CLOUD SERVICE PROVIDERS' COMPETITIVENESS – THE CASE OF LATVIA

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Abstract

Development of cloud computing brings to small and medium-sized enterprises the management power of the Business Intelligent tools of a large enterprise with the lowest possible cost. This means that business management applications for small and medium-sized businesses are developed in the cloud and can be accessible from anywhere in the world, not only from the company's computer. Cloud computing market is one of the fastest growing markets in IT industry.

Therefore, the question arises: are Latvian IT industry entrepreneurs ready to follow the new trend in software development? The objective of this paper is to analyze the existing cloud computing services that are based on the SaaS principle both in Latvia and abroad. The aim is to investigate whether there is any difference between the strategies adopted by the Latvian and European/American counterparts. Each portal was evaluated according to three parameters - price, functionality and appearance. Having got acquainted with the beta versions of portals study, participants had to write a reflection and answer the questionnaire developed for the purpose of smoothing qualitative assessment inaccuracies.

The research results provide an insight into cloud services in Latvia and indicate obstacles that hinder their development. The results indicate that the Latvian SaaS providers have not fully realized the benefits of cloud technologies, and the services they provide are insufficient or, in some cases, unnecessary. In contrast, European solutions have a better understanding of customer needs and improve service quality continuously.

The type of the article: *Empirical study.*

Keywords: *management decisions, IT, Internet, cloud computing.*

JEL Classification: *M10, M15, M39.*

1. Introduction

Undoubtedly, information technologies (IT) and their potential play an important role in the enterprise management systems. Recent trends show that major IT market leaders (Google, Microsoft, etc.) have recognized a new IT development cycle, and are putting all the efforts to develop this area. It is remote access solutions or the so-called "cloud solutions". In essence, enterprises are offered IT solutions with similar characteristics, but they do not need to be installed on computers and they do not require systematic upgrades. All the tools required by an enterprise are placed on the Internet and may be accessible from anywhere in the world.

Both Google and Microsoft offer a large range of ready-made solutions that can be immediately implemented in the operation of an enterprise; however, most of them are very general and do not fully meet the specific requirements of every enterprise. Consequently, there is a large variety of similar solutions on the Internet, which focus on a specific customer niche, and many such Internet sites have recently appeared in Latvia.

There is a wide range of cloud-based solutions, starting from the well-known Google Drive and 365 Office and ending with specific sites, such as e-conomics.com, teamtools.ru or iBizness.lv. They are united by the desire to offer high-quality, business-appropriate services independent on the location of an enterprise.

This article aims to evaluate the existing cloud solutions and to determine whether they are

suitable for Latvian small and medium-sized enterprises (SMEs). Special attention is devoted to small enterprises operating in B2B markets.

The first part of the article examines the studies carried out by the European and American scientists related to the assessment of the effectiveness of SME websites, the application of cloud technologies and the necessity to use information technologies in the operation of SMEs. The article will also consider scientific literature and some statistical data related to the studies carried out in Latvia on the competitiveness of Latvian SMEs, the possibilities of IT application and the necessity of cloud solutions.

As a result of the literature review, the authors will put forward the hypothesis on the type of cloud solutions necessary for SMEs that can be useful in the Latvian market. Attempts have been undertaken to offer a general assessment model aimed at determining the appropriateness of a particular solution for a particular SME.

Some Latvian and global enterprises whose operations are based on cloud solutions will be considered in the research: iBizness.lv, rekini.lv, vivacrm.lv, teamtools.ru, e-economics.com, 24balance.com, saleforce.com, biznik.com.

As a result of the research, global and Latvian web portals will be compared in terms of the number of customers, portal age, service range, and portal specifics. Strengths and weaknesses of Latvian web portals will also be determined. The information to prove the proposed hypothesis will be provided as well.

The research results will facilitate better understanding of the attitude of Latvian entrepreneurs towards cloud technologies. Also, the research will try to determine the cloud solutions that are necessary for Latvian small enterprise managers.

Literature review

The latest studies related to the use of the Internet by SMEs often focus on the development of cloud technologies. Research results suggest that SMEs may benefit from such technologies. For example, the data of the survey carried out by market research company Vanson Bourne show that in Europe the majority of SME decision makers believe that information technologies are crucially important for the successful operation of an enterprise and business growth. According to the survey undertaken by Vanson Bourne, 49% of the respondents recognize that the cloud allows them to be more flexible; 45% think that it helps to save money, 39% of the respondents consider that the cloud enables them to be more productive; and one in four respondents believe that the cloud helps to become more innovative. The reason why most companies refrain from moving their operations to cloud computing services is the concerns as to whether the service provider will be able to ensure sufficient data security and privacy. 77% of survey respondents believe that exactly the service providers have to take responsibility for the accessibility, transparency, data security and privacy of cloud computing services.

Several authors distinguish three basic services that can be provided by cloud computing (Sultan, 2011):

- Infrastructure as a Service (IaaS) – this type of service enables users to remotely use all types of hardware (servers, databases, VPN, etc.);
- Platform as a Service (PaaS) – a service that offers the ready-to-use environment, which is controlled by a team of specialists;
- Software as a Service (SaaS) – the most commonly used type of service. The software is installed on the server, not the user's computer, which means that the user can access the program at any time, even while using another computer. An example is Office 365 or Google Docs, which offer text editors that do not need to be installed on one's computer, the user can just log in one's "office" that is located on the Internet and perform the necessary activities.

The popularity of SaaS can be easily explained by the fact that large capital investment is not necessary to design or use this type of service. Therefore, it is not difficult to offer a variety of

solutions. Most often, however, the principle of SaaS is used to offer CRM, ERM applications.

In the Latvian market, SaaS is more common because the size of enterprises–customers is relatively small. Therefore, there is no need for any specific, tailor-made management programs. On the other hand, there are not so many enterprises that could offer PaaS and IaaS services at competitive prices, as it is a capital-intensive activity, which also requires the involvement of highly-skilled staff.

The Internet has changed business processes, i.e., made them more accessible and transparent. Communication with partners and customers has become simpler and more understandable; moreover, the range of available solutions has become more diverse. The same applies to cloud computing services. In the recent years, this segment of the market has rapidly grown [Sultan], offering a wide range of SaaS business solutions. The authors have grouped them by the type of service offered:

- e-office – office management programs (word processors, spreadsheets, e-mails, data storage);
- e-Environment – collaborative platforms (forums, communicators, schedules, etc.);
- e-programs – most often CRM or ERP tools.

The notion of cloud computing business model is very simple – a customer does not purchase the whole service, but just rents one of its functions, thereby paying less. This means that a service provider receives more benefits by increasing the customer base, and it can be achieved by reducing prices or improving quality. As mentioned above, it is not difficult to create a cloud computing service because it does not require large capital investment, which mainly provides the basis for such a wide range of cloud-based solutions. This situation, in turn, has led to a new problem: how can a user select the appropriate solution from the available diversity of solutions?

There are a lot of selection criteria (Zviran, Glezr, & Avni, 2006). At the B2B level, the price of a product, its quality and speed at which it is delivered are of great importance (Gilmore, Clarcson, & Rocks, 2006). Applying this principle in the selection of a cloud computing service it can be concluded that at the B2B level the quality of service, its price and speed at which the choice is made in favour of a particular service provider are significant. It is also important to ensure a high level of data security and appropriate service functionality.

Web Portal Design. As there is a large number of similar services, web portal design can also be considered an important selection criterion. The authors' argument is supported by the results of similar studies, which indicate that the effective selling of goods and services is associated with the appearance of Internet resources (Sinkovics & Penz, 2005). It is generally accepted that a user-oriented website should be based on six criteria, which are shown in Figure 1. This concept enables one to create a web portal that best meets customers' wants and needs. As shown in Figure 1, the owners of a web portal should not focus only on one aspect and neglect the others. To attract visitors, who can potentially become customers, it is necessary to achieve excellence in all 6 directions indicated.

Cloud computing service provider has to realize that the design of a website is of a great importance. Product homepage should be readable and simple, it should not be overloaded with information as well. All the necessary information should be presented in plain and intelligible form without the complex terminology (Sinkovics & Penz, 2005; Heroux & Fortin, 2011; Ščeulovs & Gaile-Sarkane, 2010). This will help to attract the necessary number of customers, as customers will be faster convinced to buy online services offered at the web portal.

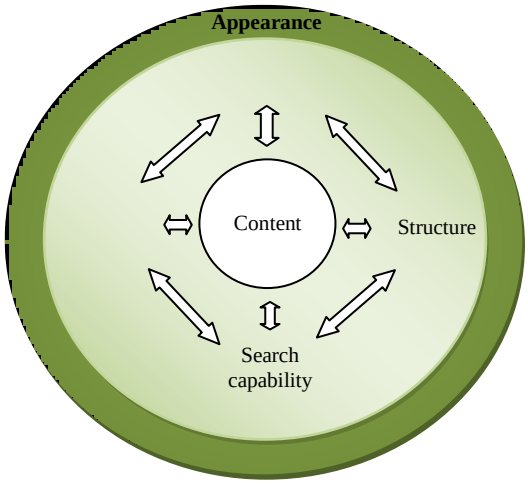

Figure 1. User-based design criteria and their relationship
(Zviran, Glezer & Avni, 2006)

The use of the Internet is unique in that a user has access to countless resources, but the time that can be devoted to resource viewing is limited. Therefore, during the design of a web portal it is necessary to contact potential customers and to explore their wants in order to achieve the ideal balance between content, structure, appearance, and functionality (Zviran, Glezer & Avni, 2006).

Web Portal Security. An important reason why enterprises do not wish or refrain from using cloud computing services is data security. Entrepreneurs are afraid of storing their data somewhere out of their reach. It is fully understandable and accepted, when it concerns large companies, but in the case of the Latvian SMEs, it is not so important. One of PaaS providers in Latvia considers that Latvian entrepreneurs are willing to entrust their data to cloud technologies, which could be connected directly to the company's size, as well as the management style that is not too formalized. On the other hand, the enterprise management systems offered by cloud services do not contain data, the loss of which can significantly undermine the market position of Latvian SMEs. In the authors' previous studies, it has been found out that in some sectors the market share is so small that each market participant is more or less aware of his/her competitor's customers, prices and suppliers (Budņiks & Didenko, 2012).

However, in the study carried out in 2010, which examined the attitude of SMEs towards the use of accounting services in cloud-based solutions, one of the risks mentioned was data loss. Today cloud computing service providers have developed a number of technical solutions to this problem; thus, data security issue has been resolved. Following the discussion on security issues, the opinion of Eran Feigenbaum, the Director of Security for Google Apps, can be quoted: "Cloud computing can be as secure, if not more secure, than what most organisations do today in the traditional environment [...] Data is typically lost when laptops and USB memory sticks are lost or stolen, but local storage is no longer necessary if a company uses cloud-based apps [...] Statistics show that 66% of USB sticks are lost and around 60% of those lost contain commercial data" (Sultan, 2011).

Cost of Services. It is difficult to assess the effect of the cost of service on decision-making related to the purchase of service in B2B markets, but it is vitally important. In comparison with the B2C market, entrepreneurs are able to purchase services at a higher price, but a cloud service provider is not always able to prove that the price paid is reasonable.

Even very low costs of cloud computing services may be a reason for a service user to give up the use of service. Here, the unfortunate experience of the Latvian web portal www.raditaji.lv can be taken as an example. In 2011, the customers of the municipal housing company Rīgas namu pārvaldnieks Ltd began to use the web portal raditāji.lv to submit water meter readings, to receive monthly bills and other information. The website was actively developing by offering new services and opportunities. According to different data, within six months the number of its users increased

to 45,000 users because in cooperation with Riga City Council the web portal actively advertised itself. The web portal services were highly appreciated by users because they were simple to use and considerably facilitated household management and were free of charge. At the beginning of 2012, the management of the web portal decided to introduce a fee for the services provided. The price was 0.20 LVL per month for a single user account. It created a massive response both from customers and from Riga City Council, and, as a result, the web portal lost all its customers and ceased to exist. This case demonstrates how unpredictably website users may behave, especially if they are not used to paying for the Internet-based resource services. On the other hand, the result could have been different if the web portal management had properly assessed their customers' motivation to use the web portal.

Similar cases have also been observed in the Latvian B2B environment. For example, the web portal www.zibsnis.lv offers accounting services to the self-employed people and micro-businesses. The service charge depends on the chosen period, but on the average it is 7 LVL per month. The last updates to the web portal were made on 1 January 2012, but in the previous year the information at the portal was updated at least on a quarterly basis. This indicates that the development of the web portal has stopped. In the forum one can read the record that encourages web portal owners to offer basic services free of charge, but to demand payment for extra services; the motivation behind this proposal is that it would help attract more customers. Thus, even a small amount of money can be an obstacle to the use of effective systems. As a result, it is clear that the development of the payment system is a very important tool for customer attraction.

In the U.S. market, Google Inc. offers a marketing research tool Google Consumer Survey that can find a solution to the problem of payment, specifying the path towards a correct customer-oriented business model. The model is based on the approach that a website visitor does not pay for the content and services; instead; this is done by the interested third parties willing to know their potential customers' opinion about the issues, in which they are interested. If the content of the website is interesting and useful to visitors, it attracts new visitors and, thus, generates revenue for the website owners from surveys of the third parties. This business model shows how it is possible to generate revenue not from the target audience, but from the use of the target audience. The authors of the article consider that such an approach is one of the best ways how to finance one's own webs portal and at the same time to attract new visitors.

Website Functionality. Determining the website functionality is the main problem related to the creation of cloud computing services. Too low level of functionality will not attract the required number of users, but too complex one will push them away.

The most common functionality is CRM system implementation in the cloud. There are several reasons:

- The growing popularity of CRM systems. In order to survive in global markets, many SMEs around the world have been adopting customer relationship management (CRM) systems (Bradley, Meyer & Gao, 2006).
- Work with customers is particularly important for small enterprises. In the authors' previous studies, it has been noted that small enterprises are socially active in the sense that they co-operate more on the basis of managers' personal relationships (Budņiks & Didenko, 2012).
- Work with B2B customers is a very complex and time-consuming process, which requires one to be aware of buyers' wants and needs. Attempts to formalize this process face major challenges (Alshawi, Missi & Irani). Enterprise management may experience certain difficulties related to the creation of their own customer management system and, therefore, it may be both cheaper and faster to use ready-made solutions.

CRM systems have proven to be a valuable resource in the work with customers in the European and American SMEs [(Bradley, Meyer & Gao, 2006; Mazzarol, Rebound & Soutar, 2003). However, there is no sufficient research on the attitude of Latvian SMEs towards CRM systems. In the previous studies, the authors of the present article clarified the reasons for the use of

computers in SMEs. Figure 2 shows the importance of the use of various functionalities. As seen in Figure 2, computers are mainly used for document elaboration, application of accounting software and, finally, for the enterprise information systems, which may include the CRM module.

The next type of functionality is accounting software. It enables accountants to quickly and easily maintain accounting records and create reports. The evident benefit of this system is an opportunity for an accountant to serve several companies at the same time. This, in turn, reduces accounting costs, which is very important in the crisis and post-crisis period, when enterprises look for new development opportunities and investment resources.

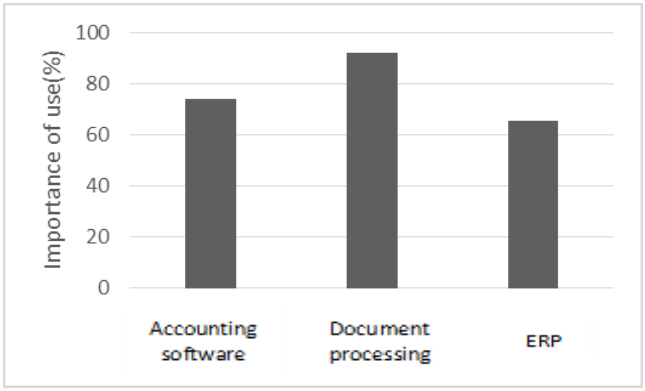

Figure 2. Computer use in Latvian SMEs
(Budniks & Didenko, 2012)

Finally, the last option of functionality is a social network intended for enterprise management. It is a kind of CRM tools that are designed not for collecting information, but for active interaction with customers, suppliers, and competitors. Most often, such programs have a low level of security because they do not contain commercial data, but only a list of contacts. The main task of web portals is to help create a network of contacts that can be easily controlled and used.

Numerous authors suggest that the use of the network is a very important tool for small enterprise management. The advantages are as follows:

- the ability to spot new opportunities;
- the ability to acquire new skills;
- the ability to learn from the experience of others;
- the ability to use the synergy effect by sharing resources (Gilmore, Clarcson & Rocks, 2006; Adegbite, 2001).

The studies carried out by both authors of the present article and the other Latvian scientists indicate that the Latvian SMEs use social networking opportunities, but do it poorly, not fully realizing their potential. This may mean that under the Latvian conditions such web portals can fulfil their specific objectives.

The review of scientific literature and periodicals as well as the analysis of real-world examples have enabled the authors to assume that satisfaction (S) by cloud services is a function of (1) that depends on the service charge (x1), functionality (x2) and design (x3).

$$S = f(x_1, x_2, x_3) \qquad (1)$$

Security issues do not affect the function values as at the level of SMEs it is not possible to estimate the required level of security because the security level of any web portal will be higher than that of a particular small enterprise (Sultan, 2011).

The concept of web portal creation illustrated in Figure 1 has been modified by the authors of the paper according to their views on the website design principles of cloud computing service provider (Figure 3), which would be based on the potential customers' needs and wants.

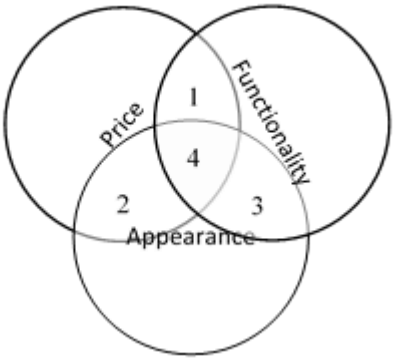

Figure 3. Customer-focused website design conditions

As seen in Figure 3, the fourth group shows a perfect combination of all three indicators that will help to attract a larger number of SME customers. Other combinations demonstrate both drawbacks and the use of parallel strategies.

In the first group, the web portal developers apply a "functional" strategy, which attempts to offer the best possible functionality set. The greatest danger of this strategy is that web portal owners can lose a large part of their customers because they do not pay enough attention to the user interface, making their tools too difficult to understand and manage.

In the second group, the "trend" strategy is used, which is based on the creation of beautiful and cheap solutions aimed at generating short-term revenue. This strategy can be used by followers of leaders willing to lure customers who are not able to pay for functionally rich solutions and are easily lured with a beautiful and attractive interface.

In the third group, the "quality" strategy is applied, which is based on the offer of unique opportunities neglecting the price. This strategy is mainly used by market leaders or web portals that offer their services to large and medium-sized enterprises that are able to pay more money and whose business processes are rather complex.

In the fourth group, the "balanced" strategy is implemented. The web portal is intended for use by SMEs and micro-enterprises. It facilitates the formation of functional part because the processes are simpler and, therefore, cheaper in development; in the graphical part special attention is devoted to the intuitive and understandable interface. The business model is designed so that potential customers do not constitute a major source of income.

It is possible that the web portal can only be evaluated in terms of one of the required indicators; however, the authors consider such a case to be particularly inefficient.

The proposed model can help cloud computing service providers to understand their target audience and, thus, to choose the right action strategy.

2. Method

In this section, the authors attempt to analyse the existing cloud computing services that are based on the SaaS principle both in Latvia and abroad. The aim is to investigate whether there is any difference between the strategies adopted by the Latvian and the European/American counterparts. The acquired knowledge is important for future research.

Web portals will be evaluated by the type of functionality comparing global and Latvian solutions. Wherever possible, there will be information provided on the number of customers, service charge, the lifetime of web portal, as well as development trends. At the end of the section, conclusions will be drawn and some proposals put forward.

Foreign portals choice was based on their popularity in Google search results as well as in articles forums. The authors were able to find only a few Latvian portals in Latvia, which is quite natural considering the early stage of SaaS market development. The analysis of the chosen portals was made by authors together with bachelor's degree second-year students who studied the subject "Economic Information Systems". Each portal was evaluated according to three parameters: price,

functionality and appearance. Acquainted with the beta versions of portals the students had to write a reflection and answer the questionnaire developed for the purpose of smoothing qualitative assessment inaccuracies. This questionnaire included quantitative questions concerning the technical side of the portal and the prices for the services. Thus, numerical indicators were obtained in order to assess the price and functionality. Appearance was assessed according to reflections about the ease of perception of the portal interface.

CRM Systems

In the American and European markets, there are many SaaS solutions available for CRM systems. However, the most widely known is salesforce.com. In the Latvian market, there is no evident leader in the SaaS market segment because it is currently being developed, but an analogue system to salesforce.com can be considered VivaCRM.lv.

According to the evaluation model proposed by the authors of the paper (see Figure 3), salesforce.com falls under the third group. The web portal offers a high-quality and high-functional CRM system, which can be applied to any size company. The homepage is made user-friendly with an intuitive and understandable structure. It is easy to find everything that might be important. In terms of functionality, the program is very complicated.

It offers a large variety of customer research and management tools; in addition, it creates an interactive cooperation environment among enterprise employees. Unfortunately, the authors have to admit that the opportunities offered by the web portal cannot be applied to the Latvian SME market. In the Latvian SMEs and micro-enterprises, functionality of the program could be used only up to 50% (authors' assessment) because neither the size of an enterprise nor the online customer activity provides an opportunity to use all the tools offered. However, such a tool would be very useful for large enterprises, and it could reduce the maintenance costs of internal information systems.

According to the method proposed, the Latvian web portal VivaCRM.lv falls under the second group. In comparison with salesforce.com, it offers lower prices that come with a significant decrease in functionality. Visually, it tries to offer the user a clear and simple "desktop". However, as mentioned above, the Latvian small and micro-enterprises do not require too functionally complex systems, and, therefore, the system can be useful and successfully applied. Analysing the portal, the authors have come to an idea that it attempts to reproduce the tools of the American counterpart. Some significant similarities have also been found.

However, the way of attracting customers differs a lot. In the case of salesforce.com, the homepage is designed so that a potential user before starting to test the system could find a lot of useful and encouraging information on the system. Therefore, at the website it is possible to find success stories, general statistics and video tours. The Latvian counterpart, in turn, provides potential customers with a brief description and enables them to connect to the demo version. This proves the authors' assumption that the Latvian web portal belongs to the second group, i.e., there is an attempt to just follow the leaders and to create something similar not striving to promote business growth.

Accounting Systems

This sections offers a lot of different solutions because it is not difficult to implement such a system technically, the accounting process is sufficiently formalized; therefore, the high level of functionality is not expected.

For the comparison purposes, the European system e-conomic.com and Latvian counterparts zibsnis.lv, e-konti.lv and 24balance.lv have been chosen. These web portals will facilitate better understanding of the local website problems.

The web portal e-conomic.com is a fast-growing SaaS service provider that offers its services to European enterprises. The enterprise has 9 years of experience in the market and the number of its clients has reached 42 thousand. According to the model proposed by the authors of the paper,

this web portal can be attributed to the first group. Since the service charge is considerably low, the web portal can be used by small enterprises. Also, functionality meets all SME requirements, offering exactly what is needed by an enterprise's accountant. The only drawback is that the work environment lacks transparency. As noted above, accounting is a formalized process; therefore, it is very difficult to create a user-friendly interface, especially if it is done for the country, whose legal requirements and business environment are little known. It is also the reason why this web portal does not offer its services in the Latvian market. The difference between the previously discussed web portal salesforce.com is that the homepage of this web portal does not contain a lot of advertising material. The greatest emphasis is placed on the nature of the system itself and benefits gained. Everything is explained in a brief, concise and serious manner.

The Latvian counterparts offer functionally weak solutions, but still these solutions are sufficient enough to be applied by SMEs. Some of them position themselves to be focused directly on micro and small enterprises (zibsnis.lv, e-accounts). The web portal 24balance.lv can be attributed to the first group of the model since it offers both a good price and functionality; however, it considerably loses in the graphical interface. This web portal is a branch of foreign company in Latvia. It is an example of how the attempts are undertaken to enter the Latvian market with a ready-made product, by improving it to meet local legal requirements.

The web portal e-konti.lv offers a very simple and understandable interface with the necessary type of functionality required by micro and small enterprises. This could be a perfect solution for a small enterprise, but the technical condition of the web portal indicates that it has failed to attract the required number of customers in order to develop itself. The same applies to the web portal zibsnis.lv. Technically and visually, as well as in terms of service charge this web portal is No. 1 choice for micro-enterprises; nonetheless, it seems that the development of the web portal has stopped.

The overview of accounting solutions has shown that functionality plays a more important role compared to the graphical interface.

Social Networks for Enterprise Managers

Unfortunately, the authors of the article have failed to find the web portal designed in Latvia that would be intended only for making contacts. Some time ago there was an attempt to create a social network for Latvian enterprises, but the necessary number of customers was not attracted and, therefore, the project was closed. However, one web portal has been found that positions itself as a social network but comes with functionality that is important for business process management, i.e., a small ERP system. The web portal offers a small document management system intended for a small enterprise that includes warehouse management and CRM systems. However, the main objective of the web portal is to help enterprise managers to communicate with each other. Despite a considerable level of functionality (some customer complaints against deficiencies can be found), the web portal is free of charge. However, due to the poorly designed structure, the web portal falls under the first group. Moreover, this is exactly a reason for web portal failure. The existing users describe this situation as follows: "It seems that the development has stopped. It is a pity; in any case this web portal has (had) potential".

The overview of the European and American web portals has enabled the authors to come to a conclusion that the best example of enterprise social network is the American web portal biznik.com. It creates an active collaboration environment, encouraging users not only to communicate, but also to conclude agreements and make personal contacts with their customers, suppliers, and competitors. The services offered are free of charge. The web portal has been actively developing, but only in the United States. The web portal may be attributed to the fourth group as there has been a good balance created between functionality, interface, and service charge.

3. Discussion

As a result of the analysis of theoretical material, the factors have been identified that affect the satisfaction of SMEs with a particular B2B portal that offers SaaS services.

The theoretical evaluation model of web portals has been proposed based on the authors' experience and the literature review.

The case studies have shown that the developed model can be applied to the assessment of web portals and the identification of weaknesses.

The analysis results of some web portals indicate the disagreement between theory and practice; this is related to the success or failure reasons of web portals, even if all the customers' needs and wants are met it is not always possible to create a product that is appreciated by customers (ibiznes.lv).

The results of research have limitations: the developed model is not empirically tested, and, therefore, it cannot be considered a serious tool. The overview of portals has been carried out on the basis of available information, and it has not included a large number of assessors.

The directions for future research include the empirical testing of the proposed model and the search for the key to success.

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