

## E-Commerce and B2B Services Enterprises

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**Abstract**—E-Commerce has become an increasingly important source of competitive advantage for B2B companies. It enables them not only to decrease transactional costs and offer wide range of additional services, but also to enhance efficiency in collaboration with their customers and suppliers. Thus, the objective of this paper is to explore how industrial companies use B2B E-Commerce, how it enables their services and what are the main advantages. In the context of continuous increase of the services role in B2B markets and rapid development of information technologies, the paper turns high practical and theoretical importance for business environment. As it represents a review and summarizes a broad theoretical background on the topic, it could be chosen as a basis for further research on different strategies in B2B markets and analysis of the role of E-Commerce. The paper can also support companies in decision making on E-Commerce investments strategy.

**Keywords**- B2B E-Commerce, B2B E-Commerce strategy, services in B2B market, types of B2B E-Commerce, international perspectives of B2B E-Commerce, IT technologies, E-Services, Services.

### I. INTRODUCTION

Since the last decades E-Commerce has become an increasingly important source of competitive advantages. The opportunities of E-Commerce enforce managers to redesign business processes and even to rethink the existing business models and the relationships with their business partners. Many different empirical findings demonstrated that E-Commerce enables companies not only to decrease transactional costs and to offer additional services, but also to gain efficiency in supply chains and enhance efficiency in collaboration with their business partners. Especially business-to-business (B2B) E-Commerce may support services broadly offered by companies in B2B markets.

In the context of globalization of economy, continuous increase of the role of services in B2B markets and rapid development of information technologies this topic is considered to be of high practical and theoretical importance for business environment. Though nowadays in business literature the number of publications and research papers, devoted separately to E-Commerce and B2B markets of goods and services is rather high, the review on how such companies use E-Commerce may summarize the knowledge in both fields. It provides a structured knowledge on B2B E-Commerce based on the existing literature and can be interesting as a starting point for young researchers. B2B E-

Commerce is analyzed not isolated, but the paper establishes the links and emphasizes interdependences to the related fields of management science and hence can generate a broad understanding of the topic. Furthermore, the article may also have an impact on business practice. For the executives, who expect to implement E-Commerce in their companies, this research represents a useful reference to get the first insights and broad theoretical background on this topic and provides different illustrative examples.

Hence, the main objective of this paper is to explore how industrial companies use B2B E-Commerce, how it enables their services and what are the main advantages for their businesses. Based on the main objective and the tasks, the paper was divided into five sections. At first, the theoretical background on B2B markets is reviewed. It includes the characteristics of B2B markets, procurement process and relationship marketing as the basis for further investigations. After that, a review on B2B E-Commerce, main types, trends and opportunities are provided in detail. The last section describes an approach how to evaluate E-Commerce opportunities for the existing business strategies.

Desk research was chosen as a research method for this paper. For it classical literature on the topic, textbooks, recent articles published in international journals, like “MIT Sloan Management Review”, “The Journal of Economic Perspectives”, “Strategic Management Journal”, “Electronic Commerce Research and Applications”, “Information and Management”, “Industrial Marketing Management”, etc., international reports as well as the Internet resources were used. The methodology to select the literature for the research was based on the premise that the topics and the models described in the article should have a link to each other and not be analyzed isolated.

### II. B2B MARKETS: THEORETICAL FRAMEWORK

In general terms B2B can be defined as firm’s interaction with other firms, comprising suppliers, distributors, agencies and customers [1]. More concretely, B2B markets are about buying goods and services in order to use them in development, creation and delivery of own products and services or to resell to others [2]. Though, business-to-consumer (B2C) markets in business literature and at universities are predominantly discussed and analyzed, there is a number of characteristics and special features that differ B2B from B2C [3]:

- business customers will purchase just the products they really need and which can increase the value of their own products;
- the relationship is more complex and long-term oriented;
- marketing communication is professional and deep;
- purchasing processes are multistage.

Based on these special characteristics, it reveals, that it is crucial to examine B2B markets separately. The main topics to be discussed are supply chain management (SCM), especially buying process and relationship marketing.

#### A. Procurement Process in B2B Markets

Procurement process as part of supply chain management can be described as the way firms purchase goods or services they need to produce their own products, which will be sold to end-customers. Business buying process consists of several complex steps that involve not only sellers, buyers and intermediaries, but also different organizational levels and departments in a series of connected and interdependent transactions. That is obvious, that during each phase of the purchasing process the transactional costs occur. The first four steps (problem recognition, product search, quality control and negotiation on terms and conditions) concentrate on decision where to buy and what to pay for a product. At this stage the Internet plays an important role. It is not only an efficient and effective way to find the best vendors, but it also gives an opportunity to smaller suppliers to be easily found by their potential buyers. The next steps (purchase order, invoicing, shipping and remittance payment) involve carrying out the purchase formalities. At the end the analysis of the process may be done. Based on the results of the performance review the buyers may continue, modify or terminate the arrangements. This process is described for a one-to-one relationship between buyers and sellers. In B2B market there are many of such relationships and sets of connected processes. The set of firms, which is linked through a series of transactions refer to the supply chain [4]. At this point it's also important to mention, that in each step the supplier may provide additional value and superior quality, making it efficient to work with and as a result to save the time therefore costs of a customer. Supplier should not only deliver the best combination of quality-service-price products, but it is also important to be an efficient partner for all involved departments, such as finance, logistics, IT, and procurement. That could ensure long-term relationships between the companies.

#### B. Relationship Marketing in B2B Markets

Based on the features of B2B markets, relationships with customers appear to be one of the most important competitive advantages of industrial companies. Especially during the last decades a number of essential changes took place in B2B markets, which reinforced the importance of strong relations between business partners. The importance of services has increased dramatically. Also the development of information technologies facilitates closer interactions between companies. The interactions are getting more complex and even the borders of the company may be

blurred [5]. As mentioned by Morgan and Hunt, "effective competitor in today's global marketplace requires one to be an effective cooperator in some network of organizations" [6]. Already in year 1991 Drucker named the economy of the future as "network society" [7]. Moreover according to Prahalad and Ramaswamy nowadays the focus is shifted from key competences of one company to key competences of a network [8].

In the proposed model by Morgan and Hunt, the relationship is based on trust and commitment. They define commitment as enduring desire to maintain valued relationship and believe in relationship. Morgan and Hunt define trust as the status, where one party has confidence in the reliability and integrity of the other partner and vice versa [6].

Another interesting model was proposed by Möller and Hallinen [9]. The authors propose to divide marketing relationships into two levels: relationship based on markets and relationships based on networks (see Fig.1).

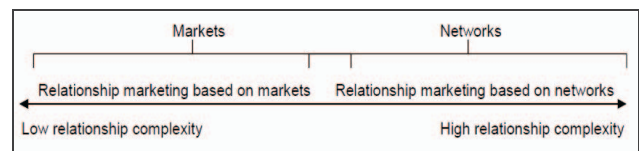


Figure 1. Two main forms of relationship marketing [9].

The main characteristics of marketing relations based on markets are described as: focus on individual customer relations, huge number of consumers, low level of interdependences as the resources, product or services can be easily replaced or substituted, sellers are more active than buyers, focus on a number of interactions and less on the long-term relations, emphasis on managerial, economic and psychological aspects of exchange [9]. In contrast, relationship marketing based on networks is characterized by: focus on bilateral relations between sellers and buyers and exchange within the network, number of players is not that high, products cannot be easily substituted, every partner can be active, not just sellers, companies concentrate on long-term relationships and emphasis on resources, social and functional exchange [9].

Linking this model to the classification of the goods into direct and indirect ones, one can conclude that for acquiring direct goods high complexity relations should be built up and maintained. Opposite to that, indirect goods could be sold in the markets with low relationship complexity.

### III. B2B E-COMMERCE: THEORETICAL BACKGROUND AND MAJOR TRENDS

In business practice and among academics there are still some discussions concerning the definition of E-Commerce. Within this article E-Commerce will be defined as the use of the Internet to transact business, digitally enabled commercial transactions between and among organizations and individuals [4]. From this perspective the digitally enabled transactions refer to all transactions done by digital technology and commercial transactions. For this research,

B2B E-Commerce will be defined as B2B Commerce, which is enabled by the Internet [4]. More concretely, “B2B E-Commerce refers to substitution of computer data processing and Internet communications for labor services in the production of economic transaction” [10]. In this sense, the Internet has an impact on business in two directions. Firstly, new business model was introduced, so called “click-only companies”. Secondly, the traditional “brick-and-mortar” companies may go online to operate and communicate with their customers [2].

*A. Types of B2B E-Commerce: Net Marketplaces and Private Industrial Networks*

In literature on B2B E-Commerce there are different classifications of B2B E-Commerce. Nevertheless, the most often used criteria for classification is a number of agents (buyers and sellers involved into transactions), the characteristics of markets where company operates (vertical or horizontal) and the nature of buyer and seller relationships (either long-term orientated or transaction-based). Different authors name the types of B2B E-Commerce in a slightly different way, though the main idea is mostly the same (based on the criteria mentioned above). In this paper, the classification, proposed by Laudon and Traver [4] in their textbook on E-Commerce, will be reviewed and analyzed. Following this classification B2B E-Commerce can be generally classified into two types: net marketplaces and private industrial networks. The both types and subtypes of B2B E-Commerce will be discussed subsequently.

Net marketplaces bring together a huge number of suppliers and purchasing firms together into a single digital marketplace operated over the Internet [11]. As it is demonstrated in Fig.3, net marketplaces can be classified based on two parameters, “what businesses buy” (manufacturing/direct goods or operating/indirect goods) and “how businesses buy” (focus on spot purchasing or long-term relations) and reflects horizontal markets or vertical markets.

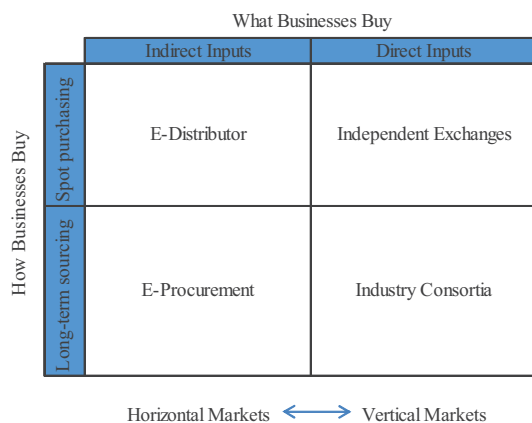


Figure 2. Four main types of net marketplaces [4].

Net marketplaces can be divided into four main types: E-distributors, E-procurement, independent exchanges and

industry consortia [4]. Sequentially, these four subtypes of E-Commerce will be described and illustrated with examples.

E-Distributors represent the most common and the easiest form of net marketplaces. They simply link suppliers and buyers together, playing a role of traditional intermediary [12]. Often E-Distributors represent the existing “brick-and-mortar” companies, which trade via catalogue and now shift a part of their business online [10]. American company Grainger.com represents an illustrative example for E-Distributor. Grainger is a leading distributor for MRO in the U.S.A. It works with more than 3,000 suppliers and has access to about 2 million customers in 157 countries. Though Grainger was founded as a “catalogue sales business”, it recognized the opportunities of technological changes rather early. In 1996 Grainger.com provided the first transaction capable web site in the industry. On the web site of Grainger customers can easily search and compare products, create personal lists, review orders. All these features allow customer to reduce paper work and consequently administrative costs [13].

E-Procurement net marketplace is an independent intermediary which links many sellers and a huge amount of buyers together. This type of marketplaces is usually used for purchasing indirect goods on long-term basis. The value of goods sold by E-Distributor is relative low, whereas the transaction costs concerning these products are relative high due to purchasing frequency. So E-Distributors may add value to buyers by increasing efficiency in procurement [14]. For instance, Ariba.com is operating in this way. Ariba offers not only a network for buyers and sellers, but also a great number of specific customized services, such as management information and communication tools within the system. They may include reporting, automated messaging, and web meetings. As described in this example, E-Procurement net marketplaces add value for both parties, which are involved in the process [15].

Independent exchanges connect many buyers and sellers searching/selling direct goods on spot term in real time environment. They serve vertical market within single industry. The main advantage for buyers is lower prices due to strong competition in independent exchanges. Sellers benefit by receiving an easy access to potential customers [4]. Smarterwork.com can be named here as a very interesting example. Smarterwork illustrates this kind of net marketplaces, which offers mostly services. Smarterwork specializes on linking companies and qualified service providers together. They provide staff for a concrete project and their own facilities, like PC, software and office space. As soon as the project is over the contract between employee and the company will be also ended. It means that the company can save fix costs on personnel dramatically [16].

Industry consortiums are owned by groups of industrial companies. They serve vertical markets and bring together a great number of suppliers with a small number of very large

buyers. They are used to form long-term relations for purchasing direct goods. The main goal of industry consortium is to unify supply chains within the whole industry, across many tiers through common data definition, network standards and common platforms [17]. GHX.com represents an illustrative example for industry consortia. It is a consortium for medical services suppliers. They bring companies from healthcare industry together to create new efficient processes and reduce errors in the healthcare supply chain. GHX customers can save money by connecting to GHX and using complementary software solutions to automate procurement processes [18].

Private industrial networks are owned by a single, often a leading company in industry. It sets the rules, establishes control mechanisms and invites firms to participate in its network. Private industrial networks focus on strategic direct goods and services and are interested in long-term relations. They can be defined as “extended enterprises”, as this web-enabled network of trans-organizational processes is closely tied to the existing ERP System of industrial company [19]. Private industrial network makes sense when there is an opportunity for competitive advantages and there is no public or industry sponsored marketplaces or they are inefficient [17]. Many global players, market-leaders are operating private industrial networks, such as GE, Nike, Wal-Mart, etc. Today private industrial networks form the largest part of B2B E-Commerce. For example, some years ago Volkswagen Group introduced the Group Business Platform as a tool for communication and cooperation with its suppliers in order to optimize processes and improve the quality level. The goal of the company was not just to find partners, but also to integrate their suppliers into all business processes, such a procurement, logistics, quality, technical development, and sustainability [20].

#### *B. Opportunities of E-Commerce in B2B Markets*

After the main characteristics of B2B markets were analyzed, it is obvious that the main opportunities, which companies may expect from of E-Commerce, are the efficiency in SCM processes and enhancement of relations with their business partners. E-Commerce enables the cost reduction during every stage of the buying process, namely, before, during and after the purchase [10]. It was discovered that there are new methods which can be used and certain business activities can be completely restructured [21]. In summary, the following conclusions concerning cost efficiency as a consequence of using E-Commerce can be done:

- both demand and supply sites can improve productivity by using E-Commerce;
- increase the transparency of information, goods and financial flows;
- efficient reach of potential sellers and buyers and as a result the improvement of matching the buyers and sellers;

- reduction of the transaction costs at each stage of procurement processes;
- time and personnel reduction for procurement or selling processes.

Additionally, B2B E-Commerce is able to form and intensify collaboration between business partners. It acts as a dialogue simulator, facilitates interactivity and real time information exchange. By increasing collaboration between buyers and sellers, E-Commerce may improve the customization of offers, quality of products based on analysis on sales history and forecasts. It enables seamless information exchange that makes the collaboration easy and effective and leads in the future to the competitive advantages [14]. B2B E-Commerce technologies can be used to build up and sustain competitive advantages for companies [22].

#### *C. Market Development of B2B E-Commerce*

During the last decades B2B E-Commerce has been promptly growing all over the world. According to the study of the economies of thirteen countries (G8, Brazil, China, India, South Korea and Sweden, which contribute more than 70 percent of global gross domestic product) the Internet is now used in every country, in each sector and by most of the companies and counts for about 3.4 percent of GDP. If the Internet were a sector, it would be bigger than energy or agriculture industries and its contribution to GDP would be bigger than those of Spain or Canada Over the last 15 years the Internet accounted for about 10 percent of GDP growth within the studied countries. As well it has a great impact on the development of small and medium-sized enterprises (SME). SME with high Web presence grew two times quicker as those that had low level of presence [23].

Moreover, the main IT trends, like the increase of the Internet security and comfort level of online payments, cloud computing and software-as-a-service (SaaS), integration of enterprise resource planning systems (ERP) [4], demonstrate that the implementation and the utilization of B2B E-Commerce is getting less costly, provides more security and enables the “ease of use” for the end-users. All these technical innovations and advances secure the future development of B2B E-Commerce.

Nevertheless, the implementation and realization of B2B E-commerce significantly differs from country to country. According to Berthon et al. B2B marketers have to consider “hard” terms such as infrastructure as well as “soft” terms, like values before building E-Commerce relationships in other countries [24]. If a customer trusts online supplier he is even more committed to open communication and share of information [25]. There are three drivers, which could help companies to decide whether to use B2B E-Commerce while entering new geographical markets [24]. These key drivers are the following [24]:

- E-readiness. It determines the ease with which a business relationship can be conducted.
- Country’s values. They need to be understood as a fundamental facet of culture.
- Corruption. It engenders the loss of social integrity and promotes mistrust between social actors.

The authors mention that technical infrastructure is an important, but not a sufficient condition for development of B2B E-Commerce. Mostly the economic and social development, as well as the level of corruption may corrode E-Commerce [24]. Here it will be interesting to provide some examples. North America and Western Europe present the best conditions for developing E-Commerce relations. Asia Pacific can be the second best choice to invest in E-Commerce. Central and Eastern Europe are still challenging a high level of corruption, which hampers the development of B2B E-Commerce. Africa, Middle East and Latin America are currently struggling with building the physical, economic and political infrastructure to provide a platform for E-Commerce [24]. The Economist Intelligence Unit publishes yearly “Digital Economy Ranking” Report, which provides an interesting benchmarking of the countries [26].

#### IV. EVALUATION OF E-COMMERCE OPPORTUNITIES

Though many different benefits of E-Commerce for B2B companies were discussed, nevertheless it is crucial to keep in mind, that it is still not a universal medium for decreasing transactional costs and enhancing relationships with partners. It is very important to consider the existing company’s strategy and analyze how E-Commerce can match it. In this context an interesting and practical approach was proposed by Feeny, which can help managers to start this strategic analysis [3].

During the first step Feeny proposes to construct a coherent map of e-opportunity, based on three dimensions: E-Operations, E-Marketing and E-Services [27]. The basic information on these three domains is summarized in Table 1. It is recommended for a manager to go through all these three domains and analyze the existing processes and strategy to check if there is a possibility to introduce E-Commerce or to replace the current processes by E-Solutions [27]:

- Will E-Commerce strategically change the way a business manages itself and its supply chain?
- Can a company achieve strategic changes in downstream activities?
- Can E-Commerce give companies a new way to address an identified set of customer needs?

TABLE I. THREE E-OPPORTUNITIES DOMAINS AND THEIR COMPONENTS [27]

Domain	Components
E-Operations (Web-based initiatives that improve the creation of existing products)	<ul style="list-style-type: none"> <li>• Automation of administrative processes</li> <li>• Supply chain reconfiguration and integration</li> <li>• Re-engineering of primary</li> </ul>

Domain	Components
	<ul style="list-style-type: none"> <li>• infrastructure</li> <li>• Intensified competitive procurement</li> <li>• Increased parenting value</li> </ul>
E-Marketing (Web-based initiatives that improve the marketing of existing products)	<ul style="list-style-type: none"> <li>• Enhanced selling process</li> <li>• Enhanced customer usage experience</li> <li>• Enhanced customer buying experience</li> </ul>
E-Services (Web-based initiatives that provide customer affiliated services)	<ul style="list-style-type: none"> <li>• Understanding of customer needs</li> <li>• Provision of customer services</li> <li>• Knowledge of all relevant provides</li> <li>• Negotiation of customer requirements</li> <li>• Construction of customer options</li> </ul>

As soon as the first analysis is done, manager has to answer the question, if these developments can change the cost structure and positively influence the relationship with the existing customers and improve customer platform and penetration, considering the investment costs and time horizons. This evaluation can be used as a starting point for analyzing the use of E-Commerce as a competitive advantage [3].

#### V. CONCLUSION

The objective of this article was to explore how industrial companies use B2B E-Commerce and to analyze the role of E-Commerce for their businesses. This objective was reached by an analysis of the desk research and the paper represents a review of some theoretical approaches on the topic. As it was shown the use of E-Commerce can significantly decrease the information, communication and decision costs connected with procurement process and thus contribute to profitability of a business. It reduces not only costs for locating an appropriate seller or buyer, obtaining price and product information, it also may affect industry structure. E-Commerce trends to raise bargaining power over suppliers, leading to less asymmetry between supply and demand sides. The Internet provides new effective channel to reach end users directly and gives an opportunity for all companies to get an equal access to buyers and suppliers. That means that E-Commerce can also facilitate building up and maintaining the relations with business partners, which appear to be one of the crucial assets. As it was demonstrated on different practical examples that E-Commerce also supports the use of different kind of additional services provided by industrial companies, which may increase the value of products and services and could be also considered as competitive advantages of a company.

In practice industrial companies can use E-Commerce in form of private industrial network and different subtypes of net marketplaces. Different examples of companies selling either goods or services, being “brick-and-mortar” or virtual

demonstrate successful use of such E-Commerce types to collaborate with their business partners.

Despite of the recent economic recession B2B E-Commerce continues to grow. Moreover, Internet technology provides new inexpensive opportunities for implementation of E-Commerce. Though in general terms B2B E-Commerce is growing rapidly all over the world, there are still differences in the extend of E-Commerce use. Implementation of B2B E-Commerce strongly differs from country to country, depending on such key drivers like e-readiness, country's values and level of corruption.

Moreover, it is crucial to emphasize that the use of E-Commerce and its advantages still depend on a company and its existing business strategy. Though many different scholars and empirical evidences indicated, that E-Commerce may play a critical role for facilitating efficiency and profitability of industrial companies, it appears to be crucial to examine whether it prevails also within different business strategies and may be considered as universal method, applicable in many companies to decrease costs and build closer partner relations. This question opens a number of interesting and challenging paths for future research.

The results of the study might have both theoretical and practical impact. As it represents a review and summarizes a broad theoretical background on the topic, it could be chosen as a basis for further research on different strategies in B2B markets and analysis of the role of B2B E-Commerce for them. For example, this research was recently used as the first step within a research paper devoted to the topic "Business Strategies and B2B E-Commerce opportunities of global narrow specialized companies [3]. The paper also provides guidance for managers and gives them an outlook on how E-Commerce can be used by their companies. Hence, it may support managers in decision making on E-Commerce investments, during definition, implementation and execution of E-Commerce strategy.

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