if necessary, to alter relevant information in the companys digital value chain (e-Value Chain), |
|   | through the use of application programs, real and virtual intra-organisational (Intranets), inter-organisational (Extranets) and open networks (e.g. Internet), which are |
|   | based on commonly accepted standards, rules, process algorithms, and individual authorisations, | **WHY?**  
|   | to reduce direct and indirect costs [quantity] and / or |
|   | to increase customer value [quality] and, thus, |
|   | to maintain or improve the strategic options, the effectiveness and the efficiency of the company. |

---

Figure 5-10: Definition of B2C e-Business.

### 5.4.3 Business-to-Direct-Environment e-Business

A growing number of non-business related interaction partners in the direct environment of a firm, such as
- government agencies (B2G or e-Government),
- lobbies,
- non-profit organisations ,
- social organisations,
- academic institutions,

etc., use various types of e-Business to reduce their expenses and improve their operations and “customer” service / value. The most significant part is the provision of services (e.g. tax issues, statistics) from public administration to companies via Internet. In general, we talk about B2DE e-Business when the parallel flow of goods and services from the supplier to the customer and the respective flow of direct
equivalent compensation from the customer to the supplier is torn apart. For instance, companies pay taxes to the government and the government provides the infrastructure for a national economy. The companies do not get anything in direct return as it is the case when a supplier delivers a product or service to its customer.

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**B2DE e-Business**

*B2DE e-Business* is a contingency approach on how to view, define, organise, and conduct business between a company and its non-business partners,

- focused on customer needs and the optimal design and employment of
  - the functions and linkages within a company's value chain and
  - the linkages in the respective value system,

**WHAT ?**

- to ENABLE the company to plan, execute, and record automatically or semi-automatically all possible kinds of communication with non-business partners and the corresponding flow of data,

**HOW ?**

- by coordinating and/or integrating the company's goals and/or strategies and/or structures and/or processes within the own value chain [IB] and, if necessary, with its business and/or non-business partners [B2B, B2DE],
- by allowing non-business partners [B2DE] to access and, if necessary, to alter relevant information in the company's digital value chain (e-Value Chain),
- through the use of application programs, real and virtual intra-organisational (Intranets), inter-organisational (Extranets) and open networks (e.g. Internet), which are
- based on commonly accepted standards, rules, process algorithms, and individual authorisations,

**WHY ?**

- to reduce direct and indirect costs [quantity] and/or
- to increase customer value [quality] and thus
- to maintain or improve the strategic options, the effectiveness and the efficiency of the company.

---

Figure 5-11: Definition of B2DE e-Business.
5.4.4 Intra-Business e-Business

Intra-Business e-Business is a collective term which refers to the creation, maintenance, innovation, and operational employment of one or more intra-organisational networks of computers, business application programs, data bases, and people based on ICT that

- are designed to accomplish the goals and strategies of an e-Company,
- manifest the organisational structure and culture of an e-Company,
- are responsible for the collection, storage, processing, and transfer of information relevant to organisational administration and to the production and exchange of goods and services within the own value chain (e.g. Business Unit-to-Business Unit, Department-to-Department [D2D], Team-to-team), and
- serve as a foundation for order-driven and customer centred B2B e-Business and / or B2C e-Business and / or B2DE e-Business.

IB e-Business is the brain, the heart, and the backbone of e-Business and stands for the internal integration and fusion of a companys own value chain. According to Norris et al. (2000), intra-organisational e-Business is a precondition for inter-organisational e-Business. The platform for e-Business within a firms value chain is usually a corporate Intranet (Cunningham, 2001). Thus, before a company can leverage the opportunities of B2B e-Business in an sustainable an efficient way, it needs to introduce some sort of Intra-Business e-Business. Therefore, the implementation of a minimal version of an Intranet as defined in this paper (see item 5.5.1) is, in general, an imperative. According to the assumptions underlying this paper, electronic mail and Internet connection for some or all staff members is a possible first version of a corporate Intranet which positions a firm to create B2B relationships with business partners (Cunningham, 2001, p.7).

The most important examples for IB e-Business application programs are ERP, CRM, SRM, Knowledge Management, and Management Information Systems. Whereas an ERP System is considered to be the core of intra-organisational e-Business (Norris et al., 2000), CRM and SRM are clearly outward focused, however, they have an internal bases to built on and to refer to. These business applications
can be of different design, origin, separately run, and based on different databases. We then speak about fragmented IB e-Business (see item 6). However, the emerging concepts of IB solutions tend to increasingly integrate all possible kinds of technology, standards, functions, application programs, and shared databases (IBM, 2000).

**IB e-Business**

**IB e-Business** is a contingency approach on how to view, define, organise, and conduct business within a company,

- focused on customer needs and the optimal design and employment of
  - the functions and linkages within a company’s value chain and
  - the linkages in the respective value system,

  **WHAT?**

- to ENABLE the company to plan, execute, and record automatically or semi-automatically all possible kinds of *intra-organisational communication* and the corresponding flow of data,

  **HOW?**

- by coordinating and / or integrating the company’s goals and / or strategies and / or structures and / or processes within the own value chain [IB] and, if necessary, with its business and / or non-business partners [B2B, B2DE],
- by allowing the members of the organisation [IB] to access and, if necessary, to alter relevant information in the company’s digital value chain (e-Value Chain),
- through the use of application programs, real and virtual intra-organisational (Intranets), inter-organisational (Extranets) and open networks (e.g. Internet), which are
- based on commonly accepted standards, rules, process algorithms, and individual authorisations,

  **WHY?**

- **to reduce direct and indirect costs** [quantity] and / or
- **to increase customer value** [quality] and, thus,
- to maintain or improve the strategic options, the effectiveness and the efficiency of the company.

This is one of the major arguments to create a buy-side in-side sell-side direct environment classification of e-Business beyond the traditional understanding of
value chain functions and linkages. Cross-functional information flow, process oriented management approaches, and business applications programs are increasingly replacing the traditional focus on separate value chain functions usually applied in Old-Economy firms. The higher integrated the IB e-Business of a company is, the more synergies and possibilities for new sustainable competitive advantages accrue from them (IBM, 2000). We then speak about integrated IB e-Business (see item 6). Integrated IB e-Business is a precondition for integrated B2B e-Business.

5.4.4.1 IB e-Business - integrating the value chain

The concept of IB e-Business also stands for the constructive deconstruction, standardisation, and electronic reintegration and interlocking of organisational structures and business processes within an enterprise, transforming the traditional value chain into an e-Value Chain. This applies only to the e-Business Transformation Period of a company, an industry, or the global economy. When the transition period is over, the focus will no longer be on transforming traditional business models but on creating new ones.

With the Internet as the new medium for doing electronic business, the concept of the traditional value chain is challenged and needs to be revised and transformed. The challenge is to utilize the Internet to further optimise and integrate the already interwoven activities of the value chain. The strategy is to create a value-system oriented electronic business solution which integrates internal and external processes along the value chain. The main goal is to create a network of people, information, and business application programs where value is created for all parties - the company, channel partners, AND suppliers. The advantages of such a concept are obvious: an intensive customer and supplier relationship management [CRM, SRM], real time data exchange, effective business processes, and a strong network of all business partners.

Figure 5-13 shows a proposal of how to illustrate an e-Value Chain based on the generic value chain concept introduced by M.E. Porter (1985). Information, goods, and services flow in both directions laying the foundations for an interactive, order-driven, and customer-oriented business paradigm (Balijko Shah, 2000). The flow of
capital is part of the information chain as money has been digitised in the Internet age. It applies a modular business architecture networked by state-of-the-art Information & Communication Technology and is open to customers, suppliers and non-business partners across its e-Value System (Garkin, 2000). The e-Value Chain consists of fully integrated but flexible functional and / or cross-functional modules and is, in turn, a module of the e-Value System it belongs to. Modularisation in organisational, managerial, and technical terms is an imperative as speed, flexibility, and customer needs are ruling the day-to-day business in the e-Economy.
5.4.5 e-Business

The facts and figures presented so far result in the holistic definition of e-Business suggested in Figure 5-14.
**e-Business**

**e-Business** is a contingency approach on how to view, define, organise, and conduct business within a company [IB], between a company and its business and non-business partners [B2B, B2DE], and between a company and the consumer [B2C],

- focused on customer needs and the optimal design and employment of
  - the functions and linkages within a company’s value chain and
  - the linkages in the respective value system,

- to ENABLE the company to plan, execute, and record automatically or semi-automatically all possible kinds of intra-organisational, inter-organisational, and business-to-consumer communication and the corresponding flow of data,

- by coordinating and/or integrating the company’s goals and/or strategies and/or structures and/or processes within the own value chain [IB] and, if necessary, with its business and/or non-business partners [B2B, B2DE],

- by allowing business and non-business partners [B2B, B2DE], consumers [B2C], and members of the own organisation [IB] to access and, if necessary, to alter relevant information in the company’s digital value chain (e-Value Chain),

- through the use of application programs, real and virtual intra-organisational (Intranets), inter-organisational (Extranets) and open networks (e.g. Internet), which are

- based on commonly accepted standards, rules, process algorithms, and individual authorisations,

- to reduce direct and indirect costs [quantity] and/or
- to increase customer value [quality] and thus
- to maintain or improve the strategic options, the effectiveness and the efficiency of the company.

Figure 5-14: Definition of e-Business.

### 5.5 Internet & Co. – networks are taking over the business world

The commercialisation of the Internet and the widespread acceptance and adoption of Intranets and Extranets as business platforms during the 1990s have created the major foundation for the quantum leap in the evolution of e-Business in general and
B2B e-Business in particular. To understand the magnitude and complexity of e-Business it is necessary to discuss the nature and development of these networks. In this connection, Intranets and Extranets are particularly interesting as they are necessary for state-of-the-art B2B e-Business.

Höller et al. name six different points of view of how to define an Intranet, Extranet, and the Internet:

- technological aspects
- addressees
- organisational aspects,
- legal aspects
- task / conceptual objective
- degree of freedom to establish virtual groups and organisations (1999).

Although technology is the most commonly employed viewpoint, it does not deliver all the necessary insights for a full understanding of e-Business and its impacts; the other five are needed as well. Figure 5-16 shows a concise overview of the attributes which define the three different kinds of networks.
### 5.5.1 Intranet

A corporate Intranet manifests the strategic, managerial\(^{35}\), organisational\(^{36}\), and technical concepts\(^{37}\) of Intra-Business e-Business. It consist of all

- internal application network(s) (e.g. ERP, CRM, corporate portals),
- physical ICT infrastructure,
- information (temporally and permanently stored on it),
- explicit members of the organisation,
- explicit rules and standards determining the behaviour and collaboration of the members of the organisation, and
- explicit rules and standards for the collection, storage, procession, and transaction of information on the physical ICT infrastructure and internal application network(s).

The Intranet concept applied in this paper stands for a new generation of strategic, organisation, process, knowledge, and communication management and design centred around e-Business. Although it is the foundation for a corporate Extranet, it does not necessarily have to encompass all (functional) areas of a firm. The Intranet may be limited to certain functions or tasks, depending on the internal and external
situation (e.g. strategic positioning, market situation) of a company (Shaw, 2000, p.8). By using the same tools as the Internet uses, organisations can derive the same benefits on an internal scale as generated by their larger scale brethrens in public or semi-public cyberspace (Cunningham, 2001, p. 81).

![Diagram of Intranet and collaborative IB e-Business tools](image)

Figure 5-17: The Intranet and collaborative IB e-Business tools (drawn from Cunningham, 2001, p.149).

Intra-Business e-Business as the backbone of e-Business is performed on and through a firms corporate Intranet. The Intranet provides the fundamental e-Business infrastructure (cf. Turban et al., 2000, p. 242), not only in terms of technology but in terms of all six viewpoints named by Höller, et al.

The general idea is not to deliver the needed information at the right time to the right person but to collect relevant data, process it, and store it and to give authorised personnel the opportunity to access the data it needs 24 hours a day, 7 days a week, and 365 days a year. This is another example for the reversion of the traditional broadcasting and consumptionism approach to business. Not only the flow of information along the value system turns from inside-out to outside-in but also the flow of information within and along the positions and functional areas of a firms value chain.
An Intranet is an corporate intra-organisational network which is partly or totally based on Internet technology. Although Intranets are based on Internet technology (e.g. the TCP / IP protocol) only authorised members of the respective company are able to use it. It only contains information which is pertinent to the organisation and often proprietary and sensitive. What kind of information a member of the Intranet can access depends on his position and task within the firm. The addressees and the conceptual objective define an Intranets general nature. It encompasses in technical, organisational, and legal terms all Local Area Networks [LAN], Wide Area Networks [WAN], and teleworkers belonging to a company. Thus an Intranet, in technical and organisational terms, can be both, a real private network at a specific location, or a Virtual Private Network [VPN] distributed over many different locations across the globe regardless of physical distance. It integrates servers, clients, databases, up-to-date application programs like ERP, CRM, e-Logistics, e-Procurement, etc., and also legacy systems. (Kyas, 1997, p.45 ; Turban et al., 2000 ; Höller et al., 1999) This is designed to build up a distributed but homogenous source of information for internal operations (IB e-Business) and, moreover, a solid fundament for (semi-) automated external communication and collaboration with business partners (B2B e-Business) and non-business partners (B2DE e-Business).

At this point it is essential to be aware of the fact that B2B e-Business opens up traditional borders of an organisation in many different ways. This means as well that
application programs and services do not have to be proprietary to be part of an Intranet. An ERP or e-Procurement system, for instance, may be partly or completely outsourced to an Application Service Provider [ASP], nevertheless they are still constituting parts of a firms Intranet as it is still only dedicated to actual members of the respective organisation. The fact that the data carried by a corporate Intranet is proprietary and classified does not necessarily imply that the respective company has to physically posses all of the hardware and software the Intranet is based on. The company gets access to its data through the appropriate infrastructure (e.g. Internet clients) on its sites. This simple, open, and flexible connectivity is the major core competence of an Intranet.

A continuously growing trend to virtual organisations and the strategic focus on core competencies among traditional enterprises increases the significance and speed of development of such outsourced Intranet solutions. As early as April 1997, Forrester research reported that 64 percent of all Fortune 1,000 companies had a corporate Intranet and another 32 percent were building one (Maddox, April 1st 1997). Todays task is to rethink and reconfigure them to fit the needs of B2B e-Business to serve as a foundation for corporate Extranets.

Figure 5-19 shows the relationship between the electronic value chain [e-Value Chain] and the Intranet and the Extranet. The latter will be discussed in the following section.
Figure 5-19: The integrated e-Value Chain and e-Value System.
5.5.2 Extranet

A corporate Extranet manifests the strategic, managerial\textsuperscript{38}, organisational\textsuperscript{39}, and technical\textsuperscript{40} concepts of B2B e-Business. It stands for the next generation of the inter-organisational division of labour and collaboration between channel partners. The Extranet does not have to encompass all areas of a firm. It may be limited to certain functions or tasks, depending on the internal and external situation (e.g. strategic positioning, market situation) of a company (Shaw, 2000, p.8). B2B e-Business as the driving force of e-Business is performed on and through a firm’s corporate Extranet. The Extranet provides the fundamental infrastructure for state-of-the-art B2B e-Business, not only in terms of technology but in terms of all six above mentioned viewpoints named by Höller et al..

Figure 5-20: The Intranet and Extranet of a company in an e-Value System, e.g. automotive value system (drawn from Harvard Computing Group, Source: Cunningham, 2001, p.84).

In general, all facts about a corporate Intranet listed above also apply to a corporate Extranet as it could also be called extended Intranet. It provides secure connectivity between a corporation’s Intranet and the Intranets of its business partners. The Intranets of a company and its channel partners overlap whereas the intersection of the Intranets manifest the common Extranet of the collaborating business partners.
This common Extranet is, in turn, a section of the separate Extranets of each of them. As illustrated in Figure 5-20 the complete Extranet of a firm consists of all intersections with the extranets of business partners. This hypothesis can be proved by the fact that most companies collaborate with more than one business partner and is based on the condition that the common Extranet has the same

- interaction standards (technological, organisational and legal aspect)
- interacting employees (organisational aspect, addressees)
- goal - i.e. delivering / purchasing a certain good or service - (conceptual objective).

In technical and organisational terms two characterisations apply:

- An Extranet consists of all those clearly defined and secured areas of a firms corporate Intranet to which identified and authorised B2B channel partners (e.g. suppliers and customers) have access through the Internet or proprietary networks (e.g. EDI) (Cunningham, 2001).
- An Extranet consists of all those clearly defined and known channel partners which have authorised access to determined areas of a companies Intranet (Kyas, 1997, p.45 ; Turban et al., 2000 ; Höller et al., 1999).

One function of an Extranet might be as simple as allowing access to data on customer support or maintenance procedures or as complex as permitting access to an internal ERP system (Cunningham, 2001, p.7).

The generic conceptual goal of an Extranet is the external coordination, collaboration, and information sharing between the company and one or all of the following parties:

- channel partners (suppliers, distributors and dealers) (B2B),
- consumers (B2C),
- direct environment (B2DE).

Moreover, it helps to develop market intelligence and quality in unprecedented ways (Shaw et al., 2000). Since it enables direct real-time interaction between business
partners this type of network is a key issue in the reversion of the value chain as described in item 5.3 above.

5.5.3 Internet

The Internet as such plays the key role in B2C e-Business but it is not of major importance in B2B e-Business. It is used for setting up public virtual electronic storefronts, providing free information, basic customer service, and collecting various kinds of market data (Shaw, 2000, p. 8); on the other hand, Internet technology (e.g. TCP/IP protocol) has been the key factor in realising B2B e-Business as we know it today. A detailed discussion of the Internet is not possible within this paper due to limitations of time and resources.

5.5.4 Portals – Where you get it all in one

The different dimensions of e-Business in a firm may be based on many different applications or on a single integrated one. Usually, the first one is the case. The common tool to integrate the different business applications programs, legacy systems as well new ones is a corporate portal. Portals are virtual front ends, which may offer many facilities to customers (B2B sell-side), suppliers (B2B buy-side), employees (IB), and non-business partners (B2DE). The requested information can usually be accessed via a web browser. A corporate portal may integrate the applications of only one dimension or even of all four. Depending on the degree of integration and the members it may be an
- Intranet Portal,
- Extranet Portal,
- Internet Portal.

In the case of an Intranet portal (e.g. Air France) access is restricted to employees. An Extranet portal (e.g. Cisco systems) allows access to all authorised business and
on-business partners. An Internet portal as shown in Figure 5-21, (e.g. Yahoo) is open to all Internet users and may include many features such as

- **UMS** - the unified messaging system is an all-in-one solution that provides:
  - phone
  - fax
  - email,
  - voice mail
  - video conferencing
  - etc.

- **Feeds** are pull-type and push-type information units accessible for users:
  - schedules
  - e-Learning
  - company news
  - production, planning, and control data
  - electronic catalogues (private and public)
  - customer / supplier details
  - order tracking
  - etc.

- **Back-ends** describe application programs that can be used via the Portal. This may be a simple mail or office program or complex financial accounting systems like SAP R/3 or an automated storage and replenishment system.

- **Communities** are networks of potential and existing customers, suppliers, and employees designed to create additional value for the members to strengthen relationships, acquire detailed information about the members needs, and behaviour (e.g. data mining) and to improve the addressability of all parties involved. (Esprit Consulting, 2001)
5.6 e-Business vs. e-Commerce

e-Business, in addition to encompassing e-Commerce, includes both front- and back-office applications that form the engine for modern business. e-Business is not just about e-Commerce transactions; it is about redefining old business models (goals, strategies, structures, and processes) with the aid of technology, to maximise
customer value. e-Business is the overall strategy and e-commerce is an extremely important facet of e-Business (Kalakota & Robinson, 2000, p.4).

5.6.1 e-Commerce

e-Commerce is a subset of e-Business. It is the term to describe electronic transactions including EDI, bill payment, order processing, fulfilment, customer interaction, etc. B2C e-Commerce is about branding and impulse buying as customers want convenience. It is about customer relationships and automation of communication processes as firms want control and analysis. (OConnel, 2000, p.14)

Figure 5-22: e-Commerce vs. e-Business

5.6.2 e-Business

e-Business describes the technology-enabled business that has technology as well as business characteristics. From a technical perspective, the Intranets in these businesses are merging with their Extranets and standards and e-Commerce are the cornerstone of business systems and processes. From a business perspective, the principles of e-Business focus on seamless integration between the company and the
customer, between internal and outward-facing customer orientated systems, structures and strategies, and between the company and its suppliers and non-business partners. (OConnel, 2000, p.14)

5.7 11 assumptions for the e-Business Transformation

The following 11 assumptions for the e-Business Transformation summarise in a short and precise way major points of the discussion up to this point.

1. Internet based e-Business is initiating a quantum leap in economic evolution. It means the transition to the next generation of business based on an interaction paradigm which has been enabled by Information & Communication Technology. It is order driven and customer oriented.

2. Technology is no longer an afterthought in forming business strategies but a major driver.

3. The ability to streamline the goals, strategy, structure, and processes and to influence and control the flow of information is dramatically more powerful and cost-effective than moving and manufacturing physical products.

4. The e-Business Transformation of an Old-Economy firm calls for a conscious, thorough, and extensive internal analysis of the organisation and its direct environment (e.g. Value Chain Analysis, SWOT Analysis), clear and suitable e-Business objectives, a deliberate strategic concept, appropriate structures and processes, and change management at its best.

5. Inability to overthrow the existing, outdated business models often leads to failure in the e-Business Transformation and frequently to a failure of the whole business.
6. Intra-organisational (value chain) and inter-organisational (value system) standardisation and integration of existing goals, strategies, structures, and processes with e-Business objectives is leading the way into the e-Economy.

7. The goal of new business designs is to create flexible modular and reconfigurable business networks (communities) within and between companies that not only offload costs but increase customer value significantly.

8. e-Commerce is enabling companies to better respond to customer needs as it initiates a reversion of the value chain, the value system, and the corresponding flow of data.

9. The new technologies should not only be used to create the product. Rather, they are tools to innovate and enhance the entire experience surrounding the product and thus to increase customer value. - from marketing to customisation, sales, delivery, and customer service.

10. The tough task for management is to integrate existing goals, strategies, structures, and processes fast and accurately according to the internal and external situation of the firm and its e-Business objectives.

11. Strong leadership is imperative. e-Business is a top management issue by nature. The initiative, coordination, and control of the e-Business Transformation needs to be top-down but the necessary information has to be generated from bottom-up. And the whole organisation needs to be committed to the execution of the transformation process.

These 11 assumptions are drawn from the following sources: Kalakota & Robinson, 2000; IBM, 2000; Timmers, 1999; CHB 1, 2001; CHB2, 2001; CHB 3, 2001; Norris et al., 2000; Cunningham, 2001; Porter, 1998; Porter, 2001.

5.8 Global Policy Directives for e-Business
To secure equal opportunities for all companies participating in the e-Economy we need some fundamental principles as a foundation for the policies and strategies that govern global electronic business. Here are some suggestions from the association Information Technology of America [ITAA]. The following ten points should be kept in mind by politicians and those executives responsible for the e-Business Transformation Process in their companies:

1. “The development should be led primarily by the private sector in response to market forces.

2. Participation in electronic business should be pursued through an open and fair competitive market.

3. Government intervention, when required, should promote a stable legal environment, allow a fair allocation of scarce resources, and protect public interest. Such intervention should be no more than is essential and should be clear, transparent, objective, non-discriminatory, proportional, flexible, and technological neutral.

4. Mechanisms for private sector input and involvement in policy making should be widely used in all countries.

5. Electronic business is global by nature. Government policies that affect it should be internationally coordinated and compatible and should facilitate interoperability within an international, voluntary, and consensus-based environment for standard setting.

6. Transactions conducted using electronic medias should receive neutral tax treatment in comparison to transactions using non-electronic means. Taxation of electronic commerce should be consistent with established internationally accepted practices and administered in the least burdensome manner.

7. Regulation of the underlying telecommunications infrastructure, when necessary, should enable actors to compete, globally, in an open and fair...
market. As competition develops, regulation should be phased out and there should be a greater reliance on competition law.

8. The protection of users, in particular with regards to privacy, confidentiality, anonymity, and content control, should be pursued by policies driven by choice, individual empowerment, and industrial-led solutions. It will be in accordance with applicable laws.

9. Business should make available to consumers and, where appropriate, to business users the means to exercise choice with respect to privacy, confidentiality, content control and, under appropriate circumstance, anonymity.

10. A high level of trust in the Global Information Infrastructure – Global Information Society [GII-GIS] should be pursued by mutual agreement, education, further technological innovations to enhance security and reliability, adoption of adequate dispute resolution mechanisms, and private sector self regulation.” (OConnell, 2000, p.124)
6 From fragmented to integrated e-Business

The goal of this chapter is:

- to develop a concept on how to describe and research the development of e-Business in general and B2B e-Business in particular. On a microeconomic as well as on a macroeconomic level.

In today's e-Business environment standardisation and integration are leading the way as companies learn that

- new opportunities for business grow with the degree of technological, functional, structural, and strategic integration within a firm (value chain) and between business partners (value system) (Ackermann, 2000), and that
- they cannot leave legacy systems behind.

Technological, organisational, and managerial standards are the smallest common denominators necessary for the intra-organisational and inter-organisational integration of e-Business activities and infrastructure with existing goals, strategies, structures, and processes. However, the design and implementation of standards for B2B e-Business is among the most difficult tasks during the e-Business Transformation. The issue is not only to agree upon standards for e-Business between business units and functional areas of the own value chain, it is also, and more importantly, about standards for a whole industry or even across sectors. In most cases firms have not been able to choose their own standards as they are frequently determined by the ICT industry, industry leaders, or third party service providers. Today the trend shows an increasing cooperation between all parties to develop optimal common standards leaving political and competitive issues behind. Proprietary standards are counterproductive in times of networking and globalisation. Hence, standards are no longer considered as possible competitive advantages but as preconditions for a better future economic development.
In the B2B domain, intra-organisational and inter-organisational integration on all levels is today an imperative to meet the challenges of the emerging customer-centric and order-driven e-Economy. In the long run, this applies to all companies of an industry in the same way. However, today most firms do not have integrated systems and strategies that allow information to flow seamlessly (Kalakota & Robison, 2000). They need to develop them in the course of the e-Business Transformation Process. Since the introduction of e-Business based on EDI in the 1960s, the integration of application programs and the integration between business partners has been growing continuously. Technological innovation came about incrementally and in quantum leaps and the Internet initiated the biggest quantum leap in the e-Business integration process and paved the way for a networked & globalized Economy.

![The Roadmap To The e-Economy](image)

Figure 6-1: The roadmap to the e-Economy (drawn from Kalakota & Robinson, 2000, p.105)
6.1 The e-Business Integration Matrix

The e-Business Integration Matrix presented in Figure 6-4 shows all possible levels of integration - on the intra-organisational (IB e-Business) as well as on the inter-organisational dimension (B2B e-Business). The different stages run from fully fragmented to semi-integrated and fully integrated e-Business. Fragmented e-Business equals the semi-automation; integrated e-Business equals the automation of all kinds of business communication processes as described in item 5.1.

The evolution of e-Business along the two dimension is, in general, a continuous development. Only the transitions between the explicit stages of both dimensions represent quantum leaps in the e-Volution. This means that a firm performs incremental change within the different stages but has to apply disruptive change to reach the next level of integration as described in Figure 6-4. When an organisation transforms itself into an e-Company it can start with any category (1-3, A-B) which fits its future goals and its current internal and external situation.

The decision to which category a certain application belongs to, has to be taken from case to case. Certain standardised applications, such as CRM, ERP, B2B marketplaces or e-shops may belong to different categories due to their multifaceted nature.

This matrix is primarily focused on starting B2B e-Business from point zero or a very basic level, such as Internet connection, Email, and brochure ware websites. The e-Business integration Matrix is a microeconomic tool. It shall provide help for the necessary internal and external situation analysis of firm that starts e-Business or wants to develop an existing e-Business strategy. It describes the strategic options a firm has concerning e-Business in general and B2B e-Business in particular. However, it can also be used for B2C and B2DE. This version of the e-Business Integration Matrix represents a basic level of this approach which needs further development as it promises to deliver interesting findings and useful help for strategic decision before and during the e-Business Transformation Process and also for strategic management in a later stage of the e-Volution.
The matrix may be used in four different ways in order to determine the degree of internal and external integration of the

- super-ordinate goals,
- strategies,
- structures, and
- processes

of a firm concerning its e-Business activities. Taken together, these four steps of analysis render a complete picture of the internal and external situation of the firm and the relevant strategic options.

Furthers empirical research should be conducted to find out which approaches most companies in a certain sector or industry apply and which solutions promise to be the most successful ones in certain situations.

6.1.1 The intra-organisational dimension

The evolution from fragmented to integrated IB e-Business stands for the internal integration of the functional areas and linkages within a firm's value chain. The end of the road is a fully integrated e-Value Chain. This means an e-Business Model based on a seamless internal flow of digital information from order entry, operations to procurement of all kinds of supplies.

6.1.1.1 Fragmented IB e-Business

Fully fragmented IB e-Business means front-office e-Business applications (e.g. basic e-Shops, B2B Marketplaces, e-Auctions) and corresponding databases are isolated solutions. They are not integrated with back-office (e.g. ERP, order processing, stock keeping) or other front-office (e.g. CRM) applications or data bases.
6.1.1.2 Integrated IB e-Business

Integrated IB e-Business means the exact opposite. Front-office e-Business application (e.g. state of the art e-Shops [Amazon], B2B Marketplaces [Covisint]) and corresponding data bases are fully integrated with back-office business applications (e.g. ERP, order processing, automated stock keeping) of a firm.

6.1.2 The inter-organisational dimension

The evolution from fragmented to integrated B2B e-Business stands for the integration of a firms value chain with the value chains of customers and / or suppliers. The end of the road is an integrated e-Value System. This means an e-Business Model based on a seamless flow of digital information between collaborating companies through their ICT infrastructure, application programs, and data bases. This encompasses all possible electronic communication and transaction processes (sell-side and buy-side) between two or more firms, from sales over product design to procurement of all kinds of supplies.

6.1.2.1 Fragmented B2B e-Business

Fully fragmented B2B e-Business means that there is no electronic integration between the front-office (e.g. CRM) or back-office (e.g. ERP) applications of two or more business partners. Business is only conducted semi-automatically through online solutions on the Internet. (e.g. basic B2B Marketplaces, e-Shops and e-Auctions). There are significant breaks in the flow of information across the supply chain and the value chains involved. An order, for instance, has to be processed manually once placed on a Website; it is then received via email or other isolated web solutions.
6.1.2.2 Integrated B2B e-Business

Integrated B2B e-Business means that there is an electronic integration between the front-office applications of business partners. Business is conducted through peer-to-peer or network solutions based on secure Internet connections or proprietary networks such as VANs (e.g. Vendor Managed Inventory; Collaborative Planning, Forecasting and Replenishment; Collaborative design, R&D, e-Payment Systems, and third party B2B Marketplaces, etc). Examples are Marrakech, the European Network Exchange, VerticalNet, Covisint, etc.

Peer-to-peer solutions support applications of the following nature:

- partnerships between single market actors (mainly EDI or Web EDI),
- one supplier works with many customers (e.g. proprietary e-Commerce solutions),
- one customer works with many suppliers (e.g. proprietary e-Procurement solutions)

Network solutions support many-to-many solutions. Many suppliers interact with many customers and vice versa through the use of an electronic hub [e-Hub]. (e.g. Value System Service Provider, Value System Integrator, next generation B2B Marketplaces).

Furthermore, network solutions can be differentiated by the additional value they generate for customers and / or suppliers:

- supplier centric network: major focus is on additional value for the supplier, (win – neutral or win – lose situation),
- customer centric networks: major focus is on additional value for the customer (win – neutral or win – lose situation),
- neutral networks: Major focus is to generate value for both customer and supplier (WIN - WIN situation) (Garicano & Kaplan, 2000).
One of the major advantages of a network solution for both supplier and customer is the significant reduction of the contacts it needs to manage from \(n:m\) relationships to \(n:1:m\) relationship (Figure 6-2). (Nenninger & Lawrenz, 2001, p.17)

A firm that wants to implement a network solution has three possibilities.

- It can either transform its own business model or parts of it accordingly into an e-Hub, i.e. a proprietary buy-side and / or sell-side B2B Marketplace such as Wal-Mart or Dell Computer, or
- it can participate in a consortia-led exchange such as Covisint or ENX, or
- it can connect or integrate its own value chain directly or indirectly with the services of another e-Hub such as a Value System Service Provider (e.g. e-Logistics solutions offered by FedEx, or Danzas) or Value System Integrators (e.g. vertical or horizontal third party B2B Marketplace such MRO.com or Ventro). (cf. BrandEra, 2000)

Which way a firm goes depends first of all on the type of business but also on its future e-Business goals as well as on its internal and external situation.
The emergence of the Internet has initiated an explosive growth of public and proprietary B2B exchanges. According to different sources (Keenan Vision, Forrester, Gartner Group, etc.) at the beginning of the year 2001 more than 1,000 marketplaces were established, and several studies suggest that this number could grow approximately to 3500 to 5000 before fundamental consolidation takes hold, leaving about 2,000 exchanges by the end of 2003 (cf. BrandEra, 2000).

eMarketer believes that 34% of B2B e-commerce will be transacted through public third party or consortia-led exchanges by 2004, the rest through proprietary solutions. Estimates by other researchers range from 30.5% by the Yankee Group to 63.4% by Keenan Vision for the public sector (BrandEra, 2000).

<table>
<thead>
<tr>
<th>PRIMARY BUSINESS MODELS FOR ONLINE MARKETPLACES</th>
<th>DESCRIPTION</th>
<th>EXAMPLES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>THIRD PARTY (public) EXCHANGES</strong></td>
<td>The exchange is owned and operated by a neutral third party that is not considered to be a trading partner.</td>
<td>MRO.com, GlobalTrade, SciQuest, VerticalNet, TradeOut, DoveBid, RateXchange, Ventro, PaperExchange, Chemconnect, (Ariba, CommerceOne, Marrakech etc. are vendors selling standardised and / or customisable platforms for third party marketplaces)</td>
</tr>
<tr>
<td><strong>CONSORTIA-LED (public) EXCHANGES</strong></td>
<td>Exchange ownership is shared between consortia members (e.g. industry leaders) and one or more technology partners.</td>
<td>Covisint, ENX, GlobalNetXchange, WWRE, ForrestExpress, BuzzSaw, Transora, eXweb, e-Steel, MetalWeb,</td>
</tr>
<tr>
<td><strong>PROPRIETARY (private) EXCHANGES</strong></td>
<td>Exchange is owned and operated by one buyer invites potential suppliers to bid on the Request for Quotes [RFQ].</td>
<td>TexYard, Trading Process Network,</td>
</tr>
<tr>
<td><em>- Buyer Marketplace</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PROPRIETARY (private) EXCHANGES</strong></td>
<td>Exchange is owned and operated by one sellers, i.e. a manufacturer or dealer.</td>
<td>Wal Mart, Cisco, Dell, PrintNation,</td>
</tr>
<tr>
<td><em>- Seller Marketplace</em></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 6-3: The three primary business models for online exchanges (cf. eMarketer, Source: BrandEra, 2000).
The Transforming Power of Business-to-Business Electronic Business

Christoph Wenna

Figure 6-4: The e-Business Integration Matrix.

- **Integrated e-Business**
  - e-Business Technology:
    - A: Internet based only
    - B: EDI, Internet, and Internet technology based
    - C: Mainly Internet and Internet technology based
  - e-Business Solutions:
    - 1: Basic B2B solutions
    - 2: Advanced B2B solutions
    - 3: Cutting-edge and future B2B solutions

- **Semi-integrated e-Business**
  - e-Business Technology:
    - A: Internet based only
    - B: EDI, Internet, and Internet technology based
    - C: Mainly Internet and Internet technology based
  - e-Business Solutions:
    - 1: Basic B2B solutions
    - 2: Advanced B2B solutions
    - 3: Cutting-edge and future B2B solutions

- **Fragmented e-Business**
  - e-Business Technology:
    - A: Internet based only
    - B: EDI, Internet, and Internet technology based
    - C: Mainly Internet and Internet technology based
  - e-Business Solutions:
    - 1: Basic B2B solutions
    - 2: Advanced B2B solutions
    - 3: Cutting-edge and future B2B solutions

Historically, B2B e-Business started off with peer-to-peer solutions (column B) followed by network solutions (column C) both based on EFT and EDI applications. In the beginning, only banks and huge industrial corporations were connected on a one-to-one bases through proprietary solutions. These initial e-Business applications were very cost intensive and the main obstacles were problems with common standards and legacy systems. Later, smaller but highly innovative companies

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**Figure 6-5: Examples for the practical use of the e-Business Integration Matrix.**

6.2 The past
followed. Network solutions of EFT and EDI have rarely been implemented due to the same limitations which grow with each co-founder of a network, namely different interests, legacy systems and technical standards (Timmers, 1999).

Due to their application-to-application nature, front-office EDI applications usually have been integrated with a firm’s own back-office (line 2 and 3) as well as with the front-end of the business partner. Hence, EDI and EFT can be classified as both integrated IB e-Business and integrated B2B e-Business (mainly 2B and 2C, also 3B and 3C).

Today, EDI technology has become significantly cheaper, flexible, and much more functionally integrated due to the competition of the Internet. Moreover, latest developments brought hybrid solutions of EDI and Internet technology named Web-EDI. They are favoured by many EDI-experienced Old-Economy corporations because of higher security and better compatibility with legacy systems.

The advent of the public Internet in 1993 for the first time made, online solutions for B2B e-Business (1A, 2A, 3A) possible on the Internet. This has, of course, been revolutionary since the implementation of online solutions does not require any application-to-application integration between computer systems of business partners as EDI does. Examples for online solutions for B2B e-Business are basic version of e-Shops, e-Auctions, e-Marketplaces (proprietary and third party business models), and e-Procurement applications, the latter especially with regard to C-articles and MRO products.

In the beginning of Internet based B2B e-Business, online solutions were mainly run on isolated applications which had no integration with the back-office (1A) (e.g. ERP) (Norris et al., 2000). Order entries, for instance had to be printed out of the order processing system and to be re-inputted into the firm’s ERP system. e-Business was perceived as a technological wave that would flatten sooner or later. Therefore, it was left to the IT department to deal with it (Gloor, 2000). Today we know that e-Business is a top management issue by nature.
Many traditional firms implementing online B2B solutions base their efforts on e-Business strategies and structures distinct to their longstanding corporate strategy and organisational structure (OConnell, 2000). The reason is that they fear that the new way of conducting business and selling goods and services would cannibalise the old one causing the business to fail. However, executives do not want to miss out on the lofty promises of B2B e-Business hyped by the ICT industry but they often dont want to take the full risk of a thorough and fundamental e-Business Transformation of the firm either. For those Old-Economy companies e-Business is more an add-on to traditional business than a new way of business as a whole. The fact is that those visionary enterprises which decided to integrate the emerging technologies into their business model (goals, strategy, structure, and processes) and to embark on an overall e-Business Transformation Process in the beginning of B2B e-Business area, are now leading the crowd well ahead of their competitors (Shawn et al., 2000). This applies not only to online solutions but to most B2B e-Business Models.

Although every company connected to the Internet can reach an online solution (website, portal) – 24 hours a day 7 days a week 365 days a year - customer loyalty is still significantly lower than with integrated B2B solutions. The reasons are continuously decreasing entry barriers and the B2B boom during the late 1990s. Standardised software is relatively cheap compared to EDI and expectations have been high. Consequently, many firms lapsed into the B2B e-Business hype implementing some sort of fragmented B2B e-shop or B2B marketplace without any explicit e-Business strategy, not to speak about strategic integration. Because of many new entrants in an emerging but tight market, competition is always driven by the lowest price. In fragmented B2B e-Business the next competitor is always just a click away. Even customer loyalty programs, community building and open collaboration platforms leave a high risk of maverick buying.

Due to the fragmented nature of basic online solutions the expected results did not arrive in most cases. The best examples are B2B marketplaces or e-Shops which mushroomed from 1996 until 2001.
The general approach of initial B2B marketplaces was simply to put a traditional marketplace online, connecting suppliers and buyers

- of the same industry, i.e. a vertical marketplace (e.g. chemicals industry) or
- or across different industries, i.e. a horizontal marketplace, e.g. MRO market).

This way, many marketplaces were not able to generate significant cost savings and / or additional customer value which would have justified to keep business going on the long run (Nenninger & Lawrenz, 2001). Excepted are B2B Marketplaces run by Old-Economy firms which were financed by profitable units of the organisation. The same applies for e-Shops which were integrated into the overall strategies and / or structures and / or processes of a traditional firm.

However, advanced models and technologies are currently overcoming these obstacles and the Aberdeen Group estimates that within the next few years 70% of all B2B trading will take place through electronic marketplaces (2001).

### 6.3 The present and the future

Only advanced e-Business models for the B2B sector which are internally and externally integrated have overcome the flaws of the early days. On the one hand, they integrate some or all functional areas and business applications programs of an enterprise; on the other hand, they integrate business applications of different firms. Therefore, The buzzword is “Enterprise Application Integration [EAI]”, a process illustrated in Figure 6-6. It means integrating

- single task-orientated applications (e.g. order entry) into functional applications (e.g. sales), and / or
- functional applications (e.g. sales) into cross-functional applications clusters (e.g. CRM, SRM) (Kalakota & Robinson, 2000), and / or
- cross-functional front-office applications clusters (e.g. CRM, SRM) with cross-functional back-office applications clusters (e.g. ERP) into corporate cross-functional application networks.
Figure 6-6: Enterprise Application Integration (based on Kalakota & Robinson, 2000)
Figure 6-7 shows some examples of cross-functional back- and front-office applications clusters and of vendors selling them. The development and implementation of cross-functional application clusters has been under way for some years (Kalakota & Robinson, 2000).

<table>
<thead>
<tr>
<th>Cross-functional Business Application Clusters</th>
<th>Business Application Vendors</th>
<th>Web addresses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer Relationship Management</td>
<td>Amdocs</td>
<td><a href="http://www.amdocs.com">www.amdocs.com</a></td>
</tr>
<tr>
<td>Enterprise Resource Planning</td>
<td>SAP</td>
<td><a href="http://www.mysap.com">www.mysap.com</a></td>
</tr>
<tr>
<td>Supply Chain Management</td>
<td>I2 Technology</td>
<td><a href="http://www.i2.com">www.i2.com</a></td>
</tr>
<tr>
<td>Selling Chain Management</td>
<td>Trilogy</td>
<td><a href="http://www.trilogy.com">www.trilogy.com</a></td>
</tr>
<tr>
<td>Operating Resource Planning</td>
<td>Ariba</td>
<td><a href="http://www.ariba.com">www.ariba.com</a></td>
</tr>
<tr>
<td>Business Analytics</td>
<td>J.D. Edwards</td>
<td><a href="http://www.jdedwards.com">www.jdedwards.com</a></td>
</tr>
<tr>
<td>Knowledge Management</td>
<td>Siebel Systems</td>
<td><a href="http://www.siebel.com">www.siebel.com</a></td>
</tr>
<tr>
<td>Decision Support Systems</td>
<td>PeopleSoft</td>
<td><a href="http://www.peoplesoft.com">www.peoplesoft.com</a></td>
</tr>
<tr>
<td>Industry Solutions</td>
<td>Baan</td>
<td><a href="http://www.baan.com">www.baan.com</a></td>
</tr>
</tbody>
</table>

Figure 6-7: Examples of cross-functional applications clusters and vendors.

Figure 6-8 shows some examples of vendors selling business integration software and know-how necessary for

- the establishment of highly integrated cross-functional internal business applications networks unifying front-office and back-office application clusters such as CRM and ERP, and
- the integration of business applications of cooperating firms.
Building systems where front and back-office applications are tightly integrated provides real benefits for the company that makes the investment. Corporations like Cisco Systems have based their entire corporate strategy on such a tight level of integration. As a result, they have been able to generate continuous competitive advantages for themselves and their business partners. (Cunningham, 2001, p.149)

Enterprise Application Integration belongs to the domain of IB e-Business. It allows a fractionless and frictionless flow of information across the internal application network. On the long run, it creates a fully integrated e-Value Chain which is the backbone for integrated B2B e-Business and, ultimately, for an e-Value System.

The next step is inter-organisational application integration which constitutes the latest trend in e-Business application design. Integrating the own business application(s) with those of business partners through collaborative information sharing and planning, etc. as shown in Figure 5-19 enables firms to step beyond the internal focus on ERP which dominated during the 1990s. The coming years will be focused on the design and implementation of Network Resource Planning [NRP] solutions which concentrate on the effective and efficient allocation of resources between collaborating firms. This creates an e-Value System which is apt to gain and sustain considerable competitive advantages in terms of reduced direct and indirect

<table>
<thead>
<tr>
<th>e-Business Integration Software</th>
<th>Software Vendors</th>
<th>Web addresses</th>
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<tbody>
<tr>
<td>Business Integration Management System</td>
<td>CrossWorlds Software Inc.</td>
<td><a href="http://www.crossworlds.com">www.crossworlds.com</a></td>
</tr>
<tr>
<td>WebSphere Business Integrator 2.1</td>
<td>IBM</td>
<td><a href="http://www.ibm.com">www.ibm.com</a></td>
</tr>
<tr>
<td>Marcator Integration Broker 5.0</td>
<td>Mercator Software Inc.</td>
<td><a href="http://www.mercator.com">www.mercator.com</a></td>
</tr>
<tr>
<td>eBusiness Integration Suit 4.5</td>
<td>SeeBeyond Technologies Corporation</td>
<td><a href="http://www.seebeyond.com">www.seebeyond.com</a></td>
</tr>
<tr>
<td>Tipco Active Enterprise 4.0</td>
<td>Tipco Software Inc.</td>
<td><a href="http://www.tibco.com">www.tibco.com</a></td>
</tr>
<tr>
<td>BusinessWare 3.1x</td>
<td>Vitria Technology Inc.</td>
<td><a href="http://www.vitria.com">www.vitria.com</a></td>
</tr>
<tr>
<td>WebMethods Integration Plattform 4.5</td>
<td>webMethods Inc.</td>
<td><a href="http://www.webmethods.com">www.webmethods.com</a></td>
</tr>
</tbody>
</table>

Figure 6-8: Examples of e-Business integration software vendors (Business Advisor, 11 / 2001).
inventory, production and distribution costs, and increased customer value, via other, more fragmented value systems. (Norris et al., 2000; Kalakota & Robinson, 2000). Future solutions will not only focus on the integration of directly interacting companies but on optimising the creation of value across whole value systems. The grey boxes in Figure 6-6 represent current (2B, 2C), short-term (3B), and long-term (3C) developments in the e-Business Integration Process.

Figure 6-9: Fragmented and integrated e-Business Models (drawn from Timmers, 1999, p.41)

Figure 6-9 shows some examples of fragmented and integrated B2B e-Business Models as defined by Paul Timmers in his classic work on B2B e-Commerce (1999). The table was combined with the concept of the e-Business Integration Matrix developed above. The term value chain was replaced by value system due to the terminology applied in this paper. A general classification of e-Business Models is
difficult due to the different situations of firms, continuous evolution in this field, and the resulting lack of common definitions.

Two factors determine the degree of initial internal change necessary due to e-Business:

- the degree of innovation of the e-Business Model and
- the degree of integration between the existing business model and the initial e-Business Model, in terms of technology, function, structure, and strategy.

The higher both factors are, the more substantial and revolutionary is the initial change due to e-Business within a firm's value chain. Moreover, in the same way as the degree of change grows, opportunities and risks involved in the e-Business Transformation grow likewise.

Given this classification of e-Business models, one might raise the question what makes e-Business Models different to traditional business models. The following possible answer concludes this section.

In the course of the intra- and inter-enterprise integration process information continuously replaces inventory. The capabilities of e-Value Chain [IB e-Business] and e-Value System [B2B e-Business] application programs are rapidly growing to manage inventory that companies cannot see and do not own. Companies that are adept at managing information are less likely to carry costly inventory. Companies that do not understand this trend will be left in the dust as competition moves from a company vs. company model to a value system vs. value system (supply chain vs. supply chain) model. Companies that learn how to exploit the chain fusion trend will achieve considerable advantage over less-adept competitors. Moreover, the opportunities will be even greater in the years to come. (Kalakota & Robinson, 2000, p. 202)
7 B2B e-Business – a cornucopia of new opportunities

The goals of this chapter are:

- to categorise and discuss the emerging opportunities of e-Business.
- to present the emerging opportunities in the field of e-Procurement.

New technologies mean new opportunities for business and the more revolutionary the nature of a new technology is, the more opportunities accrue from it (Norris et al., 2000).

B2B and IB e-Business provide a myriad of new opportunities to automate or semi-automate the support activities as well as the primary activities of the value chain. Many are already in place, many more remain to be developed in the coming decade. Only few innovations in economic history have reached such a high level of innovative and transformational power so far. According to CommerceOne the cumulative costs of e-Business grow at a linear rate while cumulative benefits grow at an exponential rate (2001). This remarkable insight is illustrated in Figure 7-1.

One of the major advantages of e-Business is that it holds potential benefits for both the customer and the supplier. This potential Win-Win situation for customers and suppliers is one of the reasons for the rapid development of B2B e-Business. Moreover, it is a precondition for a sustainable e-Business Transformation of parts or all of an industries value systems. The new opportunities give the customer even more power. The market will move from a market-centric to a customer-centric paradigm focusing on individual needs but this time not necessarily at the expense of the supplier. (cf. Turban et al., 1999)
7.1 General opportunities

- The global, deregulated and interactive nature of the Internet, Information & Communication Technology and virtual markets,
- the explosion in the number of possible business partners and consumers,
- the relatively low costs involved in the implementation and maintenance of e-Business solutions compared to previous generations of ICT,
- massive cost-saving on the internal as well as on the external level directly or indirectly related to reduced transaction costs
- a seamless flow of general and customised information available 24 – 7 – 365 within seconds around the world,
- the possibility for order-driven and customer centric business strategies,
- rapid growth rates for many new business models, sectors and industries.

These are some general examples of potential benefits provided by e-Business. Specific benefits differ for each company. For some organisations cost savings might be as high as 95 percent as we will learn further down.
The most pragmatic way to describe the potential benefits growing out of e-Business in detail is again to categorise them into buy-side, inside, sell-side and direct environment opportunities. The reason is that all function of the value chain concerning one of these four dimensions are merging to cross-functional application clusters which are the basis for SRM, ERP and CRM.

<table>
<thead>
<tr>
<th>DIMENSIONS</th>
<th>e-BUSINESS</th>
<th>EXAMPLES</th>
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<tbody>
<tr>
<td>buy-side</td>
<td>B2B e-Business</td>
<td>e-Procurement</td>
</tr>
<tr>
<td>inside</td>
<td>IB e-Business</td>
<td>Knowledge Management</td>
</tr>
<tr>
<td>sell-side</td>
<td>B2B e-Business</td>
<td>e-Commerce</td>
</tr>
<tr>
<td></td>
<td>B2C e-Business</td>
<td></td>
</tr>
<tr>
<td>direct environnement</td>
<td>B2DE e-Business</td>
<td>electronic tax payment</td>
</tr>
</tbody>
</table>

Figure 7-2: The four generic dimensions of e-Business and examples.

Due to limitations of time and resources the detailed discussion of potential benefits of B2B e-Business is limited to e-Procurement. This field has already found widespread acceptance and generated remarkable bottom-line results which should catch every CXOs attention.

### 7.2 e-Procurement – B2B buy-side opportunities

As early as in fall 1999 a study by Deloitte Consulting ranked e-Procurement as the number five of the top e-Business strategy objectives. Moreover, four out of the five top objectives focused on procurement and the supply chain. The reasons are various, however, cost savings are again the most important factor. (Deloitte Consulting, 1999)

The combination of new procurement services based on internet technology, automating all or parts of the requisition to settlement process and the new strategic emphasis on the purchasing function has made e-Procurement a focus area of e-Business today as streamlining and improving existing purchasing processes hold the promise of significant and immediate cost savings.
10% savings in procurement costs have the same net effect on the operating profit as a 12% increase in sales or a 42% reduction in labour (Unisys, 2001).

**e-Procurement**

“The combined use of information and communications technology through electronic means to enhance external and internal purchasing and supply management processes. These tools and solutions deliver a range of options that will facilitate improved purchasing and supply management.” (CIPS, 2001)

Figure 7-3: Definition of e-Procurement (CIPS, 2000).

e-Procurement alters the dynamics of the purchasing function and supply management within a firm’s value chain by making it faster, more effective, and more efficient. It leads to greater emphasis on costs, prices, and knowledge management. Moreover, it facilitates strategic sourcing and purchasing on a global base. (CIPS, 2001)

Effective e-Procurement:

- automates the requisition, ordering and tracking process,
- manages electronic billing and settlement, and
- records and analyses information about procurement patterns of a company (Marrakech, 2001).

e-Procurement transaction can be processed over:

- online solutions, or
- peer-to-peer solutions, or
- network solutions

as described in item 6. They have the following characteristics:
<table>
<thead>
<tr>
<th>TYPE OF INTERACTION</th>
<th>EXAMPLES</th>
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<tbody>
<tr>
<td><strong>semi-automated communication</strong></td>
<td></td>
</tr>
<tr>
<td>human -to-human</td>
<td>customer -to- supplier employee</td>
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<td></td>
<td>supplier -to- customer employee</td>
</tr>
<tr>
<td>human -to-application</td>
<td>customer employee -to- supplier e-Commerce application</td>
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<tr>
<td>application -to-human</td>
<td>supplier e-Commerce application -to- customer employee</td>
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<td><strong>semi-automated communication</strong></td>
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<td>human -to-human</td>
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<td>supplier -to- customer employee</td>
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<td>human -to-application</td>
<td>customer employee -to- supplier e-Commerce application</td>
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<td>application -to-human</td>
<td>supplier e-Commerce application -to- customer employee</td>
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<tr>
<td><strong>automated communication</strong></td>
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<tr>
<td>application -to-application</td>
<td>customer e-Procurement application -to- supplier e-Commerce application</td>
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<tr>
<td><strong>semi-automated communication</strong></td>
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<td>human -to-human</td>
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<tr>
<td>human -to-application</td>
<td>customer employee -to- supplier e-Commerce application</td>
</tr>
<tr>
<td>application -to-application</td>
<td>supplier e-Commerce application -to- customer employee</td>
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<td></td>
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<tr>
<td><strong>automated communication</strong></td>
<td></td>
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<tr>
<td>application -to-application</td>
<td>customer e-Procurement application -to- supplier e-Commerce application</td>
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<tr>
<td><strong>Peer-to-Peer solution</strong></td>
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<td></td>
<td>EDI / Web-EDI</td>
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<td></td>
<td>+</td>
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<tr>
<td></td>
<td>ERP / CRM / SRM Systems</td>
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<tr>
<td></td>
<td>(e.g. online support, electronic catalogues, Vendor Managed Inventory)</td>
</tr>
<tr>
<td><strong>automated communication</strong></td>
<td></td>
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<tr>
<td>application -to-application</td>
<td>customer e-Procurement application -to- supplier e-Commerce application</td>
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<td></td>
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<tr>
<td><strong>Network Solution</strong></td>
<td></td>
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<tr>
<td></td>
<td>B2B Marketplaces</td>
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<td></td>
<td>for direct and indirect goods</td>
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<tr>
<td><strong>automated communication</strong></td>
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<tr>
<td>application -to-application</td>
<td>customer e-Procurement application -to- supplier e-Commerce application</td>
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Figure 7-4: Possibilities for automated or semi-automated business communication in e-Business.
An isolated online e-Procurement solution can only handle semi-automated human-to-application or application-to-human interaction as there is no electronic integration of business application programs between the customer and the supplier. Peer-to-peer solutions and network solutions allow both interaction between employees and application programs and automated communication between application programs.

7.2.1 Human-to-human interaction

Semi-automated human-to-human interaction refers to communication via email, voicemail, voice-over-IP, video-conferencing etc. This is one of the major points in bringing a firm's value chain online. The creation of a real virtual organisation and tele-working depends on the successful implementation and employment of efficient human-to-human communication through Information & Communication Technology.

7.2.2 Human-to-application interaction

An e-Procurement system gives authorised employees access to electronic catalogues of suppliers. The catalogue is either part of a supplier Website (online solution) or Extranet (peer-to-peer or network solution) or is shared with the supplier. Such a catalogue provides a customised view of the supplier's products and their pre-negotiated prices. An employee makes a selection and the request is either cleared automatically or sent to a manager for authorisation, depending on predetermined standards and rules. Upon authorisation, the requisition is logged and the order goes to the supplier. The customer can track the progress of the order from initial requisition to delivery.

7.2.3 Application-to-human interaction

Cutting edge CRM solution, for example, use application-to-person communication to standardise and automate frequent service or information requests and to
automatically respond to incoming email messages from customers. The goal is to increase responsiveness and quality of customer service.

7.2.4 Application-to-application interaction

The first possibility is an electronic automated replenishment system [EARS]. The electronic stock-keeping system of the customer automatically sends a request for delivery to the suppliers electronic CRM or ERP system. The second possibility is a Vendor Managed Inventory System, where the workload of running a Digital Processing System [DPS] is transferred to the supplier. One of the first examples in this field were Coca Cola and Carrefour mentioned earlier in this paper. In both cases, the whole order-to-delivery process is automated and based on pre-negotiated standards, rules, authorisations, and product prices. As long as no problems occur, no employees are involved. The Austrian company VA TECH ELIN EBG has implemented a state-of-the-art EARS as part of its overall e-Procurement strategy. Latest versions of EARS allow the customer to pay per actually used unit. Ford Motor Company has applied such a model in its automotive supplier park in Valencia, Spain. Advanced e-procurement systems also manage invoicing and payment and allow organisations to monitor the entire business transaction online. The system logs all transaction data, so that organisations have a complete picture of how resources are being used.

7.2.5 e-Procurement – Potential benefits for customers AND suppliers

Some benefits of e-Procurement are different for customers and suppliers, as both have different goals.

- Customers are seeking to purchase goods and services in an effective and efficient way (optimal cost – value ratio).
- Suppliers want to improve their performance by the volume of sales and/or by reducing costs while at the same time taking into account the internal and external situation of the firm.
However, e-Procurement has the potential to generate advantages for both the customer and the supplier. The opportunities e-Procurement provides for customers and suppliers equal the potential benefits of e-Commerce. There is no e-Procurement without e-Commerce as the two represent the buy-side of the customer and the sell-side of the supplier (Figure 5-22). Nevertheless, this section focuses on buying and not on selling goods and services.

7.2.5.1 The customer perspective

e-Procurement releases time to be spent on more value-adding aspects of purchasing such as the development of end users purchasing competencies and the development of suppliers. It is an opportunity to deploy functional competences in an optimal way. e-Procurement can enhance transactional purchasing by providing end users with quick and easy ways to use electronic systems, services, and networks such as electronic catalogues, e-Billing, e-Settlement, and B2B Marketplaces for selecting and purchasing their requirements from preferred suppliers. This should reduce transactional costs and improve speed and efficiency. Here are some remarkable examples.

- The average requisition-to-cheque lifecycle is shortened from 8.36 to 2.27 days (Marrakech, 2001), that is a reduction of as much as 73 percent.
- Moreover, e-Procurement decreases the costs of creating, processing, storing, and transferring paper based information by as much as 85 percent.
- The US Federal Government has average costs of 43 cents for issuing a paper cheque for benefit payments. The costs for electronic payment are 2 cents, i.e. a reduction of more than 95 percent. (Turban et al., 2000, p.15)

Automated procurement systems lead to a reduction of “maverick purchasing” i.e. purchases made outside a firms frame-contracts. e-Procurement systems enable customers to channel the majority of purchases to approved or preferred suppliers. Goods and services acquired from existing suppliers are typically 5% to 10% cheaper than those acquired off-contract. (Marrakech, 2001)
e-Procurement has the potential to facilitate communication between purchasers, their customers, suppliers, and employees on a one-to-one basis or in business networks and communities. It should enable organisations to leverage their relationships with suppliers with positive results for their bottom lines. Furthermore, it encourages the suppliers to become more efficient and more focused on fulfilling customer requirements.

e-Procurement also provides added value to the procurement function. It has the potential to improve the procurement strategy as it, for instance:

- generates accurate and detailed management information which enables e.g. strategic insights into the firms buying patterns,
- enables improved strategic sourcing, supply chain management, scheduling, supplier performances, reduced inventories, and transaction costs and significant time savings.

The most significant benefits which have already been realised through e-Procurement are improved management information, reduced cycle times, and reduced transaction costs (Marrakech, 2001).

According to the Aberdeen Group (2001), e-Procurement has the potential to reduce order-processing costs by as much as 70 percent. Companies surveyed by Aberdeen spend an average of $31.50 processing an order through an automated procurement system compared with $114 for an order that was processed manually. Morgan Stanley Dean Witter (2000) estimates that the cost of processing a purchase order ranges from $125 to $175 and that e-Procurement can cut this cost to $10-$15 per order (minus 88 to 95 percent). The US National Association of Purchasing Management calculated that the average costs associated with processing a purchase order in a traditional way is $150 and that this can be reduced to $30 (minus 80 percent) using an appropriate e-Procurement solution, i.e. a company that generates 10,000 purchase orders per year can expect to save $1.2 million in purchasing process costs only (Unisys, 2001). Cisco Systems, a leading e-Business application vendor, managed to reduce its average costs per order from 130$ to 40$ (minus 70 percent) (Dolmetsch, 2000).
The following collection of benefits for the customer and the resulting advantages or disadvantages for the supplier is based on the qualitative interviews and the following sources: Turban et al., 2000; Timmers, 1999; Roland Berger, 2000; Kalakota & Robinson, 2000; Norris et al., 2000; Evans & Wurster, 2000; OConnell, 2000; Cunningham, 2001; Nenninger & Lawrenz, 2001; CHB 1, 2001; CHB 2, 2001; CHB 3, 2001.

### POTENTIAL BENEFITS OF e-PROCUREMENT FOR THE CUSTOMER

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Supplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dramatically reduced average fixed costs (transaction costs) for a single order compared to paper-based procurement.</td>
<td>WIN</td>
</tr>
<tr>
<td>Dramatically reduced average requisition-to-cheque lifecycle.</td>
<td>WIN</td>
</tr>
<tr>
<td>Firms can reach suppliers on a global base at minimum or even no marginal cost</td>
<td>LOSE / WIN</td>
</tr>
<tr>
<td>Reduction or elimination of expensive buying centres and systems</td>
<td></td>
</tr>
<tr>
<td>Improved supplier performance through shared real-time information</td>
<td>WIN</td>
</tr>
<tr>
<td>An enterprise-wide view of procurement transactions within the organisation, resulting e.g. in bulk orders, improved leverage on price and reduced average costs / order.</td>
<td>LOSE / WIN</td>
</tr>
<tr>
<td>e-Billing and e-Settlement significantly reduces costs of capital transfer while accelerating it at the same time.</td>
<td>WIN</td>
</tr>
<tr>
<td>Reduced inventory due to shared information</td>
<td>WIN / LOSE</td>
</tr>
<tr>
<td>Reduction in human errors in the operational procurement process (supplier &amp; customer)</td>
<td>WIN</td>
</tr>
<tr>
<td>Reduction internal approval times</td>
<td></td>
</tr>
<tr>
<td>Reduction of media breaks – e.g. time savings through one time inputting an order</td>
<td>WIN</td>
</tr>
<tr>
<td>Elimination of maverick buying (5%-10% savings in total purchasing costs)</td>
<td>WIN</td>
</tr>
<tr>
<td>Improved market information resulting in reduced purchase prices.</td>
<td>LOSE</td>
</tr>
<tr>
<td>Reduced cycle times (e.g. the re-engineering of end-to-end trading cycles)</td>
<td>WIN</td>
</tr>
<tr>
<td>Reduced delivery times (supplier side, carrier)</td>
<td>WIN</td>
</tr>
<tr>
<td>Benefit</td>
<td>Outcome</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>Reduced capital lock-up due to faster order-to-settlement cycle</td>
<td>WIN</td>
</tr>
<tr>
<td><strong>Qualitative Benefits</strong></td>
<td></td>
</tr>
<tr>
<td>Improved management information</td>
<td>WIN</td>
</tr>
<tr>
<td>Increased employee satisfaction through a reduction of administrative tasks and waste time.</td>
<td>WIN</td>
</tr>
<tr>
<td>Content management e.g. electronic catalogues (public and private), inventory management, maintenance management</td>
<td>WIN</td>
</tr>
<tr>
<td>Improved internal processes (e.g. Business Process Reengineering)</td>
<td></td>
</tr>
<tr>
<td>Centralisation and standardisation of the internal procurement process (direct and indirect goods)</td>
<td>WIN</td>
</tr>
<tr>
<td>Self-service for employees based on decentralisation with centralised control, Empowering purchasing personnel, enabling them to be customers not clerks.</td>
<td>WIN</td>
</tr>
<tr>
<td>Improved supply chain management</td>
<td>WIN</td>
</tr>
<tr>
<td>More time for strategic issues of procurement due to less operational duties</td>
<td>WIN</td>
</tr>
<tr>
<td>Improvement in just-in-time deliveries</td>
<td>WIN</td>
</tr>
<tr>
<td>Faster, more accurate transaction processing</td>
<td>WIN</td>
</tr>
<tr>
<td>Improved order tracking</td>
<td>WIN / LOSE</td>
</tr>
<tr>
<td>Vendor Managed Inventory Systems</td>
<td>WIN / LOSE</td>
</tr>
<tr>
<td>Improved customer service</td>
<td>WIN / LOSE</td>
</tr>
<tr>
<td>All kinds of outsourcing to third parties such as Value System Service Providers, Value System Integrators, e-Hubs, B2B Marketplaces, and ASPs.</td>
<td>WIN / LOSE</td>
</tr>
<tr>
<td>New functionality such as e-Auctions and e-Request for Quotations [e-RFQ]</td>
<td></td>
</tr>
<tr>
<td>Strategic Sourcing e.g. identifying new sources via the Internet; use of intelligent search engines &amp; buying bots</td>
<td>LOSE</td>
</tr>
</tbody>
</table>

Figure 7-5: Potential benefits of e-Procurement, for suppliers and suppliers.
7.2.5.2 The supplier perspective

Suppliers have the opportunity to increase revenues from existing customers through demand aggregation and lower sales, marketing and operation costs. Suppliers that mainly ship in bulk can concentrate on producing quality goods and services. Moreover, if buying is made more convenient and up-to-date and product information is more readily available, customers tend to purchase more often. This means increased contract compliance. (CIPS, 2001)

According to Morgan Stanley Dean Witter (2000) up to 40 percent of all orders have to be reworked because of errors, incompleteness or mishandling. However, orders configured online should contain far fewer errors which results in lower prime costs of suppliers.

Furthermore, e-Procurement systems offer the supplier enhanced opportunities for data-mining and marketing. Suppliers can build rich customer databases that allow them to innovate and customize their offerings.

Online ordering means faster service and more rapid problem solution and results in reductions in off-contract spending and better capture of a customers total requisitions. Enhanced transaction visibility means access to customer delivery logs. Suppliers can view delivery errors or problems and reduce the return rate what leads again to lower costs and enhanced customer service and customer value. The elimination of paper-based catalogues and improved inventory and demand chain management translates in a significant reduction of operating costs. (Turban et al., 2000)

7.2.6 e-Procurement solutions

Various technical solutions offer the possibility to leverage the opportunities provided by electronic procurement. EDI and ERP built the first stage of e-Procurement. EDI, allowed companies to conduct business by exchanging electronic documents over
proprietary Value Added Networks [VAN]. Purchasing agents were able to transmit orders directly to suppliers over electronic peer-to-peer solutions. ERP provided procurement applications that allowed large enterprises to install corporate-wide purchasing support. These client-server solutions often included support for catalogues of commonly ordered products from key suppliers and allowed the enterprise a better control over purchasing. In the 1990s, companies began to use the Internet for procurement purposes. The main goal was to display product information for customers and partners via digital brochure-ware. Initially, the information provided was static. Consequently traditional methods of conducting business, as ordering via phone and fax, still dominated. Later, companies developed applications to allow orders and payments to be dealt with online. (Turban et al, 2000)

During the late 1990s a new breed of software vendors started to develop network solutions which provide access to B2B Marketplaces or trading hubs that facilitate e-Procurement. Such application-based client-server solutions offer the possibility of integrating customers with industry supply chains and demand chains. They help to reduce the costs of key production materials and to eliminate fat in the value chain and the value system. The introduction of application-based client server solutions enabled e-Procurement with broad numbers of suppliers. (Dolmetsch, 2000)

However, application-based peer-to-peer e-Procurement solutions still prove difficult and costly to implement. Buying and installing an application-based e-Procurement solution represents only a small fraction of the total expense. In some cases, for every $1 spent on software $4 are spent on integrating it into daily business. To be able to get an e-Procurement application up and running, firms need to develop expertise in areas that are not core to its operations. Development and maintenance of supplier catalogue content is an area where frequently difficulties emerge. Moreover, most application based e-Procurement solutions concentrate on purchasing and neglect an important part of the procurement process, i.e. billing and settlement. (Dolmetsch, 2000; Marrakech, 2000)
Summarising the forgone discussion, software-driven e-Procurement solution can mean:

- significant disruption to the core business during lengthy implementation and integration periods,
- expensive services of ICT and management consultancies,
- expensive customisation and modifications to software packages,
- restricted supplier list,
- lack of scalability,
- infrastructure incompatibility due to rigid architecture,
- often missing or inadequate billing and settlement system.

(Marrakech, 2000)

These problems have been addressed by online e-Procurement solutions as provided by Value System Service Providers (e.g. e-Logistics by FedEx), Value System Integrators (e.g. B2B platforms by Marrakech, Ariba or CommerceOne), and B2B Marketplaces (e.g. Covisint, VerticalNet.com, MRO.com). Latest models of B2B Marketplaces often belong to the zones 3B and 3C of the e-Business Integration Matrix.

However, e-Procurement solutions we have seen in the past few years tried to reduce the purchasing process to price negotiations. But the low transaction volumes on most of these exchanges prove that the relationship between customers and suppliers is not just about price. Also, in most existing marketplaces neutrality between customers and suppliers is not achieved. Suppliers are often concerned that the goal of e-Procurement was simply to squeeze them on price. However, transactions require both customers and suppliers.

To realise the full potential of e-Procurement it requires the following:

- barriers must be low in terms of costs and of disruptions to day-to-day business,
- a move toward neutral e-Procurement models which integrate everything from requisition to payment into a single environment offering benefits for customers and suppliers alike,
• a move away from closed systems to systems where the network is at the heart of the solution and where that network is fully open, totally scalable and secure.

The automation of the procurement relationship between customers and suppliers only succeeds if all the factors that make up a relationship are taken care of. Above all, any e-Procurement solution should define its role as a facilitator, smoothing the path between companies. (Marrakech, 2000)

7.3 The network effect

The “Power of the Network” has been formulated by Bob Metcalfe, the inventor of the networking standard called Ethernet. He was the first person to notice that the value of a network increases by the square of number of people or things connected to the network. In other words, as the number of connections in a network increases in a linear fashion, the value of the network of its members increases on an exponential basis (Sculley et al., 1999).

Thus the opportunities growing out of e-Business increase in the same way with the degree of internal and external networking and integration as shown in Figure 7-6. The introduction of

• basic Internet features, or
• an Intranet, or
• an Extranet

represent each a quantum leap in the number of opportunities available due to e-Business.
Figure 7-6: New technologies – new opportunities (based on Ackerman, 2000 & CommerceOne, 2001)
8 A Framework for e-Business Transformation

The goals of this chapter are:

- to present a concept on how to enter the e-Economy through one of 4 path.
- to describe and discuss on a general strategic level, how B2B e-Business shapes and transforms the goals, strategies, structures and process of a traditional firm.
- to develop the e-Business Transformation Continuum.

8.1 Four ways to enter the e-Economy

The new opportunities of B2B e-Business the driving forces of the e-Business Transformation comprise the innovative and transforming power to change a traditional firm on every level and point of its value chain (Porter, 1998; Timmers, 1999; Kalakota & Robinson, 2000).

In the course of the research for this paper four major categories of change within the e-Business Transformation Process were identified:

- business processes
- organisational structure
- corporate competitive strategy
- super-ordinate corporate goals

Super-ordinate corporate goals is a collective term encompassing visions, missions and objectives as defined by Jay B. Barney (2001). These four categories lead to four consecutive paths (Figure 8-1). A firm can follow any of these four path to enter the e-Economy:

- path 1: new processes
- path 2: new structure + new processes
- path 3: new strategy + new structure + new processes
- path 4: new goals + new strategy + new structure + new processes.
Which one of the four paths a firm embarks on depends on the following factors:

- the internal and external situation of the firm and the markets it serves,
- the degree to which the firm is aware of the ongoing changes and able to respond, and
- whether the firm embarks on a proactive, active, or reactive e-Business strategy:
  - **proactive e-Business strategy**: leading the way into e-Business
  - **active e-Business strategy**: participating in the creation of an e-Value System
  - **reactive e-Business strategy**: applying to an e-Value System others have created.
This categorisation of e-Business change is based on:

- Waterman et al. (1991): 7-S Framework
- Barney (1996, 2001): strategic management,
- Chandler (1962): structure follows strategy, and

Due to common habit and equal definition in this paper the word systems has been replaced by the term (business) processes.

![Figure 8-2: The 7-S Framework (Waterman et. al., 1991).](image)

According to Waterman et al. each change in one of the 7-S regardless of its magnitude may have direct and indirect impacts on many or sometimes all parts of the value chain (1991). Hence, an adoption of a firms processes could alter the structure, the strategies or even the super-ordinate goals over time. However this is a follow-up effect and has only an indirect influence on the e-Business Transformation Process as the executives in charge have to consider this reciprocity when formulating the initial e-Business strategy.
The degree of reciprocity between the 7-S depends, mainly,

- on the level of internal strategic integration between the goals, strategies, structures and processes a firm has applied, and
- on the level of external strategic integration of its own goals, strategies, structures, and processes with the ones of customers and suppliers.

For a detailed discussion of strategic integration in B2B e-Business see item 9.5.

The four paths have been chosen due to the arguments above and also due to the facts that

- they are purely and directly driven by technology and the opportunities accruing from it, and
- they represent the so-called hard facts of a firm and can be consciously, actively and directly influenced and altered in the course of the e-Business Transformation Process.

The issue of soft facts (skills, style and staff) and organisational culture is also of major importance in this context. However it is not as controllable as the four chosen generic categories. Even in these times of ultimate control, the human factor remains a broad uncertain land with many white spots. Due to these reasons, the soft facts will not be discussed in detail within the scope of this paper. This would exceed by far its scope. Nevertheless, executives in charge of the e-Business Transformation Process must consider the culture issue to an appropriate degree.

Any of the paths listed below also applies to the assumptions made under the preceding items.

### 8.1.1 Path 1: New processes

A business process is a collection of activities that takes one or more kinds of input and creates an output of value to a customer (Turban et al., 2000).
New processes are the minimum level of change in the e-Business Transformation regardless of the way and quality of the applied e-Business strategy. New processes refers to the reproduction of the traditional value chain on digital media. This way it is possible to manage information needed for a business process more effectively and efficiently (Logistics, Sales etc.) In this context it does not make any difference whether a firm deliberately plans to change its processes for e-Business purposes or not. As soon as it performs any kind of e-Business its processes will be changed. Even the implementation of an electronic mail system implicates a change of business processes, internally as well as externally. The same change happened after the introduction of the phone or fax.

Yet, the better planned and implemented the change in business processes is, the more opportunities for new sustainable competitive advantages emerge. It is easy to buy the same application programs and get them up and running but It is difficult for a competitor to copy a well developed and flawless executed set of business processes typical to a firm. This effect is even stronger, the better integrated and optimised the new e-Business Processes are within the own e-Value Chain and across suppliers and customers (Linthicum, 2001). Essentially, e-Business Partners have to agree upon ways and standards of how to conduct business on and through the Internet. The bigger the smallest common denominator is, the higher is the degree of e-Business Process Integration and the more competitive advantages emerge. Moreover, with each e-Business Partner who joins an e-Value System the benefits for each member grow exponentially. This applies to proprietary B2B networks as well as to third party marketplaces and e-Value System Service Providers.

Many companies have undergone Business Process Reengineering [BPR] and implemented ERP systems during the 1990s. These companies are either already well positioned for e-Business or have gained an array of valuable experience for the e-Business Transformation. When a firm applies its processes for e-Business it is again necessary to identify and describe them in the first place. This can be accompanied by a general SWOT analysis which serves well as a basis for new strategies and / or structures. The next step is to rethink, refine, and redesign the
processes based on ICT to achieve significant, sustainable improvements in measures of performance such as quality, cost, speed, and services (Norris et al., 2000). As electronic business is by nature not a one firm show, all parties benefit if a company experienced in the field of BPR and / or ERP systems and / or e-Business shares its knowledge and resources with key suppliers and customers with which it wants to set up an e-Value System. This is increasingly the case in the auto industry where OEMs and first tier suppliers spread their knowledge and experience on e-Business down the automotive value system. However, most automotive suppliers only dispose of a small range of the new possibilities of e-Business as they normally just react to the pressure of OEMs and first tier suppliers.

8.1.2 Path 2: New structure + new processes

The structure of an organisation is a system of applicable rules for the control and coordination of the performance and behaviour of the members of the organisation. However, it has to be considered that different members of the organisation interpret the rules in different ways. Consequently it is important to mention from which perspective a certain interpretation was made. A change in organisational structure goes hand in hand with a change in business processes. (Kieser & Kubicek, 1992)

The fact that a company only changes its processes in the course of the e-Business Transformation has mainly two reasons: either its business model is already more or less e-Fit or it embarks on a basic and / or non-strategic e-Business approach. The latter is usually standard. Only few companies have developed the necessary information-centric business models to deal with organisational change and innovation. Due to this reason, in most real-life cases the following equation applies:

- e-Business = structural transformation.

As mentioned before under item 5.7 e-Business enables us to streamline the organisational structure and to influence and control the flow of information. This is
dramatically more powerful and cost-effective than moving and manufacturing physical products. This fact is the key driver of structural transformation.

In this context structural transformation means two things. First of all, it refers to the adoption of the existing organisational structure of an Old-Economy firm to the new circumstances in the e-Economy. This is a conscious evolutionary process. Most Companies try to copy successful e-Business Structures of competitors or partners in their own or related industries. Those are more active or reactive strategies which are meant to minimise risk. Few firms are more proactive and risk-taking and try to create, implement, and promote new ideas. One thing all these approaches have in common is that they are all subject to the principle of trial and error. All competitors need to find out which structure fits best to their internal situation and their direct environment. This frequently involves failure of e-Business Transformation projects or sometimes even of the firm. However, there is one principle inherent which helps to minimise the risk: collaboration. The better the collaboration with key e-Business Partners, the lower the risk of failure. The second meaning of structural transformation refers to the quality and direction of change necessary for e-Business. In general terms, companies need to apply organisational e-Business Structures which are apt to continuous or remedial incremental change. This means they have to be ready for continuous structural transformation. Organisations have to reach a state of constant flux allowing them to adopt their structures and processes in an appropriate and optimal way to the frequently changing requirements in a customer-centric hyper-competitive global marketplace. The initiative and coordination therefore should follow a top-down approach, whereas the actual design has to consider the input of all relevant personnel as well as the ideas and needs of key customers and suppliers in an appropriate way. To avoid that an informal, inappropriate, and uncontrollable organisational structure emerges due to e-Business, the senior management has to consciously develop and implement a formal e-Business structure. If a company does not have or develop the appropriate structure to accommodate the accelerated and intensified flow of information, it will find itself in a vicious circle, working harder and harder just to stay afloat. Such companies usually wait for a silver bullet to solve their problems. However, it never
comes unless they view the problem from the appropriate perspective: the structural one. (Kalakota & Robinson, 2000).

8.1.3 Path 3: New strategy + new structure + new processes

Strategies are means through which firms accomplish a mission and objectives (Barney, 1996, p13). They are a pattern of resource allocation that enables firms to maintain or enable their performance. A good strategy is a strategy that neutralises threats and exploits opportunities while capitalising on strengths and avoiding or fixing weaknesses. Strategic management is the process through which strategies are chosen and implemented.” (Barney, 1996, p. 27)

A change in corporate competitive strategy consequently goes hand in hand with a change in organisational structure (Chandler, 1962). This assumption established by Michel Chandler in 1962 has often been discussed and negated but it seems again to be true in times of e-Business, at least to a certain extent. Chandlers concept applies best for Greenfield projects and reengineering approaches. In real life, on a day-to-day basis, structure is often more important than strategy. Moreover, it has shown that the impact of strategy on the structure of an organisation is not a one-way street. The existing structure of a firm can very well influence its corporate strategy and strategic management as the costs and difficulties to overcome structural barriers to strategic change are often too high to overcome. In general and for basic fragmented e-Business approaches this might be true too. However, the more fundamental the changes and the higher the integration of the initial e-Business strategy, the more importance gains Chandlers assumption as it is in fact necessary to apply a conscious reengineering approach to implement an integrated e-Business model in a traditional firm.

Classic models, such as the SWOT analysis:

- strength,
- weaknesses,
- opportunities and
threats,

Porters three generic strategies:

- differentiation strategy
- overall cost leadership strategy
- focus strategy (Timmers, 1999)

or Ansoffs product-market-matrix:

- market penetration strategy
- market development strategy
- product development strategy
- diversification strategy (Meffert, 1986)

are still most appropriate tools for strategic management, also in the e-Business era. The Internet has not rendered them obsolete. Nevertheless, in B2B e-Business longstanding strategies and industry rules are indeed wiped away, reinforced, or changed, whereas

- collaboration / partnering,
- core competence / outsourcing,
- internationalisation / globalisation and
- customer-centred / built-to-order

strategies are breaking the wave. To use the full range of the new e-Business opportunities in the course of the initial e-Business Transformation Process it is essential to develop and implement a deliberate strategy and avoid an emerging one (cf. Timmers, 1999).

The tasks related to the e-Business Transformation Process are similar to those involved in the implementation of an ERP system or in M&A management (cf. Norris et al., 2000). Senior executives in charge of e-Business Strategies find valuable support if they refer to the experiences and tools coming from these fields.

Traditional ROI calculations often do not fit to the new circumstances. Such methods can be based on the total costs of ownership for becoming a e-Company but it is very difficult to calculate the total return of investment. In the context of e-Business, managers better do not ask what profit the investment in e-Business generates but what it means not to invest at all. (Timmers, 1999) e-Business is not a management
trend or application a company can simply decide to invest in or not. e-Business represents the road toward a new paradigm of business and most companies need to enter this road sooner or later in one way or another. However, many organisations need to understand that they have already entered e-Business without conscious intention. The strategic focus makes the difference.

8.1.4 Path 4: New goals + new strategy + new structure + new processes

Superordinate corporate goals encompass the fundamental ideas as well as specific measurable key objectives around which a company is built. They are the notions of future directions and parameters that the top management wants to infuse throughout the organisation (Waterman et. al., 1980).

B2B e-Business provides an Old-Economy firm in the B2B domain with the possibility to reassess and refine its superordinate goals and to fundamentally redesign its business mission and business model as a whole (Kalakota & Robinson, 2000). This represents the most fundamental change in the nature of a company that undergoes an e-Business Transformation Process. e-Business can be the approach that enables a firm to set and reach the goals it always wanted to follow.

8.2 Adaptation vs. disruption

Adaptation and disruption are the two dimensions of the e-Business transformation process in terms of change management. Using the word new to classify the changes should not imply that processes, for instance, will be totally changed. The assumption is that we talk about new processes as soon as a part of an old process is changed to some extent or one process out of the collection of all processes of a firm is replaced by a new one. It is not an all-or-nothing approach. Change can happen incrementally or in an quantum leap; thus, e-Business transformation can either mean
• the adaptation of the existing business model to the new conditions and opportunities or
• the disruption (from gradual to total) of the existing superordinate goals and consequently of strategies, structures, and business processes.

Consequently, path 1 and 2 are of an adaptive nature while path 4 is of a disruptive nature. Path 3 may be both, adaptive or disruptive, depending on the degree of change in a firms strategy due to e-Business and the level of current strategic integration as defined by Porter. It is important to determine whether a company follows an adaptive or disruptive approach as each one calls for a different set of actions and a different type of (change) management. Two classic models are most suitable to explain this proposition:

• Porters generic strategies, and
• Ansoffs Product-Market-Matrix.

The research for this paper has lead to the formulation of the assumptions presented in item 8.2.1 and item 8.2.2. Further empirical research based on these hypotheses would improve the understanding of the e-Business in general and of the resulting transformation process in particular. Moreover, it would provide useful insights for practice.

8.2.1 Porters generic strategies

A firm entering e-Business applies an adaptive approach as it keeps its current strategy or changes its strategy from an industry-wide target to a particular industry segment or vice versa. A disruptive approach is applied, however, when a firm shifts from a Differentiation Strategy or Differentiation Focus Strategy to an Overall Cost Leadership Strategy or Cost Leadership Focus Strategy or vice versa in the course of the e-Business Transformation (Figure 8-3).
Altogether, there are 12 possibilities for strategic migration. It would be interesting to study whether firms keep their existing strategic focus or change it due to the implementation of B2B e-Business. Further relevant questions are:

- from which focus to which focus firms move and if there are significant patterns in the behaviour of affected organisations in certain industries or sectors,
- why do firms change their strategic focus or why not,
- do firms change strategy consciously or are e-Business strategies emerging strategies,
- which strategic behaviour is most successful in a certain industry or sector
- etc.
### Possibilities for strategic migration within Porters model of generic strategies

<table>
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<tr>
<th>Adaptation</th>
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<td>Differentiation Focus</td>
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<td>Overall Cost Leadership</td>
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<td>Differentiation Focus</td>
<td>Overall Cost Leadership</td>
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<td>Cost Leadership Focus</td>
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Figure 8-4: Possibilities for strategic migration within Porters model of generic strategies.

### 8.2.2 Ansoffs Product-Market-Matrix

A study as mentioned above would not only generated interesting and useful findings for Porters model but also for Ansoffs Product-Market-Matrix. However, it is in this case more difficult to determine whether a certain strategic move caused by e-Business is adaptive or disruptive. Only the implementation of a Market Penetration strategy in the course of the e-Business Transformation can be classified as a clear adaptive approach and the migration to a Diversification strategy as a disruptive approach. Whether the move toward a Market Development strategy or a Product Development strategy means the adaptation or disruption of the traditional business model of an Old-Economy firm has to be decided in each case separately.
This decision depends foremost on the degree of strategy innovation. The more fundamental the alteration of a firm's corporate strategy the lower is the degree of synergy between the new and the existing processes and / or structures and / or strategies and / or goals. While the Market Penetration strategy provides a lot of potential synergies, the Diversification strategy holds hardly any possible synergies. In the same way synergies decrease the new opportunities due to e-Business increase. The question is again what a firm wants to achieve through implementing e-Business. A firm can generally answer this question with reference to Ansoff matrix and decide upon the answer if it has to adopt its existing business model or to change it in a disruptive way. These assumptions are based on the discussion of Ansoffs model by H. Meffert (1986) and the gap analysis as described by J. Becker (Source: Meffert, 1986).
8.3 Efficiency vs. strategy

To describe the impacts of B2B and IB e-Business on a firm's strategy, it necessary to define the role of efficiency and strategy in the e-Business Transformation Process and the relations and interaction between the two.

There are two separate approaches of how to view and to leverage, in business terms, the cornucopia of new opportunities growing out of e-Business in general and B2B e-Business in particular:

- the efficiency focus, and
- the strategy focus.

Both of them are of a totally different nature and need to be differentiated thoroughly as they represent the two sides of the e-Business transformation continuum to be introduced in section 8.4.
Which one of these two approaches an enterprise chooses (consciously or subconsciously) depends again on its internal situation (e.g. management, budget, expected ROI) and its competitive environment.

### 8.3.1 Efficiency focus

During the industrial and the post industrial era the endeavours for better strategic positioning and competitiveness were mainly focused on internal effectiveness and efficiency. Yet during the past decade these efforts were more and more restricted by technical limitations and ROI issues. Consequently, Internet based e-Business was a welcome new technology based concept to reach longstanding goals which could not be reached by previous generations of ICT.

Many brick and mortar companies embark on the e-Economy by trying to reproduce their existing business models or parts of it on the Internet. Their major objective is process efficiency and cost reduction. This development starts mainly with e-Procurement and goes on into e-Commerce and other functional areas of the value chain (e-Logistics, e-HRM, etc.). The reason for this order is that it is fairly easy as a first step to purchase office supplies or computer equipment (i.e. MROs) on the Web, but purchasing direct goods on a daily basis is significantly more difficult and relevant online sales operations or other cutting-edge e-Functions are even more complicated to establish.

We talk about an efficiency focus when the overall strategy and the main goals are not changed in the course of the e-Business Transformation Process. A company that has an efficiency focus, views the Internet and Internet technology as a tool to further increase the cost-effectiveness of its existing operations. It leverages the emerging opportunities to reach existing goals by supporting the efficient implementation of its existing strategies by entering path 1 or 2 described in Figure 8-1. Its objective is to foster and / or improve the given strategic position and to improve the given competitive advantages by
• creating the same customer value at lower costs as before, or
• creating higher customer value (in accordance with existing strategies) at the same costs as before.

An efficiency approach is about adapting the existing business model to the requirements of e-Business. However, there are several different possibilities for a company to apply an efficiency approach. They range from the direct use of the existing structure and processes over the adaptation of single processes to the total redesign of the organisational structure and the corresponding processes. It depends on the current and expected internal and external situation of a company whether it deploys the existing structures and processes for its e-Business operations or not (cf. Kieser & Kubicek, 1992, pp.45). Yet it is a commonly held believe (for technical and organisational reasons) that it is in most cases necessary to adopt, at least, the design of processes. Before they are reproduced on the Internet or on a comparable electronic network they need to be shaped, integrated, and streamlined accordingly. The redesign of the organisational structure is often an imperative for a successful e-Business transformation and moreover it opens up a far broader field of new opportunities. A lack of awareness for this issue and / or the inability to overthrow a dominant but outdated organisational design often leads to business failure (Kalakota & Robinson, 2000, p.5).

8.3.2 Strategy focus

The strategy focus represents the road into the future and thus the new evolutionary level. It utilizes the new opportunities raised by the Internet to go for new goals and / or new strategies by deploying, new structures, and new processes to implement them. Where traditional business models will stop generating sustainable competitive advantages and profits, the new ones will keep on going.

For companies that want to use the new opportunities of Internet technology for strategic purposes to generate new sustainable competitive advantages, e-Business most often means disruptive change as discussed earlier (cf. Kalakota & Robinson, 2000). Excepted are generally only those Old-Economy firms that have high
expertise with ERP systems and / or have already established a appropriate organisational and IT infrastructure (cf. Norris et al., 2000; Cunningham, 2001)

Initially fragmented concepts of e-Business have usually not been integrated into the traditional goals and strategies of a firm. They have been implemented as separate strategies sometimes accompanying and sometimes cannibalising traditional off-line strategies. Only recent developments show that industry leaders in many sectors (e.g. Siemens, DaimlerChrysler, BMW, Intel, Cisco, IBM, Dell, FedEx, Danzas, etc.) now have started to successfully transform their traditional business models instead of adding an e-Commerce department or other e-Units to their existing strategies and structures.

8.4 The e-Business Transformation Continuum

The e-Business Transformation Continuum [eBTC] introduced in Figure 8-7 integrates the above discussions of the four paths of change (item 8.1), of the adaptation vs. disruption approach (item 8.2), and of the efficiency vs. strategy approach (item 8.3). It is meant to be a simple tool for strategic management and a basis and inspiration for future research. The eBTC illustrates the transformation process an organisation, sector or industry undergoes to become e-fit. As mentioned before, the efficiency and the strategy focus are the two sides of the continuum. However, there are many stages in between. A company which plans to transform itself into an e-Company can enter at any point along the e-Business Transformation Continuum which is appropriate for its very own internal (e.g. resources and competencies) and external (e.g. competitive forces) situation and its e-Business objectives. Moreover, it is also an illustration of the different stages from fragmented e-Business which is at the beginning of the continuum to integrated e-Business at the end of it. The eBTC can be used, among other things, to compare the behaviour of different firms in a certain sector or the developments in different industries.
Figure 8-7: The e-Business Transformation Continuum [eBTC]
9 Strategic issues of B2B e-Business

The goals of this chapter are:

- to discuss selected strategic aspects of B2B e-Business.
- to make the case for the reinforcement of competitive strategies and appropriate strategic management in the business-to-business domain as a result of the dawning e-Business era.

9.1 When Old meets New – overcoming the generation clash

During the short but thrilling dot.com era many people, even experts, thought the Internet would unhinge the traditional laws and rules of business and economics, altogether and at once. This reminds of the human generation clash known for thousands of years. Young businesses wanted to show old businesses that they could do it all different and, of course, much better. Most old businesses were extremely upset about this disrespectful behaviour, refused to communicate and simply neglected the youngsters. Few young businesses, such as Amazon and Yahoo, were successful in this attempt, others just managed to stay alive but most had to surrender after the initial hype and enthusiasm settled and the new business world started to reveal its true nature.

Just as in real life, the most successful and promising solutions do not lie in a victory of the new (economy) over the old (economy) or vice versa but in a common attempt to meet the challenges of the turbulent and hyper-competitive times ahead. The e-Economy and e-Business concept introduced in this paper represent this idea.

The early birds among the established players who have had this insight before their competitors are now well ahead of the following crowd. Industries such as Automotive, Chemical and Computing & Electronics are leading the way (IBM, 2000). They managed to successfully integrate Internet technology and its opportunities into their value chains and strategic approaches. The bottom line results do not live up to
lofty expectations expressed in early days of the B2B boom but there is return on investment and other signs indicating that destination cyberspace is the right way to go for the Old-Economy.

9.2 The direct environment – an important competitive force

The alterations due to e-Business are represented in a fundamental change of the strategies and weapons used in the fight for profits and market share. This applies to the New-Economy as well as to the Old-Economy since the two have started to merge giving birth to the e-Economy, the next generation of business. The basic principles underlying the development of the e-Economy and the implementation of B2B and IB e-Business as the evolutionary forces in this development are still the same as in the days before the Internet. The objective is either

- to establish and / or maintain competitive advantages, or
- to reach and / or maintain at least competitive parity.

Even in the e-Economy competition is in general still driven by the same generic forces, as described by Porter more than 20 years ago. However, reality has proved that this initial model on competitive forces by Porter does not reflect the full range and true complexity of todays hyper-competitive environment.

The Internet and consequently the networking and the globalisation of the world economy have further enlarged, transformed and increased directly and indirectly the competitive structures and forces which have already been intensified for decades in many ways and across all industries. Competition takes place on a global battleground as the Internet connects more and more people, ideas and businesses. Today the cyberspace is still reserved to a small portion of the worlds population. However, the commoditisation of the Internet is continuously driving down the costs for going online providing individuals and SMEs in third world regions with the possibility to participate in the networked economy. This results in the fact that your strongest competitor might no longer be in the next street or town it might even not be at the same continent.
Figure 9-1 shows a modified version of Porters “5 Forces” model drawn from his original work and applied to the given circumstances. The environment was not considered an explicit competitive force in Porters initial model published in 1980. The networking and globalisation of the business world, based on ICT, have turned the environment into an important generic factor for the assessment of a firms competitiveness and subsequently for the development of its competitive strategies. Competitors may be situated on any appropriate location around the globe and still operate in the same market competing for the same orders. This results in the fact that these companies may be set in different environments, being exposed to different kinds of threats as well as holding a distinctive set of opportunities (e.g. governments, regulations, infrastructure, climate, wage level, etc.)

![Diagram of five generic competitive forces](image-url)

**Figure 9-1: Illustration of five generic competitive forces (drawn from M. E. Porter, 1980)**
This leads to the conclusion that industry competition, as described by Porter will no longer be central to strategic decision and management in a firm. The centre of interest and assessment will be the single firm set in its unique competitive environment and exposed to its unique set of competitive forces. Not the industry competition is leading the way but the competition between those companies operating in the same niche creating a common competitive environment (see item 9.3). Individualisation is not only a dominant trend in society but also in business. Success in e-Business will be with those firms that understand this development and are able to emancipate themselves from the dictate of industry competition and traditions (e.g. Ryan Air). Innovation on all levels of the value chain will dominate the coming years. Not only in terms of products but also and even more importantly of goals, strategies, structures and processes. Business model innovation will be the key to sustainable competitive advantages. The biggest winners will be those businesses that understand best their individual competencies, weaknesses and competitive environment. Whereas the situation in a firms industry will continuously lose importance, firms need to minimize the threats in their own environment while leveraging the new opportunities of e-Business in an optimal way. Creating competitive advantages is amongst other things a question of internal and external fit (cf. Miller, 1992). The Internet has fundamentally changed the external situation in business on a global scale, offering a broad array of new opportunities for business – the next logical step is to match them with the internal situation the firm, i.e. with existing goals, strategies, structures and processes, or to develop new competencies in order to succeed in the e-Economy.

9.3 B2B e-Business – narrowing down the strategic focus

B2B e-Business and the resulting individualisation of the competitive landscape influences not only the competitive forces determining the behaviour of a firm but also the strategic options of a firm. Kalakota & Robinson (2000), Porter (2001), Kanter (2001), and others argue that the Internet narrows down the strategic focus of firms involved in the e-Economy. More than ever before companies have to decide which kind of unique competence they want to develop and what value proposition
they want to offer to the customer in order to establish a strong strategic position on the market. For some companies the concentration on a certain niche will be an imperative for survival, whereas others can view it as a basis for additional competitive advantages and profit. Companies like Charles Schwab, Dell, and Amazon are successful because they do not try to develop and offer expertise in every dimension of their business. They either outsource activities which are not core to their strategy or they simply accept not to be any better in these fields than most competitors. Amazon is not better in shipping books than any other Internet bookshop and Dell does not offer the cheapest computer on the Web. They focus on those goods and services their specific target groups care about the most. Kalakotta & Robinson describe three distinctive competitive strategies for B2B e-Business:

- service excellence (customer centric) – delivering what customers need with excellent service and superior value,
- operational excellence (product centric) – delivering high quality products quickly, error-free, and for a competitive price,
- continuous innovation excellence (customer centric and / or product centric) – delivering goods and services that push performance boundaries and delight customers (2000, p. 61).

Consequently, it can be concluded that strategic positioning in e-Business concentrates on the generic focus strategies as described by Porter (1980) (see item 8.2.1):

- cost leadership focus
- differentiation focus.

In item 9.4 we will learn why the differentiation focus is the most promising and forward-looking one.

The reason for this development is the networking and globalisation of business through Information and Communication Technology in general and the Internet in particular. Many local or regional markets grow to continental or even global markets and do no longer allow firms to serve many heterogeneous target groups as they usually cannot offer the product and service quality and responsiveness customers require today. This might be a threat especially for diversified medium sized firms but
it is also holds immense opportunities for highly specialised local or regional SMEs as the example of the Viennese company knifeshop.com shows. The magnitude of emerging global markets offers exceptional changes for companies that intend to serve a niche which would never be sustainable on a local, regional or even national dimension.

9.4 B2B e-Business – the return of strategy

Norris et al. point out that new technologies mean new opportunities for business and the more revolutionary the nature of a new technologies is, the more opportunities for new competitive advantages accrue from them (2000). Concerning B2B e-Business the new opportunities can be classified into two major categories which equal the two categories of the classic problem of optimisation:

- cutting operational costs and
- increasing customer value.

Cutting operational costs means improving the operational effectiveness and / or efficiency of a firm. Increasing customer value stands for improved strategic positioning. Depending on a firms internal and external situation and its objectives B2B e-Business can be both the ultimate tool for effectiveness and / or efficiency improvement or for the implementation of new competitive strategies as shown in Figure 8-7 and discussed in item 8.3.

Although the race for more efficiency is often an imperative, it is in most cases a lost one per se if not accompanied by thorough strategic management. Efficiency is not a strategic goal, it is a precondition for successful strategy implementation. During the late 1980s the quest for efficiency started to replace strategic thinking, launching a vicious circle of deadly competition, organisational and / or strategic unification of competitors which lasts until today. This resulted in a massive destruction of firm and customer value alike. Many companies sacrificed their very own competitive strategy, their USP and core competencies for the sake of non-strategic and unstructured growth (Porter, 1998). This problem became even more relevant with the
commercialisation of the Internet in 1993 and the increasing employment of Internet and network technology in the mid-1990s (PwC, June 2001).

The standardisation of ERP systems and Intranet and Extranet applications has lead to an ever-increasing unification of competitors within an industry and across industries, not only with reference to technology and infrastructure but also concerning management, organisational structure and business processes. Consequently Porter concluded in a recent article that the efficiencies achieved through the use of the Internet and Internet technology are hardly ever of sustainable nature (2001). Moreover, in the e-Economy efficiency and quality are no longer relevant foundations for strategic positioning, they are in most cases preconditions for the success of corporate strategies.

It has become increasingly difficult to compete through increased efficiency, meaning through price, as more and more competitors reach the limits of productivity through the same means. As soon as a company successfully employs a new technology, management approach, strategy, structure, business process or application program, many competitors become dedicated followers of fashion leaving longstanding and successful strategies and strategic positions behind.

The 1990s were the decade of ERP systems (= inside of a firm). Today CRM systems (=sell-side of a firm) and SRM systems (= buy-side of a firm) are leading the way. The next wave of e-Business development taking off now is Enterprise Application Integration [EAI], integrating SRM, ERP, and CRM systems on an internal as well as on an external level. This means the advent of real e-Value Systems allowing for a quantum leap in speed and responsiveness.

Speed, in terms of operations, service and organisational change, is believed to be the ultimate business rule in the New-Economy and the e-Economy. However, speed is also only a yardstick for efficiency and again not a sustainable competitive advantage. At the end of the day, B2B e-Business technologies enable many competitors in many industries to deliver their goods and services at the same speed, price and quality. Competitors stand face-to-face just like the soldiers in the
Napoleonic wars, fighting with the exact same weapons shooting ten thousands dead.

Only a distinct strategy and / or a niche focus tailored to the exact needs of a specific target group or market will generate new sustainable competitive advantages. A strong strategic positioning will end the vicious circle of price competition many industries are in due to B2B e-Business. Today it is essential for many companies of all sizes to overcome the efficiency approach to e-Business and to focus on the new strategic opportunities of the ICT in general and of the Internet in particular. This is a lesson brick and mortar companies need to learn from the New-Economy.

B2B e-Business provides better and cheaper opportunities for suppliers and customers to establish a distinctive strategic positioning beyond a self-destroying price competition than any forgone generation of Information and Communication Technology. The most important concepts to mention in this context are networking and collaboration in technical as well as in organisational terms.

An example par excellence is the automotive industry. In this sector B2B e-Business has led to hyper-competition on a global scale which forces all competitors in the automotive value system to improve their productivity at an ever-accelerating pace. This development has been launched by the Original Equipment Manufacturer [OEM], such as BMW, Ford, VW, etc., forcing, from top down, the different tiers of the automotive industry to adopt to their requirements and standards for B2B e-Business. The OEMs, have first of all, a clear efficiency focus, as their major objective is to cut costs through buy-side B2B e-Business. Those suppliers who do not have sufficient resources to transform themselves into an e-Company crash on the wall of change or will be bought up by a competitor, supplier or channel partner.

The e-Business Transformation takes up a lot of resources in monetary as well as in human resources terms. Thus the first day of a truly integrated e-Value System in the automotive industry may be doomsday for those suppliers which lack a strong strategic positioning or a strategic positioning at all to direct and channel the quest for efficiency. Although B2B e-Business has the potential to generate win-win situations
for both suppliers and OEMs, reality shows that suppliers are in most cases at the short end. To counter this negative trend automotive suppliers need to employ a more strategic and more active approach in the course of the e-Business Transformation Process, instead of only reacting to the pressure of customers and industry leaders. OEMs and the different tiers of suppliers need to be partners in the in the e-Business Transformation Process to achieve fundamental and sustainable improvements creating or sustaining value for all parties involved. This applies not only for the automotive industry but for many other sectors as well.

### 9.5 B2B e-Business – a new approach to strategic integration

The three levels of strategic integration M.E. Porter identified in his book “On Competition” (1998) are:

- **Level 1**: simple consistence of all activities within the value chain with the overall strategy of the firm
- **Level 2**: level 1 + some or all activities within the value chain support each other
- **Level 3**: level 2 + an optimisation of some or all processes within the value chain up to the point of sales.

Integrated B2B e-Business takes the model of strategic integration by Porter one significant step further. In the e-Economy the question of strategic integration does not only concern a companys own strategy and value chain but its customers and suppliers likewise. The superordinate goals of many companies in the ICT sector, such as IBM, HP, SAP, etc. can be subsumed under the following statement:

“We help you to solve your customers problems and to fulfil its needs !”

This sentence represents one of the key concepts of e-Business in terms of corporate strategy. Due to value system integration it becomes increasingly possible to know even the needs and problems of the customers of your customers or even further on at the speed of light. This enables a firm to improve collaboration with
direct customers and serve their actual needs in unprecedented ways. The result is one of the most important impacts of B2B e-Business on strategic management. Corporate strategies, strategic positioning and strategic integration do no longer concern only one company but its respective value system of collaborating business partners. Competition will no longer be restricted to single firms. The competitors of tomorrow are complex value systems consisting of companies of different levels and various industries. The automotive industry provides an example for this development. B2B e-Business enables OEMs to further outsource activities as it electronically integrates direct suppliers into the own value system (e.g. through an Extranet). Furthermore, it enables separate part suppliers from the same and different tiers to cooperate, more intensely than ever before, to better meet the requirements of following tiers and/or OEMs. Direct part suppliers of OEMs turn into system suppliers which integrate the goods and services of preliminary tiers. Due to B2B e-Business the automotive industry and many other sectors will be dominated by intense competition between such supply networks (e.g. Delphi Automotive Systems) in the years to come.

Consequently, strategic integration in B2B e-Business consists of the following three levels:

- **Level 1**: simple consistence of all activities within the own value chain and across the value chains of e-Business Partners (suppliers and customers) with the overall common strategy of the segment of the e-Value System,

- **Level 2**: level 1 + some or all activities within the own value chain and across the value chains of e-Business Partners (suppliers and customers) support each other,

- **Level 3**: level 2 + an optimisation of some or all processes within the own value chain and across the value chains of e-Business Partners (suppliers and customers) up to the consumer point of sales.
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Figure 9-1: Illustration of five generic competitive forces (drawn from M. E. Porter, 1980)
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10.3 Endnotes

1 Published or unpublished quantitative or qualitative data which has been generated by someone else than the researcher.
2 Specific qualitative or quantitative data generated by the researcher to complete the research objective(s).
3 A theoretical background for this chapter can be found at Schreyögg, 1998, p.328-333.
4 The advent of the public Internet started with the introduction of the World Wide Web [WWW] in 1990 and the commercialisation of the Internet in 1993. For a detailed history of the Internet see "Hobbes' Internet Timeline". (Zakon, 2001)
5 single companies
6 industry, industries, global economy
7 individuals, organisations and states
8 The term ‘paradigm’ is used in the way T. S. Kuhn defined it (Gadenne, 1998).
9 goals and strategies
10 The Internet, Internet technology and business applications programs
11 new opportunities
13 e.g. goals, strategy, structure and process; strength and weaknesses
14 e.g. market conditions; opportunities and threats
15 Porter, 1985
16 Porter, 1985
17 An important intermediate step was the introduction of electronic information processing enabled by the invention of the microprocessor.
19 value chain.
20 value system.
21 There are various types of virtuality and virtual organisations which are not discussed at this point.
22 on the sell-side as well as on the buy-side
23 Realised Strategy: The Strategy a firm is actually pursuing. (Mintzberg & McHugh, 1985)
24 Intended Strategy: A strategy a firm thought it was going to pursue. (Mintzberg & McHugh, 1985)
25 Deliberate Strategy: An intended strategy a firm actually implements (Mintzberg & McHugh, 1985)
26 Emerging Strategy: A strategy that emerges over time or that has been radically reshaped once implemented. (Mintzberg & McHugh, 1985)
27 This point refers to the discussion in the article “Environmental fit versus internal fit”. (Miller, 1992)
28 A comprehensive introduction into the field of Change Management can be found in the book “The Startegy Process” (Mintzeberg & Qinn, 1991)
29 Indirect competitors refer to substitutes as defined by M.E. Porter (Porter, 1980)
30 In the ‘e-Business’ age capital has become a certain kind of information and the transaction of capital turned into an exchange of information.
32 This statement is based on the discussion on value chain integration in Kalakota & Robinson, 2000 and Evans & Wurster, 2000. However the term ‘IB e-Business’ and its definition have been introduced in this paper.
33 with reference to the ‘7-S Framework’ by Waterman et al. (1991)
34 with reference to the ‘7-S Framework’ by Waterman et al. (1991)
35 with reference to Höller et al. (1999)
36 with reference to the ‘7-S Framework’ by Waterman et al. (1991)
37 with reference to Höller et al. (1999)
38 with reference to the ‘7-S Framework’ by Waterman et al. (1991)
39 with reference to Höller et al. (1999)
40 According to the definitions used in this paper the term ‘electronic Commerce’ has been replaced by the term ‘electronic business’ in the 10 points.
41 A leading supplier of electro-mechanical, electronic and integrated utility systems, equipment and services.
42 supply chain + demand chain = value system.
44 see also Porter, 2001, p.77