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THESES of the PhD - Dissertation

"The Position of the Logistics Service Provider

within the Supply Chain and the

Achievement of Dominance through

Customer Relationship Management"

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Preliminary Remarks

After several years of <u>professional experience</u> at management level in the subject area of this Thesis, I was inspired to examine the highly interesting development of logistics service providers in regard to Supply Chain Management (SCM) and Customer Relationship Management (CRM) on the basis of academic and practical findings, and to produce a direct link between CRM and SCM. In dealing with this subject matter, my several years of experience as <u>visiting lecturer</u> at the University of Applied Sciences of Fulda and Deggendorf were very helpful.

The objective of the examination was to prove that prior existence/implementation of CRM is for the logistics service provider the key to be successful in SCM business achieving a more dominant role within supply chain.

This interface between the disciplines of logistics and marketing is not yet given anywhere near the level of significance, in the literature and actual application, as is due with regard to successful business management. This raises the question of what the medium size logistics service provider is putting in place to link into this new perception in terms of vision, strategy and operations.

Based on my theoretical and empirical research, the Thesis is divided into 5 main chapters:

Chapter 1. illustrates how the logistic environment of the logistics service provider is being dynamically improved, and points to conclusions to be drawn in respect of the market, competition and logistic skills.

Chapter 2. addresses the role of the logistics service provider within Supply Chain Management and in particular therefore includes concepts, strategies and outsourcing opportunities.

Chapter 3. is aimed at showing that the successful application of Customer Relationship Management significantly increases the influence of the medium size logistics service provider within Supply Chain Management, and helps to achieve a more dominant status through process organization and process management, right up to the design of customer-oriented logistic processes.

Chapter 4. shows the theses concerning a direct link between CRM and SCM in order to achieve a more dominant role for the logistic service provider.

Chapter 5. gives the results of the author's empirical research to survey of German logistics service providers on the employment of customer-strategy activities, which ultimately form preconditions for introduction into professional Customer Relationship Management, with the objective of deeply penetrating the supply chain. The difference between claim and reality becomes transparent here.

Although this PhD Dissertation has been written at a Hungarian University, the theoretical part is based mainly on German and English literature (Given the specialty of the topic – analyzing typical middle-sized ("mittelstandige") firms - of the dissertation there was not much found in English.) The empirical research was made in Germany, therefore the empirical part deals primarily with German information and results, very heavily influenced by the author's professional field of activity in the Federal Republic of Germany.

However the possibility of the author together with Hungarian scientists tackling a comparative research in Hungary in the near future seems to be reality. (It is planned to start a joint research on status, market power, market analysis and customer relationship on 12 German and 12 Hungarian middle-sized logistics service providers, through involving researchers of the University of Deggendorf and St. Stephen University in Gödöllő.)

A PhD Dissertation cannot be successfully completed without support, providing the author with logistical, conceptual and human assistance.

I would like to express my special thanks to my PhD supervisor, Professor Zoltan Szegedi, who has given me valuable suggestions and great support in drafting the Dissertation. The valuable critics of the pre-examiners, Professor Krisztina Demeter (Budapest Corvinus University) and Professor Peter Földesi (Széchenyi Istvan University) inspired me to rewrite some chapters and to make an additional complementary empirical research.

The painstaking task of bringing this Thesis into its present form would not have been possible without the exemplary dedication of my management colleague, Mrs. Annemarie Roth, to whom I hereby offer my grateful thanks.

Special thanks are also due to my Family, in particular my wife Maximiliane, who has displayed patience and leniency towards the additional work involved in the time-consuming compilation of the thesis.

Moreover, I would also like to thank to the professors of the University of Pécs, to the executives interviewed in the empirical research, to my colleagues at Elsenthal TransportLogistik GmbH, and its customer companies, who encouraged me in the individual phases of the thesis with their enthusiasm and ideas.

Theses

The author of the PhD-Dissertation was in a long period of time as partner and top executive of big international and medium sized freight shippers and logistics service providers involved with the development of supply chain management. He is also aware of the role of the medium-sized logistics service provider within the network of co operations which are essential on the market. Medium-sized logistics service providers as members of network co operations are right now in the position to increase their service portfolio and create more turnover and profit. The author is convinced that a systematic scientific approach in this area can help the firms to develop the right strategy to service in global markets. Based on his experience expounds the author four theses which are going to show how medium-sized ("mittelstandige") logistics firms can achieve more dominance within the supply chain.

The author assumes that in regard to their flexibility the medium-sized logistics service providers will be the winners by changing their roles within the supply chain process.

Thesis (1) - Main thesis

It is assumed that in the near future the medium sized logistics service provider wants to achieve a more dominant role within the supply chain. He may only be able to realise these targets, if he uses a targeted broad based "Basis Customer Relationship Management" (CRM) as a precursor for his complex range of tasks within the Supply Chain Management (SCM) (and turning customer satisfaction and customer loyalty into the central activities of its business strategy). Its exchangeability is clearly limited.

Thesis (2)

On his route to take on a more dominant role in the Supply Chain via CRM the logistics service provider has to be able to adjust and change his range of offers. The continual increase of his service portfolio exceeding distribution processes towards procurement and production logistics and additional value added services is as important as the increase of efficient logistical services.

Thesis (3)

On his route to an increased dominant role in the Supply Chain via CRM the medium sized logistics service provider has to develop such a marketing and a competitive strategy that includes growth and positive competitive strategy limitation, which explicitly identifies important logistics competence and is clearly demonstrated in marketing/distribution. This transfer to a customer-centred orientation will therefore become the basis of customer satisfaction and bonding that will long-term manifest a successful business relationship.

Thesis (4)

On its way to a more dominant role in the Supply Chain via CRM the topmanagement of the medium sized logistics service provider has to have a large scope of competences and has to be able to define in a company target strategy the complexities of tasks compiled in theses (1) to (3) and to realise it successfully via the company organisation. Final decisiveness lies in the actual procedures and results that will invoke corresponding positive effects and experiences with the customer.

The interdependence of thesis 1 to 4, which are mentioned above, can be seen in Figure 1.1. It is essential that customer relationship management is supported by an increase of the service portfolio, a marketing strategy and the competence of the top management. If this support is successful, the medium sized logistic service provider will achieve a more dominant role within the supply chain while the added value of the other supply chain partners will (usually) not be reduced.



Figure 1.1 The DLP-Model (dominant logistics service provider-model), Josef Zellner, 2008

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2. Trends in Logistics

"Constantly increasing competitive pressure, against the background of globalization, as well as individualized customer needs and growing customer demands have made lasting changes to the competitive environment in practically all business sectors. Companies have to respond to this by exploiting the potential of new information technologies, enhanced networking and customer orientation." (see Pfohl, 2000).

The area of logistics is characterised by an exemplary dynamic development. This is reflected in a constant expansion of the range of logistical services, from once predominantly physical activities, through focussed cross-functional tasks, to integrated, process and customer-oriented leadership and coordination tasks.

This is closely related to changes in the system of logistical targets, which now pursues an increase in company value as the supreme business target, through improving the availability of goods and materials, as well as reducing inventories (Vörös, 1999 and Weber/Dehler, 2000).

Synchronization of sales and procurement within an integrated value-added chain (supply chain) form a precondition in this regard, beginning with suppliers of raw materials and ending at the customer.

In addition to the considerable potential for reducing costs of logistical concepts, the consistent alignments to the customer of all processes that form the basis of logistics, and the resultant improvement in customer satisfaction are relevant in this respect. It is recognized that there are substantial benefits to be gained from strategically trying to drive a whole chain in the direction of satisfying end customers (Tan/Smith/Saad, 2006).

The increasingly comprehensive and strategic character of logistics is reflected in the growing importance for the logistician of specialist knowledge in the areas of strategic management, project management and controlling (Baumgarten/Walter, 2000).

However, the largest growth in significance is registered by systems for support of management of the value added chain (Hellingrath/Laakmann/Nayabi, 2004).

With an integrated assessment of the value-added chain, ERP and PPS systems are reaching their limits however. SCM software is becoming important instead.

The outsourcing of logistical tasks and functions to external service providers is a suitable instrument for varying and reducing logistical costs while simultaneously exploiting external logistic know-how (Wallenburg, 2004).

Figure 2.1. provides us a good base for understanding the additional aims, which were given for the logistics sector over the last decades.



Figure 2.1. Changing Mission of Logistics/SCM (Inkalainen/Vepsalainen, 2000, in: Szegedi-Prezenszki, 2003)

2.1. Logistics in Trade and Industry

For industry and trade companies it has become more interesting to spread further the networks of suppliers and customers-across the entire globe.

The transactions costs for moving net product events (in logistics called as "dislocation") are nowadays less of a barrier for international business cooperation than it used to be in times, when high customs tariffs, complicated document processing and high and unreliable communications and transport costs and processing times ruled the day.

The developments labelled as "globalisation" require continually more global transport services, the integration of warehousing, turnover, communication, planning and control services in many stages, requires, complex "supply chains" and networks (Klaus/Kille, 2006).

The situation in trading is largely characterised by changed customer requirements and increased competition between all market participants. The huge competitive pressure on companies, regardless of the size of the enterprise, is the result of falling customer loyalty on the one hand, and growing demand from customers for individual products and services on the other hand.

In this regard the physical distribution of goods to the end customer is conducted through internal delivery services or the involvement of logistics service providers (Baumgarten/Thoms, 2003).

Strategic approaches of the consumer goods industry are directed in particular at marketing and goods presentation.

The development and usage of joint planning and forecasting instruments, such as collaborative forecasting and collaborative business planning therefore becomes increasingly important.

Manufacturers and traders have realised however that internal company objectives can only be achieved by optimising the entire value added chain. Fixed and sustainable cooperative relationships between the consumer goods industry and trading are increasingly gaining in significance in this regard, since logistical processes are thereby easier to plan and control, and the flexibility and responsiveness of those involved increases. The essential strategic concepts here are efficient consumer response (ECR) and increasingly collaborative planning, forecasting and replenishment (CPFR), the targeted use of which leads to a reversal of goods supply from the push principle to the pull principle (Baumgarten/Thoms, 2003).

Close collaboration and fixed cooperative relations between trading and the consumer goods industry assume that joint measures and operations are carried out.

With the increasing spread of the Internet, portals, platforms or market places are now being used to exchange data and control the supply chain.

2.2. Formation and Control of Inter-Company Logistic Chains

The range of logistic services has considerably expanded in the last 20 years.

In accordance with the various requirements of trade and industry in respect of the depth and width of demanded services, various types of specialised logistic service companies have positioned themselves on the market.

The large range of logistic services includes both classical logistics service providers, such as carriers, shippers, airfreight and CEP (courier, express and parcels) providers, which cover the entire spectrum of transport carriers, as well as logistic consultants, software developers and information technology (IT) service providers.

A lot of undertakings in the logistic service branch are planning outsourcing of their service focus from operative through to administrative, and from intra-company through to inter-company services (Baumgarten/Kasiske/Zadek/ 2002).

The increasing share of inter-company services in the service portfolio of a logistic company sheds light on the increasing networking of value added partners.

In particular storage and inventory management, which results directly from the target systems of users of SCM, is awarded the highest priority.

The concentration on core skills and the sustainable trend for outsourcing leads to increased fragmentation of the value added chain.

Thus the field of operations for a 4 PL includes optimisation of logistic processes, such as flows of transport and information by the targeted incorporation of 3PLs and IT service providers, but also tasks of inventory control and batch size adjustment.

Supply Chain Management is a set of approaches utilized to efficiently integrate suppliers, manufactures, warehouses, and stores, so that merchandise is produced and distributed at the right quantities, to the right locations, and at the right time, in

order to minimize system wide costs while satisfying service level requirements" (Simchi-Levi et al. 2000).

"Supply chain management spans die entire enterprise and beyond, encompassing suppliers on one end, and customers on the other" (Kaminsky/Simchi-Levi, 2000).

The relevant processes are coordinated along the value-added chain in close cooperation between suppliers and producers. It is imperative to design the costs and profits of implementing SCM transparently for all participants, with the aid of suitable controlling instruments.

The potential of SCM can only be fully tapped if the present predominant optimisation of individual companies gives way to optimisation of the entire supply chain, with the focus on the customer. An essential precondition for this is the integration of all possible companies participating in a supply chain, both producers and increasingly logistics service providers, in planning, management and control processes.

As a consequence, individuals involved in activities are increasingly gaining importance, since, even in the age of modern IT systems, it is people who have to act upon and negotiate bottleneck situations with one another.

The resultant structural innovations and requirements mean, in the context of management of inter-company cooperation that a market is developing for logistics service providers with integrative service portfolio, which undertake collaboration management continuously and comprehensively (Baumgarten/Beyer/Stommel, 2004).

SCM, in terms of content, is slowly breaking away from its characteristic IT orientation and establishing itself as a concept within logistics, through the focussed incorporation of integrated logistics service providers.

The management of a "value added chain" must ensure interaction with a number of multiple integrated and interlinked units.

Supply chain responsibility, by virtue of the acknowledged importance of SCM in corporate success, is already firmly established at board and divisional level at a large number of enterprises today, and will be further consolidated in such leading positions (Pfohl, 2002).

Sustainable competitive advantages can be attained through SCM. These are produced, inter alia, through the opportunity for participating partners to concentrate on their core skills, the reduction of market risks through an efficient coordination of the supply chain, and a continuous flow of information (e.g. for production planning). The consistent alignment of business processes to the customer and its wishes allows for an increase in customer satisfaction and for the provision of an optimal service to the customer.

By virtue of optimised and IT-supported needs projections and a permanent exchange of information on needs capacities and bottleneck situations, SCM systems create transparency about quantities, inventory and sales situations, and remove information deficits. Increased cost-effectiveness in inventory holding can be attributed on the one hand to the low bullwhip effect in the supply chain and on the other hand to the fact that stocks can often be replaced by information.

The efficient coordination of intra- and inter-organisational processes with their potential advantages may therefore bring about a considerable reduction in both production and logistics costs throughout the entire supply chain (Beckmann, 2004).

SCM results of successful examples in practice appeared in German practitioners' magazines, stated usually company executives):

- ▶ Improvement of forecasting accuracy by 25% to 80%
- Stock decreases through reduced minimum inventory levels, virtual stocks and inventory sharing in a magnitude of up to 60%
- Reduction of cycle times through agreed process costs in a magnitude of 50%
- Increase in customer satisfaction through greater adherence to delivery deadlines by 5% or more, and an improvement in supplier capacity by 25% to 50%
- Cost reduction potential related to individual supply chains in a range of between 3% and 24% (average value approx. 10%)
- Profit increases by up to 30% through optimization of the common value added chain, and
- Increase in turnover and market shares in the range of up to 55% due to more responsive systems and improved customer involvement (electronic commerce).

In order to unlock the demonstrated potential, considerable investments should be conducted, particularly in the software area.

Naturally resources of SCM implementation must be available in order to take the chance.

There are facilitators and barriers mentioned in the literature, e.g. (Mentzer, Foggin and Golicic 2000), or (Larson/Poist/Halldorsson, 2007).

The impact of each barrier and facilitator was rated on a measurement scale from 0 (none) to 5 (very high). (See Table 2.1. and Table 2.2.)

 Table 2.1. SCM Implementation Facilitators

Main Facilitators	Mean
Top management support	3,85
Customer relationships	3,47
Organizational re-structuring	3,41
Integrated Logistics Management	3,26
Electronic data interchange (EDI)	3,13
Internet technology	3,11

Main Barriers	Mean
Functional silos	3,76
Incompatible technology/systems	3,51
Lack of a common SCM perspective	3,25
Conflict among supply chain members	3,23
Inadequate employee skills	3,19
Complexity of SCM	3,17
Organizational structure	3,17
Internal resistance	3,09

Table 2.2. SCM Implementation Barriers

2.3. Risks in Supply Chain Management

There is a common understanding of researchers on the fact that logistics is of particular importance for the sustained success of SCM. However, logistics has not only been in existence since the emergence of SCM.

Driven by SCM the logistic needs of companies are continually developing. This produces new requirements for large or medium logistics service providers, to which they have to respond with innovative service provision. Systemizing these requirements, and thereby understanding the demand (that is subject to change), and deducing new service bundles from this is a central point for achieving successful SCM (Deepen, 2003).

The application of SCM is however characterized by a high level of complexity, e.g. diversity of suppliers, materials, products, customers, and networking.

SCM projects are under great pressure to achieve success based on their high importance for competitiveness, but also through anticipated potential.

The followings shall be considered as essential risk factors of SCM (see Table 2.3.)

Table 2.3. Risk factors of SCM

Normative aspects		
-	different business cultures	
-	different self-awareness of participating companies	
-	absence of communal vision	
-	lack of trust between partners	

Strategic aspects

-	incompatible objectives and motives
-	unclear definition of service depths

Operational aspects

-	communication difficulties at interfaces
-	different quality standards for partners
-	different productivity of partners
-	opportunism of partners
-	incompatible IT systems
-	lack of up-to-date nature and availability of data

(Source: modified/extended list by the author, based of Beckmann, 2004)

Looking at the above mentioned risks we have to think about performance measures. The possibility of exact calculations is limited by the complexity of the problem and the so called "estimation by experts" is usually the method which can be applied.

3. The Role of the Medium Sized Logistics Service Provider within the Supply Chain

3.1. Supply Chain Management Concepts

Collaborative planning is the generic term for intensive partnership-style cooperation between companies, both on horizontal and vertical value added levels. Joint planning is of fundamental importance to the concept of SCM in the vertical domain (Beckmann, 2002).

Companies currently ascribe considerable importance to the various APS software solutions and thereby clarify the increasingly stronger permeation of logistical concepts into modern information technology (Emmermann, 2003).

Against the background of increasing customer requirements in respect of delivery times and flexibility, the necessity for more intensive cooperation between producers and their suppliers, which are sometimes global producers, is increasingly coming to the fore. The degree of cooperation among manufacturers and with their suppliers is becoming increasingly important.

Supply chain integration is considered one of the major factors in improving performance. Recent work (eg. Frohlich and Westbrook, 2001; Vickery et al., 2003; Childerhouse and Towill, 2003) has provided convincing empirical evidence for the relationship between integration and performance.

Efficient Consumer Response (ECR) is an integrated assessment of interfaces between manufacturers and trading, which are traditionally characterized by business egotism.

At the heart of ECR is the objective of eliminating inefficiencies, in particular with regard to process times and costs along the supply chain, with specific consideration for customer requirements (Emmermann 2003).

Efficient Replenishment - the optimised supply of goods - is aimed at minimising costs and lead-times on the supply side and thereby at linking real sales data, order and production.

A further development in ECR is the concept of Collaborative Planning, Forecasting and Replenishment (CPFR). In essence CPFR, similarly to ECR, is aimed at improving the interface between trading and industry, while attempting to remove a flaw, which has frequently counteracted the successful implementation of ECR:

A precondition for this is the development of uniform data formats and transfer and security standards (Emmermann, 2003).

On this basis, consumer goods manufacturers are in a position to constantly compare targeted and actual values and thereby adjust production plans in good time. (Baumgarten/Darkow, 2002).

3.2. Challenges and Strategies for the Logistics Service Providers

Neutral planning and control of the entire value added chain is however fundamental in order to achieve a comparable optimum over all value added levels and partners. The logistic system integrator, the so-called fourth party logistics service provider (4PL), offers one possible solution, while operative and coordinative logistic services are performed by third party logistics service providers (3PL).

Figure 3.1. shows a possible segmentation of logistics service providers in connection with the range of services:



Figure 3.1. Segmentation of logistics service providers (Baumgarten/Zadek, TU Berlin Visality, 2003)

Many logistics service providers are being forced to carry out a strategic realignment, due to the increased requirements of the service portfolio and the changed market and general conditions.

All three groups of service providers however will only develop their range of services globally and shall constantly review proactive alignment to the requirements of their customers, since the variable demand for logistic services means that stronger focussing on the specific needs of the customers is necessary.

In addition to suppliers, IT and logistics service providers, customers shall in particular be regarded as decisive cooperating partners in the company network.

This constitutes an argument in favour of the increasing need for highly qualified management here, which must be accompanied by investment.

Providers with an operative focus primarily plan investments in identification systems, which facilitate the control of material flows.

In addition to optimising the internal workflow through skills management and workflow systems, inter-company solutions are at the forefront of investment activity.

This involves the extensive integration of various partner systems by means of Enterprise Application Integration.

In future, conscious interaction with the resource of knowledge, and targeted use of this resource will be of decisive significance for such providers (Kuhn/Hellingrath, 2002).

Given that many companies are concentrating on their core skills, such as research and development, or production and marketing, logistics service providers will be required to perform value-added services and administrative services. The logistics provider is increasingly becoming responsible for the entire transaction, i.e. for ordering, processing of orders, payments, delivery to the end customer and customer loyalty and after-sales service.

High growth potential has been attributed to contract logistics, which is characterised by the provision of system services for selected parts of the supply chain and linking the logistics service provider to the buyer through long-term partnerships.

High requirements are placed on the IT expertise of the 4 PL through the large complexity of the network.

If a logistics service provider has acquired the skills of a 4 PL, it has a pioneering role, and can increase its share on the market.

Customer focus is an essential factor in the success of logistics service providers. Under the generic term of Customer Relationship Management (CRM), relevant concepts are available, which must be adjusted to the individual characteristics of the logistics sector.

Customer Relationship Management means the quality of customer relations for the specific purpose of creating management methods and thus improving competitiveness both within the company and for the customer and its clients (Kieffer/Zadek, 2006).

3.3. Implementation of the Supply Chain Management Concept

The provision of operational logistic services is of particular importance in fulfilling objectives and thereby in the success of supply chain management.

3 PL's are as a consequence, in the context of contract logistics service providers (or system providers), at the heart of assessing implementation, since they are of particular importance to the logistic services market.

Storage, means of transport and forwarding of orders are also described as "basic logistical functions" (Küpper/Hoffmann, 1998).

"Value-added services" should also be mentioned here, such as quality assurance or assembly works, storage, repair and testing services, or packaging, support in customs clearance.

A further approach shows that the planning tasks for SC "supply chain configuration" in integrated value-added chains, such as modelling and design services, "supply chain planning", such as planning services, and "supply chain execution", such as management services. (Luczak/Hartweg, 2001).

Beyond classical logistical services, other services must be performed, which help to build, plan and manage the supply chain.

Nine logistics-related service bundles can be identified, which constitute logistic services in the framework of SCM, classical transport and storage services, added-value transport and storage services, construction and design of supply chains, planning of supply chains, management of supply chains, supply chain controlling, IT services, financing and risk transfer services, and consulting services (Deepen, 2003).

3.4. Outsourcing - Opportunity and Challenge for Logistics Service Providers

The trend towards logistic outsourcing is continuing and increasing, and offers the logistics service provider the opportunity to develop new business areas and thereby assure long-term growth. The reasons for outsourcing are varied, however two "major driving forces" can be identified, namely cost and benefit considerations.

Outsourcing facilitates concentration on internal core skills and thus on the functions and processes.

Outsourcing also reduces the complexity of internal business processes. (Kummer, 1993).

Services for the building, design and planning of the supply chain include services of particular strategic relevance for the company. Decisions here go right to the heart of the strategic course of the company.

Supply chain controlling can only be outsourced in parts.

The situation appears different for IT and consulting services and outsourcing is likely and reasonable.

There are limits to the outsourcing of logistic services. This means, inter alia, that not all services, which could in theory be outsourced by companies, are actually outsourced.

Outsourcing of logistic services to contract logistics service providers is already a business reality for a whole series of companies.

One conclusion from these results is that, although there is a great willingness to outsource all service bundles, a similarly significant share of companies will not outsource the service bundle for a wide diversity of reasons.

Logistics service providers still have to handle a wide range of beliefs and confidence building with regard to extending customer relations into segments that are still unexploited, and this must be commenced by means of Customer Relationship Management (Deepen, 2003).

4. Customer Relationship Management as a Condition for Decisive Influence of the Logistics Service Provider within Supply Chain Management

4.1. General Conditions and Potential of Success for Logistics Service Providers

Customer focus is a substantial factor in success for logistics service providers. Customer Relationship Management (CRM) should not be understood here as a set of instruments or even a concrete IT tool, but rather as a customer-oriented business philosophy. In this context, CRM involves making the quality of customer relationships the specific object of management methods and therefore enhancing competitiveness both for their own company and for the customer (Kieffer/Zadek, 2006).

CRM has been developed as an approach based on maintaining positive relationships with customers, increasing customer loyalty, and expanding customer lifetime value. See (Blattberg/Deighton, 1996, Brassington/Pettit, 2000, Ahn/Kim/Han, 2003), etc.

The Critical Success Factors (CSFs) for CRM are the followings:

Top management support	
Communication of CRM strategy	
Knowledge management capabilities	
Willingness to share data	
Willingness to change processes	
Technological readiness	
Culture change/customer orientation	
Process change capability	
Systems integration capability	

"CRM is a customer-oriented business strategy, which attempts, with the assistance of modern information and communications technology, to build up and consolidate long-term profitable customer relationships through integrated and individual marketing, sales and service concepts" (Hippner/Wilde, 2002).

Expectations of customers may be fulfilled or even exceeded through suitable measures, and this will directly result in an increase in customer satisfaction. Customer satisfaction is extremely important to customer loyalty (Kieffer/Zadek, 2006.) and this in turn to customer loyalty and therefore long-term profit (Meyer/Dornach, 1998).



Figure 4.1. shows the phases that make up a business relationship.

Figure 4.1. Phases in the business relationship (Meyer/Dornach, 1998)

The development of a trusting relationship with the objective of long-term customer loyalty also results in a reduction in marketing and sales costs. Sales costs for new customers (business relationship lasting up to 2 years) are around eight times as high as those for longstanding customers (business relationship for at least 8 years). (Homburg/Rudolph, 1995).

The systematic management of customer relationships opens. In addition to base revenues, revenue from increased purchasing frequency, cross selling, further recommendations and accepted price rises may be achieved over time from each transaction.

It is clearly in the interest of the logistics service provider to know as much as possible about the customer, to impart the greatest possible degree of utility and to design business transaction in such a way that it is very simple for the customer to handle cooperation.



In Figure 4.2. the value of customer loyalty will be described.

Figure 4.2. The value of customer loyalty management (Gnirke, 2007 and Reichheld/Sasser, 1998)

Here we can see that the basic profit will be definitely increased by enhancements, nevertheless it takes place over a strategic time period (3-7 years).

4.2. Process Organization and Process Management

The strict alignment of processes to the customer-supplier principle is a decisive criterion for the formation of customer-oriented process chains. This results in internal customers and suppliers being assessed, as well as external customers (Zadek, 2003).

By linking inter-company and intra-company process chains, a process cycle is generated (Baumgarten, 1996).

Modern logistics management, with its integrated and inter-company approach, exerts a particular influence on the process structure. (Zadek, 2001).

The logistical process chains described above relate to a company in the value-added chain, and are focused on the customer of the company. However this only constitutes partial optimisation. Inter-company logistic management extends the assessment to the entire value added chain, horizontally and vertically. Starting with end customers, right through to raw materials subcontractors, all trading levels, manufacturers, system suppliers and subcontractors, as well as service providers, are included.

All process chains shall be aligned both to direct customers and to all subsequent and in particular to the end customers (see Figure 4.3.).



Figure 4.3. Consideration for all requirements of subsequent

4.3. Design of Customer-Oriented Logistic Processes

Logistics managers achieve higher performance through customer focus. Customeroriented logistic processes have therefore become an essential control element for active customer loyalty (Kieffer/Zadek, 2006).

Business objectives shall be aligned to the expectations of customers, and guidelines shall be formulated for dealing with customers, to be adopted as binding.

Targeted logistic services, which leave behind a sustained effect at the customer, shall be built up and extended.

Close integration of the customer allows for positive action and thereby rapid and flexible reaction to its requirements and expectations.

Within the context of such customer differentiation important customers should always be provided with slightly greater provision than demanded - such as through more efficient performance (with cost benefit) or higher quality or improved service. The so called "Kano model" gives us a clear picture of the relationship between customer expectation and customer satisfaction (see Figure 4.4.):



Figure 4.4. The Kano model of customer satisfaction (Bailom/ Hinterhuber/Matzler/Sauerwein, 1996)

Basic requirements include all service components, the fulfilment of which is simply assumed by the customer. If they are not fulfilled, this makes the customer very dissatisfied.

"Performance requirements" relate to service components expected by the customer and generally measurable. If they do not fully comply with expectations, dissatisfaction arises - if customer expectations are exceeded in this regard, satisfaction increases.

What customers regard as basic or performance requirements or as enthusiasm attributes essentially depends on their respective personal preferences and frequently differs from customer to customer.

Being aware of the significance of satisfied customers the logistics service provider must gear its CRM and customer loyalty management to further increasing its weight within customer-oriented SCM.

4.4. Handling Recommendations for Middle-Sized Logistics Service Providers

By means of customer focus strategy, logistics service providers achieve integration into the supply chain (Kieffer/Zadek, 2006) and eventually, through the implementation of individual measures, a dominant role.

5. The Significance of Selected Customer Strategy Activities at German Logistics Service Providers - Results of the Empirical Research

The author carried out an empirical research in form of a survey at 30 forwarding, transportation- and logistics companies in Germany.

The research was made step by step in the period July – December 2006.

The firms were selected out of three big German logistic cooperation-networks, consisting of medium sized logistics firms.

30 deep interviews were made in person by the author with top management executives. The question catalogue covered the following subject areas.

- Changed understanding of the role of logistics service providers
- Performance of market analyses
- Business positioning in competition
- Setting out marketing objectives
- Review of marketing measures
- ► Targeted customer segmentation
- Increase in customer loyalty
- Measuring success of customer loyalty strategy

The usage of the interviews was 21 out of 30.

The answers of 9 interview partners could not meet the quality demands of the author.

The research was done to find indications for successful logistics service provider using CRM. Therefore - assuming the elements are of the same value – the average of the interview elements per subject area was calculated as unit of measurement. The result is shown in Figure 5.1.:



Figure 5.1. Overall positioning

Based on the need to deal with CRM you can see that the interview partners are focused only on changed understanding of the role of the logistics service provider and performance analyses. The importance of the other subject areas is under-estimated. This means, that there is a good chance for further improvement. Basically, it is not sufficient to set the target concerning marketing, competition and customer loyalty. Measuring the results and follow up must take place.

The final step was to select the interview partners in the turnover segment 165 - 225 Mio. \in , which had a substantial growth during the last years from the others. Using the above mentioned methods a reasonable result was achieved, fit to be realized.



Figure 5.2. Winner positioning

The investigation, shown in Figure 5.2, comes to the conclusion, that firms with significant betters results in the subject areas concerning marketing and customer loyalty are in the position to grow faster. It is therefore a challenge to reach a professional CRM-status.

6. Closing Summary and Conclusions

This dissertation is intended to address the central importance of Customer Relationship Management for the logistics service provider in successful business management.

The growing importance of Supply Chain Management is beyond dispute - primarily in the case of industrial and commercial companies intending to concentrate increasingly on their core business. This releases the potential for logistic tasks, which offer development opportunities for logistics service providers in respect of differentiation from competitors and which facilitate access to Supply Chain Management. The development of the logistics service provider into a recognized and difficult-to-replace partner within the overall supply chain requires a changed role understanding (**Thesis 2**) and the establishment of diverse skills with regard to service portfolio, special services and IT management. This is the only way for it to achieve a leading position as a Third Party Logistics service provider (3 PL).

Successful differentiation from the competition, resulting in a firmly established market position, requires the targeted use of marketing instruments. Planning and implementation of the service portfolio. Is focussed on customer needs and customer expectations, and thereby generates customer loyalty, which in turn leads to a successful long-term business relationship (**Thesis 3**).

Customer loyalty tends rather to be achieved through service quality, in conjunction with joint exploitation of improvement potential, which enhances business performance for each partner involved. The need for action in the design of customer relationships results directly in the demand for the logistics service provider to become more intensively involved in Customer Relationship Management, where a dominant role is meant to be achieved within the supply chain (**Thesis 1**).

The top management of the logistics service provider must be in a position to achieve a high degree of competence in order to run the complex logistic processes within the overall internal business processes. This make sure that both partners are satisfied and successful (**Thesis 4**).

"Benefit"-type analysis – demonstrating the benefits from the cost side and the management side - is shown in Table 6.1.:

Financial/Cost advantages	Other management advantages
- less cost of production	- focus on core business
- improved capacity utilisation	 less complexity of business processes
- less cost for investment and	- favourable wage standards
management	
- improved resources utilisation	- using technology and infrastructure of
	logistics service provider
	- improved competitiveness

Table 6.1. Advantages for partners when achieving additional dominance of Logistics service providers

Considering the advantages even at other supply chain members, the role of a Dominant Logistics Service Provider (DLP) is desirable and useful.

The PhD candidate is convinced that logistics medium sized service providers will be the winners as partner in joint networks assuming the are

- ready to learn
- ▶ ready to change
- ready to implement
- ready to work on advanced SMI (Supplier managed inventory) and VMI (Vendor managed inventory) projects based on effective CRM and experience in SCM.

References

Adobor, H. / Mc Mullen, R.: Supplier diversity and supply chain management: A strategic approach, Kelley School of Business, 2007

Bailom, F. / Hinterhuber, H.H. / Matzler, K. / Sauerwein, E.: Das Kano-Modell der Kundenzufriedenheit, in: Marketing ZFP Heft 2, 1996

Bailom, F. / Tschemernjak, D. / Matzler, K. / Hinterhuber, H. H.: Durch strikte Kundennähe die Abnehmer begeistern, in: Harvard Business Manager, Heft 1/98, 1998

Baumgarten, H. (1996a): Prozesskettenmanagement, in: Kern, W. / Schröder, H. H. / Weber, J. (Hrsg): Handwörterbuch der Produktionswirtschaft, Stuttgart, 1996

Baumgarten, H.: Prozesskettenmanagement in der Logistik, in: Weber, J. / Baumgarten, H. (Hrsg): Handbuch Logistik – Management von Material- und Warenflussprozessen, Stuttgart, 1999

Baumgarten, H. / Beyer, J. / Stommel, H.: Planungs- und Steuerungs-aufgaben in industriellen Versorgungsnetzwerken, in: Jahrbuch Logistik, 2004

Baumgarten, H. / Walter, S.: Trends u. Strategien in der Logistik 2000 plus, Berlin, 2000

Baumgarten, H. / Darkow, I. L.: Konzepte in Supply Chain Management, in: Dangelmaier, W. / Busch, A. (Hrsg): Integriertes Supply Chain Management, 2002

Baumgarten, H. / Thoms, J.: Supply Chains im Wandel, in: Jahrbuch der Logistik 2003 – Logistik – Perspektiven, Trends und Strategien in der Logistik, Düsseldorf, 2003

Baumgarten, H. / Zadek, H.: Segmente der Logistikdienstleister, in: TU Berlin Visuality, 2003

Baumgarten, H. / Kasiske, F. / Zadek, H.: Logistikdienstleister – Quo vadis? Stellenwert der Fourth Party Logistics Service Provider (4 PL), in: Logistik Management, 4 Jg., Nr. 1, 2002

Baumgarten, H.: Trends und Strategien in der Logistik, (Hrsg): TU Berlin / BVL, Berlin, 2002

Beckmann, H.: Potenziale des Collaborative Planning, in: Jahrbuch Logistik, 2002

Beckmann, H.: Supply Chain Management: Grundlagen, Konzepte und Strategien, in: Beckmann, H. (Hrsg): Supply Chain Management, Strategien und Entwicklungstendenzen in Spitzenunternehmen, Berlin-Heidelberg-New York, 2004

Binner, F. H.: Strategisches Logistikmanagement als Management unternehmensübergreifender Wertschöpfungsketten begreifen, in: Päbst, L. M. / Wipki, B. (Hrsg): Marketing in der Logistik, Hamburg, 2003

Bock, F.: Der Hochleistungsansatz von Arthur D. Little, in: Nippa, M. / Picot, A. (Hrsg): Prozessmanagement und Reengineering, Frankfurt-New York, 1995

Brill, H.: Mit neuen Systemen in Vertrieb und Marketing die Konkurrenz abhängen, in: HMD, Nr. 204, 1998

Bretzke, W. R. (1993 a): Pro und Contra Outsourcing von Logistikleistungen, in: Beschaffung aktuell, 1993, Nr. 6, S. 37 – 39

Chen, Y.-H. / Su, C.-T.: A Kano – CKM Model for Customer Knowledge Discovery; Total Quality Management, Vol. 17, 2006

Chikán Attila, Demeter Krisztina (2006): Company Characteristics, Operations Competitiveness and Overall Performance, in: International Journal of Quant. Management, 12, pp 107-125

Chikán A, Czakó E, Zoltayné Paprika Z (ed.) (2002): National Competitiveness in Global Economy: the Case of Hungary, Budapest: Akadémiai Kiadó, 2002

Chow, G.-H. / T.-Henrikson. L.: Logistics Performance Definition and Measurement, International Journal of Physical Distribution and Logistics Management, Vol. 24 No 1., 1994

Cooper, M. C. / Lambert, D. M. / Pagh, J. D.: Supply Chain Management: More than a New Name for Logistics, in: The International Journal of Logistics Management, 8 Jg., Nr. 1, 1997

Corsten, D. / Gabriel, C.: Supply Chain Management erfolgreich umsetzen, Berlin-Heidelberg, 2004

Deepen, J.: Die Rolle des Logistikdienstleisters im Supply Chain Management – Eine konzeptionell - empirische Betrachtung, in: Weber, J. / Deepen, J.: (Hrsg): Erfolg durch Logistik, Erkenntnisse aktueller Forschung, Bern-Stuttgart-Wien, 2003

DVZ / Miebach-Logistik: Studie Markenmanagement: Markenmanagement und Marketing für Logistikdienstleister, Hamburg, 2005

ECR Monitor: ECR Status in Deutschland und der Schweiz, Abschlussbericht des dritten ECR Monitors, 2001

Emmermann, M.: Beitrag zur Entwicklung der Prozesskette "Entsorgung" auf der Basis einer managementorientierten Entsorgungslogistik, in: Baumgarten, H. / Ihde, G. H. (Hrsg): Schriftenreihe der Bundesvereinigung Logistik, Band 40 München, 1996

Emmermann, M.: Supply Chain Management in der Praxis - Schlagwort oder Erfolgsfaktor, in: Päbst, L. M. / Wipki, B. (Hrsg): Marketing in der Logistik, Hamburg, 2003

European Logistics Association (ELA) (Hrsg): Towards the 21st Century, Trends and Strategies in European Logistics, Results of the ELA Survey 1997, Berlin - Brüssels, 1997

Fischer-Neeb, D.: Customer Relationship Management – der Kunde im Mittelpunkt, in: Information Management Consulting, Nr. 1, 2000

Fürst K. / Schmidt, T.: Turbulent markets needs flexible supply chain communication, 2001

Fung, P.: Managing purchasing in a supply chain context – evolution and resolution, Logist Information Management 12, 1999

Gaitanides, M.: Prozessorganisation – Entwicklung, Ansätze und Programme prozessorientierter Organisationsgestaltung, München, 1983

Gerberich, C.: Modernes Logistikmanagement mit Balanced Scorecard, in: Päbst, L. M. / Wipki, B. (Hrsg): Marketing der Logistik, Hamburg, 2003

Göpfert, I. (Hrsg): Logistik der Zukunft – Logistics for the Future, Marburg, 2006

Gnirke, W.: Wertsteigerung durch Kundenbindung, in: DVZ Nr. 23, 2007

Hellingrath, B. / Laakmann, F. / Nayabi, K.: Auswahl und Einführung von SCM – Softwaresystemen, in: Beckmann, H. (Hrsg): Supply Chain Management, Berlin-Heidelberg, 2004

Hippner, H.: CRM – Grundlagen, Ziele und Konzepte, in: Hippner, H. / Wilde, K. D. (Hrsg): Grundlagen des CRM, Konzepte und Gestaltung, Wiesbaden, 2006

Hippner, H. / Wilde, K. D.: CRM – Ein Überblick, in: Helmke, S. / Dangelmaier, W. (Hrsg): Effektives Customer Relationship Management, Wiesbaden, 2002

Homburg, C. / Garbe, B.: Das Management industrieller Dienstleistungen – Problemfelder und Erfolgsfaktoren, in: Homburg, C. (Hrsg): Management Know-how praxisnah und aktuell, Paket 2: Kundennähe, Teil 3, Vallendar, 1995

Homburg, C. / Rudolf, B.: Wie zufrieden sind Ihre Kunden tatsächlich?, in: Harvard Business Manager, 17 Jg., 1995

Homburg, C. / Sieben, F. G.: Customer Relationship Management (CRM) – Strategische Ausrichtung statt IT-getriebener Aktivismus, in Brühn, M. / Homburg, C. (Hrsg): Handbuch Kundenbindungsmanagement, Wiesbaden, 2005

IBM Global Business Services: Studie Advocacy in the customer focused enterprise: The next generation of CRM Done Right, Copyright IBM Corporation, 2006

Inkalainen, A. / Vepsalainen, A.: SCM-Redesign, in: Szegedi/Prezenszki: Logisztikamenedzsment, Kossuth, 2005

Jammernegg, W. / Reiner, G.: Performance improvement of supply chain processes by coordinated inventory and capacity management, International journal of production economics Nr. 108, 2007

Jost, A.: Kundenmanagementsteuerung – Erweiterung der Vertriebssteuerung im Rahmen umfassender CRM-Systeme, in: Blinnel, F. / Fassot, G. / Theobald, A. (Hrsg): Electronic Commerce - Herausforderungen, Anwendungen, Perspektiven, Wiesbaden, 1999

Kearney, A.T.: Measuring and Improving Productivity in Physical Distribution, National Council of Physical Distribution Management, Chicago, 1984

Kennedy, A. / Kelleher, C. / Quigley, M.: CRM Best Practice; Getting it right first time at ESB International, School of Marketing, Faculty of Business, Dublin Institute of Technology, 2006

Kieffer, D. / Zadek, H.: Customer Relationship Management für Logistik-Dienstleister, in: Jahrbuch Logistik, 2006

King, S. F. / Burgess, T. F.: Understanding success and failure in customer relationship management; Industrial Marketing Management, 2007

Klaus, P. / Kille, Ch.: Die Top 100 der Logistik, Hamburg, 2006

Koether, R.: Logistik als Managementaufgabe, in: Koether, R. (Hrsg): Taschenbuch der Logistik, Leipzig, 2006

Küpper, H. U. / Hoffmann, H.: Ansätze und Entwicklungstendenzen des Logistik-Controllings in Unternehmen der BRD, in: DBW, 48. Jg., 1988 **Kuhn, A.**: Trends in der Logistik – Perspektiven aus Sicht eines Forschungsdienstleisters, in: Jahrbuch Logistik, 2003

Kuhn, A. / Hellingrath, H.: Supply Chain Management, Optimierte Zusammenarbeit in der Wertschöpfungskette, Berlin-Heidleberg-Ney York, 2002

Kumar: Customer lifetime value is the path to prosperity; Marketing Research 41, 2006

Kummer, S.: Outsourcing von Logistikleistungen: Controlling wirkt qualitätssichernd, in: Beschaffung aktuell, Nr. 11, 1993

Larson, P. / Poist, R. / Halldorson A.: Perspectives on Logistics vs. SCM: A survey of SCM professionals, Journal of business logistics, Vol. 28, No 1, 2007

LBBW: Branchen-Update Logistik, Stuttgart, 2004

Lebensmittelzeitung / Miebach Logistik: SCM in der Konsumgüterbranche 2004 – eine Studie über die Strukturen der Logistik und des Supply Chain Managements, Frankfurt, 2004

Luczak, H. / Hartweg, E.: Supply chain Management Systeme, in: Sebastion, H.J. / Grünert, T. (Hrsg): Logistik Management, Supply Chain Management und e` Business, Stuttgart, 2001

Mau, M.: Supply Chain Management - Prozessoptimierung entlang der Wertschöpfungskette, Weinheim, 2003

McGinnis, M. / Kochunny, C.M. / Ackermann, K.B.: Third Party Logistics Choice, The International Journal of Logistics Management, Vol. 6 No. 2, 1995

Meyer, A. / Dornach, F.: Das deutsche Kundenbarometer 1998 - Qualität und Zufriedenheit, in: Jahrbuch der Kundenzufriedenheit 1998, München, 1998

Pakurár M. / Gályász, J. / Nagy, J.: Information networks of supply chains in the region of Eastern Hungary. AVA 2 International Conference on Agricultural Economics, Rural Development and Informatics. Debrecen, 2005

Pakurár, M. / Gályász, J. / Szabados, Gy.: Clasters in agrologistics Integrated systems for agri-food production, in: Proceedings of the SIPA'05, Timisoara, 2005

Pató Gáborné Szücs Beáta-Kovács Zoltán- Pató Gábor : "Unnecessary" skills in Logistics, in: Logistical Yearbook 2007-2008, MLE, Budapest, (2008) pp. 129-136

Pfohl, H. C.: Logistiktrends: Supply Chain Management aus der Sicht des Top Managements, in: Pfohl, H. C. (Hrsg): Risiko- und Chancenmanagement in der Supply Chain, Darmstadt, 2002

Pfohl, H. C.: Supply Chain Management: Konzept, Trends, Strategien, in: Pfohl, H. C. (Hrsg): Supply Chain Management: Logistik plus?, Logistikkette – Marketingkette – Finanzkette -, Darmstadt, 2000

Rust, R. T. / Chung, T. S.: Marketing Models of Service and Relationship, Marketing Science, Vol. 25, No. 6, Nov.-Dec., 2006

Rekettye, G. / Fojtik, J.: The changing Role of Pricing in the New Millennium, Organizaciaja – Journal of Management, Informatics and Human Ressources (Slovenia), Vol 33., 2000

Rekettye, G. / Farkas, F.: Relevant Management Issues, Organizacija in Management, (ISBN 86-81049-99-2) Portoroz, 1996

Reichheld F. F. / Sasser, W. E.: Zero – Migration – Dienstleister im Sog der Qualitätsrevolution, in: Bruhn, M. / Homburg, C. (Hrsg): Handbuch Kundenbindungsmanagement – Grundlagen, Konzepte, Erfahrungen, Wiesbaden, 1998

Schwede, S.: Vision und Wirklichkeit von CRM, in: Information Management Consulting, Nr. 1, 2000

Schwetz, W.: Customer Relationship Management – Mit dem richtigen CAS / CRM-System Kundenbeziehungen erfolgreich gestalten, Wiesbaden, 2000

Szegedi, Z.: Logistics in Small and Medium Companies in Central- and Eastern Europe, in: International Journal of Procurement Management, Vol. 1, Nr. 3. (2008), pp.359-370. ISBN: 0 7277 2599 8.

Szegedi, Z. / Illés B. Cs.: Logistics and Supply Chain Management for Hungarian Middle-Sized Companies: Effect on Competitiveness, in: Proceedings of the 10th International Conference of the Society for Global Business & Economic Development, August 8-11, 2007, Kyoto, Japan, p. 2522-2533,

Szegedi, Z. / Geisler, P.: EU-Partner Hungary, a short transportation-logistics outlook in: Scientific Proceedings, Special Issue, Budapest College of Management, 2002

Szegedi, Z. / Prezenszki, J.: Logisztika-menedzsment, Kossuth Publishing House, Budapest, 2003

Tan, E. N. / Smith, G. / Saad M.: Managing the global supply chain: a SME perspective Production Planning & Control No. 4, 2006

Tan, K. C.: A. framework of supply chain management literature, Euro J. Purch & Supply Chain Management, 2001

Thaler, K.: Informationslogistik, in: Koether R. (Hrsg) - Taschenbuch der Logistik, München – Wien, 2006

Van der Vaart, T. / van Donk, D. P.: A critical review on survey-based research in supply chain integration; International journal of production economics No. 111, 2008

Vörös, J.: Lot Sizing with Quality Improvement and Setup Time Reduction, European Journal of Operational Research, 1999

Wallenburg, C. M.: Kundenbindung in der Logistik, Eine empirische Untersuchung zu ihren Einflussfaktoren, Bern-Stuttgart-Wien, 2004

Wannenwetsch / Nicolai: eSupply Chain Management – Grundlagen Strategien und Praxisanwendungen, Wiesbaden 2002

Weber J.: Stand und Entwicklungsperspektiven des Logistik-Controlling, WHU-Forschungspapier, Nr. 61, Vallendar, 1999

Weber J. / Dehler M.: Entwicklungsstand der Logistik, in: H. C. Pfohl (Hrsg): Supply Chain Management: Logistik Plus?, Logistikkette – Marketingkette - Finanzkette, Darmstadt, 2000

Wehrmeister, D.: Customer Relationship Management – Kunden gewinnen und an das Unternehmen binden, Köln, 2001

Werner, H.: Supply Chain Management, Wiesbaden, 2000

Wildemann, H.: Von Just-In-Time zu Supply Chain Management, in: Wildemann, H. (Hrsg): Supply Chain Management, München, 2000

Wolf, S.: Zeitoptimierung in logistischen Ketten – Ein Instrumentarium zum Controlling von Liefer- und Durchlaufzeiten bei kundenspezifischer Serienproduktion, in: Baumgarten, H. / Ihde G. H. (Hrsg): Schriftenreihe der Bundesvereinigung Logistik, Band 35, München, 1995

Zadek, H.: Customer Relationsship Management - Anforderungen an das Leistungsportfolio von Logistik-Dienstleistern, in: Päbst, L. M. / Wipki, B. (Hrsg): Marketing in der Logistik, Hamburg, 2003

Zadek, H.: E-Supply Chain Management in der Automobilindustrie, in: Dangelmaier, W. / Pape, N. / Rüther, M. (Hrsg): Die Supply Chain im Zeitalter von E-Business und Global Sourcing, Fraunhofer ALB, Paderborn, 2001

Author's own publications related to the topic

- Josef Zellner: Vegyi nagyüzem gyártáslogisztikai rendszerének továbbfejlesztése (Development of the Productions-logistics System of a Chemical Company), in: TRANZIT, September 2007 (VIII.) pp. 32-34, ISSN: 1419-8983
- Josef Zellner: Az V-ös közlekedési folyosó, mint az europai logisztikai integráció stratégiai kitörési pontja, in: Proceedings of the Conference: "Gazdasági és kulturális szakmai együttműködés az V. korridor nyomvonalán" (EUROCLIP Foundation-College of Nyiregyhaza, 25. April, 2008.) (Co-authors: Dr. Zoltan Szegedi, Dr. Imre Egri)
- English version of "2.": Traffic Corridor V, as the Strategic Take-off Point ot Europaean Logistics Integration, in: Proceedings of the Conference: "Gazdasági és kulturális szakmai együttműködés az V. korridor nyomvonalán" (EUROCLIP Foundation-College of Nyiregyhaza, 25. April, 2008.) (Co-authors: Dr. Zoltan Szegedi, Dr. Imre Egri)
- Ukrainian version of "2.": Pjatnij transportnij koridor, jak vaschlivij strategitschnij faktor evropejskoj logistitschnoi integrazii, in: Proceedings of the Conference: "Gazdasági és kulturális szakmai együttműködés az V. korridor nyomvonalán" (EUROCLIP Foundation-College of Nyiregyhaza, 25. April, 2008.) (Co-authors: Dr. Zoltan Szegedi, Dr. Imre Egri)
- Josef Zellner: SMI (Supplier Managed Inventory) eine neue Problemlösung innerhalb der Beschaffungslogistik (Supplier Managed Inventory – a New Problem Solution within Procurement Logistics), in: LOGISTIKA, Prag (CZ), 02/2008
- Josef Zellner: European Logistics Integration Possibilities on the Example of Corridor V, in: Prager Zeitung / Rubrik Verkehr und Logistik, Prag (CZ), 06/2008
- Josef Zellner: Das DLP-Modell eine konzeptionelle Unternehmens-Strategie f
 ür Logistikdienstleister (DLP-Model – A Strategic Corporate Strategy for Logistics Service Provider), in: NIEDERBAYERISCHE WIRTSCHAFT, Passau (D), follows in 08/2008