

# Assessment of the ICT market development through study of WEB hosting services in a country with transition economy

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**Abstract:** The papers deal with the result of a study with objective to provide outlook of the on-going development of the e-services in a transition economy with emphasis on the emerging industry of web hosting. Hosting service providers and industrial users, in particular SMEs, have been researched with intention to evaluate the future impact of web hosting on e-business, macroeconomic implications and socio-economic importance. The study benchmarked the offerings of web hosts in today's market and tried to identify best practice of key players. The study was used as well as a basis to business model development that may served as guidance to other new entrants into the web hosting market.

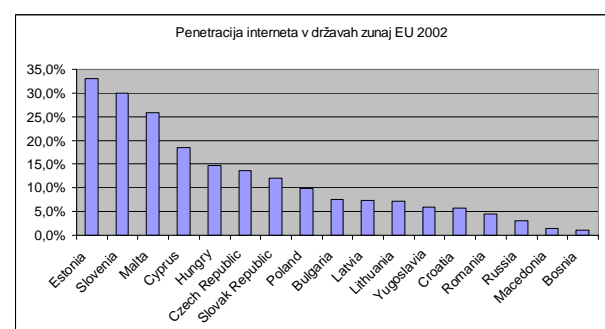
**Key words:** ICT market, web-hosting, e-regulation

## 1. Introduction

The market of web hosting service providers (also referred to as web hosts) is rapidly changing and the identification of the organisation of the market by segment, positioning and business model is required by many bodies working on the regulation of the market and on the promotion of the e-services development in economies in transition or new entrants. The data and benchmarking of the quantity and quality of services currently provided or planned to be provided can give clear foreword vision of the new prospective or emerging services and the future development of society to knowledge based economy. The evaluation of the web hosting situation in a country can help in determination of the expectations and needs of Small- to Medium-sized Enterprises (SMEs) from the service in particular or from the entering in e-commerce business. Qualitative and quantitative assessment of the collected data can help in understanding the demand side of the web hosting services. In order to do that a project team set up within the larger EU funded project WEB hosting launched the study in Slovenia with an objective to try to answer to many of the questions regarding the regulation of the telecommunication market that was recently applied by the adoption of the Electronic communication law and the setting up the highest regulatory body in the area of telecommunication.

Slovenia is rather small but relatively well developed country with a GBP per capita coming

close to the EU average. The same applies as well to the rate of Internet usage which is little bit higher than the average in the EU 15. The advancement in this area is expected to be even higher after the EU membership that was on place on May 1st 2004. The position in Slovenia regarding other transition economies in the region measured through Internet penetration is presented on fig.1. That was the reason why Slovenia was selected for the study.



**Figure 1.** Internet penetration of European countries in pre accession time (2002) to the EU

## 2. The content of the evaluation study

From the functional side of view, web-hosting services are covering the provision of storage and the servers' internet connectivity on which the customers' web based applications are deployed. These offerings might be extended to the offering of space and connectivity for customers hosting their own servers

and systems for their web-sites and the provisioning of application services at the hosting provider's data-centres. Hosting service providers are offering managed services for the maintenance, administration and monitoring of customers servers and their sites and applications. These services are also offered to customers using shared servers. Web-hosting services can be distinguished in shared, dedicated and collocation hosting services. This segmentation is corresponding to different business needs and may be not covered by the same set of providers. By taking in account these definition it was evident that many different aspects of the web hosting had to be studied in order relevant assessment of the market to be provided to policy decision bodies and potentially to the regulators. The questions that were addressed to a group of 42 SMEs was classified in several groups. The first group dealt with the size of the company, its position in the market, the type of the company regarding the products or services deployed or marked. The second group of question was addressing the ICT used within the company itself or associated branches. Information about the computer technology and information system used and information about number of PCs, working stations, industrial robots, network components etc. were requested from the inquired SMEs as well. Another question in this group was asking about the type of department(s) that is using the ICT. The following were mentioned: marketing/advertisement, sales, CRM/Customer support, Billing, R&D, Production, Purchasing, Maintenance, General Management, Administration / Finance, HR Management / Payments and Training. Importance of the ICT in particular department was also asked to be specified.

The second group of question was addressing Internet and WEB facilities. The SMEs were asked to answer to questions dealing with the access to the Internet, type of access, bandwidth, cost ect. In the questions dealing with the approach regarding the selected ISP providers the inquired were asked to assess the performance of their service provider. In that context data were collected regarding cost, support and content provided by the ISP as well as how relevant is the presence on the Internet for the SMEs business itself. The questions regarding the WEB site of the inquired were addressing content and importance of having a WEB site, then questions about maintenance of the site, number of visitors, influence to their business enlargement etc.

The final group of question were demanding from the inquired SMEs to assess their visions regarding the WEB hosting usage and satisfaction. They were asked to specify the exact purpose of the WEB site, which type of services are provided e.g.: e-mail, contact forms, information, software download, on-line shopping, e-learning ect. The purpose of the site could be classified as advertising/marketing, sales, communication, CRM/Help Desk, Training or other. In these group of questions there were also inquiry about how often the site is updated, who has

developed the site and who takes care of the further development, then about difficulties having the site in the company itself or outside in the WEB hosting company, about plans to develop a site or to use the WEB hosting services etc. The SME was asked as well to rank the enclosed criteria from 1 to 9 regarding their importance in selection service providers. The criteria and the collected marks regarding the importance to a SME of the particular criteria are summarised in Table 1.:

Pricing	Average mark : 8,43
Data security	8,43
Flexibility and Scalability	7,43
Network connectivity	8,00
Performance	8,14
System availability	7,71
Customer care/Help Desk	7,71
24x7 Support	6,86
Possibility of adding new/additional functionalities	7,71
One-stop-shopping bundle offerings (Internet Access and Hosting)	7,74
Service Quality (SLAs)	7,57
State of the art Hardware	7,29
Usage of new software	6,69
Monitoring	7,43
Transparency of Offerings	7,00
Economic stability	7,14
Size of provider	6,57
Expertise and reputation	7,43
Geographical Location	5,71
Systems Integration Services	6,86
Information and Consultancy services	6,86

**Table 1:** Importance of the criteria for selecting ISP/web hosting provider

The SMEs that do not have WEB site but have access to Internet were asked to answer about the reason they do not have access. They were enabled to choose an answer among six different possibilities: too expensive, not relevant, security concerns, lack of staff, lack of hardware and never thought of it.

The three groups of answers were collected and processed. The findings were not encouraging and they are discussed in the section that follows.

### 3. The results of the evaluation study

#### 3.1 General analysis

The study covered real SMEs with number of employees from one to 70. Only one of the studied

company had much more employees – more than 1000 and as such was not considered. The activity of the involved SMEs were in different economic areas such as transportation, manufacturing, trade, education, ICT, finance and banking, counselling, health services, insurance, delivery services, leisure ect. The income per employee varied from 0.2 up to several Million EU. The important data about the ICT equipment and usage have shown that PCs and working station dominates e.g. with 43% from the whole ICT equipment, the number of industrial robots is negligible, the number of mainframes was around 13%, CAD tools were present in 20% of the SMEs and LAN and other network equipment was present almost equally with 30% of the SMEs. The number of PCs per employee gives us very good picture about the coverage with ICT as the number goes from close to one PC per employee up to 5.7 PCs per employee. The importance of the ICT is remarkable for most of the involved SMEs in the study. The importance was ranked as high by 90% of SMEs. Highest assessment marks were given by the companies: 9, 8 and 7. The access to Internet is almost permanent as 80% of the inquired SMEs have permanent access to the Internet. The type of WEB pages is somehow equally distributed regarding active and passive WEB pages, the numbers are 47% for the active WEB pages and 40% for the others, 13% did not gave any answer. 47% of the WEB pages are hosted outside of the company and 40% inside the company, 13% of the inquired did not gave any answer. The range of access of outside users to the WEB pages differ among the companies, giving some numbers of few tens up to few hundreds per day.

The most interesting data of the study came out about the purpose of the WEB page usage. The highest percentage goes to advertisement (50%), 27% have indicated selling, 15% communication, 8% user support and 3% for other purposes. Companies are using mostly the classical Internet services e.g. e-mail for communication and information, however planning to develop e-shop, e-learning and e-payment services is under way. The WEB pages are up dated very differently. Some of the companies do that daily (13% of them), most of them (around 33%) according to the needs and once a week (27%). The telecommunication network used also differ very much. It is encouraging to see that the almost the half of SMEs inquired use either T1 or DSL/cable connectivity guaranteeing good bandwidth from 512 K up to 1.5 Mb/s and more than a half plan upgrading in the near future in 6 or 12 months. The promotion of the WEB pages is done mainly by the medium itself – the Internet but big portion goes as well to the printed media like journals and news papers (around 22%).

### 3.2 The WEBhosting study

There are no many WEB hosting providers in Slovenia however they were all evaluated according to the most known and available criteria (36 in total) published by Forrester research [ 3 ]. The criteria cover all relevant data for web hosting from data base

server, back-up, DNS provision, CGI script and Java support, video control for security reason of the server and directories in the national language (Slovene). Most important was the pricing that varied from few EUR up to few tens EUR per packet services depending of the packet content. The findings about particular web hosting provider do not differ very much, the prices and the selection of the offered services from known 36 criteria/indicators were very similar. This show somehow that the market is not very mature. This first finding is supported also with the data describing the SMEs attitudes regarding web hosting. Example of Web hosting offering is presented on Fig.2

Figure 2. One of the three web hosting providers in Slovenia

The numbers also have shown that Slovenia has 3, 96 Million web pages, the increase rate is 13% per year, the time spent on the web pages is also still growing, the last six months has grown from 37 to 53% of the users compared with decreasing numbers in the last years in US. The most of the WEB documents is in textual form (around 2 Million), followed by images (1,41 Million). The number of audio data is rather low e.g. around 20 000. The TLD used is mainly the national one .SI, from the generic it dominates .NET. The language used is mainly the national language - Slovenian, followed by English and after that other European languages. The Slovenian customers are mainly interested in

Internet services, shopping, sex, travel, learning, education, automobiles and music. However, the SMEs inquired are satisfied with the WEB hosting service they are using. The dominating criteria for selection of WEB hosting provider is security, the performances of the provider, connectivity and availability of the system, support to the users etc. Most of the SMEs answered that they would go to the WEB hosting provider in case they offer more reliability and more quality in the service as the user support and the performances got somehow lower marks.

#### 4. Study evaluation

The intention of the study was to provide an assessment of the developing market and to develop a best practice business model that contains both relevant services and associated costs that will provide guidance to European decision makers setting ICT policy, to European providers of web hosting services and companies looking to enter the new market and, most importantly, to SMEs looking for guidance when choosing a web host.

The overall objectives were achieved as the study has shown that a market in transition economy is following the examples in more developed countries. This is evident from the results giving within the criteria for selection of web hosting provider the highest importance to the security, pricing and performances of the provider. The other objectives of the study regarding the provision of an objective picture of the socio-economic and macroeconomic impact and trends of the web hosting service industry and market in the timeframe up to 10 years (number persons employed, projected labour demands, current and projected total market size, current and projected market size as percentage of GDP, etc) was not fulfilled in total. This was due to the low level development of the market itself (few WEB hosting service providers and not sufficiently good offers for companies with demanding business and markets) and the characteristic of the situation when most of the SMEs are developing and maintaining their pages internally. Furthermore, the web pages of these SMEs are mainly used for advertisement as the other services are not very well represented and deployed. This is specially true for e-shopping, e-payment and e-learning type of services. These findings are certainly valuable input to industrial and IST policy makers in EU as they give clear insight about the effectiveness of the existing governmental policy in the country before the accession to EU. The framework conditions that exist with respect to the promotion and regulation of the European web hosting services industry and market suggest that recommendations for additional measures have to be taken to reach documented policy aims as specified in many EU based programming documents.

The other measure to be taken is certainly the increase of the awareness of the WEB hosting services and to disseminate the study results to target user audiences: decision makers in SMEs, web hosting industry current and prospective players, regulatory agencies and government on national and EU level.

#### Conclusion

Network information infrastructures together with value added services where web hosting can be allocated have an enabling function. An infrastructure is designed to support a wide range of activities. It is enabling in the sense that it is a technology intended to open up a field of new activities and new economic achievements. Data collection and study during the

ongoing process of capability and market development of these type of services are conceivably utilized for strategy and development planning for the country and the relevant society itself as well as for new entrants that are following similar scenario of development. The WEB hosting study performed in Slovenia is a part of the larger project carry out within EU and the accession countries with aims to provide valuable input to the IST policy makers in EU and at large.

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