Environmental Factors Defining eMarketplace Adoption: Case of Large Organizations in Slovenia

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Abstract

By bringing together large numbers of buyers and sellers and automating transactions, eMarketplaces expand the choices available to buyers, give sellers access to new customers (buyers), and reduce transaction costs for all participants. Business environment factors, how an organization does business, have an influence on the organization’s decision about adopting eMarketplace activities. In some cases, the business environment encourages adoption of eMarketplace activities, while in others it is discouraged. This paper presents the importance of the following business environmental factors: trust between business partners, encouragement from the business environment, use of e-commerce between business partners and an organization’s relationship to the business environment. Factors were derived from research in 119 large organizations in Slovenia.

Key words: eMarketplace, adoption, factors, business environment

1. Introduction to eMarketplaces

Traditional markets and eMarketplaces consist of many trading processes that create value for both, buyers and sellers. Successful eMarketplace operation entails trading processes that can be efficiently transformed from traditional business exchanges to eMarketplaces. The challenge is how to successfully transmit current traditional business processes to a virtual environment (Kambil and van Heck, 2002). Information technology enables business process integration in the eMarketplace environment.

eMarketplaces are virtual marketplaces where buyers and suppliers meet to exchange information about products, services and to negotiate and implement business transactions (Archer and Gebauer, 2000). Furthermore, in the age of the Internet, and with the emergence of new information and communication technologies, eMarketplaces allow multiple suppliers and buyers to complete business transactions via the Internet (Russ, 2001). Internet technologies and standards enable e-Marketplaces to distribute product data and to facilitate online transactions (Segev et al., 1999).

eMarketplaces offer four important value-added mechanisms (Christiaanse et al., 2001; Bailey and Bakos, 1997): by facilitating multiple buyers and sellers to connect to negotiate prices on a dynamic real-time basis. It also encourages trust among participants
by maintaining a neutral position, and facilitates market operations by supporting certain transaction phases.

By bringing together large numbers of buyers and sellers and by automating transactions, eMarketplaces expand the choices available to buyers, gives sellers access to new customers (buyers), and reduces transaction costs for all participants (Kaplan and Sawhney, 2000).

eMarketplaces can support a variety of business transactions including: brokerage; auctions; payments; logistics; legal; and consulting services. It also may support inter-company communications through third-party inter-organizational systems and other related systems (Bakos, 1991; Choudhury et al., 1998; Segev et al., 1999; Archer and Gebauer, 2000; Kaplan and Sawhney, 2000; Grewal et al., 2001; Russ, 2001).

There are many different types of eMarketplaces operating today. We can classify eMarketplaces into those controlled by sellers, those controlled by buyers and those controlled by neutral third-parties (Berryman et al., 1998). eMarketplaces can also be divided into horizontal and vertical organizations. A horizontal marketplace addresses a specific function (e.g. human resources, office supplies) and serves a wide range of industries. While a vertical marketplace focuses on a wide range of functionalities in a specific industry, such as chemical, steel or automotive (Baldi and Borgman, 2001; Ramsdell, 2000). We can also classify marketplaces into four additional categories: Maintenance Raw and Operations; Yield managers; Exchanges; and, Catalogue hubs. Maintenance Raw and Operations (MRO) hubs are horizontal markets that enable systematic sourcing of operating inputs. Yield managers are horizontal markets that enable spot sourcing of operating inputs. Exchanges are vertical markets that enable spot sourcing of manufacturing inputs. Catalogue hubs are vertical markets that enable systematic sourcing of manufacturing inputs (Kaplan and Sawhney, 2000).

In practice, we find extensive evidence that the eMarketplaces support many different processes between a buyer and a seller. Some eMarketplaces support only the aggregation of supply and demand by searching and matching buyers or sellers. Other eMarketplaces support different types of auctions and negotiations. However, few eMarketplaces support the entire trading process. Business services, such as contracting, finances, logistics, insurance, legal, payments and other services often need additional steps. Many eMarketplaces support supply chains (Pucihar and Podlogar, 2003).

2. Problem Definition

A literature review identified many advantages and opportunities for eMarketplace use. In reality, we find many successful but also many unsuccessful examples of eMarketplaces for both buyers and sellers (Pucihar and Podlogar, 2004).

An organization adopts an eMarketplace only if the realize sufficient benefits or value-added services. eMarketplace adoption enhances business process reengineering by connecting information systems, increasing new knowledge with training and learning resources, and making investment in new technologies and software advantageous (Bakos, 1991; Archer and Gebauer, 2000).

An organization must carefully prepare for a successful experience with eMarketplace adoption. Only this kind of approach enables an organization to gain full use of the available opportunities that bring the anticipated successful business results (Archer and Gebauer, 2000). Therefore, it is important to research the factors needed to successfully adopt the eMarketplace environment. By knowing these factors, organizations will be better able to prepare for eMarketplace adoption that will allow them to compete successfully in the global marketplace (Pucihar, 2002).
A literature review, case studies and interviews with experts identified three factors that influences successful eMarketplace adoption. The first is that the organization is ready to adopt the eMarketplace concept. The next two define the necessary eMarketplace services that will ensure trust and perform the needed business transactions; and finally, that the business environmental factors enhanced by the use of eMarketplace technology actually stimulates that particular business (Pucihar 2002, 3).

Research conducted with 119 large organizations in Slovenia shows the importance of these factors. Although eMarketplaces offer benefits to buyers and suppliers and its use is widespread in many regions and industries this is not the case in Slovenia. Due to limited space in this paper, we present only part of the model of environmental factors that impact on organization planning to adopt an eMarketplace environment. The model examines the situation in Slovenia. These environmental factors explain what can encourage or inhibit eMarketplace adoption. This research can be valuable to explain why, in some cases, eMarketplaces are not useful to a particular situation.

3. Background

The researchers identified three environmental factors that influence an organization’s intent to adopt eMarketplace technology. These factors came from research of literature, case studies and interviews with experts. The three factors are: (1) Existence of trust between business partners; (2) Use of e-commerce between business partners; and, (3) Encouragements from the business environment.

Existence of Trust between Business Partners

Business environments, where organizations do business, influence an organization’s intent for eMarketplaces adoption. If buyers have strong relationships with existing suppliers along with a high level of trust they may not want to explore the benefits of a new process like eMarketplaces. In some cases, buyers prefer to keep the strong relationship with an existing supplier based on past successful business experiences (Bakos, 1997; Dai and Kauffman, 2001).

Various business characteristics, such as innovations, use of new information technologies, information exchange, trust, flexibility and others, lead buyers to cooperate with fewer suppliers. Such organizations usually do not decide to adopt eMarketplaces, that could offer the possibility for new, cheaper and more efficient suppliers (Bakos, 1997).

Use of e-Commerce between Business Partners

Electronic commerce enables stronger relationships between buyers and suppliers and new ways of buying from existing suppliers (Bakos and Brynjolfson, 1997; Kraut et al., 1998, Pucihar, 1999). Older technologies and information systems were harder to connect. In many cases, the solution that worked for connecting with one organization did not work with another organization. These solutions were very expensive. Today, problems with connectivity of different technologies no longer exist. The Internet integrates different technologies. eMarketplaces enable buyers and sellers to enter new global markets to explore new opportunities.
Encouragement from the Business Environment

Organizations are influenced by this dynamic environment (Grewal et al., 2001). Major companies have a greater influence in business relationships. We can find many cases, even in Slovenia, where the buyer invites suppliers to join the eMarketplace to negotiate business with other potential suppliers.

Government plays an important role in promoting, encouraging and spreading benefits of electronic commerce (Gričar, 2001; European Commission, 2000). The result of the research in Slovenia shows that government activities help to accelerate electronic commerce (Pucihar, 1999).

Many important e-commerce solutions were implemented in Slovenia's organizations and government institutions. Since 2000, Slovenia established laws to regulate e-commerce and e-signature activities. The intent is to make e-commerce more widely available (Gričar, 2001). The European Commission recommends that government should enable self regulation in the field of e-commerce (European Commission, 2000).

4. Use of eMarketplaces in Slovenia

Currently there are no business-to-business eMarketplaces operating in Slovenia. In the Slovenian market we may find eMarketplaces at an early stage of development. These eMarketplaces generally support business-to-consumer or consumer-to-consumer eCommerce processes. In most cases these are web stores or web malls providing some services that are typical for eMarketplaces. Some examples are: multi-vendor eCatalogues that enable comparison between products and services from multiple sellers, secure payments over Internet, web-based bulletin boards for supply and demand announcements, and eAuction support.

Since 2001, there are several human resource sites that enable recruiting on the web. They operate as intermediaries between organizations and job searchers. A similar web service is present in the automobile industry and real estates business. In each case, intermediaries also are integrated in specialized business portals for various industries. These agency intermediaries represent a basic horizontal eMarketplace. They offer services that can serve various vertical eMarketplaces.

Additionally, there is some interest by organizations such as: Telekom Slovenije, various IS providers and some government institutions (e.g. Government Center of Informatics) to establish eMarketplaces. Other companies look for opportunities to establish private eMarketplaces to involve all partners along the supply chain. In Slovenia there are several IT providers that would like to sell software, designed to operate in eMarketplaces. In addition, we have organizations that already joined eMarketplaces outside Slovenia. Some of these already awarded or won business contracts (Pucihar, 2002).

A major factor for the relatively slow development of eMarketplaces in Slovenia is a lack of awareness about the possible benefits.

When considering eMarketplaces adoption, organizations are also concerned about:

• Short time benefits of eMarketplace use
• Extra cost and a great deal of extra work
• Lack of trust and security of doing business in an eMarketplace environment
• Business partners that are not yet ready for doing eMarketplace business or who do not currently use them
• Lack of knowledge about the most suitable eMarketplace
• Unavailability of standardized data for products and services for e-catalogues

As mentioned previously, some organizations already do business with eMarketplace technology. Generally these organizations are in production and exporting situations. In Slovenia, most organizations enter an eMarketplace because of a request from an primary large buyer that wants to identify the best offer among several suppliers. The first successful case in Slovenia occurred in 2002 when Iskraemeco, one of the world’s leading producers in the field of measuring and managing electrical energy, entered as a e-Marketplace partner. In late 2001, CLP Power Hong Kong Limited invited Iskraemeco to join the e-marketplace FreeMarkets (since 2004 associated with Ariba) to participate at a reverse auction along with other suppliers of measuring equipment. The auction took place in real time with participating suppliers being able to compare one another’s’ offers. Each supplier needed to be well prepared for the auction and to have the appropriate data available in real time for decision-making about pricing. Within two weeks, after the auction closed, suppliers were selected and contracts signed. Iskraemeco won two-thirds of the business (Pucihar and Pecarz, 2004).

A few organizations in Slovenia enter eMarketplaces for e-procurement or e-sourcing purposes. In 2004, the Government Center for Informatics in Slovenia organized the first reverse e-auction with qualified suppliers in order to achieve best offer for 15 servers. The auction brought a 34% of savings of the total purchase.

Because sourcing and procurement in eMarketplaces enable buyers to realize additional savings, this becomes the most frequent reason to enter the eMarketplace. Unfortunately this is not usually the case in Slovenia. Perhaps there are different reasons in Slovenia due to the lack of awareness of eMarketplaces or insufficient encouragement of government and business environment.

However, eMarketplaces are becoming more and more important for organizations in Slovenia. On May 1, 2004, Slovenia became a member of European Union. From that moment, Slovenian organizations have to be able to compete in the global market. Now organizations attempt to create savings in every business process. One of these ways is doing business in eMarketplaces. Perhaps successful cases of eMarketplace adoption will encourage other organizations in Slovenia to take that step.

5. Environmental Factors for Successful eMarketplaces Adoption

5.1 Research Methodology

The research project, conducted during May 2002, included 119 large Slovenian organizations with the highest revenues as well as a website. Qualification as a large organization demanded fulfilling at least two of the following conditions from the 51st article of Organizations’ Act:

- More than 250 employees
- Annual revenue more that 16.8 million EUR
- Average asset value of more than 8.4 million EUR

An additional requirement was that the organizations have a website.

The main reason for choosing these criteria was an assumption that eMarketplace adoption necessitates extra expense and an investment in new knowledge, business processes reengineering and new technology. The assumption was that large
organizations have more resources available for such a project. The research data was collected with a questionnaire.

The questionnaire design came from a research model that was derived from theoretical knowledge and case studies about eMarketplace use. Other guidance came from opinions of experienced experts in the field. Additional advice came from information technology and Internet service providers. The research model consists of organizational factors, eMarketplace factors and environmental factors that an organization needs to consider before adopting eMarketplace technology.

The research model is shown in Figure 1.

![Research model diagram](image)

**Figure 1: Research model**

The questionnaire was divided into the following sections:

1. Respondents and organizations data
2. Experiences with eCommerce and Marketplaces use
3. Factors for successful eMarketplace adoption
4. Organizational factors
5. eMarketplace factors

As mentioned, due to the limited space in this paper, we focus only on environmental factors.
In order to ensure that the responses reflect the true situation for each organization, letters enclosed with the questionnaire were addressed to the chief executive officers of 250 organizations. They were asked to distribute the questionnaires to the chief procurement officer, chief sales officer and chief information officer. A total of 119 useful responses were obtained and analyzed.

5.2 eMarketplace Use Experiences

Most of the respondents are IT personnel (42 percent), 24.4 percent of respondents work in the field of procurement and 17.7 percent of them work in sales. Most of respondents are very experienced. Almost a half of them have more than 10 years of experience in their field of work (46.2 percent). Almost a third of respondents have 5 to 10 years of experience in their field of work (31.9 percent). Most of the organizations sell their products and services in Slovenia (45.4 percent) or other European countries (33.6 percent). A similar case exists for procurement where most organizations buy products and services in Slovenia (45.6 percent) or other European countries (37.4 percent).

The research results show that only a few organizations have any knowledge or experience with eMarketplaces. Only 23.5 percent of companies cited at least one business-to-business eMarketplace that is of interest to their organization. Only 11 percent of the organizations have any experience doing business in the eMarketplace. Other research results show that 2.5 percent of the organizations have some experiences buying, 3.4 percent selling, 3.4 percent as service providers and 1.7 percent with buying and selling in the eMarketplace. Three quarters (75.6 percent) of the organizations have no experience, 13.4 percent of the organizations did not respond to the question (Pucihar, 2002).

Research results are in line with our expectations. The eMarketplace concept creates new ways to conduct electronic commerce which has developed very fast over the last few years. For this reason, it is very satisfying to find that there are some organizations in Slovenia that already do eMarketplace business.

We may find even more positive results when we examine organizations’ that intend to adopt eMarketplaces in the future. More than half of the organizations (56.3 percent) respond that they are thinking about adopting eMarketplaces in the near future. Over one tenth (11.8 percent) of the organizations intended to enter an eMarketplace by 2003 and more than a quarter (26.9 percent) of them in the future. Some organizations already know how they will adopt the eMarketplace: 6.7 percent of them will enter as sellers, 2.5 percent as buyers and 7.6 percent as a buyer and a seller. Less then one percent of the organizations (0.8 percent) intend to enter the eMarketplace as service providers. Only 11.8 percent of organizations responded that they do not think about future adoption of eMarketplaces Almost a quarter (21.8 percent) of the organizations had no opinion about future adoption of eMarketplaces, while one tenth (10.1 percent) of the organizations did not respond to the questionnaire. (Pucihar, 2002)

5.3 Business Environmental Factors for Successful Emarketplace Adoption

Business environmental factors were analyzed using factor analysis -- Principal Components Analysis. Of the eleven environmental factors investigated, factor analysis detected four main factors (components) with more than a 60 % of total variance: (See Table 1)

1. Existence of trust between business partners
2. Encouragement from business environment
3. Use of eCommerce between business partners
4. Organization’s relationship to business environment

Factor 1: Existence of trust between business partners
In this first main factor there is a high correlation for the following items:
- Between us and our suppliers exists high level of trust (0.872)
- Between us and buyers exists high level of trust (0.825)
- Our organization has strong relationship with existing suppliers (0.672)

A majority of respondents agree that they have a high level of trust with suppliers (72 percent). Also a majority of respondents also agree that they have a high level of trust with their buyers (76.1 percent). Almost 80 percent of the respondents confirmed that their organization has a strong relationship with existing suppliers (79.7 percent).

Factor 2: Encouragements from business environment
In this second main factor results show agreement in the following items:
- Our important buyers already do their business on e-marketplaces (0.854)
- Our important suppliers already do their business on e-marketplaces (0.810)
- Slovenian government encourages business-to-business e-commerce (0.606)

A majority of respondents disagree that their important buyers (44 percent) and suppliers (53.4 percent) already do their business on eMarketplaces. Also majority of respondents disagree that the Slovenian government encourages business-to-business e-commerce (42.4 percent).

Factor 3: Use of eCommerce between business partners
In the third main factor there is a high correlation between following items:
- We use e-commerce with our suppliers (0.895)
- We use e-commerce with our buyers (0.854)

A majority of respondents disagree that they use e-commerce with their suppliers (42.4 percent) and buyers (40.2 percent).

Factor 4: Organization’s relationship to business environment
In the fourth main factor there is a high correlation in the following items:
- Our organization is interested in spreading a business to new markets (0.763)
- Our buyers enforce a way of business (0.618)
- We usually get new business with personal contacts (0.540)
Our organization has strong relationships with existing buyers (0.540)

A majority of respondents are interested in spreading their business to new markets (94.9 percent). More than one-third of respondents agree that their buyers enforce a way of business (36.7 percent). The majority of respondents agree that they usually get new business with personal contacts (73.7 percent). Also a majority of respondents agree that they have strong relationships with existing buyers (81.2 percent).

Table 2 shows the results of the business environmental factors.

Figure 2: Model of environmental factors
Table 1: Business environmental factors

<table>
<thead>
<tr>
<th>Business Environmental Factors</th>
<th>The level of agreeing in %</th>
<th>Average value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strongly disagree</td>
<td>2</td>
</tr>
<tr>
<td>Existence of trust between business partners</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Our organization has strong relationship with existing suppliers.</td>
<td>0</td>
<td>1.7</td>
</tr>
<tr>
<td>Between us and buyers exists high level of trust.</td>
<td>0.9</td>
<td>0</td>
</tr>
<tr>
<td>Between us and suppliers exists high level of trust.</td>
<td>0</td>
<td>1.7</td>
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<tr>
<td>Encouragements from business environment</td>
<td></td>
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<tr>
<td>Slovenian government encourages business-to-business e-commerce.</td>
<td>12.7</td>
<td>29.7</td>
</tr>
<tr>
<td>Our important buyers already do their business on eMarketplaces.</td>
<td>25.4</td>
<td>18.6</td>
</tr>
<tr>
<td>Our important suppliers already do their business on eMarketplaces.</td>
<td>22.9</td>
<td>30.5</td>
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<tr>
<td>Use of e-commerce between business partners</td>
<td></td>
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<tr>
<td>We use e-commerce with our suppliers.</td>
<td>12.7</td>
<td>29.7</td>
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<tr>
<td>We use e-commerce with our buyers.</td>
<td>12.8</td>
<td>27.4</td>
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<tr>
<td>Organization's relationship to business environment</td>
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<tr>
<td>We are interested in spreading our business to new markets.</td>
<td>0</td>
<td>0.9</td>
</tr>
<tr>
<td>Our organization has strong relationship with existing buyers.</td>
<td>0</td>
<td>2.6</td>
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<tr>
<td>We usually get new business with personal contacts.</td>
<td>1.7</td>
<td>5.1</td>
</tr>
<tr>
<td>Our buyers enforce a way of business with our organization.</td>
<td>8.5</td>
<td>19.7</td>
</tr>
</tbody>
</table>

6. Discussion

Research results show that organizations usually have strong relations and commitments to their buyers and suppliers. Generally a high level of trust exists between them. This may be a reason why organizations have a low intent to search for new business partners - especially in eMarketplaces where buyers and suppliers meet for the first time.

Another reason why eMarketplace use is not prevalent in Slovenian organizations may be that, for a majority of the organizations, primary buyers and suppliers currently do not use
eMarketplaces. Governmental initiatives and incentives for e-commerce would encourage greater use of current technology, like eMarketplaces.

In some cases use of e-commerce between business partners can encourage or inhibit the use of eMarketplaces. However, when an organization uses e-commerce solutions with business partners, costs of business transactions are low, organizations are more satisfied with their current status and they do not search for new business partners. The intent is to streamline business operations as much as possible using e-commerce. These organizations are more aware of its benefits and are looking for additional possibilities to further explore new e-commerce business models to gain an important competitive advantage. Organizations that intend to adopt new markets have a positive influence on eMarketplace adoption.

In many cases buyers strongly influence suppliers to enter eMarketplaces to compete with other suppliers. In other scenarios organizations have no choice. They have to enter eMarketplaces, if they want to compete for the business. Strong competition forces suppliers to lower prices to a minimum.

7. Conclusion

It is expected that through globalization and market consolidation, organizations will find themselves within a strong competitive environment. Costs savings will become the important target. In order to achieve and remain competitive, organizations will try to use various internet business models. One of these is eMarketplaces.

eMarketplaces are a relatively new business model. They develop and change very rapidly. As use enables cost reduction of business transactions it is important that the business environment encourages organizations to use such models to gain competitive advantage in the global market. Governments need to play a key role in such activities. In some cases governments establish eMarketplaces for simplifying the trading processes with national companies, especially in the segment of public procurement.

Statistics for Slovenia show that interest from organizations for eMarketplaces increased in the last three years. Organizations that export a majority of their products were readily encouraged by buyers to participate at reverse auctions. During the past year, interest in eMarketplace use for procurement processes increased dramatically. Organizations, especially those with foreign investors or ownership, show a strong interest in searching for new, cheaper, more proactive and flexible suppliers.

Although for many developing countries current use of eMarketplaces is weak, it is expected that eMarketplace use will increase in the coming years. Often the main reason for lack of use is lack of knowledge and awareness about possible benefits. A higher level of awareness and knowledge can be achieved by projects from government and other public and private institutions. Universities also play a significant role, by establishing laboratories for collaboration between organizations, students, information technology and eMarketplace providers. This kind of collaboration transfers knowledge among the partners, eMarketplaces offer many advantages: especially for organizations in developing countries. However, these organizations need to be flexible to survive in a market economy.

References


