

B2B E-Commerce

The Future of Business Transactions & Relationships

by: Birger Gröblichhoff
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Abstract

This paper analyses Business-to-Business electronic commerce. After explaining the term and giving a historical overview of the recent development, the three types of electronic marketplaces are introduced. First, the Supplier-Oriented Marketplace, where few sellers deal with many buyers. Second, the paper's focal point, the Buyer-Oriented Marketplace, in which few buyers dominate the relationship with many sellers. Third, the Intermediary-Oriented Marketplace, where an independent party coordinates the relationship between sellers and buyers. The paper ends with a summary and looks at possible problems.

key words: B2B, e-markets, e-commerce

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1 Introduction

This paper is concerned with electronically supported business relationships and concentrates on Business-to-Business electronic commerce. It will be shown how electronic markets are used to increase a company's efficiency in transactions. Part two explains the term Business-to-Business electronic commerce. The third part deals with the recent development of this new business model. Part four describes the three e-markets: Seller-Oriented Marketplace, Buyer-Oriented Marketplace and Intermediary-Oriented Marketplace. Special emphasis is laid on the Buyer-Oriented Marketplace because it affects most industries. How costs can be reduced by using this type of electronic market and which problems might emerge are described. The last part is a concluding one. It will summarize the most important facts and advantages but also give an outlook on possible problems.

This paper concentrates on electronic markets and starts by quoting Peter Drucker. He shows how business relationships between companies and suppliers have changed with the appearance of the Internet. He uses the example of General Motors to demonstrate this change: "By now the new information technology – Internet and e-mail – have practically eliminated the physical costs of communication. This has meant that the most productive and most profitable way to organize is to disintegrate."¹ Companies are most efficient in their main businesses. Strongly decreasing communication costs mean that there is the possibility to reduce production costs. This can be done e.g. by outsourcing activities not belonging to the company's main business. Traditionally, General Motors has owned or controlled its suppliers of parts and accessories. This has changed with the appearance of the Internet. General Motors has divested itself from much of its manufacturing by spinning off into a separate company, called Delphi. Instead of owning or controlling the suppliers, General

¹ Drucker, P. (2001) 'Will the corporation survive? Yes, but not as we know it'; p. 17

Motors will in future buy the parts and accessories at auctions on the Internet.² General Motors uses a Buyer-Oriented Marketplace together with other automobile manufacturers which is described in the main part of the paper.

2 What is B2B E-Commerce?

Electronic commerce is an emerging concept that describes the process of buying and selling or exchanging products, services and information via computer networks including the Internet. E-Commerce can be mainly divided into Business-to-Business electronic commerce (B2B EC) and Business-to-Consumer electronic commerce (B2C EC). B2B EC implies that both sellers (suppliers) and buyers are business corporations, while B2C EC implies that the buyers are individual consumers.

The leading items in B2B EC are computing electronics, utilities, shipping and warehousing, motor vehicles, petrochemicals, paper and office products, food and agriculture. B2B EC is the electronic support of business transactions between companies and covers a broad spectrum of applications that enable an enterprise or business to form electronic relationships with their distributors, resellers, suppliers, and other partners.³ B2B EC does not just comprise the transaction via the Internet, but also the exchange of information before and the service after a transaction. From the purchasing company's point of view, B2B EC is a medium for facilitating procurement management by reducing the purchase price and the cycle time.⁴ According to Schneider and Schnetkamp, Business-to-Business EC is expected to grow explosively in the next years and to continue to be the major share of the electronic commerce

² cf. Drucker, P. (2001) 'Will the corporation survive? Yes, but not as we know it'; p. 18/19

³ cf. Turban, E. et. al. (2000) 'Electronic Commerce – A Managerial Perspective'; p. 199

⁴ Turban, E. et. al. (2000) 'Electronic Commerce – A Managerial Perspective'; p. 202

market. It is estimated that the B2B EC sector is going to be eight to ten times the size of the B2C EC sector.⁵

3 Historical Overview

The development of B2B EC took place in three, partly overlapping, stages. Stage one was the *Electronic data interchange (EDI)*, which realized the standardized, bilateral exchange of business information (e.g. orders and requests for products) electronically. A necessary condition for realizing the exchange of data were expensive, proprietary networks, called Value Added Networks (VAN). As a consequence, just large companies were able to use this method. EDI made faster processes possible and lowered the error rates due to former manual processing. EDI has been used since the 1970s.⁶ The problem of the highly expensive Value Added Networks was solved through the worldwide acceptance of the Internet. The Internet made *Internet catalogues*, which were the second stage of the B2B EC's development, possible. Companies were able to present information on their products via the Internet. Prospective buyers had permanent access to actual data. Providing information this way is a lot more cost-effective than using paper, telephone and fax. Especially by using Internet catalogues, it was possible to handle small and standardized transactions more efficiently. Supporting business transactions with Internet catalogues was given special emphasis until 1999.⁷

The third and present stage of B2B EC (since 1999) are *electronic markets (e-markets)*. E-markets are "virtual rooms" in which different participants are able to interact via the Internet. Several buyers, sellers and service-providers have access to the e-markets.

⁵ Schneider, D. et al. (2000) 'E-Markets'; p. 19,21

⁶ Rockwell, B. (1998) 'Using the Web to compete in a Global Marketplace'; p. 64

⁷ cf. Schneider et. al. (2000) 'E-Markets'; p. 20

E-markets do not just provide information like the Internet catalogues, but also support the negotiation, the transaction and the services afterwards. In 1999, the e-market volume was about 76 billion US\$. The volume is expected to grow to 1,800 billion US\$ in 2003.⁸

4 Three models of B2B EC

In this section, the three models of B2B EC are described. They are classified depending on who controls the marketplace: the buyer, the supplier or the intermediary.

- In a Buyer-Orientated Marketplace few buyers face many suppliers.
- In a Supplier-Oriented Marketplace many buyers face few suppliers.
- In an Intermediary-Oriented Marketplace many buyers face many suppliers.

Other important B2B models are virtual corporation, networking between the headquarters and subsidiaries and online services to business. This paper concentrates on the three B2B EC models.

4.1 Supplier-Oriented Marketplace (Sell-Side-Solution)

4.1.1 Characteristics of the Supplier-Oriented Marketplace

Supplier-Oriented Marketplaces offer a group of customers a wide spectrum of products and services and also support them in their own business. Furthermore, there are large potentials through customer communities, individualized products and direct customer-relationships. By using Supplier-Oriented Marketplaces, suppliers are offered new types of market channels in marketing and distribution. Products can be sold directly to the customer without using intermediaries. According to Turban, Lee, King and Chung, the cultivation of customer-relationships is also possible.⁹ Most manufacturer-driven electronic stores use this form of

⁸ cf. Schneider et. al. (2000) 'E-Markets'; p. 21

⁹ cf. Schneider et. al. (2000) 'E-Markets'; p. 147,148

marketplace. Successful examples of this business model are e.g. Dell and Cisco. Dell sold 90 percent of their computers directly to business buyers and Cisco sold US\$ 1 billion worth of routers, switches and other network interconnection devices mainly to business customers in 1997. Both Dell and Cisco sold and sell their products via the Internet. However, not only Dell and Cisco use the Supplier-Oriented Marketplace, there are thousands of other companies using this model. The major issue especially for small companies is how to find buyers for their products. Excellent reputation and a group of loyal customers are necessary for the success of the sites using this model. Another application of the Supplier-Oriented Marketplace are auction sites like e.g. the computer reseller Ingram Micro. Companies can e.g. sell surplus goods and business customers can therefore realize large discounts.¹⁰

4.1.2 Example of the Supplier-Oriented Marketplace: Cisco Connection Online Case¹¹

Cisco uses the Supplier-Oriented Marketplace successfully. The market is operated by Cisco Connection Online. In 1997 Cisco sold more than US\$ 1 billion online (total: US\$ 6.4 billion) of routers, switches and other network interconnect devices. Cisco's business model also includes customer service and finding order status. In 1991, Cisco began providing electronic support using the Internet. The first applications were software downloads, defect tracking and technical advice. Three years later, in 1994, Cisco put its system on the Web naming it Cisco Connection Online. By 1998, customers were using Cisco's Web site about one million times a month to receive technical assistance, check orders or download software. Nearly 70 percent of the technical support and customer service calls are handled online. As a result, Cisco increased its technical support productivity by about 200 to 300 percent per year. Furthermore, the online technical support reduced technical support staff costs by about US\$ 125 million. Since 1996, Cisco's Internet Product Center allows customers to buy any

¹⁰ cf. Turban, E. et. al. (2000) 'Electronic Commerce – A Managerial Perspective'; p. 204,205

¹¹ cf. Turban, E. et. al. (2000) 'Electronic Commerce – A Managerial Perspective'; p. 210,211

products via the Web, saving time for both Cisco and its customers. Before the development of the Web site, ordering a product was lengthy and complicated. Cisco also provides tools on its Web site where customers can find answers to questions like e.g. “When will the order be ready?”.

Cisco estimates that putting its applications online in 1998 saved the company US \$363 million per year. Additionally, Cisco saves US\$ 180 million per year in distribution, packaging and duplication, because customers download new software releases directly from Cisco’s site. By providing product and pricing information on the Web site and on Web-based CD-ROMs, Cisco also saves US\$ 50 million per year in printing and distributing catalogues.

4.2 Buyer-Oriented Marketplace (Buy-Side-Solution)

4.2.1 Characteristics of the Buyer-Oriented Marketplace

By using Supplier-Oriented Marketplaces, buyers would have to search electronic stores and electronic malls to find and compare suppliers and products. This would be very costly and time consuming for big buyers, who purchase thousands of items on the Internet. As a result, such big buyers prefer to open their own marketplace, which is called a Buyer-Oriented Marketplace.¹² By supporting transactions and procurement processes, these marketplaces offer great potentials in cost savings. Buyer-Oriented Marketplaces are found in industrial sectors with few and dominant buyers.

Essential elements of the marketplace are:¹³

- guidelines for transactions

¹² Turban, E. et. al. (2000) ‘Electronic Commerce – A Managerial Perspective’; p. 205

¹³ Schneider et. al. (2000) ‘E-Markets’; p. 66

- Internet-based product and supplier catalogue
- availability check
- informational support of negotiations
- invitation to bid in auctions and submissions
- catalogue ordering
- support of transactions
- delivery inspection
- quality management

4.2.2 Potentials of Electronic Procurement

In many companies, procurement has become one of the most important functions in the last years. Companies realized the existence of great potentials in cost savings by supporting procurement electronically. Product-, process- and inventory costs can be reduced by using electronic procurement (E-Procurement). E-Procurement is mostly realized in Buyer-Oriented Marketplaces.¹⁴

4.2.2.1 Product Costs

Lower product costs can be realized by reducing purchase prices through E-Procurement. This is achieved mainly by the following points:¹⁵

- access to small companies located in foreign countries is facilitated
- procurement systems aimed at key-suppliers can efficiently be expanded to other suppliers
- procurement cycles can be shortened and also be supported by e.g. auctions

¹⁴ Kösling, A.-W. (2001) 'Eine Einführung in B2B E-Commerce'; p.10

¹⁵ cf. Schneider et. al. (2000) 'E-Markets'; p. 73 & on Gerberich, C. W. (2001) 'Wie das Internet klassische Vertriebsstrukturen verändert'; p.215

- purchase volume can be bundled up from internal business departments and from partner companies

These points are mainly true for suppliers e.g. of bolts, nuts and stationeries. Suppliers of highly specialized products are less affected. In 1999, the Aberdeen Group found out that large-scale enterprises were able to reduce product costs by 5-10% on average using Buyer-Oriented Marketplaces.¹⁶

4.2.2.2 Process Costs

Reducing the process costs is the greatest potential of E-Procurement. Up to now, one order has caused costs on average DM 200-300. Internal bureaucracy is responsible for a large part of the costs. E-Procurement can reduce process costs up to 90 percent.¹⁷ These cost savings are realized through the following improvements:

- more effective handling of administrative tasks like e.g. delivery inspection or order forms through electronic support
- faster and more efficient internal coordination like e.g. signatures that are necessary for an authorization
- better information by e.g. updating product catalogues and descriptions regularly
- avoiding errors (e.g. wrong article numbers)
- faster searching for products¹⁸

The 1999 investigation of the Aberdeen Group showed that process costs (of large-scale enterprises) were reduced on average from over US\$ 100 to US\$ 30 using Buyer-Oriented Marketplaces.¹⁹

¹⁶ Schneider et. al. (2000) 'E-Markets'; p. 74

¹⁷ Schneider et. al. (2000) 'E-Markets'; p. 72,73

¹⁸ McCuiston, V. et al. (2001) 'Developing Sustainable Relationships through B2B E-Commerce'; p. 124

¹⁹ Schneider et. al. (2000) 'E-Markets'; p. 74

4.2.2.3 Inventory Costs

Long delivery times and poor transparency of orders cause higher inventory levels, which lead to higher capital costs and to partial loss of the inventory's value. This affects the profitability of the company negatively. E-Procurement can decrease the inventory levels by 20-40 percent. The Aberdeen Group showed that inventory costs were reduced by 25-30 percent.²⁰

4.2.3 Possible Problems of Electronic Procurement

The Buyer-Oriented Marketplace offers many potentials in cost savings. The marketplace theoretically offers benefits to all participants but the reality shows that they are mainly realized by buyers and key suppliers. The automobile manufacturers DaimlerChrysler, Ford and General Motors joined to form Covisint, a Buyer-Oriented Marketplace. They expect to realize cost savings of up to US\$ 1000 per car. Other automobile companies are interested in joining. Suppliers like e.g. Continental and Karmann, who manufacture specialized products and who are market leaders in their segments, welcome the electronic marketplace. There are interdependencies between these suppliers and the buyers. They can also realize cost savings e.g. in process costs. Many small and medium-sized companies, on the other hand, are confronted by a new situation. They often manufacture unspecified products and have largely invested in the business relationships e.g. by basing their plant close to the buyer. The new marketplace increases the dominance of the buyers. The buyers can put them under pressure with new alternatives and can realize lower purchase prices. These companies are threatened by the new situation.²¹

²⁰ Schneider et. al. (2000) 'E-Markets'; p. 74

²¹ cf. Baumann, M. et al. (2000) 'e-Business – Erfolgreich in die digitale Zukunft'; p. 263

4.2.4 Example of the Buyer-Oriented Marketplace: GE²²

The buyer's bidding site is the most popular type of Buyer-Oriented Marketplace. This example shows GE's electronic bidding site (GE TPN Post) which enhances the company's procurement process. GE also opened its site to other buyers which also can profit from the benefits. GE charges fees for using its site and therefore generates additional profits. For using GE's bidding site, buyers prepare bidding project information and post it on the Internet. After the identification of potential suppliers, these suppliers are invited to bid on the project. Suppliers can download the project information from the Internet and submit bids for the project. Buyers then evaluate the supplier's bids and may negotiate electronically. Buyers accept the bids that best meet their requirements. By doing so, buyers can identify and build partnerships with new suppliers worldwide. The information and specifications can be rapidly (simultaneously) distributed to business partners (suppliers). As a result, bids can rapidly be received and compared from a large number of suppliers to negotiate better prices.

GE's bidding site also offers benefits to suppliers. Sellers can gain instant access to a large-scale buyer with over US\$ 1 billion in purchasing power. Therefore the sellers can expand their market reach and can lower costs for sales and marketing activities. They also profit from the shortened selling cycle.

4.3 Intermediary-Oriented Marketplace

4.3.1 Characteristics of the Intermediary-Oriented Marketplace

This business model is established by an intermediary company which runs a marketplace where business buyers and sellers can meet. There are two types of Intermediary-Oriented Marketplaces: horizontal and vertical marketplaces. Vertical marketplaces concentrate on one industrial sector whereas horizontal marketplaces offer services to all industrial sectors. The

²² cf. Turban, E. et. al. (2000) 'Electronic Commerce – A Managerial Perspective'; p. 213,214

Intermediary-Oriented Marketplace is a neutral business platform and offers the classical economic functions of a usual market. The difference is that the participants do not have to be physically present. There are thousands of Intermediary-Orientated Marketplaces and many of them are very different in the services they offer. These marketplaces can contain a “virtual catalogue of the industrial sector”. Companies have the possibility to present themselves in this virtual catalogue. On an Internet based “notice board” single offers or requests of companies can be found. An Intermediary-Oriented Marketplace can also contain catalogues where information on products and prices can be presented. By offering search functions, the marketplace makes the comparison and transparency of products possible. Marketplaces can also offer auctions. These auctions can be organized by sellers (products are sold) or by buyers (orders are sold). Furthermore is it possible to offer electronic functions where participants can negotiate in real time.²³ The intermediary company running the marketplace can generate profits through provisions for successful transactions and for negotiation of services (e.g. a logistical company to deliver the products). The company can also charge fees for membership and for presenting information, offers or requests. Profits can furthermore be generated by advertising (e.g. banners). The company can also distribute its own products through the marketplace profiting from more buyers entering the site than e.g. a normal e-store.²⁴

4.3.2 Example of the Intermediary-Oriented Marketplace: Buzzsaw²⁵

Buzzsaw is a vertical electronic marketplace which concentrates on the building industry. Many different parties are involved in a construction project: e.g. building contractors, builders, manual workers, architects, merchants and the building owner. Many of these parties

²³ cf. Schneider et. al. (2000) ‘E-Markets’; p. 97,98

²⁴ cf. Kösling, A.-W. (2001) ‘Eine Einführung in B2B E-Commerce’; p. 16

²⁵ cf. Schneider et. al. (2000) ‘E-Markets’; p. 119,120

are regional sellers. There are varied business relationships between all participants. The complex structure leads to inefficient processes of planning and communication. Buzzsaw offers software to improve planning and communication between the parties. This helps reducing the usual overspending of the project's budget and schedule. The heart of Buzzsaw's services is a software, which administrates the construction project (administrator). This software can be used to carry out the entire construction plan of many participants involved in the process. Functions like e.g. the design, the planning of the project and the supervision of the building's progress can be supported. Buzzsaw also offers detailed information about the building industry (e.g. news affecting the sector, a classified directory and a local weather forecast). The marketplace also provides the option to do business. All products relevant for the building industry can be traded. The Web site offers search engines to find the wanted products. Additionally, buyers and sellers can insert requests and offers on the marketplace. Buzzsaw's sources of income are fees for transaction and for the use of the administrator as well as advertising revenue.

5 Conclusion

Business-to-Business Electronic Commerce changes traditional markets. Companies are offered new possibilities in buying and selling products as well as in forming new business relationships. By supporting many transactions electronically, companies work more efficiently and can realize considerable savings in process costs. Buyers in the Buyer-Oriented and Intermediary-Oriented Marketplaces can achieve cheaper purchase prices. Sellers of specialized products in the Supplier-Oriented and Intermediary-Oriented Marketplaces can realize higher selling prices. These better buying and selling conditions for the dominating party in the e-markets can be explained in their being increased competition. Auctions are a popular method of getting better prices. Inventory level costs can also be reduced by better coordination in all three types of e-markets. In the Buyer-Oriented but also partly in the

Intermediary-Oriented Marketplaces, small and medium-sized suppliers are threatened by the new development. Large-scale companies can find alternative suppliers more rapidly and can therefore put price pressure on actual business partners. The “exploitation” of small suppliers, on the other hand, can also have negative long-term effects on the buyers. Small and medium-sized companies might in future be more unwilling to enter a relationship with a company known for its dominant politics. Designing appropriate contracts becomes very important.²⁶

²⁶ to further information on (incomplete) contracts see Wielenberg, S. (1999) ‘Investitionen in Outsourcing- Beziehungen’

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