Selection and Assessment of E-commerce Models in SMEs

Vaida Kvainauskaitė, Tadas Šarapovas, Aurelijus Cvilikas

Small and medium-sized enterprises, defined as firms employing up to 250 people, are the backbone of the European business community, generating half of gross product and therefore are the main targets for the adoption of electronic commerce models, at this time intensively being integrated in almost all types of business. Electronic commerce is treated as one of the most efficient tools for business processes optimization, based on more effective control of information management. So electronic commerce can be compared to other traditional forms of competitive advantages, but the main difference in this case is the importance of information technologies base for electronic commerce adaptation. But these new business opportunities have a very specific dimension for small and medium enterprises because of their size, financial abilities and relatively small turnover. The paper aims to analyze the possibilities to integrate the electronic commerce models in small and medium enterprises, defining the main factors that influence the electronic commerce integration and their significance to successful small and medium business approach to electronic commerce usage.

Keywords: electronic commerce, small and medium enterprises, business process.

Introduction

Information economy, based on growing possibilities of information technologies use, is treated as one of the most important events in world economy during the last 15-20 years and is correlated with the appearance of a new business development models, implementing cost decrease and activity efficiency growth. 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. Traditional competitive advantages like modern technologies, low cost level or suitable geographical location become less significant because of globalization process. For this reason companies are looking for new efficiency increase possibilities.

Problem and relevancy. Small and medium-sized enterprises (SMEs) are considered as the base of European economy, generating about a half of gross national product. The faster and faster spread of information technologies in business processes do not overtake even SMEs’ sector. The evaluation of SMEs characteristics shows the existence of specific factors that determine the success of e-commerce in small and medium-sized business. Scientific researches in this arre can be divided in two groups. In the first case there are given the results of researches, done in different countries or geographical regions, that characterize e-commerce spread over the SMEs’ sectors (Cloete, 2003; Di Nicola, 2003; Kadlec, Mareš, 2002; Kendall, Tung, 2001). In second case there are given specific technological decisions, relieving e-commerce use in SMEs (Chanu, Hui, 2001; Kevin, Patrick, 2001; Mehrtens, Cragg, Mills, 2001; Menendez, 2002). In both cases it can be noticed the deficiency of broad-brushed study, designating essential factors, influencing the success of e-commerce use in SMEs’ sector.

Research object – electronic commerce in small and medium business.

Research objective is to define and assess the main factors that influence the adoption of e-commerce models in small and medium enterprises.

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

In this article there are analyzed recently internationally known authors (J. Fraser, J. Coppel, M. Brookes, Z. Wahhaj, I. Lewis and oth.) and Lithuanian authors (V. Kavaliauskienė, T. Šarapovas, A. Gatautis, P. Baršauskas and oth.), researching the e-commerce and its influence on SMEs.

E-commerce impact on economy

At the beginning of e-commerce development most of authors (OECD, 2002; Lewis, 2001; Coppel, 2000) used to identify e-commerce as the source of new format transactions, conditioning new possibilities for transaction process. But after the spread of information technologies use in various (in size and industry sector aspects) companies, e-commerce becomes more and more important in company’s processes and starts being treated as the framework of business philosophy (Fraser, 2000; Craig, 2000; Heffes, 2001). 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 (Kavaliauskienė, Šarapovas, 2002).

Statistical information shows that the idea of e-business is positively adopted by more and more organizations. In 1991 the use of internet for electronic business
was almost undiscovered – there were less than 3 millions of internet users over the world. In 1999 the number of internet users reached 250 millions and about a quarter of them used internet for shopping. The value of all internet transactions in 1999 was about 110 millions USA dollars (Coppel, 2000), and in 2002 the value of 172 millions euros was reached only in Western Europe (contemporary European Union countries, Norway and Switzerland) (Eurostat, 2004).

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 information technologies keep improving rapidly, companies can easier and with smaller cost coordinate their activities and business processes, using, for example, e-markets on internet. This type of market symbolizes links between mass of different organizations and is one of the main hallmarks of new economy.

The development of e-commerce can directly influence economy in micro- and macro- levels (Brookes and Wahhaj, 2000). E-commerce, as the component of e-business, determined the development of new business sectors (virtual companies, electronic banking, etc). The importance of e-commerce for entire economy is illustrated by D. Lucking-Reiley and D. Spulber (2000), who give the description of new intermediation forms, whose appearance is treated as the direct e-commerce development consequence:

1. Buyers and sellers group (it guarantees the economy of search cost and diminished asymmetry of transaction).
2. The help on transactions performance control (it allows for companies to reduce the cost of commercial transactions’ technological support).
3. Relief of operations (it helps to reduce the cost of buying/selling procedures).
4. Buyers and sellers coordination (for example, companies of one industry sector, combined in one market).

In separate organization level e-commerce firstly is correlated to possibilities of competitive advantages formation. R. Gatautis (2002) presents five areas of e-commerce use, enabling to reach stable competitive advantages:

1. To enlarge the cost of customers’ choice.
2. To reduce the cost of companies’ choice.
3. To protect companies’ market position or protect the market from substitutes, using innovations.
4. To collaborate with chosen competitors, creating the barriers for new competitors to enter the market.
5. To use personalized information, trying to improve customers’ service.

A.J. Davies (2003) prognoses, that:

- During the nearest 10 years e-commerce will develop very fast and it is very likely to await the fast-gest growth of business-to-business sector.
- Large companies will gradually transform the biggest part of their traditional business processes to electronic processes. New companies will displace the old ones, who will acclimatise too slowly.

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, including small and medium-sized business sector, where e-commerce spread is slower then in large companies because of the lack of resources, qualification, and other factors, being analyzed in this article.

E-commerce models and their expediency in SMEs

In European countries small and medium-sized business is described as companies, owning 250 employees or less (Davies, 2003). Statistics, presented by Eurostat (2004), shows, that in Europe only 0.2 percent of all companies are described as large, while other companies belong to SMEs’ sector, and 93 percent of them are so-called micro-companies with 10 or less employees. The importance of small and medium-sized business to European economy is presented by the fact, that SMEs generate 55 percent of the turnover in the European Union. The importance of SMEs’ sector is especially noticed in the case of employment – small and medium-sized business creates new work places notably faster than large business, particularly during the economic recession, when companies’ flexibility and ability to adopt continuously changing environment plays very important role (Menendez, 2002).

The level of information technologies integration in business processes is constantly growing. This growth is correlated with the higher universality of information technologies adoption, simplicity of use, etc. But it must be noticed, that e-commerce has a bigger potential to be adopted in large companies, owning enough resources for such kind of experiments, while small and medium-sized companies often sidestep information technologies integration in business possibility, because of the fear of possible loss and scarce qualification in this area (Kadlec, Mareš, 2002). Researches in Finland and United Kingdom shows that in SMEs’ sector most often information technologies adoption is limited to the use of traditional electronic tools (e-mail, internet, web site) and such tools play only an auxiliary role in business processes (Di Nicola, 2003). C.C. Krüger, P.M.C. Swatman and K. van der Beek (2003), analyzers of e-business model formation peculiarities, accentuate one of substantial assumptions in e-commerce adoption – the proper technological equipment, as the base of e-commerce decisions realization.

While analyzing the possibilities of small and medium-sized business to adopt e-commerce in their performance, it is important to appraise the potential benefits of different e-commerce models.

between those subjects (Figure 1).

Business-to-business model is described as the realization of electronic commerce links between two or more organizations (Kerrigan, Roegner, 2001). It is the most prevalent e-commerce model all around the world, being developed since the origins of e-commerce and all the time being one of the main e-commerce development stimulators.

The origins of business-to-business model can be related to “CommerceNet” consortium establishment in April, 1994, with the purpose to motivate business-to-business development. At the very beginning this model was not very popular, companies, in parallel, were trying to use business-to-customer model with the object to choose the proper e-business development direction, but in 2001, as D. Trninic (2003) affirms, e-commerce transactions, based on business-to-business model, amounted to 87 percent of all e-commerce transactions and this proportion has a tendency to stay untamed in near future. E. Cloete (2003) notices, that business-to-business model is mostly spread in large companies’ sector, because those companies give big attention to the adoption of new technologies and business transformation, and the use of business-to-business model guarantees higher profitability. The spread of business-to-business e-commerce model in various industry sectors is related to modern business characteristics: big and constantly growing competition, decreasing variety of competitive advantages, durable treatment of profit, as the result of cost reduction.

**Drivers to implement e-commerce (Davies, 2003)**

<table>
<thead>
<tr>
<th>Drivers to implement e-commerce</th>
<th>Business-to-business, %</th>
<th>Business-to-customer, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve efficiency</td>
<td>28</td>
<td>17</td>
</tr>
<tr>
<td>Increase turnover</td>
<td>22</td>
<td>23</td>
</tr>
<tr>
<td>Stay ahead of competitors</td>
<td>21</td>
<td>17</td>
</tr>
<tr>
<td>Driven by customers</td>
<td>14</td>
<td>9</td>
</tr>
<tr>
<td>Develop new products/services</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Enable collaboration</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Follow the trend</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Driven by suppliers</td>
<td>5</td>
<td>3</td>
</tr>
</tbody>
</table>

The analysis of A.J. Davies (2003) research results concludes the fact that e-commerce integration to business processes is considered as realistic possibility to strengthen 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 small and medium-sized business sector must evaluate possible benefits from e-commerce adoption in business processes.
Factors, influencing e-commerce models adoption in SMEs

Summarizing e-commerce adoption and benefits in SMEs’ sector, it is purposeful to analyze e-commerce integration to small and medium-sized company’s business processes in two directions: business-to-business integration and business-to-customer integration, additionally evaluating the impact of business-to-government model for SMEs’ business efficiency (Figure 2). Evaluating essential success factors of e-commerce adoption in business-to-business and business-to-customer directions, it is necessary to take into account generic factors, influencing both models, and specific factors, influencing only business-to-business or business-to-customer model adoption.

**Competition**. Competitors’ decisions to adopt e-commerce model may be the main motive for the company to adopt analogous model, because e-commerce can become important competitive advantage.

**Qualification**. In SMEs, the lack of information technologies specialists generates comparative high cost of e-commerce technical supervision. Also it is important to pay attention to the fact, that the owner or manager of SME can avoid information technologies adoption in business processes because of psychological motives (Baršauskas, Šarapovas, 2004).

**Market structure**. Efficiency of e-commerce models depends on market structure characteristics: number of participants in market (customers), their geographical spread, etc. For example, it’s clear that higher benefit can be generated in markets where customers are far away from company, because in this case possibility to communicate in distance becomes one of the most important factors.

**Financial resources**. E-commerce integration in business processes is related to some expenses. Those expenses mostly depend on the complexity of e-commerce system. Besides, e-commerce adoption and supervision is directly connected to the need of information technologies specialists.

**Information technologies**. The success of e-commerce integration also depends on possible information technologies. For example, in United States average bandwidth of internet channel is greatly bigger than in Lithuania (for the same price), what means possible problems trying to realize e-commerce decisions, related to the need to transform huge amounts of information, while in USA such model can be adopted without specific problems.

Without already discussed generic e-commerce adoption in SMEs success factors, it is necessary to analyze specific factors, influencing business-to-customer model adoption in SMEs: spread of internet, government’s support, customers’ pressure and partnership relations.

**Spread of internet**. Spread of internet is a critical factor in the case of business-to-customer model popularity. If internet connection is only accessible for small part of consumers, company’s possibilities to raise the turnover or to gain strong competitive advantage are minimal, limited to the number of internet users.

**Government’s support**. Government’s decisions may have both positive or negative impact on e-commerce spread, especially in SMEs’ sectors. It mostly depends on legislation in e-business area (Kendall, Tung, 2001). Besides, there is indirect impact of government to e-commerce spread in SMEs’ sector. It can be illustrated by Lithuania’s example – income tax privileges for computer equipment buyers raised the number of households.
having computers, what also means increased number of internet users – one of the main factors of e-commerce spread.

Customers’ pressure. In some cases customers have strong pressure on the company which may be forced to accept or decline the decision to adopt e-commerce. For example, software production purchasers prefer buying on internet, what means the necessity for small or medium-sized company to offer such possibility (Mehrtens, Cragg, Mills, 2001).

Partnership relations. B.M. Sadowski and others (2001) accentuate the possibility for SMEs to maximize benefits form e-commerce adoption in business, creating e-markets, based on partnership relations, where goods/services of more than one company could be offered and the total cost of marketplace maintenance would be distributed between all partners.

Suppliers’ pressure/support and the nature of relationships with suppliers has additional impact on business-to-business model adoption success in business.

Suppliers’ pressure/support. In parallel to already discussed customers’ pressure, suppliers may have the same power. In this case pressure from suppliers can be very hard, because a big manufacturer, owning electronic system for orders acceptance and processing, may refuse to collaborate with small or medium-sized company, not having possibilities or needs to contact with supplier using his electronic system (Chanu, Hui, 2001). But in this case there also exists the probability of suppliers’ stimulation – supplier may accept all e-commerce adoption and maintenance costs, what is very important for SMEs.

Relationships with suppliers. Relationships with suppliers determine the success of business-to-business e-commerce model adoption in small and medium business. If the supplier is permanent and supplies the main resources (goods), e-commerce adoption will condition notable cost economy for both partners (Kevin, Patrick, 2001). But if company has no permanent suppliers or has a big number of them, there exists probability for e-commerce to generate additional expenses, bigger than possible cost economy.

While analyzing business-to-government model adoption in SMEs, it is necessary to pay attention to the fact that in this case essential decisions must be taken from public offices. If government devotes enough resources to realize such e-commerce form, then small and medium-sized companies will be forced to adapt this system. But it’s very believable, that this change in activity will condition minimal expenses (acquisition of simple technological equipment, short employees training to use the system, etc).

Conclusions
1. Electronic commerce today is judged as one of the most effective success factors in a lot of business sectors. Electronic commerce enables to reach not just the higher efficiency of activity, but also to create the competitive advantage, influencing company’s success in the market.
2. For the small and medium enterprises sector, which generates about a half of European Union gross na-
tional product, adaptation of electronic commerce models in a near future in some business sectors may become the necessity. For this reason it is important for small and medium enterprises to evaluate their possibilities and potential use of electronic commerce adaptation.
3. The effort of small and medium enterprises in the context of e-commerce integration in business is mostly limited by the adoption of traditional information technologies (e-mail, internet, web page), but for the reason of effective e-commerce use in business it is necessary to integrate the higher-level e-commerce decisions: e-markets, catalogues, etc.
4. Small and medium enterprises can use the potential of e-commerce in three directions, adopting business-to-business, business-to-customers and business-to-government e-commerce models.
5. The main success factors of e-commerce integration to small and medium enterprises are: competition, financial resources, market structure, qualification, information technologies. Adopting e-commerce business-to-customers model in a small and medium business, there appears the high importance of the spread of internet, government’s support, customers’ pressure and partnership relations. Adopting business-to-business model, the main impact is asserted by such factors as supplier’s pressure/support and relations with suppliers. The success of business-to-government model integration mostly depends on the public offices’ decision to use this model for the communication with business units.

References
13. Heffes, E. M. Refining the rules of commerce // Financial Executive,
Elektroninės komercijos komodžių parinkimas ir įvertinimas SVV sektoriuje

Santrauka


įmonių lankstumas ir gebėjimas pristatikyti prie kintančios aplinkos.


Diegiant elektroninės komercijos modelius smulkiajame ir vidutinio verslo galimybes savo veikloje, svarbu įvertinti šiuos esminius veiksnius, lemiančius elektroninės komercijos modelius. 

Diegiant elektroninės komercijos modelius smulkiajame ir vidutinio verslo galimybes savo veikloje, svarbu įvertinti šiuos esminius veiksnius, lemiančius elektroninės komercijos modelius. 

Diegiant elektroninės komercijos modelius smulkiajame ir vidutinio verslo galimybes savo veikloje, svarbu įvertinti šiuos esminius veiksnius, lemiančius elektroninės komercijos modelius.