Guide to the European IT Markets

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Country Reports

AUSTRIA

Local Market Commercial Specialist

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Market Overview

The Austrian ITC (Information technology and communications) market in 2005 totaled $14.3 billion. IT accounted for $ 7.2 billion and telecommunications for $7.1 billion.

Computer hardware accounted for $ 2.6 billion, software products for $1.3 billion and IT services for $3.3 billion. Telecom services amounted to $6.7 billion and communications and network equipment for $361 million in 2005.

Industry experts project that the IT market will expand 7.4 percent year-on-year in 2006 to reach $8.08 billion. Over the five year forecast period, the Austrian IT market should expand at a compound annual growth rate (CAGR) of 6.8 percent with the strongest growth to be seen in the hardware segment. Leading drivers will include spending on security solutions, streaming media, digital identity services, server blades, and the wireless rollout. Linux will experience a banner year, but web services will have less of an impact in the short term. Windows XP will experience rapid growth but will not have the impact of previous Windows evolutions.

Sales for the entire computer hardware sector are expected to increase by 6.2 percent in 2006. Industry experts forecast a growth of 6.1 percent for software products, and 7.3 percent for IT services in 2006.

It is critical that software be "user-friendly", whether marketed to personal users, business professionals or executives. It is vital that the software be "bug-free" and preferably written in German. Software packaging is important for retail sales and should be in German.

The market for databases is growing, especially as Austrian companies develop and maintain e-commerce sites, and as small and medium sized enterprises discover the advantages of enterprise-wide information management.

Despite some bandwidth and tariff structure limitations, E-commerce is growing steadily. Presently, there are about 2.3 million commercial Internet users in Austria, however this number is expanding rapidly. Austrians spent about $28.1 billion for online purchases of products and services of all kinds in 2005 -- up from only $16.6

billion in 2004, which is a growth of 69 percent. By the end of 2006, online purchases will grow to $38.1 billion.

The Marketplace for Business Process Technology

Software is rapidly becoming a determining factor in the development of a country's economic potential. Global business activities by companies require complex, multilingual, multi-functional, disseminated software solutions. The software must be globally integrated and standardized with interfaces to all possible available packages. Software solutions must take into consideration local regulations and laws governing hardware produced and sold by different manufacturers.
European standards will be developed which will facilitate entry into larger markets for application software.

New technologies, together with the larger market into which they are introduced, will stimulate demand for new applications in networks, optical storage, image processing, multimedia services and more.
IBM is the largest IT vendor in Austria. However, there are approximately 50 additional U.S. IT firms selling their products and services in Austria. In addition, there is strong competition from European and Asian suppliers in this market.
The IT Services market in Austria expanded 1.3 percent year-on-year in 2005 to reach a value of $3.27 billion. Measured in Euros, the services market remained flat compared to the previous year. The Austrian IT services market can be characterized as a very mature market with no clear drivers in sight.

In 2005, the total outsourcing category comprised 36.2 percent of the IT services market in Austria, with a value of $1.18 billion. Spending on outsourcing services rose only 0.7 percent year-on-year. This was down considerably from the 23.2 percent growth seen in 2004 and can be attributed to a slump in the market for outsourcing basic information systems.
The year 2005 has seen the development of a variety of new security threats, with detected malicious code affecting traditional IT systems and networks, embedded operating systems, and mobile and VoIP technologies. The ongoing effort by security vendors to enhance security tools and contain damage from newly aggressive security attacks has spurred further growth in the Austrian security software industry. This subsector grew 10.5 percent from 2004 to 2005, reaching $65 million. The market is expected to achieve $122 million in revenues by 2010, representing a compound annual growth rate (CAGR) of 13.4 percent.
Security technology is an important foundational element for many of the leading growth drivers in the IT market today, including Web services and digital identity services.

STATISTICAL DATA

ITC market Expressed in millions of US dollars

	ITC Market 2004	ITC Market 2005	ITC Market 2006	Est. annual growth rate over the next 3 years
Computer hardware	2, 234.7	2,635.3	2,849.6	
Software products	1,244.0	1,415.0	1,502.4	
IT services	3,166.5	3,467.4	3,722.1	
Total	6,645.2	7,517.7	8,074.1	7.4 percent

2005 import market share for USA: 28%
2005 exchange rate: 1US$ equals € 0.80

The Marketplace for Communications Technology

Telecommunications market

In 2005, the market for telecommunications services in Austria increased in total volume. Growth was particularly strong in mobile communications. Tariffs continued to drop in the fixed and mobile network sectors.

More than half of 2005 sales can be attributed to mobile communications, which grew at a rate of 5 percent (in EURO terms). Due to increasing broadband penetration the sales in broadband services increased by 21.9 percent in 2005 vis-à-vis 2004. The Austrian telecommunications market employed 18,664 people in 2005.

Mobile communications market

For a number of years, the prices for mobile telecommunications have fallen so dramatically that mobile telephony is now the toughest competition for fixed network telephony. By the end of 2005, there were 8.4 million active mobile phone subscribers, representing a penetration rate of over 90 percent.

The new regulatory framework for electronic telecommunications markets, which is laid down in five directives from the European Union and was translated also into Austrian national law in the summer of 2003, aims for a harmonized regulatory policy that promotes competition within the Member States. Articles 14 through 16 of the framework Directive are of central importance, giving a clear mandate to the national regulatory authorities (in Austria RTR GmbH) to carry out extensive market analyses at regular intervals. RTR is an independent regulating body and is in charge of granting licenses, assigning frequencies, setting prices and terms of contracts, monitoring the market and arbitrating disputes.

Because of a shortage of frequencies, the mobile communications market, which was liberalized in 1996, has fewer players than the fixed network. Market entry for a new company is possible only if that company is granted or, since the summer of 2003, transferred frequency usage rights. The Austrian mobile market has been quite competitive in recent years, but over the last year the market has shown signs of saturation, reflected in the restructuring of operations by some operators. The market continues to be led by Mobilkom Austria with a market share of 40.8 percent, followed by T-Mobile with 25.4 percent, "One" with 19.8 percent, Tele.ring with 11.5 percent, and "3 Austria" with 2.3 percent in 2005.

Fixed network market

The estimated number of authorized public fixed voice telephony operators in Austria is 67. Of these, six major players have a share of 90 percent. At the beginning of market liberalization, the fixed network market opened up mainly via the carrier network operators. Relatively easy market entry with little required investment input resulted in a large number of applications for licenses. Most of the major providers are developing, or have already developed, into full service providers. In addition to providing speech, data and Internet services, they are also offering Server Hosting, Application Services, and mobile services. Providers that can offer a full range of products and services have the best chance of surviving in the long term. There were 2.9 million fixed lines in service at the end of 2005. Telekom Austria claims 2.8 million of these. The number of fixed access lines operated by Telekom Austria has been declining in recent years as customers opt for ISDN lines or replace their fixed line

with a cellular subscription. Meanwhile, the number of cellular subscribers has increased dramatically.

To sum up, the telecom services sector has been largely liberalized, is well developed, and is extremely competitive. Licenses are required for wire-bound public voice telephony, public offering of line leases, and wireless voice telephony. A single simple registration requirement applies to all other telecom services. The convergence of mobile phones, Internet, TV, satellite, and cable offer a potent mix of new services, especially to American firms, which are the most experienced suppliers for many of these services. U.S. telecom services providers present in Austria include Abovenet Communications, Airpage, AT & T Global Network Services, Equant Network Services, Facilicom International, UPC Telekabel, and Verizon. Mobile communications will continue to increase with the drop in tariffs.

Broadband

Broadband penetration (expressed as a percentage of the population having it) is expected to increase from 1 million lines in 2005 to 1.2 million lines in 2006, while fixed network voice telephony and leased lines will decline somewhat.

Broadband as a growing sector should be an attractive target for investment by U.S. Companies. An alternative operator or Internet Service Provider (ISP) can implement broadband access to end-users either by using self-operated access technologies such as optical fiber, power-line, radio networks (W-LAN), and cable television networks (CATV), or by resorting to the unbundled (copper) access network of Telekom Austria and purchasing bit streaming as a wholesale service. There exists an enormous potential for further development of the broadband market through the use of innovative technologies and products.

It is estimated that 30 to 35 percent of all Austrian households will have a broadband connection by the year 2008.

Internet services

The Austrian market for Internet services is growing rapidly. About 5.5 million Austrians were active Internet users in 2005, an increase of 8.9 percent over 2004. Of these 2,260,000 were workplace users and 4,522,000 were home users. Relatively high telephone costs and ISP subscription fees, a general reluctance by Austrians to use electronic payments, and data protection concerns, hinder use of the Internet. Nevertheless, the future of electronic commerce in Austria appears promising. Austrians spent about $28.1 billion for online purchases of products and services of all kinds in 2005 – up from only $16.6 billion in 2004, which is a growth of 69 percent. By the end of 2006, online purchases will grow to $38.1 billion.

Telekom Austria's A-Online is the largest Internet provider in Austria, but there are some 205 ISPs in the country. A complete list of ISPs can be obtained from the following website: www.ispa.at

Higher-ticket products solely dependent on broadband take-up are growing in popularity including video-on-demand and music services that allow customers to download films

Digital equipment

The Austrian digital camera market was valued at US$ 342 million in 2005, an increase of 8.5 percent vis-à-vis 2004. It is a market, which has truly captivated the Austrian consumer. The leading vendors in this market were Canon with a market share of 16.5 percent, Sony with 10.9 percent, Olympus with 10.2 percent, Kodak with 10.1 percent, Fuji with 9.6 percent, Nikon with 8.9 percent and HP with 5.9 percent. Other vendors had a share of 27.9 percent.

The integration of digital cameras in 2005 moved beyond a point of differentiation as devices in the mid and lower ranges of vendor portfolios were included in the market and heightened consumer expectations, making imaging and video capability into a consumer commodity. Central to the expansion of the camera phone segment were substantial declines in component costs such as imaging sensors, combined with the development of manufacturing processes that have evolved to include the integration of digital cameras as a standard element in the production process.

VGA and sub-VGA cameras are now priced below US$60. Consumer point-and-shoot cameras are the traditional digital cameras. Resolution of these cameras currently ranges from 1MP models to 8MP models (e.g. HP's Photosmart 215 or Sony's DSC F-828). All of the models have removable memory and a color LCD display that can display the images captured.

Camera Phone Vendor Strategy

Due to growing commoditization and technological evolution in the camera phone space, vendor strategy evolved substantially in 2005 in an attempt to expand usage scenarios beyond casual, spontaneous image capture, and to provide new points of differentiation. The introduction of the Nokia N90 saw the first significant departure from vendors' persistent focus on resolution, and the collaboration with Carl Zeiss to incorporate quality lenses, designed with the dual intention of increasing quality rather than the pure volume of mega pixels. Similarly, in January 2006 Motorola joined forces with Kodak for the purposes of CMOS sensor supply and integration of software and services to enable access to the Kodak Easy Share Gallery, printers, and retail kiosks.

In addition, Nokia added to existing partnerships in announcing a collaboration with Yahoo in April 2006 to add support for Flickr, the online photo sharing facility for its N series devices, thus enabling immediate upload OTA direct from a handset's gallery. When considered in conjunction with the addition of WLAN and UPnP (universal plug and play) support in devices such as the Nokia N80, such moves illustrate that the leaders in cameras phone imaging are those that are not only leveraging brand, component, and service strength from parallel markets, but are also already embracing convergence with regard to devices, networks, and services. This points to the beginning of a process of unifying fixed and mobile domains and enabling a seamless reciprocation of user experience, whereby a user can access and utilize the same service, regardless of location, access point, and terminal.

There was a sharp slowdown in the growth of the digital camera market in 2005. The market declined 8.5 percent in 2005 vis-à-vis 2004. Industry experts predict that

2006 will show a small drop in shipments and will continue to show small declines each year until 2008. The decreasing importance of the camera phone has had the effect of stunting the growth of the camera market at the low end. The focus is turning from cameras in the phone market to other functions such and streaming media.

Disk storage systems

The Austrian disk storage systems market is highly competitive with a relatively low volume of annual array sales. At US$206.6 million in end-user spending, Austria accounted for just 2.9 percent of 2005 disk storage systems spending in Western Europe. The US$206.6 million in disk systems revenue represented a 16.8 percent growth over the previous year.

New shipments of disk storage systems grew at a healthy pace of 47.3 percent in 2005. Austria's growth in this sub-sector contributed approximately 2.6 percent of total incremental shipments of storage systems throughout Western Europe. Storage spending was also driven by projects intended to increase data resiliency and to reduce data recovery and restore times. Such trends would certainly support the shift towards networked storage, which when appropriately designed and implemented, provides end-users with a much more resilient and efficient storage ecosystem.

A large portion of recent storage spending was in the financial services, telecom services, government, and healthcare industries. HP was the largest supplier of disk systems and accounted for 39.5 percent of total 2005 sales. IBM ranked second with a share of 20.5 percent. EMC ranked third with 11.2 percent of supplier revenue, while HDS ranked fourth with a share of 7.0 percent, and Fujitsu-Siemens dropped to a 5.2 percent share of the Austrian disk storage systems market.

The top three suppliers accounted for 56.9 percent of total 2005 array sales. The top ten suppliers exceed 80 percent of total market value.

Unix sales are expected to remain flat through the forecast period. Sales of external arrays for disk storage supporting Unix are expected to increase 1.5 percent when compounded annually through 2010, while internal Unix storage systems will experience a 5 percent decline during the same period. The Unix market will account for approximately 30 percent of all array sales in 2010, down slightly from 33 percent in 2005.

The Windows array market will grow 2 percent, compounded annually, between 2005-2010. Windows will remain the largest operating systems market segment throughout 2010, increasing from 45.5 percent of total 2005 sales to 46.6 percent in 2010.
Linux will remain the fastest growing operating systems segment of the disk systems market and will experience a 16 percent compound annual growth rate through 2010. Both internal and external arrays supporting Linux will increase throughout this forecast period. This segment is expected to account for 11.3 percent of the 2010 market.

Upcoming Events

Trends in Telecoms - November 2007
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ItnT Trade Show - February 5-7, 2008
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Important USDOC Resources in this Market

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BELGIUM

Capital: Brussels
Population: 10.000.000
Languages: Dutch, French, (English), German
Monetary Unit: Euro
Exchange Rate: 0.82
GDP per Capita (in US$): $31,800 (2005 est.)

Local Market Commercial Specialist

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Market Overview

Belgium is a small market of only 10 million people. However, the Belgian Information and Communications Technology (ICT) sector is doing very well and, over the past year, has grown significantly faster than the Belgian and, in fact, European economy all sectors combined. The ICT sector represents a turnover of 21.7 billion dollars for Belgium and Luxembourg. This year the Belgian ICT sector grew 3.2% slightly higher than western European average ICT growth of 3.1% and the overall growth of the Belgian economy of 2%. For the first time since 2000, the Belgian ICT sector is growing faster than the national economy. The Belgian ICT market growth will leap forward and is expected to reach 4.0% in 2004.

Belgium's telecom sector has been struggling over the past few years, particularly with regards to the liberalization of the European markets. Notwithstanding the liberalization of telecommunications in 1998, the fixed-line market is still dominated by the former monopoly operator, Belgacom, which is 51% state owned. There are about 40 other operators, but the only significant one is Telenet, which owns a substantial cable infrastructure but has only a small share of the overall market. For the mobile phones there are three major players: Proximus (Belgacom), Mobistar (France Telecom) and BASE (KPN). All formally introduced third-generation (3G) mobile phones services in the third quarter of 2003 but have so far failed to market them.

The information technology market seems to be mainly driven by new investments by SMEs, the median being companies with a turnover of 5 million dollars. Computer hardware, personal peripherals, software and IT services are growing steadily. Only office equipment, data and network hardware are in decline.

The Marketplace for Business Process Technology

All the big names in the IT business processes sector are present in the Belgian market: Oracle, PeopleSoft, Act!, Seibel and SAP. Microsoft is a new comer on the market looking to carve out its share of the CRM segment with its "sales" application. Competition between these companies is fierce. Ever since the IT bubble burst in early 2000, investment in the sub-sector has been nearly non-existent; most

companies cancelled their IT projects. However, since 2003 investment has been resuming quickly. Big corporations are largely catered for; the SME market, on the other hand, is wide open and growing. SMEs are quickly realizing that they are behind the United States in terms of business processes and must catch up fast to remain competitive.

CRM and document management seem to be the main market drivers. Microsoft has anticipated this demand and is marketing mainly its CRM software to companies employing 5 – 150 people. According to the Belgian IT market intelligence group InSites, over the next year, 40% of Belgian companies intend to increase their IT budget by 10% to 15% for business processes; the main segment being firms with a turnover between $500,000 to $10,000,000. Only 1% of Belgian companies intend to decrease their IT budget.

Smaller companies will rarely contact the larger corporations such as PricewaterhouseCoopers or EDS. They view the service as disproportionately expensive and will rather contact one of the 40 Systems Integrators on the market. These latter hold to themselves 20% of the entire IT market and tend to carve out their own niche market mainly: document management and archiving, telecom integration and CRM. American firms looking to penetrate the Belgian business processes market should contact the systems integrator that caters the target to the end-user.

The Marketplace for Communications Technology

E-commerce fares well in Belgium; in 2003, of the 4.5 million regular surfers- representing 44% of the population, over 2.2 million Belgians made an online purchase, this is 4% more than last year. E-commerce in Belgium is worth 500 million dollars. The average e-shopper spends $100 per year. Purchasing entertainment ticket (concerts, movies) and transportation passes (plane, train) represent 28% of online traffic. E-commerce has grown significantly over the past few years but may have hit a slower growth plateau. This is probably due to the stagnation of computer sales rather than true weakness of the sub-sector. Overall Internet access is fairly high in Belgium approaching 60% penetration. 84% of the Internet connections in Belgium are broadband, either ADSL or Cable. The weak link is the PC sales among senior citizens. Less than 50% of the 55-year-olds have access to a computer and the Internet and less than 20% of the 65-year-olds have access to these tools.

The number of companies creating their web sites is growing. According to 2003 market data 82% of Belgian companies have an Internet site. According to the OECD, 50% of the content of Belgium 's registered domains are in English, while the rest is equally divided between French and Dutch. However, 24% of Belgian companies use an extranet with customers and 6% allow online transactions. Credit card purchases are becoming more widely accepted but there are still some security concerns. Concerning M-commerce, it remains very weak in Belgium.

The main hinders for online buyers stems from technical difficulties. In fact, 20 % of Belgians find it difficult to buy online due to bad service design. There is therefore a market for products that increase user-friendliness of online purchases. A local company, the Free Record Shop, is offering the possibility to order audio tracks online. Currently, they are offering over 500,000 tracks for download. This should be an excellent stimulant for the e-commerce market. Free record shop is competing with less well-established, iTunes, MSN, Skynet and Tiscali. MSN offers 6,000 tracks online.

Likewise, the demand for security appliances, multiple methods of payment (pay-pal has yet to catch on in Belgium), and Internet services is high. There is also a significant demand for telecom services including Text To Voice (TTV) and Interactive Voice Recognition (IVR).

The Marketplace for Digital Equipment & Systems

Since the Dot.Com bubble burst in early 2001, the data storage/SAN market has been depressed. There were over investment, over capacity and nearly 25% of the data storage companies failed. They were bought at rock bottom prices and were consolidated. Despite, the infrastructure of the SAN market is aging and still operating under its capacity. Surprisingly, in the past three months it has known a pickup in demand.

According to SAN service providers, demand is expected to rise significantly over the next few years. Sources Inc. contends that, an upcoming change in European legislation requiring companies to archive data may further bolster the market. Security products are increasingly in demand. Of the estimated 3,500 companies that have storage demands, an estimated 75% still have to make their first step. Systems Integrators are looking for devices and software that can seamlessly handle iSCSI and Fiber Channel.

Interestingly the Belgian SAN market intends to acquire an extra Systems Integration type layer. Some companies on the market, such as Source n.v., will not sell hardware or software but will provide SAN solutions and will act as an intermediate between the end-user and the data warehousing company.

Traditional film development is down as the popularity of digital cameras grows. There has been a steady decline in the use and development of traditional film amid the rapid rise of digital cameras. They currently represent 37% of the world market of camera sales, and this number is expected to grow to over 63% by the year 2006, according to National Imaging Distributors. The Belgian photo finishing industry is realizing the growing need for digital photo printing capabilities, and therefore the push for its growth will be welcomed within the country. Spector Photo Group and other Belgian photo finishing companies are developing methods of printing that are convenient and easy for consumers. Web-based and kiosk ordering are the chief forms of digital photo processing that are growing in popularity in Europe and specifically in Belgium.

There is also a strong market for document management and archiving such as technologies that scan and use Optical Character Recognition (OCR) to store and efficiently access documents for e.g. medical and banking services. American firms interested in penetrating this market should contact one of the 40 specialized Systems Integrators (SI) on the market. The U.S. Commercial Service maintains a list of qualified Belgian SIs. For more information please contact Mr. Ira Bel, mailto:Ira.Bel@mail.doc.gov or call +32 2 508 2434.

Future Prospects in this Market

Best prospects in the Belgian ICT sector seems to be: SAN equipment, iSCSI and Fiber Channel compatible tools, network security appliances and related software. The market is also strong for solutions that improve perceived if not effective security of online transactions. CRM, data management and archiving are expected to grow steadily over the next year offering high opportunities for American companies operating in these sectors.

In the hardware/peripheral sector, consumers are increasingly interested in data storage equipment, PDAs (GPRS with Internet connectivity, possibly with GPS capabilities), WiFi, small/entry level servers, laser printers, color inkjet and multi functional printers, TFT and LCD screens.

In the software sector, consumers are interested in all types of standard applications, Internet and Intra- and Extranet software, web content management software and solutions, networking software and network security products, development tools, Windows, Linux and UNIX-based products, storage management software, CRM and ERP products, and application management products. There is a strong demand for game software tailored for the consumer market.
In the services sector, demand is focusing on desktop and network management, application hosting, security services (assessments and scans) and all types of Internet and E-Commerce-related services.

There is a growing demand for telecom equipment and services for mobile, fixed line telephony, cable, broadband, mobile (value-added) data services, and all types of Internet-related communication services. The Belgian market requires also: Outsourcing and maintenance of infrastructure installation, VoIP services for the business market, security applications for mobile communications, entertainment applications, multimedia services and applications, and communication security products and services.

Important USDOC Resources in this Market

Mr. Ira Bel will be coordinating SCE program at CeBIT – March 15-21. The U.S. Commercial Service will be bringing over 17 ICT Market Expert to CeBIT and will offer free to American firms only the possibility to brief the Commercial Specialists on their product or service and the Specialists will give their feedback as to the U.S. firms' product potential in their respective markets. Again, this is a free program. Please contact Mr. Ira Bel at mailto:Ira.Bel@mail.doc.gov or call +32 2 508 2434 or call +32 475 29 69 85.

BULGARIA

Capital: Sofia
Population: 7.9 million
Languages: Bulgarian
Monetary Unit: Lev (BGN)
Exchange Rate: 1 USD=1.509 BGN (Bulgarian National Bank exchange rate on January 22, 2007)
GDP per Capita: $3,114

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Market Overview

The macroeconomic data shows that Bulgaria has a stable growth in GDP of 5% for a period of 7 years. Expected GDP growth in 2006 is 6.0%. FDI in telecommunications from 1998 to June 2005 is $1.621 billion, which is 9% of total FDI (estimated at 17.602 Billion until Sept 2006). One of the biggest deals in the region was the $1.94 billion buyout of one of the Bulgarian mobile operators Mobiltel by Telekom Austria in 2005. The inflation rate of 6% for 2006, no budget deficit, no currency fluctuations (since the Bulgarian lev is pegged to the Euro) and attractive corporate taxation of 10% imply excellent environment for business activities in the sector. Since 2004 budget surpluses have been reported. Employment rate is 56 %, which is the lowest EU-wide, with current EU-average at 64 %.

Economic Data on Bulgaria for 2006:

Total population of Bulgaria	7.9 million
Total number of employed people	2,18 million
Average net monthly salary	$ 216

Source National Statistic Institute

The new opportunities in the Bulgarian ICT sector are based on talented human resources, mature software organizations and the direct access to global markets through the NATO membership (2004) and the European Union accession in January 2007.

Currently, there are over 4 000 actively operating ICT companies in the country. After a serious decline in the first years following the transition to a market economy, the ICT sector is very strong again. The overall size of the Bulgarian ICT market for 2006 amounted to $2,650 million. Total ICT revenues are among the lowest compared to Central and Eastern Europe; however, impact of ICT on GDP is already high in Bulgaria. The telecom market value amounts to 9% of Bulgaria's GDP.[1] There is a trend for the telecommunications segment to grow faster than the overall IT sector.

The year 2006 was marked by a severe competition between the major telecommunication companies, both in the fixed line and mobile market segments especially after the liberalization of the market for fixed telephone networks in January 2003. The government's influence over the sector is only regulatory through the Communications Regulation Commission, since state is not a major stockholder in biggest corporations. Bulgaria held tenders for 3G mobile network licenses and WiMAX Class A and Class B point-to-multipoint wireless licenses. There were B2B solutions dominate in the software segment. Cable TV providers are still not considered major competitors for the Internet service providers. The trend in the hardware computer market is towards branded than assembled PCs with a growth in mobile configurations as well as servers.

The Marketplace for Business Process Technology

Bulgaria is the leader in the field of outsourcing among the countries in East Europe according to the research of *CIO* (Chief Information Officers, published by *CXO Media Inc*.) and *Meta Group Inc*. The major activities are in the areas of developing software – computer system software, networking software and web-design, CAD/CAM/CAE software, telecommunications and wireless development software, application software, firmware, hardware – computer and systems assembling, digital and analog printed circuits design, PCB manufacture, analog mixed engineering, microelectronics – design ASIC's, front-end and back-end microelectronic activities, and automation – systems for industrial automation.

An adequate technical training, years of experience in the development of hardware, software, and electronic products, and good language skills are the basis for a large and attractive pool of workforce in the Bulgarian business process technology sector. The key factors are: more than 20% of the population speaks a foreign language, close to 5,000 university and college students enroll in IT degree programs annually, Bulgaria employs about 20,000 ICT professionals and ranks 3rd in world for certified IT professionals per capita as well as 8th in the world in terms of absolute numbers. In addition, there are 110 CISCO academies in the country. A number of foreign companies have outsourcing arrangements with Bulgarian software companies. As a result of the saturation of the market, the number of available IT specialists is decreasing.

The fact that the exported software products developed in Bulgaria are free of VAT led to the situation where more than 50% of the export is contributed by software developing companies. According to the EITO, the software market in Bulgaria totaled to $505 million in 2006. Not surprisingly, major foreign investors in the sector, HP, IBM, Tumbleweed Communications, etc., are expanding their operations in Bulgaria.

[1] Commission of Regulation of Communications, Annual Report 2005, http://www.crc.bg

The Marketplace for Communications Technology

Source: Companies financial reports

Company	Sector	Ownership	Revenues in USD mln. (for 2005)	Number of subscribers as of the end of 2006
Bulgarian Telecommunications Company	Fixed voice/data, Internet, Card phones, mobile telecommunications	Viva Ventures, Austria owned by Advent US – 65% (call option was bought by Novator Telecom Bulgaria) Traded on Stock Exchange - 34% State Share - 1%	676 (for 2005)	2,500,000
Vivatel (GSM)	Mobile telecommunications	Vivatel is a member of the BTC group	2.3 (for 2005)	170,690
Mobiltel (GSM/Internet)	Mobile Telecommunications, Internet	Austria Telecom	119 (for 2005)	3,300,000
Cosmo Bulgaria Mobile – GloBul (GSM)	Mobile telecommunications	Cosmote, Greece – 100%	357 (for 2005)	2,500,000
Orbitel	Internet, Fixed voice/data	Magyar Telekom (Hungary), member of Deutsche Telekom Group	15.4 (for 2005)	n.a.

Bulgaria has one of the highest penetrations of telephone service in Eastern Europe, with around 38 subscribers per 100 inhabitants. The Bulgarian Telecommunications Company (BTC), a formerly state-owned enterprise, owns Bulgaria's largest fixed telecommunications network. Currently, 47% of the BTC network is digitalized. Digitalization must reach 75-81% by the end of 2008. It is expected that upon Bulgaria's entry into the European Union, the alternative telecoms will take 50% of the BTC traffic.

Twenty Bulgarian operators have been licensed to install and operate a network for fixed-line voice telephony. Despite the license, only a few operators have their own fixed infrastructure. The rest of the companies primarily offer VoIP services and have signed interconnectivity agreements. PC-PC telephony is becoming popular in Bulgaria as well. The move has led to lowering the tariffs for international and long-distance

calls while having only a marginal effect on BTC's market penetration. 97.5% of the fixed line revenues are still generated by BTC.

As of August 2006, three telecommunications operators operate on the Bulgarian mobile cellular networks and services market - three GSM operators: MOBILTEL EAD with a trade name M-TEL, COSMO BULGARIA MOBILE PLC with a trade name GLOBUL and the BULGARIAN TELECOM COMPANY with a trade name VIVATEL. Mobiltel has 3.3 million subscribers and Globul has 2.5 million. The Austrian telecommunications operator TELECOM AUSTRIA AG paid $1,95 billion to acquire 100 % of the Mobitel in June 2005. In August 2005, the Greek owner of Cosmo Bulgaria Mobile, OTE sold Globul for $490 million to its mobile unit Cosmote. The mobile penetration rate In Bulgaria is 84% of the population. The mobile market in Bulgaria is still growing faster than any other telecommunications sectors.

Mobiltel uses the Pan-European digital GSM standard (900 MHZ). Mobiltel was launched in 1995. The second GSM operator, COSMO Bulgaria Mobile, launched operations in 2002. In 2004, BTC was granted a license for Vivatel, the third GSM operator. Vivatel launched operations in November 2005. Mobiltel has 58% of the subscribers, Globul – 38% and Vivatel – 3%.
Bulgaria held tenders for 3G mobile network licenses and WiMAX Class A and Class B point-to-multipoint wireless license in 2005. The 3G licenses went to Mobiltel (class A), BTC (class B) and Globul (class B). Bulgaria is likely to outrun Europe in development of third-generation mobile services, the so-called UMTS, according to experts.

One of the local 3G operators, Mobiltel, launched its UMTS network in less than 6 months after receiving the license. Bulgaria's second GSM operator, Globul, is also expected to complete its 3G network soon. However, it is expected that the 3G-service market will develop in three to five years.
In 2005, four point-to-multipoint licenses went to Cablenet (class A), Transtelecom (class A), Nexcom (class B) and Mobiltel (class B).
Two 26 GHz Network Licenses will be awarded soon by the Bulgarian Communications Regulation Commission.

The nation's first commercial Tetra network was launched in October 2006 in Sofia. The investment in the Tetra infrastructure so far totals $2.3 million. The Tetra network was expected to cost $39 million in the first 3 years of development. Selex Communications supplied the network equipment. National coverage is expected in the next 2 years.

Bulgaria has about 12 Internet service providers who have their own network. Cable and DSL broadband are now largely available and affordable. Since the Bulgarian Telecommunications Company provides affordable ADSL access, both business and private ADSL users increased. Current dial-up access speeds over regular lines generally offer a reliable but still slow connection up to 54,600 bps. LAN and cable Internet access are very popular in Bulgaria. Orbitel, TPN, Digital Systems, Spectrumnet, BTC Net are some of the top Internet service providers. There are 2,200,000 Internet users in Bulgaria as of September 2005. 75% of Internet users are between 15 to 40 years old. Internet penetration in the capital city reaches nearly 50% in February 2005. Rural Internet penetration is at only 5,7% in 2005. The Internet access market in Bulgaria amounts to $74 million.

Bulgaria's broadcast and cable media are also expanding. There are 500 cables TV providers with more than 1.1 million subscribers or 53.6% of the households. Cable TV operators are upgrading their networks in order to be able to provide interactive services such as Pay Per View TV, Video on Demand, triple play, cable internet and

telephony services. These companies have entered the telecommunications services market. A number of companies have already started providing phone services using VoIP technology.

The Marketplace for Digital Equipment & Systems

The market for PC's includes three segments – desktops 81%, laptops 16.5%, and servers 2.5%, with a tendency of a shrinking market share of the desktops for the account of a growing market share of the laptops. In the segment of the laptops, IBM, HP, Dell, Toshiba, and Fujistu-Siemens were the main brands preferred, while in the desktop segment assembled PC's hold about 80% of the market share. In the laptop segment the leader is HP with 32.8% market share, followed Fujistu-Siemens on the second and Toshiba on the third place. HP, IBM, and NEC are the desktop brands that were preferred by the Bulgarian consumer. The leader HP holds 50.3% market share, followed by IBM and NEC.

Future Prospects in this Market

There is potential for entry of large international software companies because of the 0% export tax, low salaries and the prior expertise of the local workforce. Typical example is SAP Sofia (the fastest developing subsidiary for SAP worldwide) and Tumbleweed Communications (decided to close location in Bangalore, India and open office in Sofia). Both fixed and mobile segments of the Bulgarian ICT market still have high growth potential that is about to be explored by the new market entrants. Large investments are expected in both segments. A number of foreign companies are opening call/service centers in Bulgaria. There are opportunities for participation in tenders for sale of computers and peripherals for government procurements where the key factors are price, quality and after-sale support. The government of Bulgaria has an e-government initiative that will provide major opportunities for US ICT companies. The Bulgarian Ministry of Interior has plans to implement new e-passport personalization system.

Important USDOC resources in this Market

Sources on Bulgarian market:

www.nsi.bg - National Statistical Institute of Bulgaria
www.daits.government.bg - State Agency on IT and Communications
www.crc.bg - Communications Regulation Commission
www.investbg.government.bg - Invest Bulgaria Agency
www.basscom.org - BASSCOM
www.bait.bg - Bulgarian Association of Information Technology
www.nsi.bg - National Statistical Institute

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CROATIA

Capital: Zagreb
Population: 4.43 million
Languages: Croatian
Monetary Unit: Kuna (KN)
Exchange Rate: 1 USD=5.73 KN; 1 EUR=7.30 KN (Croatian National Bank mid exchange rate, average for Q3 2006)
GDP per Capita: EUR 6.968 (2005)

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Market overview

After bringing the telecommunications legislation in accordance with the EU and WTO requirements in a relatively short period of time, Croatia currently enjoys a highly liberal telecommunications market environment with five fixed and three mobile operators, five major ISPs, two major cable TV operators and eight concessionaires operating a total of 21 WiMax concessions in 6 major counties.

Mobile communications remain the most developed market segment with penetration rate estimated at as high as 90 percent, while the broadband penetration sits at the bottom of the list with a penetration rate of just over 2 percent.

The Marketplace for business process technology

Although the initial estimates were much lower, the local branch office of IDC reported that the Croatian market for IT services in 2005 recorded a dramatic growth of over 32 percent to USD 220 million, and the estimates for 2006 indicate an additional 13 percent increase. Part of this growth can be attributed to the depreciation of the dollar, but the growth rate for 2005 expressed in local currency is still considerable with 26.5 percent. IBM remains the top IT services provider in the country, followed by Combis and FINA (the former payment clearing institution).

Systems integration replaced hardware support and installation as the most significant IT services category in Croatia. Together with software support and installation, these three categories accounted for 44.7 percent of IT services spending in Croatia. The Croatian Government is at the top of the list of investors, followed by banking and telecommunications.

The Marketplace for communications technology

Although the fixed telephony penetration rate recorded a marginal increase in the past year, the number of minutes in the fixed network continued to decrease steadily. Hrvatske telekomunikacije http://www.ht.hr/ (HT), 51 percent owned by Deutsche Telekom, is the incumbent operator in Croatia. The number of fixed telephony subscribers in Croatia at the end of 2006 was 1.9 million, of which approximately 150,000 subscribers belong to alternative fixed operators. At the end of 2005 HT had 6.460 employees and recorded revenues of approximately EUR 1 billion.

The Croatian Telecommunications Agency is especially proud of the indicators in the mobile telephony segment of the market: recent statistics indicate that the mobile penetration in Croatia is as high as 90.75 percent. T-Mobile, a subsidiary of Deutsche Telekom, serves approximately 2 million subscribers; VipNET has 1.73 million users, and Tele2 reports more than 200,000 users in their network.

Internet

Oddly enough, the Internet market records the slowest development. The total number of subscribers at the end of 2006 was over 1 million and the number of users is estimated at 1.5 million.

Broadband penetration rate is relatively low with 2.02 percent but records irregular leaps each time the incumbent operator introduces a major tariff reduction. More than 95 percent of broadband connections are xDSL lines, and the remaining 5 percent are based on cable TV and Wi-Fi access.

With the recent reduction of xDSL tariffs by the incumbent operator, the offer has been consolidated into three packages for private subscribers, allowing for 1GB, 5GB and unlimited download each month, respectively. Their monthly subscriptions are USD 15, USD 23 and USD 46, and the connection speed is the same for all three packages – 1Mbit/s.

Digital City Media (http://www.dcm.hr/) and Adriatic-Kabel (http://www.adriatic-kabel.hr) are still the market leaders in the cable TV market segment. Both offer Internet-via-cable, but the speeds are limited and relatively costly. Due to a lack of investment capital, the cable TV providers were unable to take advantage of the slow DSL rollout and are now lagging behind in the broadband access offer. The total number of paying cable TV subscribers is estimated at close to 200.000.

The Marketplace for Digital equipment and systems

For the second consecutive year, sales of PCs in Croatia surpassed the 200.000 figures. Desktop computers are still the dominant category with approximately 140.000 pieces sold during the year, followed by laptops with estimated sales of over 60.000 pieces. The market for x86 servers continued to grow steadily at an annual rate of approximately 10 percent, reaching 6.000 pieces sold in 2006.

HP is still the leading supplier of PCs in Croatia. Lenovo and the local manufacturer HG Spot are ranked 2nd and 3rd, respectively. Notwithsdanding heavy investment in their PC manufacturing facility, the local company M San lost its ranking among the top three PC suppliers in Croatia.

Future prospects in this market

With the mobile telephony market segment becoming saturated, broadband services seem to be the most promising sector. With the increased transparency in co-location, interconnection and local loop access there is less need for the construction of own telecommunications infrastructure and last-mile access. Still, some new entrants decided to invest in the development of their own network (Metronet Inc., www.metronet.hr) and are an example of how lucrative this sector still is – Metronet was founded by a private venture capital fund and a number of Croatian top corporations.

Ericsson and Siemens are the two traditional suppliers to fixed and mobile operators and enjoy a clear advantage over the competition from abroad as they both have manufacturing operations in Croatia. In 2005, Siemens recorded revenues of EUR 210 and employed 1200 people, while Ericsson's revenues remained at a steady level with EUR 250m. Motorola, Cisco, Scientific Atlanta and others are present on the Croatian market with a different level of distribution and servicing support.

Important USDOC resources in this Market

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Market Overview

The market in the Czech Republic is considered open; there are no tariff barriers. During the last five years, the country made a considerable progress in expansion of IT usage and investment. Governmental purchases and focus on small and medium size business are increasing, creating opportunities and enabling the market to grow steadily. IT ratios are approaching the standards of the original members of EU. In mobile telephony, the figure is far exceeding the average EU statistics. Considering, Czech Republic is a small country with population of 10.5 million, the number of mobile phones reached 12 million at the end of 2006. The penetration is 98.2. The latest trend in the Czech Republic is to cancel the fixed line at home, and buy another mobile phone instead. Internet penetration is divided into two categories. There are 34 percent of households and 94 percent of business with Internet access. Internet access became crucial for Czech business. Since the introduction of ADSL, the market opened and progressed still further.

The market is highly competitive with robust U.S and European firms and increasingly competitive Czech firms. The decline of U.S. dollar makes U.S. companies more competitive vis-à-vis European competitors, though Czech membership gives the Europeans a slight edge in tariff rates. U.S. companies with niche products and services will continue to find good opportunities. The best market entry strategy continues to be working with a local partner, either agent or OEM. Czech Government is possible, but it takes a long time, before a decision is made. This year, the expected growth of IT in the Czech Republic is 8.1 percent.

The Marketplace for Business Process Technology

Expansion on the PC market continues, as the Government is pursuing the adopted 'State Information Policy Plan', in order to promote and upgrade the expansion of IT. Computer and office equipment hardware still accounts for a very large share of the IT market, but the market is gradually shifting to software and services. The expenditure for IT is 3.97 of Czech GDP, placing the Czech Republic around the half way mark of EU member states. The share of VAT from IT to private sector is 1.7 percent. IT represents 15 percent of the total market, making it the third largest in Central/ Eastern Europe.

New analysis of the IT market in the Czech Republic predicts steady grow and increasing number of jobs in the new centers being built in the South East of the country. Software development in the public and private sector accounts for a large

number of employees. More growth of IT is being introduced in the public sector, specifically police work, judiciary, and banking. Electronic signature is legal on Tax Returns.

The Marketplace for Communications Technology

Telecommunications still represents one of the most dynamic sectors in the Czech Republic's ICT market. The industry is experiencing annual growth, and this trend is expected to continue.

Further liberalization is taking place, with the help of Telefonica (formerly Czech Telecom), the major player on the Czech market. The main area of production, telecommunication technology and electronic components is worth 19.8 percent of the market.

Overall spending on telecommunication equipment and services is steeply increasing. This is mainly due to massive use of mobile telephony.
The leading companies in the communications sector are: Telefonica (formerly Cesky Telecom), T- Mobil, Radiokomunikace.

The Marketplace for Digital Equipment & Systems

High – definition and digital terrestrial television, together with videoconferencing are the main areas of interest in the Czech Republic. Industry is responding to demand concerning the digital technology. Digital broadcasting is broadcasted via existing TV stations, but analog broadcasting still prevails. Video and audio conferencing, servers, audio and video telephones, audio and video transmission services are currently provided by just one company in the Czech Republic.

Most products are imported, specifically video and audio conferencing. The major global players present on the Czech market include US, German, Japanese and South Korean firms. US products are highly thought of, and are popular. A large number of US companies not only operate, but also ship their products to Netherlands, UK, Ireland and Germany, before reaching the local market.

Future Prospects in the Market

Hardware investment is confined to replacement, upgrades and acquisition of new technologies.

Investments in IT are increasing on annual basis. Market driving forces are the banking sector, media, state authorities and institutions, and SME.

Major players on the Czech market include Microsoft, IBM, Auto Cont, Oracle, Hewlett-Packard, Sun Microsystems, Unysis, CompuSource/MacSource and Unicorn.
Technology used is mainly Microsoft, IBM, Sun Systems, Oracle, Novell, Compaq, Symantec Spectrum and Citrix.

Best Products/Service

- Electronic components
- Network equipment
- Wireless equipment
- Data service equipment
- Voice service equipment

- Video conferencing equipment

Opportunities

- Telefonica increased investment and is committed to further modernization of the Czech telecom sector.
- E-commerce in the Czech Republic continues to grow. The progress is slow, but steady.
- U.S. suppliers are price competitive in the Czech Republic, due to the continuously fluctuating dollar.

Important USDOC Resources in this Market

- **INVEX, International Fair of Information and Communication Technologies**
  October 22-26, 2007, Brno
  The largest telecom event in Central / Eastern Europe, and ranked as one of the top four IT fairs worldwide. Over 600 exhibitors from 18 countries regularly take part.
  Web: www.invex.cz
  E-mail: invex@bvv
- **DIGITEX, International Fair of Consumer Electronics and Digital Entertainment**
  October 22-26, 2007 Brno
  E-mail: invex@bvv.cz
- **INTEC, International IT Fair**
  April 13-15, 2007, Prague, Letnany Exhibition Hall
  International information technology show
  Web: www.terinvest.com/intec
  E-mail: intec@terinvest.com

Ministry of Informatics

Havelkova 1, 130 00 Praha 3
Web: www.micr.cz
E-mail: posta@micr.cz

Czech Telecommunication Office

(Regulatory body appointed by government)
Sokolovska 219 Prague 9
Web: www.ctu.cz
E-mail: info@ctu.cz

Association for Information Society: www.spis.cz

Association for e-Commerce: www.apek.cz

Center for e-Commerce: www.e-commerce.cz

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DENMARK

Capital: Copenhagen
Population (July 2006): 5,434,567
Languages: Danish
Monetary Unit: DKK
Exchange Rate: (publisher to insert at press time)
GDP per Capita (in US$): 40.650

Local Market Commercial Specialist

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Market Overview

Denmark has a strong international position in the IT and wireless sector and a first class telecom and data infrastructure. Denmark has one of the highest rate of Internet penetration, mobile phone penetration and e-business implementation in Europe, together with one of the highest IT spending level per capita in the world. Denmark is an excellent test market for new products/technologies and exporters due to its manageable market size. The general willingness by the population to exploit the newest technologies is also examples of the IT readiness of the entire Danish society.
The Danish government has actively encouraged competition in the telecommunications sector and the market is one of the most liberal in Europe. TDC (previously called Tele Danmark) is the dominant operator in fixed networks due to the ownership of the old public telecommunications network. An increasing number of the 98 Danish municipalities are investing in their own fiber-optic networks, which is rapidly increasing the country's broadband capacity.

Both the import and export of IT products have only increased slightly over the last year, but over a five-year period, there has been a steep increase. More IT products have continually been imported than exported. Imports of IT products doubled from USD 4.5 billion in 1996 to USD 9 billion in 2006 and so did exports with an increase from USD3.0 billion in 1996 to USD 6 billion in 2006. The IT software market's expansion has been gradually slowing down and all predictions by the IT industry have been revised down to a growth rate in 2007 of 5.5 percent, well below the previous years' average rates of 6-7 percent.

The Marketplace for Business Process Technology

The Danish ICT sector is structured towards a service market rather than a production market. Denmark has been on the innovative forefront for many years regarding the development of business process software. Microsoft's purchase of Copenhagen based Navision was a clear indication of that. Navision was a leading global provider of

integrated software solutions for small and medium-sized businesses and was acquired for approximately US$ 1.75 billion, which was Microsoft's second largest deal ever.

Outsourcing of IT functions and software development in the public and private sector is a big growth area. The Danish market for IT outsourcing was DKK 8.4 billion in 2005 and was expected to be around the same value in 2006. According to a recent survey, more than 50 percent of the existing IT outsourcing agreements in the public and private sector are due for renegotiation during the coming years. The contracts are expected to be worth DKK 3 billion (USD 500 million), although the majority is expected to keep their existing suppliers.

The Marketplace for Communications Technology

Telecommunications - Main indicators, mid-year 2006

Broadband subscriptions (1,000)	1,591
Broadband subscriptions per 100 inhabitants	29.3
XDSL subscriptions (1,000)	950
Cable modem subscriptions (1,000)	492
Mobile subscriptions (1,000)	5,625
Mobile subscriptions per 100 inhabitants	103.5
UMTS-subscriptions5 (1,000)	194

Source: The Danish IT Agency

Denmark has a comparatively high distribution of mobile telephony. There are four companies with established GSM mobile networks in Denmark. There are also a number of companies who only offer mobile services through leasing within these networks. Denmark awarded its third generation (3G) universal mobile telecommunications service (UMTS) licenses through an auction in September 2001 to four operators. Currently, the GSM network is the most common in the country but the general packet radio service (GPRS) system, built upon the existing GSM network, is also operative in many parts. In October 2003 the company Hi3G launched the first 3G service (under the name "3") in Denmark, which uses W-CDMA. Sweden's Ericsson supplies 3's network, radio equipment, services and transmission. While 3 initially offered Motorola's A920 handset as the only option, the handset market has expanded to many other brands, as the number of subscriptions has grown bigger. By August 2004, "3" had more than 50,000 customers in Denmark. The three other operators (Denmark's TDC, Finnish-Swedish TeliaSonera and Sonofon) have launched – or are expected to do so soon - some 3G services, but mostly on a b-to-b basis. 14,000 broadcasting masts have to be raised to cover Denmark entirely.

The current status is that 98 percent of all Danish households and businesses can have ADSL via traditional telephone lines. 60 percent of all households have access to cable modems via upgraded cable TV networks (TDC) or community antenna systems, which are chiefly privately owned or owned by the local authority. FWA is available in most of the country and is primarily aimed at business customers.

In the past year, the penetration of broadband has risen markedly in all parts of the country. Broadband is used increasingly both in urban areas and rural districts. The number of broadband connections totaled more than 1 million at a national level, in the form of ADSL, cable modems and local area network (LAN) connections in building associations - primarily Fibre/LAN. This corresponds to nearly 19 connections per 100

inhabitants, compared with just over 13 connections per 100 inhabitants at the end of 2003. This is an increase of more than 40 percent.

The Marketplace for Digital Equipment & Systems

The use of information technology at the workplace is widespread in Denmark. About 95% of Danish businesses with at least five employees use information technology, and almost all of these (89%) have Internet access. Moreover, growing complexity in public IT solutions coupled with the increased demands for e-government and electronic services for the public (such as tax statements or social security payments) has amplified the need for coordinated government IT usage.

Internet shopping is generally growing among the Danish population, Entertainment and books, magazines and newspapers make up the largest proportion of what Danes buy over the internet, but an increasing number is also purchasing electronic equipment such as MP3 players, mobile phones and PDAs. In addition, travel-related products are also very popular among the Danish Internet consumer.

Danish consumers are generally affluent, as well as highly trend-conscious, and there is high potential in the top-end of some markets, both for replacement products (laptops is almost more widely sold than standard PCs) and for home entertainment (DVD players, digital recorders, flat screen TVs and other sophisticated digital equipment). Home-based wireless computer systems are also becoming very popular. Like the rest of Europe, the conversion from analog to digital equipment will be dominating the market demand in the coming years. Denmark prepares for the launch of full digital TV in 2007 and new products have to be ready for this transition. There will be a continued growth in flat panel HD TVs (16:9), LED projectors and Hard Disk Drives (HDD). It is furthermore expected, that Denmark in the coming years will have an increased sale of Home Entertainment Centers that integrate HDD, Internet and cable television in one box. The market for Video-on-demand, mobile TV and IP-based TV is also expected to begin slowly in 2007.

Future Prospects in this Market

The Danish market is often used to test new IT products and prototypes. Tests may include product tests concerning e.g. usability and commercial tests to shed light on a product's potential in the market. The affluent Danish market with strong buying power, sophisticated consumers with a preference for high end, advanced IT products, the high number of families with computers at home, the magnitude of Internet usage and the high educational level of the average citizen contribute to Denmark's position as a favorite test market.

Another important reason why Denmark makes a great testing ground for new IT products is the fact that the Danish market is relatively small and homogeneous. The homogeneity is reflected in the demand patterns of the population. This means that once demand for a specific product or a type of product penetrates the consumer segment, it reaches a critical mass in the course of a fairly short period of time. The high penetration of PCs, Internet usage, IP telephony, mobile phones and most recently the usage of SMS and MMS messages in the population, reflects the maturity and advanced level of the consumer market.

With faster and cheaper access routes to the Internet there is an increasing market for related products and services. One of these markets is the access hardware that enables people to get onto the Internet, this be servers, routers, cable modems etc, but also wireless devices for households and "hotspots". Another interesting market is for related hardware and software solutions utilizing the fast gateways through Virtual

Private Networks (VPN's) and telecommuting. Another potential market is for online services such as video-on-demand, music and games.

Important USDOC Resources in this Market

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FINLAND

Capital: Helsinki
Population: 5,255,580
Languages: Finnish (92%), Swedish (5.5%)
Monetary Unit: Euro
GDP per Capita (in US$): $37,330 (2005)

Local Market Commercial Specialist

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Market Overview

Finland has a highly industrialized, free-market economy, with per capita output roughly that of the United Kingdom, France, Germany, and Italy. Largely due to the Finnish Government's heavy investment in technology, expertise and education, Finland is consistently ranked as one of the most competitive economies in the world. The government's economic policy is strongly technology-based, with government research and development (R&D) funding amounting to about $2.1 billion (€1.7 billion) in 2006, an increase of $103 billion (€83 million) million from the previous year. Government R&D expenditure as a proportion of overall government spending exclusive of debt servicing stands at 4.5%, which is the same as in the year before. The public R&D funding share of GDP exceeds 1.05%. By international comparison, the GDP share of R&D expenditure in Finland is among the top in the world.

Although, with only 5.2 million people, the Finnish market is small, Finnish consumers and companies have proven to be quick to adopt new technologies. The telecommunications market in Finland is fully liberalized – no licenses are needed, except for digital television networks and mobile networks. Finland's Ministry of Transport and Communications is responsible for licensing. The fact that Finland was among the first to open its telecommunications market has resulted in the lowest mobile tariffs in Organization for Economic Cooperation and Development (OECD) countries. Finland has been a pioneer in popularizing mobile phones. At the beginning of 2000 it was the country with the highest penetration rate in the world: 65% of Finns were already using mobile phones. The penetration rate now stands at 100%, and there are nearly 5.2 million subscribers.

Since July 2003, mobile customers have been able to switch operators while preserving their mobile numbers. This has made switching operators more attractive to customers, and thus substantially increased competition between service providers in the already highly competitive telecommunications market. With an Internet

penetration rate of 62.5%, Finland is among the top nations in Internet use. It is also the world's leading country in electronic banking.

The Marketplace for Business Process Technology

The enterprise solution market, including software and services of Finance Management, Human Resources (HR), Customer Relationship Management (CRM) and Software Configuration Management (SCM) was valued at about $790 million in Finland in 2003, and annual growth of approximately 8% is expected to continue to 2008. Oracle and SAP are among the largest players, and there is also competition from smaller local enterprise software providers, such as Solteq Oyj and IFS Finland, which mainly target the small and medium enterprise market, competing with Microsoft. Finland's market for solutions catering to large companies is very small and highly competitive, and any opportunities that may exist are in the SME market.

In the Business Intelligence market, SAP was the only one of the top five companies to increase its market share in 2006, taking fourth place from Hyperion Solutions Corporation. SAP's market share increased to 7.6% from 3.8%. Business Objects remains the market leader with 20.4% of the market, followed by Cognos (13.6%) and SAS (12.8%). Microsoft also increased its Business Intelligence (BI) sales by 35.9 %, closing in on the market leaders.

One of the fastest growing sectors is the security software market, which is dominated by highly specialized companies such as Symantec, Checkpoint and Finnish F-Secure Oyj. Out of the major software houses only IBM and Computer Associates are among the ten major players

The Marketplace for Communications Technology

Finland's telecommunications market is one of the most developed in Europe and in the world. Finland has attained a pioneering position as a developer of information and communications technology (ICT) and is also a leading ICT supplier. The number of mobile phones far exceeds the number of wired phones, and has done so since 1998. Due to the fact that Finland has the lowest mobile phone rates among OECD countries, the popularity of wired phones is declining, and the market is undergoing consolidation. On the other hand, popularity of mobile phones continues to increase. The demand for ICT funding has grown in the past year. In telecommunications the fastest growth is in activities related to mobility and broadband. The service provision sector is expected to grow rapidly.

As of July 2003, mobile customers have been able to switch operators while preserving their mobile numbers. This has substantially increased competition among service providers in the already highly competitive telecommunications market. The initial surge of customers changing service providers has settled somewhat. In 2006, there were 537,700 operator switches, compared to nearly three times that in 2005.
In an effort to expedite the development of the market for third generation services, in April 2004, the Ministry of Transport and Communications decided to ease the terms of its Universal Telecommunications System (UMTS) licenses in Finland. Licensees are allowed to jointly construct and use a portion of their networks. However, each licensee's own network has to provide 35% coverage of the population
The development of investments in the Finnish telecommunications market has been similar to that in other OECD- and EU countries. At the end of the 1990s, telecom companies invested in extensive new networking infrastructure. Investments have declined in the last few years, much due to the focus on developing existing networks, instead of lack of large new infrastructure investments. However, when compared to other industries, investment in the telecommunications market is still very strong.

Tough competition having driven prices down in basic mobile services, competition has increasingly concentrated on quality and new services. Investment is increasingly directed to the third generation mobile networks and data services. New investments of companies focus on development of Universal Telecommunications System (UMTS)/ High-Speed Packet Access (HSPA) networks.

Online shopping in Finland is increasing rapidly. According to Statistics Finland data collected in spring 2005, 73% of 15-74 year-old Finns had used the Internet during the year 2005. The Internet is most commonly used for e-mail (86% of the respondents), for finding information on goods and services (85%), for using online bank services (76%), for finding information on travel and accommodation services (66%), and for reading online magazines and newspapers (56%). The use of online bank services, online shopping, and travel service browsing has increased significantly. The survey also included questions on the use of instant messaging (Skype, Messenger). One fourth of the respondents had used instant messaging service during the three months prior to the survey. Also, gender differences in on-line shopping have disappeared, with women constituting approximately 50% of all Internet users and of those who had bought commodities via the Internet (see www.e.finland.fi)

In 2005, the value of purchases made with Visa and MasterCard through the Internet increased by 56%, reaching $87 million (€70 million), and in 2006, the purchases increased by a further 65%. The growth is expected to continue in 2007.
Despite efforts over the last decade, payment of services through the mobile phone has not caught on. The main problems are lack of standardization in payment, prizing and difficulty of use. For these reasons, payment through the mobile phone has remained popular only for certain specific applications, such as payment of public transport tickets, and parking.

On January 29, 2004, the Government adopted a resolution on the national broadband strategy to promote the spread and availability of broadband. An additional resolution specifying new goals was passed on February 3, 2005. The original resolution has been successful. In OECD's October 2005 Bandwidth Report, Finland had the highest broadband penetration growth of all the countries surveyed. The strategy aimed at one million broadband connections by the end of 2005This goal was exceeded well before the deadline; by the end of 2005, the number of broadband connections in Finland had reached 1.2 million.

Today, Internet connection markets in Finland are dominated by Digital Subscriber Line (DSL) operators and are expected to continue to take a lion's share of the market in the near future. The growth of the total market will be modest, however, and it will mostly benefit wireless connections.

The Marketplace for Digital Equipment Systems

The United States is Finland's leading external source of computers and peripherals. There are about 4,200 local computer related companies in Finland, 3,700 of which have less than five employees. The five largest companies cover about 60% of the industry sector's sales volume.

The computer market in Finland has continued its growth. In 2004, the growth in the total number of sales was 19%, and strong sales continued in 2005. The rapid growth in the popularity of broadband, digital music and digital photography has boosted PC sales. HP reached record sales growth of 31% in the fall of 2005. By late 2005, the penetration of personal computers in Finland had reached 66%. Other consumer electronics markets in Finland are also experiencing strong growth. LCD-TV sales are

expected to grow in 2007, and the sales of digital receivers are expected to receive a boost. All TV transmissions in Finland will be digital as of August 31, 2007, and currently, only about 56% of Finnish households have a digital receiver.

Future Prospects In this Market

Highly competitive, the telecommunications sector is growing fast, with high demand for Internet and mobile services and content expected to continue. With the increasing numbers of broadband Internet connections, e-commerce is expected to benefit. Demand for home entertainment electronics, digital cameras, and mp3 players will also remain high.

Products on the cutting edge of technology dominate the Finnish hardware market. Currently the highest demand products include portable computers, digital television sets and receivers, LCD and plasma television sets.

The security sector is also growing. Although competitive, the security market offers opportunities for high-quality products. The Finnish market is small, and large companies are few in number - they tend to have established software systems. Therefore, software market opportunities for U.S. companies are mostly within the SME market.

Due to high technical standards and the liberalized telecommunications market, Finland serves as an excellent test base for new technologies of U.S. information technology companies. Finland also has expertise in developing computer software products and is looking for U.S. partners. U.S. information technology companies wishing to enter the Baltic markets and Russia (especially St. Petersburg) should view Finland as a natural gateway and Finnish companies as experienced partners in any such effort.

Important USDOC Resources in this Market

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FRANCE

Capital: Paris
Population: 62.5 million
Language: French
Monetary Unit: Euro (EUR)
Exchange Rate: USD 1 = .76 Euro
GDP per Capita: USD 32,340

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Market Overview

Estimated at $65 billion, the French IT market ranks third in Europe after Germany and the United Kingdom, and represents 17% of the total Western European IT market. Next to software and services, computer hardware, including local-area and wide-area networking equipment, is the largest segment of this market, with an estimated value of $20 billion or about 30% of the total IT market.

The computer & peripherals market has grown by 8% in 2006. The market is driven by the sale of consumer electronics, including smart phones, I-mode, 3G and PDAs. The level of penetration individual homes exceeds 50%.

The French public sector has greatly contributed to the boost in IT sales, as it currently represents 6% of total IT investments. Launched in January 1998, the Government Action Program for an Information Society (PAGSI) is investing billions of dollars in the automation of VAT declaration, customs declaration, the filing of social contributions by employees. As a result, over 2.3 million French taxpayers – or 4% of the overall population – filled out their income tax return on the Internet.

France is perhaps more than any other country in Western Europe on the threshold of the new Internet and mobile revolution; it is accelerating rapidly as one of the top leaders in the new high technology era. The European Association for Competition in Telecommunications announced that France had become the largest broadband market in Europe. Revenue from these high-speed subscriptions alone already exceeds $2 billion annually. In France the overwhelmingly dominant mode of broadband connection is ADSL, representing 94% of broadband connections and 97% of growth.

The Marketplace for Business Process Technology

With a turnover of $45 billion, the French software and IT services market ranks #1 in Europe. This market has known a steady growth of 6.5% in 2006, pulled by demand in Consulting Services (up 6%), Engineering (up 4.5%), Facilities Management (up 9.5%) and Packaged Software solutions (up 5.5%).

Over 6,000 French firms specialize in software services, 2,000 with 10 employees or more. Key activities in this market are Engineering and Integration (23%); Software Development and Technical Assistance (22%); Packaged Software (21%); Facilities Management and On-Line Services (20%); Consulting Services (8%); Training Services (3%); and Third-Party Maintenance (3%).

The French packaged software market is valued at $8.2 billion. The ten largest software publishers on the French market are: Microsoft ($1.1 billion); IBM ($546 million); Oracle ($304 million); SAP ($225 million); Sage ($152 million); HP ($148 million); Symantec ($129 million); Cegid ($115 million); Dassault Systemes ($90 million); and EMC ($88 million). Six of these organizations are American.

Sales generated by the 100 largest French software publishers' amount to $4 billion. The five largest French software publishers are: Dassault Systemes ($793 million); Business objects ($746 million); GL trade ($143 million); Atos Origin ($132 million); Cegid ($115 million). While Dassault Systems and Business Objects generate 90% of their income through their international operations, other French software firms primarily focus on the French market.

Demand from large firms is supporting growth in the software and services market, especially in the area of infrastructure software, middleware, security, and business intelligence. In addition, recent decisions concerning the "Chorus" project at MINEFI, the French Ministry of Economy, Finance and Industry, confirm the public sector's role of growth driver in the French market.

The Marketplace for Communications Technology

The French broadband market is going through an amazingly dynamic phase of growth and convergence. Fiber optic cable already forms the backbone of the French fixed line network, with direct links to large businesses and government administrations. Fiber connections to businesses continued to increase in 2005, while the first major residential connections (FTTH) began in 2006. Meanwhile, the number of traditional wire line broadband connections to French residences is increasing steadily, dominated by ADSL. Usage of broadband capable, also known as *Third Generation* (3G), cell phones is also growing, as they aggressively target a maturing French mobile sector. Wireless broadband connectivity is increasing as well, especially through the spread of public hot spots. For consumers, this rising access to broadband is enabling and driven by the growth of e-commerce and e-media consumption in France. For businesses, broadband connectivity is an increasingly integral part of marketing, communication and distribution strategies.

General French business and consumer commitment to broadband consumption is clear; French *Voice over Internet Protocol* (VoIP) retail subscribers already number over 5 million. Improvements in wholesale access have been made through line unbundling; to the extent that French consumers now have the advantage of having one of the most competitive broadband markets in Europe. Consumer demand for services such as video on demand, mobile television and videophones—though still in their infancy—is increasing. Also, the exact combination of standards (UMTS, Wi-Fi, WiMax, FTTx, ADSL etc.) within France's telecom infrastructure is currently being established.

The arrival at the end of 2004 of 3G UMTS cell phones marked the emergence of broadband as a force in the French mobile sector. French mobile phone usage is finally catching up with the European average, with an expected 44.4 million users by 2007 – a penetration rate of 83%. It is the hope of mobile providers that consumers will

adopt the new services made possible by 3G technology, notably mobile television, mobile video phone and faster downloading speeds. France's main cellular carriers have made enormous investments in 3G developments, spending several million dollars on the licensing alone. Over 13 million subscribers used mobile multimedia services (MMS, WAP services, e-mail, etc.) during the first quarter 2006, or close to 30% of all mobile operator subscribers, for a 29.1% increase over the first quarter 2005. The competition between the three companies for broadband cell phone users has just begun. Each provider is offering consumers different packages of quality, functionality, geographical coverage and price.

Wireless connectivity is growing residentially as well. Internet providers increasingly promote modems that can stream wireless media to Wi-Fi and/or Bluetooth enabled TVs, computers and telephones. WiMax network installations are also growing in France. The national regulator has opened up frequencies and begun the licensing process for regions throughout the country.

Current business packages now integrate data and VoIP services with mobile and fixed telephone services. Very high speed Internet connectivity is already available for businesses in urban locations, thanks to France's pre-existing fiber optic networks.
The new field of competition for these Internet providers in France lies in the convergence of services offered. Most Internet providers now offer VoIP and the seven largest, as well as dominant cable provider Noos, offer Triple Play services (Data, Television, Voice). Competition is turning on price, service and the array of products offered. For example, Orange combines a higher price with claims of better service and offers of additional products such e-gaming, video surveillance and video-phone. In an effort to find the most competitive package of services, companies are routinely offering Wi-Fi compatibility and VoD as well. There has been an explosion in demand for triple play solutions, rapidly evolving towards quadruple play ones, in which mobile services are also included in the package.

These include:

- Voice Communication: both on a mobile and at home using VoIP, both with videophone.
- High Speed Internet Access: both on a 3G mobile and to a home network.
- Television*:* both on a mobile and to a home network in HD, with video on demand.

Mobile

The penetration rate for mobile usage is nearing 80%, up from 55% as recently as 2002. The movement of the French consumer towards mobile phones has been helped along by the widespread adoption of *Short Message Service* (SMS) as a preferred means of communication. French consumers average nearly a billion text messages per month, or about 27 per active customer.

France is currently exhibiting one of the strongest growth rates in the trend of Internet browsing on a wireless device; subsequently, French mobile operators are attempting to usher in a similar transition towards 3G broadband capable models. However, the three main service providers are approaching this trend with different strategies, although they are currently relying on EDGE (2.5G) technology.

The Marketplace for Digital Equipment & Systems

The computer & peripherals market has grown by 8% in 2006. The market is driven by the sale of consumer electronics, including smart phones, I-mode, 3G and PDAs.

The level of penetration in individual homes exceeds 50%.

The French public sector has greatly contributed to the boost in IT sales, as it currently represents 6% of total IT investments. The French government continues increasing its use of the Internet as a medium of communication with the public. As a consequence, public services have improved in quality while significant savings have been generated. Launched in January 1998, the Government Action Program for an Information Society (PAGSI) is investing billions of dollars in the automation of VAT declaration, customs declaration, and the filing of social contributions by employees. As a result, over 2.3 million French taxpayers – or 4% of the overall population - filled out their income tax return on the Internet.

Internet Connections and High-Speed Connections

Over 28 million French people of all ages regularly access the Internet, 19% of whom through high-speed cable or DSL connections. This represents respectively a 12% and a 30% increase from 2005. Nearly 13 million homes have a PC, 10 million of which being connected to the Internet. On the business level, 98% of French SMEs use a PC; 80% are connected to the Internet, and over 50% have websites. SMEs (49%) have websites to provide services to their clients and suppliers, while French corporations (79%) use their website in order to promote their image. Seventeen percent of these organizations engage in E-commerce.

Servers

The five top server manufacturers are HP (40%), IBM (15%), Dell (14%), Fujitsu-Siemens (6%), Sun (6%), and Misc (19%). Estimated at $687 million, the server market has grown by 4% in 2006. French corporations continue decreasing expenditures related to maintenance and platform administration and supervision while increasing expenditures related to information system's availability, security and quality of service.

Personal Computers

The French PC market has experienced a 10.7% growth in volume in 2006. In 2006, 2 million computers were sold, against 1.8 million in 2005. 92% of companies of more than 100 employees supply their employees with laptops. Moreover, 83% have access to internet.

The five largest PC brands are HP, Acer, NEC, Dell and Toshiba, whose market shares are respectively 22%, 16%, 12.5%, and 5.5%. Sales by these companies represented 67.7% of all computer sales on the French market in 2006 against 61.5% in 2005 while sales of other companies dropped by 7.1%.

Printers

The market for printing products has reached $4.6 billion in 2006, a 7% growth from 2005. The market continues being primarily boosted by the sale of multi-function printers, whose sales reached 4.5 million units in 2006, a 30% growth from the previous year. The average price of a multi-function inkjet printer has dropped to under $200, which makes it an attractive feature for most households. Photograph printers also continue being extremely successful, with sales of about 200,000 units in 2006. Over sixty percent of the inkjet cartridges are being sold through very large super-market chains because of their attractive pricing and accessibility.

HP controls 44% of the printer market, followed by Lexmark and Epson. The toner cartridges market also represents a major source of revenue.

Future Prospects in the Market

Government opportunities

As previously indicated, the French government has launched the Government Action Program for an Information Society (PAGSI) in order to put government services online. Three key services have already been automated: VAT declaration, customs declaration, and the filing of social contributions by employees. In addition, an increasing number of French fill out their income tax report on the Internet.

Unbundling

The Internet market has been stimulated by the development of high-speed access, particularly with the introduction of local loop competition via unbundling. Since December 2002, the consumer high-speed market has seen the development of a new type of residential ADSL offer based on unbundling. Alternative operators use their own high-speed equipment end-to-end, thereby maintaining better control over the economic and technical parameters of their ADSL offers. This allows them to differentiate their offer from that of the incumbent operator.

Best Products/Services

Business Process Technology

- Management consulting in IT systems (2% growth)
- Engineering services (2%)
- Facilities management and Third-Party Maintenance of Applications (TMA) (8%)
- Packaged software (5%), especially Integrated Management Software and PLM solutions, expected to grow respectively by 5.7% and 7.5% each year until 2008.
- Application Service Provider (ASP) solutions: this market grew from $400 million in 2004 up to $800 million in 2006. This includes hosted CRM solutions, whose growth has been 40% in one year.
- Service Oriented Architecture Solutions (SOA) – 70% of its current users are planning to expand these architectures further.

Communications Technology

Third Generation (3G) and Universal Mobile Telecommunications System (UMTS) promise to offer consumers the ability to engage in much more advanced activities via their mobile phones, including high-speed internet access and the capacity to send messages containing color images and audio files. This technology, along with high-speed wireless Internet service, and mobile commerce, should fuel significant growth in the future.

Digital Equipment & Systems

- Portable devices (laptops, palmtops, smartphones, etc.)
- Wireless solutions
- I-mode related products

- Portable storage devices (USB keys, hard-drives, etc.)

Opportunities

The ATAWAD (i.e. "any time, anywhere, any device") era causes the French to increasingly seek portable solutions that provide them with permanent access to data across the Internet, whether personal or professional. The market for devices such as laptops, palmtops, and blackberries is therefore growing very rapidly.

Great opportunities are also available for wireless solutions both for the home and the office, especially with the advent of 3G high-speed mobile Internet bandwidth. The year 2007 will see a continuation in a dynamic cycle of investments that support innovating projects. Increased accessibility to high Internet bandwidth and wireless solutions will also boost demand for systems integration, especially in the field of E-commerce, which is anticipated to grow by 50% in 2007. Promising opportunities are therefore available to American firms seeking to export to France, especially for those that provide packaged software as U.S. firms already control 70% of this market. Security is a major concern of the French consumer in regards to their online activities. French consumers have proven a willingness to pay greater amounts for better service, which for Internet services means better security.

As broadband usage increases so will the demand for protection of online transactions, and the need for evolving solutions to old and new Internet menaces (Spam, Viruses, Fraud etc.). Indeed if demand for security is not satisfied, it may threaten the growth of demand for broadband in general. American companies have historically been more efficient at meeting client demand.

Important USDOC Resources in this Market

http://www.idc.fr - International Data Corporation (IDC)
http://www.pac-online.fr - Pierre Audoin Consultants (PAC)
http://www.bipe.fr - BIPE (leading European provider of forward-looking economic analyses and consulting services)
http://www.eito.com - European Information technology observatory (EITO)
http://www.syntec-informatique.fr - Syntec informatique (French association of the software and computing services companies)
www.afa-france.com - Internet Access Providers Association (AFA)
www.Aforstelecom.fr - French Association of Network & Telecom Services Operators (AFORS)
www.form.fr - French Association of Mobile Operators (AFOM)
www.arcep.fr - Regulation Authority for Electronic and Postal Communication (Arcep)
www.anfr.fr - French National Frequency Agency (ANF)

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GERMANY

Capital: Berlin
Population: 82.5 million
Languages: German
Monetary Unit: EUR
Exchange Rate: EUR 1 equals USD 1,30 (2006)
GDP per Capita (in US$): 34,837 (2006)

Local Market Commercial Specialist

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Market Overview

The German economy is the world's third largest and, after the expansion of the EU, accounts for nearly one-fifth of European Union's GDP. Germany is the United States' largest European trading partner and is the sixth largest market for U.S. exports. Germany's "social market" economy largely follows free-market principles, but with a considerable degree of government regulation and generous social welfare programs and protections. Germany is the largest consumer market in the European Union with a population of over 82 million. However, the significance of the German marketplace goes well beyond its borders. An enormous volume of worldwide trade is conducted here in Germany at some of the world's largest trade events, such as CeBIT. The volume of trade, number of consumers, and Germany's geographic location at the heart of a 27-member European Union, make it a keystone around which many U.S. firms seek to build their European and worldwide expansion strategies.

Real German GDP expanded by only 0.9 % in 2006; forecasters predict economic growth to reach 2-2.5 % in 2007. Consumer demand, which has been sluggish for several years, appears to be picking up. The economy, however, continues to be mainly driven by exports. Business confidence indices rose in early 2006 and optimism seems to continue, despite the increase of the value-added tax from 16% to 19% in January 2007.

German firms focusing on exports, especially in the automotive, chemicals and high tech sectors, recently have enjoyed healthy profits and have exported more goods and services than firms form any other country; the retail sector, by contrast, continues to struggle. Major manufacturing firms have increasingly shifted their production overseas to maintain global competitiveness and reduce costs.

Since the beginning of 2006, the initially export-led recovery has begun to extend to the domestic economy. Investment in machinery and equipment has grown rapidly and business confidence has been high. More recently there have been signs that the economic recovery has finally reached the labor market. The non-seasonally adjusted unemployment rate fell to 9.6% in November 2006 – the lowest since the fall of 2001 – compared with a Eurozone average of 7.7%, according to data released by Eurostat,

the European Union's statistical office. Average unemployment was forecast to decline to 4.5 million in 2006, with a further decline to 4.3 million in 2007, assuming economic growth continues at a healthy rate.

Market Access

Germany presents few formal barriers to U.S. trade or investment. Germany has pressed the new EU Commission to reduce regulatory burdens and promote innovation in order to increase the EU member states' competitiveness. Germany's own regulations and bureaucratic procedures, however, can prove a baffling maze. While not directly discriminatory, government regulation is often complex and may offer a degree of protection to established local suppliers. Safety or environmental standards, not inherently discriminatory but sometimes zealously applied, can complicate access to the market for U.S. products. American companies interested in exporting to Germany should make sure they know which standards apply to their product and obtain timely testing and certification. German standards are especially relevant to U.S. exporters because, as EU-wide standards are developed, they are often based on existing German ones.

ICT

With annual revenues of more than EUR 134 billion and a workforce of some 750,000 employees, the ICT sector is one of the biggest contributors to Germany's economy. Germany's ICT sector is the largest in Europe, followed by the U.K. Demand for software and IT services is up. Even hardware shows signs of recovery, although constantly declining prices will not allow for considerable increases. In general, IT and network security, knowledge management, web services and new products on the basis of broadband technologies such as WLAN are seen as major drivers behind the recovery.

The Marketplace for Business Process Software and Services

Software

The German market for software is the largest in Europe and ranks second in the world, behind the United States. Economic recovery on the horizon and a backlog in IT modernization are driving factors prompting companies and institutions to invest in software solutions. Surveys reveal that 80% of German companies are ready to invest significantly in IT equipment. The German software market is anticipated to grow annually by 5% (based on EUR currency) over the next few years. Even though German software companies are very competitive, analysts estimate that approximately 80% of software products sold in Germany come from U.S. suppliers (the majority of large U.S. software developers have subsidiaries in Germany.) There are no trade barriers obstructing sales of U.S. software. Industry-specific and niche products will continue to find good sales opportunities in Germany. However, as the European Union continues to expand as a single market, competition from other European software and service vendors is expected to increase.

Market growth is attributable to the following factors: higher demand for security software, substantial investments in Integrated Enterprise Applications to streamline back- and front-office operations, increasing investments in e-business applications and other enterprise applications such as Customer Relationship Management (CRM) technologies, Supply Chain Management Software, and increased outsourcing activities.

The computer software market is very competitive and is dominated by large, multi-service suppliers. At the same time, it offers potential for smaller companies with highly specialized products. The top 25 suppliers hold approximately 40% of the German market, mainly with sales of standard software. Medium-sized vendors account for more than 60% of total sales. U.S. software products are well accepted, since the United States is widely seen as leading the world IT industry in innovation and quality. U.S. products and services consequently enjoy an excellent reputation.

Services

The major factor behind growth in the computer services sector is an increasing trend towards outsourcing. In addition, there is a growing demand for security and e-business project services. Most large U.S. IT services providers have facilities in Germany, and, for official statistical purposes, are counted as local firms. This also affords them national treatment from German and EU authorities. Approximately 60 percent of the overall IT-services sales are attributed to German subsidiaries of U.S. firms. While competition from local companies exists, U.S. firms are often perceived as having more experience in the IT environment and, therefore, have a head start in the business. As the European Union continues to expand as a single market, U.S. computer services companies will also meet growing competition from other European countries, mainly from the United Kingdom, France, and The Netherlands.

The Marketplace for Communications

Telecommunications

Whether in the areas of multi-media, mobile communications, or the Internet, telecommunications is believed to be key to unlocking German potential for future economic development. The German telecommunications market was estimated at EUR 66.3 billion in 2006. Germany has not only been one of the fastest growing markets for mobile equipment - there are more mobile than fixed-line subscribers and sales of mobile end-user equipment reached EUR 3.9 billion in 2006 - but is also very well prepared for any future technology in the telecommunications sector. Thousands of miles of high quality fiber optical cable make the country ready for the application of the future.

In the services area, regulatory decisions and hopefully increasing competition through the introduction of call-by-call and carrier pre-selection characterize the German communications market. Broadband deployment continues to be the main topic in fixed-line telecommunications; while mobile services is seen as the main driver behind growth, mainly due to the increasing demand for data services. Broadband is also key to developments in the equipment segment, where optimists also hope that UTMS will drive demand for mobile infrastructure equipment.

Deutsche Telekom AG (DTAG) will remain the dominating figure in the telecommunications arena. Recent activities show that DTAG is focusing its activities on W-LAN; online shopping; security; higher bandwidth for heavy users; special offers for online gamers and SME's.

Main drivers of telecommunications growth in Germany are broadband, value-added services, and mobile communications. Technologies and services that address these market segments are considered to be the best prospects for U.S. SMEs. To gain market share, competing operators need new and different equipment and technologies from what DTAG offers. DTAG has longstanding, established relationships with existing suppliers or systems integrators, and a preference to continue to work

with them. This fact can make it difficult for new (particularly small) vendors to establish a foothold and sell to the incumbents, according to local market experts.

Internet

Germany is the European leader in Internet commerce and is among the world's most sophisticated markets, totaling EUR 320 billion in 2005. Internet commerce is expected to grow to EUR 694 billion by 2009. The use of the Internet by individuals and businesses in Germany is continuing to expand: about 63 %, or 51.9 million Germans were online in 2005, and this percentage is expected to grow to 79.7 % by the end of 2007. The number of Germans accessing the Internet via broadband is expected to increase from 12.6 million subscribers in June 2006 to 22.4 million in 2010. Germany holds the highest market share for both B2B and B2C commerce in Europe; B2B-commerce accounted for EUR 289 billion in 2005 and is estimated to have grown to EUR 580 billion by 2009. Business-to-Consumer (B2C) commerce accounted for EUR 32 billion in 2005 and forecasts expect it to reach EUR 114 billion in 2009. Only about 3 % of German retail transactions were online sales in 2005.

B2C

Fifty percent of German adults realized at least one shopping transaction via the Internet in 2005. Favorite B2C products are books, tickets for airlines and trains, hotels and music. Growing online sales are expected for consumer electronics, drugs and package tours. Retailers without "physical" retail stores or those lacking brand recognition sometimes encounter difficulties when trying to win the trust of German customers. Besides trust, price and product diversity are the most important competitive factors.

B2B

Almost all German small and medium-sized businesses have Internet access. Online transactions such as e-procurement are growing and Customer and Partner Relationship Management are becoming increasingly important. Most e-commerce strategies focus on quick return on investment. Revenues of industry- or company-specific marketplaces such as SupplyOn in the automotive industry are growing. Major users of B2B solutions are the automotive, retail, energy, and pharmaceutical/ chemical production industries.

The Marketplace for Digital Equipment & Systems

U.S. computer products are viewed as innovative products of superior quality and leading edge technology. Despite the current economic slowdown, IDC predicts that Germany's hardware market including network equipment will reach EUR 34.1 billion in 2007 and will account for approximately 23 percent the EU's IT market. The United States is expected to retain its import share of approximately 25 percent at least until 2008.

For the overall computer hardware and peripherals segment, however, forecasts are disappointing. Analysts expect growth to reach a mere 0.9 in 2007 after stagnating demand in 2005 and 2006. This growth will be mainly based on individual segments, which enjoy considerable growth, such as notebooks, handheld PCs or multifunctional device.

Experts see the increased use of the Internet at the workplace and growth of e-Business as one of the drivers behind potential future growth. These positive trends

have resulted in a need to process larger data volumes, coupled with a demand for higher bandwidth and applications requiring increased output performance. After three years of economic stagnation and a subsequent reluctance to invest, German firms face a pent-up demand for investments in IT communications infrastructure, including a demand for more powerful server systems (RISC/UNIX).

Future Prospects in this Market

Software:

The following industries are expected to make major software investments in order to standardize and optimize business processes, as well as to implement IT-security features: public sector, banking and insurance sector and medical sector, although all these areas are difficult to penetrate by new-to-market companies. Industry will also invest in production software tools.

Best prospect areas: IT-security; customer relationship management (CRM) technologies; supply chain management software; document management software; business intelligence software; infrastructure software; storage software; resource management software

Services:

The following industries are expected to make major software and services investments in order to standardize and optimize business processes, as well as to implement IT-security features: insurance and banking (primarily outsourcing services).

Best prospect areas: Outsourcing services; IT-security services; E-commerce projects; BPO (Business Process Outsourcing) services; CRM services.

Communications:

The mobile telephony segment is still widely regarded as one of the main growth drivers in the German ICT market despite the fact that demand for hand-held sets is stagnating– only Internet-related technologies have experienced higher growth rates.
Best prospect areas: WLAN, broadband access via satellite, Interactive TV.

Hardware:

U.S. computer products are viewed as innovative, with superior quality and leading edge technology. Germany accounts for approximately one quarter of the EU's total IT market. The United States is expected to retain its 2006 import share of approximately 25 % at least until the end of 2007

Best prospect areas: Leading edge ICT products: Servers, laptops, printers, memory, and networking products.

Important USDOC Resources in this Market

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GREECE

Capital: Athens
Population: 10.8 million
Languages: Greek
Monetary Unit: Euro (€)
Exchange Rate: €1 / $1.22785.
GDP per Capita (in US$): 21.300$

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Market Overview

Greece by geographic location is the Balkan crossroad connecting emerging economies of the Balkan countries with the highly promising Greek IT market. Moreover, Greece is one of the "market-bridges" connecting European Union and Asian markets.

Compared to other European markets, the Greek information technology market is relatively small. In the last decade, however, it has been characterized by the highest growth rate making the Greek market the most challenging one in the E.U. There are several E.U. funded projects in process that will allow for further expansion of the Greek IT market and an increase in the demand for high tech products. It is estimated that in 2007 the IT Market in Greece will be $1.9 billion.

The new "Digital Strategy 2006-2013", a government plan, places information communications technology (ICT) high on Greece's agenda. The main objective of the "Digital Strategy 2006-2013" program is to provide digital services to businesses re-organize the public sector, develop digital services for citizens through the creation of gateways and the expansion of broad banding. The program is funded by the 3rd Community Support Framework and is coordinated by the Information Technology Committee.

The new policies of the E.U. also include the project: "i2010" that focuses on the internal market for information services and investments in ICT innovation and competitiveness.

Investments of $3.4 billion are expected to be made in the IT sector and in communications services, related to the Operational Program "Information Society" of the 3rd Community Support Framework. It is estimated that the growth rate of the Information Technology market in Greece will increase by 4% in 2007, the sales of the IT sector are estimated at $6.5 billion and the profits are estimated at $384.7 million.

Greece maintains high records in the telecommunications sector and according to the European Information Technology Observatory; the growth rate of this particular market, which was 3.5% in 2005, is expected to increase by the same rate in 2007 at $7.5 billion. In the years to come the Greek Government and the Ministry of Transportation and Communications aspire to transform Greece into the premier telecommunication hub of Southeastern Europe. It is expected that such government programs will create great demand for IT equipment and will lead to a great development of the continuously growing IT sector.

The Marketplace for Business Process Technology

The Greek software market is large and growing and the competition is intense. Almost 55% of the total software distributed in Greece is produced locally. The major companies include: Singular, DIS-Computer Logic, UNISOFT, INTRASOFT, BYTE Computer SA, MLS Pliroforiki, 01 Pliroforiki SA, InfoQuest SA, Iason Pliroforiki SA, SystemSoft SA (Singular's Business Partner), EnterSoft SA.

In 1996, the first generation Enterprise Resource Planning (ERP) systems appeared in the market, evolving the IT business environment into a "client server" and "windows-like" structure. Today, the implementation of ERP systems is considered basic for the competitive performance of any firm. The Greek market demand is for ERP systems that support commerce-logistic transactions, sales procedures, as well as Customer Resource Management (CRM) service procedures and projects implementation procedures.

In 2006 the market of computer hardware is reached $856.6 million, a 4.6% increase over 2005. The highest increase was in portable computers (23.4%) and high-end servers (22.5%). The growth is expected to continue. IT services reached $929.3 million, an increase of 6.3% in comparison with 2005. An increase of up to 2.9% is expected in 2007.

Overall, the Greek market is a competitive and prosperous market for major firms that develop software and hardware such as Microsoft Hellas S.A., Oracle Hellas S.A., IBM Hellas S.A. and Hewlett Packard Hellas which are already operating in the Greek market.

The Market Place for Communications Technology

Fixed-line telephony:

The liberalization of telecommunications internationally resulted in the improvement of services and the decrease of prices as more telecommunication companies entered the fixed-line telephony market and competition was created. The government agency that supervises and controls the telecommunication field is the National Committee of Telecommunications and Posts (EETT). Today, most major telecommunication companies operating in Greece offer fixed-line telephony service: Altec Telecoms, Cosmoline, Infoquest, Forthnet, Lannet, Tellas, Telepassport, Vivodi and Q-Telecom. The competition between these companies has lead to a lowering of the prices and an improvement of the services offered for the benefit of the clients. However, the Hellenic Telecommunications Organization (OTE) is still the main fixed-line operator serving almost 6,000,000 clients in Greece.

Mobile Telephony:

Greece maintains very high records in the mobile telecommunications sector. Mobile telephony penetration exceeds 75% of the Greek population. It is calculated that in the next decade 2,000,000 new subscribers will be added to the Greek market in all the networks of mobile telephony thus increasing the percentage of penetration to 95%, which will be among the highest in Europe.

Key Players – Greek Telecommunications Sector		
Company Name	**Ownership**	**Market**
Hellenic Telecommunications Organization (OTE)	Hellenic Republic: 36%, Greek Institutional Shareholders: 14% International Institutional Shareholders: 36%, Hellenic Exchangeable Finance S.C.A.: 3% Rest Shareholders: 11%	Fixed-line (local, domestic long-distance, international), data, internet
FORTHnet	Institution of Technology and Research ([I].[T].[E]) with 20,31%, Cycladic Capital Management 11.9%, NOVATOR EQUITES LTD with 34.33%, while the remainder percentage belongs in the investment public, as well as in workers and collaborators of Company.	Fixed-line (local, domestic long-distance, international), data, internet
Q-Telecom	TIM (100%) *	Fixed-line (local, domestic long-distance, international), mobile, data, internet
Tellas	PPC (50%), WIND (50%)	Fixed-line (local, domestic long-distance, international), mobile, data, internet
CosmOTE	OTE (58.9%), Telenor (18%), WR Enterprises (7.08%)	Mobile
Vodafon-Panafon	Vodafon (64.0%)	Mobile
STET Hellas	Telecom Italia Mobile (81.4%)	Mobile

Internet:

Since 2002, the Internet users-base in Greece has grown approximately 40 percent per year. Still, Greece in 2005 ranked last in regard to the use of Internet among the 25 member states of the EU. About 35 percent of the population and almost 100% of the large Greek businesses have Internet access. Approximately 70 percent of Greek users use the Internet from their homes. About 61 percent of home access is through dial-up, 21 percent through ISDN and 8 percent through broadband. It is expected that the expansion of ADSL connections with greater speed will further the number of Internet users. Broadband services in the past were not so popular mainly because of

the high costs. A survey from Eurostat showed that by the end of 2005 broadband Internet connections increased 1 percent for householders and 44 percent for companies. In 2007, it is estimated that broadband use will increase, as private providers (Forthnet, Vivodi, Tellas, HOL and others) as well as the Hellenic Telecommunication Organization (OTE), are aggressively promoting broadband service packages and reduce their prices.

The Marketplace for Digital Equipment & Systems

There is a strong personal computer assembly market in Greece accounting for about 60 percent of the Greek hardware market. The four local firms dominating the market are the Quest Group, Pouliades & Associates, INTRACOM and the Altec Group. The majority of the hardware components in Greece are imported from the U.S. and Asia. There is no local production of computer networking equipment in Greece. There is a limited presence of French, German and Israeli and, to a smaller degree, Japanese and Far East manufacturers. The information technology products that originate from the United States account for 55 percent of Greece's import market. The primary equipment imported from the US includes personal computers, servers, printers, modems, multiplexing equipment and related software and is either shipped directly from the U.S. or U.S. subsidiaries in Europe. Some of the largest information technology consumers in the Greek market are state controlled companies and organizations. During the period 2003-2008, it is expected that approximately $2.4 billion will be spent on IT projects. The EU will provide almost 70% of the funding for these Greek Government IT projects through the "Information Society" program falling under the 3rd & 4th Community Support Framework (CSF). Along with the funds from the EU, Greece offers well-trained and experienced engineers and professionals.

Future Developments in the Greek Market

- The introduction of new generation networks is the leading objective in Greece's digital strategy for the three-year period 2006-2008. An objective of the digital strategy is to increase the utilization of fast Internet to at least 7 percent of the Greek population by 2008. The General Directorate of Corporate and Domestic Clients of OTE estimates that by the end of 2006 OTE will have 300,000 ADSL subscribers which will increase to 800,000 in 2008 provided OTE upgrades the broadband speed to 4Mbps in 2007 in order to provide triple play services.
- The "Voice over Internet Protocol", (VoIP) service, first appeared in Greece in 2004 and the market is still considered limited. All major Greek telecommunications companies offer this service. Many major companies (Space Hellas, Singular, Euro Bank, Cisco, Germanos, Multirama, Avaya, etc.) are gradually replacing their internal telephone networks with VOiP networks. This way they have one network for voice and data transmission. It is expected that interest in VOiP will increase as broadband use expands.
- On February 2, 2006 the Greek Government signed, in Lisbon, an agreement with Microsoft Corporation. It also provides for preferential financial terms for the purchase of Microsoft user licenses, the free use of software at home by the employees of the public sector and software training. In addition, the company will establish an innovation center (Microsoft Innovation Center) in Greece, where executives of Greek software companies will be trained in the development of business solutions that will be based on Microsoft systems. Also, by 2008 Microsoft is planning to create ten training centers in the areas of Greece that have high unemployment rates, to offer training on Microsoft applications.

- The E.U. has agreed to partially fund Greece's plans to boost broadband services and penetration more than fourfold. The financing plan of Greece includes:
  → Co-financing of projects by the European Union and the Greek State
  →Public and Private partnerships
  →The development of venture capital of $130 million comprised of resources from the EU, the Greek State and private investors to jointly invest in new technologies and R & D at an entrepreneurial level.

Important USDOC Resources in this Market

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HUNGARY

Capital: Budapest
Population: 10 million
Languages: Hungarian
Monetary Unit: Hungarian Forint (HUF)
Exchange Rate: US$ 1 = HUF 198 (Jan. 2007)
GDP per capita: US$ 18,650 (at purchasing power parity in 2005)

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Market Overview

With no tariff or others barriers to entry, the Hungarian IT market offers solid opportunities for U.S. suppliers. This US$2.4 billion market grew an impressive 7.8 percent in 2006. A 2005 survey commissioned by the Association of IT Companies found that 43 percent of Hungary's total IT spending went to services, 41.5 to hardware, and 15.5 to software. Spending in 2005 was split nearly evenly five ways, between the telecom, IT, media, financial, and public sectors. In 2006, however, public sector IT spending fell due to the government's austerity measures.

Internet use in Hungary has grown steadily in recent years. Roughly 40 percent of Hungarians regularly use it. And although most people still access the Internet from public sites, household penetration has grown to 22 percent. Internet subscriptions reached 1.16 million in 2006, 870,000 of which are broadband. Hungary has 228 ISPs, although only ten companies hold 90 percent of the subscriptions. In an effort to raise Hungary's Internet use rate closer to that of Western Europe, the government provides 7,300 broadband access points to public institutions and 5,000 to schools. Business-to-Customers (B2C) e-commerce reached USD 88.6 million in 2005, representing 0.003 percent of retail business.

The European Information Technology Observatory estimates that Hungary's telecommunications market, worth US$4.7 billion in 2006, will grow 2.3 percent in 2007. Hungary enacted the Electronic Telecommunications Act in January 2004 to conform to EU legislation. With fixed line revenues declining, Hungary's telecom industry is now focusing on wireless data communications to service the country's impressive 95.8 percent mobile phone penetration.

The Marketplace for Business Process Technology

Hardware

Hungary also offers a solid market for IT hardware. In 2005, PC sales grew 17 percent, to 450,000 units, while notebook sales climbed 64 percent, to 164,000 units.

Business Process Software

Hungary's market for Customer Relationship Management (CRM) software exceeded US$16 million in 2005. IDC Hungary expects increasing demand as more multinationals establish regional contact centers in Hungary. Many major banks, telecom, and utility companies will also need to upgrade their existing CRM systems. Business intelligence software use is also on the rise. This market, which includes query and reporting, online analytical processing, and data warehousing and mining, posted 27 percent growth in 2004. Steady gains continued in 2005 and 2006, driven by demand from the public, financial, telecom, manufacturing, and utility sectors. Oracle, SAS Institute, Cognos, SAP, and Business Objects control 80 percent of the Hungarian market.

As awareness about IT security has risen in Hungary, the security software market has followed suit. Anti-virus and anti-spam software sales hit US$13.2 million in 2005, up 16 percent over 2004.

Other prospects for U.S. software firms include the system management and application integration segments.

The Marketplace for Communications Technology

There were 3.374 million fixed lines (including 552,595 xDSL lines) at the end of October 2006 representing a penetration rate of 33.50 percent. About 66 percent of the Hungarian households have a fixed-line phone. Carrier service earnings were estimated to reach EUR 3,518 (USD 3,553 million) in 2006, and only a moderate increase of 3.7 percent can be expected in 2007, according to EITO.

The former state monopoly, Magyar Telekom, dominates Hungary's telecom market. Following its privatization in the mid 1990s, the company is now majority-owned by Deutsche Telekom. In addition to fixed line services, Magyar Telekom is engaged in mobile telephony. Its subsidiary, T-Mobile, leads this market with a 45 percent share, followed by Pannon GSM with 34 percent, and Vodafone with 21. All three companies have won 25-year concessions for services on 900 and 1800 MHz.

The Marketplace for Digital Equipment & Systems

The Hungarian IT market shows a profile typical of the more advanced markets in Central-Eastern Europe, according to the European Information Technology Observatory (EITO). EITO estimates that Hungary's total IT market reached sales of roughly USD 2,586 million (EUR 2,053 million) in 2006 -- up 7.2 percent from the previous year. And growth should continue at about the same pace (6.6 percent) in 2007. EITO estimates the market segments in 2006 as follows: computer hardware (USD 852 million/EUR 676 million), IT services (USD 868 million/EUR 689 million), and software products (USD 563 million/EUR 447 million). While the yearly growth rate of the hardware segment is expected to decline to 3.7 percent in 2007, IT services will show a steady growth of 9 percent, together with software products with an 8.5 percent growth rate.

Future Prospects in this Market

According to the Association of IT Companies (IVSZ), the Hungarian IT market will see double-digit growth in the next two years due to the inflow of EU development funds. Under its "New Hungary Development Plan," the government plans to distribute US$495 million worth of these EU funds to develop e-government systems. In addition, reforms in Hungary's health care and utilities sectors should also spur demand for IT investments.

Important USDOC Resources in this Market

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IRELAND

Capital: Dublin
Population: 4.0 million
Languages: England and Gaelic
Monetary Unit: Euro
Exchange Rate: 0.82
GDP per Capita (in US$): $34,000

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Market Overview

Ireland has a strong knowledge-based, export-focused ICT industry with over 1,300 companies employing 90,000 people and generating sales of over $67 billion. The sector has significant indigenous and foreign-owned segments across manufacturing, software, and services. A strong and consistent policy environment consisting of low corporate tax rates and excellent skills base, allied to an emerging business culture that values entrepreneurship and innovation, supports it.

Ireland's $8 billion ICT market is very mature with strong domestic and international competition. It has significant telephony penetration and a solid digital games culture; however, low PC penetration rates, poor broadband access and low levels of ICT adoption also characterize it across several market segments. The following is a summary breakdown of the Irish ICT market by sector.

Sector	Market Size	Growth
Business Process Technology	$1,200 million	5-8%
Communications Technology	$5,300 million	5-10%
Digital Equipment & Systems	$1,640 million	5-6%

This contrasting paradigm between sector and market in Ireland actually benefits U.S. business as Ireland represents a location that offers excellent opportunities for U.S. ICT companies to achieve export success, both within the local Irish market and in the wider European context. Irish companies are increasingly interested in strategic trade opportunities with U.S. firms and they make ideal partners for U.S. SMEs interested in the European marketplace.

The Marketplace for Business Process Technology

Sector	Market Size	Growth
Computer Services	$620 million	5-8%
Computer Software	$580 million	5-6%

The market for business process technology has been one of Ireland's fastest growing business sectors with annual growth rates of up to 10 percent in recent years. Within the computer software segment, Microsoft is the dominant player with Oracle, IBM and SAP also prominent, while Linux is starting to gain market share. Demand for browser-based enterprise software has increased, driven by the move toward mobile computing and e-working. Increasing emphasis is being placed on security and storage technology solutions. In recent years, the ERP and CRM sectors have been sluggish and the days of forward-buying software by the commercial sector are over.

Within the services sector, there is increased demand for managed services, systems integration and network maintenance, whereas enterprise systems and business consulting have experienced sluggish demand. Key market players include HP, Accenture, Fujitsu, IBM, EDS, BearingPoint and Cap Gemini. The Government, telecommunications, health and education sectors are expected to underpin growth in 2005.

ICT adoption and deployment in the health and education sectors are well below the OECD and EU norms. Indeed, there is a perception in parts of the public sector that technology is an optional overhead, confined to computers and software rather than processes that can enable significant change, increasing efficiencies and ultimately saving money. Annual investment in ICT ($80 million) represents just one percent of the entire Department of Health budget, while the education sector has seen little ICT investment since completion of its three-year $100 million program in 2003. Revised ICT strategies for both the healthcare and education sectors were compiled in 2003, but their publication is still awaited.

The new ICT strategy for the healthcare sector is understood to include plans for a Hospital Information System (HIS) that could cost as much as $650m over five years. The UK-based software firm, iSoft has emerged as the preferred supplier to implement the enterprise software solution that would tie together all aspects of running hospitals across Ireland in terms of patient records, procurement, scheduling and financial management. Companies vying for parts of this HIS contract include IBM, Accenture, Fujitsu/Siemens and HP.

In the education sector, the new ICT strategy is expected to earmark $150-200 million for the provision of equipment - hardware, software and associated technology - into schools over a five-year period. In March 2004, the Irish Government announced a $25 million public private partnership program to bring broadband to every school in the country by the end of 2005. The current pupil-to-computer ratio is 11:1 in secondary (high) schools and 9:1 at primary (K-12) level.

The Marketplace for Communications Technology

SECTOR	Market Size	Growth
Telecommunications Services	$4,500 million	3-4%
Telecommunications Equipment	$ 800 million	6-10%

The telecommunications sector in Ireland is showing signs of growth, as revenues have increased 3 percent, with the mobile sector underpinning this growth. There are some 5.6 million telecom access paths in Ireland. Mobile telephony dominates with 3.57 million subscribers while fixed lines are stagnant at 1.6 million. The Irish broadband market is exhibiting significant growth, albeit from a very low base, with strong take-up of DSL lines in 2004. There are over 83,000 installed DSL lines, 6,800 cable modems, and 6,100 Fixed Wireless Access subscribers. While over 525,000 homes are connected to cable TV, the adoption of cable as a broadband access path has been low, largely due to the poor quality of the cable network.

Ireland's telecommunications sector was fully liberalized in December 1998. There is strong competition in the $2.4 million fixed line segment with several 'Other Authorized Operators' competing to take market share from Eircom, the incumbent fixed operator. As Ireland currently ranks second-to-last in the EU for broadband penetration, the Irish Government has re-entered the telecommunications market, in partnership with local authorities, to construct regional broadband infrastructure (carrier-neutral, open access Metropolitan Area Networks) in over 80 cities, towns and regional locations in Ireland. This regional broadband network is managed by eNet, a private company that holds a 15-year concession to act as the Managed Services Entity to the network.

Like most EU countries Ireland's wireless communications sector is very mature with market penetration at 88 percent and total annual revenues of about $2.1 billion. The two principal operators, Vodafone and O2, account for over 3.3 million subscribers while the third operator, the U.S.-owned firm Meteor, has some 250,000 subscribers. GSM (2G) and GPRS (2.5G) technology dominates though UMTS (3G) networks from the three authorized 3G operators – Vodafone, O2 and 3Ireland (Hutchison Whampoa) - will be fully operational by mid-2005. Meteor declined to bid for a 3G license in 2001. It is widely speculated that Eircom will re-enter the wireless communications market in 2005 while the January 2005 takeover of Meteor's U.S. parent, Western Wireless, by AllTel may result in an ownership change for Meteor.

Telecommunications operators in Ireland continually invest in their networks and generally source leading-edge telecommunications equipment and software for use on their networks and administrative systems. VoIP is expected to be a significant growth opportunity in 2005 as the National Regulatory Authority – ComReg- has granted a new number range for service providers intending to offer VoIP services in Ireland. Eircom is reported to be preparing to launch its own VoIP service during 2005.

The Marketplace for Digital Equipment & Systems

Sector	Market Size	Growth
Computers & Peripherals	$1,040 million	5-6%
Consumer Electronics	$ 600 million	7-10%

The computers and peripherals segment is very mature with all major international brands competing for market share. U.S. manufacturers such as Apple, Cisco, Dell, EMC, HP, StorageTek, Sun, 3Com, and Xerox have strong positions in the market with Dell and HP being the market leaders. Annual PC sales are about 400,000 units. In the current strong Irish economy, there is a very limited demand for second-hand PCs. Home PC ownership is forecast to grow with increased availability of broadband infrastructure. At the same time, PC ownership (46%) is not as dynamic as the mobile telephony sector (88%), or even the games console sector. Over one million people use a PC at home or in the workplace in Ireland.

There has been strong growth in notebooks and PDAs reflecting a trend toward mobility products. Server demand has also been strong and flat panel monitors have finally overtaken CRT screens. Price erosion has been a key trend within the hardware segment. Vendors have incorporated ATA storage technology in the latest desktop models. Serial ATA ports and disk drives are in demand as features that facilitate integration with servers and network storage areas. In the printer segment, color models are driving market demand while multifunction devices are increasing in popularity.

Industry observers are cautiously optimistic for the market forecasting increased demand for hardware upgrade projects in the business sector as a return to three-year life cycle practices is anticipated. Increased demand for security and wireless technologies is also expected, especially in light of a growth in notebook sales, PDAs and other wireless devices.

The consumer electronics segment has experienced strong growth in recent years. The strong economic performance allied to increased disposable income and rising home ownership has underpinned this growth. Over 1.3 million (95%) households have a television of which 138,000 have upgraded to digital technology, while over 730,000 households (52%) have a DVD player and some 400,000 households (30%) have games console. At the other end of the spectrum, only 7,800 cars in Ireland have traffic navigation systems. The personal electronics sector has also experienced excellent growth with strong demand for personal devices such as iPods and other musical devices.

Future Prospects in this Market

Market opportunities exist for U.S. companies with innovative leading-edge information and communications technology products. Most promising prospects include data networking equipment, wireless networking equipment, laptops and notebooks, PDAs, storage technology, multi-function printers, VoIP technology, and leading-edge software products across all market segments.

Sector opportunities exist for U.S. companies who look upon Ireland as a proven 'gateway to Europe'. Over 85% of Ireland's $67 billion ICT output is exported to Europe and points beyond. Irish-based firms have developed sophisticated supply-

chain management systems using an array of local importers, contract manufacturers, joint-venture partners, agents and distributors to produce and move product in-and-out of Ireland. These companies are increasingly interested in strategic trade opportunities with U.S. firms.

With a common language and American business affinity, and a workforce highly experienced with international trade, Irish companies make ideal partners for U.S. SMEs interested in the European marketplace. For example, U.S. software companies seeking to penetrate the lucrative European software market should consider entering into joint venture/licensing agreements with Irish firms who have the experience of exporting to EU markets. The U.S. Commercial Service in Ireland is available to assist interested U.S. companies in this regard.

Important USDOC Resources in this Market

Irish agents and distributors attend most of the major international high technology trade fairs in Europe and the U.S. seeking to identify and source the latest innovative products. The U.S. Commercial Service in Ireland promotes U.S. exhibitors at a wide range of ICT events in the U.S. and Europe to the Irish ICT community and offers a customized contact service whereby Irish company interest in relayed direct to relevant U.S. ICT firms.

ITALY

Capital: Rome
Population: 57.8 million
Languages: Italian. German is the official second language in the Trentino-Alto Adige region (Tyrol); French is the official second language in the Valle d'Aosta region.
Monetary Unit: Euro
Exchange Rate: 1 Euro = U.S. $0.797 (2006)
GDP per Capita (in US$): 26,264

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Market Overview

Italy is the world's sixth largest industrialized economy and Europe's fourth largest market for the Information and Communications Technology (ICT) industry. The size and importance of the Italian economy are often not fully appreciated by American exporters, but the potential for expanded American ICT exports to Italy is significant. The Italian ICT market, which represents approximately 9 percent share of the total European market, still suffers from long-existing structural problems and is undersized and lagging behind in comparison with the other major European countries. Nonetheless, the technology gap is narrowing and ICT penetration is improving.

After an extended period of poor performance, the Italian economy in 2006 finally showed signs of recovery, and this reflected positively on the development of the ICT sector. According to preliminary estimates, the Italian ICT sector in 2006 was valued at US$ 79.6 billion, an aggregate growth of 1.4 percent in Euro currency over the previous year, and prospects are good for the next three years.

The Italian Government is committed to modernizing the country through the development of policies for accelerating widespread acceptance and use of new information and communication technologies, both in the public and private sectors. A deep reform of the Italian public administration, based on cost-effectiveness, decentralization, transparency and simplification, is taking place. The need to reach higher levels of efficiency and to offer higher quality public services is playing a key role in the growth of the e-business / e-commerce sector. In particular, significant developments are occurring in the fields of e-procurement, health care management and fiscal services. The Italian government, both at central and local level, is also fostering a "new economy" business culture to boost economic competitiveness and efficiency by offering small and medium size enterprises grants for the adoption of e-

commerce solutions, for turning to broadband access, and for utilizing digital signature.

The Italian Public Administration at local level is a major IT investor, while at central level it has recently made severe cuts on IT expenditures, in order to contain general budget costs. In any case, Public Administration will continue to represent a key end-user as the Italian government attempts to advance Italy's information society. The leading Italian government agency responsible for implementing strategies is the Ministry for Reforms and Innovation in Public Administration - Department of Innovation and Technologies http://www.innovazione.gov.it/eng/index.shtml

The Marketplace for Business Processes – Software & Computer Services

The improvement of the economic situation in Italy is favorably affecting the development of both the software and computer services sectors, which are among the largest in Europe. Preliminary estimates for 2006 value computer services at US $11.8 and software at US $5.2 billion, an increase of 1.6 percent and 2 percent respectively over 2005 in Euro currency. Computer services are forecast to continue registering positive growth over the next three years, supported by a significant number of new projects being started by large-sized enterprises and by the stabilization of professional fees, as opposed to the down-pricing process of the previous years for retaining the customer base. Renewed investments are also taking place among many medium-sized Italian companies wishing to rationalize their operations. Market analysts also forecast a cycle of steady and above-average growth for software in the next three years and a role as a strategic driver for the whole IT sector.

In the computer services sector, in 2006 consulting services and system integration had a positive trend, but the best performance (+2.5 percent) was registered for "selective" outsourcing services (such as application management, system and network management). Together with the growing segments of Business Process Outsourcing and Business Transformation Outsourcing, they are expected to gain momentum and to be increasingly utilized as tools to promote efficient and cost-effective business operations.

Internet-related services to support intranet/extranet and e-business solutions also performed well, as did integration of Web and e-commerce solutions with ERP, supply chain management and customer relationship management solutions. Integrated IT security and business continuity services are finally being perceived as a core business requirement, and budget allocation in these segments is turning increasingly important for Italian enterprises.

In the software sector, system software accounted approximately for 14 percent of the market, while middleware accounted for 26 percent and registered a growth of 4.5 percent in 2006. There is an increasing diffusion of Open Source Software and a growing demand for security, network & system management solutions, IT management and monitoring solutions, and Application Servers as a solution for complex application integration issues.

Application software accounted for approximately 60 percent of the total software market, with packaged software representing 18 percent of application software. E-commerce applications are one of the fastest growing segments, with procurement applications in the lead. Information security applications are also becoming increasingly important for Italian enterprises in all sectors, as well as Business Intelligence and Data Warehouse products for an optimal management of company information.

Companies in the banking, insurance, manufacturing, media, professional services, utilities, health care and Public Administration sectors are expected to continue to invest in computer services and software to enhance competition. Public Administration will continue to represent a key end-user as the Italian government attempts to advance Italy's information society.

The computer services and software market is heavily fragmented among over 55,000 operating companies. The top ten companies, however, hold approximately 50 percent of the business. A group of about 3,000 medium sized companies holds approximately 45 percent of the market, while a plethora of small companies, often very specialized by vertical market segments and serving the needs of SMEs, holds the remaining 5 percent. The U.S. dominates the market and most major American companies in the sector have established an Italian subsidiary.

The Marketplace for Communications Technology

The Italian market for telecommunications equipment and services is the third largest in the European Union, is up-to-date with the implementation of EU directives and is considered one of the most open in Europe. During 2006, this market continued its rationalization and consolidation process, experiencing different growth rates for different market segments. Preliminary estimates value the telecommunications market at US $54.7 billion in 2006, an aggregate 1.1 percent increase in Euro currency over 2005. Telecom systems and terminals were estimated at $6.5 billion, infrastructure at $5.7 billion, fixed network services at $20.9 billion, and mobile network services at $21.6 billion.

The major Italian telecommunications operators include the former state monopoly Telecom Italia, which remains Italy's dominant operator across all communication services; Wind, the second-largest fixed network and the third-largest mobile communications operator in Italy; the metro Ethernet company Fastweb; British Telecom, Tiscali, Eutelia, the Swedish company Tele2, Verizon, Colt Telecom, and Cable & Wireless. The four mobile network operators, which also hold a UMTS license, are Telecom Italia, Vodafone, Wind and H3G.

Growth is being driven by mobile communications and broadband. Italy is one of the largest mobile communications markets in Western Europe and one of the most advanced, considering technology and consumer preferences. Mobile phone diffusion in Italy is among the highest in the world, with over 75.6 million mobile phone lines activated in June 2006 (+13 percent over the same period in 2005), serving 44.6 million clients and equaling a penetration rate of approximately 80 percent. Broadband access is developing very rapidly, with close to 8 million users connected at the end of 2006 and a growth rate of over 37 percent, mainly due to the increasing offer of interactive digital content.

The market for mobile content and value added services (VAS) is increasing constantly and was estimated at $5 billion in 2006, a 20 percent increase over 2005. Third-generation phone terminals and services are also registering excellent growth rates, thanks to the availability of new digital content and to very aggressive promotional campaigns by the operators.

While most business users still utilize smart phones mainly for mobile e-mail applications and, to a minor extent, for SMS messaging, Italian consumers utilize the mobile phone as a true multimedia device, are very open to new services as they become available, and are playing a key role in the development of the mobile VAS market. The lively Italian market for VAS is characterized by more than 13,000 different services offered by more than 500 suppliers, including telecom companies,

media companies, the major record and movie labels, and mobile content and service providers. Infotainment services hold the lion's share, with video services representing the real innovation and expected to become increasingly important. Mobile TV was introduced in June 2006 for the soccer World Cup and it is estimated that at least 110,000 phone terminals based on the DVB-H (Digital Video Broadcast Handheld) technology have been sold to date. Other very successful services include instant messaging; download of logos, ring tones, screensavers, wallpapers, true tones, chat and community services, and java games.

The introduction of HSDPA (High Speed Downlink Packet Access) and DVB-H technologies will offer both consumer and business users further improved bandwidth and "quadruple play" services (broadband Internet access, television and telephone with wireless service provisions), thus accelerating the convergence of communications and multimedia operators and opening new market opportunities.
With regard to Internet usage, Italy has experienced explosive growth in the past six years. The number of business and home Internet users has boomed and is estimated to have reached over 29 million in 2006. Italian Internet users are relatively less mature in the use of this medium with respect to the European average, but they are rapidly catching up. Let Wi-Fi (Wireless Fidelity) technology, is also developing very rapidly. Investments for wireless networks are growing exponentially, offering excellent business opportunities. It is estimated that in 2006 there were approximately 2500 hot spots available throughout Italy, but the number is constantly increasing.

In the broadcasting sector, the Digital Terrestrial Television, with over 4 million decoders sold since its introduction in 2004, is forecast to become one of the main vehicles for the diffusion of digital contents to Italian families and for access to online services offered by the public administration. Presently there are over 30 channels broadcasted at national level, 200 channels at local level, and a dozen channels available through prepaid cards. The number of users is also constantly growing for the satellite pay-TV, Sky Italia (owned by the Murdoch group) and for the cable TV packages offered by the Italian company Fastweb.

As a result of market development, the digital entertainment segment is expected to grow at a rate of 25-30 percent in the next three years. This includes subscriptions, prepaid cards and pay-per-view for terrestrial and satellite TV access and access to digital contents via mobile phones and via the Internet (music downloads, online video games, etc.).

The Marketplace for Digital Equipment & Systems

The positive signs of recovery of the computers and peripherals market shown in 2005 continued in 2006. Preliminary estimates assess the market at over $6.8 billion in 2006; with a 3.6 percent increase over 2005 in euro currency. The Italian market is far from being mature and the potential is high. The sector is forecast to remain one of the best prospects for U.S. imports in the next three years, especially in certain market segments.

In 2006, larger companies kept consolidating and rationalizing their existing infrastructure, paying more attention to Return on Investment (ROI) and Total Cost of Ownership (TCO), while some medium-sized companies took advantage of decreasing prices to replace their computer hardware. Families also played an important role, though less significant than the previous year, in the purchase of sophisticated PCs, supplied with multimedia, entertainment and communication devices. Pressure on prices continued to be strong in 2006 and often created a considerable divergence between shipment trends and value trends.

According to AiTech-ASSINFORM, the major Italian Association of Information and Communications Technology companies, in the first semester of 2006 sales in units grew 12.7 percent for Personal Computers and 3.5 percent for midrange servers. PC units sold (both desktops and portables) were 2,118,000, with families purchasing 438,000 units (+13.5 percent), and enterprises purchasing 1,680,000 units (+ 12.4 percent).

Over the past few years, portable PCs have been gaining market share over desktops and servers. In the first semester of 2006, with 1,055,000 units sold, portables grew 18.5percent in volume, versus an increase of 6.6 percent for desktops (965,000 units) and an increase of 16.6 percent for PC servers (98,000 units). Portable PCs now account for 52.2 percent of the PC market, doubled over 2004.
The mainframe/high end server segment continues to record considerable growth, especially in the banking sector, confirming the trend of larger enterprises to invest in the rationalization and better management of their information systems. The midrange server segment and the workstation segment are facing growing competition from both mainframes and Wintel platforms, which are aggressively priced and offer continuous performance improvements and a wide range of applications.

The storage segment is recovering and is expected to continue growing, also in view of the implementation of recent Italian laws calling for data protection, business continuity and disaster recovery procedures. The printer segment is also growing, with multifunction printers registering growth of over 35 percent.

With regard to the Italian Consumer Electronics hardware market, it is becoming increasingly important and offers excellent business opportunities. Italy ranks among the fastest growing European countries with an estimated market value of $8 billion and an increase of 15 percent over the previous year. Digital technology products, such as Plasma TVs, LCD TVs, home theater equipment, MP3 players, digital cameras, satellite components, game consoles and camcorders are showing 2-digits growth due to expanded availability in retail stores and to dramatically decreasing prices.

Future Prospects in this Market

In spite of the modest results of the past few years, all trade sources indicate that the general outlook for the Italian ICT market in the next three years is positive.
In the computer services and software sectors, best prospects are for projects designed to cut costs and complexity, raise flexibility and efficiency or integrate different IT systems; application integration projects at all levels (from databases to solutions) based on different approaches: portals, Application Servers, Web Services, etc.; and security projects, where the main issues are common to all sectors of the economy.

ICT security software and services are expected to grow at sustained rates in the next three years. These include risk analysis, security infrastructure design and implementation, development and monitoring of security management policies and management of support applications; intrusion prevention and detection systems, identity management solutions, secure networking equipment, firewall software and equipment, secure content control software, internet access control tools, and security authentication, authorization and administration tools; business continuity and disaster recovery procedures.

Sustained growth is expected in both B2B and B2C e-commerce solutions. The most active players focusing on the implementation of B2B solutions are the automotive, the pharmaceutical, the grocery, the IT and the telecom sectors. E-procurement is

growing very positively and virtually all major Italian industrial groups and major companies, as well the Public Administration, are organized for it. In the B2C, the most promising purchased items will be computers and software, books, Internet music and videos, and bookings for entertainment events, vacation and travel.

Excellent development potential also exists for selective outsourcing services – such as remote monitoring, business continuity and management of security technologies - internet-related services to support intranet/extranet and e-business solutions; storage management; and integration of Web and e-commerce solutions with ERP, SCM and CRM. The growing complexity of network technologies and the need for specialized skills to implement e-business and internet security strategies is also leading large and medium-sized Italian businesses to increasingly outsource services to supplement their in-house capabilities.

In the Public Administration sector, demand for advanced solutions to face new challenges is creating new opportunities: this includes the management of large command, control and logistics systems for civil protection projects – from the management of major events with large participation of the public to the management of emergency situations, and large mobility and security projects. Solutions to enhance government efficiency are also becoming increasingly important, including interoperability of large databases, privacy, services to the citizens, environmental protection and energy saving.

In the telecom sector, trends indicate a gradual decline in fixed networks and a steady growth in the mobile segment. Fixed-mobile convergence (FMC), although at an early stage in Italy, is expected to develop considerably in the next three years, stimulating the need for products and services allowing the seamless integration of mobile and fixed-line telephone services, such as the new UMA terminals, PDAs with advanced telephony features, etc. Key factors will be extended broadband availability and wireless technologies. Wi-Fi (Wireless Fidelity) technology, which will represent an important part of FMC, is also developing very rapidly. Investments for wireless networks are growing exponentially, offering excellent business opportunities. Telecom value-added services will continue to be a particularly dynamic segment.
In the IT hardware sector, market is far from being mature and IT potential remains considerably high.

As the Italian economic conditions improve, demand is expected to be stimulated and the market to grow increasingly. In particular, sales of notebooks, mainframes, PC servers, and higher performance midrange servers are projected to pick up, as well as sales of increasingly powerful storage solutions and of computer security solutions.

U.S. technology and standards are highly regarded and the best opportunities for success will be for those American companies offering innovative and sophisticated products. However, it is important that U.S. companies team up with well-established Italian firms for distribution or joint venture agreements in order to handle the burdensome bureaucratic procedure of public procurement.

Important USDOC Resources in this Market

Every year, the Commercial Service (CS) in Italy organizes the participation of a delegation of U.S. companies to Infosecurity/Storage Expo Show, Italy's most important ICT security and storage management event, held annually in Milan in February. In 2007, CS Italy will also recruit U.S. companies to participate in the Wireless and Mobile Forum, a major event exclusively devoted to wireless and mobile technologies and solutions, and in the M2M and RFID Forum, Italy's most important

conference and exhibition focused on Machine-to-Machine communication and Radio Frequency Identification.

The Commercial Service offers a wide range of services to American companies wishing to enter the Italian market or to strengthen their position there. CS Italy can also assist U.S. companies in organizing Single Company Promotions through presentations to potential clients and business partners in its conference rooms at the U.S. Embassy in Rome and the U.S. Consulates in Milan, Florence and Naples. For further information about the services provided please visit the CS Italy web site:
http://www.buyusa.gov/italy/en/
Public tenders make most purchases by the Italian Public Administration open to both domestic and foreign companies. Announcements of tenders on public procurements are monitored by the U.S. Mission to the European Union and can be accessed through the web page:
http://www.buyusa.gov/europeanunion

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KAZAKHSTAN

Capital: Astana
Population: 15,205,100 (December 2005)
Languages: Kazakh, Russian
Monetary Unit: Tenge
Exchange Rate: $1/KZT 130
GDP per Capita (in US$): 2,180

Market Overview

Kazakhstan's government identifies Information and Communications Technologies (ICT) as a strategic industry in need of modernization, and it has a long-term plan of modernization and liberalization of its telecommunications networks. The biggest challenge for telecommunications in Kazakhstan is its small population spread over a vast territory. Kazakhstan generated 1.6 Billion U.S. Dollars (216.7 Billion Tenge) in telecom revenues in 2005 with the increase of 27.7% over 2004 revenues.
In the structure of revenues 41.7 % belong to wireless communication services, 19.7% to international connection services, 8.1% - local telephony, 3.6% - radio communication, broadcasting and television services, 6.1 % - data transmission and I-net services, where Internet services account for 4.7%, courier services account to 2%. Revenues from mobile communications grew most dynamically and increased by 65.3% in 2005 from 2004. Revenues of Internet services grew by 1.6 times, and courier services grew by 39.3%.
Key growth drivers of the telecom sector include the deployment of fiber-optic network across Kazakhstan, providing international connectivity, digitalization of exchanges surpassing 64 percent by the end of first quarter of 2005, adoption of a new law on telecommunications in July 2004, and liberalization of the market.

Kazakhstan has a relatively strong fixed-line penetration of around 15.9 telephone lines per 100 inhabitants, with six operators of fixed-line telephony serving about 2.5 million subscribers in Kazakhstan. Fifty percent government owned Kazakhtelecom with its 2.4 million-subscriber base dominates the market. Mobile communications is the most rapidly developing segment of the communications market with revenues increased by 65.3% in 2005 over 2004. By the end of 2005, mobile operators in Kazakhstan had 3.8 million subscribers in comparison with 900 thousand at the end of 2002, surpassing the number of fixed-line subscribers. This is about 25% of all population of Kazakhstan. Currently, there are three mobile operators in Kazakhstan, including two GSM operators: GSM Kazakhstan (trademarks Kcell and Activ) with about 2 million subscribers, and KarTel (trademarks K-mobile, Excess, and Beeline) with 1.8 million subscribers, and one CDMA operator Altel (Dalacom and Pathword trademarks) with 300,000-subscriber base.

The new telecommunications legislation was adopted in June 2004 by the Parliament and signed by President Nazarbaev into law. It is the main regulatory and legal foundation for the liberalization and development of the telecom sector in Kazakhstan. The main provision of this new law is to provide all operators equal access to the telecommunications network of Kazakhstan, to introduce universal services to conform to practices in other countries, to bringing in a system of alternative operators of international and long-distance services by abolishing Kazakhtelecom exclusive license. However, the new rule still limits foreign ownership to 49% for operators of

the ground fixed lines providing international and long-distance telephony services. Kazakhstan plans to fully liberalize its telecommunications market by the end of 2006.

GDP growth in Kazakhstan is projected to be 9% in 2005 from 2004, inflation is projected to be 7% in 2005 from 2004.

The Marketplace for Business Process Technology

The computer services sector is rapidly expanding to meet increased market demand from growing domestic businesses needing the latest information technologies, equipment, and services. More small- and medium-sized businesses also are becoming computerized. In addition, the government of Kazakhstan also has a need for automation of its financial and educational institutions, customs agencies, and ministries. In this regard, in 2004, Kazakhstan's government adopted a program of formation of an electronic government in Kazakhstan for 2005-2007 and allocated 51.9 billion Tenge for this program (USD 400 million, exchange rate is Tenge 130 to USD 1). An additional 150 million Tenge (USD 1.2 million) is planned to allocate from the regional budgets for realization of the informatization program.

The market is moving gradually towards services instead of only hardware and software solutions. The growing demand for computer services includes integration services, systems and networks deployment, hardware maintenance, and localization of foreign software, IT-consulting, installation and maintenance of software packages, and training. Also, web-design services are steadily growing due to expansion of local Internet service providers in Kazakhstan.

There are three groups of software companies in Kazakhstan. The first group of companies is software developers that mostly serve government agencies and partially private companies. The second group is concentrated on the development of IT solutions for corporate market. They offer IT consulting services, and installation of software packages of foreign origin as well as self-developed software. The third group of firms sells and installs software applications of foreign companies or has a software sales department as a part of the bigger business of IT consulting and sales of computer and telecommunications equipment. IPR is still an issue in Kazakhstan but end users are gradually moving to the usage of the licensed software, and IT companies experienced two- to three-fold increases of sales of licensed software in 2004 from 2003.

Enterprise management systems services are among the most requested IT services in Kazakhstan. A steady rise in demand for these services is forecasted for the next five years, especially for medium-sized businesses. The ERP/CRM segment has steadily developed in Kazakhstan due to the progress towards clearer strategic IT vision on the part of the management of local companies. Most popular among Kazakhstan businesses are MBS solutions like Navision and Axapta, due to active promotion of Microsoft Business Solutions certified partners. German business solutions provider SAP is very active in Kazakhstan as well. Since 1997, it installed more than 20 solutions for enterprises in Kazakhstan, and plans to double its market share in 2005.

Banks, telecom providers and big industrial enterprises in the energy sector mostly use data Processing Management services. With the rapid development of the banking system in Kazakhstan, the range of services increases, which dictates the demand for latest information technologies. Data processing management and maintenance services are used by banks and telecom operators for support of their own systems as well as for development of the customer service and call centers.

All major U.S. IT market players are represented in Kazakhstan including Hewlett-Packard, IBM, Dell, Intel, Microsoft, Oracle, Sun Microsystems, Robertson & Blums, and some others. These U.S. companies gained a good position in this market and have a variety of clients among Kazakhstani and foreign businesses, and governmental entities. For example, Microsoft reports that it doubled its sales in 2004 from 2003 in Kazakhstan, while Intel's turnover was up 128 percent in 2004 from 2003. Oracle plans to increase its sales in 2005 in the Central Asia region by 100 percent. Ninety percent of Oracle sales are in Kazakhstan with 200 customers.

Major end-users of computer equipment, services and software include governmental institutions, foreign companies and joint ventures, and local businesses including big national companies. About 40 percent of end-users are comprised of governmental entities that announce procurement tenders for information technology services. Private sector demand makes up 60 percent. Fifteen to twenty percent of corporate customers are made up of foreign companies and joint ventures in the energy sector, banking, accounting, and infrastructure sectors. There is a significant potential for the increase of demand for information technology services including system integration and development of customized software, due to boosting oil and gas business activity in the region, and development of related infrastructure projects.

The Marketplace for Communications Technology

The state-controlled telecommunications company Kazakhtelecom is the national telecommunications operator and the largest telecom company in the country. It provides a full range of communications services, including basic voice services (local, domestic, long distance and international); telegraph and telex; data services; access to the Internet; channel leasing; satellite network services; and telephone business network services. It is also the sole rural communications operator in Kazakhstan. Kazakhtelecom is actively building a fully digital national telecommunications network based on digital local and long-distance switches and fiber-optic lines linking all major cities of the country. In addition, companies like KazTransCom, a subsidiary of KazMunayGas, the national oil company, and Transtelecom, a subsidiary of Kazakhstan's national railroad company, are using existing transport networks to lay fiber optic and other communications lines, positioning themselves to compete in a deregulated market as well as serving their own companies' communications needs. Kazakhtelecom is expanding its service to rural and remote areas through DAMA-technology satellite communication stations. There are also several private telecom companies in Kazakhstan that cover one-third of the market. After the liberalization of Kazakhstan's telecom market in mid-2004, Kazakhtelecom was deprived of its exclusive license for provision of international and intercity calling services. In 2005, five Kazakhstani companies besides Kazakhtelecom; namely, Transtelecom, KazTransCom, Arna (DUCAT), Nursat, and ASTEL received licenses for provision of long distance international and intercity connectivity services. Total telecom services operators licensed in Kazakhstan by mid-2005 accounted to 1,500, according to the Agency for Informatization and Communications. Sixteen operators are active in Almaty, the commercial capital of Kazakhstan.

A dozen companies with the domination of Kazakhtelecom, provide dial-up and leased line (ADSL) Internet access in cities throughout Kazakhstan. A very small, but rapidly growing portion of Kazakhstan's population is using the Internet. Between 2000 and 2003, the number of Internet subscribers grew about 200% a year. According to local statistical researchers, the number of Internet users in Kazakhstan was about million people by the end of 2004, among them around 280,000 regular users of Internet. By the end of 2005, the government expects 10% of Kazakhstanis to be users of the Internet with the drop down of connectivity costs, and plans to connect 75 percent of

all Kazakhstani schools to Internet. With the introduction of the so-called universal service, the rural population of Kazakhstan will be able to use Internet in the near future.

Kazakhstan spent up to USD 355 million on imports of telecommunications equipment in 2005, up 45 percent from 2004 (USD 244 million). There is almost no domestic production of telecom equipment except coaxial and fiber-optic cables, and small PBXs production. Volumes of domestic production are far from demands of the market. Imports represent 98% of the telecommunications equipment market. United States moved from the place five in the list of top ten importers of telecommunications equipment to Kazakhstan in 2004 to place three. The U.S. share in total imports to Kazakhstan in 2005 was 11% after Sweden (24 %), and Germany (14%). American companies most active in Kazakhstan are Motorola Lucent Technologies, Wincomm, Avaya and Cisco Systems, among telecom providers is MCI/Worldcom. Foreign manufacturers and suppliers active in Kazakhstan are Ericsson, Alcatel, Nokia, Siemens, Huawei, ZyXEL, ZTE, and others.

The Marketplace for Digital Equipment & Systems

The computer equipment market in Kazakhstan can be divided into high-end computer products and low-end computer products. In the market for mobile PCs, brand name notebooks has more than 95 percent market share versus locally assembled mobile PCs with the dominance of major brands such as Acer, ASUS, Fujitsu Siemens Computers, and HP. In the market of desktops, locally assembled computers occupy about 65 percent of the market, while world-known brand name computers occupy 35 percent of the market, according to industry representatives. Leading local assemblers of computers tend to form their own local brands in recent years; most of the IT companies took advantage of considerable government projects and corporate clients. Currently, demand from the corporate sector for latest technologies is stable. At the same time, many IT companies see a rapidly growing demand for computers and peripherals from the retail sector. Sales volumes growth declared by Fujitsu Siemens in 2005 in different market segments is as follows: sales growth of business mobile PCs was up 736%, sales of UNIX servers –1,355%, and sales of data storage systems was 130%. These numbers are very representative and reflect the real sales growth potential for digital equipment and systems in Kazakhstan.

U.S. companies most active in the computers/peripherals market in Kazakhstan are IBM, Hewlett Packard/Compaq, and Dell.

Computer penetration in Almaty, commercial capital of Kazakhstan, is estimated 18 PCs per each 100 inhabitants in 2005, considerable growth from 12 PCs per ech 100 inhabitants in 2003. Industry experts estimate that total market size for computers and peripherals in Kazakhstan is 200-300 million dollars.

The retail market for consumer electronics is also booming in Kazakhstan. According to BISAM, total retail market of 12 most popular products in Kazakhstan grew 70 percent from USD 734 million in 2003 to USD 1,244 million in 2004. Products include TV sets, cellular phones, AV systems, displays (CRT and LCD), camcorders, DVDs, and printers including multifunctional printers. LG Electronics occupies leading positions in this market, with another Korean company Samsung, following it very closely. Retail chains of consumer electronics become stronger and gradually displace smaller gray market retailers.

Future Prospects in this Market

Best prospects in the Kazakhstani ICT sector are as follows.

In the hardware/peripheral sector, consumers are increasingly interested in data storage equipment, servers, multifunctional products (printer, copier, fax, scanner, all-in-one), and LCD screens.

In the software sector, consumers are interested in all types of standard applications, web content management software and solutions, networking software and network security products, development tools, Windows, Linux and UNIX-based products, storage area management solutions, CRM and ERP products, and application management products. There is a strong demand for game software in the consumer market.

In the services sector, demand is focusing on all types of system integration services as well as information system security services, and IT-consulting.

There also is growing demand for telecom equipment and services for mobile, fixed line telephony, cable, broadband, mobile (value-added) data services, and all types of Internet-related communication services. In 2006, the major operator, Kazakhtelecom, plans to begin implementation of the New Generation Network (NGN) project including deployment, first, in Almaty, and then in other cities in Kazakhstan, of a new broadband infrastructure based on the IP/MPLS and Metro Ethernet technology. The government plans to attract operators to provide universal services in the rural areas of Kazakhstan by deployment of CDMA-450 network, and installation of communication kiosks. Also, the government is going to open a tender on DCS 1800 frequency to attract the third GSM operator in Kazakhstan in 2006. in early 2006, Kazakhstan plans to launch its own first communications satellite, which is currently under construction by Russia's Khrunichev Research and Production Center. This will be the first communications satellite owned by Kazakhstan. Kazakhstan annually spends some USD 26-28 Million on satellite channel rentals. The launch of Kazakhstan's own satellite will cost USD 65 Million, the initial expenses of which will be repaid over the first three years. Also, the government of Kazakhstan allocated 44 billion Tenge (approx. USD 340 million) for the development of Kazakhstan's space program, and plans to launch four more telecommunication satellites by 2010.

Kazakhstani Engineering and Technology Transfer Center launched an IT park in 2005 in Almaty. The world's leading IT and communication companies are involved in its operations and memoranda of cooperation have already been signed with Microsoft, Hewlett Packard, Siemens, Cisco Systems, Tales, LG, Oracle, Sun Microsystems, Samsung and others. The IT Park aims to improve and develop the IT industry in Kazakhstan as part of the national economic priorities, including diversification, import substitution, hi-tech development and the creation of new jobs for highly qualified personnel.

Important USDOC Resources in this Market

The U.S. Commercial Service Kazakhstan will be organizing the U.S. Pavilion at the Kazakhstan International Telecommunications Show on May 30 – June 2, 2006. The show is expected to highlight the latest telecommunications, IT technologies, and software and automation technologies. U.S. firms should seriously consider the advantages of this option to explore business opportunities and obtain exposure in the Central Asia market. The KITEL show provides a means for testing market

potential and making contact with prospective agents and distributors in Kazakhstan and Central Asia. This exhibition is the largest and most prestigious event in the field of telecommunications and IT in Kazakhstan and Central Asia, with around 400 exhibitors from 50 countries. In 2005, KITEL received 35,000 visitors from all regions of Kazakhstan, as well as from Kyrgyzstan, Uzbekistan, Turkmenistan and Russia.

KITEL 2006 will feature:

Five Specialized Sections:
- Telecommunications, Internet
- Computer and IT Technologies
- Banking and Office Technologies
- Security Systems
- Cable production
- Mobile and Satellite communication

Special Events (smaller satellite shows in the same venue)

- Software and Automation Exhibition (Software Showcase)

- Broadcasting & Broadband Exhibition (TRBK)

- Bank Technologies Exhibition (BankTech)

The event is organized by the International Trade and Exhibitions British Company ITE Group PLC (UK) and Iteca LLP, its partner in Kazakhstan, Central Asia, Caspian region, Caucasus, Turkey and Russia. ITE Group PLC annually holds over 70 specialized international exhibitions and conferences in Kazakhstan, Kyrgyz Republic, Uzbekistan, Turkmenistan, Azerbaijan, Georgia, Tajikistan, Russia and Turkey.

To register for the participation in the U.S. Pavilion at the KITEL exhibition, please contact Commercial Specialist Liza Vostrikova, U.S Commercial Serivce Kazakhstan at Liza.Vostrikova@mail.doc.gov

Market Research Reports on ICT industry in Kazakhstan can be found on www.export.gov (registration is required) or requested from the U.S. Commercial Service Kazakhstan (e-mail: Almaty.office.box@mail.doc.gov)

-- Doing Business in Kazakhstan: 2005 Country Commercial Guide
-- E-commerce in Kazakhstan 2005
-- EBRD-Kazakhstan Telecoms & Media: Kazakhstan Telecom Corporate Loan
-- Developments in the Kazakhstan Telecommunications Market up to August 2003
-- Telecom Equipment Certification

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NETHERLANDS

Capital: Amsterdam
Population: 16.4 million
Languages: The official language is Dutch. English is widely spoken as a second language.
Monetary Unit: Euro
Exchange Rate: $1= EUR 0.77
GDP per Capita (in USD): $31,700 (2006 est.)

Local Market Commercial Specialist

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Market Overview

The Netherlands is strategically located in Europe, bordered by Germany to the East, across the North Sea from the United Kingdom and Belgium to the South. The Netherlands is a founding member of the European Union (EU), and, although small in size, the country plays an important role in the EU at various political and governmental levels. About the size of the state of Maryland, the Netherlands is densely populated with a total population of about 16.4 million people and almost 7.1 million Dutch households. There is an active working population of 7.04 million people and some 120,000 registered companies with a staff of five or more people. The Netherlands has an open economy and is a technologically advanced country with an excellent transportation and telecommunications infrastructure. The country offers a compact market, which is used by many Information and Communication Technologies (ICT) companies from abroad as a pilot market and a major transportation hub for distribution of products and services throughout Europe. The Netherlands depends heavily on foreign trade. It is the eighth largest importer from the United States and has the well-deserved reputation as the "Gateway to Europe". The ease of doing business makes it an attractive market for both new-to-export and new-to-market U.S. exporters. The combination of logistical expertise developed from centuries of international trade, the fact that almost everyone speaks English, and the Dutch acceptance of U.S. products and services makes the Netherlands a prime destination market and the leading location for European distribution centers. The Dutch government stimulates R&D and innovation in the development and use of advanced technology products. It supports entrepreneurs in starting up new businesses and developing innovative high technology products.

The Marketplace for Business Process Technology

The software market, estimated at USD 7.1 billion in 2006 continued to be the fastest growing segment within the Information Technology sector. The Dutch software

market primarily depends on imports. Local software development mostly concentrates on business applications and custom products. Exports of Dutch products are limited. Most exports consist of re-exports by local subsidiaries of non-Dutch producers. U.S. companies are the largest suppliers (e.g. Microsoft and other multinational software producers) followed by European software producers. The introduction of Windows Vista in January 2007 is expected to contribute to the growth in 2007. The total market is almost equally divided into applications software and systems software. Windows is the standard in the business market, although the use of Linux is gaining ground. While UNIX, closely followed by Windows, is still the most commonly used operating system for servers, Linux' market share is estimated at about 15 percent and growing. The Dutch government promotes the use of Open Standards and Open Source Software within the government. The government and financial sectors traditionally have been major end-users of all types of software products. The business market, with an increasing need to streamline business processes, has also been a significant user. More recently the SME market has begun to emerge as an attractive new market for ICT suppliers. Increasing demand from SME companies and the healthcare sector will also contribute to further expansion. The consumer market has also grown rapidly in recent years due to increasing use of the Internet, games and online gaming.

The Dutch IT services market is estimated at almost USD 8.9 billion in 2006. This market is expected to continue to grow and benefit from the implementation of new technologies and increasingly complex systems that require the expert knowledge of specialists. Driving factors also include lack of in-house capacity, focus on core business, security concerns, as well as quality, cost and efficiency considerations. The growing use of the Internet and its applications are expected to increase demand for external services, e.g. in the areas of CRM and procurement implementations. The Netherlands has a large number of services providing firms ranging from very small to very large, and from hardware vendors to management consultants. Local production is considerable, but it includes services provided by local subsidiaries of companies headquartered outside of the Netherlands. A number of U.S. firms have successfully established themselves in this market, primarily with subsidiaries and through acquisitions. They play a prominent role and are expected to continue to do well, as others successfully enter the open Dutch market for the first time. There is an ongoing tendency for larger Dutch services firms to merge or acquire other service companies and become more international. With IT-off shoring growing and slowly gaining in importance in the Dutch market, it is still expected that in a few years there will be another shortage of highly qualified IT staff. IT services are provided almost exclusively to the business market. The consumer market for these services is small. Important end-users include financial institutions, government, healthcare and utilities.

The Marketplace for Communications Technology

In 2006, the total Dutch telecommunications market amounted to approximately USD 21,8 billion. At the time, some 85 percent of the total market consisted of services, while the remainder was telecommunications products and equipment. The telecommunications services market was worth an estimated USD 18.5 billion in 2006. Future prediction is that the market will continue to grow by 3-5 percent over the next few years. The business segment represents approximately 65 percent of the telecommunications services market. The increased use and availability of broadband, expansion of business and mobile communications, and the rollout of new networks drive growth in that sector.

In 1989, the Dutch telecom services market was privatized. KPN Telecom, the former PTT, continues to be a prominent player in the overall market. Today, KPN is active in

all fields of telecom. However, in spite of KPN still being a dominant participant in the Dutch telecom market, the Netherlands is part of the more liberalized telecom countries in Europe and proactively promotes competition. OPTA, the Dutch independent regulator, closely watches and stimulates competitive developments.
The Dutch market for fixed telephony is shrinking as more customers replace fixed with mobile connections. Additionally, Internet telephony via ADSL and cable has rapidly grown, particularly in the last year. Some 1.5 million Dutch customers call via the Internet at this time. The Dutch market for mobile telephony (GSM) is saturated. There are now more than 17 million subscribers (some people with two or more subscriptions) and there is fierce competition between the four major operators. New trends and technologies for mobile phones with built-in Bluetooth functions, color screens, digital cameras and Multi-media Messaging Services (MMS) gave a new impulse to the mature mobile telephone market. Among the first in Europe, the Dutch government auctioned five IMT-2000/UMTS frequency licenses in 2000. UMTS networks are currently being installed. Cable density is more than 90 percent in the Netherlands. Several cable companies offer telephony services and cable is increasingly used to access the Internet. At 28.8 per 100 inhabitants, The Netherlands has one of the highest broadband connectivity rates in the world. About 65 percent of Dutch households currently use a broadband connection. Dutch consumers spent an estimated USD 3.4 billion shopping on the Internet in 2006. The City of Amsterdam hosts "AMX-IX", the largest Internet Exchange in Europe. A data communication service is a growth area and is expected to gradually overtake voice telephony services in importance. The market for wireless networking is growing.

The Marketplace for Digital Equipment & Systems

The total hardware market amounted to almost USD 4.98 billion in 2006. The business market for desktop PCs still is primarily a replacement market. In 2006, the market for notebooks increased by more than 10 percent. The use of Personal Digital Assistants (PDAs), palmtops and other handhelds showed more limited growth. Driven by opportunities offered by the Internet and new applications, the consumer market for multimedia PCs and laptops was greater than before, but growth rates have slowed down some. Growing use of the Internet and larger software applications, e.g. CRM, have augmented the sale of small to medium-sized servers. While the number of printer units sold – many of them multi function printers - gradually increased over the last few years, the market did not show significant changes in the last year, mostly as a result of continuing price decreases. U.S. manufacturers are leading providers of PC and peripheral products. Although prices continue to decrease and margins are low, it is expected that hardware sales will continue to grow slightly or maintain small growth rates over the next few years. The recent introduction of the new Windows Vista operating system is also expected to contribute to further growth. Government, financial services and other business segments are the main end-users. The SME sector, and consumer sector are still growing in importance. In 2006, the total market for digital entertainment products and home electronics reportedly amounted to more than USD 3 billion. Particularly popular were DVD players and recorders, digital cameras, MP3 players, and flat panel color television sets.

Future Prospects in this Market

In the software segment, the following will be best prospects in 2007: standard software applications, networking software and network security products, e.g. intrusion detection and prevention products, development tools, storage management software, Customer Relationship Management (CRM), Enterprise Resource Planning (ERP), application management and content management products, and game

software for the consumer market are expected to offer good prospects for the coming years. In the services segment, IT outsourcing - desktop and network management, application hosting and implementation, Business Process Outsourcing (BPO), security services (assessments and scans), network consulting and integration, support/training and all types of Internet and E-Commerce related consulting and services are expected to grow. The following segments within the telecom sector are also expected to show further growth in the next years: mobile (value-added) data services, all types of Internet related communication services, outsourcing and maintenance of infrastructure installation, VoIP services for the business market, security applications for mobile communications, entertainment applications, multimedia services and applications. In the hardware sector the following growth areas are forecasted: data storage equipment, laptops/notebooks, small/entry level servers, laser printers, color inkjet and multi functional printers, TFT and LCD screens.

Important USDOC Resources in this Market

The U.S. Commercial Service has offices at the U.S. Embassy in The Hague and U.S. Consulate General in Amsterdam (http://www.buyusa.gov/netherlands/en/) The U.S. Commercial Service assists exporters of U.S. products and services (51% U.S. content) in entering or expanding their export sales to the Netherlands. Services cover a range of products, including market research, agent/distributor searches/appointments, company promotions/product introductions, contact lists, company profiles, trade missions, seminars, and more
The main ICT trade events in the Netherlands are held at the RAI Exhibition Halls in Amsterdam (www.rai.nl), or in the Jaarbeurs in Utrecht (www.jaarbeurs.nl.) The Netherlands is hosting the 2010 World Congress on Information Technology (WCIT) in Amsterdam.

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NORWAY

Capital: Oslo
Population: 4 600 000
Languages: Norwegian
Monetary Unit: Kroner (NOK)
Exchange Rate: 6.71601
GDP per Capita (in US$): 51,300

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Market Overview

The Norwegian market is relatively small, but technology savvy, innovative and largely homogeneous, and often one of the first to try out new technology. This makes Norway, along with its Nordic neighbors, a good entry point into the European market for many U.S. companies. Statistics Norway indicates that the overall ICT market in Norway is worth more than USD 60 billion.

The Norwegian ICT market is in a high growth period, and is expected to remain so for several more years. After a few relatively slow years, some ICT market segments now experience growth rates of 15%, according to Statistics Norway.
Most market segments will enjoy increasing revenues, and Norway is expected to see higher growth rates than most other European markets. High sales of PCs, HDTVs, portable music, cell phones and digital cameras drive the consumer electronics market. Not to mention a combination of all the above should the right gadgets hit the market.

Computerworld Norway suggests that the key services/software words for 2007 will be "Off shoring", "Service Oriented Architecture - SOA", "Open Source", "Middleware", "Vista", "3G", "WLAN", "WIMAX", and "Virtualization".

Norway is the world's third largest exporter of crude oil and natural gas and many of the ICT companies serve this increasingly high-tech market. Shipping, fisheries and other maritime industries also make significant contributions to Norway's GDP. An IBM Research study shows that the finance, insurance and media market has the highest percentage of total cost related to ICT (36%), whereas manufacturing (20%) and the public sector (13%) come in at number two and three, respectively. A recent Statistics Norway survey shows that the ICT market related to manufacturing is the fastest growing sector.

The Marketplace for Business Process Technology

2007 is expected to be highly active with many large projects and fight for the best quality services. Due to workforce bottleneck, outsourcing is expected to grow,

especially within SMB's. Most of the largest integrators are concerned about attracting and competing for the best talents.
The market for CRM, ERP and E-commerce solutions is expected to grow in 2007. Norwegian companies see the advantages of having a holographic, or 360-degree view of their clients, suppliers, etc., and are seeking CRM technology with synchronized Internet concepts in order to improve customer relations over the web. Investments in customer-oriented systems are particularly visible within bank, finance and public sector.

There will also be a steady growth in the ERP markets. Some of the systems integrated during the high growth period from 1999 will be renewed in 2006-2007. Prices for consulting services are now at a high. 2006 was also a great breakthrough-year of outsourcing. Now companies have a more realistic perspective on the pro's and cons of outsourcing. Whereas cost reduction was the driver in 2006, service-oriented architecture (SOA) is expected to be the outsourcing incentive for 2007.

End-users of software products in Norway represent diverse user groups such as large industrial corporations, small and medium-sized companies, government agencies, and universities and schools. It should be mentioned, however, that there has been significant investments in top-of-the-line software products in certain sectors, with oil/gas and shipping/maritime being one of the substantial vertical markets. Norway is the world's third largest exporter of crude oil and natural gas and many of the ICT companies serve this increasingly high-tech market. Shipping, fisheries and other maritime industries also make significant contributions to Norway's GDP. An IBM Research study shows that the finance, insurance and media market has the highest percentage of total cost related to ICT (36%), whereas manufacturing (20%) and the public sector (13%) come in at number two and three, respectively. A recent Statistics Norway survey shows that the ICT market related to manufacturing is the fastest growing sector.

Unix, Linux and Microsoft are the leading platforms. 98% of the software applications run on (or can run on) the Microsoft-platform whereas 61% and 60% respectively can run on Unix and Linux. The private sector is the largest buyer of software (66%), whereas the public sector account for 16% of the market.

The Marketplace for Communications Technology

The market for telecommunications is fragmented, but still strong and offers great opportunities for companies with state-of-the-art technology. Norway has the world's highest mobile telephone density with more than 100% subscription/SIM card coverage - equal to that of Finland. The country has also a very well established telecommunications infrastructure that supports and carries Internet access to some of the most remote parts of Europe.

Mobility is a major driver in the market. However, although bandwidth is good, the largest service providers are reluctant to launch the latest in content and services, but rather capitalize on traditional traffic with high margins.

The demand for wireless data connectivity is increasing as high-speed, high-quality infrastructure equipment is expected to provide better UMTS/3G, which was commercially launched in December 2004. A CDMA network was launched in 2006. The adaptation rate has been slower than expected, and the large telecom service providers have been reluctant to open up for input from the outside. Consequently, a technology gap might have grown with infrastructure outperforming the applications. It is expected that service providers will be allowed to leverage heavily from previous investments and existing networks in the future. Competent application software,

along with systems and security solutions are expected to be in demand when information is transferred real time.

Workforce Mobility

There is an increasing need for data connectivity in the small business sector, which so far translates into LAN hardware. The critical drivers of small business networking will need to improve management of a growing number of PCs and share access to the Internet.

Wireless IP zones at airports, hotels, etc. are now commonplace, providing a more efficient workday for mobile employees. Together with GSM, GPRS, CDMA, WIMAX and UMTS, all components should be in place for an improved business operation. Mobility solutions of this kind were considered a mega trend in 2006 according to the Gartner Group. Push-services are now finding market, with Blackberry one of the last to enter the market in 2006. Open source solutions seem to get more and more popular.

A CDMA 450 license was awarded Nordisk Mobiltelefon AS in 2004. This relatively low bandwidth, but long-range 3G-communication vehicle will provide broadband in rural areas and introduce new services in the market. U.S. vendors using CDMA 450 technology may find opportunities moving forward, although the technology has experienced some difficulties in the initial phase of the rollout. The competing GSM-standard was largely invented in Norway.

IP Telephony

Telenor ASA, Norway's largest telecommunications company, has been developing broadband capacity through four channels: copper terrestrial network, coaxial cable, digital ground-based broadcasting network and digital satellite distribution. Other infrastructure companies offer connectivity via cable television networks, satellites or optical cables all the way to end-users in major cities. Increased bandwidth makes IP telephony interesting.

The private market for IP telephony has been expanding rapidly over the last two years. Major players now share the growing pie and smaller providers consolidate. Penetration in the business market seems to take longer time, and local analysts claim this may be a result of focus on the rapid development and urgent need to move in the private market. Being a first user was also considered risky. The B2B market will require different types of technologies and solutions and this has temporarily created an entry barrier. In sum, the B2B IP telephony market seems to have a better growth potential than the private market.

Digital Radio

In December 2005, a selection committee recommended to develop a nationwide commercial digital radio network to replace the analogue FM band. The analogue frequency is expected to shut down entirely by 2014. Consumers and the government will therefore need to make significant procurements in infrastructure and new handsets either the current DAB technology or other solutions. The industry is currently discussing standards.

Wireless LAN in cities

A few Norwegian cities are in the process of designing and implementing local area

networks as a low-cost commodity to citizens in downtown areas. Norway's second and third larges cities, Bergen and Trondheim, are both in the forefront of this development. This is expected to take revenue from the traditional Internet service providers.

The Marketplace for Digital Equipment & Systems

In 2005, imports of ICT goods, including telecom equipment amounted USD 5.51 billion, according to Statistics Norway. This is an increase of 22% compared to 2003 and an increase of 5.6% compared to the peak years 2000 and 2001.

Compared with 2004 imports and exports of ICT goods increased by 6.4%. This progress is lower than the trade with traditional goods. Therefore, ICT goods as part of total exports and imports of traditional goods decreased in 2005. Preliminary data from 2006 shows that PC sales reached all time high with one new computer for every four Norwegian. Figures suggest that sales of computers and peripherals increased, but margins decreased.

Imports of computers and related equipment amounted USD 2.3 billion or 41.8 per cent of total imports of ICT goods. The competition in the computer hardware market is hard and prices have decreased significantly since 2005, so the margins are slim. For example, consumer priced laptop computers fell by 12% from 2005 to 2006. 700 000 units were sold in addition to 400 000 desktops (out of a population of 4.6 million). HP was the laptop and desktop market leader in 2006, followed by Dell, Acer, and Fujitsu-Siemens.

Prices Printers, scanners and all-in-one machines fell by more than 20%. Profits in this segment are generated from ink, which is reported to be more expensive than perfume and the best champagne.

Another trend is that Internet purchases of both hardware and software are taking a greater share of the market, at least within small and medium-sized companies, reducing the need for distributors/dealers of ICT equipment. The largest online retailer sold computers and related equipment worth USD 160 million in 2006.

Future Prospects in this Market

Growth areas B2B

- There will be a steady growth in the ERP-S markets. Some of the systems integrated in the high growth period of 1999 will be renewed in 2006 and 2007, while some last longer. Domestic providers currently hold a relatively strong position.
- Server market, and Information Lifecycle Management (ILS) services.
- Outsourcing will be one of the fastest growing segments in 2007, but businesses have more realistic expectations. Hosted Utility Services and Applications Management (not development) are smaller but fast growing markets.
- B2B e-commerce is likely to continue to grow, making procurement systems more integrated in the value chain.
- Movie theatres are all analogue and are likely to digitalize within the next couple of years
- Content management: Consolidation and growth is expected in 2007

Growth areas B2C

- Content providers for cell phones. Mobile entertainment. 3G telecommunications network products is a driver, as UTMS is finally getting popular. A CDMA network is also under construction. But the largest telecom service providers are reluctant to roll out initiatives that can reduce revenues from traditional telephony sources, so 3G technology currently outperforms the level of services and content provided.
- Home entertainment centers and data storage equipment such as gaming and Mp3-players is expected to continue its growth, flat screen TV's especially. Consumers are also looking for better solutions for storage and printing of their digital photos.
- Banks are currently presenting two e-id standards BankID and BUY-pass, placing Norway in the forefront of secure e-commerce and procurement. The e-id will have a public and private application, being most modern payment system in the world, and boosting e-commerce in general.
- The Norwegian online advertise market was in 2002 USD 40 million, and is expected to reach between USD 88 million and USD 129 million in 2007.

Important USDOC Resources in this Market

The American Embassy in Oslo is well equipped to assist American business visitors. Representing the U.S. Department of State, the Department of Commerce, Department of Defense, the Department of Agriculture, and other Washington agencies, the Embassy provides services and information for U.S. exporters, investors, and their Norwegian partners. Trade specialists are available to counsel American companies, as well as Norwegian agents, importers and end-users.
http://www.buyusa.gov/norway/

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POLAND

Capital: Warsaw
Population: 38.1million
Languages: Polish
Monetary Unit: zloty (pln)
Exchange Rate: $1 = pln 2.99
GDP per Capita (in US$): est. 9,200 (2006)

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Market Overview

With over 38 million people, 2006 GDP growth of 5.8%, a solid economic outlook for the next few years and a strong record of democracy, Poland offers a good potential for American companies in most industry sectors. Poland is the sixth largest EU market and, after joining the EU in May 2004, has become an attractive gateway to Europe for an increasing number of American suppliers. At the same time Poland maintains strong ties with the United States and welcomes American companies and products.

Despite positive indicators, including a 1.2% rate of inflation and a 5.2% long-term interest rate, Poland is not expected to adopt the Euro until 2010 at the earliest. The present government simply has not made this a priority. The Polish currency, the Zloty, appreciated steadily against the dollar in 2006 due to the generally positive state of the economy, the favorable investment climate across the Central European region and U.S. investors' increased interest in emerging markets.

The telecommunications and information technology sectors are open to U.S. companies and, in general, offer the same regulatory environment as traditional European markets, including the CE mark regulatory regime, custom duties and taxes. There are also no barriers to electronic commerce activities in Poland.
The Office of Electronic Communications (UKE), established in 2006, maintains all market regulatory functions for telecommunications (www.uke.gov.pl) and the Ministry of Transport is in charge of overall telecom policy issues (www.mt.gov.pl). The Ministry of Interior and Administration (http://www.mswia.gov.pl/) oversees IT/telecom development in the public sector. The Ministry of Economy (http://www.mgip.gov.pl/) and the Ministry of Regional Development (www.mrr.gov.pl) oversee the use of EU funding, which are administered by appointed institutions responsible for specific programs.

The government is currently preparing amendments to the Telecommunications Law of September 2004 to fully reflect the new EU Directive on electronics communications (2006/24/WE) and to streamline the regulatory mechanisms available to UKE, the

Regulator. The amendments are expected to benefit consumers and non-dominant operators. Telekomunikacja Polska S.A. (TPSA), the former monopoly, remains a major player in all segments of the market.

The Marketplace for Business Process Technology

At the end of 2005, the Polish software market was valued at $1.1 billion while computer services were estimated at $1.6 billion. Software and services are the fastest developing segments in the overall Information Technology sector.
Applications software currently represents 52% of the market. The most popular business application software sold includes Enterprise Resource Planning (ERP), Customer Relationship Management (CRM), document and content management and e-commerce. Public sector investments are driven by the development of e-government services required by the European Union.

As middle size companies have become the major group of buyers of ERP applications, the local developers who were traditional suppliers for this segment of the market, are facing growing competition from international vendors offering integrated solutions.
The awareness of IT security issues in fast developing e-commerce, especially e banking, creates great demand for information and transaction security products and services. High-end users, especially from the financial/banking sector, telecommunications and large enterprises, usually invest in the latest, enhanced security solutions. Individuals and small companies still need to make up for years of neglected investments in IT security tools. While the security segment is still small, it shows very strong revenue growth rate. The market for data storage equipment is also driven by the Internet and e-commerce development and keeps increasing at over 10% a year.

The Marketplace for Communications Technology

The telecommunications market was completely liberalized in 2002 and there are no restrictions on foreign investments across the telecommunications sector. In most cases licensing has been replaced by a simplified registration procedure at a nominal fee. Poland continues to strictly regulate the use of its frequency spectrum with open tenders and licensing for the use of restricted frequencies.

In 2006, UKE instituted number portability, in country roaming for cellular operators, new regulations for the access to local loop and approved a new framework offer for interconnection. As a result, at the end of 2006, prices for fixed-to-cellular connections dropped significantly. The UKE's plans for stimulating competitiveness in all market segments in 2007 include the introduction of more effective market regulations for unbundling local loop, facilitating bit stream access and market entry of mobile virtual operators. Despite many achievements, Poland's telecommunications sector lags behind most European countries. In late 2006, the EU initiated proceedings against Poland for failures in the implementation of the country's 112-rescue system and also questioned Poland's interpretation of the Telecom Access Directive.

UKE is currently developing its National Strategy for the Frequency Market, providing for digitalization of radio-diffusion, harmonization of the use of frequencies, new frequencies for commercial use, and introduction of new frequency management procedures. In late 2006, UKE cancelled tenders for frequency reservation for 3.6-3.8 GHz frequencies in 317 local counties. New tenders for these frequencies are expected in early 2007. UKE also expects additional tenders for GSM licenses.
At the end of 2005, Poland's telecommunications market was estimated at $15.5 billion, which included $12.3 billion for telecommunications services, $1.86 billion for

equipment and $900 million for installation services. All fixed line operators are struggling to maintain their margins through introducing new services, including triple play, to make up for diminishing income from traditional voice services.
Telekomunikacja Polska S.A. (TPSA), the former monopoly, remains a major player in all segments of the market. Privatized with France Telecom as a strategic investor, TPSA still holds over 80% of fixed-line telecommunications services and owns a majority of the telecommunications infrastructure. Fixed line voice services currently claim 12 million users, over 0.5 million less than last year.

Cellular telecommunications is the most competitive segment of voice services. There are almost 36 million active cell phone cards, 70% of users are in the pre-paid segment. All cellular operators offer services in GSM and DCS standards as well as UMTS, which is still limited in terms of territory and scope of services. A new cellular operator, named P4, is expected to enter the market in the first half of 2007. In addition, there are over 100 registered virtual operators (MVNO) but only a limited number of them have so far launched their services.

As voice services are increasingly available from cable television operators and Internet service providers, over the last two years the market has become quite competitive. VoIP has become very popular and by mid 2006 some 41% of Polish Internet users were estimated to use voice services, mainly computer-to-computer free of charge services such, such as Skype and Gadu-Gadu. Also, computer-to-fixed line and computer-to-mobile communication, which became available in 2005, is quickly gaining popularity.

There are over 14 million Internet users in Poland, approximately 37% of the population. Some 25% of Internet users shop for products or services regularly and over 50% claim to have on-line purchases at random. The value of e-commerce B2C transactions represents only 1% of retail turnover in Poland and is still in the early stage of development. Nevertheless, the recent opening of Polish e-Bay and Google operations and Microsoft's decision to enhance its Polish language portal are seen as a confirmation of increased business opportunities in this area.

The Marketplace for Digital Equipment & Systems

The market for digital consumer equipment and systems has been growing significantly as the result of an improving economy, EU membership, continuing IT education and general availability of new technologies. The demand for digital photography and supplies have grown two-fold in 2005 and preliminary estimates for 2006 indicate 2.5 times' growth. Most Polish consumers are determined to buy consumer electronics for the lowest possible price. The demand for middle class and high-end equipment is quite limited.

There are growing opportunities for high-end digital equipment, especially audio and visual, purchased by the financial and banking sector, and the technology sector.

Future Prospects in this Market

Technology convergence and digitalization are the dominant trends in Poland, directly reflecting new market opportunities for suppliers of products and services.
Even though Poland continues to spend only 2.0% of its GDP on IT investments, the market potential is good due to additional funds available through EU programs. Poland's access to EU funds will further stimulate growth in coming years to support needed infrastructure development as well as the competitiveness of Polish businesses.

The best prospects in the Polish telecommunications sector are the development of mobile telephony and the content for mobile phones. There are good prospects for all kinds of wireless technologies, especially the equipment in the 2.4 GHz and 5.4 GHz standards, which do not require a license (there are some limits on the equipment type and range).

Best prospects for American suppliers exist in all segments of the Information Technology market and include all kinds of specialized software, Internet and e-commerce solutions and the security area. Good prospects also include networking equipment and computers, storage systems, components and peripherals.

American firms face strong competition both from European companies as well as suppliers of cheap products from the Far East. The importance of a direct presence in Poland cannot be overestimated. U.S. firms can also increase their competitive edge by cultivating the market, committing to strong after-sales service and support and offering pricing and financial terms consistent with Polish industry standards. The most effective means of selling in Poland is through a distributor who maintains relationships with dealers and systems integrators. Polish partners expect that vendors will share the market entry cost and actively support them in marketing campaigns.

Important USDOC Resources in this Market

The U.S. Commercial Service provides American exporters with general information on Poland and its business climate, market research reports on the industry sectors and selected segments of industries, identified as best prospects. Our commercial staff is available for counseling on company specific interests. We work with other U.S. Department of Commerce and state offices and industry organizations on Trade Missions of American companies to Poland. We also assist U.S. companies through several fee-based services, such as Gold Key Matching Service, International Partner Search and Single Company promotion.
Please see http://www.buyusa.gov/poland/en/ for detailed information on our activities and programs.

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PORTUGAL

Data transmission services are fully liberalized in Portugal. Mobile telephone service was privatized in 2000 and fixed line telephone service at the beginning of 2001. Portugal Telecom, the former Government telecommunications monopoly and the largest market player, became a private entity. After the full liberalization of the Portuguese telecommunications sector, most of the new fixed operators are now out of business and Portugal Telecom controls 92 percent of the market.

New private operators blame the failure to privatize the fixed net on GOP mismanagement, especially regarding the lack of access to the local loop, the last link in the fixed telecommunications net that permits access to the final customer. Some of these operators have suggested mergers to create new companies, which could compete with Portugal Telecom in the fixed telecommunications business. Many experts feel that only one strong competitor can exist with Portugal Telecom in this small market of 10.6 million people.

Nevertheless, one of the major economic Portuguese groups, SONAE, is trying to buy part of the capital of PT having done a public offer for acquisition at the end of 2006. The process, started in the last quarter of 2006, is now under the supervision of the national authority for the competition that is studying the legitimacy of this act. The GOP announced that if the process continues, SONAE will have to sell the mobile phone license attributed four years ago to Optimus (SONAE's mobile operator) in order to reduce the possibility of a monopoly resulting from the merger with TMN, the mobile operator that belongs to PT.

Besides the war for the ownership of the fixed operator, the Portuguese mobile telephone market keeps growing. In 2005, revenues generated by the three major Portuguese operators were over four billion dollars. Actual mobile phone market penetration is over 98 percent of the population (roughly 10 million people).
In 2001, Portugal also inaugurated the most ambitious and innovative television project on an international level. TV Cabo, part of Portugal Telecom, and the major television operator in Portugal, partnered with Microsoft Corporation to launch digital interactive TV. This revolutionary technology, which Microsoft is piloting in Portugal, permits home TV shopping, home banking, TV Internet navigation, and even access to one's home utilities via remote Internet.

The Portuguese National Statistics Institute (INE) concluded that last year, 98% of the medium size companies in Portugal (considered those that have a total of between 50 and 249 employees) used the Internet while 97% used email, reflecting the wide spread use of technology in Portuguese businesses. The number of Internet users in Portugal has been increasing. At the end of the second quarter of 2006 there were nearly 1,538 million Internet access service users in Portugal, giving an increase of about 16.4% percent compared to the second quarter of 2005. The number of broadband customers reached 1,331 million by the end of the first quarter of this year, 58.ooo more users than in the previous quarter. This figure is an increase of 29.2% percent compared to the same quarter of last year. Smaller companies, those with employees between 10 and 49, use Internet or email technologies at roughly 79,8%. While larger companies with over 250 employees have a remarkably strong rate of Internet and email usage, at a rate of 99,8%. The use of information technology is most apparent in enterprises dedicated to banking, financial and

personnel services while the construction sector reveals the lowest level of penetration of information technology.

Portuguese companies are increasingly aware of the need for security to protect their data. The large majority of companies are now using some type of information security. More than 79% of companies with 10 or more people have at least one security appliance installed. 99% of large corporations use information security appliances while at least 94% of medium sized companies have security appliances installed

ROMANIA

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Market Overview

In 2005, the Romanian IT market increased by 12%. It is estimated to double in size by 2009, with a 16.8% annual increase to 365.2 million USD, according to officials from the US software giant Microsoft, who quoted data from a recent survey done by IDC. The same survey shows that the software market will double in size by 2008. The Romanian software market was worth about 95 million dollars (73 million euros at the average annual exchange rate) in 2005, about 84 million dollars (68 million euros) in 2004, and will amount to 134 million dollars (103.7 million euros) by 2008. Growth of the software market will also lead to an increase in the number of jobs in this sector. Software specialists will account for around 43% of the total IT sector employees in Romania in 2008. In Romania in 2004, the IT spending reached $818 million, from computer hardware (62%), packaged software (14%), and computer services (24%). 1450 companies working in IT determined the revenue of 122 million USD for state budget, an amount representing levies and duties. Internet usage has become a daily activity for 24% of the Romanian population, while over 5 million Romanians use the Internet at least once a week, and there are 100,000 Romanian domains (.ro). The number of active Internet users is 1,931,455.

Market Trends

Hardware and software products are available, but at high prices. The purchase of expensive computer systems (from 1000 USD and up) is impractical for the vast majority of individuals and businesses, despite the general drop in computer prices in the European market in recent years. The biggest investors in software and services in 2004-2005 were in production, telecommunication, banking, and public industries. The expenses were found in licenses, consultancy, system integration, specific applications development, training, and external services. The basic IT indicators show a real technological divide between Romania and more developed European countries. Per capita information technology and telecommunications spending is USUSD 25, compared with USUSD 567 in Greece. The estimated number of PCs per 100 inhabitants is around 2, compared with 12 in Croatia, or with the 11 in the Czech Republic. The low purchasing power has been determined mostly by a slow economy and a decreasing GDP. Local companies can satisfy about 60% of software demand. Only some of the more than 2,000 software firms export their services to the EU and North America. They also produce niche software, such as special telecommunications programs and industrial security systems. Imports satisfy the remainder of the market, of which 75% are American. Most of the major U.S. software companies sell in the market, led by Microsoft and Oracle.
Total spending ITC for the 2005-2007 are forecasting an average increase of 12.2%.

ICT Spending 2004-2005 & Spending Estimation 2006

Romania	2004 USD/million	2005 USD/million	2006 USD/million	2004/03 %	2005/04 %	2006/05 %
Server systems	89	99	117	17.7	10.4	18.5
Workstations	0	0	0	-3.8	27.1	-19.7
PCs	351	372	401	33.3	6.3	7.6
Add-ons	125	139	150	16.6	11.7	7.9
Computer hardware	**564**	**610**	**668**	**26.6**	**8.1**	**9.4**
Copiers	27	27	27	5.6	-0.3	-2
Other office equipment	35	37	40	7.6	7.3	7
Office equipment	**62**	**64**	**67**	**6.7**	**3.9**	**3.2**
Mobile telephone sets	379	386	469	50.6	1.5	21.7
Other end-user communications equipment	105	104	103	-2	-1.6	-1.2
End-user communications equipment	**485**	**490**	**572**	**34.9**	**0.8**	**16.9**
LAN hardware	38	45	50	43.9	18.4	10.7
PBX, systems and circuit switching equipment	170	163	161	-5.1	-4.1	-1.8
Cellular mobile radio infrastructure	288	293	297	2.1	1.6	1.1
Packet switching and routing equipment	67	74	83	11.7	11.7	1.7
Other datacom and network equipment	73	82	92	12	12.4	11.9
Datacom and network equipment	**636**	**658**	**682**	**3.8**	**3.4**	**3.6**
Total ICT equipment	**1,750**	**1,822**	**1,988**	**18.4**	**4.2**	**9.1**
System sofware	45	50	52	11.6	11.3	11.1
Application software	51	58	65	13.6	13.5	12.9
Software products	**96**	**108**	**121**	**12.6**	**12.5**	**12.1**
IT services	**149**	**176**	**208**	**19.8**	**18.1**	**18**
Fixed voice telephone services	820	840	858	3.7	2.5	2.2
Fixed data services	86	93	105	11.3	11.7	9.4
Mobile telephone services	1,464	1,955	2,385	39	33.4	22
CaTV services	309	212	371	11.1	10	8.9
Carrier services	**2,680**	**3,231**	**3,719**	**21.8**	**20.6**	**15.1**
Total ICT	**4,672**	**5,337**	**6,037**	**20.2**	**14.2**	**13.1**
Total IT	**1,013**	**1,121**	**1,242**	**21.7**	**10.5**	**11**
Total telecomminications	**3,658**	**4,217**	**4,793**	**19.8**	**15.2**	**13.7**

EITO source, 2005

The Romanian **IT&C products** have started being recognized on a world scale from a qualitative point of view, and at a very competitive price on the world market. The cost of labor power is three times lower than in the USA or the EU.

Competition

S&T owns the biggest 2005 IT services market share, while IBM owns the second, and HP owns the fourth. SIVECO has dropped from the first position to the third. The top ten companies own 70% of total market, including new firms such as Softwin, Forte, or Romysm Consulting.

In terms of market share, the Romanian ICT market is largely hardware oriented, but features an increasing share of spending on markets with the most added-value: software products and IT services.

The mid-term objective of the Romanian government is to transform the country into a high-tech area used largely for outsourcing purposes. A few years ago outsourcing was restricted to small-scale projects, requiring mostly programming skills, but in the last years the demand for large-scale and complex projects exceeds the expertise and capability of a single company. The current trend in Romania is to establish so-called "software outsourcing clusters" to open opportunities for complex or large-scale national projects.

Domestic Production

K Tech - Ultra PRO is the leader in the PC market, with 12.8% on top for desktops under license. K Tech - Ultra PRO had a large increase in 2005, measuring 35% compared to 2004, with 64,221 'Ultra' units sold. As well in desktop and notebook categories, the K Tech - Ultra PRO group has registered a very important increase of

34.4% compared to 2004. In the last 3 months of 2005, K Tech sales increased 91.5%. Also in 2005, Depozitul de Calculatoare had a PC market share of 11.1%. In 2006 they are estimated to reach 13%, with Complet Electro Serv (Altex) at about 11.8%.

Human Resources IT Investment

In 2004, the average salary in software and information systems was 12.5 million lei (397 USD).
In 2005 the average salary in software and services industries increased 30-40%. In the next years the brut salary per sector is expected to increase at 19% (USD) meaning 1.9 in 2008 compared with 2004.

The average software employee (CAEN 722) brought revenues of 28,500 yearly, and created an added value of 19,200 USD and 7,750 USD profits, with an average brut salary of 6,150 USD.

To moderate the brain drain effect with regards to IT specialists, the Romanian government offered incentives to ICT companies that employ highly specialized IT employees. In the 2004 the brain drain was nearly 0, compared to a ratio of 20-30% in 2000. More recently, Romanians who work abroad for foreign IT companies are increasingly being selected to run offshore software development centers in Romania.
The IT industry is concentrated in those cities with educational institutes that offer ICT engineer training. With around 50% of the total workforce, Bucharest and the cities in central and western Romania contribute more than 90% of ICT production. At the same time, we have an increasingly large number of very small companies with reduced activity, and on the other hand, a small number of companies with above average development rates. The dominance of ICT industry by the companies from these regions has already led to monopolistic tendencies within the Romanian ICT market.

Market Trends

The EU enlargement process is a strong driver for faster economic and social development in Romania. The main opportunities for IT development are found in increasing the potential of domestic demand from private and public sectors, as well as in increasing the direct investments for developing domestic ICT projects, and involving the end-users in every important ICT development.

Another important aspect is improvement of industry-university collaboration and development of technology transfer centers.
The rise of the knowledge economy, the diffusion of new forms of media, and the shift from a teacher-centered to a student-centered paradigm are among the trends considered to have a strong influence on the development of IT services.
There are already a large number of domestic e-learning solutions available on the Market, for example:

- AEL e learning is a complex platform developed by SIVECO and offers support for teaching and learning. AEL can be used in the learning process either in assisting the teacher or for individual education. AEL is implemented in the primary and secondary education systems, and in some corporations for internal training. AEL received various international awards, including the "European IST Prize Nominee" from Eurocase.
- SOFTWIN is a very active company, providing e-learning content for interactive courses, virtual libraries, and electronic dictionaries; MCIT reported that in

Romania there are around 530 interactive learning materials available. Together with an American partner, SOFTWIN has developed a complex mobile learning system for American students. SOFTWIN is currently participating in a consortium to implement the BBC's "digital curriculum service".

Due to the lack of financial resources, universities are unable to use advanced e-learning tools in education. In addition to complex software tools and high-speed Internet connections, universities should hire specialists to maintain the e-learning software tools and a multidisciplinary team to design course content for an ICT mediated learning process. This transformation is still too expensive for the educational sector in Romania.
Medical system reform is lagging far behind. Such health budgetary allocations place Romania in the last rank among the candidate countries to the EU.
Due to insufficient financing and lack of strategic policies among the main participants (MCIT, MER, and the Ministry of Health), ICT plays a minor role to the quality of health care and of people's access to these services. However, 43% of hospitals and 33% of health clinics do have Internet access. In 2004, MCIT launched a project to create a health portal as a unique access point to information regarding services in the health sector. The portal will be used to supply medical information by electronic means and to assure on-line presence of the institutions from the sanitary field.
The low penetration rate of ICT in the health sector creates a great potential for the development of e-health applications.

PC

In 2004, the total PC number was 2,500,000 in Romania. This increase goes along with Internet users, which increased 19% in 2003 and 24% in 2004. In 2005, the total PC number has increased to 3,000,000. For 2173 Romanian inhabitants, the computer weight in 2005 is 13.8%. More specifically, 100 inhabitants have 14 computers, which is double the number in 2003. In Bucharest are 24% of the population are PC users, with 20% in Transylvania, and 20% in Eastern and Southern Romania. The usage report claims 23% city users vs. 8% rural users. PC distribution analysis shows that 69% are used in administration, banks, insurance, financial services, and macro industries, where there is a visible economic increase. The last 31% are private owned, and are mainly used for primary and secondary education, entrepreneurial business, and the Internet.

Desktop

In the Romanian market there are 45 desktop trademarks for the PC. The Cathodes Tube Desktop (CRT) has higher awareness, covering almost 88% of demand, with 175,470 units sold (2004), while the Liquid Crystals Desktop (LCD) has a 12.2% market share, with 24,310 units sold (2004). From the value point of view, desktop business has brought in an income representing 30.6% of the total revenue. In the first half of the year, 70 desktops were purchased in plasma models. For the most part, Romanian consumers prefer 17-inch diagonals, this offer covering 79% of demand. 19-inch diagonals cover 4.8% of demand, and 15-inch, covers 3.8%. The average price per desktop is 162 USD. The CRT model is 127 USD, while Romanian consumers have paid almost 409 USD for the LCD model, with the plasma models averaging 2,285 USD.

Servers and Systems

Human resources, network administration, Internet, and other important applications in the Romanian industry have generated a high demand regarding servers and application systems in Romania. The demand was estimated in 2004 at 41 million USD, which includes 15% from the hardware industry. NT remains with the highest awareness in the PC network server's domain, and UNIX is available for high performance operation systems.

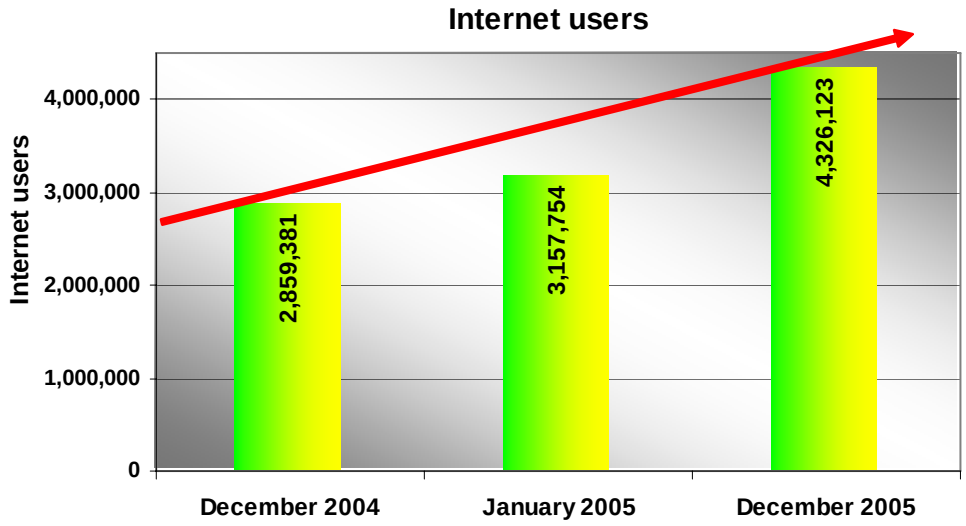
The IT industry is concentrated in cities over 300,000 inhabitants, in conformity with the research of ITC (The Institute of Technical Estimation). With the exception of Bucharest, only a few cities such as Cluj-Napoca and Timisoara are important for the IT industry.

The Government, the Main User

The IT sector is one of the most dynamic components of Romania's economy, and one that is receiving top priority attention from the government. Over the last ten years, the sector has experienced an impressive development, offering Romania the latest technologies in many areas. The most important IT user is the government, which makes up about one-third of the GDP. The government is implementing some of the largest IT projects in the country, including an integrated system for tax collection, the National House of Health Insurance, and various other e-government and e-commerce projects. It is expected that the local production companies will soon tap into the market controlled by the representative offices of international hardware vendors. They have the advantage in the price, the knowledge of the market, and the maintenance and consulting services they could offer. A recent study remarked that up to 54% of PC sales went through indirect channels (dealer/resellers and value added resellers) and 27% went through the vendor, while distributors sold only 12% to end-users.

Internet Penetration

While Internet penetration in Romania is small, it is growing fast. There are about 200 ISPs, most of which are re-sellers of services provided by ten major "wholesalers." Good computer literacy and English language skills, a widespread cable TV network, and a decent penetration of mobile telephony are factors that will support increased Internet access. On the other hand, Internet development is hindered by an insufficient installed PC base (only about 1 million), the limited use of credit cards (only about 4 million in use in 2004), inadequate banking infrastructure to clear payments made via the Internet, and a poor level of online banking services. Only about 2% of Romanian Internet users have bought anything online.
Projects for upgrading the communications infrastructure to allow greater Internet penetration are strongly encouraged by the government, which has also issued special regulations to implement a series of e-government projects and to place greater emphasis on e-commerce. Growth is also linked to the deregulation of the telecommunications market, which could promote Voice over Internet Protocol (VoIP) services in the long run.



IT Piracy

Piracy penetration is growing in the Romanian market as well as in the International market. In 2004, piracy represented 74% of the Romanian market and produced damages of 62 million USD, due to the home and small to medium companies' illegal usage.

If the market will decrease 10% of piracy, about 1.5 millions jobs will be available globally, including Romania.
Regarding e-commerce, Romania has a high incidence of Internet credit card fraud, which has discouraged international vendors from making payments electronically to consumers in the country. To counter this, the government has passed an e-commerce law that defines and punishes cyber crime. This law includes criminal restrictions for falsifying cyber-pay instruments, carrying out and accepting fraudulent financial transactions, or performing unlicensed cyber transactions.

Market Access

In accordance with Romania's World Trade Organization committees, there are *no* restrictions for the import of ICT products. Import licenses are automatic and issued for statistical purposes. However, ICT products (hardware, software or communications equipment) have to be certified by a specialized department of the Ministry of Communications and Information Technology. 0.5% custom commission – calculated on the cost, insurance, and freight value (CIF) – is levied on imported products.

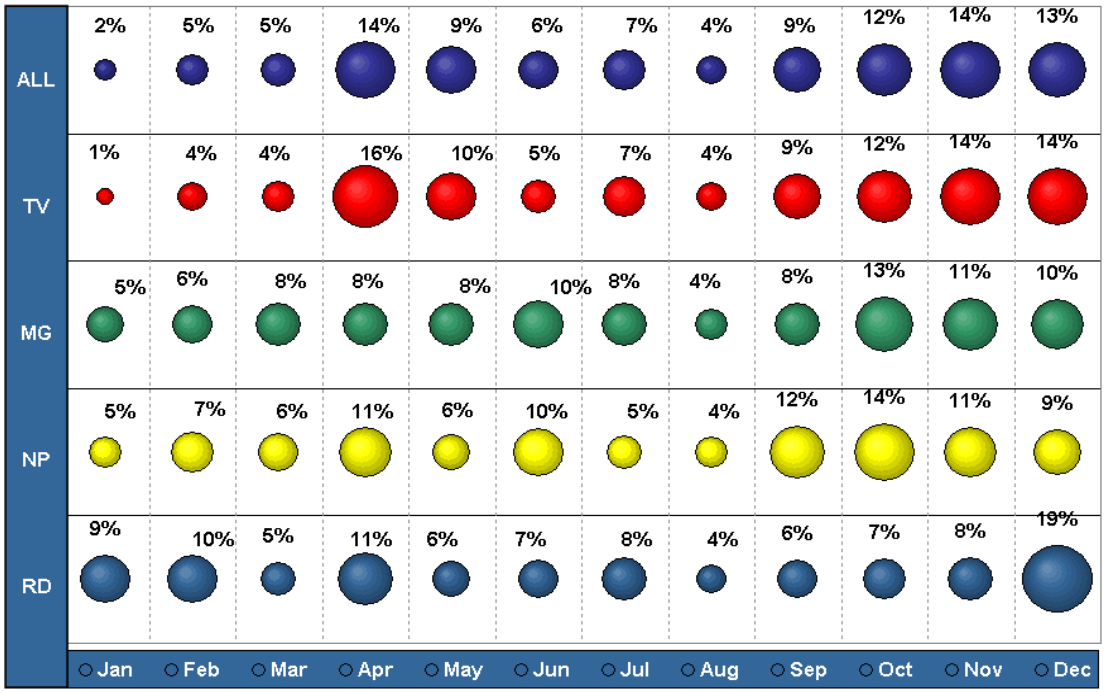
Romania is a signatory of the Information Technology Agreement, which eliminates duties on IT equipment and software, but there is still a 19% VAT assessed on imports and domestic products.

Industry standards

The Government of Romania, Ministry of Communications, and Information Technology is responsible for administering ICT standards.

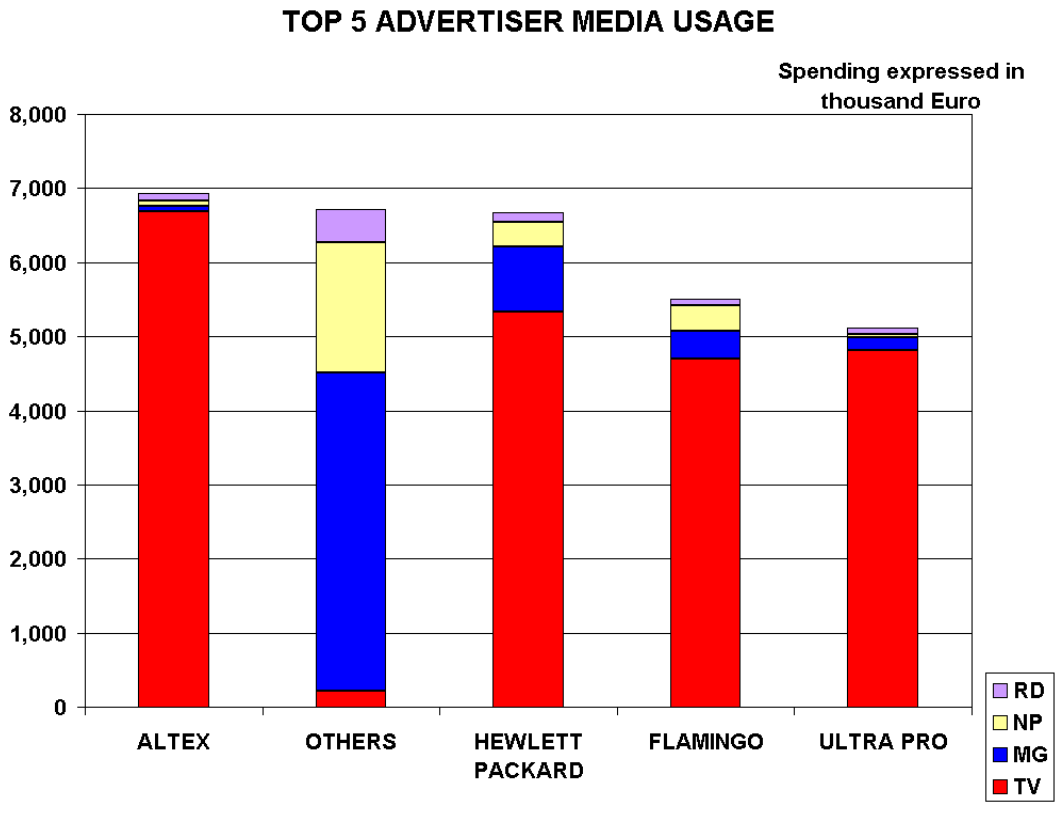
The IT standards adopted by the Romanian Government are relevant for the International Organization for Standardization/International Electro technical Commission (ISO/IEC) standards. These standards are not compulsory.

Seasonality of IT Spending 2005:



→ Clear seasonality pattern based on intense activity in the spring and in the autumn

→ Low spending level in the summer



The Media mix of the top five advertisers is clearly dominated by TV while HP has a more balanced mix. The "others" category advertises mostly on magazines and newspapers – with low rate card costs compared to TV. As it can be seen, smaller advertisers spend an impressive amount of money (cumulated). TV is the most important medium for the IT category and 2005 was an important spending effort in the entire category.

Altex is the leader in TV advertising spending having a continuous presence. Ultra Pro is in third place for advertising spending.

IT Media Channels Conclusions

IT is a category with a large number of competitors and consistent advertising activity for all media. Media mix comprises many channels and titles for all-important competitors.

Although Altex remains the most important advertiser, Ultra Pro achieved better sound media results. Ultra Pro was the second main TV advertiser in terms of GRPs, but the third in terms of rate card TV spending.

Most advertisers use large selections of TV stations, comprising both commercial and niche channels to reach its target audiences.

Upcoming Trade Shows/Events

Digit rends and Games/ 15-18th of June, SALA POLIVALENTA BUCHAREST 2006

Important USDOC Resources in this Market

The U.S. Commercial Service — Your Global Business Partner

With its network of offices across the United States and in more than 80 countries, the U.S. Commercial Service of the U.S. Department of Commerce utilizes its global presence and international marketing expertise to help U.S. companies sell their products and services worldwide. Locate the U.S. Commercial Service trade specialist in the U.S. nearest you by visiting http://www.export.gov/.

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RUSSIA

Capital: Moscow
Population: 142.800.000
Languages: Russian
Monetary Unit: Ruble
Exchange Rate: (publisher to insert at press time)
GDP per Capita (in US$): 7,092 (2006F)

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Market Overview

Russia represents a growing and dynamic market for IT industry suppliers. According to the Ministry of Telecommunications the IT market volume was $11-12 billion in 2005. By year-end 2006 the IT market is projected to reach $13.3 to $14 billion. With still relatively low IT penetration, the Russian IT market is expected to continue 18-20% annual growth over the next 10 years, making it one of the fastest growing markets in the world. This growth is due to favorable economic conditions and high demand in the government and corporate sectors, especially from industries with healthy cash flows such as oil and gas, metallurgy, finance and insurance, telecommunications and retail.

Since most high-tech equipment is imported, the steady growth of computer hardware, personal peripherals, software and IT services play an important role in the U.S.- Russian services trade. Many major U.S. companies are already present in the market, and their products are available either directly or through representative offices or distributors. Large foreign companies, like HP and IBM are expanding into the regions, and they have developed a network of regional offices across Russia. Microsoft had built a presence in 20 Russian cities, employing 80 people. Some companies have at least one office in every federal district of Russia (there are seven districts). Others prefer to act through their business-partners.
In 2006, according to the Ministry of Telecommunications, foreign investments into Russian ICT industry exceeded $4 billion, a 19.5% increase over 2005. Russian IT exports were $1.8 billion.

At the end of 2006, the total number of computers in Russia exceeded 23 million (a 35% increase over 2005), with the number of regular Internet users totaling 25 million, and forecasted to reach 35-40 million in the next 6 years. Russia's development into a highly computerized society fuels the demand for high-tech products, leaving little doubt of the huge potential for PCs, Internet access and b2c e-commerce continuing.

The Marketplace for Business Process Technology

U.S. software companies hold a dominant position in the Russian market. Microsoft, IBM, Sun Microsystems, and Oracle are universally recognized in Russia for their

quality and sophistication. U.S. software products are readily available either directly, or through representative offices or distributors. Imports from other countries are also growing, with U.S. software products facing increasing competition from both European and Russian software vendors.

As in the rest of the world, localized versions of U.S. software products – operating systems, word-processing, and e-mail applications can be found on the majority of home or office computers in every region of Russia. The sales of Microsoft products in Russia grew by 72% from June 2005 to July 2006. The percentage of regional sales increased 55% over last year. Overall regional sales have increased by 76%, compared with 2005. Windows OS sales accounted for 34% of Microsoft's total sales in Russia, Business Solutions (MS Office and MS Dynamics) 34%, Database, Server and ISA Server 2004-based security solutions increased 26%. The sales of pre-loaded Windows XP increased 76% compared with the previous year, with more than two million licensed copies of this operating system sold. Sales of corporate software to SME customers doubled.

The corporate database software market is clearly dominated by U.S. companies: Oracle, Microsoft and IBM. Industry analysts estimate that in the ERP market SAP (39.7%), Oracle (21.7%), 1C (9.7%) and Microsoft Dynamics (9.4%) hold the largest market share. The raw materials industry, related continuous production industries and transportation remain the most active consumers of ERP systems. Many companies are thinking of going public and consider switching to an ERP system an advantage.

Accurate figures for the software market are difficult to determine due to the high level of pirated software available in the market. REAL-IT market research center estimates it at $1.3 billion in 2006, or 11% of the Russian IT market. Currently, industry sources estimate that up to 84% of all software is pirated. However, Russian law enforcement is more engaged in enforcing copyright infringement. According to the Russian Ministry of Interior they reported 6,432 criminal piracy cases in the first 10 months of 2006, with 3,082 individuals sentenced, twice the number of cases initiated during the whole of 2005. In spite of these efforts, the impact on the availability of pirated computer software is still barely noticeable in the market. Included in the recent U.S. – Russia WTO Bilateral Market Access Agreement are requests for actions to address piracy and counterfeiting, and to improve protection and enforcement of intellectual property rights before Russia completes its accession to the WTO. This binding Agreement also requests that Russia establish a much more transparent system for the import of electronic goods with encryption, a major U.S. export.

In 2005, the Russian market for outsourcing software services was estimated at $1 billion, with 30-40% annual growth. This market sector is maturing and new entrants are likely to face serious competition from long-established companies, like DataArt, ELEKS Software, EPAM Systems, eVelopers, ITCI, Kvazar-Micro, Lanit-Terkom, Luxoft, Reksoft, StarSoft Development Labs, and VDI.
Anti-virus protection continues to be the sector where Russian software companies are very competitive and have had export successes. Kaspersky Lab Company is in the top-ten of global sellers of anti-virus software. The distribution network of Kaspersky Lab includes over 60 countries. Another example is internationally known Russian company ABBYY, working in the field of development and marketing of document recognition and natural language processing applications.

The Marketplace for Communications Technology

The Russian telecommunications market has continued to demonstrate notable growth driven by the Russian economy's consistent strong economic performance; the need to upgrade the telecommunications infrastructure throughout the country; and the continued interest of investors in the telecommunications market. In 2005, the Russian telecommunications market was $23.9 billion, while in 2006, the market size was estimated at $28 billion. The annual growth of the telecommunications sector in Russia continues to be 20-25%.

Three generations of mobile networks are currently represented in the Russian market (1st, 2nd and 2.5 generations). GSM (the standard) covers more than 90 % of the cellular market. The launch of commercial 3G projects in Russia is planned for 2007. The cellular segment of the telecommunications market is very concentrated, with 87% of total revenue held by three major national cellular operators: MobileTeleSystems (MTS), VympelCom and MegaFon, who combined accounts for more than 45% of the telecommunications market. By August 2006, the number of mobile subscribers in Russia reached 145 million, a 34% increase over 2005. The current average revenue per user (ARPU) is $7-8, which is forcing mobile operators to look for new technology; and, or add-on services, as well as expanding into the regions and CIS countries to increase revenues. The total revenue for fixed-line connection services increased by 25% in 2005, from $7.9 billion in 2004 to $10.2 billion.

Many new services and solutions using converging technologies are being introduced. One such project was launched in May 2005, with TV and video services over ADSL by Stream TV (part of Sistema Holding). Digital pay television is one of the fastest developing segments in the Russian market.

The highest market growth is expected in the broadband access market. Residential broadband (using Ethernet, ADSL, etc.) is booming in Russia. The volume of the residential broadband market in 2006 is estimated at $380 million, and is expected to reach $500 million in 2007. Although the availability of broadband access in the regions is lagging behind Moscow (which amounts to $200 million), market demand remains strong and is expected to grow rapidly in many of the Russian regions by 2007.

Companies entering the market should be prepared to compete with major foreign telecommunications equipment manufacturers, especially Asian and European companies who have a strong presence in the Russian market. Companies entering the market should also be aware of the complex regulatory environment.

The Marketplace for Digital Equipment & Systems

As Russia's market economy gains strength, a solid customer base is developing as an increasing number of large, well-financed and well-managed firms are in the market for more sophisticated computer systems. The IT hardware segment increased by 30% in 2005, it now comprises 70% of Russian IT market spending. Disk data storage systems remain the fastest growing sector. Desktops are the driving force in the market due to increased sales to home and government consumers. The volume of desktop computers continues to dominate the market, fueled by large company, education and government sector projects. However as desktop prices decline, laptop computer revenues may take the lead. Laptop computer sales increased by 84% in 2005, with record 1.2 million units sold. IT services reported sales of $2.4 billion in 2005, increased to $3 billion in 2006, with system and network integration,

installation and support, software development and deployment services in highest demand.

The focus on servers is on high performance equipment. The Russian server market is far from saturation and is considered to be one of the most promising, projected to reach 120-140 thousand units or about $40-50 million in 2006. Growth in the Intel architecture server segment surpassed the market average in 2005, where HP and IBM have secured 44% of the market share. IBM is targeting a vast array of potential customers from small and medium enterprises, to blade servers and hi-end solutions. Sun is a leading supplier of UNIX systems aimed at the telecom, financial and government sectors. HP has been successful supplying hi-end servers to the Russian government. The number of entry-level servers that are sold mostly to the SMEs accounts for half of the total number of units sold by HP. Active work with service partners, good support and spare parts depots has earned HP a solid customer base in the regions. Blade server sales are growing faster than others, with HP selling about 500 units every quarter. The blade server market is expected to double in 2006, estimated at 7,800 units.

In 2005, fifteen inch CRTs essentially vanished from the Russian market, with 17" LCD monitors assuming the lead. Russian consumers are getting accustomed to 19" LCD monitors, and as the price decreases (now at $300), are eying the wide-screen models. According to the industry specialists, in 2005 the total volume of the Russian monitor market was 6.9 million units or $1.9 billion.

There is growing interest in multi-function devices, high-volume and color laser printers in the corporate sector. The near saturation in the market of the low price dot matrix, inkjet and laser devices was felt distinctly in 2006.

Future Prospects in this Market

There are good opportunities for U.S. companies in the following Russian IT market segments:

- Hardware: Notebook sales continue to increase. Desktop PC computers are in constant demand. The transition to 64-bit server architecture is almost complete. Analysts note that Russian companies are moving away from the "patch-up" approach to their IT policy, by building new complex infrastructures with highly productive data centers. This fuels the demand for highly reliable "heavy" server solutions, storage systems, networking equipment and power solutions.
- Software: growing public awareness of IPR and the efforts of developers to provide product support only to licensed users boosts Operating systems and software applications' sales. As noted earlier, many companies in Russia are preparing to go public. The need to switch to transparent, international accounting standards drives the interest in ERP software. Government orders for enterprise automation solutions are also expected to grow. In 2005, the growth for ERP solutions was 21%, which is comparable with the overall growth in the IT sector.
- Telecommunications: Continued growth in the Russian telecommunications services market will yield business opportunities for competitive U.S. telecommunications equipment suppliers. The best sales prospects are high-speed, broadband technologies, multi-service and multimedia solutions, including SDH, xDSL, ISDN, DWDM, BWA and digital equipment. On December 2006, Rossvyaz announced a tender for three licenses to provide 3G mobile services. Although the tenders are open to Russian companies

only, the successful bidders will need equipment and support, presenting good opportunities for U.S. companies.

Important USDOC Resources in this Market

For more information on FCS Moscow services and the Russian ICT market please visit our web site at: http://www.buyusa.gov/russia/en/or contact:

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Recent Market Research Reports

http://www.buyusa.gov/russia/en/)
3rd Generation Telecom Technologies Market in Russia
Russia: Regional ICT market

Web Resources

- Ministry of Information Technologies and Communications of the Russian Federation
  http://english.minsvyaz.ru/enter.shtml
- The Federal Agency for Technical Regulations and Metrology http://www.gost.ru/
- Russian Center for Tests and Certification (Rostest) http://www.rostest.ru
- Russian Standard, general representative of ROSTEST for North America
  http://www.rosstandard.com

Trade Events

- Svyaz ExpoComm. May 14-18, 2007. An international exhibition and conference for telecommunications, information technology and wireless/broadband technology.
  http://www.ejkrause.com/events/3207.html
- Interop. May 30-31, 2007. An international exhibition and conference of IT experts and business managers from all over the world seeking the latest in information technologies. http://interop.ru/?page=index&language=eng
- Cardex & IT Security 2007. September 19-21, 2007. International Smart Card & IT Security exhibition and conference.http://www.cardexpo.ru/eng/
- Infosecurity Russia 2007. Focusing on information security.
  http://www.infosecuritymoscow.com/index.en.html
- Storage Expo. Focusing on data storage.http://www.storage-expo.ru/index.en.html
- Documation 2007. Focusing on information, content and document management.

http://www.documation.ru/index.en.html

- Infocom 2007. October 24-27, 2007. A trade show with a regional focus held simultaneously in six different regions of Russia: Moscow, Saint Petersburg, Krasnodar, Samara, Irkutsk and Yekaterinburg.
  http://www.infocomtech.ru/

SERBIA

Capital: Belgrade
Population: 6.5 million
Languages: Serbian
Money Unit: $1/DIN70
GDP per capita: $3,200 (estimated)

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Market Overview

The ICT sector is probably the most dynamic component of Serbia's economy, and definitely one that is receiving priority attention from the government. Over the last five years, it has experienced impressive growth, offering Serbia the latest technologies in most branches of telecommunications. Although the ICT sector has a high annual growth rate of 16.3% and projected five-year compounded annual growth rate of 15%, its further development to reach the level of developed economies requires urgent improvement of regulatory environment. Expected changes in the regulatory and business environment in the next two years will bring greater than average value growth.

Telecom sector already contributes with around 2% to Serbian Gross Domestic Produce (GDP) and is growing fast. Serbia currently has 6.5 million mobile phone numbers and the figure is expected to reach eight million by the end of the year, after Mobilkom Austria launches its operation. In the meantime, the two existing providers are planning to boost their number of subscribers before the third operator arrives. State telecom provider Telekom Srbija, which currently has 4.15 million subscribers, plans to increase the figure to over five million by 2008. Today, Telekom has more than 600,000 post-paid customers and its goal is to double this number in the near future. The company launched Serbia's first 3G networks in late December 2006 and already has over 20,000 users, with around 2,000 video calls made each day. For now, only post-paid subscribers can use 3G services but Telekom intends to enable its pre-paid users to use the network as well. The other mobile operator, Telenor, will launch its own 3G network in March. The Norwegian company, which entered the market last summer after buying Mobi 63 for EUR 1.51 billion, currently has some 2.5 million customers in Serbia. The third operator, Mobilkom Austria, bought a license in late 2006 for EUR 320 million. The company is obliged to launch their network by June 1 and is planning to cover at least 20% of the country's territory by December 1, 2007.

Rapidly growing cable television sector also provides significant opportunities for investment, particularly cash-starved "KDS". There are also telecommunications equipment manufacturers with innovative solutions for the particular problems of undeveloped countries: low-cost solution for line doubles (party lines); low cost small scale digital exchanges; home grown ADSL solutions, etc.

Currently, mostly European companies are present in this sector (Siemens, Alcatel, Ericson), while there is enough space for US products presence.

Internet

The total of 53 Internet Service Providers (ISPs) operate in an active, open and competitive market. Two have been taking steps to develop infrastructure independent of Telekom Serbia. The cable industry, with 29 TV cable operators some of which provide cable Internet, could provide strong, viable competition to TTS's ADSL, if they would upgrade their systems and become better organized. However, geographic distribution of Internet users is uneven. Belgrade, the capital city accounts for 60%of the Internet customer base.

The Marketplace for Digital Equipment & Systems

The emerging and still immature PC market in Serbia offers great growth potential in the long term. The Serbian government is major customer for ICT products and services, and the National Investment Plan is about to increase demand significantly. Municipalities also have growing interest in e-government applications. The restructuring and modernization of the economy, together with privatization, foreign aid, and the inflow of FDI will be driving the IT market. So far the low purchasing power of the population has been the biggest constraint to rapid growth of the PC market in Serbia. The key market driver in 2003 and 2004 was the government's decision, to eliminate the tax on the purchase of new PCs (as well as on selected lower-end PC components).

In 2005 and 2006, international brand name vendors present in Serbia and Montenegro sold more than 40,000 personal computers, and controlled approximately 25% of market volume. In addition to Dell and HP, successful brands included IBM, Fujitsu-Siemens, and Toshiba. Local assemblers dominated the market in terms of revenue, accounting for some two-thirds of total market value.

Microsoft Windows was the most popular operation systems in Serbia and Montenegro over the period of five years, accounting for 96.8% of total PC shipments. In 2005, around 20% of delivered new PC units did not have any operation system installed, confirming that high level of piracy still exist in Serbia. Linux was sold on only 3.0% of new PCs shipped in 2004, while all other operation systems accounted for a negligible portion of the total market.

International vendors need to consider the possibility of developing a local presence in Serbia and Montenegro. At the moment, due to the relatively small size, the market is dominated by relatively small local companies, assemblers, and value added resellers. Vendors will require on-the-ground expertise to understand the unique characteristics of this developing market. Local vendors should prepare and be ready to adjust to new market conditions as new competitors enter the market.

The Marketplace for Business Process Technology

A transparent market for computer software is slowely positioning in Serbia. Almost all major software manufacturers have a presence in Serbia (i.e. Microsoft, IBM, SAP, Oracle, etc). Local system integrators offer a broad scope of IT related services, which indirectly genrate an increase in demand for computer software for industrial and business needs.

It is hard to measure a size of the computer software market in Serbia, since it is a subject of the shadow economy and piracy. Some independent experts estimated Serbian software market at US$220 million in 2005, with the growing annual rate of 30%. Local software manufacturers are quite successful, but their business is of a small skale. Imported software is dominant for the office software market, software solutions for the government (e.g. for Tax Revenue Administration), business and industry, as well. Windows and Microsoft Office programs are currently the most widely used office software in Serbia.

Serbia became a low cost site for high quality software development. Microsoft opened a Development Center in Belgrade during 2005, fifth of this type in the world, to continue expanding language support for handwriting recognizers within Microsoft Tablet PC technology and develop recognizers for the languages of Central and Eastern Europe (CEE). Industry experts believe that computer software development, software services, embedded systems, technology licensing, etc. could be one of driving force for the economic growth of Serbia, with the government's clear intention to provide the environment for this development.

U.S. companies hold a significant share of the Serbian market. This position and positive trend should remain in the following years.

Future Prospects in this Market

The best market prospects are for Internet-related equipment such as routers, switches, access servers, equipment for mobile telephony, cable operators' equipment for transmission and fixed wireless equipment. There are also lucrative business opportunities for U.S. companies with technical skills and expertise in Internet applications. In particular, as GPRS usage becomes widespread and UMTS cellular telephony is introduced, there will be good prospects for the business-to-consumer market for publishing via Internet.

Clear opportunities exist for U.S. firms as equipment providers or subcontractors for ICT solutions on behalf of major multinational oil firms active in Serbia, which with financial support of international financial multipliers tend to computerize their outdated communication networks. Procurement of telecommunication equipment is usually conducted based on tender procedure with representatives of international financial multipliers that finance the project monitoring selection process.

Three other major factors contributing to market growth are the continued increase of Internet users, the substantial increase in mobile phone use, and the increase of services offered by the cable TV operators, private radio stations and TV broadcasting operators. These factors should help create expanded demand for U.S. providers of advanced telephone service solutions, as well as value-added telecommunications services. Other best prospect subsectors include Internet services, wireless and broadband Internet access technologies, cable television, and voice-over-Internet.

End Users and Market Entry

The use of agents and distributors is an important method for US companies to enter the Serbian market. Many American firms have found that it is more efficient and cheaper to hire a good local agent or distributor than to conduct direct sales.

Selling to state-owned companies and other state entities depends on establishing your company or product creditability. Internationally financed public procurements offer the best opportunity for transparent purchasing decisions.

Serbia's private sector should also be targeted. Private sector growth augurs well for western businesses that are accustomed to selling products based on pricing, product quality and servicing ability. The government states that the private sector accounts for more than 50 percent of GDP. Marketing techniques will not vary greatly with this business segment.

Sources and Contacts:

http://www.export.gov/marketresearch.html

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SLOVAK REPUBLIC

Capital: Bratislava
Population: 5.4 million
Languages: Slovak
Monetary Unit: Democratic country
Exchange Rate: (publisher to insert at press time)
GDP per Capita (in US$): $ 5,843

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Market Overview

The total size of the Slovak ICT market was USD 3,275 million in 2006. The ICT market is expected to increase by 7 % in 2007.

U.S. companies represent approximately 45% of the total hardware market, while Germany represents 10%, and local production represents approximately 14% of the market.

The development of Slovakia's ICT services market reflects spending from the banking, financial service institutions and public sector. Growth from the implementation, networking, hardware and software maintenance continues with the main end-users of hardware equipment coming from the financial sectors such as banks, insurance companies, government ministries, and the parliament and state administrations. Local industries such as the car producers, engineering companies, energy production and distribution companies are also contributing. Growth in the ICP Sector also continues with distribution networks, retail chains and food markets, telecommunications and data transmission service providers.

Locally, many companies are resisting change, and are not investing in modern solutions, and customer service is not a part of the business development plans for most Slovakian companies. Nevertheless, the Slovakian software market continues to expand its share of overall ICT spending, and this trend is expected to continue.
The high demand for ICT services also explains the growing complexity of ICT solutions, and the popularity of packaged applications such as ERP, user investment in networking, communications, and the increasing importance of the Internet, e-commerce and rising FDI inflows.

There are no tariff barriers for importing computers and peripherals, but tariff rates for ICT equipment is from 0.9% to 4.3%. All products, regardless of origin, are subject to a 19% value added tax (VAT).

The Marketplace for Business Process Technology

While the Slovak ICT market is hardware-oriented, demand for software services has risen since 2006. The hardware market is currently saturated, particularly in key sectors. A number of local firms are making the transition to more value-added services, such as networking and solution development. In 2006, software sales represented USD 256 million. The biggest local software companies are BGS Distribution, SAP Slovensko, Asbis SK, Eset, and Softip.

Growth from implementation and software maintenance continues with the main end-users of hardware equipment coming from the financial sectors such as banks, insurance companies, government ministries, and from parliament and state administrations. Local industries such as automotive producers, engineering companies, energy production and distribution companies are important software services users. Growth continues with distribution networks, retail chains and food markets, alternate telecommunications and data transmission service providers.

Many Slovak companies are resisting change and aren't investing in modern solutions. Customer service is not included in business development plans for a many Slovak companies. Nevertheless, the Slovak software market continues to increase its share of the overall ICT spending.

The Marketplace for Communications Technology

In 1998, the Slovak government had liberalized all telecommunication services except the public voice monopoly, which was not liberalized until December 31, 2002.
T-Com http://www.tcom.sk/ is the major provider of hard line telecommunications services in the Slovak Republic. T-Com owns and operates a nationwide telecommunications network, and provides local, national and international telephone services, leased line services, data network services and other telecommunication services.

There are seven alternative voice service providers. Please visit http://www.ato.sk to see the list of alternative voice service providers.
Pursuant to the Slovak government resolution of July 2000, the strategic investor Deutsche Telecom acquired 51 % stake in T-Com. Besides professional managerial and technical know-how enabling increase of performance in competitive environment, the strategic partner also provides access to global information markets.
Since 1997, open competition helped the mobile phone sector become the most dynamic growth sector in the Slovak telecommunications market.
There are three GSM 1800 MHz cellular operators, German T Mobile. http://www.tmobile.sk/, French Orange a.s. www.orange.sk and Spanish O2 http://sk.o2.com/sk/domovska-stranka.html.

In 2006, Slovak cellular networks reached around 85 percent. The total estimated turnover for the mobile telecommunications market was $ 990 million in 2006 and the industry predicts that this figure will double in three years.

The Marketplace for Digital Equipment & Systems

A number of local firms are already making the transition to more value-added services, such as networking and solution development. U.S. companies represent approximately 44 percent of the total hardware market, Germany represents 10 percent, and local production represents approximately 10 percent of the market. The key US companies are IBM, HP, DELL and Apple.

There is growing demand for portable computers, handheld and PDAs. U.S. companies have been successful in exporting telecommunications equipment such as ATMs, routers, bridges, PABXs, structured capacity cable systems, encryption technologies for data and voice transmission, ISDN cards, data Multiplexors, mobile phones and equipment for satellite communication.

The development of Slovakia's Hardware market reflects spending from the banking, financial service institutions and public sector. Growth from the implementation, networking and hardware maintenance continues with the main end-users of hardware equipment coming from the financial sectors such as banks, insurance companies, government ministries, and from Parliament and state administrations. Local industries such as automotive producers, engineering companies, energy production and distribution companies are also contributing to the growth.

In 1998,ON Semiconductor, formerly a division of Motorola, bought the state owned company Tesla Piestany, and established a new company that produces semiconductors and currently employs 1200 workers.

The largest company currently assembling computers in Slovakia is a French/Slovak company registered by the name Bull, while Sony-Slovakia produces and assembles monitors.

Future Prospects in this Market

The best prospects in Business Process Technology are System and application software, Customized software, Client-oriented multi-currency banking information system, Software for electronic distribution channels providing all basic retail functions, Complex information system for card services, Decision-supporting information systems, Information system for management staff and Complex information system for insurance companies.

The best prospects in Communication Technology are Wireless Application Protocol (WAP) services, and implementation and supply of General Packet Radio Service (GPRS) followed by EDGE technology. The Slovak Government has sold three Universal Mobile Telephone Service (UMTS) that will significantly increase the range of mobile communication services. (In some countries, UMTS is known as International Mobile Services, or IMS 2000.) High Speed Internet Access is already a reality in the all regions of Slovakia. The main telecommunication operator T Com and seven alternate operators launched DSL service on June 2003, and offers high-speed services through the Asymmetric Digital Subscriber Line (ADSL). U.S. companies have still potential in these services such as pre-paid cards or Wi-Fi services. We also feel there are opportunities for alternate hard line operators and other new services such as call centers, homework services, and tele-education and distance learning services. The best prospects in Digital Equipment & Systems are Server systems, Work stations and personal computers, NT and UNIX servers, Data communications equipment, Packet switching & routing equipment, PBX, Key systems and circuit switching equipment, Data com and network equipment, System and application software, Switched data and leased line services, Cable and digital TV services, Set top boxes, and presentation technology.

Important USDOC Resources in this Market

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SPAIN

Capital: Madrid
Population: 44.1 Million
Languages: Spanish
Monetary Unit: Euro
Exchange Rate: (publisher to insert at press time)
GDP per Capita (in US$): $ 25,505

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Market Overview

Spain has one of the fastest growing economies in the European Community. The country enjoys a long-standing and wide-ranging bilateral relationship with the United States and has traditionally provided a healthy export market. U.S. exports to Spain in 2005 reached $6.9 billion, an increase of over 4.42 percent compared with 2004. Spanish economic growth was estimated at 3.5 percent in 2005, in line with that of the previous year, ranking as one of the best in the European Union (EU). Indications are that 2006 will be yet another relatively good year (3.4-3.5 percent growth) for the Spanish economy, especially when compared with other EU countries. The forecast for 2007 is 3.2 percent growth.

Unemployment dropped from 8.6 percent to 8.15 percent in the third quarter of 2006 but continues to be one of the highest in the EU. As corresponds to an industrialized country, services are the main contributor to Spain's GDP, followed by industry. These two sectors represent almost 90 percent of the country's GDP. Services account for more than 65 percent of GDP.

Major U.S. exports to Spain have traditionally included aircraft and associated parts and equipment, medical products and equipment, U.S.-bound travel and tourism, software and services, electric power systems, and pollution control and water resources equipment and telecommunications equipment. Other sectors offering good prospects include defense, security equipment, e-commerce, chemicals, construction and engineering services, transportation and industrial machinery.

U.S. exporters continue to face competition from European Union (EU) countries as well as from China and Japan. U.S. products are considered technologically advanced and of the highest quality. EU firms, however, offer excellent financial support, after-sales service, and customization of products to fit local market needs. Spanish commercial procedures are in alignment with the rest of Western Europe, where price remains paramount.

Except in a few cases, Spanish law permits foreign investment of up to 100 percent of equity. Despite a significant drop in investment levels, the U.S. continues to rank among the top ten-investor nations in Spain.

The Marketplace for Business Process Technology

The Spanish software market is highly competitive, yet affords significant opportunities for U.S. companies. The software market accounts for close to 15 percent of the Spanish IT market, and an estimated value of $1.6 billion in 2006. For the past four years it has experienced a high growth rate, a trend that is expected to continue in the next few years.

In 2005, the market breakdown by type of software reflected strong growth over the previous year in the following categories: Multimedia software (38.4percent), software for vertical applications (19.5 percent) and communications software (11.7 percent). Nevertheless, operation systems software still represents about 25 percent of total sales, followed by horizontal software applications (19 percent) and communications software (19 percent). Spain has a relatively high level of software piracy, although enforcement is improving.

Demand for software is fueled by the positive Spanish economic context and by specific issues related to each type of customer. Consumer spending on software is fueled by increased penetration of broadband services into Spanish households, and the related demand for multimedia software. Government spending is fueled by the drive to increase e-government services and by the health sector. As for the business sector, drivers for demand in major corporations are integrated IT security, business process management and document management. Small and medium-sized companies are starting to adopt more vertical applications as well as on-demand software, especially for CRM purposes.

More than 70 percent of IT company headquarters are located in two autonomous regions, Madrid and Catalonia (including Barcelona). The total number of IT companies in Spain is estimated at 13,000. Wholesalers and distributors play an important role in the market.

As of 2000, under the Information Technology Agreement to which the EU is a signatory, there is no tariff on computer equipment and software sourced from the United States. However, under the U.S.-Spain double-taxation treaty, an 8 percent withholding tax applies to deliveries of U.S. software.

Best opportunities are found in the business/industry segment, primarily in software focused on vertical applications, communications software and IT security software. In the household market, there is also good potential for software associated with increased use of Internet and multimedia PCs. As general trends, it is expected that on-demand software will experience an expanded customer base and that open source software will face increased demanded by local and regional government entities.

The Marketplace for Communications Technology

Telecommunication services in Spain have undergone a consolidation process in recent years that will probably continue in the near future. Market growth will be stimulated by factors such as the convergence over the VoIP protocol, the development of broadband access and the actual deployment of Mobile Virtual Network Operators (MVNO's).

Telefonica will continue to be the dominant player in most market niches. An overview of the different sub sectors shows a general trend towards structural changes in the industry.

In fixed networks, Telefonica is the dominant player, but competitors have been able to achieve a 29 percent of market-share. Orange (France Telecom) and Ono, the major cable company in the market, are the two runner-ups. There are close to 18 million lines in service. Local and regional traffic has experienced reduced demand, while international traffic is growing.

Three companies control the Spanish mobile market, encompassing GSM, GPRS and UMTS services. The major cellular operator in Spain is Telefonica, with over 46 percent of the market, followed by Vodafone and Orange. The fourth company, Xfera, has been revitalized by the entry of Telia Sonera, and will offer services under the Yoigo brand. There are more than 43 million mobile users in Spain. Factors to be considered in the Spanish mobile market are the high number of prepaid clients, the importance of messaging and the final launch of Mobile Virtual Network Operators.
The leading trend in the Spanish broadcasting market has been the consolidation of large media groups (for example, a single Digital Satellite TV operator is left in the market), and the preparations for the mandatory switch to Terrestrial Digital Television.

Total investment in *telecommunications equipment* by Spanish service providers during 2006 is estimated at $6.9 billion, with fixed-network operators representing over half that sum. Investment has been increasing since 2004, and is expected to maintain high growth rates in the near future.

Although U.S. products have a strong reputation, there is stiff competition from European and Asian companies, most notably France, Germany, Italy, the UK, Scandinavia, Japan, Korea and China.

Areas expected to fuel demand are mobile telephony, where operators have continued investments in network infrastructures for UMTS deployment, investing in 2006 an estimated $2.6 billion. Demand for new terminals or solutions offering mobility to the business environment will also generate growth.

Broadband services, mainly focused on XDSL and cable, will continue to demand equipment and solutions as competition heats up between the major players. More than 4.7 million clients are currently connected to XDSL services in Spain, with an additional 1.3 million connected to the Internet through cable companies.
Wi-Fi WiMAX equipment is expected to maintain a robust demand. In the case of broadcast equipment, investment should pick up for the next few years due to the mandatory switch to digital technology.

All equipment must be CE marked and, in some cases, certified in Spain if it is to be connected to the Public Switching Network, or if it uses the electromagnetic spectrum for transmission.

During 2006, the Spanish *E-commerce* sector grew significantly, both in the B2C and B2B areas. Factors that will help this trend are: the increased penetration of Broadband Internet in Spain and the deployment of the Electronic National Identity Document (e-DNI), that will provide all Spaniards with a personal digital identity certificate.

The B2C market was projected to reach a volume of $3.1 billion in 2006, with excellent expectations for 2007. Spanish companies are maintaining investment levels

in proprietary B2B solutions, and major companies are prodding their suppliers to join. More than 42 percent of companies with more than 250 employees have some B2B activity, but the real opportunity is with the small and medium sized enterprise (SME) market, a segment becoming increasingly interested in opportunities offered by E-commerce.

The Marketplace for Digital Equipment & Systems

The Spanish hardware market is estimated at $4.2 billion in 2005, a 4.5 percent increase over 2004. The key component is computer hardware, which represents 67.6 percent of that amount, followed by communications hardware and printing equipment.

It is estimated that over 3 million units of microcomputers (desktop, laptops, tablet PCs and servers) were sold in 2005 in the Spanish market. Of this amount, over 1.2 million are thought to have increased the installed base, while the rest was targeting replacement of obsolete systems.

The installed base of microcomputer is estimated to be of 4.5 million units in the business sector and 8.1 million units in the consumer area. HP, Dell, Acer, Toshiba, Fujitsu-Siemens and Lenovo lead the sales ranking in microcomputers.
Desktop computer sales in 2006 might have increased by 4 percent in value over the previous year, to $1.02 billion and 1.6 million units. Industry experts see sales of "Media Centers" for households as key for the growth in this segment in the near future.

Laptop sales are estimated to have increased 15 percent in 2006, over 1.6 million units. Lower prices and increasing demand from small businesses and private households due to new wireless and mobility applications are the keys to the success of this segment, which already represents over 50 percent of new sales in the Spanish PC market.

The Spanish market for consumer electronics and home use audiovisual equipment is experiencing increasing demand, especially for high-end products (plasma and LCD screens, home cinema), which have recently experienced significant price reductions.
In this context, the Spanish market for consumer electronics was valued at $4.6 billion in 2005, which is a 9percent increase over 2004. Some key products are the driving force behind this increasing market demand: MP3 players, flat screen TV sets (plasma and LCD), digital cameras and home cinema systems.

Future Prospects in this Market .l

Spain has one of the fastest growing economies in the European Community. The outlook for GDP growth in 2007 is estimated at 3.2 percent. Accordingly, demand for ICT equipment and services are expected to maintain a significant level of growth.

In the telecommunications sector, the development of Mobile Virtual Network Operators (MVNO's), the increased reliance on wireless-enabled devices by business and consumers, the deployment of Wi-Fi WiMAX equipment, TV over xDSL and mobile networks will be drivers for growth.

As well, the Spanish Government's drive to develop the digital broadcasting market (radio and TV) is opening new license opportunities for broadcasters, especially at the regional and local level.

The market for computer products and services continues to grow in Spain, primarily due to increasing home and business penetration of Internet and the need for upgrades and customization of professional equipment, software and services. Although Spain now lags behind the rest of Europe and the U.S. in Internet penetration, growth figures indicate that the gap will close in the near future.

Business opportunities are found in the areas of computer services and software applications related to general Internet use and increased e-commerce and digital services. Integrated IT security solutions will also experience high growth rates.
From August 2005, companies selling a broad range of electrical goods in Europe will need to conform to WEEE (Waste Electrical and Electronic Equipment Directive) and as of July 2006, those same companies will also need to conform to RoHS (Restriction of Use of certain Hazardous Substances Directive). Specific information on the WEEE and RoHS legislation is available at the U.S. Commercial Service's European Union and Spain'swebsites:www.buyusa.gov/europeanunion/weee.html
http://www.buyusa.gov/spain/en/67.html

Important USDOC Resources in this Market

Sources of information on Internet:

www.aetic.es - Spanish ICT Association – AETIC:
www.astel.es - Association of Telecommunications Service Providers – ASTEL
www.siti.es - Trade show SITI/ASLAN (Madrid, March 27-29, 2007)
www.simo.ifema.es - Trade show SIMO TCI (Madrid, November 6-11, 2007)
www.broadcast.ifema.es - Trade show BROADCAST (Madrid, November 6-9, 2007)
www.mityc.es/telecomunicaciones - Secretary of State for Telecommunications and Information Society
www.cmt.es - Telecommunications Market Commission:

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SWEDEN

Capital: Stockholm
Population: Nine million
Language: Swedish
Monetary Unit: Kronor
GDP Per Capita: USD 41,379

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Market Overview

Like other small nations, Sweden with nine million inhabitants is highly dependent on international trade to maintain its high productivity and high living standard. Its economy is very diversified with traditional industries still playing an important role, but with an increasingly important high technology sector. Sweden is in the forefront in terms of wireless communications, software development, microelectronics, telematics and photonics.

The Swedish IT market consists of around 17,0000 companies and employs around 250,000 people. The country has adopted the EU resolution on implementing the e-Europe Action Plan with a view to promoting development toward an information society for all. The action plan includes e-government, e-learning services, e-health services, a dynamic e-business environment, widespread availability of broadband access at competitive prices and as well a secure information structure.

The high level of IT maturity and easy entry into the market, have attracted a broad spectrum of players, from multinational telecom operators, computer companies, systems integrators and niche companies.

Sweden welcomes new technology that is user friendly, stable and is provided at competitive prices. The country has a large number of multinational companies, the highest per capita in the world. These companies rely heavily on state-of-the art technology for their operations.

The Marketplace for Business Process Technology

The Swedish software market is sophisticated with skilled domestic software development companies. Sales are around USD 2.8 billion and the market increased by around 5% during 2006. The Swedish software market consists of global software development companies and small, innovative niche-oriented companies. There are around 800 Swedish software development companies in Sweden, many of which specialize in systems software for communications, business systems (tax and accounting packages with local applications), and applications software for

telecommunications. Security software is also a dominant segment among Swedish software developers.

Demand is expected in the following segments: solutions for business intelligence, information management, and applications for increased mobility, e-business, and information security.

U.S. products are well received and 75-80% of imported packaged software is of U.S. origin. The market is highly competitive and customers are looking for products that will make business processes efficient, robust, and flexible.

The Marketplace for Communications Technology

TeliaSonera and especially Ericsson have been the driving forces to put Sweden on the telecommunications map in general and wireless communications in particular.

TeliaSonera is the largest provider of fixed telephony followed by Tele2, and Telenor. The mobile phone penetration is extremely high in Sweden, over 100%. There are three GSM carriers that have their own infrastructure: TeliaSonera, Tele2, and Telenor. Third generation services are provided by four operators; 3 (Three), TeliaSonera, Tele2, and Telenor. All told, there are over 20 service providers in the mobile telephony market, which grew by around 1% in from June 2005 to June 2006. IP telephony is gaining ground in the Swedish market. From June 2005 to June 2006, this segment increased by 151%. It is estimated that 3 million mobile phones were sold in Sweden during 2006. Phones with music players and more advanced camera phones will see the largest increase during 2007.

Internet penetration in Sweden is also very high. In the age group 15 to 75, around 85% have access to the Internet at home and 47% have access to broadband. ADSL is the dominating form of broadband access, followed by CaTV and LAN. Use of W-LAN is expanding in Sweden. The largest operator, Telia Homerun, has more than 15,000 hotspots throughout the country. Other service providers are Defaultcity, Powernet, Glocalnet, and The Cloud Nordic.

Around four million households in Sweden have access to at least one television set. Broadcasts are provided via terrestrial, cable or satellite means. The Swedish Parliament decided in 2003 that Sweden will discontinue analog TV broadcasting and shift to digital. The process started in 2005 and will be completed in February 2008.

The Marketplace for Digital Equipment & Systems

The Swedish market for digital equipment and systems is slowly picking up again after a few years of generally negative or no growth. Investment in IT solutions follows the trends of the general economy and the Swedish economy is doing very well with a GDP growth at its highest since the turn of the century (4%). Consequently, there should now develop increased demand for investment in new equipment especially as the aging IT infrastructure needs replacing.

It is forecast that the hardware market will increase by 2% in 2007. The largest growth will be in the laptop segment, which represents around 50% of the market. The server market is expected to increase marginally. Peripherals are expected to increase by 17% during 2007.
The market for digital cameras will also increase, especially those with at least 5 mega pixels. That market doubled in 2005. Compact cameras and digital systems cameras will experience the largest growth. Another segment that is doing very well in the

market is flat screens with 20% of Swedish households stating that they intend to buy one in 2007.

Future Prospects in this Market

The Swedish IT market continues to experience positive signs and increased demand after several years of downturn. The economy is booming. There is a pent-up demand for hardware, software and services, resulting in increased sales during 2007 and beyond. Customers will look for business process outsourcing, allowing outside companies to handle applications, software and development. Other major areas of growth will be mobile solutions and services with the expansion of 3G technology, IP telephony, IT-security, investment in new systems, business intelligence, and e-solutions.

The convergence between IT and the entertainment industry will continue to create business opportunities, especially in the consumer segment. With the expansion of broadband services, more users will be able to take advantage of a wider selection of services online. Demand for triple play will continue to be in demand.

The public sector represents around 30% of ICT sales in Sweden. The Swedish Administrative Development Agency (Verva) is responsible for carrying out the procurement process. Procurement is planned within various sectors. Information in English is available on Verva's website http://www.verva.se.

Important USDOC Resources in this Market

http://www.itsweden.com/ - IT Sweden
http://www.isa.se/ - Invest in Sweden Agency
http://www.industry.ministry.se/ - Ministry of Industry
http://www.pts.se - The Swedish Post and Telecom Agency (PTS)
http://www.stockholmsmassan.se/stockholmsmassan%5Feng/ - Stockholm International Fairs

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Web: http://www.buyusa.gov/sweden

SWITZERLAND

Capital: Bern
Population: 7,300.000
Languages: German, (English), French, Italian, Romantsch
Monetary Unit: Swiss Frank (CHF)
Exchange Rate: 1.29714 CHF
GDP per Capita (in US$): $35,000 (2005 est.)

Local Market Commercial Specialist

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Market Overview

Switzerland offers an outstanding export market for the Information and Communication Technology Industry. It is an affluent and trendy market with an estimated total volume of USD 20 billion this year. The market grew by an estimated four percent in 2006, and market observers expect an even stronger growth for 2006. Major factors for this excellent growth rate include:

- Strong business demand for hardware (desktop and laptop computers, servers, storage solutions, wireless and wired network equipment, 3G equipment, high end peripherals);
- Continuous strong interest in the latest software products and upgrades for Security, Customer Relationship Management, Finance and Control, Enterprise Resource Planning, Supply Chain Management, Document Management, Content Management, Enterprise Application Integration, Application Service, and e-procurement; and
- A solid high-end consumer base with over 70 % of Swiss households subscribing to broadband Internet access, either via cable modem or DSL connections.

Leading Market for Business Process Technology

Business Process Technology is of paramount importance to the Swiss Industry. Be it the banking and finance sector, the chemical and pharmaceutical industry or the large multi-national companies and International Organizations headquartered in Switzerland, business software applications are in high demand. Currently, some of the largest market players include: SAP, Elca, Bedag Informatik AG, Oracle, Bison, Wilken, Microsoft, Abacus Research, Sunbay Software, Compuware and Simultan.

Customer Relationship Management (CRM) and document management/storage solutions are two strong market drivers. However, more growth is also anticipated in financial applications, CAD/CAM software, system security software and eGovernment solutions.

Leading Market for Communications Technology

Switzerland's communication industry offers its customers leading edge and high quality communication applications. With the launch of the 3G mobile phone networks, broadband Internet is now available in virtually all cities and suburbs via a cellular phone or cellular PCMCIA cards in laptop computers. Either cable or DSL connections with access speeds of up to 4 MB/sec are available to over 90 percent of the Swiss population. The current monthly charges for high-speed Internet connections start at USD 8, making it affordable for home businesses and small and medium enterprises (SMEs) to upgrade from their existing ISDN connections and invest in latest-technology network infrastructure. This trend will be further accelerated by the deregulation of the last mile in the near future, which encourages increased competition among the communication service providers. Continuous strong growth is expected in demand for products and technologies for the communication backbone infrastructure, mobile computing, server and desktop systems, network storage solutions and WIFI network equipment.

Leading Market for Digital Equipment & Systems

While the data storage market has not moved significantly since 2001, market insiders now report an expected growth of five percent in 2007. Most promising in the storage market are the SME and consumer market segments where data needs are virtually exploding. It can also be expected that large enterprises and government agencies will continue to expand their storage solutions. With growing demand for mobile data access, providers of high quality and high security storage outsource and/or mobile data access solutions will find an attractive market in Switzerland. Switzerland's typically strong digital graphics market is being further boosted by a high demand for leading edge digital equipment. With consumers turning to digital picture and video equipment, bundled with the latest flat panel displays (either plasma or TFT) and color laser printing, retailers are reporting new growth stimulated in an otherwise sluggish IT hardware market. Manufacturers of leading edge digital equipment and systems will find a sizeable customer base in Switzerland. A snapshot of the Swiss photo market reveals a steady decline in demand for traditional film development. However, the steady rise in demand for digital cameras and digital video equipment is filling the gap and more. Sales of digital cameras, photo paper and over-the-Internet development rose by approximately 30 percent in 2006. Demand for the latest cameras, offering resolutions of up to 15 mega pixels, is ensuring continuous growth, especially in the professional photo market segment. Digital cameras currently represent an estimated 90 percent of Swiss camera sales.

Future Prospects in this Market

Best prospects in the Swiss Information and Communication market sector include all of the following products and services:

- Desktop, Laptop, Server, security and storage hardware and related software
- Enterprise software and tools
- Mobile communication hardware and software
- IT consulting and outsourcing
- IT hardware and software for federal, state and local government
- Advanced web applications and services

Important USDOC Resources in this Market

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TURKEY

Capital: Ankara
Population: 70 Million
Languages: Turkish
Monetary Unit: New Turkish Lira (YTL)
Exchange Rate: $ 1 = 1.35 YTL
GDP per Capita (in US$): $ 7,958

Local Market Commercial Specialist

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Market Overview

Turkey's Information Technology market (IT) size is estimated to have reached $4.5 billion in 2006 and the total ITC industry (with telecommunications) is estimated at 20.70 billion USD (ref. Interpro). ICT market increase estimated at %15 for 2007. The break down of the ICT market gross revenue is as follows: %68 Carrier Services (GSM operators), %11 hardware sales, %10 telecomm equipment, 7% services (maintenance, set up, network security etc.), %3 software, %1 consumer goods. With over 7 million personal computers in Turkey and 16.5 million Internet users (according to TNS Piar), pc sales are still the main driver for gross IT sales.

Although E-signature applications were expected to be the next step in Turkish IT circles in 2005-2006, this was unfortunately not the case. The E-signature law had passed in 2003 but firms and the general public is slow in adapting this new way of doing business. The Turkish Government has not yet pushed this technology and hence the usage is extremely low and the general public does not have a basic understanding of the issue. Estimates were that e-signature users would reach 8 million in five years, now this estimate seems over optimistic. Implementations of e-signature range widely from selling and buying property, signing leases and contracts using e-signature. The Turkish Government is still expected to launch media attention for the public awareness of the e-signature.

As anticipated with the ADSL (Asymmetric Digital Subscriber Line) leap of Turkish Telecom, Internet speed is has increased up to 50 times versus the normal dial up used frequently by small businesses and households. This in turn boosted e-commerce and expenditure via the Internet.

THE MARKET SIZE ESTIMATE FOR THE IT SECTOR (EXCLUDING TELECOMMUNICATIONS):

USD Millions	2006	2007 (Estimate)
Total Market Size	4,500	5,200
Total Local Production	1,300	1,600
Total Exports	230	370
Total Imports	3,200	3,600
Imports from the U.S.	1000	1250

Exchange Rate used: $1 = 1.350 YTL (New Turkish Lira)
Note: The above statistics are unofficial estimates.

The Marketplace for Business Process Technology

Hardware Market in Turkey

The Turkish information technologies market is dominated by hardware sales. The market has experienced double-digit growth over the past five years except during 2001 when the economic crises affected IT purchases across the board. Hardware market for Turkey estimated at 2.3 billion USD for 2006.

Estimated 1.8 million PC's were sold in 2006, half of this figure notebooks. Notebook sales are expected to increase as hotspots and wireless networks and applications become more available. Turkey's population of 70 million is relatively young and given the current demographics of computer and Internet users, it is evident that the computer market is far from reaching the saturation levels, increased Internet speeds and other enhancements have and will continue to boost PC sales further, especially notebooks.

Key players in the hardware market of Turkey are Beko, Asus, Vestel, Escort, Dell, HP, Compaq, Epson and Brother. The following table provides an overview of hardware sales volume over the past five years.

Software Market in Turkey

The recent trend is seen especially in defense software contracts being outsourced to Turkish subcontractors. The impressive know-how and experience of these Turkish firms are leading to further joint ventures between US and Turkish firms.

According to Tubisad (Turkish www.tbd.org.tr) software market in Turkey with an increase from the previous year of 20% was 650 million USD. Imports into Turkey totaled 90 million USD and exports totaled 15 million USD.

The Marketplace for Communications Technology

The U.S. IT hardware and software manufacturer will find that due to time commitment, cost, and complexity of the regulatory and commercial environment, it would be critical to select local representation. Although many people in the larger urban commercial centers understand English language may be a serious barrier in rural areas. It is therefore imperative that marketing information and user guides be written to the consumers' own language. To win over the local customer, a Turkish language web site would be extremely useful. Having a local representative or partner could help in translating your advertising so as to catch the eye and interest of the Turkish consumer.

For companies seeking to gauge market receptivity, exhibitions and conferences are excellent product launch vehicles. Reconfiguring the user interface and software would not be necessary in the initial market fact finding stages and that once market interest is determined and confirmed can the U.S. company and its local partner look at packaging the hardware and software to meet the needs of the Turkish consumer. Software translations may not be needed for professionals, however software products for the general consumer would be necessary.

Standards / Import Regulations - CE mark is an issue. Since Turkey has adapted full acceptance of the regulations due to its European Union Customs Union membership, IT products need to meet the European Union directives on low voltage and electro magnetic compatibility. IT products need a CE mark to be able to imported into Turkey.

Apart from electro-mechanical standards, IT producers must ensure that all electronics be compatible with the radio-frequency levels of the Turkish national standards on frequencies. Products manufactured prior to 1 January 2000 cannot be imported. This is an outstanding regulation attributed to hinder problems related to the Y2K bug. No secondhand IT equipment is allowed into Turkey "unless the equipment is an integral part of a machine used in manufacturing".

Unique Opportunity To Increase Market Exposure In Turkey

→ CeBIT Bilisim Eurasia, Istanbul, Turkey, 2-7 October 2007. IT and Telecom solutions trade fair. This event is an US Department of Commerce certified event.
Website: www.cebitbilisim.com.
This year promises to once again attract the world of ICT products and services to this very lucrative marketplace. Over 160,000 visitors and 900 exhibitors from 55 countries attended CeBIT Bilisim Eurasia last year.

→ CeBIT Broadcast, Cable and Satellite Eurasia, Istanbul, Turkey, 23-26 November 2007. Satellite broadcast and integrated technologies. This event is an US Department of Commerce certified event.
Website: www.cebit-bcs.com/eng/index_en.htm

Future Prospects in this Market

Wireless Technologies – The Future.

Turkey is quick to implement new technologies provided there is no hindrance from the Government. ADSL is a good example of this implementation, once Turkish Telecom prepared the infrastructure, the consumers were quick to adapt and sign-up. This will be true for Voice Over IP and other products.

GSM operators are the leading edge of wireless technology in Turkey. Maxi messaging is catching on heavily. Products sold to GSM are in the increase and are generating millions of USD revenues. Music downloads, ring downloads and wallpapers for the phones are the most popular applications.

Industry contacts have a consensus that the next big market opportunity for ICT firms in Turkey is wireless broadband Internet and applications, accessories thereof. Hot spots in airports, café's and other public locations are in the rise. Wireless connectivity devices such as PCMIA cards, Bluetooth hardware, edge technology, gprs, internet via satellite are increasing in popularity and thus sales. Wireless connectivity is also boosting notebook pc sales as people seek mobility and connectivity at the same time.

Audio Visual and the Consumer Electronics market is also seen as a future prospect as smart homes, LCD/plasma TV's, digital cameras, removable data storage and pda's are in demand.

Best Prospect Products/Services

- Wireless equipment / services
- Notebook PC's
- Audio Visual Equipment
- Consumer Electronics

Important USDOC Resources in this Market

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UK

Capital: London
Population: 60,609,153 (July 2006 est.)
Languages: English
Monetary Unit: British Pound (Sterling, GBP)
Exchange Rate: $ 0.51
GDP per Capita: $ 31400 (est.2006)

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Market Overview

This report is intended to give the reader an overview of the Information and Communications Technologies (ICT) sector. As this is such a large sector, it will focus on the more dominant themes and give information in a generic context. The main themes cover the internet, telecommunications, broadband and wireless.

The United Kingdom is the dominant market for ICT in Europe, thanks in part to public sector spending and the outsourcing boom. The sheer size and strength of the UK ICT market – over 130,000 UK companies operate in the sector and over one million people are employed in ICT - demonstrates its importance to the UK. At over $60 billion in 2006 the UK software and computer services sector is the largest in Western Europe.

London's ICT corporate base is unrivalled in Europe making it a key center for knowledge-driven activities. The network of telecommunications, telecommunications services and computer equipment companies in London is the largest in Europe. In addition, there is a network of well-developed early stage venture capitalists and incubators that can meet the investment needs of growing ICT businesses. London's diverse and vibrant quality of life along with a common language and cultural familiarity makes it a favorite destination for North American expatriates.

Britain is home to the Internet's biggest data hub. At peak times over 200 Gb/s (gigabits per second) of data regularly pass through the London Internet Exchange. This is where the UK's net firms (over 96% of UK internet traffic) swap data between each other's networks. This huge volume of traffic puts the UK net hub ahead of similar exchanges in the U.S. and Japan.

The UK has a strong science and technology base, with world-class design, research and development disciplines. Many UK universities and scientific institutes take part in

joint research projects with businesses. The UK as whole has over 30 million skilled and adaptable workers with generally high standards of education, particularly vocational education and training. Labor market regulations in the UK, including working hours, are among the most flexible in Europe, and staffing costs are highly competitive.

The Marketplace for Software and Computer Services

Software and Computer Services (SCS) is the fastest growing segment of the UK ICT industry, worth over $60 billion in 2006. The UK excels in this area and produces some of the most cutting-edge and innovative products and solutions in the world. Britain is particularly strong in the areas of e-technologies, parallel computing, artificial intelligence (AI), virtual reality and multimedia software products. Software and Services account for two thirds of UK total IT spending. Growth averaged around 8% per annum from 2001-2006.

The driving force in the UK software market is the trend for web-enabled integrated enterprise-wide solutions and e-technologies in the workplace. In addition 95% of UK residents live in areas capable of delivering fixed broadband internet connectivity, over 80% of all UK businesses have websites and a quarter are using their online presence for trading. All of which adds to the demand for software solutions and services.

The UK is also famous for its leisure software. One driving force behind this is the popularity of computer games in the UK. Britons are voracious game players. The UK is the third largest global market accounting for up to one third of global games software sales, a market currently growing at over 20% a year. Three of the top-selling games in the world were created in the UK. In industry rankings, 11 of the top 14 European software developers and six of the top 13 global software developers are British companies. This market is worth over $2.5 billion per year in the UK.
Leading software companies in the UK include:

- Eidos, with its Tomb Raider series of games has conquered the gaming world.
- Digital Bridges have enjoyed international renown for their games products.
- Symbian, born out of the electronics pioneer, Psion, is a leading player in the market for mobile phone operating system software.
- Sage, based in the North of England, is a major force in the world of accountancy software.
- Autonomy, based in Cambridge, pioneered the use of sophisticated algorithms to search and categorize information. Its software is used around the world by large organizations, including the U.S. Government

Centers of excellence abound. Cambridge, in the East of England, is home to Microsoft's first research and development center outside the U.S. In Bristol, in the South West, Hewlett Packard has a substantial research facility, and IBM has an impressive R&D presence in the South East of England. The Thames Valley, stretching from Swindon in the West to London in the East, is home to hundreds of high-tech businesses, many of which are household names on both sides of the Atlantic (Computer Associates, Oracle, EDS, etc).

The Marketplace for Communications Technology

Total retail revenue in the UK communications sector reached almost $100 billion in 2005, a 5% increase compared to 2004. The biggest annual rise ($4 billion) came from the telecoms sector, while television revenue grew by just under $1 billion. Total radio funding remained broadly flat year-on-year. The average household spends on communications rose slightly in 2005 – by about $1 (less than 1%) to $166 per

month. The largest single component was mobile communications at $58 per month (35% of total spend).

The use of communications services is rising. On average, in 2005 mobile subscribers made more calls and sent more texts than they did in 2001, internet users spent almost 20 minutes more time online per week and TV viewers watched for 11 minutes longer. Over the same period, however radio listening fell by 24 minutes while fixed line telephony remained flat.

There is also evidence of a significant difference in communications usage patterns between young adults and the general population. For example per week, 16-24 year olds spend on average 21 minutes more time online, send 42 more SMS text messages, but spend over seven hours less time watching television. Availability of several new digital services increased during 2005. 3G mobile services are now available to over 90% of the population.

Take-up of consumer digital services continued to increase over the year: by March 2006 18.3 million UK homes subscribed to digital TV services, 11 million homes and small businesses had broadband connections, and there were around five million 3G subscribers. In 2005 and early 2006 a number of 'converged' services came to market including various internet TV (IPTV) offerings, television to mobile devices, and new voice over IP (VoIP or internet telephony) products. In addition, operators are increasingly bundling their services into triple-play offerings, with fixed line/broadband/TV bundles becoming particularly widespread.

2006 saw rapid growth in the reach and usage of social networking websites (such as My Space, Friends Reunited and Bebo), which allow users to create online profiles and connect with friends or others with similar interests. Our research shows that over 40% of adults with internet access have used these sites; that figure rises to 70% among 16-24 year-olds, with over half in this age group using them at least weekly.

The Marketplace for Digital Equipment & Systems

The UK is a leading market for ICT hardware, which encompasses computer hardware and peripherals, as well as other communications equipment and infrastructure. Britain continues to produce groundbreaking technology, which makes the UK one of the most innovative and fast moving players in the world. The UK PC market is enjoying a boom at the moment, spurred on by a positive economy, burgeoning consumer expenditure, and a discernable return in business confidence.

The market continued to grow during 2006, with PC shipments exceeding 1.85 million units. This fueled growth of 20% and signaled a further continuation of the corporate IT spending rebound. Small and medium sized business and consumer demand continued to fuel strong notebook growth of 24.3% year on year. The desktop market also grew strongly and achieved 19.6% year-on-year.

The consumer PC market experienced another strong performance in 2006, characterized by a continuation of fierce competition between the retail and direct consumer channels. Strong demand should continue to be fuelled by Windows Vista migration and digital media offerings, with consumers seeking ever-increasing storage for music, video, and image files.

The commercial desktop market is poised to grow year-on-year. Improved business confidence resulted in the green light being given to a number of corporate infrastructure overhauls, with the need in the near future to upgrade to Windows Vista/Office 2007 providing further impetus. Top-tier vendor programs aimed at small-

to-medium sized businesses continued to fuel substantial demand, while the uplift in corporate activity saw an increase in the number of desktops being replaced with notebooks.

Mirroring activity within the economy, the UK PC market faces a healthy expansion this year, before dropping to a more sustainable growth-level of 9% in 2008/9. The outlook in terms of unit shipments for the next couple of years is positive, therefore, but the issue that will need to be addressed is the threat of declining profit margins in the face of increased commoditization and declining prices.

Future Prospects in this Market

The UK ICT market is expanding and there is growth across all sectors. Outsourcing of ICT functions is increasingly seen as a 'smart' method of handling the issues associated with running an IT system – risk is passed to the contractor and the costs are defined over the life of the contract. Businesses appear to be buying new systems, IT departments rolling out Windows Vista should make an impact soon as a corporate platform, incorporating .net and other middleware to bridge technologies, or replace legacy components.

The public sector is investing heavily to meet the UK government's targets, whereby all UK citizens should be able to access local and national government services. The implementation of the Defense Industrial Strategy and the Transformational Government Strategy will further drive demand within the ICT sector. Security across the whole ICT sector is also increasingly important, and personal and corporate software and hardware devices are in demand, fuelled by the increasing attention on security from all segments of the media.

Broadband penetration is accelerating. Ninety five percent of the UK domestic and commercial addresses are capable of receiving broadband at speeds of at least 512 kbit/s. UK businesses now lead in the adoption of wireless LANs and are among the leaders in the uptake of Voice-over-IP and desktop video conferencing.

3G technologies are currently trying to drive the sort of wide spread technology upgrade last seen prior to Y2K. The technology is probably too young at the moment, with mainly early adopters and the technologically curious changing their platform. The UK's longstanding adoption of number portability makes the changeover straightforward. Bluetooth technologies are becoming more pervasive in everyday life and changes in regulations for mobile telephone use in cars has driven the widespread adoption of Bluetooth headsets.

In summary the UK is a good destination for U.S. ICT companies wishing to expand internationally. The common language and close cultural ties help foster good relationships across the Atlantic. The UK ICT consumer, either in business or in a personal capacity is a sophisticated buyer, educated and often buying their third or fourth generation of a particular technology. The UK is not ideally suited to late-coming generic products, but new innovative technologies that can solve a defined need, or produce tangible ROI are likely to succeed in this country.

U.S. suppliers should be price competitive in the U.K, due to the weakness of the dollar. According to statistics, as of Feb 8, 2006, £1 UK pound is equal to $1.9572 U.S. dollars. Conversely, £0.5106 UK pound equals $1 U.S. dollar.

Important USDOC Resources in this Market

Trade Shows:
Focus on Imaging
25-28 February 2007
Location: Birmingham NEC.
Focus on Imaging is Europe's biggest annual imaging show, covering all your needs from image capture through to output and beyond. Over 200 exhibitors and product launches galore - including all the very latest digital cameras and processing equipment - will feature at FOCUS 2007.
Web: http://www.focus-on-imaging.co.uk/

Channel Expo 2007
28-29 March 2007
Location: Birmingham NEC
Channel Expo is the only exhibition dedicated entirely to the UK IT channel. Showcasing a huge range of new products, services and technologies, vendors from around the IT sector will be attracting the attention of the visiting resellers, VARs, convergence suppliers, distributors and IT consultancies.
Web: http://www.channelexpo.co.uk/c2007/index.shtml

Trade & Industry Contacts
Office of Communication (Ofcom)
Ofcom is the independent regulator and competition authority for the UK's communications industries – television, radio, telecommunications and wireless communications services.
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UKRAINE

Capital: Kiev
Population: 47 million
Languages: Ukrainian
Monetary Unit: Hryvna (UAH)
Exchange Rate: $1/UAH 5.05
GDP per Capita: $1800 (estimated)

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Market Overview

Ukraine is an emerging market economy at the crossroads of Eastern Europe, Russia, Central Asia, and the Middle East and holds great potential as a new market for U.S. trade and investment. Ukraine has achieved significant progress in opening its market to exports and investment, particularly in the last few years. Despite some progress in deregulation, domestic and foreign investors continue to be discouraged by a burdensome array of tax, customs and certification requirements, as well as by corruption, the lack of effective corporate governance, and political uncertainty. Some progress has been made on reforming the tax system, but the value-added tax rate reduction is still the subject of political controversy at present and does not provide an answer to special VAT exemptions or methods to decrease the large balance of unpaid VAT reimbursements. The legal structure in Ukraine remains undeveloped. Courts remain weak and subject to political pressures. Allegations of unfair rulings or poor enforcement of decisions in commercial cases are well known.
Exports from Ukraine, reduction of capital flight, growth in retail trade, residential construction, agricultural production and food processing have been the main factors behind Ukraine's recent economic performance. Increased consumer confidence is also reflected in the banking sector where household and business bank accounts are increasing. Late in 2006 Ukraine has completed regulatory and legislative reforms needed for gaining accession to the WTO.

U.S. businesses exporting goods to Ukraine will discover that the country's commercial infrastructure, which is still only partially developed, has matured rapidly over the last five years. Logistics and distribution networks have improved dramatically. And international financing, leasing, and licensing to help exports are becoming more common. Although foreigners may find Ukraine's import regime daunting, it is not insurmountable and is comparable to other transitional economies in the region.

Despite the many hurdles they face, U.S. companies have remained at the top of the list of exporters and investors in Ukraine and have been active in finding opportunities offered by Ukraine's growing economy.

The Marketplace for Business Process Technology

A more legitimate and transparent market for computer software is slowly taking shape in Ukraine. Enforcement of IPR legislation, steady growth of the Ukrainian economy in 2000-2005, and resurrection of local manufacturing industries have generated a substantial increase in demand for computer software for industrial and business needs.

The exact size of the Ukrainian computer software market is difficult to measure, because both major subsectors of the computer software market: the imported software and the software development feel a severe impact of the shadow economy. Imported software dominates on the office software market and on the market of software solutions for government, businesses and industry. Operating systems, office applications, archives, accounting programs, and multimedia and security solutions are the sales leaders.

Windows and Microsoft's Office programs are currently the most widely used office software in Ukraine. This software is installed on approximately 98% of all PCs operating in the country. Illegal imports of pirate office software, illegal use of software licenses and domestic pirate industry production have a severe impact on the size of the legitimate software market. They also have an impact on sales statistics: to fight piracy many PCs are sold with preinstalled software, thereof, official sales statistics show higher numbers for hardware and lower numbers for software. However, most U.S. and international suppliers of software report strong annual sales growth ranging from 15% to 40% for several years in a row. These successes of software suppliers would be even more impressive if not for obstacles created by complicated and controversial Ukrainian licensing procedures and customs regulations. One of the specific features that may indicate a new trend on the market was an impressive growth in sales to small and medium businesses. In the meantime the demand on the government and corporate market remained at the same level.
Computer software services also play an increasingly important role. Reportedly, 24.8% of computerized entities outsource automation solutions and 38.2% of entities use technical support services.

Ukraine is slowly emerging as a low cost site for high quality software development. Unofficial estimates indicate that this industry employs 25,000 of programmers and many more specialists of different backgrounds and qualification. Industry experts believe that computer software development accounts for 10-30% of the IT market revenues, and is growing at 40-50% per year. Average annual export sales for forty leading software-developing firms vary from $ 315,000 to $6 million per company. The total number of software developing firms is 1030. Almost 300 companies specialize on the offshore outsourcing development projects. Company staff varies from 10 to 380 employees.

The marketplace for Security & Safety Products

American-made security and safety equipment is one of the most promising industrial sectors for export to Ukraine. As domestic manufacturers are unable to meet demand, both in terms of quantity and quality desired, U.S. exporters may find that the local market offers many opportunities, especially in the high-tech end of security products.

While existing legislation restricts the purchase and use of firearms by the average citizen, many citizens rely upon a variety of security devices and alarms for their

homes and cars, including car alarms, house alarms, advanced technology locks, and closed-circuit TV.

The rapid growth of private banks and corporations has been accompanied by an increased demand for security software, metal detectors, smoke detectors, sophisticated wireless security solutions for perimeter and access control systems. Ukrainian companies are often willing to pay top dollar for an effective security package, as seen by the proliferation of Ukrainian security companies. U.S. companies are advised to use trade exhibition opportunities to make valuable contacts and to contact private Ukrainian security firms directly. U.S. firms should also note that the import of security and safety equipment requires certification and licensing from relevant Ukrainian government agencies, which is often a cumbersome process. The local market also offers evidence of a growing demand for high-tech antiterrorist equipment, which is not manufactured locally. Customs, railroads, airlines, airports, state law enforcement agencies and private security companies show a growing interest towards advanced surveillance and access control systems. Those US exporters that consider supplying Ukrainian government agencies and state-owned companies should be aware that the public tender legislation and procurement procedures adopted in Ukraine are not transparent and subject to corruptive practices. The right choice of local partner/distributor and close cooperation with the Commercial Section of the U.S. Embassy from the very beginning of the project development is advisable to guarantee a successful implementation of security related projects. U.S. exporters should also be aware that export of some security items to Ukraine is subject to the export licensing by the U.S. Department of Commerce (see http://www.export.gov/)

The Marketplace for Communications Technology

Telecommunications and IT are important infrastructure sectors in Ukraine. The revival of the Ukrainian economy after 2000, as well as foreign and domestic investments in telecommunications made over the last 15 years, has brought marked changes to the Ukrainian telecom industry, particularly in mobile wireless and Internet. However, despite obvious improvements in telecom infrastructure, the lack of transparency and slow decision making in licensing and frequency allocation, corrupted procurement practices and continuing delays with the privatization of Ukrtelecom (the national telecom carrier), as well as ongoing disputes between Ukrtelecom and private telecom operators seriously hurt the development of the entire telecom industry.

Although private fixed line telecom providers are slowly overcoming Ukrtelecom's existing monopoly on the local loop infrastructure, their market shares are still too small to trigger major changes.

Mobile Telecommunications

The situation is different with mobile operators. As of November 1st, 2006 five Ukrainian GSM operators – UMC (owned by MTS), Kyivstar GSM (majority shareholder: Telenor), Astelit (majority shareholder: Turkcell, trade mark: Life), Golden Telecom GSM, and Ukrainian Radio Systems (majority shareholder: Vympelcom, trade mark: Beeline) were servicing over 41 million customers. Reportedly, two leading mobile operators, UMC and Kyivstar, had over 16 million and 18 million customers respectively, while other operators lagged far behind. According to industry sources, the structure of the mobile telecom market based on customer base looks as follows: Kyivstar- 44.5%, UMC - 41.6 %, Astelit - 11.5%, Ukrainian Radio Systems - 1.8%, others - 0.6%. The estimated value of the largest mobile carrier Kyivstar grew from $100 million at its launch in 1997, to $7 - 8 billion in late

2006. The market penetration for mobile communications is almost 90%. It should be noted though, that Ukrainian operators account their customers based on the number of activated SIM-cards not on the number of contracts. With this level of market penetration, growing competition and overwhelming dominance of the voice component in the mobile traffic, the numeric growth of the GSM customer base is no longer a priority, and mobile operators start considering new strategies to increase their revenues. Specifically, mobile operators report 100% annual growth in mobile content beginning from 2005.

In 2005, regulatory authorities in preparation for Ukrtelecom privatization issued Ukrtelecom a license for 3G (UMTS) mobile network deployment. However, the actual deployment of the pilot 3G networks in Kyiv scheduled for 2006 has been repeatedly postponed. This doesn't surprise experts since Ukrtelecom's financial performance is far from brilliant, and deploying full scale 3G networks, reportedly may require $ 0.5-1 billion in financing. Although four major mobile carriers (Kyiv Star, UMC, Astelit, Ukrainian Radiosystems) also expressed their interest to obtain 3G license and spectrum resource, their requests were declined in November 2006. Ukrainian company Telesystems of Ukraine announced an alternative 3G project based on CDMA2000 technology. This company has license and spectrum to deploy CDMA2000 network.

Industry experts view WiMAX as a provisional cost effective alternative to 3G. In November 2006 the Ukrainian government sold 30 regional WiMAX licenses for the total of $ 2.7 million. Three national licenses will be offered for sale later. Experts estimate that their cost may reach $ 10 million each.

Internet & Data Transfer

Internet services are one of the leading albeit small (in monetary terms) subsectors of the Ukrainian telecom industry. Reportedly, as of November 2006 there were close to 5 million Internet users in Ukraine. Unfortunately, the geographic distribution of Internet users is very uneven. Kiev, the capital accounts for over 50%, the share of six other big cities (Dnypropetryvsk, Odessa, Kharkyv, Lvyv, Donetsk, Zhaporyzhzhya) is over 30%, while the rest of the country accounts for only 20% of the total number of Internet users.
In November 2006 the total number of Ukrainian Internet domain names reached 237,280.

Late in 2005, the Ukrainian regulatory bodies took first steps towards liberalizing the IP telephony that has been stagnating after high cost of the operational license and actual lack of new licenses paralyzed this booming business back in 2001.
Wi-Fi and WiMAX are quickly gaining in popularity. Late in 2006 Intel Corp. and its Ukrainian partner "Ukrainian newest technologies" launched a pilot project in Kiev region connecting rural schools to Internet through WiMAX technology. If successful, this pilot project will expand to all 25 Ukrainian regional center cities. Currently more than 58% of Ukrainian schools have no Internet access, and 90% of those with access use dial-up connection.

The other trend that can boost Internet development in Ukraine is marketing Internet connectivity through digital cable TV networks. Thus, Volya Cable, the major Ukrainian cable TV operator that services over 600,000 residences in Kyiv and plans to expand into other regions, reports receiving 50% of its revenues from Internet related services.

The Marketplace for Digital Equipment & Systems

Computers & Peripherals

The exact size and structure of the Ukrainian computer hardware market is difficult to measure, since shadow local production and shadow imports of components remain among the key factors that determine the structure of the market. Industry insiders estimate the annual market demand (desktop systems, notebooks, servers x86) at 1.5 million units or $0.5-1 billion in monetary terms. Experts believe that the computer market grew 35-40% in 2006, and will grow further 20-25% in 2007, reaching 1.9 million units. Currently there are 7 computers per 100 people in Ukraine. Reportedly, due to the strong growth in notebooks sales, the share of desktop systems decreased from 85.6% of the total market in 2005 to 77.9% in 2006. Desktop PCs assembled in Ukraine currently account for more than 97% of the market. This ratio is different with notebooks where international brands (Acer, Asus, Dell, Samsung, Toshiba) account for 75% of the market, and servers, where local manufacturers and importers claim an equal share of the market. Computer manufacturers represent less than 10% of approximately 700 companies currently operating in the local computer market. Although there are dozens of small PC assemblers in Ukraine, only a small number (6-10) of companies with market share of 35% determine the profile of the local computer manufacturing industry. However, strong growth of the computer market in 2006, that experts attribute to growing network of computer retail stores, and many big manufacturers hadn't anticipated, increased the share of small assemblers that used this opportunity to expand their output. The main source of computer components and peripherals for Ukrainian assemblers is Asia.

An average PC price dropped 3-5% in 2006. Forty seven percent of the market belongs to PC priced below $400, forty two percent to PC priced at $400-600. The most popular are the PCs based on Pentium D processor and ATI Radeon X1600 Pro video adapter. This year customers' preferences moved to PCs with operational memory of 1064 MB.

Currently the market share of AMD processors is 36.2% while the share of Intel processors is 63.8%.

Electronic components

Several leading international electronic component manufacturers such as Jabil Circuit Inc., Yadzaki, Flextronic and Tyco Electronics have initiated major manufacturing projects in Ukraine. When implemented at full scale, these projects will turn Ukraine into one of the leading suppliers of electronic components to the European Union electronic industry.

Future Prospects in this Market

Issuance of WiMAX licenses and 3G licenses will create good business opportunities for U.S. suppliers of equipment for wireless networks especially in the local loop segment. Further promotion of Internet connectivity through digital TV cable networks will lead to huge growth in value-added services and legitimate software sales.

The local market offers evidence of a growing demand for high-tech antiterrorist equipment, which is not manufactured locally. It may be expected that government agencies such as customs, railroads, airlines, airports, state law enforcement agencies and private security companies will show a growing interest toward advanced surveillance and access control systems.

Ukraine is slowly turning into a manufacturing site for suppliers of electronic components servicing EU market.

Important USDOC Resources in this Market

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