

December 2002

SME eBusiness Readiness in Five Eastern European Countries: Results of a Survey

Panagiotis Damaskopoulos
INSEAD

Jim Oliver
INSEAD

Follow this and additional works at: <http://aisel.aisnet.org/bled2002>

Recommended Citation

Damaskopoulos, Panagiotis and Oliver, Jim, "SME eBusiness Readiness in Five Eastern European Countries: Results of a Survey" (2002). *BLED 2002 Proceedings*. 37.
<http://aisel.aisnet.org/bled2002/37>

This material is brought to you by the BLED Proceedings at AIS Electronic Library (AISeL). It has been accepted for inclusion in BLED 2002 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

SME eBusiness Readiness in Five Eastern European Countries: Results of a Survey¹

Jim R. Oliver

INSEAD
France
jim.oliver@insead.edu

Panagiotis Damaskopoulos

INSEAD
France
Panagiotis.Damaskopoulos @insead.edu

Abstract

We report initial findings from a survey conducted to determine the state of e-business readiness by SMEs in five Eastern European countries. The work is part of the EU-sponsored project ENLARGE. A questionnaire was administered in late 2001 to over 900 executives and managers from SMEs in Poland, Slovenia, Romania, Bulgaria, and Cyprus. The survey looked at e-business readiness by exploring three levels of analysis: the company and organizational level, the market and industry level, and the national and regulatory level. Initial results from this rich and recent dataset suggest a fairly strong adoption of basic technical infrastructure, such as PCs, Internet access, and company Web site. Exploitation of these technologies is more limited and varies across the different countries. At the

¹ This paper is based on work performed for the EU sponsored project, ENLARGE. We thank the consortium members who coordinated the data collection efforts in each country: Uros Hribar at University of Maribor, Vladimir Lazarov and Nina Tasheva at Bulgarian Academy of Sciences, Andry Marangos and George Samaras at University of Cyprus, Ana-Maria Borozan and Ileana Trandafir at ICI in Romania, and Witold Bielecki at LKAEM in Poland. We also thank Nikos Mylonopoulos at Athens Laboratory of Business Administration for contributions to the questionnaire and scientific input.

market and industry level, most company Web sites are used primarily for informational purposes and tight electronic linkages to customers or suppliers is not extensive. Finally, at the national and regulatory level, respondents believe that there is little support from their regional and national governments, and that more maturity is needed in the technical, business, and social infrastructure.

1. Introduction

Although the fallout of the dot-coms has tempered the frenzy in e-business, most companies recognize the importance of the Internet and other electronic technologies to their future. In fact, no company can afford to ignore these changes, and this includes to small and medium sized enterprises.

The rapid pace of change requires frequent study to understand the evolving landscape. In reviewing research for this project, we were struck by how quickly studies become outdated. The survey reported on here was administered in late fall of 2001, in support of an EU-sponsored project named ENLARGE.

The paper is structured as follows. Section 2 provides background on the ENLARGE project and discusses the framework for the survey. Section 3 overviews the study design and provides a summary of the questionnaire content. Section 4 reports on the results of our initial data analysis, discussing the state of SME e-business readiness as well as addressing similarities and differences among the countries. Section 5 concludes.

2. Background

The primary goal of the ENLARGE project is to develop and deliver eBusiness training programs to SME executives in five Eastern European countries: Poland, Slovenia, Romania, Hungary, and Cyprus. The project targets key decision makers, based on the argument that senior management awareness and commitment is the main obstacle to successful and sustainable adoption of innovative technologies, processes and practices. The project is funded by the European Commission as part of the IST program. The partners in the project include ALBA and PLANET/Ernst & Young in Greece, INSEAD in France, LKAEM in Poland, ICI in Romania, CLPP in Bulgaria, the University of Maribor, and the University of Cyprus.

The ENLARGE project has several phases, one of which involved conducting a survey of a representative sample of SME management in order to characterize their readiness, attitudes, and needs relating to eBusiness. This paper reports on an initial analysis of this recent and rich data set. The survey was carried out in each participating Eastern European country. The data analysis presented here is directed

towards identifying and separating country-specific characteristics in addition to identifying common regional features.

The survey was designed to provide three levels of analysis relevant to e-business:

- *Company and Organization Level*: Examines the e-business decisions and concerns inside the company, addressing technology deployments, usage, strategies, and perceived challenges. Our interest is to understand what the company is doing and planning, as well as characterize perceived challenges.
- *Market and Industry Level*: Examines the environment immediately outside the company, including e-business issues relating to customers, suppliers, and partners – i.e. the actors within each company's industry. Our interest is to understand the key drivers (and barriers) that are bringing about (or preventing) change and influencing adoption of e-business practices and technologies.
- *National Level*: Examines the large scale and infrastructure issues, such as technology and financial infrastructure, legal environment, and perceived prevalence of governmental support.

3. Survey Goal and Methodology

The primary goal of the SME survey was to find out information that would contribute toward the successful design, development, and delivery of e-business training materials in the countries covered by the ENLARGE project. To gain the most insight into the SME population, an exploratory approach was taken. As described below, both the questionnaire and the sampling methodology were designed to provide a broad -- although not perfectly representative -- view of SME attitudes, needs, and situations.

The framework described in the previous section was used to design a questionnaire that delved into each dimensions of e-business. In addition, four items were used to capture relevant demographic information about the company and the individual respondent: industrial sector, size of company, managerial level and age of respondent. A total of approximately 100 questions were asked. The questions had Likert scale responses and rankings, as well as ordered and unordered categorical responses. A summary of the sub-categories of questions is shown in Figure 1.

Although the ENLARGE consortium developed the questionnaire, the survey was professionally administered in each country. A working assumption of the project was that only local partners could properly target and deliver the questionnaire, especially given the timeframe, language issues, and the non-trivial length of the questionnaire. Broad guidelines were given to the firms that administered the surveys, but many issues were left to their own judgment. For example, in some cases the questionnaire was administered in a one-on-one fashion, but in most cases administration was done through the mail.

The sampling was broad and spanned all sectors and SME size, and the respondents themselves spanned a range of ages and of senior management types. This broad sampling was a goal, but differing approaches and response rates resulted in different numbers of responses across the countries. In particular, three of the countries had between 100 and 175 responses, but Poland had only 42 and Slovenia had 395. The initial exploratory data analyses reported here uses averages for each of the countries, thus mitigating the effects of sample size differences. Nevertheless, care should be exercised regarding the results, especially in the case of Poland which had few respondents.

Survey Questionnaire

Each dimension was explored through a number of items that characterized elements or features of that dimension.

Demographic of Individual and Company

- Sector and size
- Managerial level and age of individual

Company and Organization

- Access and level of use of Internet and Intranet technologies.
- Perceived benefits and threats posed by Internet and e-commerce
- Evolution of Internet readiness over time
- Challenges to further progress

Market and Industry

- Role of Web site, type and depth of services offered via Web
- Frequency of Web site updating, frequency and types of communication outside company
- Linkages with partners
- Level of e-commerce

National Level

- Level of maturity of infrastructure, including technical, financial, and social attitudes
- Perceived level of support from national and regional governments

Figure 1: Survey questionnaire categories and sub-categories.

4. Results

4.1 Company and Organizational Dimension

The responses indicate that there is fairly high degree of at least basic computer and Internet technologies. As described in more detail below, the penetration of PCs, Internet access, Intranets, and Web site existence are generally fairly high. Except in the case of Web site services, we did not try to measure the sophistication or newness of the technical infrastructure, but rather focused on those basics for e-business.

Overall, across the five countries, the SMEs have one PC for every two to three employees. Exact numbers are not possible to report because of the interval category measures that were used in the survey responses. The highest ratio of PCs per employee was in Slovenia, Poland, and Cyprus where there was approximately one PC for every two employees. The lowest ratio was in Bulgaria, with one PC for roughly every four employees. However, the Bulgarian responses included larger SMEs than the other countries, with some having over 250 employees, and this could influence the ratios.

Internet availability and access is very high, with an average of 90% of the respondents reporting that they have Internet access. The lowest penetration was in Romania, in which roughly a quarter, 50 of 209 respondents, reported not having Internet access. Although PC usage was also lower in Romania, there were no obvious sampling reasons or company-level characteristics that explained the lower Internet access rate; size, sector, and other company factors were similar to the respondents in the other countries.

Of the companies that have Internet access, a varying number of employees make regular use of the Internet in their work routine. Table 1 shows that on average Polish SMEs have a relatively high level of usage, while fewer employees regularly use the Internet in Romania, Cyprus, and Bulgaria. Slovenia is in the middle; many firms having wide usage across their companies, while many other firms have narrower usage concentrated in fewer employees.

	Slovenia	Poland	Romania	Cyprus	Bulgaria	Average
0-25%	40%	14%	54%	51%	66%	45%
26-50%	16%	7%	18%	24%	14%	16%
51-75%	10%	12%	13%	10%	8%	11%
> 75%	34%	67%	15%	14%	13%	29%

Table 1: Percent of Employees Regularly Using the Internet at Companies That Have Internet Access.

Figure 2 shows that Intranet deployment varied widely among the countries, with almost 60% of the Polish firms reporting the existence of an Intranet, and only 20% of the firms in Cyprus. Further analysis would be required to understand the robustness of this result, and it should be noted that Poland had the fewest survey responses at 42.

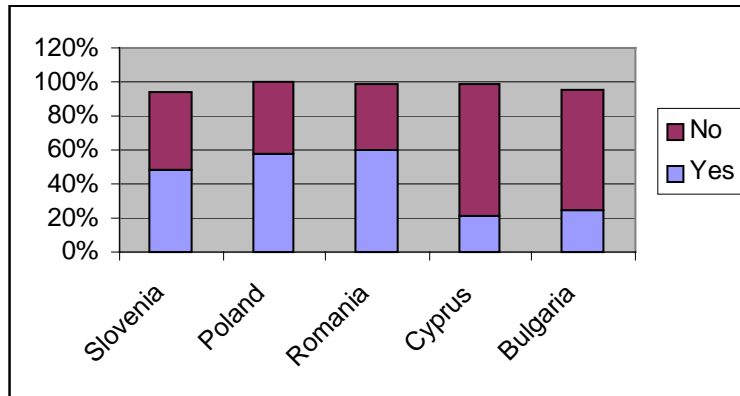


Figure 2: Responses to the Question: “Does Your Firm Have an Intranet?”

Countries varied in web site prevalence, as shown in Figure 3. Again Polish SMEs showed high adoption rates, having the highest proportion of companies with Web sites. A follow-up survey question asked how long the Web site had existed, and the most frequent response was “More than 2 years.” The second most frequent response was “1 to 2 years.” Approximately a quarter to a third of the respondents reported that their web sites were either less than 6 months old or between 6 and 12 months old. This response was robust across the countries although data for Bulgaria was not available for this follow-up question, due to a questionnaire versioning problem. These data suggest that although significant numbers of companies still do not have Web sites, those that do have had them for a fairly long time.

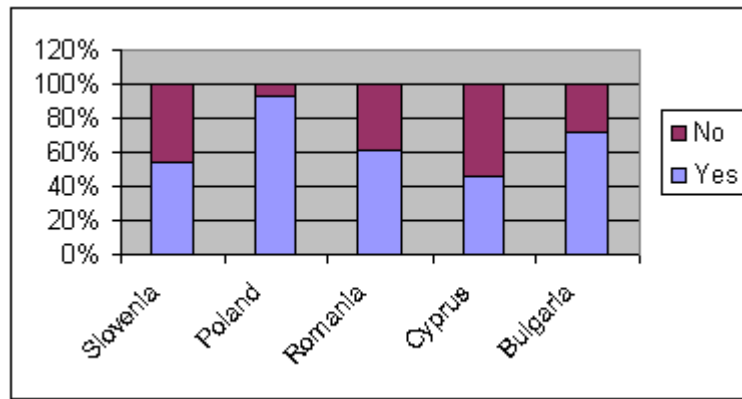


Figure 3: Responses to “Does Your Company Have a Web site?”

As a follow-up to those firms that have a Web site, we asked how often it was updated. The results are shown in Table 2. Although there were quite a few “Don’t know” responses, the updating appears to be rather infrequent, which suggests that many companies are using their Web sites to provide basic information that does not change frequently.

	Slovenia	Poland	Romania	Cyprus	Bulgaria
Every 0-3 months	49%	36%	55%	26%	48%
Every 4-6 months	23%	29%	19%	28%	17%
Once a year or less	22%	12%	15%	46%	24%
Don’t know	6%	24%	10%	0%	11%

Table 2: Frequency of Company Web Site Updating.

To assess how e-business readiness and computer deployments have evolved over time, we asked specifically how the SMEs felt about their current level of “ICT preparedness” as compared to three years earlier. The results are shown in Figure 4. In general, the SMEs believe they have good or very good level of preparedness as compared with three years ago. The exception was the Polish SMEs, who despite having relatively higher levels of ICT deployments, felt that their preparedness improvement was only “average.” Some possible reasons for this are because these companies had made substantial progress early in the Internet cycle, they are comparing themselves to a more advanced standard, or they are short of where they need to be.

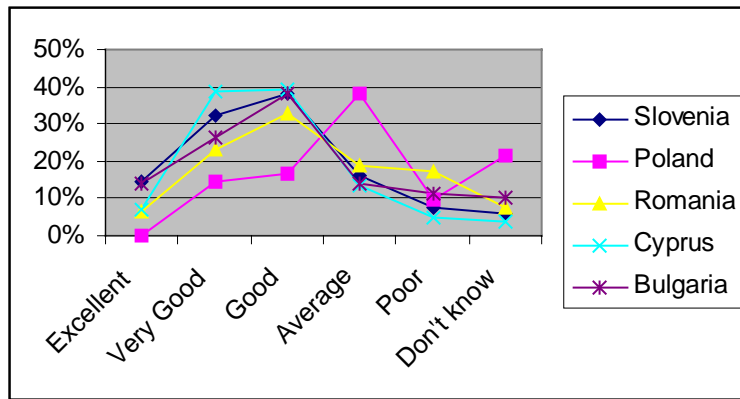


Figure 4: Current ICT "Preparedness" versus 3 Years Earlier.

Despite the prevalence and adoption of Internet technologies, including Web sites and Intranets, fewer than half the SMEs had actual e-business plans, as shown in Figure 5. There are fairly wide variations across the countries, and this difference did not correlate with company size. In fact, company size, at the SME level, did not have any impact on the likelihood of having an e-business plan.

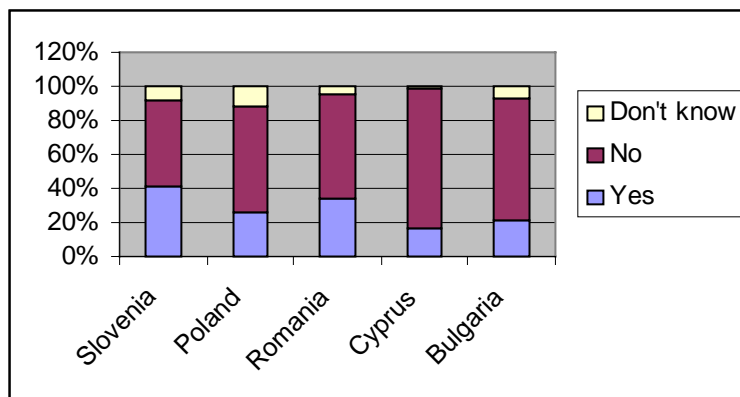


Figure 5: Does Your Company Have an E-Business Plan?

Figure 6 shows the expenditure levels on e-business. Poland SMEs report the highest expenditure levels consistent with their frequent deployment of e-business technologies. This result is interesting in another way because the Polish SMEs were the most likely to be in the primary (agriculture, mining, etc.) or secondary economic (industrial production, construction, etc.) and the least likely to be in tertiary services. Slovenia and Cyprus SMEs showed the lowest expenditure rates.

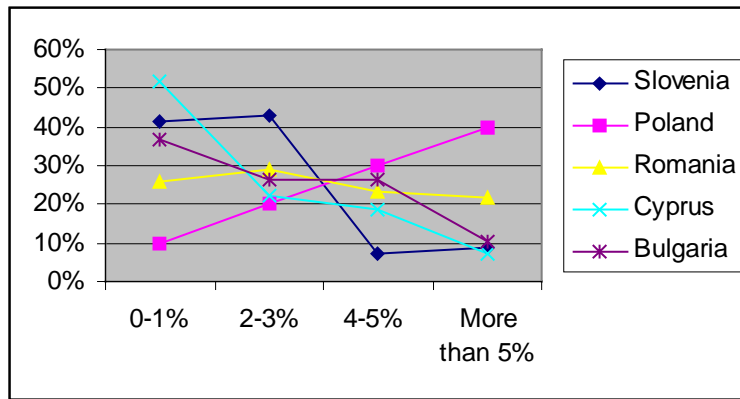


Figure 6: Percent of Operating Budget Applied to E-Business.

4.2 Market and Industry Dimension

A number of items were directed at understanding the perceived environment of the firm, key drivers, and impact on the business network.

First, we explore drivers and motivations for heading down the e-business path. The majority of SMEs had a company Web site and there are several drivers for this. Figure 7 shows the results by country. Overall, competition appears to be the main factor. Cost reduction was only a factor in Poland. Addressing new markets is of interest in Cyprus and Bulgaria, but not in Poland or Romania.

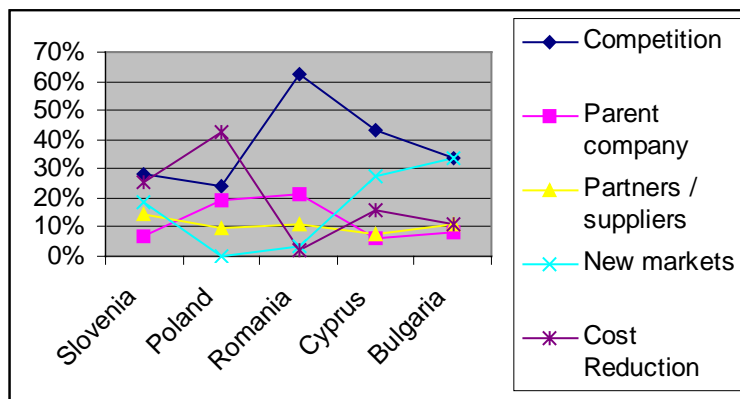


Figure 7: Reasons for Establishing Company Web Site.

Figure 8 shows that many SMEs have business partners that use e-commerce, which is another factor that can drive adoption. In Slovenia, many companies had a

majority of their business partners engaged in e-commerce, while in most other countries only a few business partners did so. Many respondents did not know the answer to this question, indicating that the extent of e-commerce is neither widely known nor critical for many businesses.

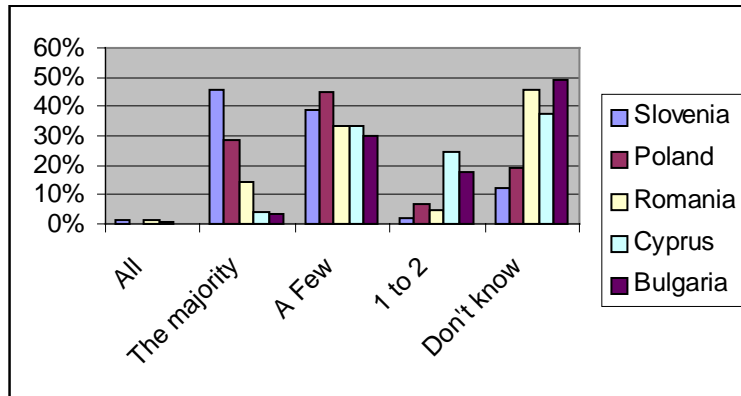


Figure 8: Number of Business Partners that Use e-Commerce

The SMEs were almost universal in their view of the opportunity represented by e-business. The differences among countries was minor and generally followed the average pattern shown in Figure 9.

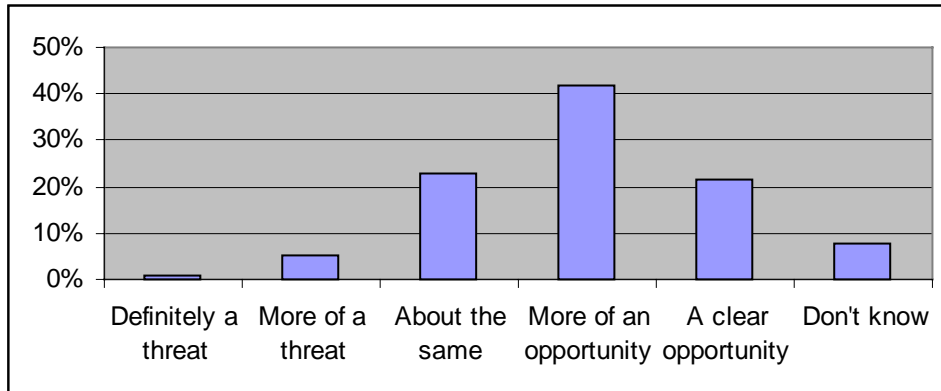


Figure 9: Is e-business More of a Threat or More of an Opportunity for Your Company's Relationships to Its Business Partners?

4.3 National Level

The final critical dimension to characterizing e-business readiness is to assess the environment at the country level. National infrastructure is a major factor in the adoption of Internet technologies. Available and cost-effective telecommunications links, access to capital and skilled personnel, as well as proactive government support shape the nature and speed of innovation.

We asked a series of question to assess the perceived "maturity" of different infrastructure elements. The respondents were asked to rank maturity on a scale of 1 to 5, where 1 is very mature and 5 is non-existent. Figure 10 shows the perceived maturity of each countries technical infrastructure, and Figure 11 shows responses for business and market infrastructure. Both figures are similar. Slovenian SMEs feel these infrastructure elements are fairly mature, Bulgarian SMEs view these elements as fairly undeveloped, and the other three countries are in the middle.

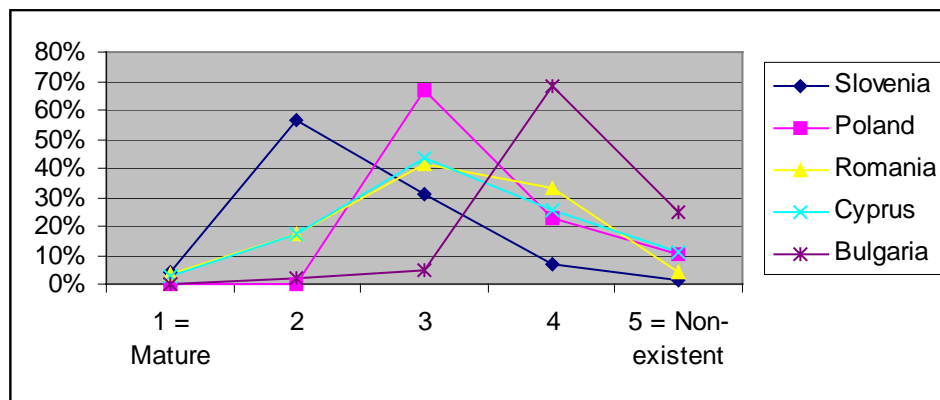


Figure 10: Perceived Maturity of Each Country's Technical Infrastructure.

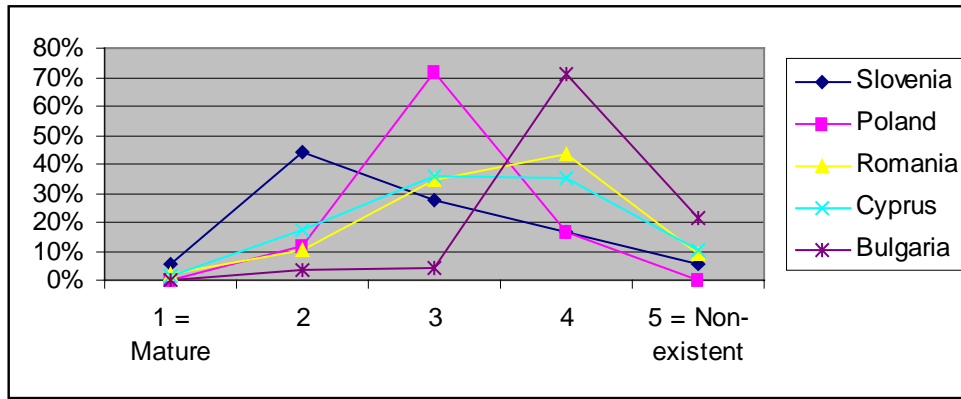


Figure 11: Perceived Maturity of Each Country's Business and Market Structure.

Social attitudes toward e-business are part of the fabric of a country, affecting the interest in technology innovation, embracement of B2C, and so forth. The maturity of this element, shown in Figure 12, is similar the previous two figures with the exception that Cyprus increases its rated maturity level and Poland decreases the maturity rating, as compared to the previously reported two factors. We note that these were simple unguided ratings, i.e. no guidelines for maturity were provided; the responses are simply each respondents personal assessment.

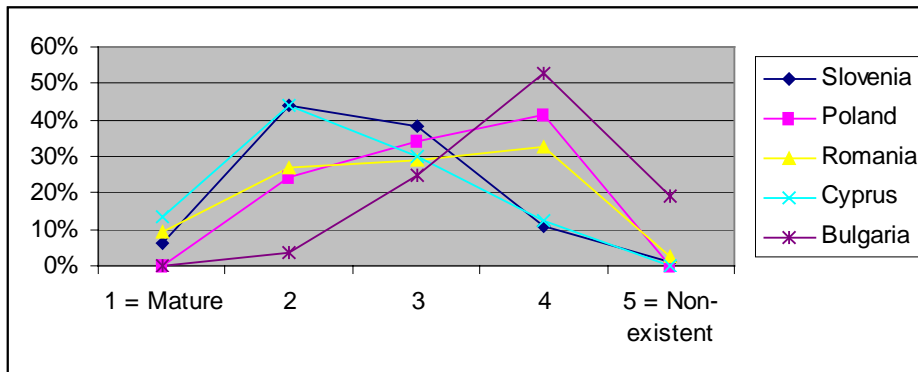


Figure 12: Perceived Maturity Each Country's Societal Attitudes toward Internet and e-Business.

The financial infrastructure and access to skilled labor are two other important areas. Figure 13 shows the maturity of the financial sector and there are clearly some concerns by the SMEs in Bulgaria and Romania. Another financial issue regards access to capital, as e-business initiatives need backing during the startup period. The SMEs reported that between two-thirds and three-fourths of the e-

business initiatives were self-financed, the others gaining financing from a variety of sources as shown in Figure 14. The European Union was a significant funding source in Poland, and parent companies provided capital most often in Romania, Cyprus, and Bulgaria. Finally, Figure 15 shows that meeting financing needs varied across the countries, from relatively easy in Cyprus to rather difficult in Poland.

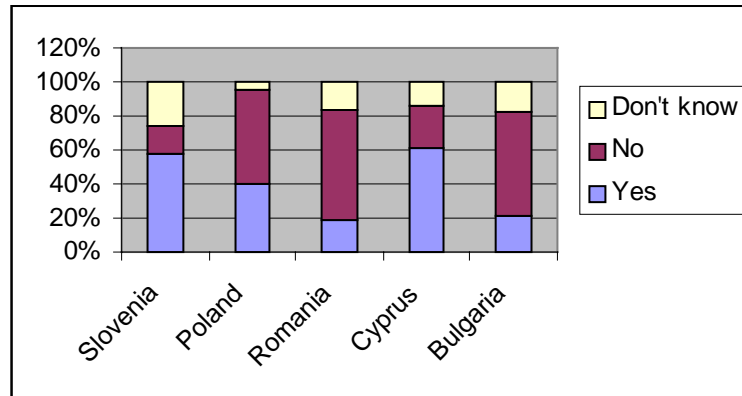


Figure 13: Responses to "Do You Believe the Financial Sector in Your Country Is Mature Enough to Support Electronic Financial Transactions?"

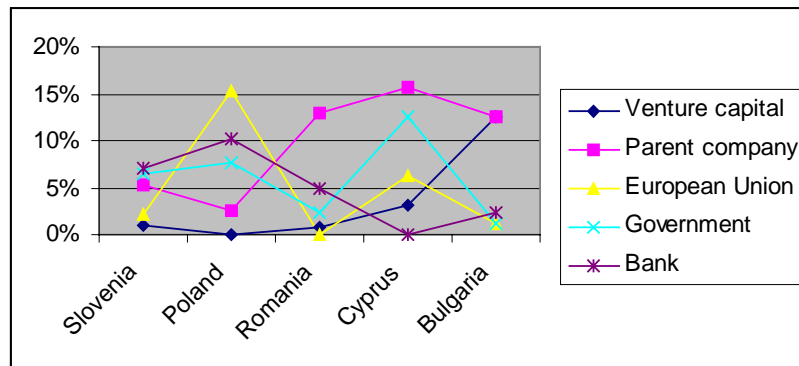


Figure 14: Frequency of Financing Other Than Self-Financing for E-Business.

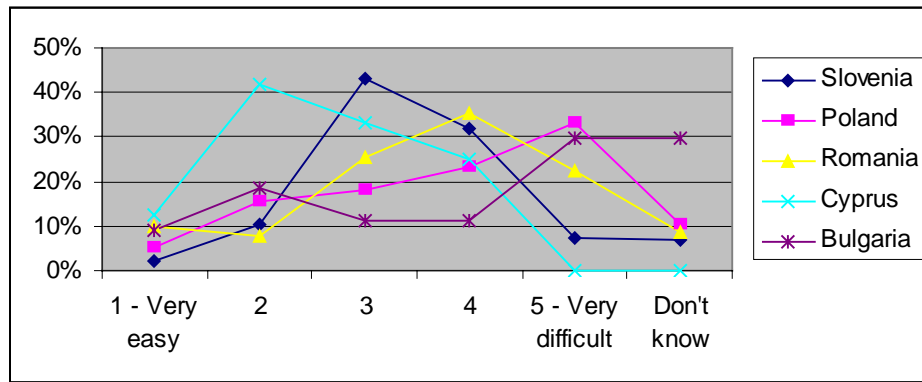


Figure 15: How Difficult Was It to Obtain Financing for Your E-Business Initiative?

Access to required skills in the labor force does not appear to be a major problem, except possibly in Cyprus, as shown in Figure 16. Most SMEs felt it was neither easy nor difficult to find the proper skills. It is possible that the lack of skills availability in Cyprus negatively impacts e-business initiatives, even though financing appears to be adequately available.

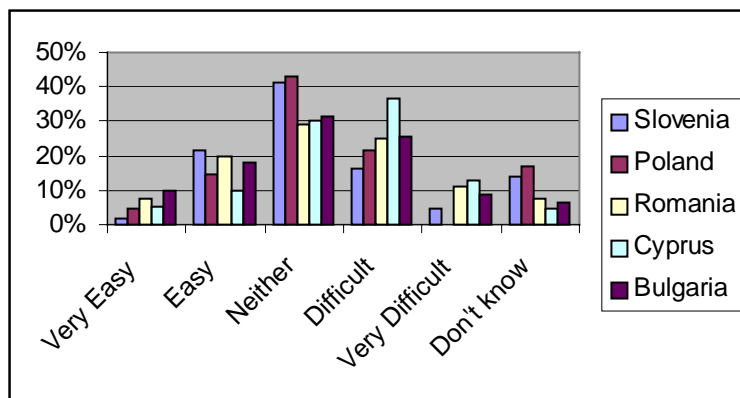


Figure 16: How Easy Is It to Find Skilled Personnel in Your Country to Deploy E-Business?

Table 3 and Table 4 shows the level of support the SMEs feel they are receiving from their national and regional governments, respectively. Polish, Romanian, and Bulgarian SMEs gave the most negative evaluations of the level of support received from their national governments for entrepreneurial activities in general and e-business in particular. Regional and local governments were rated as providing even less support, with the ordering across the countries being roughly consistent with the national evaluation.

	Slovenia	Poland	Romania	Cyprus	Bulgaria	Average
1 = Highly supportive	1%	0%	0%	1%	0%	0%
2	16%	0%	3%	6%	4%	6%
3	32%	17%	11%	17%	17%	19%
4	20%	39%	39%	32%	32%	32%
5 = Non-existent	5%	37%	35%	33%	42%	30%
Don't know	27%	7%	11%	12%	4%	12%
Mean of responses	3.21	4.21	4.19	4.05	4.17	4.00

Table 3: Response to "How Would Rate the Support of Your National Government for Entrepreneurial Activities in General and E-Business Initiatives in Particular?"

	Slovenia	Poland	Romania	Cyprus	Bulgaria	Average
1 = Highly supportive	2%	0%	0%	1%	0%	1%
2	14%	0%	2%	4%	2%	4%
3	23%	12%	8%	13%	12%	14%
4	26%	38%	37%	35%	24%	32%
5 = Non-existent	10%	36%	47%	35%	52%	36%
Don't know	27%	14%	6%	14%	9%	14%
Mean of responses	3.46	4.28	4.38	4.18	4.39	4.17

Table 4: Responses to "How would rate the support of your regional / local government for entrepreneurial activities in general and e-Business initiatives in particular?"

5. Summary and Conclusions

The primary conclusions from this survey of e-business readiness in five Eastern European countries are:

Most SMEs have already adopted basic technical infrastructure. The minimum requirements, such as a PC and Internet access are widespread. Many companies have a Web site and report some sort of Intranet. Few of the Web sites are very sophisticated, however, based on the types of services offered.

Usage of technology lags adoption. Although basic technical infrastructure is in place, and often has been for a while, usage is not very widespread nor particularly frequent.

SME executives and managers need more e-business knowledge and skills. Although SMEs report having access to people with e-business skills, they report that their own limited knowledge and skills are barriers to e-business.

Better external support and infrastructure are needed. The SMEs believe that national infrastructure – technical, financial, and regulatory – are barriers to e-business. In addition, they perceive little direct support of e-business by local, regional, and national governments.

SMEs are positive about e-business. Most SMEs, across all countries, strongly viewed e-business more as an opportunity than a threat. Their enthusiasm is neither new nor obviously declining, based on the continued progress in ICT and e-business preparedness over the last few years.

We interpret these results of positive attitudes and basic infrastructure adoption as an indication that the surveyed Eastern European SMEs are ready to move forward with e-business. The steps that have already been taken, though modest, are significant, and we see their progress as reflecting a cautious but forward-looking approach to this still new and evolving area.

Individually the five countries, Slovenia, Poland, Bulgaria, Romania, and Cyprus, show some differences in e-business readiness. The differences were not wildly large in a qualitative sense, but from a research point of view are suggestive toward areas of further study. No strong conclusions can be offered from the exploratory analysis presented here, but analyses that properly account for various factors are underway.