

e-Business and Technology Issues for Developing Economies: A Ukraine Case Study

Murray E. Jennex, Ph.D., P.E

San Diego State University
mjennex@mail.sdsu.edu

Donald L. Amoroso, Ph.D.

San Diego State University
amoroso@mail.sdsu.edu

Abstract

The need to develop a strategy for e-business applications is an important facet of doing business especially where organizations can provide value-added services to the customer base. In this paper, we identify key value-added e-business applications and focus on success factors that clearly support small enterprise goals. Performance factors are presented that show the impact of e-business applications on the organization's bottom-line. The case study in this paper uses a methodology of direct observation, unstructured interviews and document review to gather data for identifying issues in starting a small business using the Internet. The case organization provides services around office and business support, energy consulting, and Web development. The formation of International Business Solutions has been difficult due to the banking system, work culture, and infrastructure of Ukraine. IT issues investigated include telecommunications, energy, hardware, software, and the availability of technical skill sets. eBusiness issues that were found to be important in this study include: (1) difficulty of the user interface, (2) a lack of a planning process for e-business applications, (3) development and testing concerns, (4) finding the web site and a lack of branding, and (5) the lack of evidence to support a formal budgeting process. We conclude with recommendations for enabling IT success in the Ukraine and focus on the need for a well-designed Web presence for the case organization.

1. Introduction

Information and Communication Technology, ICT, can provide a small enterprise an opportunity to conduct business anywhere. Use of the Internet allows small businesses to project virtual storefronts to the world. Heeks and Duncombe (2001) discuss how IT can be used in developing countries to build businesses. This paper discusses the case of a small startup company in Kyiv, Ukraine and its use of ICT to help it succeed. The subject company was founded in early 2000 with the initial goal of providing business service support to companies wanting to do business in Ukraine. ICT was seen as a method of marketing and contacting clients and potential clients. Offering ICT services was also seen as a potential service for clients. To date the company has succeeded in surviving and growing, however, it has not been as successful as initially expected. This paper looks at where ICT has been successful and where ICT limitations raised issues.

The paper first presents an overview of how ICT can be expected to support companies in developing or emerging economies. This is followed by a description of the subject company and an analysis of how ICT has supported the company's goals. The paper ends with conclusions on the impact of this case on perspective uses of ICT in emerging economies. Discussions on methodology and limitations are provided to aid readers in assessing the validity of the paper.

2. Background

2.1 *e-Business for Small Companies*

Developing strategies to adopt and market e-business technologies and services requires an organization to make significant investments. Deciding to make the initial and ongoing investments is contingent on the organization's perception that the future benefits will outweigh the costs involved. Mitra and Chaya (1996) propose that there is a need to quantify the benefits from the investments in e-business systems and that building quality e-business systems will require solid evidence of value-add to customers. The added value for customers will result in additional profit for the organization, as they are able to maintain current customer relationships and develop new ones based on the attractive offerings a new e-business presence affords. Later in this paper, we discuss the results of the case study with our impressions of the Web site for the case study.

Developing an e-business niche will allow an organization to provide the best possible deliverable to the customer, even if this means passing part of the deal to a competitor who specializes in another aspect of the e-business system. Bakos (1991, 1997) found that ultimately all e-business systems reduce buyers' search costs and increase the efficiency of e-commerce transactions, and therefore create numerous possibilities for the strategic uses of these systems. Operating within an e-business framework offers a more cost-effective model, with feasible elimination of several steps of the traditional sales process. Powell and Dent-Micallef (1995) identified an emerging trend from single-source sales channels to electronic markets, lowering coordination costs for producers and retailers and resulting in fewer distribution costs. Smaller businesses ultimately benefit from lowered sales costs and gain access to larger markets. Executives are "sold" on technology spending based upon the strategic value-add nature of the opportunities, as found by Jarillo (1988). Given an adequate availability of talent for development of e-business systems, as reported later in this paper, we feel that it is imperative for e-business applications to have strong consideration in small organizations.

Amoroso and Sutton (2002) found that small organizations need to focus on providing their customers with a set of Web applications/services that best serve the customer, rather than using a hit-and-miss approach. They found evidence to support that the greater the degree of clarity of e-business service offerings, the more the need to have these Web-based applications/services developed by partner firms. The decision to outsource e-business applications/services is crucial to building a quality Internet presence, especially important in smaller organizations. Organizations that focus on key online applications/services will have a greater degree of success. These applications/ services will need to be planned in advance considering the Ukrainian marketplace, for example, in order to yield bottom-line value added results. The e-business applications/ services found to have the greatest impact on the success of small organizations, along with percentage of value-add from the Amoroso study, are presented in Table 1. With the many e-business applications/services available to development and the careful discretion of resource allocation, these applications/services were found to be the most beneficial for generating downstream revenues and cost reduction for small businesses. Due to the span of components in an e-business system, many organizations find difficulty in fulfilling all customers' needs; therefore a focused strategic planning session around value-add will yield IT investment successes (Brynjolfsson and Hitt 1996). Applications and services in the e-business space that were found to provide a lesser degree of value-add included electronic software distribution, purchasing cares, data warehouses for e-business, electronic accounting interfaces, and intranet systems.

Table 1. Value-added e-Business Applications/Services

Applications:	
• Electronic catalogs	71.4%
• Workflow systems	71.4%
• Online customer service	71.4%
• Order management	57.1%
• Electronic billing systems	42.9%
• Online auctions	28.6%
• B2B exchanges	28.6%
Services:	
• e-Database integration	57.1%
• Web monitoring	57.1%
• Supply chain automation	42.9%
• Online communities	42.9%
• Sales force automation	42.9%
• Electronic marketplaces	28.6%
• XML solutions	28.6%

The authors examined the factors that would lead to the success of a small organization's e-business applications/services. Clearly, several mega-categories of e-business success factors emerged including: (1) understanding the customer base needs, (2) support of substantial e-business initiatives in an ongoing basis, (3) developing e-business applications using a proven development methodology, (4) branding the Web sites for competitive advantage, and (5) reshaping the organization's corporate culture (Amoroso, 2002). How the organization manages the knowledge gathering process for their customer base in Ukraine will have strong impacts on their ability to meet their needs and their needs for specific Website features, such as multi-lingual support, click-through capabilities, and customer profiling. The degree of Internet application/service maturity will determine the way that customers interact with the Web sites and how integrated the applications will support customer-side requests. The development of small organization applications/services will depend upon acquiring development methodologies that extent the company's technical talent and enable the company to successfully manage the e-business projects. Having a set of strong e-business applications to deliver to company customers via the Web will not be successful if they are not accessible to the customer base, thus facilitating the need for strong product branding efforts. Finally, the corporate culture will need to support conducting business in a new way given new e-business initiatives and ultimately new corporate processes for promoting and delivering products and services.

Amoroso (2001) found a set of corporate performance factors that small organizations would need to consider and eventually quantify with respect to e-business initiatives. Table 2 lists the key performance factors that are crucial. e-Business initiatives, like other corporate investments, will need to provide the needed payback to the organizational bottom-line. Clearly, e-business applications have been found to have a greater emphasis on speed-to-market than traditional IT applications found Hart and Saunders (1998).

Table 2. Corporate Performance Factors Impacting e-Business

<ul style="list-style-type: none">• Customer attraction• Customer retention• Customer satisfaction• Incremental revenue growth• Market cap positioning• Lower cost of sales• Cost control• Increased market share• Business process streamlining• Decreased cycle time

The Asian-Pacific Economic Cooperative, APEC, Readiness Initiative, in conjunction with APEC economies for developing countries, developed an e-commerce readiness assessment guide that targets a blueprint for assessing and analyzing electronic commerce penetration into economies that are underdeveloped (APEC, 2000). This research helps countries identify impediments within their country borders to successfully deploying e-commerce initiatives. Based upon this research, several key IS, non-IS, and e-commerce specific categories were determined for the distribution of e-commerce throughout a developing country, as shown in Table 3.

One impediment to the development of e-commerce in emerging economies is the information environment. Many developing countries do not have a history of sharing data. The ability to pool data for statistical analyses is necessary for many business processes and organizations. The absence of shared data can result in a lack of effective information systems due to the lack of reliable and consolidated marketing, customer, and economic data. This also usually results in low data quality and trust in the data that is available. Chepaitis (2002), using Russia as a model, identified twelve factors that affect the information environment in an emerging economy. These factors focus on the business culture of the economy and will limit the emergence and scope of e-commerce in these economies. Since Ukraine and Russia were part of the former Soviet Union and shared a common infrastructure and business culture these factors are likely to affect businesses in Ukraine, see Table 4. Missing from these factors are the integrated networks and systems and integrating organizations that companies in the developed countries use to share and consolidate data. Infrastructure will be discussed in the analysis section of the paper.

Table 3. e-Commerce Readiness Assessment Factors

- Basic IT Infrastructure
 - Access to basic infrastructure
 - Speed and functionality of the infrastructure
 - Price of the infrastructure
 - Reliability of the infrastructure
 - Availability of terminal equipment
 - Infrastructure market conditions \
 - Interconnection and interoperability
- Access to Necessary Services
 - Internet service providers
 - Non-IT services and distribution channels
 - Financial institutional involvement
- Current Level and Type of Use of the Internet
 - Access type to the Internet
 - Number of Internet hosts
 - Government use of the Internet
- Promotion and Facilitation Activities
 - Economic policies with regard to standardization
 - Effects of e-commerce on employment
 - Government support of adaptive technologies
- Skills and Human Resources
 - Education and training policy
 - Schools' access to the Internet
 - Facilitation of internationalization of business
- Positioning for the Digital Economy
 - Taxation policies
 - Legal framework
 - Electronic authentication
 - Security and encryption
 - Copyright
 - Privacy laws
 - Consumer confidence

Table 4. Factors Affecting the Information Environment in an Emerging Economy

<ul style="list-style-type: none"> • Unsuccessful and intrusive government planning and regulation • Barriers to entry and dictated pricing in distribution, supply, and regulation • Informal entrepreneurship: black markets, barter • Ineffective methods for managerial accounting • Unanticipated shortages and other factors inhibiting demand • Political fear and widespread avoidance of information sharing • Unstable currency, nascent financial regulations, and a dearth of financial services • A reluctance to divulge information without compensation or reciprocity • Proprietary attitudes towards data ownership • Rigid, hierarchical management styles with a reluctance to share information or empower employees • Communication behaviors that rely on oral tradition or more than one language • An emphasis on price and availability to the exclusion of quality

2.2 Economy of Ukraine

A description of the economy of Ukraine is provided by the Central Intelligence Agency's World Fact Book Ukraine page:

After Russia, the Ukrainian republic was far and away the most important economic component of the former Soviet Union, USSR, producing about four times the output of the next-ranking republic. Its fertile black soil generated more than one-fourth of Soviet agricultural output, and its farms provided substantial quantities of meat, milk, grain, and vegetables to other republics. Likewise, its diversified heavy industry supplied the unique equipment (for example, large diameter pipes) and raw materials to industrial and mining sites (vertical drilling apparatus) in other regions of the former USSR. Ukraine depends on imports of energy, especially natural gas, to meet some 85% of its annual energy requirements. Shortly after independence in late 1991, the Ukrainian Government liberalized most prices and erected a legal framework for privatization, but widespread resistance to reform within the government and the legislature soon stalled reform efforts and led to some backtracking. Output in 1992-99 fell to less than 40% the 1991 level. Loose monetary policies pushed inflation to hyperinflationary levels in late 1993. Ukraine's dependence on Russia for energy supplies and the lack of significant structural reform has made the Ukrainian economy vulnerable to external shocks. Now in his second term, President Kuchma has pledged to reduce the number of government agencies and streamline the regulation process, create a legal environment to encourage entrepreneurs and protect ownership rights, and enact a comprehensive tax overhaul. Reforms in the more politically sensitive areas of structural reform and land privatization are still lagging. Outside institutions - particularly the International Monetary Fund, IMF, have encouraged Ukraine to quicken the pace and scope of reforms and have threatened to withdraw financial support. Gross Domestic Product, GDP, in 2000 showed strong export-based growth of 6% - the first growth since independence - and industrial production grew 12.9%.

As the capacity for further export-based economic expansion diminishes, GDP growth in 2001 is likely to decline to around 3%.

Ukraine's Washington D.C. based embassy to the United States web site describes Ukraine's banking system as a system in the process of development. There are approximately 200 commercial banks in Ukraine of which 2 are wholly owned subsidiaries of non-Ukrainian banks. The number of foreign owned banks is not expected to increase due to opposition within the banking regulatory agency. Weak bank regulation enforcement and loose lending policies led to a banking crisis in 2000-2001. Many banks failed and as Chervachidze (2001) reports, there is little confidence among Ukrainians in the banking system. The result is that the majority of Ukrainians do not have bank accounts nor use banking services. Ukraine's United States Embassy advises that companies doing business in Ukraine may confront delays in transferring funds domestically and internationally, converting currency, and in repatriating in foreign currency. Additionally, state authorities such as the tax directorate have wide-ranging powers to freeze bank accounts or to withdraw funds for payment of taxes or fines without the need to obtain a court order or authorization.

3. Methodology

This paper uses direct observation, unstructured interviews, and document review to gather data. Interviews and observation were conducted in Kyiv, Ukraine during the second week of August 2001. Email interviews with the founder of the subject company continued as needed throughout the writing of this paper. Analysis of the data was done using models from ecommerce and DeLone and McLean's IS Success Model (Molla and Licker, 2001). Analysis is qualitative due to the data being essentially a single point.

The purpose of the research was originally to gather data for determining success factors for small enterprises providing offshore development services to United States companies. The interview data was used to generate a success factor survey. This survey was administered to the subject company as a re-test of the interview results.

4. Description of the Subject Company

The subject company, International Business Solutions, IBS, is located in Kyiv Ukraine. Dave Sears, an American expatriate living in Kyiv, formed IBS in March of 2000. The company has an affiliated United States company, Energy Solutions, also formed in March 2000. Energy Solutions is a Nevada based corporation. IBS is a small enterprise; in December 2001 it had three full time and five part time employees, all Ukrainian, in addition to its founder. To minimize costs and increase flexibility, IBS utilizes an extensive network of independent contractors to provide its services. IBS has three areas in which it provides services:

- Office and business support to business people traveling to Ukraine
- Energy consulting
- Web development

IBS was originally formed to broker the knowledge and contacts the founder had made managing logistics during a contract assignment into a business that offered business people everything they would need when doing business in Ukraine. This includes basic services such as translation, interpretation, transportation, business office support, and escorts. It also includes some not so common services such as cell phones, introductions to government and business leaders, customs, airport entry, and currency exchange assistance, and message center services. These services are offered due to the large difference in culture,

language, and regulatory and business practices between Ukraine and the United States. To provide these services IBS owns an office near the center of Kyiv. The office is equipped with phone, fax, computer, and Internet. IBS has 6 computers connected in an Ethernet LAN using a Windows 2000 server. Additionally, IBS has several cell phones that are available for rent. IBS maintains contracts for services with a large number of drivers, translators, interpreters, guides, apartment brokers, and business support staff. IBS assesses potential contract workers to ensure they meet the standards IBS advertises.

Energy consulting services are offered as a by-product of the founder's expertise in running and managing power plants and his previous work performing an Y2K risk assessment on the energy sectors of Ukraine, Armenia, and Georgia. Demand for these services fluctuates greatly and is dependent upon United States policy.

Web development services are offered as it was discovered during the Y2K risk assessment that there is a large web development talent pool available in Kyiv that is very reasonably priced and motivated to work. Given the weak business climate in Ukraine these services are targeted to United States and other developed countries companies. Originally IBS offered fixed fee contracts for development projects. Problems with managing projects remotely and incomplete user requirements drove IBS to switch to providing developers on an hourly basis working under direct control of the contracting client. IBS is able to offer developers at a very attractive rate, approximately \$15.00 per hour United States Dollars, USD. The new approach has been more successful and IBS has several developers under contract to outside companies.

IBS markets itself through word of mouth and its web sites. Word of mouth is through business gatherings in Kyiv and a good word from clients to potential clients. Web marketing is through three web sites, one for each of the major business areas. The web sites can be found at:

www.ibs-websolutions.com

www.ibsukraine.com

www.energy_solutions_llc.com

IBS uses the Virtual Face, e-Shop online business model as described by Tetteh and Burn (2002). The web sites are interactive and provide a good overview of IBS services, examples of the skills of the IBS web developers, and a means of contacting IBS. A United States Internet Service Provider, ISP, hosts the sites. A United States ISP was chosen because they were considerably less expensive than Ukrainian ISPs, approximately \$7.00 USD per month for the United States ISP versus approximately \$40.00 USD per month for the Ukrainian based ISP. Another issue was bandwidth, 48 kbps is becoming common, and DSL is being introduced but is very expensive, greater than \$100.00 USD per month. Reliability is still an issue with Ukrainian ISPs as power quality is poor and phone lines are degraded.

5. Analysis

Non-IT Issues

It has taken IBS over eighteen months to become operational and to make money; and IBS is still not fully operational. This is primarily due to the business climate in Ukraine. Things take time to complete. Paying expedited fees is normal and it is rare to pay the standard fee and have something done. Americans pay more for everything, up to 10 times what a Ukrainian would pay. IBS avoids this by the founder living in Kyiv and by having Ukrainian directors and partners. Regulations and tax requirements are difficult to understand and comply with. Getting paid is difficult. Transfer payments are expensive with an approximate \$350.00 USD fee applied, and take a long time, approximately 5 weeks. IBS is set up to

accept off shore payments through a non-Ukrainian bank. This allows IBS to accept credit card payments. Since Ukraine is a cash economy, checks aren't accepted. Non-Ukrainian customers must pay in cash or via credit card. This is difficult for many customers to understand and work with. The author faced this during contract work in Ukraine. Drivers, interpreters, and translators all expected to be paid in cash at the time of the service. Invoicing and paying by check were not accepted. Receipts were informal unless written by the author. The author's parent organization, an American electric utility, did not do business in this manner and had no business process in place to support cash on delivery payments. Fortunately it was worked out and a method established that was acceptable to the client, the United States government. IBS has the same issues with large customers.

Networking within the business community is vital. Business within Ukraine is done face-to-face and usually over meals or social gatherings. Reputation is important and whom you know is vital. Doing a good job supports continued business but does not get the initial job. IBS discovered this after several months. Once the founder realized this mode of business he spent a majority of his time mixing and meeting people in Kyiv.

Learning to work within the Ukrainian culture has also been difficult. Ukraine has 33 holidays compared to approximately 10 in the United States. Punctuality is not a standard practice. Break times are whenever. Language has been an ongoing issue since the founder did not speak Russian when he first arrived in Kyiv and still is not fluent.

The information environment affecting IBS within Ukraine are summarized by the factors listed in Table 3. Essentially all the factors affecting the emergence and scope of e-commerce in Russia are present in Ukraine as stated and they have had an affect on IBS. The preceding paragraphs illustrate how these factors have impacted IBS. In particular the need to socialize to gain business, the lack of a stable banking system, and the inability to figure out business rules demonstrate the weak information environment.

5.1 IT Issues

Phone communications for calls outside Ukraine are very expensive. Calling cards are available that significantly reduce costs, to about \$0.45 USD per minute, but require accessing special numbers and switches (these cards are typically available for about \$0.25 USD per minute in the United States). File transfers are slow. Bandwidth is not readily available due to degraded communication lines. When lines are new or have been upgraded, bandwidth is available for a reasonable cost from a United States perspective. One of the authors was able to find an Internet café that offered 128 kbps connections for a cost of about \$4.00 USD per hour. It should be noted that this is considered expensive in Ukraine. The clientele being primarily non-Ukrainians confirmed that it is expensive. Another negative is the poor condition of the telecommunications infrastructure. Jennex, et. al. (1999) found no digital/IT equipment used for energy management and plant communications. Analog phone switches and equipment were normal. Telecommunication service between dispatch centers and plants or other dispatch centers were very unreliable. Ukraine has a wide area network for monitoring the power system that is based on SM1420 and SM2 computers (these are DEC1000 and PDP11 clones). This system was observed to be frequently out of service requiring system operators to rely on voice communications for dispatch functions. These also were frequently out of service requiring system and plant operators to use analog radios or to simply load follow resulting in poor power quality with little frequency stability with the previously discussed effects on IT. Observations of phone lines in hotels catering to westerners found that dial up connections of greater than 9800 bps were difficult to impossible to sustain for more than a few minutes due to line noise and errors. Ultimately this reduces the effectiveness of Internet, email, and fax processes, raising the cost for these

services. Additional analysis of the telephone system from the Central Intelligence Agency's World Fact Page confirms the antiquated state of the system:

Ukraine's telecommunication development plan, running through 2005, emphasizes improving domestic trunk lines, international connections, and the mobile cellular system. At independence in December 1991, Ukraine inherited a telephone system that was antiquated, inefficient, and in disrepair; more than 3.5 million applications for telephones could not be satisfied; telephone density is now rising slowly and the domestic trunk system is being improved; the mobile cellular telephone system is expanding at a high rate. Two new domestic trunk lines are a part of the fiber-optic Trans-Asia-Europe (TAE) system and three Ukrainian links have been installed in the fiber-optic Trans-European Lines (TEL) project which connects 18 countries; additional international service is provided by the Italy-Turkey-Ukraine-Russia (ITUR) fiber-optic submarine cable and by earth stations in the Intelsat, Inmarsat, and Intersputnik satellite systems.

Ukraine has poor power quality. Jennex (2001) looked at IT in the energy sector of Ukraine and found it to be at a 1960s or 70s technological level. Frequency oscillations of 0.5 hertz or more are routine and power outages common. Most critical building and hotels, as well as many residences, keep and maintain backup generators. North American standards have frequency oscillations controlled to 0.05 hertz or less. Digital equipment does not function well nor last long with the large observed frequency swings. Digital clocks in Ukraine routinely lose about twenty minutes a day. The average house or offices in Ukraine (including IBS' offices) have a 45-amp fuse box while the average house or office in Southern California has 150-200 amps. It should also be pointed out that Ukrainian fuses are the old type that actually fuses and not modern, re-settable trip breakers. What this means is that the electrical infrastructure in Kyiv and Ukraine does not readily support a modern office's IT electrical needs. Large companies compensate by installing their own power equipment. Small companies make do with what they have with the result that they have less reliable IT. Houses and consumers have to choose between running the computer and running the house appliances; limiting the availability of local consumers to participate in e-commerce.

Availability of hardware and software can be issues. Leading edge hardware such as personal computers, digital cameras, printers, and communications equipment are very expensive and hard to get. Additionally, many companies differentiate between hardware sold in Europe and that sold in the United States. As an example Jennex, et. al. (1999) took an inexpensive Epson printer to Kyiv. When the ink cartridges expired replacements were found in Kyiv, however, the printer refused to recognize the replacements even though they were the correct product per the model number. It was later learned that the coding used on the cartridge was different for models sold outside the United States than for sold in the United States. Another issue is incompatible character sets. Ukraine uses the Cyrillic alphabet. The character set used to display this alphabet on computers in Ukraine makes the generated files unreadable on computers running English character sets.

Software is readily available. The issue is the great abundance of pirated software. Virtually any software package can be purchased in the local markets for approximately \$2.00 USD per compact disc, CD. Authentic software is available but costs as much or more than it would in the United States. This makes buying and using authentic software unattractive. IBS uses only authentic software since it has a United States affiliate and the founder and owner is a United States citizen. Competing companies in Kyiv do not have this constraint so this gives IBS an unattractive cost differential. Fortunately this isn't a

significant issue as IBS does not provide software to its developer contractors and only needs software for its own business use. Software costs can be a significant issue to other companies in Ukraine, especially if they are trying to use “legal” versions and the competition does not care.

Jennex (2001) reported an adequate availability of technical talent in Ukraine. Olearchyk (2001) in the Kyiv Post English language newspaper reports that there is a growing shortage of talent. It is stated that approximately 2500 IT specialists are leaving Ukraine each year. Additionally, the schools are not producing usable IT professionals due to their focus on theory and not practical education. The net impact is that Ukraine software developers are turning down contracts due to lack of work force. Two issues exist. The first is that IBS will not be able to keep web developers under contract for potential work, other companies offering steady work will get them first. This is mitigated by IBS being willing to offer part time work to developers to do in their spare time. Given the low wages there may be an adequate number of developers willing to do this. The second issue is the upward pressure on wages. As developers become shorter in supply, companies will have to pay more to retain them. This will force IBS to pay more for developer services that will result in higher prices that IBS must charge. This may make IBS a less competitive player in the outsourcing market.

5.2 e-Business Issues

The web sites used by IBS are distinctive, sophisticated, interactive sites. They provide audio and image information as well as text information. They work best with high-speed connections and higher end personal computers. Technically the sites are very good. They appear easy to use and navigate although this is the authors' impression and not verified through any usability testing. These issues in context of the success factors discussed earlier include:

Understanding Customer Base Needs:

- The sites constantly play music. While the music changes with the different sites, there are no controls other than the user's computer's audio controls for turning it off. After a few minutes this can get annoying for visitors to the site.
- Needing to scroll down through information. Molla and Licker (2001) consider scrolling a detriment to content quality.

Support of Substantial e-Business Initiatives:

- There is no indication that IBS has an ongoing planning process for e-business applications.

Developing the Web Site:

- Testing the sites on multiple computers yielded various results. When accessed with a new, top end personal computer connected to a high-speed network the site worked fine. When accessed using a mid level personal computer with a 115 kbps dial up connection using America Online, AOL, as the ISP, the music did not work with the audio controls at full volume and the introduction screen partially failed while loading very slowly, approximately 1 minute. After that, the site worked well with all sites loading within 10 seconds although the music never did work. A low-end computer or connecting at 56 kbps was not tested but are not expected to work well.

Branding the Web Site:

- Finding the site is difficult. Searches were conducted using the AOL, MSN, and Yahoo search engines. Searching on “Ukraine” did not locate the sites in the first 100 hits. Searching on “IBS” did not locate the sites in the first 100 hits. Searching on “Ukraine” AND “IBS” found the site with the first hit on Yahoo but did not locate the sites in the first 100 hits of AOL or MSN. However, the first hit, Estate2000, an apartment-renting firm, contained a link to the sites. This indicates the sites are not registered well with search engines. Further evidence of this is in the site visit count observed by the author. The author was visitor 1345 to the business services site and 1109 to the web development site, counts that are less than expected.

Reshaping the Organization’s Corporate Culture:

- Evidence to support a budgeting process in future years toward e-business initiatives was not present. Even though it was found that a technical staff was available for development, no formal e-business planning process was observed.

e-Commerce Readiness Assessment (Table 3):

- Evidence to support the basic IT infrastructure being ready to support e-commerce was not present. Even though it was found that a basic infrastructure with respect to availability of hardware and software is present, the speed, reliability, price, and interoperability/interconnection of the basic infrastructure is not sufficient for e-commerce.
- Since IBS customers are primarily located in Western Europe and the United States ample evidence of sufficient Internet usage was found. However, it is observed that Internet usage within Ukraine is insufficient to support e-commerce.
- Evidence to support Ukraine being positioned for the digital economy was not present. All the bullets listed in Table 3 for this heading are issues with most being discussed in the non-IT issues section of the analysis and Economy of Ukraine section of the Background.

Ultimately the value of the site is in the business it generates. By the company’s own admission, the sites have generated many inquiries but little to no business. While Molla and Licker (2001) do not include organizational impact in their modification of DeLone and McLean’s IS Success Model (1992), this analysis considers a lack of organizational impact in the form of sales a key indicator that the sites are not successful. Molla and Licker (2001) do include customer trust and return visits as indicators of success. The sites do use secure transactions for credit cards and their state on the site that they respect the privacy of their clients. However, no statement is made on the privacy of client information collected on the sites and the site counter indicated the author was visitor number 1300, this indicates potential issues with regard to trust and return visits by clients.

6. Conclusions

IT can help make small enterprises in developing countries successful. However, these enterprises face many technical and non-technical issues that impact the ability of these enterprises to take full advantage of IT. These issues for Ukraine can be summarized as:

- Regulatory environments that don’t support business development by restricting the flow of funds and information

- Cultural issues which make business and communication with developed economies difficult
- Inadequate and unreliable telecommunications systems limiting communications and e-commerce and causing high communication costs
- Inadequate power quality degrading IT equipment
- Lack of personnel with IT abilities
- High costs of leading edge and high end software compounded by the ready availability of inexpensive, illegal versions of this software
- High costs of leading edge and high end hardware that may not be compatible with their United States counterparts

These issues can be overcome by managing IT well and persistence. However, care has to be taken with e-commerce. The tendency is to rush to be in the world market place. The risk is that the enterprise will actually alienate customers with unsuccessful web site designs. IBS has technically good sites but is not successful with them. This could be corrected with some relatively simple fixes such as planning, registering with more search engines, and removing some annoying features. Molla and Licker's (2001) e-commerce modification of DeLone and McLean's IS Success Model provides some insight into how a successful e-commerce site should be designed.

7. Areas for Future Research

This paper focuses on a single company. The methodology used to assess IT and e-Commerce in this company provides a framework that can be used with other companies and in other countries. The next logical step is to replicate this research in a number of companies located in various countries. The results from these assessments can then be used to generate generic models and a survey/assessment instrument that can be used for any assessment.

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