

**INFORMATION TECHNOLOGIES, E-COMMERCE, AND
TELECOMMUNICATIONS MARKET OPPORTUNITIES
FOR U.S. SMALL AND
MEDIUM- SIZED BUSINESSES**

EXPORTIT CENTRAL EUROPE

HIGHLIGHTING: HUNGARY AND THE CZECH REPUBLIC

**U.S. DEPARTMENT OF COMMERCE
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FOREWORD

This report describes and analyzes the trends, key issues, and events in telecommunications, information technology (IT), and e-commerce adoption in Central Europe, highlighting the Czech Republic and Hungary, to create a framework from which U.S. small- and medium-sized enterprises (SMEs) can make educated business decisions about entering these markets. The report focuses on the status of telecommunications liberalization and infrastructure development and on potential IT industries and markets. Special attention is given to factors influencing the adoption of the Internet and electronic commerce in the region. It also analyzes economic, cultural, historical, and political factors influencing the adoption of information and telecommunications technologies. The report highlights information and market opportunities relevant to U.S. SMEs in the IT and telecommunications industries. The report provides suggested market entry strategies for smaller firms, U.S. Department of Commerce and other resources to assist U.S. firms in market entry endeavors, as well as contacts in the United States and Central Europe.

The report is based on market research and analysis undertaken in Central Europe in July 2001 by Beatrix Roberts and Jon Boyens, international trade specialists from the Information Technology Industries unit of Trade Development within the Commerce Department's International Trade Administration. They interviewed software, Internet, and telecommunications equipment and service producers, trade associations, industry analysts, IT distributors, and government officials in Prague, Czech Republic, and Budapest, Hungary. The work was actively supported by the International Trade Administration's U.S. and Foreign Commercial Service (US&FCS) market specialists in the two countries. Information gathered from on-site interviews is supplemented with data from market research firms, the U.S. and Foreign Commercial Service, and an extensive review of available literature.

EXECUTIVE SUMMARY

This report is part of the International Trade Administration's *ExportIT Market Research* series designed to provide U.S. small- and medium-sized enterprises (SMEs) in the telecommunications, information technology (IT), and e-commerce sectors with timely, affordable information that they might otherwise not receive. The intent is to create a framework from which SMEs can make educated business decisions about entering foreign markets. Central Europe was selected because its IT and telecommunications markets are undergoing rapid change and growth, which should create market opportunities for U.S. high technology firms. This report specifically highlights the Czech Republic and Hungary. The key findings are summarized below.

The telecommunications and IT markets in the Czech Republic, Poland, and Hungary are unquestionably the most advanced in the combined Central and East European region. Privatization of formerly state-owned telecommunications providers, liberalization of telecommunications markets, and greater competition have spurred growth in the telecommunications sectors throughout the region. All three have enacted telecommunications legislation which requires full liberalization of their telecommunications markets by the end of 2002. As part of this process, the governments of Central Europe are establishing independent telecom regulators. Central Europe by far outperforms the East European countries in IT and telecom development. Romania, Bulgaria and the former Yugoslav Republics, with the exception of Slovenia, are still in the early stages of their economic transformation, and

are behind in every aspect of IT development.

Central Europe

Czech Republic
Hungary
Poland
Slovakia

Eastern Europe

Albania
Bosnia and Herzegovina
Bulgaria
Croatia
Estonia
Latvia
Lithuania
Macedonia
Romania
Slovenia
Yugoslavia

Demand for information and telecommunications technologies in Central Europe is being driven by many factors, two of which can be attributed to EU accession. In preparation for EU accession, many companies in Central Europe are trying to transform themselves quickly into world-class competitors. This process is creating considerable commercial opportunities for U.S. high-tech firms with expertise in the fields of information technology and telecommunications to invest or sell their products. The homogenous regulatory system, the common external tariff, and transparency requirements will benefit U.S. exporters and investors once the Central European countries become EU member states. As part of the

EU's eEurope Initiative, the countries of Central Europe have adopted individual information society initiatives under the collective name eEurope-Plus. The above factors, combined with a highly skilled workforce and Central Europe's location as a natural crossroad to Russia and the Newly Independent States (NIS), make the region very attractive to U.S. investors.

Telecommunications Liberalization Beginning to Take Root

Although all of the Central European governments are either in the process of opening or have passed legislation to open their telecommunications markets to competition, effective liberalization has not yet occurred. Most importantly, requirements for fair and cost-based interconnection charges for competitive carriers, as well as local loop unbundling, are still being developed. In addition, despite advanced state of the IT and telecom markets in Central Europe, certain cultural, financial and regulatory factors limit the use of e-commerce and other Internet services. The Central European telecom markets are expected to experience a period of upheaval over the next several years, as they transition from monopolies to free competition, from voice to data, and from fixed to mobile. New license awards for wireline and wireless (cellular, and fixed wireless access, or FWA) services are driving network expansion and the offering of new services throughout the region. The wireless segment, in particular, is experiencing robust growth in most countries in Central Europe, as countries look to wireless technologies to increase teledensity levels rapidly. As telecommunications giants such as Deutsche Telecom, KPN, and Swiss Telecom pull out or

scale back their investments in Central Europe, others, such as Vivendi, see this as an opportunity to establish or expand their presence in the region.

Greater competition in Central Europe's telecommunications sector and demand for new telecommunications technologies should result in extensive market opportunities for telecommunications equipment and service providers. Neglect of the telecommunications sector for many years before the fall of the communist regimes in Central Europe resulted in inadequate and outdated telecommunications infrastructure. Thus new entrants, as well as incumbent operators in Hungary and the Czech Republic, must invest in state-of-the-art technologies to improve the quality, speed, geographic reach, and capacity of their networks as quickly as possible. Wireless technologies, especially those which support high-speed data services in addition to voice services, are expected to be in demand, due to wireless licenses which have been or soon will be awarded in both countries.

Information Technology and E-Commerce Adoption Encouraged

The PC penetration rate in the Central European countries has significantly increased in the past five years, largely driven by the small and medium sized enterprise (SME) market. Since 1989, Central European governments, in an effort to implement major economic reforms, are sponsoring initiatives to encourage the use of information technologies, such as multimedia and the Internet. Incumbent telecommunications operators in Central Europe have capitalized on their dominant position in the telecom market and have taken leading positions in the

Internet access markets. Internet growth has been hampered by the low level of PC penetration and relatively high Internet access rates. Although Internet use in Central Europe is relatively low compared to the United States and Western Europe, it is expected to grow considerably over the next several years.

Central Europe is far behind the United States and Western Europe in e-commerce development.

Most Web sites in Central Europe are static and only offer general information about the company and the products. However, this is expected to change if Central European companies follow global trends, where the primary purpose of Web sites has become sales. While many retailers are developing online sales channels, electronic commerce in CE is dominated by the business-to-business (B2B) segment. This trend should continue for the next few years due to the prevalence of many barriers to the growth of B2C which are common to the countries in Central Europe. These barriers include: an often unreliable postal service and relatively high cost express delivery and courier services; low PC and Internet penetration in households; low credit card penetration and lack of alternative payment systems; a low level of local language content; a lack of trust concerning online credit card use and privacy; and lastly, traditional social and cultural attitudes favoring shopping in stores.

There are opportunities for U.S. companies providing e-commerce enabling products and services, but end-users will consist mainly of the largest companies in the region. The energy sector, in particular, significantly leads all other industries and sectors in IT adoption

and investment, followed by the public sector. This trend should continue for the next few years. Although B2B and B2C activities are not even on the radar screen for most companies in Central and Eastern Europe, there is considerable growth in the integration of internal information systems.

As firms in the region increase their spending on IT, many types of leading-edge technologies supplied by U.S. IT firms are in demand. Many Central European firms are upgrading their legacy computer systems, investing in enterprise and customer management software, intranets and extranets, and integrating front and back offices. More and more Hungarian and Czech firms are eager to implement Internet and electronic commerce strategies. As a result, there is growing demand for professional Internet and electronic commerce services such as Web site design, and for systems integrators to install, program, and connect servers to legacy infrastructures as well as integrate Web sites and back offices. Many of these companies turn to U.S. suppliers and consultants for their expertise. In the Internet and electronic commerce realms, foreign firms that will be successful are those that can tailor their technologies and offerings and apply innovative solutions to market barriers. Central Europe's low PC penetration and teledensity rates indicate that Internet access will likely be via other means than in the United States, such as wireless data networks.

Trade Agreements Pave the Way for U.S. Industry

Poland, Hungary, the Czech Republic and Slovakia are members of the World Trade Organization (WTO). All four countries have

signed and are implementing the WTO's Basic Telecommunications Agreement (BTA). With the exception of Hungary, the three other countries of Central Europe have also signed the Information Technology Agreement, which stipulates that import tariffs on all information technology products will be phased out by the end 2000¹.

¹ The Czech Republic has phased-out all tariffs for computer equipment and Poland is scheduled to do so by the end of 2002. Hungary, while not a signatory, has amended its existing tariff decrees, making the import of computers and parts duty-free from WTO members.

TERMS & ABBREVIATIONS

| | |
|--------------|---|
| \$ | Unless otherwise noted, dollar figures cited in the report are U.S. dollars |
| 2G | second generation |
| 3G | third generation |
| ADSL | asynchronous digital subscriber line |
| APEC | Asia Pacific Economic Cooperation forum |
| ASPs | application service providers |
| B2B | business-to-business |
| B2C | business-to-consumer |
| BTA | Agreement on Basic Telecommunications Services |
| CE | Central Europe |
| CE | EU s Conformite Europeenne stamp of compliance |
| COCOM | Coordinating Committee for Multilateral Export Control |
| COD | cash on delivery |
| CR | Cesky Radiokomunikace |
| CT | Cesky Telecom |
| CTU | Czech Telecommunications Office (telecoms regulator) |
| DECT | digital enhanced cordless telecommunications |
| EDI | electronic data interchange |
| ESIS | European Survey of Information Society Projects and Actions |
| ESM | European Satellite Multimedia Service |
| EU | European Union |
| FCC | Federal Communications Commission |
| FDI | foreign direct investment |
| FTAA | Free Trade Agreement of the Americas |
| FWA | fixed wireless access |
| GPRS | general packet radio services |
| GPS | global positioning system |
| GSM | global system of mobile communications |
| HDSL | high bit rate digital subscriber line |
| HIF | Hungarian Communications Authority |
| HUF | Hungary s currency, the forint |

TERMS & ABBREVIATIONS continued

| | |
|------------------|--|
| HUNGARNET | Hungarian Academic and Research Network |
| HTCC | Hungarian Telephone and Cable Corporation |
| ICP | Industry Consultations Program |
| ICT | information and communications technologies |
| IDC | International Data Corporation |
| IFACs | Industry Functional Committees on Trade Policy Matters |
| IMF | International Monetary Fund |
| ISA | industry sector analysis |
| ISDN | integrated services, digital network |
| ISACs | Industry Sector Advisory Committees |
| ISDN | integrated services, digital network |
| ISP | Internet service providers |
| IT | information technology |
| ITA | Information Technology Agreement |
| ITA | International Trade Administration |
| ITU | International Telecommunications Union |
| LMDS | local multipoint distribution system |
| MFN | Most Favored Nation |
| MMDS | multipoint multichannel distribution system |
| MTC | Ministry of Transport and Communications |
| NIS | Newly Independent States |
| NTDB | National Trade Data Bank |
| OECD | Organization for Economic Cooperation and Development |
| OETCA | Office of Export Trading Company Affairs |
| PPP | public-private partnership |
| PECA | Protocol on European Conformity Assessment |
| SME | small and medium-sized enterprise |
| SMS | short messaging service |
| UPC | United Pan-Europe Communications |
| UMTS | universal mobile telecommunications system |

TERMS & ABBREVIATIONS continued

| | |
|--------------|---|
| USEAC | U.S. Export Assistance Centers |
| USTR | Office of the U.S. Trade Representative |
| VAT | value-added tax |
| VSAT | very small aperture terminal |
| WAP | wireless application protocol |
| WLL | wireless local loop |
| WTO | World Trade Organization |
| Y2K | Year 2000 |

CHAPTER 1: OVERVIEW OF THE CENTRAL EUROPEAN IT AND TELECOMMUNICATIONS MARKETS

This overview discusses general trends in the telecommunications and IT markets of Central Europe (CE), which, for the purposes of this report, includes Poland, Hungary, the Czech Republic and Slovakia. Central Europe's IT and telecommunications markets are undergoing rapid change and growth. Increased competition in telecommunications services in the CE countries, due to the recent or pending liberalization of telecommunications services markets, is driving investment in leading-edge telecommunications technologies, lowering access costs for consumers, and facilitating more Internet and e-commerce use. Many organizations in the region are increasing their IT investments, spurred by growing recognition of the importance of IT use to improve productivity and international competitiveness. The level of both economic and IT development in CE, however, remains low compared to the United States and Western Europe.

Why Enter the Central European Market?

In preparation for the accession of the four CE countries into the European Union (EU), many companies in CE are trying to quickly transform themselves into world-class competitors in anticipation of becoming part of the highly competitive and heavily regulated EU market. This process is creating abundant commercial opportunities for U.S. high-tech firms with expertise in information

technology and telecommunications to invest or sell their products. The region's primary strength lies in its intellectual capital; its excellent educational and vocational training has been a tradition for centuries.

As the four CE countries move through the EU accession process, they must continue fiscal discipline while maintaining strong economic growth in order to meet the stringent criteria for membership in the EU. Their success in managing economic reforms and creating a financially attractive market have, thus far, shown that the CE countries will be a viable, strong addition to the EU in terms of trade and investment. These economic reforms will create additional opportunities for U.S. investors wishing to expand further into the EU. Generally, the EU offers one of the most open climates for U.S. investment in the world. As a result, U.S. investment in the EU and its Member States has flourished over the last two decades and will continue to grow as these new members enter the union.

The homogenous regulatory system, the common external tariff, and the transparency requirements will benefit U.S. exporters and investors once the CE countries become EU Member States. As the countries of CE navigate their way through the accession process, they are required to adopt EU laws and regulations governing acceptable accounting procedures, bankruptcy, protection

of intellectual property rights, methods for settling disputes, repatriation of profits, and other laws that create a supportive/protective environment for investment as well as exports. Each of the countries of CE either has EU laws already in place or is in the process of adopting them. These efforts have already attracted numerous foreign exporters and investors.

At present, the CE countries enjoy duty-free access for their products entering the EU market. Specifically, companies manufacturing in the four accession countries face no tariffs on most industrial goods that they export to EU Member States. Therefore, CE countries are enjoying some of the economic benefits of membership prior to actual accession, which is an impetus for direct investment. The above factors, combined with a highly-skilled and relatively low-cost workforce, and CE's location as a natural crossroads to Russia and the Newly Independent States (NIS), make the region very attractive to U.S. exporters and investors. Although labor costs are expected to climb towards EU levels as accession progresses, the region will continue to be attractive.

In addition to general investment incentives, each accession country offers its own specific national investment incentives to encourage domestic and foreign investment within its individual borders. These "inward" investment incentives vary from country to country, but usually include generous tax incentives for investments above a set monetary threshold in certain sectors, employee training programs, job-creation grants, and governmental or municipal support in the communities receiving investment.

Why IT and Telecom?

There are many factors in Central Europe that are driving the demand for information and telecommunications technologies, two of which can be attributed to EU accession. First, companies in Central Europe must achieve technological parity with the EU to be competitive. Secondly, the governments of the CE countries have instituted policies to promote domestic high-tech industries in order to support general economic growth and to establish their countries as high-tech hubs that will service the European continent. In addition, the increased economic growth in Central Europe since the Russian financial crisis of 1998 has played a significant role in the development of Central Europe's IT and telecommunications markets.

Central Europe Outperforms Eastern Europe

The Czech Republic, Poland, and Hungary are undoubtedly the most advanced markets in Central and Eastern Europe. Their incumbent operators have been either fully or partially privatized and all three have recently enacted telecommunications legislation which requires full liberalization of their telecommunications markets by the end of 2002 at the latest. (Czech Republic: December 2000; Hungary: December 2001, and Poland: December 2002). The governments of Central Europe are in the process of establishing independent telecom regulators that are compatible with their EU counterparts. Liberalization and pending liberalization of the telecommunications markets in CE have spurred the emergence and success of alternative, or competing operators. Competition is particularly intense for

providing data services as operators vie to increase capacity and focus on Internet-based services.

Central Europe by far outperforms the East European countries in IT and telecom development. Romania, Bulgaria and the former Yugoslav Republics, with the exception of Slovenia, are still in the early stages of their economic transformation, and are behind in every aspect of IT development.

The distinction between the IT development strategies of the two groups of countries is clearly demonstrated in their EU accession status. The countries of Central Europe, Slovenia and Estonia constitute the first wave countries; Bulgaria, Latvia, Lithuania, Romania, and Slovakia comprise the second wave countries. According to optimistic projections, the first wave candidates could end negotiations before 2003 and possibly enter the EU by the end of 2004. These countries are currently focusing their efforts on conforming their legislation with the *acquis communautaire* or the body of EU law, by enacting electronic digital signature and data privacy legislation. The rest of Eastern Europe is also making great strides not to miss the IT boom. However, the pace of change varies widely among these countries.

Trade Agreements

Poland, Hungary, the Czech Republic and Slovakia are members of the World Trade Organization (WTO). All four countries have signed and are implementing the WTO's Agreement on Basic Telecommunications Services (BTA). The Agreement has three components-- market access, national

treatment, and pro-competitive regulatory principles. It aims to provide foreign telecommunications carriers full access to participating countries' local, long distance, and international service markets via all types of network technologies-- wireline, cellular, microwave, and satellite-- either on a facilities basis or through resale. The Agreement also aims to ensure that foreign investors can acquire or hold a significant stake in signatories' telecommunications companies, or establish companies in those markets. According to their commitments under the BTA, the countries have committed themselves to liberalize fully their telecommunications markets by the end of 2003, at the latest.

With the exception of Hungary, the countries of Central Europe have also signed the Information Technology Agreement (ITA)².

Although Hungary has not signed the ITA, on January 30, 2002, the Government of Hungary signed a comprehensive trade agreement with the United States that lowers Hungarian tariffs on a number of IT and telecommunications products on a Most Favored Nation (or MFN) basis. The agreement includes a reduction of the tariffs on automated data processing machines (HTS 8471), office machine parts (HTS 8473), and laser disks (HTS 8524.31) from 5 percent to zero. The tariff on electrical apparatus for line telephony or telegraphy (HTS 8517.50.9000) will also be reduced from 10 percent to zero. The agreement will go into effect on April 1, 2002.

² See previous note (pg. viii).

The above agreements will help ensure that U.S. IT and telecom equipment manufacturers and services providers can freely compete in the markets of Central Europe.

Barriers to IT and Telecom Growth

Although the IT and telecom markets of Central Europe are highly advanced, certain cultural, financial and regulatory factors still limit the use of e-commerce and other Internet services. Central Europeans grew very cynical about the roles and actions of their governments during the communist era. As a result of years of mistrust in the policies of the communist regimes, Central Europeans regard government initiatives, even more than a decade later, with great reservation. It will take time and aggressive campaigns on the part of the post-communist governments in the region to convince their populations that their efforts to boost IT development will indeed benefit everyone.

Although all of the Central European governments are either in the process or have passed legislation to open up their telecommunications markets to competition, effective liberalization has not yet occurred. According to industry specialists, liberalization is not likely to happen on the effective date of implementation of telecom legislation. Also, lengthy and arduous negotiations over fair and competitive interconnection charges with incumbent operators, and the complete lack of local loop unbundling have caused alternative operators great difficulties in entering the markets of CE. There is also a certain level of skepticism about the independence and impartiality of the newly created telecom regulators in the region. Alternative operators are concerned about the

lack of full privatization of the incumbent operators in the Czech Republic, Poland and Slovakia.

Although the Central European IT and telecommunications markets have enjoyed a slow but steady growth during the broad-based decline of the IT and telecommunications markets in the U.S. and Western Europe in recent years, they have not escaped some of its aftermath. Most strategic telecommunications operators are suffering great losses due to the credit crunch in the financial markets, and the enormous debts stemming from the purchases of UMTS (Universal Mobile Telecommunications System) licenses in Western Europe. As a result, most telecommunications giants such as Deutsche Telecom, KPN and Swiss Telecom, are in the process of pulling out or scaling back their investments in CE. However, there are other companies, such as Vivendi, that see this as an opportunity to establish or expand their presence in the region.

TELECOMMUNICATIONS

The Central European telecom markets will experience a period of upheaval over the next few years. The telecommunications sectors are in the midst of major transitions from monopolies to free competition, from voice to data, from fixed to mobile. All of these trends affect usage and revenue growth in the various telecom sectors.

There are an estimated 20 million main telephone lines in CE, for an average teledensity rate of approximately 34 percent. Mobile communications is the fastest growing segment of the telecommunications sectors of

CE, with average annual growth of 107 percent in the last two years.

Major Changes in Telecommunications

Privatization of formerly state-owned telecommunications providers, liberalization of telecommunications markets, and greater competition have spurred growth in the telecommunications sectors throughout the region. However, with the exception of Hungary, most countries in the region are still in the process of privatizing their national operators. Although these countries foresee the final completion of privatization by the end of 2003. The WTO's Agreement on Basic Telecommunications Service, has lowered telecommunications trade barriers and opened markets.

Privatization and greater competition are spurring growth in spending on telecommunications services and equipment. Telecom operators are delivering basic services to a larger percentage of the population, offering wider choice and at lower cost for many consumers. Increased telecommunications use is driving demand for leading-edge telecommunications technologies and is facilitating greater Internet and electronic commerce use.

The increase in service quality and coverage are due, in part, to performance and coverage criteria that are commonly incorporated as terms in the privatization of a state-owned telecommunications company, or within the terms of a licensing agreement for a new operator. Examples of performance criteria include call completion standards and allowable number of billing errors. Examples of coverage criteria include providing service

to a certain percentage of the population in certain geographic areas within set time frames (also referred to as universal service or buildout requirements). Some of these requirements are specifically aimed at the installation of public telephones or telephone centers in rural and poor areas to provide basic services such as local and long-distance calls, message centers, and operator assistance. Universal service requirements have allowed Central European countries to expand the telecommunications infrastructure in communities that generally do not attract investors because of high development costs and low return on the investment.

Although the current decline in telecom markets in the U.S. and Western Europe negatively affects growth in the telecommunications sector, recent and upcoming basic services liberalization continues to drive telecommunications growth and convergence in Central Europe. While financial, regulatory and political barriers still exist in the region, most countries have moved ahead with market liberalization.

New license awards for wireline and wireless (cellular and fixed wireless access services) technologies will continue to spur network expansion and the offering of new services throughout the region. As the region's economies pull closer to the level of the EU economies, greater discretionary income in conjunction with pent-up demand for telecommunications services will continue to increase telecommunications growth throughout the region.

Strong Wireless Sector

The wireless segment is very robust in most countries in Central Europe, as countries look to more advanced wireless technologies to increase teledensity rapidly. If this robust growth continues at the rate achieved in 2000, the Central European region will fast approach Scandinavian levels of mobile use (Denmark with 61 percent and Sweden 71 percent at the end of 2000). The success of mobile can be attributed to the introduction of pre-paid services, which now account for the vast majority of subscribers in the region. The use of second generation (2G) and GPRS (General Packet Radio Services) is rapidly spreading throughout Central Europe, but there are serious doubts among mobile operators about the profitability of third generation (3G) services. Debate and controversy continues to rage over the issuing of third generation (3G) UMTS licenses. After the initial high expectations which followed lucrative auctions in Germany and the UK, companies throughout the Central European region have been left wondering about the true value of 3G licenses. Two of the four Central European countries (Czech Republic and Poland) attempted a 3G license auction, but met with limited success.

Personal Computers

The personal computer market in Central Europe has grown 12.5 percent since 1999, reaching a value of \$1.63 billion in 2000, according to the U.S. market research firm, International Data Corporation (IDC). Poland leads the PC market with \$817.9 million in revenues and over 781.5 thousand PCs sold in 2000. The Czech Republic ranks second and Hungary third, with market values of \$332.1

million (296.4 thousand units) and \$239.7 million (213.2 thousand units), respectively. Slovakia lags behind with \$86.8 million in revenues.

The PC penetration rate in the Central European countries has significantly increased in the past five years. PC sales to large corporations and the public sector were down in 2000, growing less than 2 percent, due to a reduction in expenditures following Y2K investments in 1999. The small and medium sized enterprise (SME) market, however, drove revenues up, accounting for 43 percent of the overall PC market. Although international name-brand vendors controlled 26 percent of the market in 2000, local assemblers, often the preferred choice for price-conscious SMEs, dominate the overall PC market. Compaq controlled 7.5 percent of the PC market in 2000, followed by IBM with 4.2 percent. Hewlett-Packard, Dell, and Toshiba followed with 4.1 percent, 2.8 percent, and 2.1 percent of the PC market, respectively. As the cost of PCs continues to decline, it is expected that local assemblers will lose portions of their market share to brand-name vendors. PC penetration in households is low, primarily due to relatively low income levels.

Internet and E-commerce

Most governments in the region have recognized the benefits of IT and are working to promote its use by creating a regulatory environment that allows e-business to flourish. Since 1989, Central European governments, in an effort to implement major economic reforms, have made information technologies, such as multimedia and the Internet, the primary elements of economic growth. The

countries of Central Europe are discovering that information and telecommunications technologies increase the dissemination of knowledge, and increase employment and economic growth. Since IT is out of reach for many companies and citizenry, most governments in the region have sponsored or are in the process of sponsoring initiatives to encourage the use of IT.

E-Initiatives Boost Economic Growth

The governments of Hungary and the Czech Republic have recently adopted information society programs, which are part of the EU's eEurope Initiative. The goal of the European Union's eEurope initiative is increased digital connectivity in Europe to bolster the use of electronic commerce and the Internet by businesses and the public. The eEurope initiative aims to achieve cheaper, faster, more secure access to the Internet by investing in people's skills and access to the Internet. As part of the eEurope Initiative, the countries of Central Europe also adopted individual information society initiatives under the collective name eEurope-Plus. The work under eEurope Plus by candidate countries allows them to collaborate and exchange information with other candidate countries and EU Member States to improve their respective information societies and assist in their integration into Europe.

Internet

Internet use in Central Europe is relatively low compared to the United States and Western Europe, but is expected to grow considerably in the next few years. While Internet penetration was only about 8-10 percent of the population in 2000, industry experts predict

that it should grow to around 23-30 percent by the end of 2005. The Czech Republic has the highest Internet use among the four Central European countries, with various studies citing a penetration rate between 9-17 percent. Hungary and Poland slightly lag behind with a 7-10 percent penetration rate. The Czech Republic has the highest home and work Internet use in CE. However, Hungary boasts the highest rates of Internet use in high schools and colleges. While Poland has nearly two and a half million Internet users -- more than the Czech Republic, Hungary, and Slovakia combined -- it trails behind in the use of e-commerce. Internet use in CE is hampered by the low level of PC penetration and relatively high Internet access rates.

Incumbent telecommunications operators in Central Europe have capitalized on their market dominance and have taken leading positions in the Internet access markets. Cesky Telecom's Internet Online (Czech Republic), Matav's MatavNet (Hungary), and TPSA's TpNet (Poland) are the leading suppliers in the local Internet market. Alternative telecom providers are, however, challenging the dominance of the incumbent operators to varying degrees in these markets. Cost, quality, and customer service appear to be the primary factors in retaining customers in these countries.

Internet Service Providers (ISPs)

Revenues from Internet subscriptions are a relatively small portion of CE telecom companies' total earnings, generating only \$184 million in 1999. Even before the emergence of free Internet access, many ISPs were losing money. Now that free access to the Internet has arrived, advertising and

Internet access fees are predicted to further decline as a revenue source for both incumbent service providers and independent ISPs. However, connection fees for Internet access account for a much larger portion of telecom companies' revenues. Forecasts predict a threefold increase in the revenues of telecom operators stemming from Internet access by 2004. This revenue growth is driven by the increase in Internet subscribers and relatively high dial-up costs. However, unlike Western Europe, where revenues are shared between the local telecom companies and ISPs, telecommunications companies in CE are not obliged to share their revenue, although in the Czech Republic and Hungary, negotiations on revenue sharing have commenced.

Consolidation of the ISP industry in the countries of CE has taken place to various degrees. While Internet penetration in Poland and the Czech Republic is comparable, the difference between the number of ISPs operating in the two countries (500 and 16, respectively) is substantial. The large gap between the number of ISPs and the Internet penetration rate in the above countries are due to the recent liberalization of the Czech telecom market and subsequent mergers and acquisitions in the ISP industry.³ ISPs derive most of their profits from providing services to multinational corporations and large companies as opposed to residential customers.

³ European Survey of Information Society Projects and Actions (ESIS)

Electronic Commerce

Central Europe is far behind the United States and Western Europe in e-commerce development, accounting for less than 10 percent of total e-commerce spending worldwide.

Most Web sites in Central Europe are static and only offer general information about the company and the products (Poland had over twice as many dynamic Web sites than the rest of the countries in the region). Financial data and information on distribution channels and employment opportunities are far more infrequent. However, this should change if Central European companies follow global trends, where the primary purpose of Web sites becomes sales.⁴

English is the most widely used language on the Internet in the Czech Republic, Poland, and Slovakia. About 63 percent of Web pages in these countries have English versions, in some cases, English language exceeds the native language content. Twenty-three percent of Web pages are in German, the second most popular language in Central Europe. Not surprisingly, English has become firmly implanted as the international language of business, finance, and technology. The need for a common language has been recognized by global technology companies working in CE. Many large multinational companies have found the need to use English for corporate communications throughout their subsidiaries residing in different countries.

⁴ Deloitte & Touche: Information Technology Survey and E-Commerce Trends in Central Europe 2000. (The 135 companies participating in the survey were from the Czech Republic, Poland, and Slovakia.)

But companies in CE that attempt to expand their Web presence and conduct business outside of their host country are finding that English version Web sites are a necessity for a viable sales base. This is particularly apparent in countries such as the Czech Republic and Hungary, each with separate individual languages and populations slightly over 10 million. Furthermore, when one considers the fact that each country has under 12 percent Internet penetration and an even smaller number of people who are willing to purchase items over the Internet, it is obvious that both static and dynamic Web sites in Central Europe need to move beyond just the local language and be multilingual, or minimally, have an English version to secure a broader market.⁵

While many traditional retailers are developing online sales channels to their customers, electronic commerce in CE is dominated by the business-to-business (B2B) segment. This trend should continue for the next few years, until many of the barriers to business-to-consumer (B2C) e-commerce become less prevalent. Online procurement, as part of the supply chain, will make up one-fifth of all e-commerce revenues and should dominate B2B activities for the next several years. The electronics and automotive manufacturing industries, driven by foreign direct investment, are the most active in adopting electronic procurement systems.

Many Central European companies have not recognized the benefits of implementing B2B activities. According to a survey completed by the U.S. consulting firm Deloitte &

Touche, only 5 percent of the respondents have implemented a B2B solution and more than 50 percent have not planned any activity in e-commerce yet. However, over 40 percent indicated they planned some sort of B2B activity in the next two years. Nearly 90 percent of Czech companies have a Web presence, compared to 20 percent in Poland and Slovakia.⁶

Considering the economic and psychological barriers facing the region, it is not surprising to find that nearly 60 percent of all companies do not have plans to implement B2C activities. Additionally, less than 5 percent of the companies currently have B2C activities. However, about 35 percent of responding companies to Deloitte & Touche's survey indicated that they planned B2C activities within the next two years.⁷

There are many barriers to the growth of B2C that are common to the countries in Central Europe. The barriers include: an often unreliable postal service and relatively high cost express delivery and courier services; low PC and Internet penetration in households; low credit card penetration and lack of alternative payment systems; a low level of local language content; a lack of trust concerning online credit card use and privacy; and traditional social and cultural attitudes favoring shopping in stores.

Unlike in the United States, which has a pervasive catalogue and television sales industry, Central Europeans are accustomed to

⁵ Ibid

⁶ Ibid

⁷ Ibid

going to the store to purchase items and have not been widely exposed to ordering items and waiting for them to be delivered by mail. Many people currently claim that they would rather continue going to a physical location and shop for items they can touch and see up close. Reinforcing this view is the fact that there has been a boom in shopping mall construction over the past several years. These new malls are viewed as complete entertainment centers, with a larger selection of products than can be found online. However, the reluctance of Central Europeans to fully utilize the Internet should change in the future, when those growing up using the Internet become income earners, and employing the Internet becomes more commonplace. An increase in local language content should also help change people's attitudes about using the Internet for shopping.

Low credit card ownership hinders B2C e-commerce throughout much of the world, and CE is no exception. Low personal income and mistrust of financial institutions have, thus far, limited credit card use. But there is a growing hope that this problem is diminishing. The latest statistics by Visa International show signs that Central Europeans are warming up to the idea of using non-cash payments. Transaction amounts in CE grew by 37 percent in 1999, and the number of credit cards issued grew by 35 percent. While the security image and fraud rate ultimately influence the extent to which people will start using credit cards to make purchases over the Internet, these statistics suggest that it should be only a matter of time.

IT Investment

There are opportunities for U.S. companies providing e-commerce enabling products and services, but for the most part, the end-users will consist mainly of the largest companies in the region. It is difficult to strategically target small and medium-size companies in CE, because they are only gradually adopting e-business and Internet technologies.

The energy industry in Central Europe significantly leads all other industries and sectors in IT adoption and investment, and should continue to for the next couple of years. The public sector ranked second on IT spending in 2000, but the finance industry was expected to take the lead in 2001. The transportation, and chemical and pharmaceutical industries follow third and fourth, respectively, with the consumer goods industry falling into last place.⁸

Except in Poland, software overtook hardware (excluding networks) as the single largest IT expenditure for the companies in Central Europe in 2000, accounting for over 25 percent of the total. Hardware purchases amounted to 22 percent of total IT spending, with spending on IT department employees following at 16 percent. Training was the smallest portion of IT spending at 3 percent of the total.⁹

Although B2B and B2C activities are not even on the drawing board for a large portion of companies in Central and Eastern Europe,

⁸ Ibid

⁹ Deloitte & Touche: Information Technology Survey and E-Commerce Trends in Central Europe 2000.

there is considerable growth in the integration of internal information systems. Companies are now monitoring cash flow along the supply and procurement chains and are integrating their financial information systems with those of the procurement and sales functions. There are indications of integration between distribution and production systems, but most companies have not reached this stage yet.¹⁰ Additionally, since CE economies have become increasingly driven by multinational corporations, the local subsidiaries are following the lead of their parent companies by investing in IT infrastructure and e-procurement, which should also boost overall IT investment.

¹⁰ Ibid

CHAPTER 2: HUNGARY

| HUNGARY 2000 | | |
|------------------------------------|-------------------------------------|-----------------|
| Population and GDP | Total Population (millions) | 10 |
| | GDP per Capita (\$) | \$5,050 |
| Main Telephone Lines | Total (millions) | 3.7 |
| | Per 100 Inhabitants | 37 |
| Cellular Mobile Subscribers | Total (millions) | 3.9 |
| | Per 100 Inhabitants | 39 |
| Telecommunications Revenue | Total (\$ billions) | \$2.4* |
| Personal Computers | Total (thousands) | 870* |
| | Per 100 Inhabitants | 8.51* |
| Cable TV Penetration | Total Subscribers (millions) | No data |
| Internet | Total Users | 730,000* |
| | Per 100 Inhabitants | 7-10* |
| Internet Service Providers | Total Number | 30-40 |

Source: International Monetary Fund, Kagan World Media, International Telecommunications Union, European Survey of Information Society Projects and Actions (ESIS) , Hungarian National Bank

* Estimates

INTRODUCTION

General Economic Background

After a decade of economic transition, Hungary has emerged as one of the most open economies in Europe. It is a fully functioning market economy that is deeply integrated into the economies of the European Union. Reform measures taken in the period of 1995-1996, which included aggressive privatization, price

liberalization, and efforts to attract foreign investors have, in large part, been successful. Hungary has reduced its macroeconomic imbalances, including significant foreign debt inherited from the Communist era, and is now focused on strategies to increase long-term growth and reduce inflation.

Since 1997, Hungary has experienced strong economic growth, falling unemployment, moderating inflation, and rapid foreign direct

investment inflows. Foreign direct investment continues to be the engine of Hungary's strong economic growth, sharply boosting exports to the European Union, increasing productivity, and accounting for 75 percent of Hungary's exports and 80 percent of GDP. GDP growth reached 5.3 percent in 2000, up from 4.9 percent growth in 1999. Growth slowed to 4.2 percent in the first half of 2001, mainly due to slower growth in EU markets. In 2001, the Hungarian Government implemented a medium-term stimulus package aimed at spurring further growth by increasing business investment, wages, and pensions.

Inflation in Hungary has been on the decline for the past several years, falling from 28 percent in 1995 to 8.7 percent in August 2001. Mid-2000 saw a temporary reversal in this trend with inflation increasing slightly as a result of strong domestic demand, high oil prices, and the high value of the dollar. Economists concerns, however, that a tighter labor market and flagging productivity could overheat the economy and increase inflation, did not come true. Stagnant worldwide growth has offset these inflationary pressures and those created by the government increasing natural gas prices and doubling of the minimum wage.

Hungary's budget deficit and current account deficits have remained manageable. The Government has managed to reduce the budget deficit from 4.8 percent of GDP in 1998 to 3.5 percent in 2001, and has committed to a 2001 deficit of 3.4 percent. Rapid GDP growth and boosted tax revenues from higher-than-expected inflation allowed the Hungarian Government to remain at its deficit target in 2000. Whether Hungary was able to remain within its targets again in 2001 remains an open question.

Hungary's strong export growth continued to be matched by even stronger import growth, leaving Hungary with a trade deficit of \$4 billion in 2000, up nearly \$1 billion since 1999. Rising domestic demand and worsening terms of trade due to rising world energy prices were responsible for the larger trade deficit. However, the rapid growth of tourism revenues helped to keep Hungary's current account deficit at \$1.8 billion, slightly lower than the 1999 deficit. Hungary's export growth and privatization receipts enabled it to sharply reduce its foreign debt in the late 1990s. Although foreign debt increased in 2000 to 65 percent of GDP, Hungary's debt service as a percent of GDP continued to fall. In November 2000, Moody's upgraded Hungary's sovereign credit rating to A3, above all other Central European countries except Slovenia.

Hungary's currency, the forint (HUF), is fully convertible into other currencies and is pegged to the Euro. Remaining short-term capital controls were lifted in June 2001.

Hungarian unemployment fell to 6 percent by the end of 2000 and remains relatively low compared to other countries in the Central and Eastern Europe region. In several counties in the north and east of Hungary, however, the unemployment rate remains nearly 20 percent. Despite macroeconomic successes, there remain sharp disparities in the wages and job prospects for some people in the country. Especially hard hit are pensioners, the rural population, and employees of former state-owned enterprises. Further, several crucial social issues have yet to be addressed such as health care, tax, and education reform. The government's two-year budget for 2001-2002 makes no provision for restructuring in these areas. Government officials have acknowledged that needed reforms

may have to wait until after national elections scheduled for April 2002.

Hungary's central geographic location to Western and Eastern Europe also make it attractive to IT companies looking to do business throughout Europe. While Hungary is a small country (one can drive from end to end in six hours) with a little over 10 million people, its central location allows companies to export to Western Europe's 376 million consumers and Eastern Europe, with 260 million more.

Role of the Government in IT

Hungary's government recognizes the challenges of establishing an information and knowledge-based economy, but has dedicated itself to doing so in order to improve the country's social and economic development and as part of its commitment to join the European Union. The government is acting on several fronts to create an information society in Hungary, including regulation and policy formulation, as a user and provider of services, as a source of funding, and as a supporter of research and development. It has committed resources to direct the development of its infrastructure, organize new projects, and develop and promote new information and communications initiatives (see the Government Support and Szechenyi Plan sections later in this chapter).

Even by international standards, the technology infrastructure in Hungary is considered very good. Several Multinational firms, including IBM, Nokia, and Ericsson, are taking advantage of Hungary's modern patent and venture capital laws, expertise in software development and telecommunications, and are

investing in technology-based projects in Hungary. They are setting up manufacturing units in Hungary and exporting throughout Europe.

TELECOMMUNICATIONS

Hungary's telecommunications market has been perhaps the most dynamic and fastest growing market in Central Europe during its transition period of more than a decade. Many analysts argue that with a 37 percent teledensity (the second highest and slightly behind Slovenia), Hungary's telecommunications sector can hardly be labeled transitional. Hungary's telecommunications market was valued at an estimated \$2.4 billion for 2001¹¹. According to forecasts, this number is expected to double by 2003. Cellular phone penetration at 50 percent has already exceeded fixed-line penetration and will be saturated in one year. Currently 15-20 major telecommunications companies dominate the market. Industry analysts expect that even after full liberalization only three major groups of telecom companies will be significant players for the next 4-5 years. Telecommunications services and facilities are not subject to foreign ownership restrictions. As of January 2002, the telecommunications market will be fully liberalized. Hungary has completed its accession negotiations with the EU regarding telecommunications harmonization. The resulting homogenous regulatory system, common external tariff, and increased transparency create a more predictable market environment which will benefit U.S. exporters and investors.

¹¹ Think/BellResearch Study (<http://www.bellresearch.hu>)

Political changes in 1989 coincided with the start of the opening of the telecommunications market. Three key factors have played an important role in the evolution of Hungary's telecom industry. First, Hungary had an early start in the market liberalization process. Secondly, it adopted a tariff re-balancing strategy much earlier and much faster than other countries in the region. Although this has helped to reduce long distance charges, which continue to be high, it has hurt Internet take-up. Internet users must pay for local telephone charges when dialing-up their ISPs, which increased as the result of tariff re-balancing. Thirdly, Hungary achieved an effective separation between operational and regulatory functions at an early date.

During the early 1990s, Hungary experienced 40-60 percent average annual growth in its telecom sector; in the second half of the decade, growth slowed to 20 percent. In the midst of a worldwide slowdown in telecommunications development, industry analysts predict a 20 percent growth for 2001 in Hungary's telecom sector. According to the Hungarian Communications Authority (HIF), the country's telecom sector has continued to register slow but steady growth in investment (despite the market shocks observed in the U.S. and Western Europe).

Policy and Regulatory Environment

Government Commissioner Office for Information and Communications Technologies (ICT) has the authority to formulate telecommunications policy. This office, which is part of the Prime Minister's Office, is responsible for drafting legislation and granting concessions. There are plans to

create a new Ministry of Information Technology, now scheduled for 2002.

The HIF is the agency responsible for licensing, supervising, and regulating telecommunications, postal services and spectrum management. The HIF has its own budget, with most of its revenues derived from frequency usage and equipment certification fees. Its President, who holds the rank of Deputy State Secretary, reports to the Government Commissioner Office for ICT in the Prime Minister's office. HIF's President is appointed every 6 years (as opposed to 4-year terms of the Prime Minister).

In Hungary, telecommunications services are divided into two categories: concession-based and competitive services. Concession-based services include public telephony, mobile telephony, paging and radio and TV broadcasting. All other services, including leased line, data transmission, Internet services, and cable TV are competitive. The number and scope of the concessions are defined by the Cabinet member responsible for telecommunications. Competitive services require a license granted by local or regional authorities.

Liberalization of the Telecommunications Market

As a signatory to the WTO Agreement on Basic Telecommunications Services, Hungary committed to liberalize fully its telecommunications market by December 31, 2002. However, the latest telecommunications law, which took effect on January 1, 2002, opens up all telecommunications services including domestic and international long distance for competition. The law sets the framework for the regulation of the future liberalized market;

specific decrees on various topics are still in the works. The new telecom law is expected to reshuffle the balance of power among current market players, limiting firms with significant market power and supporting new entrants to the market. The law, which in its current form favors service-based competition as opposed to infrastructure-based competition, has drawn criticism from several incumbent telecom operators. The incumbents maintain that service-based competition will allow a lot of small companies to enter the market without having to build new networks. While these companies would push telecom prices down, they might only focus on making a quick profit and exit the market.

The new telecommunications law also overhauls the HIF, which was established in 1993 to carry out regulatory matters. The HIF was originally responsible for supervising and regulating the telecommunications and postal markets, granting licenses and managing the use of the radio spectrum. The HIF will continue to issue and monitor licenses, but will also act as a strong market watchdog, guarding competition in Hungary's telecom market. The HIF has recently created an independent commission, made up of 12-24 highly technical experts, who actively arbitrate on interconnection and other telecommunications disputes. Some industry experts believe that the Commission does not have enough personnel to successfully fulfill its duties, and it is unclear whether those selected are impartial. Industry specialists contend that although the new and improved regulatory authority will not enjoy the same independence as the FCC in the United States, it will be as independent as its EU counterparts. They also believe that despite the new regulations, effective liberalization will not be imminent

and might have less impact on the access charges than the government expects. According to forecasts, no drastic drop in fixed-line call charges will occur as a result of liberalization. Rates for local calls will remain unchanged; monthly subscription fees may even rise, but international call charges are expected to drop by 20 percent due to competition from Voice over IP (VOIP) services. Another obstacle to effective liberalization is the lack of fair and competitive interconnection rates, which is an annual topic of debate on the agenda of the HIF and a typical problem in recently liberalized telecom markets.

Many industry experts emphasize that in addition to telecom regulations, the general market climate will also have an impact on competition. For example, telecom liberalization in Germany in 1998 coincided with the global telecom boom, which saw revenue grow for all competitors. However, with the global telecom downturn in the last year, many companies now must find ways to protect revenue growth and cut expenses to service the enormous debts resulting from payments for UMTS license fees. As a result, European incumbents may pull back on their investments in the CE region, and CE operators will attempt to throttle competition.

In the absence of a significant domestic telecommunications equipment manufacturing industry, Hungary relies heavily on imports. Hungary is, however, the only country in Central Europe that has not signed the WTO's Information Technology Agreement. Therefore, tariffs on telecom equipment range from 7-15 percent. The U.S. government is currently negotiating with Hungarian government officials to reduce tariffs on IT equipment to the level of the EU's common external tariffs, ranging from 0 to 5 percent.

Hungary is among the few CEE countries (in addition to Latvia and the Czech Republic) that signed the Protocol on European Conformity Assessment (PECA). Under this agreement, telecommunications products that carry the EU's CE (Conformité Européenne) stamp of compliance for electromagnetic compatibility will no longer need to be tested by Hungarian authorities before being imported. Conversely, Hungarian quality accreditation institutions and companies will be able to issue the CE approval, a prerequisite for selling manufactured goods in the EU. The agreement will reduce costs and delays involved in having a product approved for the Hungarian market.

Fixed Telephony

Fixed-line penetration has increased more than threefold since the beginning of 1990, reflecting low penetration level at that point. Over the last few years, however, the growth rate in fixed-line telephony stagnated, surpassed by mobile penetration. One explanation is that customers who use mobile phones for basic telephony see no reason to also apply for fixed phone lines. Also, whereas there had typically been only one line per household, multiple members of a family may use cellular phones. The increase in revenues for fixed line operators stems predominantly from the installment of new Integrated Services Digital Network (ISDN) lines and significantly higher monthly subscription fees.

The incumbent telecommunications operator, Matav, was created in 1991 as the result of the commercialization of the former Hungarian PTT. The privatization of Matav that followed in 1993 was one of the earliest in the region. The state now owns only a symbolic golden share in Matav. The majority of the company

is owned by Deutsche Telecom, which has progressively increased its stake, including buying out its joint venture partner, Ameritech. Deutsche Telecom now holds almost 60 percent of Matav. The remaining 40 percent is publicly traded. Matav now provides a disproportionately high share of Deutsche Telecom's overall corporate profits, which may be due to the fact that Matav does not face the same competitive pressures in its domestic market as Deutsche Telecom faces in Germany and in other more liberalized markets. Matav's monopoly position will very likely end after the new telecom law is implemented in 2002; however, it will be a long while before the former monopoly market is replaced by an efficient, competitive market.

Hungary is divided into 54 telecommunications regions. Matav is the dominant local fixed-line operator, covering 70 percent of the country and controlling nearly 80 percent of the traditional voice telephony market. Matav's recent acquisition of the fourth largest local telephone operator, Emitel, added three additional regions to the company's portfolio, bringing the total to 39 regions. Emitel's purchase brought an additional 85,200 customers to Matav's subscriber base. The remaining 15 regions are serviced by three operators (see below). Matav also owns Hungary's largest mobile company, Westel, and the leading ISP, Axelero (see Internet Service Providers section later in this chapter), in addition to a number of other IT and communications subsidiaries.

Vivendi, the second largest local telephony operator in the country, has been gradually expanding its presence in Hungary. Its nine concession companies cover 12.1 percent of the country's subscribers and provide basic and enhanced services to some 1.5 million people. In light of recent regulatory changes, Vivendi has

embarked on an aggressive campaign to expand its already significant presence in the Hungarian telecommunications market. The company is considering an investment in the state-owned broadcaster, Antenna Hungaria.

The third largest local telecom company, Hungarian Telephone and Cable Corporation (HTCC), owns majority stakes in four companies and offers services in four regions with a combined subscriber base of around 201,000. The HTCC built SDH-based fiber-optic networks and in some areas has deployed digital enhanced cordless telecommunications (DECT) fixed wireless technology. Lastly, local telephone company Monortel has a concession in the one remaining telecommunications region.

Network Equipment

Hungary has one of the most developed telecommunications networks in Central and Eastern Europe. The national network was chronically neglected until the mid-1980s, when the Hungarian government identified modernization of the country's antiquated communications infrastructure as a prerequisite for economic development. This commitment to modernization gave the Hungarian telecommunications sector a head-start over its counterparts in other Central and Eastern European countries, where infrastructure modernization was delayed until after the fall of the communist regimes in 1989. For example, by the end of 2000, 81.2 percent of the Hungarian network was digitalized.

The Hungarian government was eager to establish Hungary as the international telecommunications hub of Central and Eastern Europe, and made this a condition of the

concession, which granted Matav a monopoly over international telecommunications until the year 2002. To meet this objective, Matav adopted a business plan to ensure Hungary as the most important transit route between the western and southeastern parts of Europe. High-speed optical fiber links are already in place linking neighboring countries in Central and Eastern Europe.

In international switched telephone services, Hungary is connected to Germany via three routes, carrying both terminating and transit traffic. Non-switched transit traffic is carried by the ORIENTRANS cable route, which passes through Austria, Hungary, Romania, and the Black Sea. Matav also links Slovakia and the Czech Republic with the Balkans and the Middle East for switched transit traffic.

Mobile Communications

Mobile phones are ubiquitous in Hungary. According to the most recent statistics, the number of mobile phones exceeded that of fixed-line phones in mid-2001. In a country of 10 million, close to 4 million people use mobile phones. According to the HIF, mobile penetration in Hungary had risen to 50 percent by the end of February 2002. Forecasts suggest that mobile companies expect to sign up additional 1.5 million subscribers in 2002.¹² While the number of subscribers is rapidly increasing, the market share of the providers remains unchanged, which indicates the highly competitive nature of the Hungarian mobile communications market. In many households, the first phone is often a mobile phone, and industry experts doubt that these mobile

¹² Think/BellResearchStudy (www.bellresearch.hu)

subscribers will see a need for a regular fixed line as a second phone. Growth in traditional fixed-line telephony is likely to be marginal and result mainly from the installation of ISDN lines.

There are four cellular operators providing mobile services over one analog and three digital networks. Westel Mobile, which is 100 percent owned by Matav, won two licenses, one analog (NMT-450) and one digital license for GSM 900 in 1994. The early entrance into the mobile market bestowed an advantage on Westel that no other mobile service provider could match. Westel boasts the highest number of subscribers (2.5 million) and the highest level of revenue among the GSM operators, \$329 million in the first half of 2001. Westel also leads in the business sphere; it services 72 percent of company mobile subscribers, the rest of the market is occupied predominantly by Pannon GSM.

Pannon GSM, which was recently acquired by Norway's Telenor, received the second GSM license. Pannon GSM has about 2 million subscribers. V.R.A.M., Ltd., which was established in 1999, won the third GSM license and it provides mobile services in the 1800 MHz band. VRAM is majority owned by Vodafone (U.K.) and provides mobile services to 500,000 customers.

Industry experts believe there are two reasons why mobile telephony took off with such speed in Hungary. First, mobile communications was a great alternative to scarce available fixed lines; and secondly, cell phones became a fashion statement/status symbol among young Hungarians. The latter explanation certainly fits into the current trend in the EU, to which Hungary will soon accede. As the mobile

market reaches saturation levels, competing service providers are forced to improve quality and introduce new applications to retain customers. Competition is already fierce but executives of these suppliers fear that this is only the beginning. They maintain that when the price war starts at a market saturation of 60-65 percent, survival of the mobile companies will depend on the size of their customer base. At that point, operators will have to focus on loyalty programs as opposed to customer acquisition, which should make them more profitable due to lower spending on acquiring customers.

Most mobile companies have embarked on marketing campaigns targeting teenagers, a growing segment of the mobile consumer market. Pannon GSM, for example, recently introduced a new brand called BEE, which aims to attract the 10-18 age bracket. The BEE tariff package is structured to suit the schedule of the youth. It includes reduced prices for Short Messaging Service (SMS), which is popular among young people. Westel sold more SMS services to younger people in 2000 than to affluent, long-time customers. SMS became popular first with younger people and subsequently spread to other groups.

Cellular operators have focused most of their marketing efforts on Hungary's capital, Budapest, and a few large cities. As those markets become saturated, the focus is shifting to the rural areas. A shift can also be noticed in the demographics of new subscribers. In 2000, Westel's target group shifted from the older and professional groups in the cities to the younger and less educated people living in the rural areas with less disposable income. Young people are buying cell phones now and very soon that market will be saturated as well. Although demand remains predominantly for voice

services, revenues from voice are declining as the market saturates. Operators have to offer value-added services to maintain revenues.

According to Westel's research, mobile penetration in the 14 to 19 age bracket is currently 35 percent and it could grow further to 65 percent. Mobile penetration among the 20 to 29 age bracket is significantly higher at 58 percent but could be further developed by an additional 19 percent. These percentages suggest that there are potentially 541,000 new subscribers waiting to receive mobile services.

Mobile Data Communications

The hottest application in mobile telephony, by far, is Short Messaging Service (SMS). SMS has experienced impressive rates of growth in the last few years, very likely due to its lower cost compared to mobile voice services. Although voice revenues still outperform revenues from mobile data services, they are generally decreasing as a percentage of the total. Pannon GSM has forecasted that its current 5 percent of revenues from data services will reach 25 percent in 5-10 years. Nonetheless, industry experts are divided on whether there is demand for and money to be made from enhanced mobile services such as General Packet Radio Services (GPRS) in the near future.

Mobile operators are eager to introduce mobile data services such as wireless application protocol (WAP), even though the technology is not yet widely used. Medium and large businesses, however, maintain that WAP is an immature technology, with slow speeds and limited content, and therefore consider it insufficient at this time for their business communications needs. In addition, data-

enabled handsets are in short supply and subject to high import tariffs and taxes. Twenty-five to 30 percent of the mobile phones currently available in the Hungarian market are equipped with WAP technology, and according to forecasts, this rate will increase to 70 percent by 2003. It is important to note, however, that only a fraction of those customers whose phones are equipped with WAP actually use the technology. According to a Hungarian research company, BellResearch, only 15 percent of company-owned phones are WAP-enabled and only about 12 percent of companies use any kind of mobile data transmission¹³. Mobile customers who use WAP services can access information on the weather, traffic, sports and financial news, lottery, as well as various games and entertainment such as horoscopes, name-days, and birthdays. Mobile operators have concluded agreements with banks to provide their customers access to their accounts, information on exchange rates, and stock and bond information. Westel's SMSBroker enables Westel clients to trade on the Budapest Stock Exchange from their mobile phones. Westel and Pannon recently launched GPRS in the belief that GPRS is the solution to recently experienced WAP network problems.

In addition to network problems, the lack of widespread credit card use and security considerations regarding credit cards in Hungary further hinder the development of mobile or m-commerce. Optimists foresee dynamic development of m-commerce in the coming years due to the expected increase in the number and quality of WAP-enhanced handsets and the number of Web sites that can be reached. Mobile phones outnumber PCs in Hungary, an important

¹³ Think/BellResearchStudy (www.bellresearch.hu)

factor that can also influence the development of m-commerce.

The Hungarian government has postponed the sale of UMTS licenses until 2003, due to the lobbying efforts of the existing mobile operators and the experience in Western Europe. The decision is in line with the government's commitment to allow no new entrants to the mobile market until at least January 1, 2003. Initially, the Hungarian government hoped to raise about \$78 million from the sale of 3G licenses in 2001.

Voice over IP Services

Fixed and mobile communications providers began to launch Internet-based telephone services during 1999. But Voice over IP (VOIP) solutions, however, have only now started to worry traditional voice service providers. In Hungary, public telephone services can only be provided by operators that have concession agreements (i.e., Matav) with the local telephone companies and mobile operators. To increase competition, the government decided to treat VOIP services as data communications, thus allowing alternative telecom companies to compete in the VOIP market. Matav launched its IP-based services in 2000, and all local telephone operators were granted licenses for IP-based voice communications. Alternative operator PanTel saves its VOIP customers 20-30 percent on international phone charges.¹⁴ Matav and PanTel signed an agreement in July 2001 to provide VOIP services jointly. The contract was the first that Matav, Hungary's largest

telecom operator, has ever signed with an alternative provider. The network currently operates only in the Budapest area, but coverage will be extended to all of Hungary by December 2002 after Matav connects its nine secondary exchanges. Pannon GSM operates 90 percent of its international long distance calls over IP networks, and Vodafone launched its IP-based service providing international connections in December 1999. Other companies providing VOIP services include GTS, Novacom, PanTel and Partner.

Paging

The telecommunications law enacted in November 1992 determined that national paging systems would fall in the category of limited competition areas. After a tender process, the Ministry of Transport, Telecommunications and Water Management granted licenses for a pan-European paging system (ERMES) in May 1994 to Eurohivo and Easy Call Hungaria. Today, Eurohivo is the only company providing paging services in the market. The service cannot compete in the long run with mobile telephony, which at similar price levels is of much higher value.

Satellites

According to the telecommunications law, satellite services fall into the category of free competition areas. However, Hungarian regulations require that all companies that wish to provide satellite telecom services must obtain a license. In 1992, the government issued five licenses for installing and operating satellite services, four of which were for VSAT services - GTS Hungary, BankNet, Hungary Digital and SAT-NET. AT&T and Hughes Networks Systems have provided equipment to several of

¹⁴ Hungarian Communications Authority (HIF), 2000 Annual report

these VSAT licensees. The fifth licensee does not provide VSAT services.

When VSAT technology was introduced into Hungary, phone penetration was only 17 lines per 100 persons. This explains why VSAT coverage in Hungary is higher than in Western Europe. Since 1994, the number of fixed lines has increased to 3.7 million (a phone penetration of 37 lines per 100 persons at the end of June 2001). Currently, there are about 2,500 VSAT terminals in operation. However, the number of potential VSAT customers is limited. Most satellite service providers market to banks, insurance companies, and large commercial companies located on several sites, as well as the government. The service providers agree that new markets should be explored, and some of them are also active in terrestrial communications.

GTS Hungary, a subsidiary of Global TeleSystems Group, Inc., was established in 1993. It has become the leading VSAT service provider not only in Hungary, but also in Central Europe. GTS operates more than 1,000 VSAT terminals in Hungary and the neighboring countries using a Eutelsat satellite. GTS serves 80 major customers including major banks and oil companies. GTS Hungary also provides Inmarsat services and equipment.

BankNet was established in 1991 as a subsidiary of Satnet, U.K., and serves all countries covered by the footprint of Eutelsat satellite. Besides providing shared hub VSAT services, BankNet also supplies, installs and operates SCPC (Single Channel Per Carrier) point-to-point networks for data, voice and video transmission in Europe and between Europe and North America. BankNet is the

second largest VSAT provider, with about a 40 percent market share. It operates 50 networks with 780 terminals.

Hungary Digital Co. Ltd. (HDT) was established in 1990 and is currently owned by Antenna Hungaria, the Hungarian Broadcasting Co. (52.9 percent), and Portugal Telecom Internacional (44.6 percent). The remaining shares are owned by Muszertechnika, a Hungarian IT company, and TKI, Hungary's telecommunications research institute. HDT currently operates about 950 VSAT terminals.

Matav's SAT-NET was established in 1991 as part of the MATAV Group for satellite communications. It serves about 500 terminals and its major customers include the National Customs Directorate, multinational companies, banks, MTI the Hungarian News Agency, and the Ministry of Foreign Affairs.

COMPETING BROADBAND TECHNOLOGIES

Integrated Services Digital Network (ISDN)

The most popular method of data communications in Hungary among SMEs are low speed leased line services and ISDN. The number of ISDN subscribers has increased significantly over the last couple of years, with over 250,000 channels. At the end of 2000, Matav operated more than 240,000, Vivendi 10,400, HTCC 2,310, and Monortel 1,920 ISDN lines. The number of ISDN lines increased from 5.2 percent in June 2000 to 11 percent in June 2001. Industry experts foresee a decline in monthly fees as competition is introduced in the telecommunications market starting in January 1, 2002.

Cable TV

The cable television market is controlled by four large telecom service providers. UPC, Matavkabeltv, Fibernet, and EPA-HCS own 60 percent of the market. Carnation Consulting estimated that the turnover of the cable TV market was around \$33 million in 1999. The Dutch company, United Pan-European Communications NV, is the cable modem leader after making an early entrance. Matav, after investing heavily in CATV networks in the late 1990s, is a distant second. United Pan-European Communications and Matav have 600,000 and 100,000 cable subscribers, respectively.

Asymmetric Digital Subscriber Line (ADSL)

The emergence of Asymmetric Digital Subscriber Line (ADSL), which allows high-speed Internet access, has been an important development in Hungary's Internet sector. The two largest fixed-line operators, Matav and Vivendi, have recently launched ADSL services, placing Hungary ahead of more technologically advanced markets such as Norway, Switzerland, and Ireland in fast Internet connections via ordinary copper wires. Matav received a license to offer ADSL in October 2000, and another license in November 2000 to offer ADSL to other carriers. However, the HIF linked the two licenses, set the terms for wholesale services, and granted Matav a 25 percent margin (on average) above end-user prices. Matav expects a subscriber base of 10,000 by the end of 2001.

Matav's new retail ADSL service, NetExpressz, offers three different packages depending on the transmission speed (ranging from 64-384 kbps upstream to 384-1,500 kbps

downstream). NetExpressz will initially be offered in Budapest and the surrounding area. However, since Matav is worried about the affect ADSL will have on its ISDN business (estimated 60,000 subscribers at the end of 2000), the service is priced 3-15 times higher than ISDN.¹⁵

Wireless Local Loop

The Hungarian government awarded five blocks of 3.5 GHz frequency bands to Matav, alternative telecom operators PanTel, GTS, Vivendi, and the broadcasting company, Antenna Hungaria. The fixed wireless license holders received the right to use those frequencies for 15 years. The main advantage of the fixed wireless system is that it serves as a substitute for the last mile wire connection between the user and the switching center, and thus allows operators to roll out services quickly. This wireless local loop solution does not require the initial build-out of the entire network, as in the case of wireline networks, and additional users can be added incrementally. The government is planning to conduct similar auctions for the 26 GHz band in 2002. This is one area where new entrants have an excellent opportunity to establish a foothold in the Hungarian telecom market.

INFORMATION TECHNOLOGIES

Technology Center

Hungary's technical base was in place during the communist era, when the country produced electronics for the military in Warsaw Pact countries. In 1986, the framework of the Information Infrastructure Development Program was started to develop computer networks and

¹⁵ ITU's Internet Case Study

applications. However, the country's research and development (R&D) sector went through a slow period during Hungary's economic austerity period of the early 1990s in which spending fell from more than 2 percent in 1988 to 0.67 percent in 1996. This situation has changed now that Hungary's government has recognized the connection between technology and economic development. The Hungarian government encourages high-tech investment through tax incentives and has promised to increase R&D spending to 1.5 percent of GDP between the years 1999-2003. Hungary is now considered by many to be a technology center in Central Europe.

Skilled Workforce

Hungary has an ever-increasing base of highly educated and skilled citizens due to its heavy investment in information and communication technology (ICT) education. Over two-thirds of Hungary's workforce has completed some form of secondary, technical, or vocational education, and government spending on education is about 4.4 percent of the nation's GDP.

Like many other countries, Hungary is worried about the outflow of Hungarian IT experts abroad. It is estimated that the IT private sector in Hungary has a 25-30 percent shortage of programmers and other IT professionals. Hungarian universities are working to fill this void. Technical courses at the college level have nearly doubled in the last five years. According to government statistics, more than 64,000 students were enrolled in technology courses in 1999, compared with less than 35,000 in 1995. In the 1999/2000 academic year, 2,818 computer science students graduated in just one of the state universities.

Since then, 3,500 computer science students have been admitted there. Because IT is having such an impact on Hungary's society and economy, the Hungarian Government sees it as increasingly important. The Ministry of Culture and Education has outlined a plan for linking higher education diplomas with the possession of sufficient IT skills that will start in 2006. The necessary training at universities will begin in the autumn of 2002.¹⁶

Hungary's central geographic location to Western and Eastern Europe also make it attractive to IT companies looking to do business throughout Europe. While Hungary is a small country (one can drive from end to end in six hours) with a little over 10 million people, its central location allows companies to export to Western Europe's 376 million consumers and Eastern Europe, with 260 million more.

Government Support

The Hungarian government, with over 500 agencies and local governments, recognizes the power it has over the IT market and the other benefits of centralized procurement. Government orders of IT products and services represent 30-33 percent of the total IT market. Most ministries have a sizable budget for IT spending, particularly the Ministry of Education and Ministry of Transportation. The centralized procurement of IT products offers the government high quality systems and software, while also ensuring the transparency of spending public funds and long term affordable pricing arrangements. The Public Procurement Act of 1995 required open tenders for government purchases of goods exceeding HUF 10 million

¹⁶ Think/BellResearchStudy (www.bellresearch.hu)

(roughly \$35,000) and for services over HUF 5 million (roughly \$17,000). Each ministry decides how it will allocate its budget, including IT expenditures. However, each is required to register IT spending projects with the Prime Minister's Office before public tendering.

Szechenyi Plan¹⁷

In early 2000, the Hungarian government introduced the Szechenyi Plan to position Hungary as a leader in a Central Europe's information society. The Plan consists of seven programs for culture, economics, social policy, e-government, municipalities, education, and regulation and infrastructure. In August 2001, as part of the Szechenyi Plan, the Office of the Government Commissioner for IT awarded \$5.8 million in grants for IT projects. The grants were awarded to 3,400 applicants out of 10,000 total. These grants are designed to increase the number of PCs, IT literacy, and software development in Hungary. The two largest grants will be used to launch 165 new telehouse community Internet access centers (\$1 million) and purchase 4,000 PCs for non-government organizations (\$4.6 million). Two thousand of the PCs will be procured through the centralized public procurement process. The other 2,000 PCs may go to selected Hungarian SME applicants.¹⁸

IT Market Overview

¹⁷ <http://www.gm.hu/kulfold/english/economy/szechenyi.htm> (Information on IT projects is under Chapter V, Information Society and Information Economy Development Program)

¹⁸ For additional information on the Szechenyi Plan for IT projects and future grants, see the report, Initiatives of the Government to Make Hungary an Information Society, produced by the Department of Commerce's Foreign Commercial Service office in Budapest, Hungary.

According to local industry observers, complex IT solutions in Hungary are primarily used by large companies and organizations and remain in limited use overall. Most Hungarian companies are currently using IT for basic tasks, such as word processing, invoicing, and calculations.¹⁹ Many Hungarians have an overall guarded attitude towards IT after witnessing the U.S. dot.com meltdown in 2000 and the struggles information and communication technology firms are currently engaged in worldwide.

There was a period of IT investment by Hungarian firms in the mid-1990s, primarily focused on back-office information technologies. However, many firms now consider IT expenditures a cost and not an investment. Most Hungarian companies are very cautious about investing in IT, under the best of circumstances, because there is very little capital available. After prioritization has taken place, most business expenditures are now confined to finance, payroll, and management. However, even with the cautious IT spending environment in Hungary, expenditures on IT are still expected to grow at a substantial rate. According to IDC, the size of Hungary's IT market was an estimated \$1.3 billion in 2000, growing 11.6 percent from the previous year. Forecasts indicate IT demand will reach \$1.41 billion for 2001, \$1.54 billion for 2002, and \$1.7 billion for 2003. The IT market is expected to increase 9-11 percent annually over the next several years.

Hardware

Hungary's hardware industry has developed rapidly over recent years with large multinational companies dominating the market. More than

¹⁹ Think/BellResearchStudy (www.bellresearch.hu)

2,000 firms are involved in hardware and software sales. The major players, including Compaq, Hewlett-Packard, IBM, Bull, Olivetti, Siemens, NEC, and Philips have all established their own distribution networks in Hungary. IBM and Philips are the leading foreign investors in the Hungarian IT industry.

Hardware sales account for approximately 44 percent of the IT market, while software and services account for 17 and 39 percent of the market, respectively. Throughout this forecast period, IT services will increase in proportion slightly with the shares of hardware and software decreasing. Most of the activity in Hungary's IT market will be in PCs, PC servers, desktop software applications, peripherals, and data communications.

While Unix-based midrange systems continue to generate the largest share of server revenue, Windows NT servers represent the platform of choice for multi-user applications. The banking, information, and communications sectors, large public sector projects, and the continued growth in LAN server demand are driving market growth. According to IDC, the sales of data communications equipment in Hungary amounted to \$80.7 million in 2000 and are expected to grow 14.1 percent to \$66.4 million in 2001.

Hungary has a 7-10 percent PC penetration rate, due in part to the relatively low purchasing power of individuals and customs duties on imported computers. According to IDC, Hungary had 213,200 PCs sold in 2000, with an approximate \$239.7 million market value. According to IDC Hungary, the Hungarian PC market has mirrored worldwide trends and fallen sharply from 15 percent growth at the end of 2000 (more than 220,000 PCs sold) to

one percent growth in second quarter of 2001. The business sector is the primary market for PCs, with roughly 29 percent of employees using PCs at work. The SME market is currently the main driver of PC sales in Hungary, with sales to these customers growing 14 percent in 2000. However, sales to larger businesses increased only 1.8 percent, while public sector sales actually decreased by 2 percent. The home market has not yet developed. Accenture, a major U.S. consulting firm, estimates that 300,000 to 350,000 households have PCs with only 25 percent of them having Internet access. The cost of PCs is still out of reach for most Hungarians with only 1 out of 10 households owning a PC.

Hungary's PC industry began to develop in the early 1990s and was supplied largely by the black market (computers assembled from illegally imported parts). The market share of brand name PCs currently amounts to between 30-40 percent of the overall PC market. Most of them are sold to corporations. The share of black market sales is still as high as 30-40 percent of the market, with the rest coming from no name computers.

According to industry experts, the main players in the black market have started moving away from PCs and toward supplying components, accounting for approximately 90 percent of the total component market. A popular scheme appears to be smuggling components into the country, claiming to export the products to receive a value-added tax rebate, and then reselling the products in the Hungarian market. Legitimate IT suppliers in Hungary are hoping that the black market will deteriorate with Hungary's accession into the EU and the signing of a comprehensive trade agreement with the United States, which will reduce tariffs on imported computers and parts. The leading

brand name PC suppliers in Hungary are Compaq, Hewlett-Packard, Albacomp (Hungarian), Acer (Taiwan), Packard Bell, Dell, and Siemens (Germany). The leading brand name notebook suppliers are Toshiba (Japan), Portocom (Hungarian), Compaq, Hewlett-Packard, and IBM. There is a 12:1 supply ratio between PCs and notebook computers.

Software

Hungary's software market is strong, but products are confined to low-end solutions. Only 25 percent of medium to large companies use integrated enterprise resource planning (EDP) systems, while only one-third of companies use other types of IT solutions, such as data housing, workflow management, or client resource management (CRM).

Application service providers (ASPs) are considered to be very practical by many industry experts. However, they are not yet considered to be viable in Hungary until applications become more widely used. Nonetheless, industry observers believe that most IT companies underestimate the level of knowledge and sophistication that Hungarian businesses have about various applications. Several have stated that most IT companies have put very little effort into marketing new applications with the assumption that customers will shy away from them. Potential customers often simply do not know where to find the products or services that they want.

After subtracting revenue losses from pirated software, software sales in Hungary amounted to \$290.1 million in 2000 and are expected to rise between 12-13 percent annually over the next three years, according to IDC. A report by the Business Software Alliance (BSA), states

that 51 percent of business software was pirated in 2000, making Hungary the third highest rate in Central and Eastern Europe behind the Czech Republic (43 percent) and Slovakia (45 percent). Piracy has caused a revenue loss of \$41.3 million for software companies, but has been on the decline since 1995, when it was as high as 73 percent. The primary deficiency in Hungary's intellectual property rights protection appears to be in the lack of strict criminal enforcement. The Budapest Police's Economic Crime Unit initiated 7,000 criminal investigations in 2000, down from over 10,000 in 1999. These investigations led to over 1,000 software copyright related court cases. However, the resulting jail terms and fines have been small, amounting to just the payment of the value of the pirated software.

Internet

Hungary's Internet is highly advanced, even compared to most EU countries. Recognizing that economic development requires a modern telecommunications network, Hungary's government has made it a priority to improve the country's voice and data capabilities. Hungary's Internet market has benefitted from the privatization and limited competition in the telecommunications sector.

The Internet in Hungary is distinguished by high Internet access charges, a dominant academic segment, low PC penetration, and little focus by ISPs on the residential and small to medium-size enterprise (SME) markets. Although Hungary had a head start in developing their Internet compared to some of the other Central Europe countries, Hungary is now falling behind several countries in Internet penetration, notably the Czech Republic, Slovenia, Slovakia, and Estonia. The increased liberalization of the Hungarian telecommunications market has had a positive

impact on the Internet sector.²⁰

Infrastructure Development

Prior to the establishment of commercial ISPs in the mid-1990s, researchers, teachers, and students, widely used e-mail to exchange information. The origins of the Internet stem from the Hungarian Academic and Research Network - HUNGARNET, created by the Hungarian academic sector in 1988 to allow researchers to exchange files, e-mails, and other information. In 1992, HUNGARNET initiated the development of a countrywide Internet backbone (HBONE). This was built by connecting the regional centers with the core of the network in Budapest and providing international connectivity for the national network. It is noteworthy that, since the United States was reluctant at the time to connect with individual European states, preferring to connect with Europe as a whole, Hungary looked to Europe for its initial international connectivity.²¹ Hungary is currently upgrading to a 0.5 Gbit/s capacity that will put the country among the 11 most technically advanced European markets. Matav and V-com, a unit of France's Vivendi, have won the tender to build the 2.5 Gbit backbone, which is to begin in December 2001.

Internet Use

The number of Internet users in Hungary has been growing steadily since 1996, with a cumulative growth rate of 50 percent per year. However, it has not yet reached the level of the United States or Western Europe. Most

research studies put Hungary's Internet penetration rate between seven to 10 percent. Industry experts believe that about 25 percent of adults have to be online for the Internet to takeoff in Hungary.

At the beginning of 2001, approximately 730,000 Hungarians were using the Internet, of which 80 percent were accessing the Internet from either work or school. However, the number of active users is much lower than that. Only 160,000 accessed the Internet on a daily basis with 120,000 accessing the Internet at least once a week. Most Hungarians only use the Internet for browsing or e-mail services. It is difficult for experts to differentiate between household and business Internet use and offer penetration rates, since both businesses and households use free dial-up Internet access. Total Internet use in Hungary is expected to reach 969,000 by the end of 2001.²²

Demographics

The constituency of Internet users is very important to advertisers. As expected, most Internet users in Hungary are young and educated. Internet use is much higher in households with people between the ages of 15-29, with the average age of a Hungarian Internet user being between the ages of 20 and 25 years old. Surprisingly, the largest user group was not high school and college students, but young highly educated employees, living and working around the Budapest metropolitan area, who use the Internet on a daily basis for job related activities. Not surprisingly, higher income households tend to make more use of the Internet.

²⁰ ITU's Internet Case Study

²¹ Ibid

²² Ibid

Government Use

While the Hungarian government has stated that it is committed to offering government services online, implementation of these services has been minimal thus far. However, most government agencies have their own homepage offering information about their organization. The government portal, www.meh.hu, has links to the different ministries' homepages.²³

Academic Use

The academic sector, accounting for 45 percent of the market, has been the primary driving force behind the development and growth in Internet use, where HUNGARYNET has over 400,000 users. Some industry experts consider the academic sector's dominance to be a hindrance to Hungary's growth of Internet use. Despite this barrier, Internet use in Hungary by dial-up subscribers has been growing at an average cumulative rate of more than 10 percent since the beginning of 1999.²⁴

Business Use

Internet use in the Hungarian business sector is still in its development stage, since most companies do not fully maximize its capabilities. They use the Internet primarily for e-mail use, information gathering, and to promote their company, products, and services. Approximately 53 percent of Hungarian companies used the Internet in the first part of 2000, according to a survey done by market research firm TNS Modus.

²³ Ibid

²⁴ Ibid

As in other parts of the world, Internet access varies by the size of the companies. Ninety-five percent of large companies and between 65-75 percent of small- to medium-sized businesses have Internet access. The number of Internet users by businesses doubles almost every year. There is a relatively low number of intranets in the business sector, with just a third of large businesses, 18 percent of medium-sized organizations, and 4-5 percent of small companies establishing their own network.

Not all industries use the Internet. The primary users are the finance, information and communication technology, insurance, automotive, consumer goods and, surprisingly, the construction industries. Research conducted by the Economic Research Institute (GKI), indicates that the construction industry will sell the biggest portion of goods on the Internet, with around 8 percent share of Hungary's on-line trade expected for 2001 and 2002. Around 95 percent of large companies in Hungary have their own Web site. At the end of 2000, while approximately 38 percent of all Hungarian companies had their own Web site, only 5-8 percent were actively involved in some form of e-commerce.²⁵

Barriers to Growth

A truly competitive telecommunications market has not yet emerged in Hungary, which underscores the need for Matav to have healthy competition in voice and data services. Despite an increased awareness of the Internet, Hungary's basic telecommunication usage charges are high relative to the average consumer's purchasing power. Along with a low PC penetration rate,

²⁵ Ibid

these high access charges present another significant barrier to Internet growth.

The OECD's report on local access pricing and e-commerce places Hungary as the most expensive OECD country for Internet access during off-peak hours and the second most expensive during peak hours. Telephone usage charges increase the dial-up bill by 80 percent during peak times and 55 percent during off-peak hours. According to the OECD, users in Hungary pay \$73 for 20 hours of dial-up Internet access at off-peak rate, which includes the monthly telephone subscription charge adjusted for purchasing power parity (PPP). When one adds the additional cost of a PC and the fact that Hungary's minimum wage is roughly \$178 per month, the majority of Hungarians simply cannot afford to use the Internet.²⁶

The growth of Hungary's Internet is tied to the telecommunications sector and the access alternative carriers ultimately receive. The theoretical basis of the Unified Communications Act, which was effective on December 3, 2001, covers telecommunications and the Internet, providing a comprehensive and technology neutral regulatory framework to handle the interrelationship and convergence between the two areas. The act was harmonized with the EU's communications framework in preparation for Hungary's accession. It will allow alternative operators and ISPs to freely enter the market and gives both the right to interconnection to the other's networks. The companies who have invested heavily in building up the telecommunications infrastructure, the former state company Matav,

KPN's PanTel, and France's Vivendi, argue that the act will give the newcomers access to the network without having to invest anything.

However, while alternative providers are free to enter the market under the new act, they are not entitled to unbundling at the cost-based pricing unless they invest in the infrastructure.²⁷

Increased liberalization is expected to start at the beginning of 2002. Price and service competition should encourage more price sensitive users to use the Internet more frequently.

Universal Access

To assist the growth of Hungary as an information society and prevent a digital divide between those who are digitally literate and illiterate, the Hungarian Government has committed itself to educating its society at all levels in IT. In 1996, the Ministry of Culture and Education launched an Internet program for its secondary schools, named SuliNet (now called SuliNet-Iris or SchoolNet-Iris). The Hungarian Parliament passed the legal conditions for the teaching of IT and allocated approximately \$11 million for the program. SuliNet-Iris's goal is to provide every primary and secondary school with direct access to the Internet, while encouraging teachers to get training and become familiar with IT. Every secondary school now has a computer lab with access to the Internet. In 1998, 850-860 schools had computer labs, with 12-13 percent connected to the Internet. Today, the number has risen to over 2,000, with 80 percent having their own homepages.²⁸

Rural Hungary does not benefit as much as urban

²⁶ Ibid

²⁷ Ibid

²⁸ Ibid

areas from information technology due to the shortage of Internet connectivity and IP bandwidth. This shortage and goal of universal access is being addressed by the growth of telehouses and Internet cafes. Considering that Hungary has about 3,200 small villages with 90 percent of them having less than 3,000 inhabitants, there is a great need for telehouses. Most telehouses can serve between 4,000 to 6,000 users. In March 2001, there were 161 working telehouses, serving around 1 million Hungarians and with at least one telehouse every 50 kilometers. In August 2001, as part of the Hungarian Government's National Economic Development Plan (Szechenyi Plan), the Office of the Government Commissioner for IT awarded \$1 million to launch 165 telehouse community Internet access centers. The Telehouse Association is planning to establish at least 100 more. It costs around \$15,000 to establish a telehouse. Telehouses require funding for the first two years of operation, costing roughly \$15,000 in operating expenses. Most telehouses earn revenue through fees from business services, grants and donations, and public outsourcing services - such as public information dissemination, regional development, and social services. Since telehouses must still pay local call tariffs for access to the Internet, the Telehouse Association is planning to establish its own wireless system to decrease costs.²⁹

Although the number of Internet cafes in Hungary is increasing, they are currently not very popular with Hungarians and primarily serve foreign visitors. Prices for Internet use at a café range from \$1.05 - \$3.16 per hour.³⁰

²⁹ Think/BellResearchStudy (www.bellresearch.hu)

³⁰ ITU's Internet Case Study

Internet Service Providers (ISPs)

Commercial Internet service providers (ISPs) did not appear until the mid-1990s, 3 or 4 years after HUNGARNET. This late arrival has been attributed, in part³¹, to restrictions placed on the export of hardware and software to eastern bloc states by the Coordinating Committee for Multilateral Export Controls (COCOM). These restrictions were eased in the early 1990s.

According to BellResearch, the actual number of Internet subscriptions was around 235,000 by the end of 2000, up 35 percent from 1999. In 2001, subscriptions are predicted to reach 290,000, or a smaller 24 percent increase. Revenue from ISPs main services grew over 50 percent in 2000 and reached between \$49.3 and \$52.8 million. Growth is expected to slow to 35 percent in 2001.

While there were between 100 ISPs at the end of 2001, the top service providers, Axelero, Nextra, PSINet, Euroweb, and GTS-DataNet, are owned by strategic foreign investors and control 90 percent of the market. ISPs continue to arrive on the scene, but industry experts predict a mass consolidation within the next two years. Startup ISPs have enormous opportunities in the Hungarian market, but they must have a sound business model, sufficient financing, competitive pricing, and a commitment to quality service to take advantage of them.³² Industry experts advise IT investors and companies to recognize that Hungary is a small market with small profit margins, and a certain level of saturation.

³¹ The lack of telecom liberalization and infrastructure and a low PC penetration rate were also reasons for the late arrival of commercial ISPs.

³² ITU's Internet Case Study

A major trend in Hungary is for ISPs to focus their sales and marketing efforts on the corporate market. Some industry experts fear that the emphasis ISPs have placed on corporations added to the dominance of the academic sector, will further limit the growth of residential dial-up subscribers and possibly cause Internet growth to flatten out in the next several years.³³

Axelero (previously MatavNet until May 2001) is the subsidiary of the incumbent Matav (majority owned by Deutsche Telekom) and the largest ISP in Hungary. It had over 95,000 dial-up subscribers at the end of 2000 and controlled 25 percent of the leased line market, with 468 subscribers. In April 2000, Matav introduced an unmetered Internet access option called Matav Mindenkinék for residential customers. The offer enables users to make unlimited calls to the Internet at off-peak times for a monthly fee of \$15.00 (or \$35.00 w/ PPP). Users are free to select to which ISP they will subscribe. (Discounted off-peak hours are 6:00pm - 7:00am, weekdays and 3:00pm - 7:00am, weekends.)

Nextra (previously Pronet) has undergone a re-branding since it was purchased by Telenor, a Norwegian PTT. Nextra currently has 90 employees handling 40 projects. Although Nextra has a presence throughout Hungary, the company's primary marketing focus is on multinational corporations and SMEs in the Budapest metro area.

PSINet was one of Hungary's first commercial ISPs, starting its Internet services in January 1996. In September 1999, United States ISP

PSINet purchased it. In mid-2000, Elender had roughly 500 leased line and 35,000 dial-up subscribers and provided connectivity to the national educational network, SuliNet.³⁴ It was the first Hungarian company to use Microsoft Commercial Internet System.

EuroWeb Hungary Rt. is the majority-owned Internet Service subsidiary of fixed-line provider, PanTel, which has 75.2 percent of its share owned in turn by Dutch-based company KPN.

GTS-DataNet, was established in 1993 and was the first ISP to provide service in 1995. The firm provides comprehensive Internet access via dial-up, leased, and ISDN lines. Access to the European Internet backbone is secured through a 1Mbps link supplied by British Telecom, which also provides overseas connection via Worldcom. GTS-DataNet also has a 2 Mbps link to HUNGARNET, and an 8 Mbps link to the peering hub connecting Internet service providers in Hungary. The ISP focuses on the SME market and had over 400 leased line and 20,000 dial-up subscribers in mid-2000.³⁵

Free Internet

Free Internet access is relatively new in Hungary. Mobile operators and Vivendi, Hungary's largest local telephone operator, were the first to offer free Internet services, but only to their paid subscribers. In 1997, Vivendi began offering a flat-rate service which charges subscribers a premium rate for local calls. Kiwi and Freestart are the two primary ISPs that began offering free Internet service in December 2000. Kiwi claimed over 25,000 subscribers after its first

³³ Ibid

³⁴ Ibid

³⁵ Ibid

month of operation, with 10-12 percent growth in the first six months. Freestart had around 120,000 users at the start of 4th quarter, 2001, and plans on introducing some paid services, with better quality, alongside its free service.

Currently there are no regulations requiring fixed-line telephone operators to share local call charges with ISPs. Therefore, free Internet service companies are left with obtaining revenue through advertising and e-commerce referrals, whereby the free ISPs offer unmetered access to a set number of prescribed Web sites, which in turn pay the ISPs when users visit their Web site. Free Internet companies are obviously hoping that the Hungarian government will offer a 50-50 deal in any revenue sharing, which they believe is in line with EU norms.

Industry experts claim that not only is this business model questionable, but that retaining customers is difficult because free ISPs, while offering cheap access, do not provide the same quality of services and reliability as other ISPs. However, many users have found a middle road, using both free and paid services at different times. It is noteworthy that Matav has not yet introduced a free Internet service, nor has it allowed ISPs to offer such a service over its networks.³⁶

Licenses for ISPs are distinguished between national, regional, or local service. To be licensed, ISPs are required to submit an application to the Communications Authority or a regional body for a license. Additionally, ISPs are required to pay \$0.48 per customer as a quality control fee. There are no restrictions

on foreign ownership of ISPs.³⁷

Other Internet Services

The Internet services sector has an increasing number of new entrants offering consulting, Web hosting and development, and graphic design. The growth of the Internet and the priority many Hungarian businesses have placed on having a Web presence have spurred the increase in the number of graphic design firms in Hungary. Rather than just having a Web site that is updated a couple of times a year, Hungarian firms have started to invest more in the graphics and quality of information on their Web sites.³⁸ Although there are approximately 200 Web design firms in Hungary with very good graphic skills, approximately 44 percent of medium to large companies and 35 percent of small companies use internal employees to design their Web sites.³⁹

In addition to Internet access services, content provision is another promising sub-sector currently developing in the Hungarian market. While Hungarian language content has been growing rapidly since the first Web site was established in 1994, the shortage of such content is seen as another obstacle to the attractiveness of the Internet to many Hungarians. There are currently around two million separate Web pages that are related to Hungary, of which 85 percent use the hu domain and 90-95 percent are in Hungarian. Hungarian (unlike languages that are used in large or multiple countries, such as English, French, Spanish, Russian, and Chinese), is a unique language used in a very small market.

³⁶ Ibid

³⁷ Ibid

³⁸ Ibid

³⁹ Think/BellResearchStudy (www.bellresearch.hu)

This requires content providers to produce their own information and does not allow them to use content developed elsewhere. Not surprisingly, 44 percent of Internet users in Hungary know some English. However, according to Carnation, a Hungarian Internet consulting firm, less than 6 percent of Hungarian Internet users access English only Web sites.⁴⁰

At the end of 1999, Matav's portal, Origo (www.origo.hu), was the most visited Web site in Hungary with around 120,000 hits per day. Origo's success is attributed to its popular search engine, Altavizsla, and its e-mail service, Free-mail, which had around 250,000 users in January 2000. Index (www.Index.hu) is Hungary's most popular independent portal, receiving some 300,000 hits during the week and 200,000 hits on the weekends. The firm has roughly 25 percent of the online advertising market. Origo and Index have attracted the most venture capital thus far. Heureka (www.heureka.hu) is a search engine receiving around 70,000 hits per day, up from 20,000 hits per day in 1998. Hungary.Network, one of Hungary's first Internet content providers, owns Heureka. It has 5-6 percent of the online advertising market.⁴¹ According to the Hungarian Advertising Association, Hungarian online advertising grew more than 4.5 times in 2000 to reach an aggregate expenditure of \$5.6 million.⁴²

Electronic Commerce

E-commerce in Hungary is still in its early

stages of development with total revenues of \$440-\$510 million in 2000. This is expected to rise to around \$1.4 billion in 2002 with over 95 percent of the revenue coming from business-to-business (B2B) e-commerce transactions.⁴³

Thus far, only a couple of consortiums have created B2B platforms, which are notably horizontal in structure and not industry specific. In September 2000, the B2B marketplace, Marketline, was launched. Marketline is a horizontal electronic marketplace founded by Compaq, Matav, Accenture, and OTP (the Hungarian National Savings Bank). It provides supply catalogues, transaction processing, supply and product management, leasing, and other value-added services.⁴⁴ Oracle, Hewlett-Packard, and PriceWaterhouseCoopers also started another marketplace at about the same time. The consortium, known as First Hungarian E-Market Co. Ltd, registered their marketplace in August 2000 to sell office equipment and computer hardware and services. Separate from the actual savings companies will make by pooling buying power and automating transactions, the joint partners stand to gain a commission from each transaction.

There are currently two auction sites in Hungary. The first, Global Group Purchase Program, focuses on SMEs. The other is a joint effort between the U.S. firm FreeMarkets and the Hungarian Investment and Trade Development Agency to get Hungarian firms to join

FreeMarkets international program consisting of 4,000 suppliers from 50 other countries.

⁴⁰ ITU's Internet Case Study

⁴¹ Ibid

⁴² Ebusinessforum.com, B2C e-commerce just getting started.

⁴³ Emarketeer - February 14, 2001, Future Looks Bright for Hungary.

⁴⁴ ITU's Internet Case Study

According to Carnation Consulting, Electronic Data Interchange (EDI) systems are the main medium for B2B e-commerce in Hungary with 400 users in 1999. It is expected that over the next three years, IP networks will gain a larger share of B2B transactions.

While business-to-consumer (B2C) e-commerce expenditures in Hungary were small in 2000, at only 0.1 percent of total retail turnover, B2C revenues are expected to more than double each year for the next several years. Although there are some smaller companies involved in B2C e-commerce, large companies are the primary players in the Hungarian B2C market. This is primarily because they are the only ones with financial resources available to invest in B2C activities, which many Hungarian companies view as a risky investment.⁴⁵ As in many other countries, the primary products most often purchased online in Hungary are books (26 percent), music (15 percent), stock trading (13 percent), stationery (10 percent), electronic equipment (8 percent), gifts (8 percent), and others (20 percent).

Hungary has more than a 35 percent payment card penetration rate, which is relatively high compared to most Central Europe countries (ranking second). However, Hungarians are hesitant to use payment cards to purchase items online. Eighty-five percent of B2C transactions are paid by cash on delivery (COD). This illustrates the general skepticism most Hungarians have towards financial institutions and online security. According to a survey completed by Europay International (MasterCard), seven out of 10 Europeans who

make on-line purchases think their personal data is kept secure by banks, while only three of 10 Hungarians think the same. Only 22 percent of Hungarians said they trusted their banks at all and about 20 percent indicated that they have doubts about the safety of their personal data while making on line purchases. Additionally, while the number of payment cards is growing in Hungary, increasing 31 percent between 1998 and 1999, roughly 85 percent of Hungarians use their payment card to make cash withdrawals and then make cash transactions.

Out of 38 banks in Hungary, 13 have a Web site and four provide Internet banking services. Hungary's 10 largest banks plan to launch Internet banking service within the next two years. Many industry experts believe that the fact Hungary has fewer bank branches per capita than any other European country, may actually promote online banking as banks try to gain new customers. Around one-third of Hungarians do not use a bank.⁴⁶

Beside the hesitation of Hungarians to make purchases online and a low Internet penetration rate, Hungary's delivery system also presents an obstacle to the growth B2C e-commerce. Many Internet businesses are finding the national post office slow and unreliable, yet they are currently left with few alternatives. Ninety-four Internet stores use the Hungarian Postal service for delivery of their products. However, this is not expected to be a long term barrier once international and local start-ups fill the void and begin offering the quick and reliable service that e-commerce needs to develop.

⁴⁵ Ibid

⁴⁶ Ibid

Internet and E-commerce Regulation

The Hungarian government views its primary role in Internet regulation as harmonizing the market and protecting consumers.

E-commerce in Hungary is regulated by Decree 17/1999 and pertains to commercial transactions between remote persons - similar to ordering through the mail. This decree is based on EU directives and is seen as another step towards Hungary's desired integration into the European Union. The decree requires that the merchant inform the customer of the terms of trade, including any warranties or guarantees. The decree also requires businesses to be officially registered if they engage in commercial activity.⁴⁷

The Hungarian government is expected to bring its laws in line with EU legislation as it deals with e-commerce. However, the Commissioner of Telecommunications and Information Technology has indicated that Hungary intends to follow a more market-based approach to the regulation of e-commerce, allowing for innovative approaches to authentication and e-signatures. This should avoid the possibility of discriminating against foreign service providers.

Data Privacy

In July 2000, the European Commission formally adopted the position determining that Hungary provides adequate data protection laws that broadly follow the same approach as the EU Directive. For this reason, the decision to find them "adequate" deals with all personal data transfers to Hungary (in the case of the

United States, the arrangement between the U.S. Department of Commerce and the European Commission concerns only data transfers to companies and organizations adhering to the "safe harbor" principles). The Hungarian Parliament is currently working on more extensive revisions to the act to ensure compliance with the EU Directive.

Hungary is a member of the Council of Europe and has signed and ratified the Convention for the Protection of Individuals with Regard to Automatic Processing of Personal Data (ETS No. 108). It is also a member of the Organization for Economic Cooperation and Development (OECD) and has adopted the OECD Guidelines on the Protection of Privacy and Transborder Flows of Personal Data.

Electronic Digital Signatures

Hungarians will no longer be required to back up their Internet-based transactions with a physically signed contract. Hungary passed legislation on May 29, 2001, to give e-signatures the same legal status as those on paper. Adoption of the bill is another step towards harmonizing Hungarian laws with those of the EU and increases its chances for EU accession. The new law will allow companies to channel customs payments, file tax returns, and conduct other business through the Internet. Lawyers, doctors, large corporations and those sending large quantities of confidential information over the Internet are predicted to be the first users of e-signatures.

The law is not applicable to all Internet activities, though. Voting will not necessarily be subject to the law, nor will proof of inheritance. Additionally, some of the legislation will need further definition. The legislation does not give a time frame for when government institutions will

⁴⁷ Ibid

be required to accept digital signatures and, most importantly, it does not earmark additional funds for the expense required by government institutions to prepare their systems.

According to Hungary's Communications Authority (HIF), qualified e-signature certification agencies will need to invest around \$3.5 million to be able to meet requirements on technology, data protection, and security. It is estimated that there will be no more than 10 qualified certification agencies. According to Matav, a simple e-signature will be sold for a nominal fee, while a more secure signature will cost approximately \$35.00. An annual fee for a highly secure certificate and e-signature will cost around \$100.00. The companies producing the hardware and software for digital signatures for clients need to be certified by the IT Commissioner's Office under the Prime Minister's Office. Licensing of electronic digital signatures will be issued and enforced by the Communications Authority (HIF).

Value-added Tax (VAT)

Sales via the Internet are currently unrestricted, but are subject to customs duties and value-added tax (VAT) if delivered from abroad or from within Hungary. The Customs Office assesses and collects VAT on software imported on physical media and/or installed on hardware. No customs duty payment is required in case of buying software purchased and delivered over the Internet. However the VAT should be paid on a self-assessment basis after the purchase.

Companies that set up e-commerce businesses in Hungary using a local Web site need to obtain a local domain name. In Hungary,

domain names are identified by the use of the top level names ending in .hu. The Hungarian Council of Internet Providers handles registration of top-level domain names, but applications for registration must be submitted to an ISP, which acts as a registrar and deals with the Council directly. Domain name registration requires a one-time fee of about \$35.00 and a monthly maintenance fee around \$7.00. Hungarian domain names were liberalized in 2000, calling into question the issues of trademark protection. Previously, only companies could register domain names.⁴⁸

⁴⁸ Ibid

CHAPTER 3: CZECH REPUBLIC

| CZECH REPUBLIC 2000 | | |
|------------------------------------|-------------------------------------|--------------------------|
| Population and GDP | Total Population (millions) | 10.3 |
| | GDP per Capita (\$) | \$5,004 |
| Main Telephone Lines | Total (millions) | 3.87 |
| | Per 100 Inhabitants | 37.79 |
| Cellular Mobile Subscribers | Total (millions) | 5.11 |
| | Per 100 Inhabitants | 49.6 (April 2001) |
| Telecommunications Revenue | Total (\$ billions) | \$3.1 |
| Personal Computers | Total (thousands) | 1,250 |
| | Per 100 Inhabitants | 12.2 |
| Cable TV Penetration | Total Subscribers (millions) | 840,000** |
| Internet | Total Users (millions) | 1.1-1.7* |
| | Per 100 Inhabitants | 9-17* |
| Internet Service Providers | Total Number | 16 |

Source: International Monetary Fund (IMF), Kagan World Media, International Telecommunications Union (ITU), European Survey of Information Society Projects and Actions (ESIS), Hungarian National Bank

* Estimates

** 1999 Data

INTRODUCTION

The economy of the Czech Republic has experienced a significant contraction between 1997-1999. GDP declined at an annual rate of one percent. Lack of true restructuring and privatization of its industries and a weak financial sector were at the core of the recession. A significant recovery occurred in

2000, led by increased exports, rising personal income, and strong inward flows of foreign direct investment (FDI). GDP grew by 2.9 percent in 2000 and was projected to grow 3.3 percent in 2001. Unemployment stands at 8.7 percent. Inflation is estimated to reach 5.1 percent in 2001.

There are still many unaddressed problems in

the Czech economy, including lingering structural problems in the manufacturing and banking sectors. A cooling off of the German economy, a crucial Czech trading partner, could deepen the 5.1 percent current account deficit and thwart future GDP growth. The imbalance in public finance is seen as the main risk for the future development of economic output in the medium term. On the other hand, the privatization of key parts of the Czech energy sector, which the Czech Government values at \$6 billion, if successful, may bring in foreign capital to offset part of the budget and current account deficits.

U.S. foreign direct investment (FDI) to the Czech Republic stood at over \$1.2 billion at the end of 2000. Major U.S. investors include: Philip Morris, Pepsi Cola, Procter & Gamble, Mars, Ford, Westvaco, Conoco, NRG Energy and El Paso Energy, Verizon, and US West. According to preliminary data provided by the Czech National Bank, from 1990 to 2000 the Czech Republic attracted \$19.2 billion in FDI. The Netherlands and Germany are the leading foreign investors with investments totaling \$5.7 billion and \$4.8 billion respectively, followed by Austria with \$2.2 billion, Belgium with \$1.4 billion, and the United States with \$1.2 billion (6.2 percent). Other major investors include the UK, France, Switzerland, Japan, Korea, and Slovakia.

In both 1999 and 2000, total FDI amounted to more than \$4 billion or 9.1 percent of GDP. The sharp increase of FDI since 1998 is generally attributed to the introduction of investment incentives and undervalued prices of domestic firms following the recent recession. The privatization of banks, telecom, and energy assets formed a major

part of these inflows. Greenfield investments are increasing significantly, particularly in the auto parts and high tech manufacturing sectors. EU enlargement prospects are also fueling new investment into the Czech market.

TELECOMMUNICATION

The development of the Czech Republic's telecommunications market very closely resembles the dynamics of the Hungarian telecommunications market. Unsatisfied fixed-line aspirants are quickly purchasing mobile phones, thereby halting the development of traditional voice telephony and accelerating the ubiquity of cellular phones. Cellular phone penetration of 49.6 percent⁴⁹ already exceeds fixed line penetration. Value-added mobile services such as Short Messaging Service (SMS), Wireless Application Protocol (WAP) and General Packet Radio Services (GPRS) are rapidly gaining popularity especially among younger customers. Although the revenues of fixed and mobile service providers still stem predominantly from voice services, the trend is shifting to data services. Most operators focus their marketing efforts on the business segment of society. Out of 4 million fixed lines operated by Czech Telecom, approximately one-third are business clients. The Czech Republic's telecommunications market is valued at an estimated \$5.9 billion in 2001⁵⁰, and according to forecasts this number is expected to double by 2003. Currently, the incumbent operator, Cesky Telecom, dominates the market. Industry analysts expect that even after full liberalization only a

⁴⁹ Kagan World Media

⁵⁰ European Survey of Information Society Projects and Actions (ESIS)

few major telecom companies will be significant players in the next 4 to 5 years. Telecommunications services and facilities are not subject to foreign ownership restrictions.

The Czech Republic has completed its accession negotiations with the EU regarding telecommunications harmonization. The resulting homogenous regulatory system, common external tariff, and increased transparency will create a more predictable market environment which will benefit U.S. exporters and investors.

Regulatory Environment

The Ministry of Transport and Communications (MTC) is responsible for all aspects of telecommunications policy making in the Czech Republic. MTC's main objectives for the coming years are the following: 1) full privatization of the local incumbent operator, Cesky Telecom (CT), and its wireless counterpart, České Radiokomunikace (CR); 2) full provision of open access to the public network; 3) amendment to the new telecom act to reflect recent changes in EU telecom laws; and 4) local loop unbundling. The newly created telecom regulator, the Czech Telecommunications Office (CTU), is responsible for day-to-day regulation of the telecom sector, licensing, monitoring and enforcement of the Telecom Act, and management of the radio spectrum. CTU has also recently assumed responsibility from the Ministry of Finance for regulating prices of all telecommunications services.

Liberalization and the Telecommunications Act of 2000

Unlike Hungary, the Czech government has been reluctant to implement a swift privatization of the state-owned PTT and open up its fixed-line voice sector to competition. The Czech Parliament passed new telecommunications legislation on July 1, 2000, which went into effect on January 1, 2001. According to the new telecommunications law, the monopoly of the local incumbent operator, Cesky Telecom (CT), in data transmission and domestic and international long distance has officially ended, and therefore full liberalization of the telecom sector was to occur. As a result of full liberalization, telecom experts expected that new operators would gain more than 20 percent of the voice market from the former monopoly during 2001. CT, however, remains dominant in the fixed line market 11 months after the Telecom Act of 2000 went into effect. There are serious concerns among competitive operators regarding their ability to compete effectively in an officially open market.

Failed Initial Liberalization Measures

The Czech government was ineffective in its early liberalization efforts. In 1995, the regulator awarded eight licenses to companies to provide local services in very limited areas, but by June 2000, CT had only four rivals left. The failed experiment was blamed on CT's high interconnection charges, poor regulations, and the fact that areas covered by the rival companies were too small to warrant significant investment. The government further strengthened CT's monopoly position when, in March 2000, it approved an act

which delayed carrier pre-selection until June 30, 2002, and number portability until January 2003. In addition to alternative operators, telecommunications officials at the EU are unhappy with recent developments that are delaying effective liberalization until the end of 2002. Nonetheless, the European Commission has no plans to reopen the telecommunications chapter in its negotiations with the Czechs. Despite these delays, industry experts believe that full liberalization of the Czech telecom market is inevitable, since the Czech government realizes that the failure to open the market to real competition could result in further postponement of its accession to the EU.

During the drafting of the new telecom legislation, several local operators and cable television companies created a lobby group called "Group 98" to facilitate discussion of the new telecom law. The group was later dismantled because the interest of its constituents were too diverse to make it an effective organization. The most active and inclusive interest group speaking out on the new law at this juncture is the Czech Telecommunications Association (CTA). While unhappy about the delays in the introduction of call-by-call carrier selection and number portability, the CTA is most concerned about how the new regulator will function. According to reports, the EU also expressed serious reservations about the independence of the regulatory body. It plans to monitor the CTU, as well as the new deadlines for carrier selection and number portability, very closely. Industry experts have also expressed concerns regarding the efficacy of the new telecom law as it is currently written. Critics maintain that the authors of the legislation failed to formulate precisely

some provisions, that the law is partial to the incumbent operators' interests, and that it gives the regulator insufficient power to effectively intervene in disputes.

Interconnection Issues

Another major obstacle to an effective competitive telecommunications market in the Czech Republic is the inability of alternative fixed-line operators to negotiate cost-based interconnection charges with the incumbent CT. Alternative operators maintain that interconnection fees are too high to allow sufficient return on their investment. As the result of CTU's intervention, interconnection prices were set at Kc 0.66 per minute for peak and Kc 0.33 for off-peak calling (2 cents per minute and one cent per minute respectively at the exchange rate of 37.7 Czech Koruna (Kc) to one U.S. dollar). These prices are still higher than the interconnection regime of the EU, but alternative operators have expressed mild optimism concerning the move. However, interconnection charges between the fixed and mobile network are not regulated and they are increasingly becoming a controversial issue.

Telecommunications Equipment

The Czech Republic had significant domestic production of telecommunications equipment prior to 1989, even though the quality of the products was poor. The country now relies heavily on imports of telecommunications equipment. The Czech Republic signed the WTO's Information Technology Agreement, and as a result, all tariffs on telecom equipment have been phased out.

The Czech Republic is also among the few Central and East European countries (in addition to Latvia and Hungary) that signed the Protocol on European Conformity Assessment (PECA). Under this agreement, telecommunications products that carry the EU's CE (Conformité Européenne) stamp of compliance for electromagnetic compatibility no longer need to be tested by Czech authorities before being imported. Conversely, Czech quality accreditation institutions and companies are able to issue the CE approval, a prerequisite for selling manufactured goods in the common market. The agreement will reduce costs and delays involved in having a product approved for the Czech market. Some equipment manufacturers, however, still complain about lengthy and expensive certification procedures. The Czech Office for Standardization, Metrology and Testing is the national body for standards, certification and conformity.

The major suppliers of fixed-line telecom equipment are Siemens (large switches and network control systems), Alcatel (large switches and cabling systems), Matra (radio system for the police) and Marconi (transmission technologies). Leading suppliers of mobile equipment are Ericsson and Nokia. Ericsson recently started to supply the wireless communications system (D-AMPS IS-136) for one of the regional networks. Asian companies supply equipment such as PBXs, telephone sets, faxes, modems and fiber optic cable. Companies from Israel are becoming increasingly successful in the Czech market as well. For example, Orckit Communications supplies HDSL technology to CT. Equipment providers are also lining up

for UMTS contracts, with Nortel Networks securing a major contract with RadioMobile.

Network Infrastructure

CT controls 99.5 percent of the country's fixed-line telephone infrastructure. The installation of main lines has been steady since 1996. CT installed a total of 3,839⁵¹ new lines during 2000, creating 37 percent teledensity in the Czech Republic. Industry analysts expect a 44 percent fixed line penetration by the end of 2001. This could easily reach parity with Western European penetration levels of more than 50 percent by 2004. The development of voice services is now expected to take place mainly in smaller cities and villages, where penetration rates of 23-25 percent lag behind metropolitan areas.

The majority of investment in the Czech telecommunications sector has been for public voice and data networks operated by the country's main operator, CT. Since 1995, CT has invested approximately \$1 billion annually. In 1997, 50 percent was spent on network expansion and modernization, and 50 percent on the installation of new telephone lines. The trunk network is now fully digitalized, as well as 86 percent of all lines. CT expects to fully digitalize its telephone lines by the end of 2001. CT's investment has slowed down compared to previous years, as it has allocated only \$49 million to network expansion in 2000, a 7 percent decline compared to 1999 investment figures.⁵² CT has been investing predominantly in short-life assets such as systems and software during

⁵¹ Cesky Telecom, Annual Report 2000

⁵² Ibid

2000 and 2001. The number of people waiting for basic voice services fell from 74,000 to 65,000 during 2000, while the number of pay phones in operation increased from 30,068 to 35,168.⁵³ CT launched its ISDN services in 1997. By the end of 2000, ISDN lines had climbed by 87 percent and are expected to further increase in the next few years. The expansion of ISDN services will help boost declining revenues from fixed-line operations, as the mobile sector lures potential customers from traditional voice telephony.

Tariff Re-balancing

Tariffs for local calls slightly increased from 1999 to 2000, and the prices of domestic long distance and international calls have been gradually decreasing since 1997, reflecting some degree of tariff rebalancing.

Privatization of the Incumbent

The Czech government has been stalling on the full privatization of the largest telecom operators, Cesky Telecom (CT), and Ceske Radiocommunicace (CR) such that, under current market conditions, the value of the two companies has significantly decreased. The state holds a majority stake of 51 percent in CT. Telesource, a 50-50 joint venture between KPN and SwissCom, owns 27 percent of CT's shares, and individual shareholders hold the rest. KPN also acquired 6.5 percent of the shares through the capital market. The Czech Republic's leading blue chip, CT, has a market value of around \$4.5 billion. Reportedly, the government expected Telesource to purchase the remaining shares

from the state, but KPN's investment commitments in Western Europe, specifically the soaring cost of UMTS licenses, caused the company to abstain from further expansion in Central Europe. According to various reports, not only is Telesource not interested in purchasing the rest of CT from the government, it wants to dispose of its existing investments in CT. The Czech National Property Fund (FNM) is currently finalizing an agreement with strategic investors from Telesource to combine its 27 percent stake with the government's majority in the upcoming sale. At the same time, CT, which has a 51 percent stake in the largest mobile operator, Eurotel, is nearing an agreement to buy the remaining 49 percent stake from existing owners, Verizon Communications and AT&T. Eurotel's sale is expected to boost the value of CT. The price for CT's 51 percent stake is estimated at \$2 billion.

The only two companies that initially expressed interest in acquiring the combined stake of 84 percent were Deutsche Telecom and France Telecom. According to local newspapers, currently three consortia are bidding for CT: Deutsche Telekom is taking the lead bidding together with Deutsche Bank and France Telecom's mobile arm, Orange. The second consortium is comprised of Swisscom, and financial groups CVC Capital Partners and Spectrum Equity Partners, whilst the third consists of Greek operator OTE and financial investors Doughty Hanson, Warburg Pincus and Apax Partners. The deadline to submit bids is the end of March 2002.

By mid-January 2001, 10 new operators had received licenses for providing public voice services, and five are currently undergoing the licensing process. Among the new public

⁵³ CIT-Online

voice operators, several are providing data services, such as GTS and UPC of the United States, Czech/German joint-venture, Aliatel (operating utilities networks), Czech/Danish operator, Contactel, Austrian Internet provider Czech on Line, Irish operator Globix, and Czech/British GlobalTel. Other operators are building new networks or operating data networks of their local partners. Now that the controversies regarding interconnection charges between the incumbent and alternative operators have been resolved, alternative operators hope to capture significant shares of the telecommunications market. Industry representatives indicated that in the first phase of liberalization, new operators will concentrate mainly on corporate clients.

Full privatization of Cesky Radiokomunikace (CR), the national radio transmission company and telecommunications group, is nearing completion as well. CR is the country's second largest telecommunications company. It owns a 39 percent stake in the second largest mobile operator, RadioMobile (the rest is owned by Deutsche Telecom) and has a fixed-line joint venture with TDC (formerly TeleDanmark). The sale of CR is currently valued at \$300 million, up \$75 million from its original offer in January 2001. Deutsche Telecom had been widely considered the front-runner for the government's 51 percent stake in CR, but in December 2000 it announced that it was withdrawing from the bidding contest. Deutsche Telecom's withdrawal left the consortium of Deutsche Bank and TDC as the final bidder. The key reason for the initial delay in the privatization has been negotiations over CT's purchase of its mobile arm, Eurotel. Once the negotiations were completed, the final sale was scheduled to take place in June 2001. However, due to the

turmoil in financial markets and the effect of the terrorist attacks on the United States in September, the government decided to postpone further the liberalization of CR. Once fully privatized, it is anticipated that the new owners will divide up CR along its functional areas - the fixed-line business is expected to go to TDC, Deutsche Bank would acquire the mobile shares, and the broadcasting division would likely be sold to a third party.

Mobile Telephony

The Czech Republic's mobile market is one of the most dynamic in the region. The mobile communications market was opened to competition in 1996. By 2000, cellular penetration had almost doubled annually since the introduction of digital cellular services in 1996. Mobile penetration has increased 123 percent since 1999, reaching 42 percent of the population by the end of 2000. (Note: U.S. cellular penetration is 42.5 percent.) Some industry analysts forecast 70 percent penetration by 2003. The trends in the Czech mobile market are nearly identical to Hungary. Short Messaging Service (SMS) and Wireless Application Protocol (WAP) services enjoy great popularity among young people and are spreading rapidly among other demographic groups. Pre-paid accounts are also very popular, and particularly attractive to consumers with low incomes, because the up-front cost of service is low and the plans do not require credit checks. These plans are also attractive for operators because the risk of non-payment is low, as are the overhead costs. The popularity of pre-paid plans is reflected in the fact that the majority of the subscribers of two of the three mobile operators have pre-paid accounts. Mobile operators recognize

that younger groups are more receptive to new technologies and services and, therefore, focus their marketing efforts on them. Nonetheless, the primary focus group for mobile providers is still business users.

Three wireless operators compete in the Czech Republic: EuroTel, RadioMobile and Cesky Mobile. All three players have licenses to offer GSM services in the 900 and 1800 MHz bands. EuroTel is the oldest and largest mobile operator in the country; it received a license in 1991 to operate an NMT-450 analog network and a GSM-900 license in 1996. EuroTel controls 50 percent of the mobile market. In 1996, the government granted an additional GSM-900 license to RadioMobile, which controls 43 percent of the market. In 1999, a third operator, Cesky Mobile, entered the mobile market, in the 1800 MHz frequency band. By the end of 2000, the newcomer had attracted over 300,000 customers, which gave it a seven percent market share. All three operators signed interconnection agreements in March 2001, according to which they will be paying each other the same per-minute rate for all inter-network calls. As competition among the mobile operators intensifies due to increased saturation in the cellular market, mobile operators will continue to be forced to rollout new services and quickly. RadioMobile invested \$240 million in the expansion of its network in 2000. In April 2001, Cesky Mobile awarded Siemens a \$29 million network expansion contract. The high quality of mobile services in the Czech Republic was demonstrated by the fact that the second largest mobile company, RadioMobile received the Most Innovative Operator

award from the GSM Association in 1999.⁵⁴ Cooperation among the cellular operators resulted in the rollout of GSM service in the Prague Metro, enabling mobile users to place and receive calls at all of the system's 32 stations as well as its trains as of December 2000.⁵⁵

Liberalization of the telecom market has enabled the mobile operators to expand their business into fixed services as well. RadioMobile received a license to build and operate a public telecommunications network and a license to provide public telephony services on the public fixed telecommunications network in April 2001. RadioMobile intends to use its soon-to-be-built fixed-line network as a means of providing a full array of telecommunications services to its clients, allowing it to compete with the fixed-line operators. This move has spurred a new round of disputes in the already tense relationship between local fixed-line and mobile operators.

Universal Mobile Telecommunications System (UMTS)

The Czech government initially planned to auction four third-generation mobile phone (3G) licenses in January 2001 and hoped to collect \$130 million per license. Due to the lack of interest from mobile operators, the government was forced to reduce license fees and postpone the process. According to the latest reports, the government still wants to raise the targeted \$520 million for the licenses, but it has agreed to spread the payments over a

⁵⁴ World Markets Telecoms

⁵⁵ Ibid

number of years. The final number of licenses to be awarded, however, remains unclear. The government might decide to tender only three licenses instead of the original four, given concerns that the Czech Republic might not be large enough to justify four operators. Only two (EuroTel and RadioMobile) of the three existing Czech mobile operators expressed interest in the 3G licenses and the third one, Cesky Mobile, would only consider participating if the payment schedule was changed. Although the time line and the process regarding the UMTS auction remains murky, government officials are confident that the license auction will not be canceled.

Fixed Wireless Services

There are currently three 26 GHz license-holders in the Czech Republic: Nextra Wireless; Star 21 networks; and Broadnet Czech. The licenses permit the companies to provide high-speed broadband services to the Small-Office/Home-Office market using Local Multipoint Distribution System (LMDS) wireless technology for a period of 20 years. Fixed wireless access (FWA) technology allows higher capacity data transmission to end-users, making Internet connections much faster than traditional dial-up. In February 2001, CTU announced that in order to accelerate competition with Cesky Telecom, CTU is planning to call for tenders for three more FWA licenses to operate in the 3.5 GHz band.

Satellites

The Czech Republic's satellite communications market has been growing by 10 percent annually over last several years and is expected to continue expanding. Services

such as private data networks, multimedia, public telex and telegraph, fax services, and Internet have been fully liberalized since 1995. U.S. products, technologies, and services have already established an excellent reputation for high quality and have a strong market position within the country.

When the Czech Republic's economic transition began in the early 1990s, the country's telecommunications infrastructure was grossly underdeveloped; average telecom density was only about 10-12 telephone lines per 100 inhabitants. As large international companies, such as Philip Morris, Ford, Siemens, and ABB opened offices and set up manufacturing facilities in the Czech Republic, they built their own private satellite communications systems to overcome the problems of the poor telecommunications infrastructure. Large local banks also used satellite networks to connect branches and offices. Between 1990 and 1994, more than 15 local and foreign companies were granted licenses to build networks and provide satellite services. The most demanded services included telephony, data communications, and video conferencing.

Satellite communications has played an important role in the rapid development of private and public TV and radio broadcasting. The major local broadcasting company, Ceske Radiokomunikace (CR), has built and now operates a radio communications center through which the company offers interconnection with Intersputnik and Intelsat satellites. Because of the Czech Republic's central location in Europe, this communications center offers excellent opportunities for linking with global telecommunication systems. The satellite

network allows CR to transmit its private channel, Premiera, throughout the country. Coverage has increased from 24 percent of the population in 1994 to 80 percent in 1997. Satellite communications systems are also being used by local cable TV companies. Cable TV companies operate in almost all cities with a population over 10,000, and they use satellite communications systems in their private networks.

Individual customer satellite systems are also very popular in the Czech Republic as an alternative to cable TV. The market for such systems has been enhanced by the fast growth of services available from satellites. Two of the most popular satellites, Astra and Copernicus, offer more than 100 channels, of which 50 percent are free of charge. The available capacity will soon be increased by four to five times with development and use of digital broadband transmission systems. The market for complete satellite systems has been growing very rapidly, largely due to reasonable pricing.

A license is required to build and operate a satellite telecommunications network (composed of a ground station and VSAT network). A license is not required if the network is for private use only, and no services are offered directly to customers. The CTU issues the licenses after the submission of an application that includes the approval of the satellite telecommunication equipment that will be used in the network and an agreement on transmission capacity. Approval of satellite telecommunication equipment is issued by the Certification Department of the CTU. The transmission capacity agreement is negotiated with the satellite operator Ceske Radiokomunikace which acts as the provider

for Eutelsat and Intelsat; while CTU acts for Inmarsat and Intersputnik. Negotiation with other satellites, such as Orion, occurs directly with the satellite operator). Licensing for the operation of hub stations is also handled by the CTU and requires frequency allocation that is internationally coordinated. The CTU then issues a license for 10 years. The fee for a 10-year license to operate a maximum of 150 terminals is \$3,000. To operate more than 150 terminals, an additional fee of \$3,000 is required. To provide Internet services and to establish and operate radio transmitters via VSAT, service providers must simply register with the CTU.

During the last two years, the satellite communications services market has become dominated by six large companies, including foreign firms such as GE Spacenet (U.S.) and Telenor (Norwegian). These firms have specialized in building and implementing satellite communication networks and providing a wide range of services. The following are the most frequent services being offered by large providers: transmission of radio and TV signals for public and private TV and radio broadcasting companies in the Czech Republic as well as in surrounding countries; installation, monitoring and service of VSAT networks for private data networks; providing Internet; installation and service for the Global Positioning System for car monitoring; and satellite telephony. Since the beginning of 1998, satellite companies have also been offering interactive multimedia services. High costs limit use of such services to the business community, but demand for individual use is expected to grow within two years. Multimedia services are being provided by the European Satellite Multimedia Service (ESM) through the ASTRA satellite used by

Astra-Net in the Czech Republic.

The equipment for network building and implementation is almost 100 percent imported. In the sub-sector of large professional satellite communications systems, such as the implementation of VSAT hubs, U.S. companies hold the majority of the market. U.S. companies have also been very successful in supplying technologies for cable TV broadcasting and transmission equipment with the U.S. company Scientific Atlanta holding a considerable market share. European firms, such as German Grundig, and products from Japan and Korea dominate the market for individual satellite system equipment. Because of digital technology development, there is growing interest in U.S. systems for this sub-sector.

Broadband

The lack of available bandwidth creates an additional barrier to the growth of the Internet in the Czech Republic. Since ISPs must pay for the use of leased lines to Western European and U.S. hubs, customers are unable to receive broadband services at a reasonable price. An additional barrier arises from the poor quality of many of the telephone lines in the Czech Republic. However, Cesky Telecom sees broadband technologies as having 300,000 potential customers in the business sector and another one million in the residential sector.

Cable

Most residential Internet users will continue to use dial-up modems. However, with the extensive cable TV infrastructure already in

place, broadband cable access via cable is a viable option. Over 700,000 cable TV service lines are in operation. Most of the cable, however, are in need of upgrade to support bi-directional capabilities. UPC (United Pan-Europe Communications), has already taken the lead in this area.

Asynchronous Digital Subscriber Line (ADSL)

To fend off competing technologies such as fixed wireless and cable modem, Cesky Telecom has upgraded its existing fixed-line network to enable it to begin ADSL service to homes and businesses. Cesky Telecom tested and launched its ADSL service in the second quarter of 2001 and expects 20,000 subscribers by the end of 2001 and 100,000 by 2005. Cesky Telecom's ADSL service is expected to be one of the most comprehensive services in Europe. By the end of the year, Cesky Telecom plans to launch voice-over DSL and multimedia to its ADSL services.

INFORMATION TECHNOLOGY

Along with a well-developed market-oriented economy and developed communications infrastructure, the Czech Republic also has a highly skilled and creative workforce and a proactive government intent on establishing an information society.

The Czech government has been investing in basic information technologies over the last 10 years to compensate for the deficits in spending during the Communist era. The country now has one of the most dynamic IT markets in Central Europe. For example, the IT ratios in the Czech Republic reflect the spending patterns seen in the United States

and Western Europe, where IT expenditures are shifting to applications development and support, networking hardware and software, and implementation services. Many Czech companies are undergoing business process redesign in an effort to become more efficient and competitive, which is leading to increased investment in installing and upgrading management systems.⁵⁶

Role of the Government

After the 1989 Velvet Revolution, the Czech government was primarily focused on resolving the many problems affecting its transformation into a market economy. It had little time or resources to spend on establishing an information society or encouraging the use of information technologies. However, in the mid-to-late 1990s, the Czech Republic began to deal with information technology related issues at a government level and formed specific bodies to work on IT projects and legislation.

In 1998, the Government Council for State Information Policy, under the chairmanship of the Deputy Prime Minister for Economic Policy, was established to draft laws and amendments to create the conditions for the development of an information society. The objectives of its policy are to create an information society that will make the state and local government operations more effective, improve the lives of citizens, and support business activities and the overall economy. In May 1999, the Czech government expressed its vision of an information society in its strategic document

⁵⁶ UNCTAD/WTO, IT Country Profile: Czech Republic

entitled "The State Information Policy - The road towards an information society". Its eight basic priorities are to:

1. Increase information literacy;
2. Establish information democracy;
3. Develop the State s administrative information system;
4. Build a communications infrastructure;
5. Secure personal data;
6. Create an environment for electronic commerce to grow;
7. Develop a transparent economic environment; and
8. Establish a stable and secure information society.

The Action Plan for implementing the State information Policy, approved by the Cabinet in May 2000, contains specific tasks for this implementation⁵⁷. It contains 33 projects by 24 agencies (mainly ministries and state authorities) and covers information literacy, e-commerce, and e-government.⁵⁸

These projects are only a list of priorities and are contingent on financing. However, some of them have already started. While they were originally intended to be solely public sector activities, the Czech government realized that establishing an information society is not only the task of the State government, but must also include local governments, citizens, the business community, the IT industry, and the academic and research sectors. Mr. Karel Brezina,

⁵⁷ The Action Plan, including all of its projects, can be found at:
<http://www.uvis.cz/EN/dokumenty/domaci/akcnip.html>

⁵⁸ European Survey of Information Society Projects and Actions (ESIS)

Minister without portfolio, charged with information technologies and the information society, began the initiative to include the private sector. In the summer of 2000, he issued a proposal entitled the Public-Private Partnership (PPP) and asked the private sector to join forces with the government to help implement the Czech government's information policy.⁵⁹

The Czech information society strategy is more focused on IT literacy and education issues as well as information technologies as they pertain to the public sector. It does not deal with telecommunications liberalization and Internet policy, which are handled as separate issues. The "State information policy" deals with information society issues, while the "national telecommunications policy" deals with telecommunications issues. Thus, the State Information Policy does not deal with cheaper Internet access rates. However, once telecommunications liberalization takes place under the national telecommunications policy, Internet access tariffs should decrease as well.⁶⁰

The market for IT products in the Czech Republic was valued at \$1.7 billion in 2000, growing 11 percent from the previous year. Forecasts indicate this demand will reach \$1.9 billion for 2001, \$2.1 billion for 2002, and \$2.4 billion for 2003. The IT market is expected to grow around 11 percent in 2001 and 10-11 percent annually over the next several years. Hardware sales account for approximately 45 percent of this market, while software and services account for the other 18

and 37 percent, respectively.

IT Market and Industry

Banking and national public administration are two of the best demand sectors for IT products. According to IDC, the banking sector spent \$90.5 million on information technologies in 2000, while the public sector spent around \$71.8 million. Additionally, education, information, and entertainment industries will gradually need multimedia applications.

Hardware

ISPs, banks, insurance companies, telecommunications operators, utilities, newly built retail chains, and the State government are driving the Czech hardware market. Factory automation and call centers also have a growing need for industrial computers.

According to IDC statistics, the systems and server market in the Czech Republic had strong growth in 2000. Although high-end servers only accounted for \$6.6 million, the market expanded 92 percent from the previous year. Additionally, low-end servers grew 18 percent, reaching \$95.6 million in revenues. According to IDC, the Czech Republic had 396,400 PC shipments in 2000, compared to 280,000 in 1999. The market reached about \$332.1 million in 2000, and is expected to grow 9 percent in 2001, 5 percent in 2002, and 10 percent in 2003. This growth is driven mainly by an increase in Internet use. The Czech notebook market should grow roughly 20 percent, driven by their usage in large corporations, which are equipping their offices with notebooks rather than desktop PCs. PC penetration in the Czech market is still

⁵⁹ Ibid

⁶⁰ European Survey of Information Society Projects and Actions (ESIS)

relatively low, at 12 percent of the population, primarily due to the high cost of a PC in relation to the average monthly income of most Czechs.

Software

Software is a major driver of the IT industry in the Czech Republic. There is a growing trend towards e-business applications and Internet connectivity, making ERP solutions, networking software, and software development areas of high growth. The market for standard software packages and applications is driven by: investment from large corporations; the emergence of e-commerce and other Web-based applications; the computerization of local governments; and industry restructuring.⁶¹

Software security products, such as Public Key Infrastructure (PKI) applications, firewalls, and products for digital signatures and associated applications also have high growth potential, particularly with the passage of the Electronic Signature Law. However, few Czech software companies focus exclusively on security.⁶²

Due to the superior technical skills of Czech workers and relatively low wages, local software companies are becoming very successful in the software industry. Software services in the Czech Republic are developing into three areas: software development; data interchange services; and services using the Internet. Local software development focuses on Czech versions of foreign programs,

support programs with Czech language controls (text editors), and different business and administration application software. For example, a local company specially developed a Czech language version of MS Office, which accounts for 80 percent of the market.⁶³

The major software companies in the Czech Republic are AEC in anti-virus software and AEC applications; Software 602, D Date, Cadis, AB Studio, FBL Group, PragoData in CAD, CAM, GIS, and multimedia education applications; and Alwil Software and Grisoft in anti virus software.⁶⁴

The Czech software market grew 12 percent in 2000 to reach \$317 million in revenues, according to IDC. It is expected to expand 15 percent in 2001 and grow 14 percent annually in 2002 and 2003.

The Czech Republic has the lowest software piracy rate in Central and Eastern Europe. According to a study by the Business Software Alliance, 43 percent of the computers sold in the Czech Republic had pirated software in 2000, which accounted for approximately \$214 million in lost revenues. Credible enforcement mechanisms are still the most important issue that the Czech Republic needs to address.

The growing sophistication of technology, application solutions and integration, the limited skill base at user sites, and a trend towards networking and connectivity are making IT services the largest and most dynamic IT segment in the Czech Republic.

⁶¹ UNCTAD/WTO, IT Country Profile: Czech Republic

⁶² UNCTAD/WTO, IT Country Profile: Czech Republic

⁶³ Ibid

⁶⁴ Ibid

Despite the relatively low wage rates of employees, external service and application providers are regarded as the best solution for organizations.

New Czech IT consulting firms have been spurred on by the potential of Czech analysts and programmers, greater business flexibility, and direct contact with users. Their services primarily focus on the installation of hardware, system integration, system maintenance, and hardware and software project implementation.⁶⁵

Internet

The Czech Republic's technical culture offers fertile ground for the development of the Internet. Although Internet usage in the Czech Republic is relatively low currently, it has increased exponentially since 1998. Czechs understand how it works, believe in its future, and grasp its potential.

The primary drivers of the Internet in the Czech Republic are: countrywide point-of-presence (POP) access, decreasing access fees, marketing efforts by ISPs, and new PCs entering the market with Internet technologies. A significant increase in the number of Internet users is expected once real liberalization of the Czech telecommunications industry takes place.

At the end of 2000, the Czech Republic had between 1.1 - 1.75 million Internet users (between 9-17 percent of the population), depending on the study conducted. The total number of Internet users is expected to grow

at a compound annual growth rate of 31 percent over the next several years. Around 600,000 people currently use the Internet at least once a week.

Demographics

Only 15 percent of Czech Internet users have access to the Internet at home, compared to roughly 69 percent of users in the United States. An Internet survey by Virtual Information Park (VIP) conducted in July 2000 found that 69 percent of Internet users in the Czech Republic are less than 30 years old, with the largest proportion being between the ages of 15-24 years of age. Males also dominate Internet usage. However, Internet usage by women has grown 20 percent over the last two years and is currently around the worldwide average proportion of 34 percent. One of the major highlights of the Czech market is the high sophistication of the average Internet user. Roughly 37 percent have completed university studies, while another 14 percent are currently studying at a university. Most students have free Internet access through their universities. The Czech Republic leads Central Europe in levels of Internet usage in the home and workplace. However, the low proportion of Internet access in schools means that the overall penetration rate is significantly lower than its potential.

Business Use

Since the first ISPs came online in 1996, Internet use by businesses with 25 or more employees has a compounded growth of over 90 percent. Growth in Internet usage is expected from the 5,000 SMEs operating in

⁶⁵ Ibid

the Czech Republic. Forty percent of these companies already have a Web site, but most of them are static and only display company and products and services information. Most transport and IT companies are online, while 86 percent of the food, ceramic, and glass industries and 82 percent of the construction industry use the Internet. Almost 75 percent of workers use the Internet to obtain information for their job and almost one-third use the Internet to market their company and its products and services.

Government Use and Support

The Czech government is working extensively to employ the Internet in its everyday work and to simplify its bureaucratic functions. All major government ministries have their own Web sites with many providing substantial amounts of data in both German and English. For example, Czech citizens can find applications for passports and gun licenses directly on the Ministry of Interior's Web site.

The Czech government is also working to foster the development of the Internet and increase Internet penetration. One approach it is using is through shared access computing, particularly in schools. Recently, the Czech government approved a \$180 million, five-year program to connect all schools to the Internet and train teachers. While the public tender has been marred by a controversy over the bidding process and the disqualification of five out of six competitors, the program is expected to go forward. The Czech government is also considering providing a personal tax deduction for the purchase of Internet-ready PCs.

Barriers to Growth

Even with the rapid growth of the Internet, barriers still remain. The primary barriers to the growth of Internet users are the high Internet access costs and the low amount of PCs in the country (primarily due to low income levels). Forty-nine percent of the respondents to VIP's survey said that Internet access costs were their main reason for not using the Internet. Both of these barriers should diminish significantly over the next couple of years with the full liberalization of the telecommunications sector, lower prices for PCs, and new sales strategies by PC suppliers. Many PC companies are now offering installment payment plans for their computers with Internet access. Internet-TV has become increasingly popular in larger cities like Prague and Brno and offers an alternative for those unable to afford a PC.

Cost of Internet Access

Competition in providing Internet services was high in 2000. This competition put pressure on lowering dial-up access prices. However, dial-up access and its related costs are still under the control of a single operator, Cesky Telecom (formerly SPT Telecom), which has exclusivity on voice services. Consequently, dial-up access prices are quite high. According to the latest OECD Internet Access Price Comparisons, Internet access in the Czech Republic was the second highest among OECD countries (accounting for purchasing power parity).⁶⁶ In 2000, the approximate charge for 20 hours of use was \$50-60. While some ISPs (Cesky Telecom's

⁶⁶ European Survey of Information Society Projects and Actions (ESIS)

subsidiary Internet OnLine, Contactel, and Czech On Line) do not charge for an initial dial-up connection fee, approximately two-thirds of service fees come from these separate connection time charges. Flat Internet pricing is currently under consideration by Cesky Telecom.

Venture Capital

Before the current economic downturn the Czech Republic's Internet related businesses were just beginning to interest venture capitalists. Around \$20-30 million of new capital was invested in e-service firms, ISPs, e-commerce sites, and Internet portals during the first half of 2000. Unfortunately the main seed money is going to the larger ventures, leaving the smaller players searching for funding. A large portion of the capital is going towards ideas that have worked well in the U.S., such as online advertising and e-services. While most of the investments still remain relatively small, between \$2-5 million, few investments are seen under \$1 million. Incubator, or angel financing, is rare in the Czech Republic, largely due to the amount of small investors there and their unwillingness to deal with transaction costs, lawyer fees, or unclear title to intellectual property.

Internet Service Providers (ISPs)

Internet services have been liberalized since mid-1995, when EuroTel lost its exclusive license on public data services. Since then, other operators were able to obtain licenses and become Internet service providers (individual licenses were later substituted by a general license issued by the Czech Telecommunications Office).

The number of commercial ISPs in the Czech Republic has increased rapidly since they first came online in 1996. There are 16 large ISPs and around 200 small regional providers serving 500,000 subscribers. According to consulting company Internet Info, Czech On Line (owned by Telecom Austria), World Online (owned by Italian Tiscali), Contactel (partly owned by TeleDanmark), and Internet OnLine (Cesky Telecom's subsidiary) are the four largest ISPs in the Czech Republic and control 90 percent of the ISP market. Industry experts predict that an increased competition should force out many of the smaller ISPs and make Internet access more affordable.

While the Internet service market in the Czech Republic has become very competitive on the supply side, the growth in demand has found three main barriers: high telephone access charges; the cost of Internet service itself; and a low PC penetration. However, Czech ISPs have been very innovative in confronting these obstacles.

In 1998, Czech ISPs coordinated a lobbying effort with Internet users to protest the high telephone charges of the monopoly telecommunications provider, Cesky Telecom (formerly SPT Telecom). Cesky Telecom eventually offered a reduced rate plan, Internet 99, which offered decreased charges for ISPs during evenings and a flat rate per call charge after 119 seconds of each communications. From then, the number of Internet accounts has almost doubled annually. Even with the reduced prices, telephone charges were the main cost in dial-up Internet access fees. The increased competition among the ISPs and the effort to reduce the total cost of Internet usage costs caused Internet service profit margins to become increasingly thin. This was dealt with

by the rise of free Internet. Czech ISPs successfully forced Cesky Telecom to share 10-15 percent of the revenues received from local call charges. The revenue sharing has helped free Internet providers finance their service and has resulted in a substantial increase in subscribers. Free Internet ISPs are also following along the lines of many of their U.S. counterparts by increasing their advertising revenues. Free Internet services are now used by 76 percent of the residential Internet market. Despite the availability of free Internet services, the high cost of telephone access still limits the amount of surfing done by users.

The low PC penetration rate was dealt with by another creative marketing scheme when Contactel, as part of its high-profile market entry, bundled an offer of a PC with unlimited Internet access for a reasonable monthly fee.

Electronic Commerce

The Czech e-commerce market is small with business-to-consumer revenues making up between \$40-70 million of the country's \$14 billion retail sales revenues in 2000.

However, with the end of the recession in the Czech Republic, many industry experts expect this figure to grow to \$1 billion by 2004.

Business-to-Business (B2B)

As in many other countries with similar barriers to business-to-consumer e-commerce, B2B e-commerce has the most potential in the Czech Republic. End-use procurement accounts for two-thirds of the Czech B2B e-commerce, but process-use e-commerce

should catch up by 2005.⁶⁷ Many large companies are already making the transition from electronic data interchange (EDI) hardware and software to IP-based systems. They originally invested in EDI systems to communicate efficiently with their partners. However, now they are finding them to be much more expensive and not as flexible.

Cesky Telecom introduced CenTrade, one of the first e-marketplaces in the Czech Republic. CenTrade's payment system is insured by Citibank and uses a SAP/CommerceOne-based platform. The e-marketplace will concentrate on non-production goods, such as IT products and stationery, which are already purchased online by many Czech businesses. It will also make auctions and reverse auctions available to customers.

The U.S. company FreeMarkets has also established an e-marketplace in the Czech Republic that will enable Czech manufacturers to join the global market of 150,000 producers from 50 countries.

Business-to-Consumer (B2C)

B2C sales have increased due to a lowering of telecommunications tariffs. However, there are significant barriers to the growth of B2C e-commerce in the Czech Republic. Besides low Internet and PC penetration, B2C in the Czech Republic is also impeded by an unreliable delivery system, expensive courier services, and low payment card usage.

There were 420 online shops in the first half of 2000, and some of the highest selling

⁶⁷ International Data Corporation (IDC)

products mirror those of the U.S. market. In the first half of 2000, the highest selling commodity in the Czech Republic, as well as the U.S., was airline tickets. Fractal.cz, a Czech site specializing in airline reservations, accounted for approximately 25 percent of the country's B2C revenues. Appliances, books, consumer electronics, and IT products are the other top sellers in the Czech Republic.

Payment Cards

In 1999, the Czech Republic had slightly over 28 percent payment card penetration. The low credit card usage among Czechs makes the payment of goods purchased over the Internet difficult. Most B2C companies in the Czech Republic currently send their goods COD, which significantly increases the risk to the company. However, payment card use is increasing rapidly in the Czech Republic.

Europay International (MasterCard) reported a 74 percent increase in credit card transactions and Visa reported a 35 percent increase from June 2000 to June 2001. Europay International and Visa are the two most common payment cards in the Czech Republic. Europay stated that 2.24 million of their payment cards are in use in the Czech Republic, an increase of 43 percent over the previous year. Visa reported two million payment cards in use in the Czech Republic, with its Visa Electron the most widely used card in the country with 1.5 million users. However, most of all the transactions using payment cards in the Czech Republic are via cash transactions from ATMs. While the number of credit cards is increasing, many Czechs are hesitant to use them for online purchases.

Online Banking

Internet banking has been growing rapidly in the Czech Republic for the past two years and is used by 16 percent of Internet users, according to a poll by Taylor Nelson Sofres Interactive. Online banking creates advantages for both banks and customers. Customers have the convenience of banking anytime and anywhere, while banks reduce their costs of office space and staff.

The leading Internet banks are eBanka (formerly Expandia Bank of the Czech Republic), Citibank (U.S.), and GE Capital Leasing (U.S.), but the number of other local and foreign bank entrants are increasing quickly. Union banka, Komerční banka, and Zivnostenská bank have also launched online banking services in 2001.

eBanka was established in 1998 and was the first bank to begin offering Internet banking services. It had 20,000 new customers within its first 18 months, 50,000 customers at the end of 2000, and is expecting to have 80,000 by the end of 2001. eBanka's main advantage comes from its majority owner, Ceska Pojistovna, the dominant Czech insurance company that has 11 million contracts and two million payment cards that eBanka can use to increase its customer base.

In April 2000, Citibank, together with GSM operator, EuroTel, introduced a market of online shops that accepts payment via WAP technology. With 49.6 percent mobile penetration rate in the Czech Republic, mobile banking may be an alternative to PC banking.

In early 2000, GE Capital Leasing became the first leasing company to launch its service

over the Internet in the Czech Republic. Sixty-five percent of its customers now use the Internet in their transactions with the company.

Data Privacy

An analysis of the whole legislative system of the Czech Republic is currently taking place with new legislation being enacted to allow the new economy to mature.

As part of the Czech Republic's EU accession process, the Czech Government enacted the new law, On Personal Data Protection, which went into effect on June 1, 2000 and replaces the 1992 Act on Protection of Personal Data in Information Systems. The new law is based on the EU Data Protection Directive and meets all of the EU Directive's key requirements. The new act establishes the Office for Personal Data Protection, an independent oversight body responsible for registering databases, carrying out audits, and imposing fines (the Office also has authority over electronic digital signatures - see below).

Electronic Digital Signatures

One of the most important developments related to e-commerce occurred on October 1, 2000, when the Act on Electronic Signatures was enacted (a mere two weeks after the United States passed its own). This legislation creates the basic framework for use of electronic signatures, including the use of certificates, certification services and certification authorities. The Act assigns relevant power and resources to the Office for Protection of Personal Data and is fully compliant with the relevant EU directives on electronic signatures. However, the rules and

government directives needed to implement the law have not been created yet. While individuals and businesses can theoretically use an electronic signature to verify their identity at online businesses, they rarely do so.

CHAPTER 4: MARKET OPPORTUNITIES AND MARKET ENTRY STRATEGIES

BEST SALES PROSPECTS

Opportunities in Telecommunications

Neglect of the telecommunications sector for many years before the fall of the communist regimes in Central Europe resulted in an inadequate and outdated telecommunications infrastructure. After the 1989 silent revolutions in the region, much effort was needed to catch up to the level of development in Western Europe even more so because these countries aspire to become EU members in the near future. The Central European countries have historically conducted the majority of their trade with their Western European neighbors due to geographic proximity, its EU membership aspirations, and demand for U.S. equipment that is highly regarded. U.S. companies hold an increasingly strong position in Central European markets and are competitive in all subsectors of the telecommunications market, including equipment, and network operation.

Greater competition in Central Europe's telecommunications sector and demand for new telecommunications technologies means ample market opportunities for telecommunications equipment and service providers. Incumbent operators and new entrants alike in Hungary and the Czech Republic must invest in the latest technologies to quickly improve the quality, speed, geographic reach, and capacity of their networks. Wireless technologies are particularly popular, especially those which support high-speed data services in addition to

voice services. Wireless technologies are relatively quick and cost-effective to install in comparison to wireline technologies, allowing new service providers to build out their coverage more quickly. A number of licenses for Global System for Mobile Communications (GSM), Wireless Local Loop (WLL), Local Multipoint Distribution System (LMDS) and Multipoint Multichannel Distribution System (MMDS) services have been or soon will be awarded in both countries, creating an attractive opportunity for U.S. firms offering these products and services.

Telecommunications-related software is also in high demand, particularly telecommunications-focused business packages for administrative and management functions, databases, and cutting-edge billing systems. It is expected that the telecommunications networks in Hungary and the Czech Republic will expand and become more sophisticated as new operators enter the market and demand increases for telecommunications software, such as packages to administer telecommunications switches. Software applications for new mobile applications are also expected to be a large growth area.

Opportunities are also numerous in value-added services, such as implementing billing systems, particularly as new entrants and incumbents will need to offer various discounts and billing schemes to attract customers and add Internet-related services

to their portfolios. In addition, call center services are in demand as many telecommunications operators are establishing such centers to improve customer service.

The role of U.S. companies has also grown in the last several years, especially in connection with supplies for cellular networks, wireless local loop and satellite systems. U.S. equipment suppliers have great opportunities in marketing the following technologies: technologies for expanding existing Cable TV networks that will allow new services such as high-speed data (Internet, ISDN, video) and voice; WLL (Wireless Local Loop) technologies; overlay networks (wire and wireless); and technologies for efficient use of installed cable networks (allowing an increased number of users and/or reaching higher transmission speeds).

The following products are in particularly high demand: fiber optic cable and connectors (such as single and double layer ATM backbones on optical fiber); digital switches, packet switches, and PBXs; radio base stations and base station controllers; wireless networks; High Bit Rate Digital Subscriber Line (HDSL) technology (enables effective delivery of T1/E1 line speeds over unconditioned copper cable, without the use of repeaters); and modems, handsets, telephone sets, and fax machines.

Opportunities in IT

As firms in the region increase their spending on IT, many types of leading-edge technologies supplied by U.S. IT firms are in demand. Many Central European firms are upgrading their legacy computer systems, investing in enterprise and customer management software, intranets and extranets, and integrating front

and back offices. Many of these companies turn to U.S. suppliers and consultants for their expertise. In addition, as Central European firms are opening their corporate networks to the outside through the development of extranets, demand for security products and services are growing. IT security products, such as PKI applications, firewalls, and products handling digital signatures and associated applications, have high growth potential, particularly with the passage of Electronic Signature Laws in Hungary and the Czech Republic.

Software is a major driver of the IT industry in the Czech Republic. There is a growing trend towards e-business applications and Internet connectivity, making ERP solutions, networking software, and software development areas of high growth. The market for standard software packages and applications is driven by: investment from large corporations; the emergence of e-commerce and other web-based applications; the computerization of local governments; and industry restructuring.⁶⁸

In the Internet and electronic commerce realms, foreign firms that will be successful are those that can tailor their technologies and offerings and apply innovative solutions to deal with the barriers present in Central Europe's on-line market, as described in previous chapters. In fact, industry observers state that many foreign Internet and electronic commerce firms which simply try to replicate successful business models used in the United States often fail,

⁶⁸ UNCTAD/WTO, IT Country Profile: Czech Republic

because they do not take into account the differences and intricacies of the Central European market.

Central Europe's low PC penetration and teledensity rates indicate that Internet access via other means will likely be more common than in the United States, implying a demand for wireless data services, cable TV, WLL, LMDS and other Internet access technologies. Low credit card usage in the region creates opportunities for electronic commerce applications and on-line financial transactions services that do not require credit cards. For example, this situation is spurring financial institutions to demand and invest in alternative technologies for facilitating electronic commerce, such as technologies to allow Web-based vendors to debit on-line shoppers' bank accounts. In Hungary and the Czech Republic, for example, people are accustomed to using smart cards for both public and cellular phones; these cards could also be used to facilitate electronic commerce payments. Finally, the region's poor delivery infrastructure means that on-line shops may need to partner with traditional brick and mortar retail outlets to fulfill orders and function as pick-up sites, creating demand for technologies to facilitate these relationships.

More and more Hungarian and Czech firms are eager to implement Internet and electronic commerce strategies. As a result, there is growing demand for professional Internet and electronic commerce services such as Web site design, and for systems integrators to install, program, and connect servers to legacy infrastructures as well as integrate Web sites and back offices. Because many local firms lack experience with specific information technologies or do not understand how to

develop and implement IT strategies, a new consulting sector is developing in the region. The big six consulting companies from the United States are expanding their Internet practices in the region, and local consultants are forming as well. Industry experts state, however, that the large consultants are often too expensive for many local firms, particularly smaller companies, while local consultants reportedly do not have sufficient industry expertise. Thus, there is a niche for small U.S. consultants who may be able to partner with local consultants or establish their own offices in the region.

Although Central European firms would like to invest in many information technologies and services, the recent contraction in the world telecom and IT markets has made IT companies more cautious about their spending. These companies will benefit from information regarding the economic advantages of investing in the latest technologies and how to prioritize investment options.

MARKET ENTRY STRATEGIES

Whether a U.S. firm plans to sell in one or several Central European countries, its choice of where to begin will depend on the demand for its technologies and service offerings. In addition, the company should consider that business and marketing styles, as well as relationships with the United States, differ between markets. As always, careful research, thorough planning, and detailed strategies will pay dividends.

U.S. companies that want to enter the Central European market may choose to focus their efforts initially on one market

versus dispersing their resources among many. Some firms may choose to focus first on Hungary because its regulatory environment is the most conducive to competition in the region. Other U.S. firms may instead choose the Czech Republic because Internet growth and electronic commerce are more advanced there compared to other Central European markets. However, there are some important factors that U.S. firms need to consider before entering the Hungarian and Czech markets. Both countries are relatively small markets, with a population of 10 million people and average per capita income of about \$12,000 (adjusted for PPP, CY 2000). This is particularly important when considering the cost of localization and the fact that the Czech and Hungarian languages are not widely used outside their respective countries.

Additionally, both countries' markets are very mature. Except for many small Hungarian and Czech IT firms offering consulting, Web hosting and development, graphic design, and other related services, the IT industry is dominated by large multinational corporations. These corporations arrived on the scene in the mid-1990s and have amassed the lion's share of the market. Some industry representatives maintain that, for the above reasons, U.S. IT firms may prefer to invest in the larger market of Poland, where the Internet has not yet taken off to the degree it has in the Czech Republic and Hungary.

Localization is Critical

A very important factor for success in Central Europe is the need to localize products and services for target markets. As suggested above, localization for language is particularly important since each of the countries in Central Europe has its own language. Hungarians

speaking Hungarian, and the Poles, Czech and Slovaks all speak distinct Slavic languages. Language localization is critical for Internet and electronic commerce Web sites. Research indicates that Web users are three times more likely to make a purchase over the Internet if the site is in their native language. However, language issues can have many hidden costs (for Web sites, particularly those used for electronic commerce). Native-language staff is necessary to maintain the sites, answer customers' questions, and fulfill orders generated electronically. In contrast, language localization is not as imperative for software programs that perform back-office and technical functions. Industry observers also state that users of niche software products are often eager to obtain new software programs quickly and prefer not to wait for translations.

Localization to account for cultural differences is equally important. Localizing Web sites in terms of look and feel is critical. Web applications and content catering to local customs and culture will be well received. As a result, hiring people from the target country to localize the product, who have a native understanding of the country's culture, is typically the best strategy.

Local Representation is Key

IT industry experts interviewed in both Hungary and the Czech Republic consistently stressed the need for smaller U.S. firms to have some form of local representation. Business in the region is relationship-oriented, and face-to-face interactions are much more important in

Central Europe than in the United States. A local partner will give the U.S. firm a local presence and will use personal ties to locate and approach new customers more effectively. Local representation will give small U.S. firms more credibility, help U.S. SMEs overcome the lack of brand recognition, and make potential customers more comfortable as well. A local presence shows customers that they will not need to call the United States if they have problems or need technical support. In addition, working through a local firm offers easier access to knowledge of the local market, such as sales cycles, economic issues, regulatory issues, and cultural factors and tastes.

Local IT experts claim that the biggest mistake foreign IT companies make in Central Europe, whether they are multinationals or SMEs, is to make strategic decisions and control operations from abroad. Companies using a distributor or having a subsidiary are advised to trust their Central European partners and allow them the freedom to make their own decisions.

But which form of local presence?

An excellent option for a U.S. firm is to set up a local office and hire local employees to do marketing, training, and provide on-going support for the company's technologies. However, for a small firm just entering the market, there are lower cost options with which to begin. For example, one option is to partner with a large established IT firm, systems integrator, or consultant already active in the region. Another is to partner with a like-minded Central European IT SME with complementary skills and technologies. Other options would include agents, distributors, or other representatives who can represent the

U.S. firm and support its customers. Local industry experts stress that prior to choosing a local presence strategy, such as a partner or representative, it is important for the U.S. firm to visit the target market and try to understand first-hand the local market and business culture.

Partnering with large IT firms, systems integrators, or consultants

Small companies in the international marketplace often lack the brand recognition and delivery channels enjoyed by larger companies. Working with more established, larger foreign IT and telecommunications firms, systems integrators or consultants already doing business in Central Europe can help a U.S. firm with its initial expansion into the region. These firms integrate the U.S. technologies into their product or service suites, allowing the SME to reach customers they might not otherwise know about, and help them build name recognition. According to Central European industry representatives, many IT firms, systems integrators, and consultants working in the region are constantly looking for new leading-edge technologies from small U.S. firms.

Or partnering with like-minded Central European SMEs

Despite strong competition from Western European IT and telecom companies, Central European SMEs are eager to team up with U.S. partners. U.S. companies may want to consider collaborating with small local firms with complementary products or services. Many IT experts interviewed in Hungary and the Czech Republic

recommended strategic alliances or partnerships as an effective way for U.S. IT SMEs to penetrate Central European markets. Depending on the culture and organizational goals of each company, an alliance could be very formal, with well-established responsibilities, or less formal. Central European IT firms seek partnerships with U.S. firms for various reasons, including access to technologies necessary to execute ideas, training, and most importantly, financial resources.

In addition to technology, Central European start-ups also hope to obtain capital via partnerships. Most new IT firms in the region continue to lack funding. Interest rates on bank loans are prohibitively high in most countries. Banks in Central Europe tend to be especially wary of lending to unproven start-ups, or even to small IT firms with an established business. IPOs are rare. IT industry representatives in both Hungary and the Czech Republic state that it is especially useful for local Internet and electronic commerce companies if potential partners can bring much-needed financing to the partnership.

Or using agents or distributors

Agents and distributors are another possible approach to local representation, which can offer cost-effective entry into new markets for U.S. IT firms. Like partners, they can assist the U.S. firm with their knowledge of the intricacies of the target market, such as regulations and taxes.

Agents and distributors differ slightly. Agents generally take orders for and sell a product or service, but do not take possession of a product and are not directly responsible for payment.

In most countries, an agent has more than one client and therefore may sell products or services which compete with those of the U.S. producer. A distributor is typically responsible for the payment of a product that is exported. Distributors sometimes combine their own product with that of the U.S. exporter, which makes the distributor more committed to selling the exporter's product.

Local market experts believe that small U.S. firms which provide services such as electronic commerce planning or enabling, who do not choose to partner with a similar small IT firm, will need an agent to sell their services locally. They also suggest that using local software distributors, who sell to systems integrators or directly to end customers, are good avenues for U.S. software firms.

Major U.S. suppliers sell their products through global partners, large system integrators, or distributors such as Expert Partner, Computer 2000 Group, Autocont, and SWS Slusovice in the Czech Republic, and Data Tech in Hungary. However, U.S. companies are advised to be very flexible in the Hungarian and Czech IT markets. Distribution of IT products is often completed through small resellers that are often subject to the whims of their customers. Since contracts are often non-binding in essence, resellers may back out of a deal at the last minute if the end-user has a change of mind. For example, it is virtually impossible to force a small reseller to pay for 100,000 PCs if the reseller's customer backs out, because the reseller simply does not have the money to cover the cost of the products. It is also important for U.S.

suppliers to find IT distributors that provide not only direct sales and distribution, but also complete service, warranty and repairs, training and technical support, financing, consulting, and systems integration.

Some IT distributors claim that the turnaround time for the clearance of goods through customs is slow and affects their ability to do business in Central Europe. However, despite slow customs clearance, there appears to be no major non-tariff barriers or restriction on the importation of IT products into Central Europe.

Lists of agents and distributors can be found at the end of Industry Sector Analysis reports published regularly by U.S. Department of Commerce market specialists in Hungary and the Czech Republic.⁶⁹ Market specialists state, however, that lists change often because the industry changes quickly. A second way to find agents or distributors is to search advertisements in specialized magazines in the target country, similar to industry journals in the United States. Another possible way to locate agents or distributors would be to determine which agents or distributors are used by the major players in the same market or general industry segment. Lastly, the U.S. Department of Commerce also offers U.S. companies a means to locate the most qualified buyers and partners in the market. The Gold Key Service is an efficient, effective way for U.S. firms to qualify and meet potential candidates face to face.⁷⁰ Regardless of how agents or distributors are found, they must be

qualified to ensure they understand the U.S. firm's products and can provide after-sales service, if necessary.

For SMEs with highly sophisticated technologies, agents and distributors may not be the best market entry option. After-sales service, which sometimes includes working closely with the customer on technology issues, is critical in the IT industry and is a function likely best handled by the exporting firm or partner.

IMPORTANT ISSUES TO CONSIDER WHEN ENTERING THE REGION

Price appropriately

U.S. IT and telecom firms selling their products and services in Central Europe must remain cognizant of price differences between the U.S. and Central European markets. Those pricing their technologies for the local market likely will be the most successful.

Steps to follow

U.S. firms should keep in mind the following steps in forming a strategic alliance.

" *Identify a key individual* in each company, preferably a principal owner or senior manager, who can focus on the alliance.

" *Conduct due diligence.* Check the background of the potential partner, including the quality of products and technology, business structure, and financial soundness (the U.S.

⁶⁹Industry Sector Analysis reports are described in Chapter 5.

⁷⁰The Gold Key Service is described in Chapter 5.

Department of Commerce's U.S. Commercial Service offices overseas have services to help U.S. companies locate such information).

Set clear objectives. Since companies will have different objectives in forming an alliance, both parties should agree on a common set of strategic objectives to gain from the alliance at the beginning; and

Use legal and contractual mechanisms to protect your intellectual property rights and business interests.

LOCATING THE APPROPRIATE PARTNER OR REPRESENTATIVE

Firms must do careful research to find the best type of local representation in foreign markets. A variety of organizations exist that are eager to help U.S. IT SMEs find partners or representatives in Central Europe. In Hungary and the Czech Republic, local trade associations, local government offices, and U.S. Department of Commerce market specialists can provide needed assistance in bringing potential partners together. Trade fairs are another avenue to seek partners or representatives, although this is a less targeted approach unless meetings are pre-arranged.

The U.S. Department of Commerce can help

U.S. Department of Commerce IT and telecommunications market specialists located in Export Assistance Centers throughout the United States and in target markets perform various matchmaking services for U.S. firms, such as the Gold Key Service. These services are summarized in Chapter 5.

Local Trade Associations and Government Offices

Hungary and the Czech Republic have a number of IT-related trade associations which aim to encourage profitable business practices of their member firms, many of which are SMEs. In addition, many local government offices, which work with local firms of all industries, have offices that focus specifically on the IT industry. Both types of organizations perform a variety of services for local IT SMEs, such as helping them find financial assistance and providing business plan guidance and business counseling. These organizations often take steps to assist in forming partnerships between foreign companies and local firms, or attract foreign companies to invest locally.

Trade associations and local government offices interviewed in Hungary and the Czech Republic are eager to help their local IT SMEs partner with interested U.S. firms, and have various matchmaking capabilities as well. They are eager to alert their local companies about potential U.S. partners and help set up meetings between firms - for example, when a U.S. firm plans to visit the target country, when a local firm plans to travel to the United States, or when firms can meet in tandem at a major trade show.

Local trade associations that may be helpful are listed in the market research reports generated by the U.S. Commercial Service representatives based in the target markets. These types of trade associations and state-level organizations also exist in the United States and provide similar services for U.S. companies. Contact information for many

of these organizations is provided in the Appendix.

CHAPTER 5: THE ROLE OF THE U.S. DEPARTMENT OF COMMERCE

INTERNATIONAL TRADE ADMINISTRATION

The mission of the U.S. Department of Commerce's International Trade Administration (ITA) is to create economic opportunity for U.S. workers and firms by promoting international trade, opening foreign markets, ensuring compliance with trade laws and agreements, and supporting U.S. commercial interests at home and abroad.⁶⁹ The Trade Development (TD) and the U.S. and Foreign Commercial Service (US&FCS) divisions of ITA are responsible for export promotion. For more information on ITA, visit <http://www.trade.gov>.⁷⁰ For more information on how the U.S. Government assists U.S. businesses export, visit <http://www.export.gov>.⁷¹

⁶⁹ Taken from ITA Strategic Plan, Fiscal Years 2002-2006, available at <http://www.trade.gov/ooms/ITAMeasures/ITAStrategicPlan.pdf>.

⁷⁰ To access updated ITA Work Reference Charts, visit http://www.ita.doc.gov/ita_home/itawrc.htm.

⁷¹ Export.gov is designed to assist U.S. businesses find all U.S. Federal Government export-related information in one, user-friendly Web site. By providing all country, industry and program information at a central location, Export.gov enables users to answer their questions quickly without having to understand the organizational structure of the U.S. Government.

TRADE DEVELOPMENT⁷²

ITA's Trade Development (TD) unit is the Commerce Department's link to U.S. industry. TD provides industry and market analysis, export promotion services, advocacy for U.S. companies bidding on foreign government contracts, and support for trade negotiations. TD offers an array of services to help small businesses increase their export potential.

Industry Expertise

TD's industry expertise encompasses the majority of U.S. business sectors.⁷³ Industry sector specialists provide U.S. firms with: information and analysis of domestic and foreign industry trends; foreign market conditions and opportunities for specific products or services; information on foreign market tariffs and non-tariff barriers and regulations; advocacy assistance; business and cultural practices; and advice on business and cultural practices.

Trade Negotiations and Agreements

TD's industry expertise is the primary source used in trade negotiations by the President of the United States and the Office of the U.S. Trade Representative (USTR). TD's close

⁷² More about TD, including information on its services and industry analysts' contact information, is available at <http://www.trade.gov/td>.

⁷³ The agricultural sector falls within the purview of the U.S. Department of Agriculture.

interaction with industry, understanding of restrictions on market access, product standards and testing requirements, and knowledge of trade data assist negotiators in the drafting of trade agreements with maximum benefits for U.S. firms. Additionally, TD industry experts help monitor and enforce foreign governments compliance with trade commitments through collaboration with other ITA units, including the US&FCS and Market Access and Compliance (MAC) regional desk officers, as well as the USTR.

TD s INFORMATION TECHNOLOGY INDUSTRIES OFFICE

TD s Deputy Assistant Secretary for Information Technology Industries oversees the activities of the four (4) high-tech industry-focused offices: Office of Information Technologies (OIT); Office of Telecommunications Technologies (OTT); Office of Electronic Commerce (OEC); and the Office of Microelectronics, Medical Equipment, and Instrumentation (OMMI).

Office of Information Technologies

OIT focuses on the following IT industry segments: computers and peripherals; software; networking equipment; Internet technologies; and e-commerce technologies.

OIT actively supports U.S. IT firms efforts to expand their business overseas. OIT industry specialists track the growth and competitiveness of domestic and foreign IT industries; counsel U.S. businesses on overseas market conditions and the practical aspects of exporting their products; identify market barriers as they affect IT exports; and work

closely with USTR to negotiate the removal of such barriers.

OIT export promotion activities include trade missions, trade fairs, catalog shows, and technical seminars that introduce U.S. businesses to end-users and potential trading partners located overseas.

OIT staff compile and disseminate detailed information and analyses on the IT industry sectors they cover and contribute to the annual Department of Commerce *U.S. Industry & Trade Outlook* publication that describes current and future IT industry and market trends on a domestic and global basis. These specialists also work to update and expand the OIT Web site with information on foreign markets and regulations, including tariff and tax rates for IT products, U.S. and foreign policies that affect IT exports, upcoming trade events, and additional government and private sector resources. OIT distributes a free electronic newsletter highlighting trade leads, partnering opportunities, and trade events.

To obtain more information, including OIT international trade specialists and the regions/industry sectors they cover, contact:

Office of Information Technologies (OIT)
U.S. Department of Commerce, Room 2806
14th Street & Constitution Avenue, N.W.
Washington, DC 20230
Tel: (202) 482-0571
FAX: (202) 482-0952
Internet: <http://ExportIT.ita.doc.gov>

Office of Telecommunications Technologies

OTT's mission is to support the growth and competitiveness of the U.S. telecommunications equipment and services industries in foreign markets.

OTT provides business counseling to U.S. telecommunications firms seeking to enter or expand in specific markets by developing and disseminating information on the telecommunications market in foreign countries based upon information from US&FCS and a wide range of other industry resources.

OTT promotes international trade and investment opportunities for the U.S. telecommunications industry by sponsoring events that offer direct contact with foreign government and industry officials. OTT, in conjunction with sister ITA units and government agencies, acts as an intermediary between U.S. firms and foreign governments to provide advocacy on behalf of U.S. companies bidding on public projects abroad. OTT supports the USTR in trade negotiations to open foreign markets for U.S. telecommunications equipment and services exports. Additionally, OTT monitors both bilateral and multilateral telecommunications agreements and provides input to the USTR regarding compliance by foreign countries.

OTT conducts market research and statistical analysis of the domestic and international telecommunications industry and posts a variety of industry information to its Web site. The office distributes complimentary electronic newsletters that deliver up-to-date information on foreign market opportunities and changes affecting the industry and OTT contributes the

telecommunications chapters featured in the Department of Commerce *U.S. Industry & Trade Outlook* publication.

To obtain more information, including OTT international trade specialists and the regions/industry sectors they cover, contact:

Office of Telecommunications Technologies (OTT)
U.S. Department of Commerce, Room 4324
14th Street & Constitution Avenue, N.W.
Washington, DC 20230
Tel: (202) 482-4466
FAX: (202) 482-5834
Internet: <http://telecom.ita.doc.gov>

Office of Electronic Commerce (OEC)

The Office of Electronic Commerce is responsible for expanding U.S. exports by bringing small business exporters into the global economy, as well as engaging U.S. trading partners in e-commerce issues. The focus is to connect U.S. businesses to the new digital economy.

OEC provides information, business counseling, and export assistance services to U.S. firms seeking to enter specific markets by developing and disseminating information on the electronic commerce market conditions in foreign countries. OEC provides general trade and policy analysis and research, including analyzing foreign countries' e-commerce laws and initiatives. IT compared such requirements to U.S. policy requirements as well as other policy developments in relevant international fora.

OEC participates in fostering a favorable policy environment by focusing on keeping

both the Internet and foreign markets open to private sector driven global growth. This is accomplished by participating in various fora, such as the U.S. Government's interagency working group on electronic commerce, the OECD, WTO, European Union, Asia Pacific Economic Cooperation forum (APEC) and Free Trade Agreement of the Americas (FTAA). This effort also includes overseeing the Administration's E-Commerce Joint Statements with other governments, managing the IFAC-4 E-Commerce advisory committee, as well as participating in formal as well as informal policy dialogues with other nations. OEC's task is to determine how to address the changes taking place and ensure that the policy infrastructure is in place to enable business, trade and investment to occur as efficiently as possible in the digital economy.. OEC also provides various types of technical assistance, such as video conferences, to bring together government policy and industry experts on various e-commerce issues.

To obtain more information, including OEC international trade specialists and the regions/industry sectors they cover, contact:

Office of E-Commerce (OEC)

U.S. Department of Commerce, Room 2003
14th Street & Constitution Avenue, N.W.
Washington, DC 20230
Tel: (202) 482-0216
FAX: (202) 482-501-2548
Internet: <http://www.ecommerce.gov>

Office of Microelectronics, Medical Equipment, and Instrumentation (OMMI)

OMMI covers electronic components such as electron tubes, printed circuit boards, semiconductors, capacitors, resistors,

transformers, and connectors, as well as semiconductor manufacturing equipment. Additionally, OMMI supports several industry sectors with high IT content, including medical and dental equipment and electro medical apparatus, process control instruments, laboratory analytical instruments, optical instruments, and instruments used to measure electricity and electrical signals.

OMMI's primary mission is to promote exports and increase the international competitiveness of U.S. industry working in these sectors. OMMI counsels U.S. firms on foreign market conditions and the specifics of exporting, using information from overseas US&FCS offices and a wide range of industry-related resources. OMMI staff work with private sector and Department of Commerce colleagues to develop trade missions, trade fairs, catalog shows, seminars, and other trade events that offer direct contact with foreign government officials, industry representatives, and end-users. In cooperation with other parts of ITA and U.S. government agencies, OMMI participates in trade negotiations and supports USTR efforts to eliminate or reduce regulatory and other types of barriers that hinder trade and investment in these industries.

OMMI staff gathers and disseminates market research and statistical analyses of the domestic and international microelectronics, medical equipment and instrumentation industries. Trade and industry reports, trade statistics, information on foreign markets and regulations, U.S. and foreign policies that affect exports, trade events, and links to additional government and private sector resources are available on the OMMI Web site. OMMI industry specialists profile current and future industry and market trends on a

domestic and global basis in the Department of Commerce *U.S. Industry & Trade Outlook* publication.

To obtain more information, including OMMI international trade specialists and the regions/industry sectors they cover, contact:

Office of Microelectronics, Medical Equipment, and Instrumentation (OMMI)
U.S. Department of Commerce, Room 1015
14th Street & Constitution Avenue, N.W.
Washington, DC 20230
Tel: (202) 482-2470
FAX: (202) 482-0975
Internet: <http://www.trade.gov/ommi>

OTHER TRADE DEVELOPMENT OFFICES AND PROGRAMS

Trade Information Center

The Trade Information Center (TIC) is an excellent first stop for new-to-export companies seeking export assistance from the federal government. TIC Trade Specialists: 1) advise exporters on how to find and use government programs; 2) guide businesses through the export process; 3) provide country and regional business counseling, foreign import tariff/tax rates and customs procedures, trade opportunities and best prospects for U.S. companies, distribution channels, standards, and common commercial difficulties; 4) provide information on domestic and overseas trade events; and 5) provide sources of public and private sector export financing. TIC trade specialists also assist exporters in accessing reports and statistics from the computerized National Trade Data Bank and direct them to state and local trade organizations that provide assistance. To contact the TIC, call 1-800-

USA-TRADE; FAX (202) 482-4473; e-mail http://TIC@ita.doc.gov; or visit the Web site <http://tradeinfo.doc.gov>.

Advocacy Center

The Advocacy Center (AC) aims to ensure that U.S. companies of all sizes are treated fairly and evaluated on the technical and commercial merits of their proposals for foreign government tenders. Advocacy assistance is wide and varied, but often involves U.S. companies that must deal with foreign governments or government-owned corporations. Assistance can include the visit of a high-ranking U.S. government official to a key foreign official; direct support by U.S. officials (including Commerce and State Department officers) stationed overseas at the U.S. Embassies and Consulates; or, coordinated action by U.S. government agencies to provide maximum assistance. The AC is at the core of the President's National Export Strategy and its goal to ensure opportunities for American companies. Since its creation in 1993, the AC has helped hundreds of U.S. companies in various industry sectors win foreign government contracts valued at more than \$2.5 billion. For more information, visit the AC's Web site at <http://www.trade.gov/advocacy>.

Trade Missions And Events

Working in coordination with the private sector and the US&FCS, TD industry analysts help plan, organize, and execute trade events, including high-level executive missions with the Secretary or Under Secretary of Commerce. Additionally, there are a host of trade conferences and shows held throughout the U.S. and abroad. Industry-specific trade missions and events are listed on the individual TD offices Web sites.

Small Business Program

ITA's Small Business Program is the focal point for trade policy issues concerning SMEs. The program brings the small business point of view to international trade policy discussions, primarily through the Industry Sector Advisory Committees (ISACs) on Small and Minority Business for Trade Policy Matters, the only advisory committee to the U.S. Government on small and minority business export concerns. The Small Business Program also provides outreach to and plans events for small, women-owned, and minority-owned firms. Additional information can be found on the Industry Consultations Program's Web site at <http://www.trade.gov/td/icp>, or by contacting the Industry Consultations Program, U.S. Department of Commerce, tel: 202-482-3268; FAX: 202-482-4452; e-mail: Trade_Advisory_Center@ita.doc.gov.

Industry Consultations Program

Industry has a voice in U.S. trade policy formulation through the Industry Consultations Program (ICP). The ICP includes more than 500 members and is comprised of seventeen (17) Industry Sector Advisory Committees

(ISACs) on Trade Policy Matters and three (3) Industry Functional Committees on Trade Policy Matters (IFACs). The ISACs represent industry sectors of the U.S. economy, including IT and small and minority businesses. The IFACs address crosscutting issues affecting all industry sectors - customs, standards, intellectual property rights, and e-commerce. Advisors on these committees have direct access to trade policymakers at the Department of Commerce and the USTR and help develop their industry's positions on U.S. trade policy and negotiation objectives. Additional information can be found on the ICP's Web site at <http://www.trade.gov/td/icp> or by contacting the Industry Consultations Program, U.S. Department of Commerce, tel: 202-482-3268; FAX: 202-482-4452; e-mail: Trade_Advisory_Center@ita.doc.gov.

Export Trading Companies and Trade Intermediaries

The Office of Export Trading Company Affairs (OETCA) promotes the formation and use of export trade intermediaries and the development of long-term joint export ventures by U.S. firms. OETCA administers two programs available to all U.S. exporters. The Export Trade Certificate of Review Program provides antitrust protection to U.S. firms for collaborative export activities. The "MyExports.com!" program is designed to help U.S. producers find export partners and locate export companies, freight forwarders, and other service firms that can facilitate export business. For more information, visit <http://www.trade.gov/oetca> and <http://www.myexports.com>.

Market Development Cooperator Program

MDCP is a competitive matching grants program that builds public-private partnerships by providing federal assistance to nonprofit export multipliers such as states, trade associations, chambers of commerce, world trade centers, and small business development centers. These multipliers are particularly effective in reaching and assisting SMEs. Applicants use their own creativity to design projects that will help SMEs to enter, expand, or maintain market share in targeted overseas markets. MDCP awards help underwrite the start-up costs of exciting new export marketing ventures which these groups are often reluctant to undertake without federal government support. For more information, visit <http://www.trade.gov/mdcp>.

THE U.S. & FOREIGN COMMERCIAL SERVICE (US&FCS)

The US&FCS, one of TD's sister units in ITA, aims to assist U.S. firms in realizing their export potential by providing: 1) exporting advice; 2) information on overseas markets; 3) assistance in identifying international trading partners; 4) support of trade events; and 5) advocacy, among other services. US&FCS trade specialists work in more than 100 Export Assistance Centers across the United States and in more than 80 foreign countries.

International Operations

Overseas US&FCS offices are housed in U.S. Embassies and Consulates and serve as intermediaries to foreign markets. US&FCS staff members are industry-focused and offer numerous products and services that assist U.S. companies enter or expand their sales in a

particular market. The main activities of these offices include establishing key industry and foreign government contacts, helping match U.S. suppliers with local buyers, and organizing or facilitating trade events.

Domestic Operations

The US&FCS provides export counseling and marketing assistance to the U.S. business community through its 1,800 trade experts working in more than 100 domestic Export Assistance Centers (USEACs) located across the country. USEAC staff coordinate work closely with their US&FCS colleagues stationed overseas to match U.S. suppliers with foreign buyers. USEACs help firms enter new markets and increase market share by identifying the best markets for their products and services, developing an effective market entry strategy informed by input generated in the overseas offices, advising clients on practical exporting matters such as distribution channels, programs and services, and relevant trade shows and missions, as well as assisting with trade finance programs available through federal, state, and local entities.

US&FCS Services

Market Research

Industry Sector Analysis (ISA)

ISAs are structured market research reports produced on location in leading overseas markets and cover market size and outlook, with competitive and end-user analysis for the selected industry sector. ISAs are available through the U.S. Commercial Service's Web site (<http://www.usatrade.gov>) and are a

component of the National Trade Data Bank (NTDB) subscription service detailed below.

International Marketing Insight (IMI)

IMIs are written by overseas and multilateral development bank staff and cover information on the dynamics of a particular industry sector in one foreign market. IMIs are available through the U.S. Commercial Service's Web site (<http://www.usatrade.gov>) and are a component of the NTDB subscription service detailed below.

Country Commercial Guide (CCG)

CCGs are prepared annually by U.S. Embassy staff and contain information on the business and economic situation of foreign countries and the political climate as it affects U.S. business. Each CCG contains the same chapters, covering topics such as marketing U.S. products, foreign trade regulations and standards, investment climate, business travel, and in-country contact information. CCGs are available through the U.S. Commercial Service's web site (<http://www.usatrade.gov>) and are also a component of the NTDB subscription service noted below.

National Trade Data Bank (NTDB)

The NTDB is a one-stop source of international trade data collected by federal agencies that contains more than 200,000 trade-related documents, including market research reports, trade leads and contacts, statistical information, and Country Commercial Guides. The NTDB subscription may be purchased on CD-ROM, accessed through the Internet (<http://www.stat-usa.gov>), or is accessible free of charge at federal depository libraries. Call 1-800-STAT-

USA for more information and ordering instructions.

Export Prospects

Platinum Key Service

The Platinum Key offers customized, long-term assistance to U.S. companies seeking to enter a new market, win a contract, lower a trade barrier, or resolve complex issues. Fees depend on the scope of work.

Flexible Market Research (FMR)

FMR provides customized responses to questions and issues related to a client's product or service. Available on a quick turnaround basis, the research addresses overall marketability of the product, key competitors, price of comparable products, customary distribution and promotion practices, trade barriers, potential business partners, and more. Fees vary according to scope of work.

International Partner Search (IPS)

IPS provides a customized search that helps identify well-matched agents, distributors, licensees and strategic alliance partners. A fee of \$600 per country is charged.

International Company Profile (ICP)

ICP investigates the reputation, reliability, and financial status of a prospective trading partner. A U.S. exporter can obtain this information, as well as detailed answers to specific questions about the prospective partner, in a confidential report. In addition, commercial officers at the U.S. Embassy will

provide a recommendation on the suitability of the profiled company as a business partner. A fee of \$500 per company is charged.

Export Promotion

International Buyer Program (IBP)

IBP, supporting 28 major domestic trade exhibitions annually, undertakes for each show a worldwide promotional campaign aimed at maximizing international attendance through work with the overseas network of Commercial Service and Embassy offices. Qualified buyers and prospective distributors, many brought as part of delegations led by overseas commercial staff, are assisted in meeting with interested exhibiting firms and provided services aimed at helping them find new suppliers and trade partners. Each show features an international business center at which export counseling, matchmaking, interpreter and other business services are provided to international visitors and exhibitors.

Video Conferencing Programs

The "Virtual Matchmaker," "Video Gold Key," and "Video Market Briefing" programs provide an effective tool to help U.S. companies assess an overseas market or overseas business contacts before venturing abroad to close a deal. Companies can use these cost-effective video services to interview international contacts, get a briefing from overseas industry specialists on prospects and opportunities, or develop a customized solution to international business needs.

Gold Key Service

The Gold Key is a custom-tailored service for U.S. firms planning to visit a country. This service provides assistance in developing a sound market strategy, orientation briefings, introductions to pre-screened potential partners, interpreters for meetings, and effective follow-up planning. The fees range from \$150 to \$700 (for the first day) per country.

Matchmaker Trade Delegations

The Matchmaker Trade Delegation Program is designed to match small to medium-sized new-to-market or new-to-export U.S. firms with qualified business contacts abroad. Each mission targets major markets in two or three countries that have strong potential for U.S. goods and services. Delegation members travel to each country and benefit from export counseling, interpreter service and logistics support, market research, in-depth market briefings, and a personalized itinerary of business appointments screened by commercial specialists at U.S. Embassies and Consulates.

BuyUSA.com

BuyUSA.com (<http://www.buyusa.com>) is a unique public/private partnership between the U.S. Commercial Service and IBM. It established a one-stop international marketplace for U.S. small to medium-sized enterprises to identify potential international partners and transact business on-line. The BuyUSA.com e-marketplace includes managed/targeted trade leads, on-line catalogs, automated searching and sourcing, financing, logistics, currency conversion, due diligence,

landed-cost calculation, and tariff and duty calculation. BuyUSA.com is the only Web site of its kind to combine an on-line interface with a worldwide network of one-on-one trade counselors.

services to more than 400,000 potential buyers and partners in 145 countries.

Product Literature Centers

This program showcases U.S. company product literature through exhibits in international trade shows held in both mature and emerging markets. The Product Literature Center is a low cost, efficient way for small and medium-sized firms to get worldwide sales leads in their particular industry. A Commerce Department industry/international specialist or the U.S. Embassy operates Product Literature Centers. Visitors to Product Literature Centers are required to register and may take company literature with them. All sales leads are sent directly to the Product Literature Center participant.

Multi-State Catalog Exhibitions Program

This program showcases U.S. company product literature in fast-growing markets within a geographic region. The U.S. Department of Commerce and representatives from state development agencies present product literature to hundreds of interested business prospects abroad and send the trade leads directly to U.S. participants.

Commercial News USA (CNUSA)

CNUSA, a catalog-magazine containing advertisements of U.S. products, is published 12 times per year by the Commercial Service through its private-sector partner, ABP International, to promote U.S. products and

APPENDIX

CONTACTS: Hungary

U.S. DEPARTMENT OF COMMERCE, INTERNATIONAL TRADE ADMINISTRATION - THE U.S. & FOREIGN COMMERCIAL SERVICE

The U.S. Embassy in Hungary is responsible for providing U.S. SME exporters with the full range of US&FCS assistance in researching, entering and expanding within Brazil.

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Government Commissioner
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Web page: www.dbassoc.hu

Hungarian Chamber of Commerce and Industry

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Fax: (202) 872-5501
www.bsa.org

Information Technology Association of America (ITAA)

1401 Wilson Building, Suite 1100
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Fax: (703) 525-2279
www.ita.org

Software and Information Industry Association (SIIA)

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Washington, DC 20036-4510
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Fax: (202) 233-8756
www.siiia.net

Telecommunications Industry Association (TIA)

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Relevant American Chambers of Commerce Abroad

The U.S. Chamber of Commerce is the world's largest business federation, representing nearly three million companies, 3,000 state and local chambers, 850 business associations and 87 American Chambers of Commerce abroad. Among other goals, Chambers of Commerce abroad seek to promote bilateral trade, direct investment, technological transfer and other special items of mutual interest between foreign countries and the United States, and to supply U.S. business with placement services and information on trade opportunities and foreign economies.

American Chamber of Commerce in the Czech Republic

American Chamber of Commerce
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www.amcham.sk

Selected Major IT- and Telecommunications-Related Trade Events

U.S. DEPARTMENT OF COMMERCE IT & TELECOM TRADE MISSION TO POLAND, CZECH REPUBLIC, AND HUNGARY

The International Trade Administration's Information Technology Industries will lead an IT and telecom industries trade mission to Warsaw, Poland, Prague, Czech Republic, and Budapest, Hungary from April 18-25, 2002. The mission will provide an excellent opportunity for U.S. Information and Communications Technology (ICT) companies to find business partners and market their products in Poland, Czech Republic, and Hungary. Recruitment for the mission will begin immediately and is expected to conclude by March 18, 2002. Applications received after that date will only be considered if space and scheduling constraints permit.

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CeBIT 2002

IT & Telecommunications Trade Show

Hannover, Germany

March 13-20, 2002

Deutsche Messe AG

Messegelände

30521 Hannover

www.cebit.de

HIT PRAHA

An international trade fair for computers and household and electronic appliances.

September, 2002, Prague, Czech Republic

INVEX-COMPUTER

An international trade fair of information and communication technologies

October, 2002

Brno, Czech Republic

www.bvv.cz/invex

e-mail: invex@bvv.cz

INFO

International Trade Fair for Information and Communication Technology

May, 2002

Budapest, Hungary

organizer: Hungexpo

Web page: www.hungexpo.hu

Additional Information on Trade Agreements

For further information on the Accession to the EU of Candidate Countries contact

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