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The Problems of Identifying the Essential Business-to-Business E-Commerce Environment Components

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Electronic commerce is treated as one of the most efficient instruments for business processes optimization, based on more effective control of information flows. E-commerce infrastructure is that part of the total economic infrastructure that is needed to support e-commerce processes and to conduct electronic commerce transactions. It includes investment in computers, routers and other computer hardware; satellite, wire and optical communications and network channels; system and applications software. It also includes expenditure for support services, such as web site development and hosting, consulting, electronic payment and certification services as well as human capital, such as programmers. In essence, e-commerce is the secure trading of goods, information or services. Contrary to popular opinion, an e-commerce solution is not simply a single component, rather a collection of individual parts that together allow information exchange to take place across the electronic networks. The rapidity of e-commerce integration to economy shows that in the nearest future e-commerce will become the necessity for any and all business forms. E-commerce evolution is related to rapid perfection of information technologies, their growing possibilities of adoption in various areas and the cost of use decrease. The spread of e-commerce in various economy sectors is related to the modern business characteristics: huge and constantly growing competition, decreasing variety of competitive advantages, durable treatment of profit, as the result of cost reduction. As electronic commerce develops, it could have profound impacts on individual sectors of the economy as well as on macroeconomic performance and economic policies. Electronic commerce growth could have significant effects on the structure and functioning of economies at the firm, and industry level as well. These changes are likely to have influence on prices as well as the composition of trade, labour markets and taxation revenues. E-commerce integration to business processes is considered as realistic possibility to strengthen the company's position in the market, so in near future it is very believable for e-commerce to become the necessity (market entrance barrier) in some industry sectors, where e-commerce models can generate considerable cost economy. In that case it can be concluded, that any company in a small and medium-sized business sector must evaluate possible benefits from e-commerce adoption in business processes. Traditional competitive advantages like modern technologies, low cost level or suitable geographical location become less significant because of globalization process. But before making decisions of e-commerce adoption in the company, it is important to define and assess the main aspects of e-commerce environment. The paper aims to analyze the problems of business-to-business e-commerce environment assessment and to identify the essential elements of this environment.

Keywords: *business-to-business electronic commerce, business environment, e-commerce environment.*

Introduction

E-commerce evolution is related to rapid perfection of information technologies, their growing possibilities of adoption in various areas and the cost of use decrease. Though e-commerce boom in 2000 – 2002 ended in bankruptcies of large companies who based their business solely on e-commerce, the impact of this for e-commerce spread was minimal and today e-commerce decisions more and more often are treated not like competitive advantage, but like the necessity, trying not to lag behind competitors. Since the mid 90's e-commerce conception evolved from the separate electronic transactions in goods purchase or resources supply, based on business-to-customer or business-to-business models, to dynamic business ecosystems, based on the merge of separate markets and value chains, created on the network communication framework. In the aspect of business processes e-commerce can be defined as the use of electronic networks with the objective to simplify and fasten all phases of business processes: from the production of goods to the sale and delivery.

Problem and relevance. Since the mid 90's e-commerce conception evolved from the separate electronic transactions in goods purchase or resources supply, based on business-to-customer or business-to-business models, to dynamic business ecosystems, based on the merge of separate markets and value chains, created on the network communication framework.

Companies, which are trying to adopt e-commerce decisions, should notice that e-commerce is not only the tool for business perfection. Inadequate use of e-commerce decisions may result in business cost increase and business efficiency reduction. This situation may occur because of various crucial factors, acting in the environment of e-commerce systems.

Research object – the environment elements of business-to-business electronic commerce.

Research objective is to identify the essential elements of business-to-business e-commerce environment, that are the most important factors for decision making within the specific e-commerce system.

Research methods – systematic, logical and comparative analysis of scientific literature.

In this article there are analyzed the works of recently internationally known authors (F.Cacheda, J.Coppel, A.J.Davies, K.C.Laudon, R.Šertvytis, C.C.Krüger et al), researching the business-to-business e-commerce model performance environment.

Technological environment

E-commerce, as one of the results of modern technologies spread in almost all business sectors, is closely connected to the abilities of technological environment. As C.C.Krüger (2003) states, one of the background factors of e-commerce environment is appropriate technological equipment, treated as the base for e-commerce decisions realisation. The main elements of e-commerce in technological structure viewpoint are as follow (Ivezic, 2003):

1. *Computer systems*. This is the background for the information technologies, where the e-commerce system is formed. Computer systems usually are described by their technological features, which are one of the main boundaries for e-commerce realisation.
2. *Electronic networks*. Those networks supplement computer systems and create the possibility of e-commerce use by eliminating the distance factor. E-commerce can be efficient only in the case when individual computer systems can be connected to a conjoint network. The best known electronic network, which is often treated as the only e-commerce technological environment, is internet, where the "global accessibility" idea is realised (MacInnes, 2003; Benbunan-Fich, 2004; King, 2004). But it is important to assess the fact, that internet is not the only environment for e-commerce existence. The e-commerce decisions can also be realised using other types of electronic networks (i.e. intranet) (Bogdanovych, 2004).
3. *Software*. The software is the instrument for e-commerce functionality realisation. Software can be treated as the environment that guarantees the encryption of information transmitted in the way that is acceptable for information user. The functionality of software ensures the lower probability of mistakes, related to human factor or cultural barriers (i.e. unclear terms, language barrier and other), and also guarantees the precision of information processing (UWA Consortium, 2002; Cavusoglu, 2004). Besides, the software creates the possibility to connect the information receivable with internal information flows that allows company's processes optimization.

The other aspect of e-commerce decisions installation and support is the need for information technologies specialists (Mayer-Gull, 2001). The installation of information technologies requires special knowledge and this creates the demand for information technologies specialists in various business sectors. The fast improvement of information technologies and the variety of their adoption areas conditions the appearance of information technologies specialists' labor cost. E-commerce adoption process is skilled labour intensive, which means that labour cost is one of the main components of e-commerce adoption cost. R.Šertvytis (2004) presents three stages of the adoption of e-commerce, treated as the use of internet for business practice:

1. The procurement of proper software.
2. The creation of products catalogue.
3. The registration of new internet site name or the adding of needed link in already existing site.

As the additional tasks for e-commerce adoption are presented the e-commerce connection to current products accounting system; e-commerce marketing; payoff through internet integration to e-commerce. It is clear that R.Šertvytis (2004) treats e-commerce very narrowly, as the release of products catalogue in internet for final user, but the author presents the elements of e-commerce system adoption process, which quite precisely represent the nature of e-commerce adoption costs. The experts of "Oracle" (2004), while evaluating the need of knowledge and skills in e-commerce adoption process, recommend outsourcing the functions of e-commerce system support. This decision would guarantee the higher level of e-commerce efficiency, which can be reached by using lower costs for information technologies maintenance, bigger attention to the main company's performance, higher level of flexibility, faster reaction to the changes of market situation and lower investment to the renewal or upgrade of information technologies.

In the analysis of e-commerce functionality realisation in technological aspect, it is important to notice that the technological equipment that company has is only a part of the necessary information technologies network, whose level of spread determine the popularity of e-commerce. In the case of technological aspect F.Cacheda (2002) presents two types of e-commerce functioning. In the first case (figure 1) the direct relation between the seller and buyer is very week, because information is transmitted through the intermediary link (server), which can be treated as database, working independently from buyer or seller.

The purpose of this database is information gathering. As mentioned above, for seller and buyer it is necessary to have computer system with additional elements – internal electronic networks, software and information technologies specialists (Alagar, 2004; Damaskopoulos, 2003; Gupta, 2004). Server (the database) is an independent system and this means that it is important ensure the existence external electronic networks for the link between server and seller or buyer. External electronic network must guarantee the transition of information flows between server and seller/buyer. If there is the intermediary link in e-commerce technological system, it is necessary to ensure the technological compatibility between buyer and seller, because their technological e-commerce systems are not relative (Martin, 1990; Krishnan, 2004). The most important is to guarantee those e-commerce systems compatibility with server.

Other situation appears in the case of direct contact between seller and buyer.

In this case it is important to ensure the compatibility between buyer's and seller's e-commerce technologic equipment, because this technologic equipment, which is used for e-commerce transactions execution, can be treated as entire computer system with integrated electronic network that connects buyer's and seller's systems.

F.Cacheda (2002) states that in the case of such integration it is important to ensure the compatibility of software and integrity of computer systems. B.R.Katzy (2002) in this situation accents that compatibility does not mean the need of the same software or technological system use, but it is important to ensure the reciprocity of different systems (i.e. the seller and buyer can use different software, but it is necessary to ensure that those types of software would recover identical information).

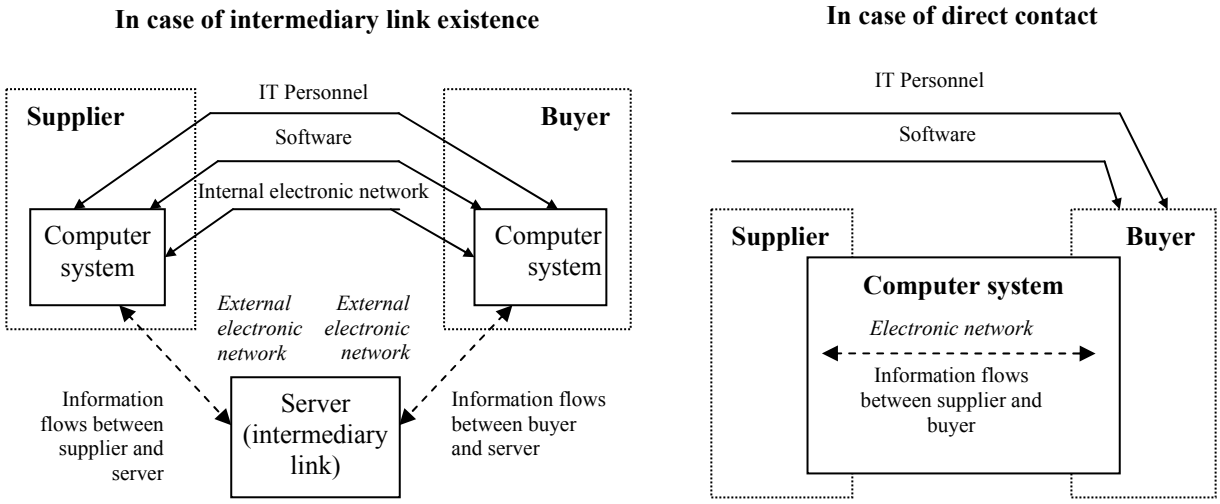

Figure 1. E-commerce technological system: two possible cases (Cacheda, 2002)

The thorough analysis of the presented possible technological systems of e-commerce allows stating that there are two different viewpoints in case of e-commerce environment analysis. The main differences between those two possibilities, presented in figure 1, are the relation with the regular business environment elements. If business-to-business e-commerce is implemented using direct contact, then the effect of economic, political, cultural, etc. environment components on e-commerce transactions is minimal. This situation appears because of close relations between business-to-business e-commerce users, avoiding third parties' participation in transactions. But in case of intermediary link such an effect becomes more important, because the relation between e-commerce partners is not so close and partly indirect.

So, it can be stated, that in case of business-to-business e-commerce decisions realization, the more attractive alternative is the use of e-commerce technological system, based on direct contact.

In the analysis of business-to-business e-commerce environment elements identifying problem it is important not to concentrate only on technological environment, because it is not the only important environment component in e-commerce decisions area. It is important to identify the main components of micro- and macro- e-commerce environment.

Micro- and macro- economic environment

The analysis of business-to-business e-commerce performance environment it is important to assess micro- and macro- economic changes, which are conditioned by the growing speed of e-commerce spread.

The very first e-commerce impact on business results is treated as the reduction of products or services prices. This means that the adoption of various e-commerce models has a big impact on **competition level in market and the individual companies' competition politics**. This impact can be most clearly noticed in the market of digital or knowledge-based products (Coppel, 2000). The manufacturing of this type of products (i.e. software) is specific in the case of costs structure: the idea or creation of the very first product unit is related to quite big expenses, but marginal cost of product copies making is close to zero (Ash, 2003; Gopal, 2003; Tan, 2003) and usually consists only of package and distribution cost (Smith, 1999). This cost structure guarantees the obvious scale effect, so manufacturer must pay big attention to pricing politics, which could ensure the maximum benefit. The simplest decision in this situation is to produce as much as possible and to use the low-cost strategy. But most often the demand for products is limited, because customer almost always has few alternatives and most customers are not minded to choose the new product which requires practice to use it. This problem is especially important in software sector, because every new program is related to new rules of usage and users are not minded to change their habits (Lamb, 2003). Besides, only in exceptional cases there is no analogous product in market, which could guarantee needed functions for customer.

The assessment of market situation allows stating that low-cost strategy is suitable only in exceptional cases, and this means that the creators of digital products must pay big attention to the formation of pricing politics, which could guarantee the defraying of cost and the

receiving of profit. Such kind of companies often uses specific marketing politics – the emphasising of the main product or service. This decision ensures its desirability for various market segments (Coppel, 2000). For example, software can be segregated by quality levels: ease level, update frequency, technical services option, and customer interface complexity. In this case it is important to assess that in market there exists the limit of product segregation possibilities, which is conditioned by price competition.

So it can be concluded, that e-commerce, in which the main purpose of usage is cost economy, in the case of knowledge-based products it influences indirectly the rise of price competition (Meijers, 1999), and this is treated as a negative impact on the prospective benefit of e-commerce adoption.

E-commerce, which influences the most of company's performance processes, has impacts on company's personnel and entire **labour market**. J.Coppel (2000) states that the spread of e-commerce influences labour market and employment in direct and indirect ways.

The development of e-commerce creates the demand for specialists in e-business area, but has a big negative impact on the structure of labour market in case of qualification (Cattaneo, 2002; Davies, 2002). The spread of e-commerce conditions the decrease of labour demand in selling and supplying sectors (salespersons, cashiers, supply managers, etc.). This situation appears because of partial automation of sell and supply processes. But it is also important to notice that e-commerce conditions the growing demand for information technologies specialists, who are able to maintain company's information systems. The experts of "Databank Consulting" (1998) forecast that the growing spread of e-commerce will have the biggest impact on those workplaces, whose goal function is information concentration, systematization and transition, i.e. insurance brokers, financial brokers, travel agencies.

OECD, analysing the spread of e-business, claims its impact on **macro economic level** (Scarpetta, 2000). It is stated that information and communication technologies (ICT) symbolize the technological change in economy, which overwhelms all sectors and long-term growth of productivity. In the scientific research of Australian Government Department of Communications, Information technology and the Arts (199) it is evaluated that the main e-business impact on macro economics level may exceed 2.7 percent. The research of "Goldman Sachs" (2000) allows stating that long-term country's gross domestic product (GDP) may rise up to 5 percent. These researches are based on positive e-business impact on maximum product output in market. But it is important to pay attention to the fact that presented researches are based on limited presumptions and it means that their results cannot be assessed without discussion. Presented results and the experience of companies show that in most developed countries (USA, Denmark, Australia, Norway, etc.) there dominates the opinion that labour productivity indicators are closely related to significant technological changes, though obvious proof of this fact does not exist (Coppel, 2000).

There also exists the opinion that the development of e-commerce may have an impact on **economic cycle and payoffs** between economic subjects, and this, in turn, may influence country's monetary politics. While the attributes of economic cycle use to change, there exists the need to guarantee efficient inventory management, which would ensure lower level of average inventory in the sector. Such an impact would change the cycle of inventory accumulation. Besides, in case of growing price competition level in product markets there would be more workspaces, and the level of inflation would slow the growing speed for a short time. It is also important to notice that monetary politics would be influenced by faster payoff in case of information technologies usage. Faster payoffs would create the problem for principles of interest rate and frequency (Friedman, 1999).

The essential elements of business-to-business e-commerce environment

Business-to-business e-commerce is closely connected to various elements of economic environment, but the summarization of different opinions of the authors (Messnarz, 2000; Van Roessler, 2000; Scarpetta, 2000; Friedman, 1999) allows stating that the main factors that influence business-to-business e-commerce performance most of all are:

- Industry sector.
- Company size.
- Internationalism.

Industry sector, where company performs, has a huge impact on cost economy, if e-commerce model is used. D.Gazzotti (201) states that individual industry sectors create different changes to reach cost economy in case of using information technologies, so company must more clearly evaluate the particularity of industry from this point of view.

The suitability of industry sector mostly depends on the number of participators and their relationships. For example, in the sector of mining there is a limited amount of large participators, which have detailed information about other subjects in this industry sector and situation in market, so in this sector the impact of e-commerce, treated as the possibility to get more detailed information, is minimal. But in flight tickets sector, as D.Gazzotti (2001) states, the information plays one of the main roles. Complete information in this sector is rare, because there are no participants, who would have detailed information about all processes in the market and competitors' performance.

It can be stated that the biggest possibilities to reach cost economy, using business-to-business e-commerce model, can be found in an ideal competition market, and the lowest possibilities appear in monopoly or oligopoly. This means that in case of e-commerce practical adoption possibilities it is important to assess the concentration of industry sector. Because e-commerce radically reduces information asymmetry, it can be noticed that business-to-business e-commerce generates bigger benefit in ideal competition situation than in monopoly (Mayer-Guell, 2001).

The success of business-to-business e-commerce model adoption also depends on the receptivity of information technologies in specific industry sector (Laudon, 2004). If companies regularly directly confront such technologies, they are ready to adopt these systems in their

performance. For example, information technologies are more often used in computer technique trading companies than, lets say, by building materials manufacturers. This statement is illustrated by statistical data from USA industry, which characterize the internet business-to-business commerce spread by types of industry sectors (figure 2). Statistical data show that business-to-business e-commerce is most often noticed in computer and telecommunication equipment, aeronautics, and defense sectors, where companies often confront the newest information technologies.

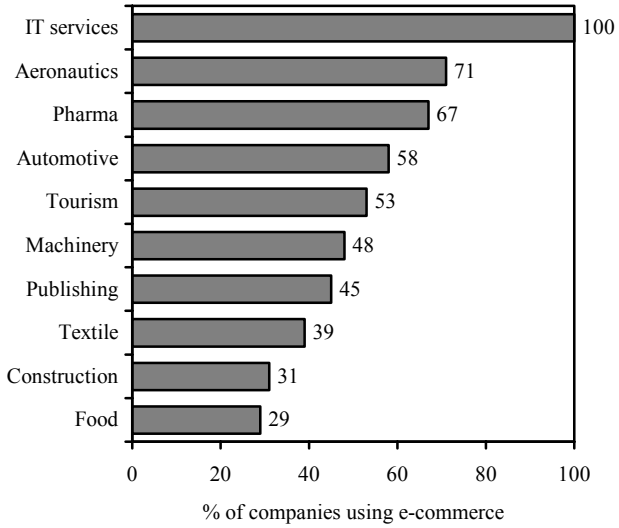

Figure 2. The spread of e-commerce in European countries (EU-7) in 2005 (E-Business Watch, 2005)

Company size is also an important factor, which influences the success of business-to-business e-commerce model adoption. It is stated that e-commerce ensures bigger benefit for bigger companies. This proposition is oriented to the possibilities of personnel amount reduction, adopting e-commerce decisions. It is clear that in small company, where supply and resources management functions are realized by one employee, the positive impact of e-commerce adoption for personnel amount reduction would not exist, because in any case one employee would have to work. It is also important that the adoption of information technologies would require additional specialist, responsible for the maintenance of information technologies. In this case small company would experience loss.

In big companies there are a lot of employees in supply and resources management area, so e-commerce allows reducing the number of personnel in these ways (Stich, 2002):

- Order submission becomes less labor-intensive, so the needed number of people, working in order processing area reduces.
- As it has been mentioned above, e-commerce creates the possibility to lower the level of average inventory. This means the reduction of warehouse workers demand.
- Smaller warehouse (in case of average inventory reduction) conditions the lower supply on supporting workers.

It is hard to define the suitable company size for e-commerce adoption, because this criteria depends on various, not interdependent, factors: company's performance nature; complexity of supply system; organizational management structure, etc. K.Tarabanis (2000) states that competitors of even almost the same size, performing in the same market and making analogous products, can have different possibilities to adopt e-commerce model, depending on companies' supply politics (that are the principles for suppliers choice – is it only cost, or also long-term partnership, quality, etc.), personnel politics (if there are strong trade-union, the e-commerce impact on personnel amount may be minimal).

Internationalism is significant element of business-to-business e-commerce environment in geographical aspect, analysing communication barriers of different countries. These barriers, as K.Tarabanis (2000) accents, appear because of these reasons:

- *The cost of communication*. Using traditional communication channels – phones, faxes, etc. – the big impact on communication cost is procured by call prices, which depend on the country. For example, if the supplier of Lithuanian company is in Lithuania, then communication costs would be several times lower than in that case, when the supplier is, let's say, in Sweden or Italy. The usage of information technologies makes communication cost lower and equal, without reference to the geographical distance between partners. It is important to mention, that the usage of electronic communication channels (i.e. internet) are cheaper than in the case of traditional communication instruments usage.
- *Language and cultural barriers*. In international business, in case of using traditional communication channels (most often – phones), there exists one very important aspect – language. Buyer must understand seller's language and vice versa. In any situation, there appears additional cost, related to higher salary for the employee, who speaks foreign language. If, let's say, company has suppliers in Turkey, there appears the problems of finding the worker, who could speak Turkish and would have needed experience in products supply management. Also it is important to mention, that in the case of communication using phone, there exists the possibility of cultural barriers (unacceptable phrases that may insult partner), which may have big impact for further partnership. If partners use information technologies, orders are presented in digital shape and can be transformed to national language for seller and for buyer, without reference to the order execution language.
- *Time barriers*. If company and its supplies are in different geographical areas (different time zones), there appear problems for direct communication (i.e. phone). In the case of e-commerce orders can be submitted at any daytime, without reference to suppliers working hours. Usually e-commerce systems have special databases for orders collection, which can be processed at any time of the day.

The summarizing analysis of essential business-to-business e-commerce environment components is presented in figure 3. In this figure there are showed all main environment elements, which were described in this article as the most important for business-to-business e-commerce decisions realization.

It can be noticed, that the main external components, that affect business-to-business e-commerce adoption in company, are already described in analysis of industry sector, company size and internationalism. The main internal environment element is technology, which allows using e-commerce decisions. As stated above, technological environment can be described as the complex of computer systems, IT personnel, software and electronic networks.

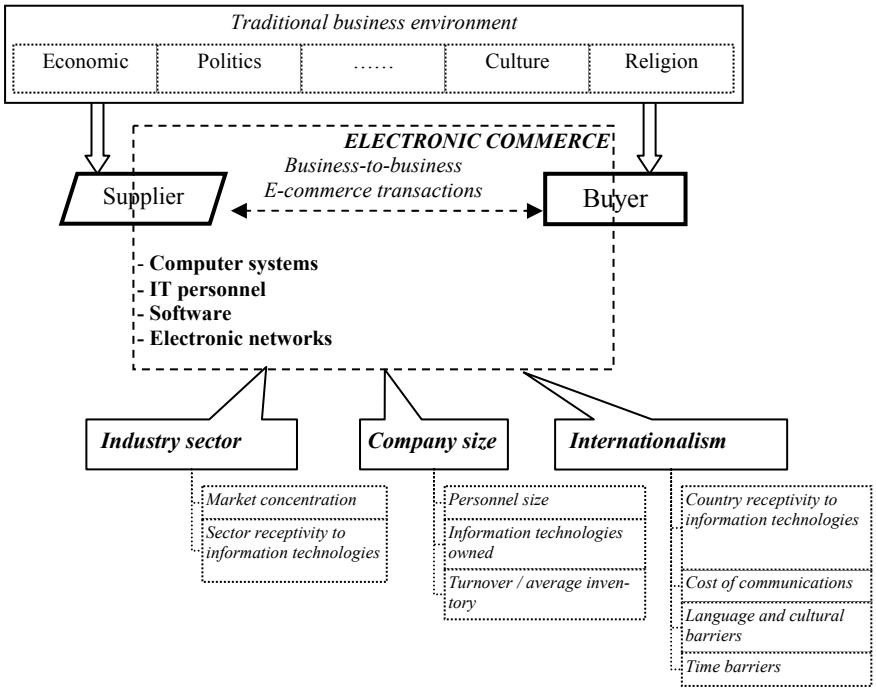

Figure 3. The complex of business-to-business e-commerce environment components

The traditional business environment elements must also be identified and assessed while adopting e-commerce decisions in company. But, because of the close contact between e-commerce system users and limited number of participators in e-commerce system, the basic business environment components, such as economic, political, cultural, etc factors, have much higher impact on e-commerce system parties (buyer or seller), but not on e-commerce system. So it can be concluded, that traditional business environment elements have partly indirect impact on e-commerce decisions adoption. For this reason those elements should not be treated as the main elements, because in most cases they can be described as only a secondary matter in e-commerce system. This statement is proved by empirical research, discussed below.

The empirical assessment of essential business-to-business e-commerce environment elements

The proof of importance of presented essential business-to-business e-commerce environment elements for e-commerce evolution is given in empirical research, made by the authors of this article in the autumn of 2004. The research was made by surveying e-commerce experts in the form of advanced interview method. The opinions are measured in 5 points scale, where 5 is equal to *very big impact* and 1 means *very small impact* on e-commerce adoption in company success.

The results of this survey, presented in the table, allow stating that the biggest impact on e-commerce adoption in company success is made by industry sector factor (the average rating is 4.84 point in the given points scale, which can be treated as a very big impact). This impact is evidenced mostly in the case of industry sector receptivity to information technologies (average rating 4.28 points) and market concentration (2.22 points).

Company size and internationalism, which are the other two elements for e-commerce adoption in company success, are treated by experts as less important (average rating is accordingly 3.28 and 3.41 points). The most important factor in this group is different countries' receptivity to information technologies (4.09 points), but other factors that should accent the importance of internationalism element, are treated as not very important: the price of communication, language and cultural barriers and time barriers are rated as having quite small impact on e-commerce adoption in company success.

The coefficient of concordance (0.492, when critical minimal rating is 0.6) shows that opinions of surveyed experts are not absolutely united, so it is important to pay attention to the standard deviation and variance of each assessed factor. The evaluation of experts' subjectivity, which was made by using Pearson's correlation coefficient allows stating that presented results are representative (correlations of individual pairs of factors are less that 0.5, which means objectivity of survey results).

Table

The importance of e-commerce adoption in company success factors

	Average rating	St. dev.	Variation	Number of experts
Industry sector	4.84	0.45	0.20	32
Market concentration	2.22	1.01	1.02	32
Receptivity of information technologies in sector	4.28	1.02	1.05	32
Company size	3.28	1.14	1.31	32
Personnel size	2.94	1.08	1.16	32
Information technologies owned	2.44	1.16	1.35	32
Turnover / average inventory	2.97	1.03	1.06	32
Internationalism	3.41	1.13	1.28	32
Receptivity of information technologies in country	4.09	1.03	1.06	32
Cost of communication	2.44	1.13	1.29	32
Language and cultural barriers	1.72	0.92	0.85	32
Time barriers	1.91	1.06	1.12	32

Presented results of empirical research confirm the theoretical presumptions about the importance of essential business-to-business e-commerce elements for e-commerce adoption in business success. This allows concluding that in the case of e-commerce adoption in the company, it is important to assess the possible external sources of influence to e-commerce decisions efficiency, that are based on three essential e-commerce environment elements: industry sector, company size and internationalism.

Conclusions

1. E-commerce systems generally are the subject of influence of traditional elements of business environment: economic, political, cultural, technological, etc. Nevertheless the research shows that business-to-business e-commerce models are mostly influenced by technological and economic factors, the other ones remaining of rather relatively smaller importance. The argument for emphasizing the higher impact by economic and technological elements of environment is that within business-to-business e-commerce systems cultural, political and religious factors can be eliminated, because in standard business-to-business system there are a defined and usually limited number of parties involved. The fever parties involved, the higher chance to make consensus regarding minimizing the influence of such environment components that could be treated as an obstacle to fulfil the common interests, held by each party of business-to-business system.
2. The analysis of business-to-business e-commerce performance environment requires assessing micro- and macro- economic changes. This means that e-commerce environment is not limited to internal company's decisions, but it also is related to external environment forces that cannot be controlled by e-commerce decisions adopters. Analysis of various authors' researches allows concluding that e-commerce spread in business has impact on these economic aspects: 1) competition level in the market and the individual companies' competition politics; 2) company's personnel and entire labour market; 3) macro economic level (GDP amount); 4) economic cycle and payoffs. The most essential business-to-business e-commerce environment elements are as follow: 1) industry sector (the suitability of industry sector for business-to-business e-commerce development mostly depends on the number of participants and their relationships.); 2) company size (e-commerce ensures bigger benefit for bigger companies; this proposition is oriented to the possibilities of personnel amount reduction, adopting e-commerce decisions); 3) internationalism (it is significant element of business-to-business e-commerce environment in geographical aspect, analysing different communication barriers of the members of various countries).
3. considering technological element of business-to-business e-commerce environment, it can be concluded that it consists of the following main components: 1) computer systems (this is the background for information technologies, where the e-commerce system is formed); 2) electronic networks (those networks supplement computer systems and create the possibility of e-commerce use by eliminating the distance factor); 3) software (the software is the instrument for e-commerce functionality realization). The parties of business-to-business system must address the mentioned technological issues as a second priority in order to identify the feasibility of business-to-business e-commerce project.
4. The empirical research of e-commerce environment elements impact on e-commerce adoption in company success allows stating that the most important factors in this case are industry sector receptivity to information technologies (average rating 4.28 points) and market concentration (2.22 points).

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Verslas-verslui elektroninės komercijos aplinkos elementų identifikavimo problemos

Santrauka

Verslas-verslui elektroninė komercija vis labiau įsigali įvairiuose verslo sektoriuose. Tiriant verslas-verslui elektroninės komercijos diegimo verslo galimybes ir formas, būtina išanalizuoti elektroninės komercijos aplinkos elementus ir jų įtaką verslas-verslui elektroninės komercijos modelio funkcionavimui.

Tyrimo tikslas – nustatyti ir įvertinti esminius verslas-verslui elektroninės komercijos aplinkos elementus.

Viena iš esminių prielaidų elektroninei komercijai diegti – tinkama technologinė įranga, kurios bazėje elektroninė komercija yra realizuojama. Technologijų struktūros požiūriu išskiriami šie pagrindiniai elektroninės komercijos elementai įmonės atžvilgiu: 1) kompiuterinės sistemos (tai informacinių technologijų realizavimo terpė, kurioje formuojama elektroninės komercijos sistema); 2) elektroniniai tinklai (šie tinklai papildo kompiuterines sistemas ir sukuria elektroninės komercijos naudojimo galimybę, eliminuojant erdvės veiksnį); 3) programinė įranga (tai priemonė elektroninei komercijai realizuoti).

Be to, elektroninės komercijos diegimas ir palaikymas tiesiogiai susijęs su informacinių technologijų specialistų poreikiu. Informacinių technologijų diegimas reikalauja specialių žinių, todėl informacinių technologijų specialistai yra paklausūs visuose ūkio sektoriuose. Spartus informacinių technologijų tobulėjimas ir jų pritaikymo galimybių įvairovė sąlygoja kaštus, susijusius su informacinių technologijų darbo apmokėjimu. Elektroninės komercijos sistemų diegimas reikalauja daug kvalifikuoto darbo, todėl darbo užmokesčio sąnaudos yra vienas svarbiausių elektroninės komercijos diegimo kaštų komponentų. Kaip papildomus elektroninės komercijos diegimo darbus galima akcentuoti elektroninės komercijos sujungimą su esama prekių apskaitos sistema; elektroninės komercijos marketingą; atsiskaitymų per internetą integravimą į elektroninę komerciją.

Technologiniu požiūriu skiriami du elektroninės komercijos funkcionavimo tipai. Pirmuoju atveju tiesioginis ryšys tarp pirkėjo ir pardavėjo yra silpnas, kadangi informacijos perdavimas vyksta naudojant tarpinę sistemą (tarnybinę stotį), kurią galima interpretuoti kaip nepriklausomą nuo pirkėjo ir pardavėjo duomenų bazę, kurios paskirtis – informacijos kaupimas. Tiek pirkėjui, tiek pardavėjui būtina kompiuterinė sistema kartu su papildomais elementais – vidiniais elektroniniais tinklais, programine įranga ir informacinių technologijų specialistais. Kadangi tarnybinė stotis yra nepriklausoma informacinė sistema, tai ryšiui su tarnybine stotimi užtikrinti būtinas išorinis elektroninis tinklas, garantuojantis informacijos srautų judė-

jimo tarp tarnybinės stoties ir pirkėjo/pardavėjo galimybę. Kitu atveju pirkėjas su pardavėju kontaktuoja tiesiogiai. Čia svarbu užtikrinti pirkėjo ir pardavėjo turimų technologijų suderinamumą, kadangi informacinių technologių kompleksą, naudojamą tarpusavio elektroninės komercijos transakcijoms vykdyti, galima traktuoti kaip vientisą kompiuterinę sistemą, į kurią integruotas elektroninis tinklas, jungiantis partnerių turimas technologijas. Siekiant tokios integracijos, svarbus programinės įrangos tarpusavio suderinamumas bei kompiuterinės sistemos vientisumas.

Tiriant verslas-verslui elektroninės komercijos funkcionavimo aplinką, svarbu įvertinti mikro- bei makro- ekonominius pokyčius, kuriuos lemia didėjantys elektroninės komercijos plitimo tempai.

Kadangi dažniausiai kaip pirminis elektroninės komercijos poveikis išskiriamas prekių ar paslaugų kainų sumažėjimas, tai akivaizdu, jog įvairių elektroninės komercijos modelių diegimas turi didelę įtaką konkurencijai rinkoje bei atskirų įmonių konkurencijos politikai. Ši įtaka ryškiausiai pastebima analizuojant „skaitmeninių“ arba naudojant žinias sukurtų produktų rinkoje. Šio tipo prekių gamyba išsiskiria kaštų struktūra – idėjos ir pirmosios prekės kopijos sukūrimas sąlygoja dideles išlaidas, tačiau ribiniai prekės kopijų kūrimo kaštai yra artimi nuliui ir paprastai apima tik pakuotės ir paskirstymo išlaidas. Ši kaštų struktūra garantuoja akivaizdžią masto ekonomiją, todėl gamintojas turi skirti didelį dėmesį kainodaros politikai, kuri jam užtikrintų maksimalią naudą. Dažnai tokio tipo įmonių naudojama kainodaros politika – pagrindinės prekės ar paslaugos išskyrimas, kas užtikrina jos patrauklumą įvairiems rinkos segmentams. Elektroninė komercija, kurios pagrindinis naudojimo tikslas yra kaštų ekonomija, skaitmeninio formato prekių atveju netiesiogiai rinkoje didina kainų konkurencijos tikimybę, o tai mažina iš elektroninės komercijos diegimo laukiamą naudą.

Elektroninė komercija, darydama poveikį didžiajai daliai įmonės veiklų, turi įtakos ir įmonės personalui, taip pat ir visai darbo rinkai. Elektroninės komercijos plėtra veikia darbo rinkas ir užimtumą tiek tiesiogiai, tiek ir netiesiogiai. Elektroninės komercijos vystymasis sukuria darbo jėgos paklausą elektroninio verslo sferoje, tačiau turi didelę neigiamą įtaką darbo rinkos struktūrai kvalifikacijos požiūriu. Plėtojantis elektroninei komercijai, mažėja pardavimo ir tiekimo srityse dirbančio personalo poreikis, susijęs su daliniu šių procesų automatizavimu, tačiau didėja poreikis informacinių technologijų specialistų, galinčių prižiūrėti įmonės informacines sistemas.

Ekonominės kooperacijos ir vystymo organizacija, skirdama didelį dėmesį elektroninio verslo plėtros analizei, pripažįsta jo poveikį makroekonominiu lygmeniu. Teigiama, jog informacinės ir komunikacinės technologijos simbolizuoja technologinį pokytį ekonomikoje, apimantį visus sektorius, ir ilgalaikį našumo augimą.

Be to, kai kas mano, jog elektroninės komercijos raida gali turėti poveikį ekonomikos ciklišKumui ir atsiskaitymams tarp ūkio subjektų, o tai savo ruožtu gali paveikti monetarinę politiką. Kintant ekonomikos ciklišKumo bruožams, atsirastų poreikis efektyviau valdyti atsargas, o tai lemtų vidutinių atsargų sektoriuje mažėjimą. Tai paveiktų atsargų kaupimo ciklą. Be to, produktų rinkose padidėjus kainų konkurencijai, pramonės sektoriuje būtų išlaikoma daugiau darbo vietų, o infliacijos augimas trumpam sulėtėtų.

Verslas-verslui elektroninė komercija glaudžiai susijusi su įvairiais ekonominės aplinkos elementais, tačiau, kai kurių autorių teigimu, elektroninės komercijos poveikio stiprumui didžiausios įtakos turi šie aplinkos veiksniai: 1) pramonės sektorius; 2) įmonės dydis; 3) tarptautinis aspektas.

Pramonės sektorius, kuriame veikia įmonė, turi didelę reikšmę siekiant kaštų ekonomijos, taikant verslas-verslui elektroninės komercijos modelį. Skirtingose pramonės šakose yra skirtingos galimybės siekti kaštų ekonomijos naudojant informacines technologijas, todėl įmonė turi tiksliai įvertinti šakos specifiškumą šiuo atžvilgiu. Pramonės sektoriaus tinkamumas daugiausia priklauso nuo dalyvių skaičiaus ir jų tarpusavio santykių. Didžiausios galimybės pasiekti kaštų ekonomiją taikant verslas-verslui elektroninės komercijos modelį yra tobulos konkurencijos rinkoje, o mažiausios – monopolinėje ar oligopolinėje rinkoje, todėl, siekiant įvertinti elektroninės komercijos pritaikymo galimybes, reikia atsižvelgti į pramonės sektoriaus koncentraciją. Kadangi elektroninė komercija radikaliai mažina informacijos asimetriją, tai tobulos konkurencijos rinkoje elektroninės komercijos modelio diegimas sąlygoja didesnę naudą įmonei nei monopolijos atveju. Elektroninės komercijos modelio diegimo sėkmė priklauso ir nuo pramonės sektoriaus imlumo modernioms informacinėms technologijoms. Jeigu sektoriaus įmonės nuolat tiesiogiai susiduria su tokiomis technologijomis, jos labiau linkusios įdiegti šias sistemas ir savo veikloje.

Įmonės dydis taip pat yra svarbus veiksnys, lemiantis elektroninės komercijos modelio pritaikymo įmonės veikloje sėkmę. Laikoma, jog elektroninė komercija naudingesnė didesnėms įmonėms. Šis teiginys orientuojamas į personalo skaičiaus mažinimo galimybes, įdiegus elektroninės komercijos modelį. Akivaizdu, jog mažoje įmonėje, kurioje tiekimo ir išteklių valdymo srityje dirba vienas darbuotojas, verslas-verslui modelio diegimas teigiamos įtakos personalo skaičiui neturės – vienas darbuotojas šiaip ar taip turės dirbti, be to, įdiegus informacinių technologijų sistemą, įmonei gali tekti priimti naują darbuotoją, atsakingą už šių technologijų priežiūrą. Todėl įmonė personalo skaičiaus atžvilgiu patirtų tik nuostolį. Elektroninei komercijai tinkamą įmonės dydį vienareikšmiškai nusakyti sunku, kadangi šis dydis priklauso nuo įvairių tarpusavyje mažai susijusių veiksnių. Netgi panašaus dydžio konkuruojančių įmonių, veikiančių toje pačioje rinkoje ir gaminančių analogiškas prekes, galimybės įdiegti elektroninės komercijos modelį gali būti skirtingos, atsižvelgiant į šių įmonių tiekimo politiką ir personalo politiką.

Tarptautinis aspektas yra reikšmingas geografiniu požiūriu, t.y. vertinant skirtingų valstybių atstovų komunikavimo barjerus. Šie barjerai susidaro dėl kelių priežasčių: 1) komunikavimo kaina (naudojant tradicinius komunikavimo kanalus – telefonus, faksus ir kt. – komunikavimo kaštams didelę įtaką turi pokalbių kainos, priklausančios nuo to, į kurią valstybę skambinama; informacinių technologijų pagalba komunikavimo kaina tampa vienoda, nepriklausomai nuo geografinio bendradarbiaujančių šalių atstumo; be to, elektroniniai komunikavimo kanalai lemia gerokai mažesnę suminę komunikavimo kainą, nei įprastinės komunikavimo priemonės); 2) kalbiniai ir kultūriniai barjerai (naudojant įprastinius komunikavimo kanalus, svarbus tampa kalbinis aspektas; todėl patiriama papildomų kaštų, susijusių su didesniu darbo užmokesčiu darbuotojui, mokančiam reikalingą užsienio kalbą; naudojant informacines technologijas, užsakymai keliauja skaitmeniniu pavidalu ir gali būti tiek įmonei, tiek tiekėjui pateikti nacionaline kalba, nepriklausimai nuo to, kokia kalba jie buvo įforminti); 3) laiko barjerai (jeigu įmonę ir jai reikalingų prekių tiekėjus skiria dideli atstumai, tai atsiranda sunkumų tiesioginiam komunikavimui užtikrinti; elektroninės komercijos atveju užsakymai gali būti pateikti bet kuriuo paros metu, nepriklausomai nuo to, ar tiekėjas tuo metu dirba, ar ne).

Raktažodžiai: *verslas-verslui elektroninė komercija, verslo aplinka, elektroninės komercijos aplinka.*

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