

University of Pécs
Faculty of Business and Economics

The strategic Impact of E-Business on the Supply Chain
on the viewpoint of Logistics
and the practical Impact

Theses - Paper

INAUGURAL - DISSERTATION

provided by
Gerald Kurz
May
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Supervisor

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1 Preface and Objectives of the Research

Business leaders realize that the next jump in productivity will come from improving cross-division and cross - enterprise business processes. Today, leading companies are deploying sophisticated strategies like multi - channel selling, outsourced distribution and logistics services, strategic sourcing, supplier collaboration and vendor-managed inventory. As a result, up to 60 % of operational costs are affected by decisions and relationships outside of enterprise.¹ Tightly linking processes beyond a single division can drive synergies, revenue and responsiveness. Critical to the success of these initiatives is the alignment and coordination of complex, distributed order and business processes across the multiple divisions and companies. One company's customer fulfilment process is a mirror of the buying company's inbound supply process. It is the order that links the two and drives the process and the movement of inventory. The better integrated are processes, the greater the efficiency that can be realized. The opportunity is compelling. Companies that can enable real - time cross division and cross - enterprise business processes can achieve dramatic results:

Revenue increase up to 5 %; order, logistics and inventory operational savings up to 40 %; inventory reductions up to 15 %; and improved value chain velocity and business agility.² Yet, Global 2000 companies are finding it exceedingly difficult to capture these opportunities. Despite significant investments in ERP-Systems (efficient replenishment systems) and supply chain planning in the last decade, companies still struggle to manage commerce across today's distributing processes. While inventory levels have dropped consistently, order - related costs have barely declined in the last decade. In fact, order - related costs in the supply chain - account for 10 % of revenue and up to 50 % of total supply chain costs.³ More importantly, this is not a simple cost issue. Revenue and customer satisfaction are at risk.

In today's ultra-competitive market, customer order requests need to be met in a feasible real-time or near batch and order fulfilment must be flawless. So while firms push ahead with transformational strategies, they lack a clear vision for managing distributed orders and the logistics process in the value chain. This lack requires new capabilities. These new capabilities in the form of flexible applications must enable everyone in the extended enterprise to monitor, access, react to, respond to and analyse value chain activities. Traditional enterprise order management systems were designed to manage pre-defined business processes that generally existed within a single business entity with a functional viewpoint. They were never architected for distributed heterogeneous environments.

Supply chain management is the paradigm that is changing business and business relationships. Logistics has to ensure the availability of the right material flow at the right time in the right quantity at the right place at the right time and is therefore the keystone of SCM success. It is not about shipping or warehousing - it is logistics. The logistics focus is the movement of product and the movement of information. Changes in ways companies manage their supply chain have impacted outsourced logistics providers in increasing supply chain complexity - growing numbers of partners - , increasing demand of customer treatment - customer view logistics providers as extensions of their own sales channels - , pressure to more effectively manage client inventory - in order to more effectively control inventory - , real time information required with real - time supply chain visibility.

Business Process Management technologies provide the ability to model an execute business processes though the coordination of disparate software components and human centric activities.

The Explorative research has the objective to describe the interdependence of the E - Business on the supply chain on the viewpoint of logistics and the strategic impact with practical examples and is therefore a contribution in the economic fields of the logistics research with theoretical and practical impacts. Further the main streams of the developments, trends and future perceptions for E-Business and Business Process Integration in the Logistics portfolio are discussed.

Target of this work is to create further an overview of the current trends of e-business within the EAI - Market (Enterprise Application System) and the meaning for the supply chain.

1, 2002, Atlanta USA, page Yantran Corporation Brochure, Michael Hammer 1 ff

2 Yantran Corporation Brochure, Michael Hammer, 2002, Atlanta USA, page 1 ff

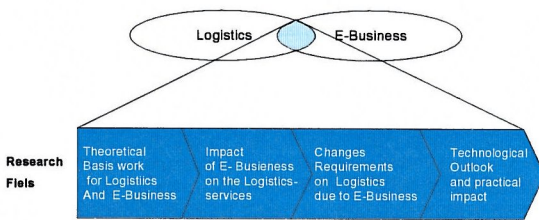
3 Yantran Corporation Brochure, Michal Hammer, The Performance Measurement Group, 2002 Atlanta USA, page 1ff

Executive Summary

The Graph shows the structure of the field of the Research with the interdependence between Logistics and E – Business

Graph 1
Interdependence of Logistics and E-Business (Areas of the Research)

Key Research Field for Logistics and E - Business



Strategic Impact of E- Business on the viewpoint of logistics

Source: explorative Research

The explorative Research is the frame and analytic explanation of the thesis. Objective is to create an impact of E – Business on the supply chain and the interdependence on the logistics. Especially the Business Process Integration as the main success factor for heterogeneous system integration is one focus in the Research. There are analysis areas in the explorative Research:

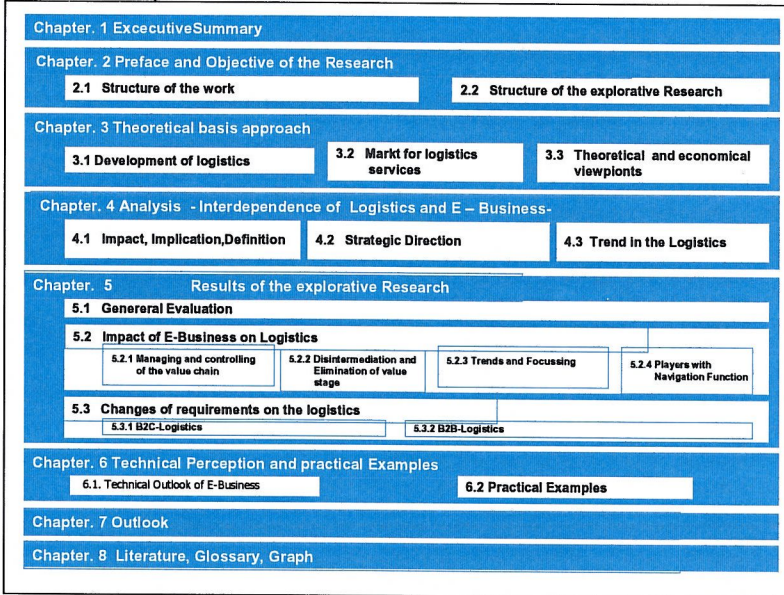
1. Market changes and trends and the impact on the logistics market
2. Changes and requirements on the logistics through E-Business
3. Technological outlook and practical impact

“The first firm in an industry to implement a real – time, interactive logistics information system will have a competitive advantage; the last firm to do so doesn’t need to spend the money”⁴. With this explorative Research has the purpose to evaluate the importance of Business Process Integration as a key solution to fulfil the objectives of the logistics in the supply chain. With practical examples the research shows evaluated trends and strategic impacts for market players within the logistics environment.

2 Structure of the work (Methodology)

The objective of the work is to document the result of an explorative market research of the strategic impact of E – Business on the supply chain from the viewpoint of logistics and practical impacts on the basis for theoretical explanation in this area of Research.

Graph 2. The Chapters of the work



6 Lampert/Harrington 1989/1999 Page 58

Chapter 1 of the explorative Research is the Executive Summary with the essential results of the research summarized in thesis under the aspects of general impact of E- Business on the logistics, changes and requirements for the logistics with the interdependence of E-Business, the strategic direction for the market and players, the demand on logistics and the E – Business Players.

In Chapter 2 there is a description of the explorative Research with the preface, structure and overview of the work. In Chapter 3 there is the theoretical basis information for the Research with the Definition of Logistics, E-Business and the development steps, further the Market of services and the theoretical and economical viewpoints. In Chapter 4 of the Research are the basic thoughts about the interdependence of E-Business and Logistics

Besides the basic thoughts of the relationship, the strategic impacts are explained in this chapter with detailed explanations about the E- Business development some practical examples and trends. This chapter explains the role and impact of E-Business on the logistics.

In Chapter 5 are the structured results and interpretation of the interviews. In one subchapter the general evaluation is analysed, further the relevant interdependence and impact of the E-Business on the field of logistics, the result and direction of the impact on the changes in the logistics because of the interdependence and new requirements. In chapter 6 of the Research the technological outlook of E- Business are defined due to the fact of the results of the explorative Research, especially for logistics. Finally in Chapter 7, the outlook for the future, due to the fact of the impact of E – Business on the supply chain from the viewpoint of logistics. Chapter 8 is literature, glossary and graphs of the work.

2.1 Structure of the explorative Research

According to the analysis of the literature and on basis of practical experience of the author in the day to day business the first theses are generated before the explorative Research started and expressions about the interdependence and impact of E- Business on the supply chain from the viewpoint of logistics and the changes for logistics are formulated.

After the expressions are formulated, the theses are evaluated and proven in an explorative Research with empiric interviews and special questionnaire.

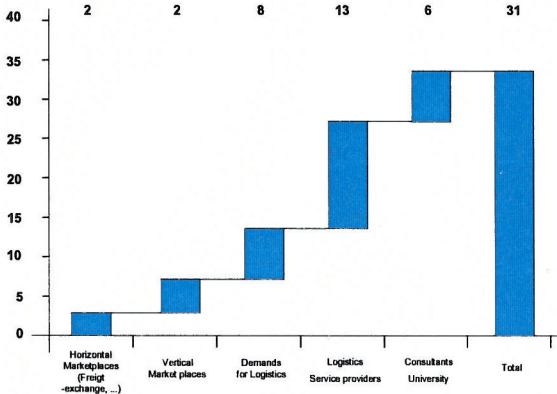
The Research of the literature and evaluation of the expressions and theses were in the time frame of Dec. 2001 and Oct. 2002. The interviews were between July 2002 and April 2003. The interviews were in personal conversations with

31 Top – Level Manager of organisation and companies and experts in Logistics and IT – relevant surroundings based on the questionnaire. Due to the fact, that the author has over 16 years working experience in the logistics and B2B area, following interview partner could be selected:

- Industry companies (e.g. EDSCHA, KERMI, ESKIMO, Olympus)
- Logistics Providers (e.g. Dachser, Häring, Tibbett & Britten, Ledl AIRFREIGHT)
- Traders (e.g. Hornbach, Top Service Team)
- Consultant Companies (e.g. AT Kearney, Agamus, Business Consult)
- Organisations (e.g. CCG, EAN-Austria, BVL – Bremen)
- Horizontal Market places (German Telecom)
- Vertical Market Places (Supply on)
- University (Prof. Dr. Szegedi, Budapest)
- University (Prof. Dr. Dr. Wildemann, TU-München)
- International Institute (Prof. Dr. Berg, Hospital Logistics)
- Shop Providers (Open shop)
- EAI Providers (e.g. Cross Worlds, IBM, Mercator, SeeBeyond, Business Gateway, Viewlocity)

Graph 3 Selected experts – different business areas

31 interviews with experts from logistics and it surrounding



Executive Summary

Because of the questionnaire in an actual and new topic and under the expression that the theme is at all in the early stage of the economic and academic Research, the Research follows the explorative character not the descriptive or confirmative character.⁵ To realize the real effect of the interview partner and to eliminate group dynamics, the explorative Research decided against group interviews or round table discussions.

In the personal Interviews following topics and aspects are discussed and evaluated:⁶

- 1) Relevant Trends in the Logistics and impact of E-Business on the Logistics area
 - Impact on the process flow of logistics and the supply chain
 - Changes of the structure within the supply chain with the logistics impact (Topic outsourcing of logistics services)
 - Meaning and Role of Market players e.g. portals, shops, market places E-Business (EAI) etc.
- 2) Changes of the Requirements toward the Logistics through E- Business
 - Focus on b2c distributions-strategies, (e-logistics, distribution last mile)
 - Focus on b2b – logistics (information logistics and connectivity)
- 3) Developments and Trends in the Logistics and E-Business and the recommendation for logistics provider, demands on logistics services or market player in the E – Business.

The selection of the possible interview partner follows two principal directions:

- Contribution of the supply chain with experts from logistics provider services companies, industry expert with a demand and need toward logistics services and experts from the new field of E - Business (providers of industrial market places and shops, EAI- Experts, Gateway specialists and Integration providers).
- Interview partner from very innovative companies were selected, experts from the academic field and consultants.

In the graph 4, the mixture of selected interview partner shows, that the explorative Research ensures all in market relevant main opinions. Primarily the Top Management level was interviewed. All interviews of the explorative interview were anonymous. The selected interview partners got the secure guarantee, that between the interview phases and after the evaluation, analyses and publication, the results of the interview were anonymous. The documentation about company profiles, best practice examples with named companies or product has no interaction to interviewed partners in the explorative Research.

In the beginning of the interview sequence, the structure of the interview groups was defined, the amount of interviews and partners was open. Therefore the explorative Research generates a high degree of stability in the basis of the statements at the end of the interview sequence. To realize more information and to generate additional know how, additional interviews were needed. These criteria were defined before the explorative interviews started:

- 1) Definition of the structure of the interview group
- 2) Open in the amount of interview partners
- 3) Realization of stable statements by the interview partner at the end of the interview by open amount of interview partners and structure in interview groups in the beginning.
- 4) Additional interviews in a selected group if needed

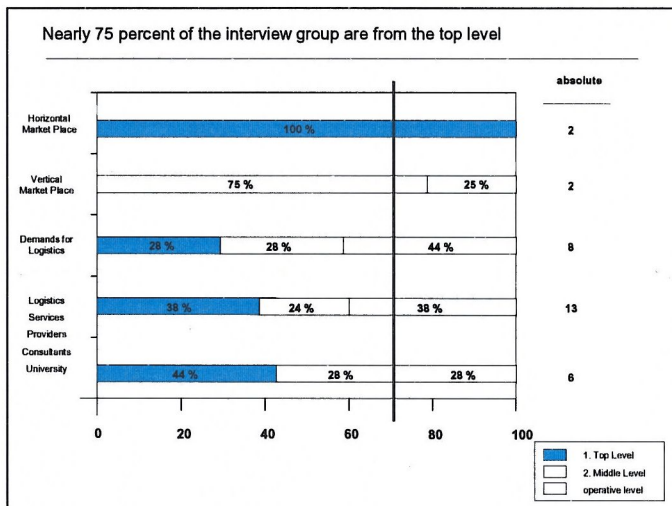
With these criteria in the beginning of the explorative interviews, the criteria of cancellation of an interview were defined and the interview finished in some interviews.

⁵ ebenda Herrmann A./Homburg, C., 1999, page 13-32

⁶ ebenda Deshler, M. 2001

Executive Summary

Graph 4 - Distribution structures of the interview groups and partners



Source explorative Research

The explorative interview is future orientated with more qualitative aspects and perceptions. To realize the consistency of the comparison of the statements and results, the questionnaire was the same in each individual interview. At the end of each interview the interview partner quantified the statements. The statements of each interview partner were quantified in a scale from 1 to 5. After the interview, the evaluation of the statements was analysed and according to the topics and discussed them evaluated in a statistic format and graph.

The statistic analysis was realized with two simple statistic possibilities:

- "Die ganzheitliche Einschätzung der jeweiligen Aussagebedeutung wurde Durch die Bildung des arithmetischen Mittels ermittelt.
(The total assessment of the particular statement was achieved by obtaining the arithmetical mean)
- Zur Ermittlung der Aussagenstreuung wurde die Standardabweichung berechnet⁷
(The standard deviation was calculated in order to obtain the mean variation of statement)

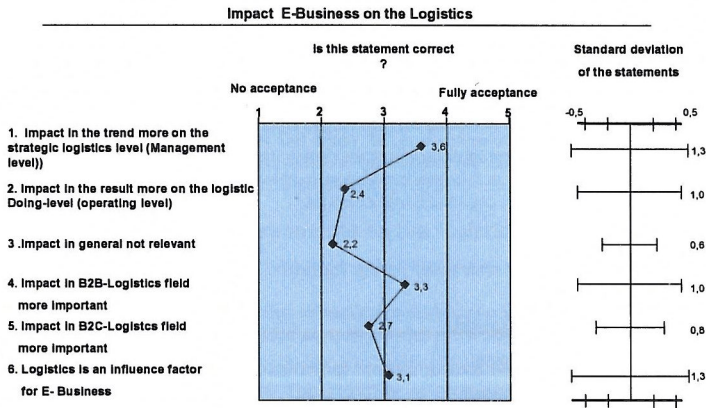
⁷ in der graphischen Darstellung wird die Standardabweichung in einem separaten Diagramm als Streuungsmaß um die Nulllinie mit +0,5 und -0,5 Standardabweichung (standard deviation) dargestellt, support: Christoph Heinrich, Business Gateway AG, 2003

Example

Graph for the evaluation of the statements in the explorative interview

Example

Logistics will be influenced by E - Business



3 About the Author

The author was born in Munich 1961. After the successful study of Economics 1986 in Germany, Gerald Kurz was Key Account Manager in the Jacobs Suchard Group in Germany. From 1990 to 2000 he was in leading functions in well known logistics and consulting companies national and international, e.g. Dachser in Germany, Kühne and Nagel in Switzerland or Gemini Consulting in Germany and France. From 2000 on, he joined the Business Gateway AG as Member of the Board. Gerald Kurz has a BBA - degree from the GSBA in Zürich, an university MBA - degree from the Clemson University of South Carolina, USA and a doctor degree from the Budapest University of Economics.

The author's own publications as sources for the Ph.d. Dissertation:

1. Kurz, G.: (1996) "Servicemarketing als strategischer Erfolgsfaktor aus Sicht der Logistik im ungarischen Handel, AULA Kiado Kft. ISBN 963 9078 16 6
2. Gerald Kurz: „Schnellere Information für mehr Gewinn“ of Logistik Heute v. 2001.07.15
3. Gerald Kurz: IT+t-business from 2001.08.05, about smart messaging and routing technology in cooperation with Tibbett & Britten, Cybiz
4. Gerald Kurz: Electronic Logistics, "Optimierung im Internet" (see also www.bq-ag.com/news) from 2001.09.24.

4 Theses

The explorative Research is the frame and analytic explanation of the thesis.

Objective is to create an impact of E- Business on the Supply Chain and the independence of the logistics. Especially, the Business Process Integration as the main success factor for heterogeneous system integration is one focus of the Research.

There are the analysis areas in the explorative Research:

- Market Changes and trends and the impact on the logistics market
- Changes and requirements on the logistics through E- Business
- Technological Perception and practical impact

The analysed results of the explorative Research are structured according to the key Research fields:

- **Market changes and trends and the impact on the logistics**
1. Thesis

The development of E-Business is an essential dynamic factor in the logistics and may lead to changes in the organisational structures (strategic and technical approach).

Based on the explorative Research the interview partner sees in total the development of E-Business as one mega trend for the logistics. Especially the forwarders in this research see the positive impact and a great opportunity for the SCM with organisational changes.

2. Thesis

E- Business has an evolutionary character in the logistics scenario and can be described in three main phases:

- ***Medium Changes***
- ***Activity Stage***
- ***Model Changes***

In the early stage of the innovation single user and organisation uses the new innovation as a medium of transaction (E-Information). In the next stage, processes and organisation are redesigned, and adapted for the new technological frame. In the last stage of defined development the changes of business models, influenced by E-Business, may lead to fundamental changes of Industry (E-Modelling/Shaping).

3. Thesis:

E- Business has four main relevant trends influencing the dynamic of logistics:

- 3.1 Technology improved the controlling and managing of the supply chain across the company borders (E-Business)***
- 3.2 E- Business supported the disintermediation tendency in logistics. Traders and Forwarders will further exist.***
- 3.3 Focussing on core competences leads to more outsourcing of logistics services under the B2B aspect with changes of the logistics environment.***
- 3.4 New market players with information based functions e.g. navigation function (Freight exchange) are created in the market.***

The technological dynamic of E-Business with the standardization of the business to business processes combined with the usage of global networks has a dramatic impact to the supply chain. The essential trends in the logistics influenced by the dynamic of E-Business are evaluated with the interview partners.

4. Thesis

Besides the technical dimension (a part of the ability component), with the connectivity of E- Business, the intention and the need to use SCM conceptions is relatively low and very often not sufficient.

Based on this result, the technical degree of realization lies in the focus, combined with the understanding of the intention and needs from the SCM. Only if both components are realized is the process oriented opportunity relevant for the interview partner. Connectivity and interface management is in the focus.

5. Thesis:

Disintermediation effects will lead to changes in the B2C logistics especially in the end user concept. B2B – Concepts will lead to process cost efficiency effects and elimination of process steps due to automation.

Logistics with the E-Fulfilment is the main factor to penetrate B2B or B2C conceptions. Logistics outsourcing projects are confronted with the question of interface problem and to automate the supply chain. B2C-Concepts with the electronic shopping tends to eliminates the retailer function.

- **Changes and requirements on the logistics through E-Business**

6. Thesis:

The main reason for outsourcing of logistics services are cost effects in the supply chain. 4 PL providers coordinate logistics supply chains with the E- Business technology.

According to the Research the reduction of operating costs based on running cost and B2B effects is the main factor in the Research. The flexibility in costs, no investment in future hard ware are important factors. 4 PL service providers are oriented to improve the supply chain requirements of the customer with less orientation to own assets. More and more 4 PL providers are E-Business driven to create a competitive advantage.

7. Thesis:

Navigator Functions have currently little penetration in the logistics market to play an essential role as a main trend factor for logistics (electronic freight stock exchange).

The Research shows the overview of direct and indirect trends. Freight stock exchange is not a main trend in the logistics according to the interview partner.

8. Thesis:

E- Business has a strategic impact on the supply chain under the aspect of process orientation. E- Business is the main dynamic driver and catalyst for change processes

Based of the explorative Research the strategic impact is identified and shown in the discussion. The changes of requirements are discussed in the relationship character, the transaction character, the strategy character and the customer character.

9. Thesis

E- Commerce in the B2C segment strongly depends on end user acceptance. Logistics is follow only the changes of requirement on the market.

The interview partners evaluated, that the flexible delivery time as one of the major changes for the logistics with pick points and fine distribution concepts. The success of B2C-Concepts is related to the acceptance by the end user.

10. Thesis

The changes of requirements on logistics are influenced by the integration of operative IT systems in the supply chain. Technical changes in the E- Business e.g. information broker developments influences the requirements on logistics (see Chapter 3 and 4).

According to the interview, process orientation is the main requirement on B2B Logistics. On the operative level the degree of automatization is required. On the management level the degree of integration in the supply chain is required.

- **Technological Perception and Impact**

11. Thesis

EAI – Technology is the technological driver for E- Business and the strategic platform for integration of logistics processes in the supply chain.

The technological development of E-Business affects the trend in the logistics. From the point of view of IT architecture, EAI takes on the role of a strategic application at the focal point of a company. The accomplishment of integration through the introduction of EAI creates decisive future technological advantages and creates competitive advantages for logistics providers.

12. Thesis

According to the technical development (EAI) and the dynamic in process optimization possibilities, service providers generate competitive advantages from the new technologies and create new services offers.

New service offerings created by logistics providers are shown in the dissertation. The practical examples show, that the effect on process orientation in the SC creates new offerings. (e.g. Dachser and Top Service Team).

May, 2003

Gerald Kurz

End