INFORMATION AND TELECOMMUNICATIONS TECHNOLOGY
MARKET OPPORTUNITIES
FOR U. S. SMALL AND MEDIUM-SIZED BUSINESSES

EXPORT*IT* REPORT

SPAIN AND ITALY

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Export IT Report for Spain and Italy

INFORMATION AND COMMUNICATIONS TECHNOLOGIES (ICT)
AND ELECTRONIC COMMERCE
FOR SMALL AND MEDIUM-SIZED ENTERPRISES

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This report was written by international trade specialists from Information Technology Industries offices in the Trade Development unit of the U.S. Department of Commerce's International Trade Administration (ITA): Damon Greer and Jon Boyens of the Office of Information Technologies and Electronic Commerce, and Myles Denny-Brown of the Office of Telecommunications Technologies.

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Information on the Office of Information Technologies and Electronic Commerce and the Office of Telecommunications Technologies can be found at: http://www.export.gov/infotech

FOREWORD

This report describes and analyzes the trends, key issues, and events in information technology, telecommunications, Internet and e-commerce adoption in Spain and Italy, to create a framework from which U.S. small and medium-sized enterprises (SMEs) can make educated business decisions about entering these markets. The report analyzes the status of telecommunications liberalization, competition in telecommunications services and the deployment of new technologies, and how these changes are affecting the adoption of the Internet and e-commerce. It also analyzes the economic, cultural, and political factors influencing the adoption of information, Internet, and e-commerce technologies. The report highlights issues and market opportunities relevant to U.S. SMEs in the telecommunications, information technology (IT), and e-commerce areas. In addition, it provides suggested market entry strategies for SMEs, U.S. Department of Commerce and other resources to assist U.S. firms in market entry endeavors, and contacts in the United States, Spain and Italy.

The report is based on market research and analysis undertaken in Spain and Italy in September 2002 by international trade specialists from the Information Technology Industries unit of Trade Development within the Commerce Department's International Trade Administration (ITA): Damon Greer and Jon Boyens of the Office of Information Technologies and Electronic Commerce, and Myles Denny-Brown of the Office of Telecommunications Technologies. They interviewed software, Internet, and telecommunications equipment and services producers, trade associations, industry analysts, IT end-users, and government officials in Spain and Italy. The work was actively supported by market specialists in ITA's Commercial Service (US&FCS) in both countries. Information gathered from on-site interviews was supplemented with data from market research firms and an extensive review of available literature. The information in this report was accurate at the time of drafting in early 2003. A supplement to this report may be prepared at a later date to reflect new information.

TERMS AND ABBREVIATIONS

$	dollar figures cited in this report are U.S. dollars
€	Euro. The exchange rate used in this report is $1.14 = €1
2G	second generation (mobile communications)
2.5G	intermediate generation of mobile communications between 2G and 3G
3G	third generation (mobile communications)
ADSL	asymmetrical digital subscriber line
ARPU	average revenue per user
ASP	application service provider
ATM	asynchronous transfer mode
B2B	business-to-business e-commerce
B2C	business-to-consumer e-commerce
BTA	Agreement on Basic Telecommunications Services
CAGR	compound annual growth rate
CDMA	code division multiple access
CERT	computer emergency response team
CRM	customer relationship management
DSL	digital subscriber line
DTV	digital television
EC	European Commission
EDGE	enhanced data for GSM evolution
EDI	electronic data interchange
EIB	European Investment Bank
EMS	enhanced messaging service
ERP	enterprise resource planning
EU	European Union
FCC	Federal Communications Commission
G2B	government-to-business e-commerce
GATS	General Agreement on Trade in Services
GDP	gross domestic product
GPRS	general packet radio service
GPS	global positioning system
GSM	global system for mobile communications

ICT	Information and Communicatins Technologies
IDC	International Data Corporation
IP	Internet protocol
IPO	initial public offering
IP/VPN	Internet protocol-based virtual private network
ISA	industry sector analysis
ISDN	integrated services digital network
ISAC	Industry Sector Advisory Committee
ISP	Internet service provider
IT	information technology
ITA	Information Technology Agreement
ITU	International Telecommunication Union
ITV	interactive digital television
kbps	kilobits per second
LAN	local-area network
MMS	multimedia message service
MNC	multinational corporation
MVNO	mobile virtual network operator
NTDB	National Trade Data Bank
OECD	Organization for Economic Cooperation and Development
PC	personal computer
PDA	personal digital assistant
R&D	research and development
SCM	supply chain management
SI	systems integrator
SIM	subscriber identification module (as in smart cards)
SME	small and medium-sized enterprise
SMS	short message service
SOHO	small office, home office
TDMA	time division multiple access
UMTS	universal mobile telecommunications system

USEAC	U.S. Export Assistance Center
USTR	Office of the U.S. Trade Representative
VAT	value-added tax
VC	venture capitalist
VOIP	voice over Internet protocol
WAN	wide-area network
WAP	wireless application protocol
WLAN	wireless local-area network
WLL	wireless local loop
WTO	World Trade Organization

EXECUTIVE SUMMARY

Western Europe represents the world's second largest market for information and communications technologies (ICT) and services after North America. In 2002, the value of the ICT market in Western Europe totaled €625 billion. The region offers many opportunities for U.S. companies even though the ICT sector is currently in the midst of a slowdown due to the dot.com implosion in the United States. Italy and Spain, the fourth and fifth largest markets for ICT products, services, and technologies respectively, offer excellent opportunities for U.S. companies.

Economic growth remains stagnant with expectations for modest improvement by mid-2003. Economic forecasts do not expect any appreciable recovery before year's end. Lower corporate profitability and lack of confidence have led European companies to focus on cost savings instead of expansion. Overall, ICT spending is forecast to grow by 3.2 percent in 2003, 40 percent less than predicted two years ago. Other factors hamper ICT market growth in Western Europe. These include: 1) over-capacity in ICT; 2) after the dot.com bubble burst a critical re-examination of the benefits ICT brings to the enterprise, and 3) reassessment of the return on investment (ROI) before a firm approves any new investments in ICT.[1]

The economic slowdown in Western Europe lagged the U.S. decline by about six months. ICT investments experienced a rippling effect from the dot-com burst in the United States and industry representatives, government officials, and corporate executives believe that the ICT sector will not rebound until late 2003 or sometime in 2004.

Large enterprises are concentrating on back-office operations and will streamline them with customer relations management (CRM), supply-chain management (SCM), e-business, data storage, and IT security systems. Most mobile operators are deferring any further investments in wireless technologies until there is a clear business case for launching 3G or UMTS. New applications have not materialized as rapidly as thought, and those that have emerged do not offer the kind of advances and efficiencies that were expected. The high cost of 3G mobile devices and the disappointment with 2.5G (GPRS) have not resulted in much enthusiasm for a technology whose benefits have yet to be defined. New applications are seen in the data communications field as mobile technologies will offer Internet access, e-mail, and other e-business features that will enhance revenue for business users, who are the initial targets for 3G marketing.

Privatization and liberalization over the past decade in mobile and data communications, and wireline markets have introduced greater competition throughout the European Union. This development in turn has driven investments in leading-edge technologies, lowered many telecom-

[1]European Information Technology Observatory. *EITO Update October 2002*. p. 3.

munications costs and encouraged e-commerce development and Internet use. Nonetheless, competition in most EU countries' wireline markets including Spain and Italy remains limited because the telecommunications incumbents (which were recently privatized) still control more than 85 percent of their respective national markets. They remain the dominant providers of telecommunications services, including broadband services. This phenomenon has contributed to slower than expected Internet expansion and use. Internet penetration rates average 40 percent in the EU and less in Spain and Italy.

Electronic commerce is growing albeit at a rate less robust than in the United States. B2C e-commerce in Spain remains at less than one percent of consumer spending but its growth rate from 2000 to 2001 was an astounding 257 percent. Industry representatives and association executives expect that the economic slowdown will influence online consumer spending and growth will be minimal this year. B2B will experience a similar slowdown and despite ambitious plans of the governments in both Spain and Italy to encourage ICT technology diffusion via governmental policies to stimulate the information society, the private sector holds reservations about investing heavily in new Internet applications at this time.

For its part, the European Commission has worked assiduously to harmonize telecommunications, Internet, and e-commerce regulations throughout the EU to foster ICT convergence and trigger economic growth. A basket of initiatives including the eEurope initiative, E-Commerce and Digital Signatures Directives, among others, are expected to boost the region's ICT markets. National implementation of these directives is uneven, however, and Spain only recently implemented the E-commerce Directive with passage of its Law on the Information Society Services and Electronic Commerce (LSSI). This law features several controversial provisions that have led to legal action in Spanish courts by several privacy advocates and web site operators.

Additionally, governments in Spain and Italy are working via their information society blueprints to broaden Internet use in schools and rural communities, promote the use of broadband, and introduce ICT educational training programs to provide digital opportunities to those unexposed to the benefits of the digital age.

In Spain and Italy, there are many niche opportunities for U.S. small and medium-sized enterprises particularly with their counterparts in both countries. The slowdown in economic activity will require a longer term outlook for those enterprises expecting to broaden their markets in southern Europe. Growing competition, narrow profit margins from voice services, and the general economic contraction have led EU ICT providers to concentrate on business communications, broadband, and mobile data communications. These are areas where U.S. suppliers can make inroads with careful planning and cooperation with in-country partners.

Ultimately, U.S. companies will have to establish a local presence in order to successfully compete in Spain and Italy. The nature of the markets, culture, difference in size, and the market's fragmentation and distribution systems will demand careful planning and local support but the rewards could be worth the effort.

Chapter I. The European Union -- Overview of the Information and Telecommunications Market

1.1 Introduction

The European Union (EU), a political and economic community, was first established as the European Coal and Steel Community in 1950, when France officially proposed to create "the first concrete foundations of a European federation." Six countries (Belgium, Germany, France, Italy, Luxembourg, and the Netherlands) joined at that time. In 1958, it was converted into the European Economic Community (known as the Common Market). Today, after four waves of accessions (1973: Denmark, Ireland, and the United Kingdom; 1981: Greece; 1986: Spain and Portugal; 1995: Austria, Finland, and Sweden), the EU has 15 countries, commonly called "Member States": Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, and the United Kingdom.[1] Under the EU system, Member States delegate authority to common EU institutions representing the interests of the Union as a whole in many areas of joint interest. The European Commission, mentioned often in this report, is the EU's executive branch, initiating most EU legislation.[2]

The EU's 15 Member States will be the focus of this chapter. Internal tariffs no longer exist between EU countries and EU directives seek to harmonize rules governing information and communications technologies (ICT) industries, and establish EU-wide mandates that impact business practices in the ICT sector. First, this allows for data consistency when talking about "Western Europe," since much market data published on the region are aggregate data from the 15 EU countries. More importantly, the EU is unique in the world because of its trans-national character. As an institution and supranational structure, it influences the business and regulatory climates in its 15 member countries (including Spain and Italy) about which U.S. firms doing business in the region should be aware. Many of the IT, telecommunications, Internet, and e-commerce market trends in Western Europe described in this chapter stem from, or have been influenced by, policies and decisions made at the EU level. Individual countries' ICT market trends can be completely understood only in the context of the EU's policy efforts and actions to establish a comprehensive regulatory framework . Examples include broadband deployment, 3G licensing, laws regarding e-commerce and electronic signatures, and trends in IT spending, all detailed in this chapter. As a result, in addition to describing the overall Western European market for ICT, this chapter attempts to explain the link between these market trends and the EU where appropriate.

The United States and the EU enjoy a mature economic relationship characterized by massive two-way trade and by even more extensive two-way investment ($1.1 billion in 1999, according to the U.S. Department of Commerce office in Brussels). The EU and the United States are of similar size and weight. The EU's total population is 37 percent greater than, and its GDP is 15 percent less than, those of the United States.[3] Figure 1-1 on the following page illustrates the ICT presence in the EU.

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[1]The EU also is preparing for the accession of 13 eastern and southern European countries within the next 10 years.
[2]For more information on the EU's structure, visit: http://europa.eu/int or the U.S. Mission to the EU's site at: http://www.useu.be/AbouttheEU.htm.
[3]More information on the commercial climate is available in the EU Country Commercial Guide (CCG) published by the U.S. Mission to the EU, visit: http://www.usatrade.gov/Website/CCG.nsf/

Figure 1-1. EU ICT Profile in 2002

Population and GDP	Total Population GDP Per Capita	376 Million* $19,838
IT Market	IT Services IT Hardware & Software	$118.5 billion[2]
Personal Computers	Total Penetration Rate (per 100 pop.)	93.8 million* 25%
Telecommunications Market	Telecommunications Services Telecommunications Equipment	€238 billion €54 billion
Wireline Subscribers	Total Penetration Rate (per 100 pop.)	219 million* 56%*
Wireless Subscribers	Total Penetration Rate (per 100 pop.)	298 million 79%
Telecommunications Investment	Per Capita	$722
Cable TV	Total Subscribers Penetration Rate (per 100 pop.)	53 million* 12%
Internet	Total Subscribers Penetration Rate (per 100 pop.)	148 million 39%
E-Commerce	Total B2B and B2C	$154 billion

Sources: IDC, ITU, U.S. Department of Commerce, EITO 2003, TIA, Global Mobile, Kagan World Media*2000 Figure

RECENT ECONOMIC TRENDS

Western Europe's economic performance registered its second consecutive year of declining GDP growth in 2002. The EU entered the millennium with a 3.5 percent Compound Annual Growth Rate (CAGR) in 2000. It closed 2002 with a 1.1 percent growth rate (0.9% for the euro area). In 2003, the European Commission projects a 1% growth rate for the euro area and about 1.3 percent for the EU overall.[4] Several reasons explain the economy's persistent weakened condition. Structural rigidity in the EU reduced its capacity to adapt to falling stock prices, investment shortfalls, rising unemployment, and the uncertainty surrounding geo-political tensions in the Middle East. Inflationary fears mounted as oil prices climbed at the onset of the Iraq war and the loss of household wealth further dampened economic performance and thus weakened consumer demand. The U.S. economic downturn and ensuing recession led to reduced U.S. consumer demand for European products which has spread across the EU's economy. Unemployment stood at 8.7% at year's end and is expected to level off at 8.8% in 2003.[5] The cessation of hostilities in Iraq and the ensuing stability and drop in oil prices could contribute to a rise in consumer confidence which may lead to a resurgent economy by late 2003 or early 2004. However, lingering fear of terrorists' threats continues to perpetuate a sense of uncertainty and insecurity in the region that has contributed to a shortfall of capital investment and consumption. The current exchange rate of the euro against the dollar has added pressures to the economy at a time EU consumer demand is low and competition from cheaper U.S. products could forestall economic recovery this year.

The EC anticipates moderate economic growth in the second half of 2003. Jobs creation, investment growth and a stabilized international climate will contribute to renewed growth in the EU in 2004 that will achieve a 2.2-2.4% CAGR.[6] The labor market remains unsteady with another 100,000 jobs expected to be lost in 2003. This result brings the total number of workers unemployed in 2002-2003 to 1.4 million.[7]

TECHNOLOGY ADOPTION IS GROWING RAPIDLY...

Western Europe has the world's second largest regional market for ICT equipment and services, after that of North America, and the EU market is growing rapidly. Western Europe's total market for IT and telecommunications products and services in 2002 was i576.1 billion, according to IDC (IT figures) and the European Information Technology Observatory (telecommunications services).[8]

Much has changed over the past few years to spur increasing technology adoption in the region. Telecommunications services and related infrastructure markets have been liberalized, resulting in lower prices to consumers and businesses, improved service, and greater Internet penetration. Countries that had considered the use of the Internet and e-commerce to be uniquely U.S. phenomena have grasped their importance to efficiency and productivity, and are adopting them rapidly. In fact, use of the Internet and e-commerce has become part of daily life in Western Europe. Households are buying computers, connecting to the Internet, and engaging in e-commerce. Organizations are investing in many of the leading-edge networking, Internet, and e-commerce hardware and software technologies used by their

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[4]European Commission, Directorate General of Economic and Financial Affairs. "Spring 2003 Economic Forecasts." Pg. 1.
[5]Ibid., pg. 3
[6]Ibid., pg. 4
[7]Ibid.
[8]IDC Worldwide Black Book, April 2003; European Information Technology Observatory: 2003, March 2003.

U.S. counterparts, including intranets and extranets, data and network management applications and services, enterprise software, mobile communications, broadband, and IT security. To be competitive in the world economy, the European Commission and governments of the EU Member States are encouraging and helping their citizens and industries to invest in IT and telecommunications in general, and the Internet and e-commerce in particular.

But Technology use varies throughout the region

Although many of these technology trends hold true for all of Western Europe, substantial differences exist between individual countries' markets. The region is one of contrasts in patterns of IT and telecommunications spending and use. Generally speaking, Western Europe's more northern countries tend to be the region's most technology-savvy, due in part to their higher standards of living and per capita GDP. In terms of many key technology indicators, the leaders of the region are in Scandinavia. Sweden, Denmark, and Finland spend more than 0.4 percent of their GDP on ICT, according to the annual report of the European Information Technology Observatory, *EITO 2002*.[9] Wireline telephone, PC, Internet, and mobile phone penetration rates in Scandinavia are substantially higher than in the rest of Western Europe (the one exception being Italy, where the mobile phone penetration rate is on a par with Scandinavia). In fact, the Scandinavian countries have higher Internet penetration rates than the United States and have been early adopters of some of the most innovative uses of the Internet. Finnish consumers, for example, can use mobile phones to beam orders to vending machines, with the transaction charged to their phone bills.

Countries in the heartland of Western Europe (Germany, the United Kingdom, France, Belgium, the Netherlands, and Luxembourg) also have relatively high PC and Internet penetration rates, and their mobile phone usage has grown phenomenally in the past few years. *EITO 2002* reports that these countries spend between 0.25 percent and 0.35 percent of their GDPs on ICT. Germany, the United Kingdom, and France in particular provide some of the greatest opportunities for many U.S. technology vendors, given their advances in telecommunications liberalization, relatively large markets, and their receptivity to technology. These countries are Western Europe's top three markets in general, as well as for leading-edge technologies. Their ICT markets combined represent nearly two thirds of Western Europe's total market.

Southern Europe (Italy, Spain, Portugal, and Greece) lag in ICT adoption. These countries, along with Ireland, spend between 0.18 percent to 0.21 percent of GDP on ICT, according to *EITO 2002*. The PC penetration rates of Spain and Italy, 14 and 21 percent in 2000, respectively, were less than half those of the Scandinavian countries, which have PC penetration rates between 40 and 50 percent (Figure 1-2). Italy aside, mobile phone penetration rates in the South, though higher than in the United States, are lower than in the rest of Western Europe. Even wireline telephone service is not as prevalent.

Nonetheless, markets in southern Europe have the fastest growth rates in the region. Mobile Internet access is expected to have much potential in Spain and Italy, where Internet access via PC and fixed telephone lines is not available to many people. Italy and Spain are particularly strong markets for wireless technologies, and many people believe they will leapfrog PC-based e-commerce and move

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[9]European Information Technology Observatory, *EITO 2002*, Frankfurt, March 2002.

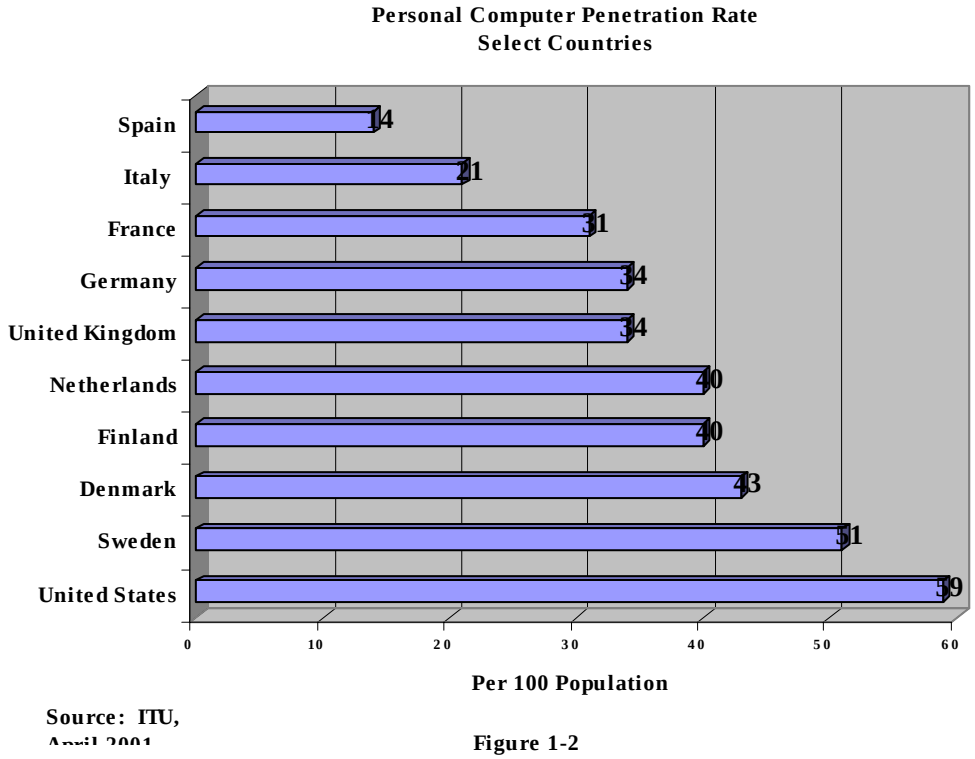


Figure 1-2

directly to mobile commerce. Italy in particular is a rapid adopter of new technologies. It has quickly adopted wireless devices– it went from almost last place to among the top EU countries in terms of mobile phone usage in only two years– and other new technologies such as video-on-demand. The telecommunications markets of Portugal and Greece are expected to be stimulated by the liberalization of basic wireline telecommunications services in these countries at the beginning of 2002. ICT spending in Greece is expected to get a further boost in the next few years, as the Greek government invests in ICT technologies to support the 2004 Olympic games.

MANY TECHNOLOGY TRENDS DIFFER FROM THOSE IN THE UNITED STATES

Not only do Western Europe's ICT infrastructure and usage differ internally, but many trends differ from those in the United States. Western Europe is ahead of the United States in terms of mobile phone and mobile data communications penetration, but lags the United States in PC penetration. On a related note, the United States leads the world in Internet access via PCs, but Europe has a greater penetration of interactive platforms via digital TV (DTV).[10] Many Europeans prefer smart cards to credit cards which are not as widely used in the EU as in the United States. Smart cards have embedded computer chips allowing access and use of pre-loaded balances. Online banking is much more popular in Western Europe than in the United States. The Linux operating system was adopted earlier, and is used more widely in Europe than in the United States, reportedly because Europeans take pride in its European origins (it was invented in Finland). More European than U.S. websites tend to be multilingual.

[10]Digital television (DTV) is the transmission of television signals using digital rather than conventional analog methods. Common transmission methods include satellite, cable, and terrestrial. DTV is received either through digital television sets or via set-top boxes which convert a digital signal to analog so that an analog television can display digital programs.

1.2 Information Technology

Western Europe has the second largest regional market for information technology products and services, second only to North America (Figure 1-3). Western Europe's IT market– including computer hardware, software, and IT services– was valued at $247.8 billion in 2002, representing more than one-quarter of the global IT market, according to IDC.[11] IT services, valued at $110 billion, account for more than 44 percent of the region's total IT market. Computer hardware, including local-area- and wide-area-networking (LAN and WAN) equipment, was $85.2 billion or 34 percent of the market. The software market's share was approximately 21 percent and was valued at $52.5 billion (Figure 1-4).

Global Information Technology Market by Region -- 2002

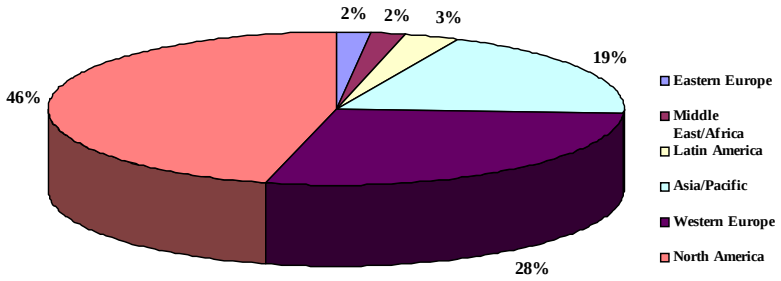


Figure 1-3

Total: $851.6 Billion
Source: IDC, April 2003 Black Book

Germany, the United Kingdom, and France account for the bulk of Western Europe's IT market (Figure 1-5). However, despite the small size of the IT markets in Italy, Spain, Portugal, and Greece (their combined value accounted for only 14 percent of Western Europe's total IT market in 2002)[12] some of the EU's fastest CAGR for IT spending are expected to occur in southern Europe through 2006. Thus, this region could provide tremendous opportunities for U.S. IT suppliers. IDC predicts Italy's CAGR will be 6.7 percent, Spain's 9.2 percent, Greece's 8.7 percent, and Portugal's 8.8 percent from 2001-2006, all above the Western Europe CAGR average of 6.9 percent.[13]

The large size of Western Europe's total IT market notwithstanding, the region is still behind the United States in the usage of many types of technologies. Depending on the country, Western Europe is six months to two years behind the United States in IT investments, particularly in leading-edge technologies such as Internet and e-commerce solutions. IT spending per capita in Western Europe averaged $755 in 2002, slightly more than half of that in the United States ($1,414), according to *EITO 2003*. This figure indicates plenty of room for expansion in Western Europe's IT market.

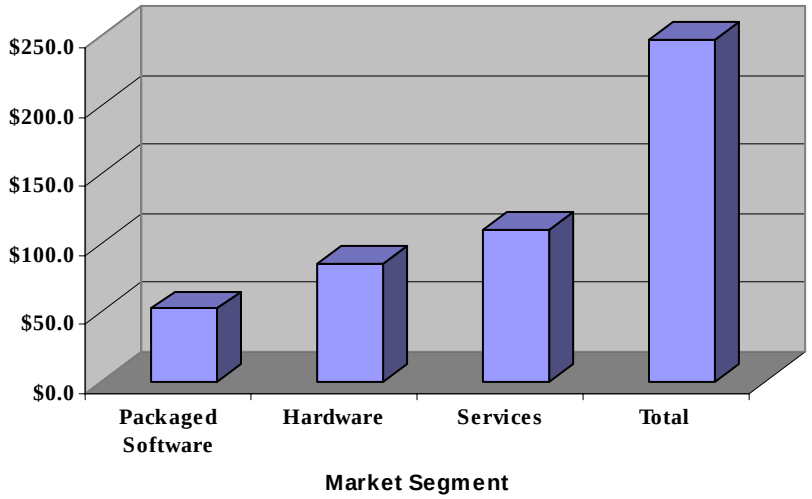
Pent-up demand for IT

Several factors have hampered IT spending in the past decade in Europe, and as these impediments disappear, spending is expected to grow rapidly as firms and other organizations try to make up for lost time. One factor was the 1990s move toward EU economic integration. Some EU economies, particularly the smaller or less-developed ones, went through in-depth structural changes during the last

[11]This figure represents the combined IT markets of all 15 EU member states except Luxembourg. IDC's IT figures include computer hardware (including local are network [LAN] and wide-area network [WAN] equipment), packaged software, and IT services.
[12]European Information Technology Observatory. *EITO 2003*., p. 396
[13]IDC. April 2003 Black Book.

decade as they integrated into the EU "Single Market."[14] In these countries, many larger firms had more pressing concerns than IT spending– such as forming and managing mergers and acquisitions necessary to reach the minimum size required to survive, much less compete, within the Single Market. Another factor has been the adoption of the euro, a common currency, in 2002. In the 12 EU countries adopting the euro, much IT spending from the late 1990s through 2001 had to be allocated to preparing IT systems, both internal and external, for financial transactions in the new currency. Even organizations in European countries not adopting the euro, such as the United Kingdom, had to invest in technologies related to euro-based transactions due to their strong financial ties to countries in the euro-zone. In addition to these two unique factors, much IT spending in the late 1990s in Europe had to be allocated to upgrading computer systems in preparation for Y2K, as in the United States.

European Union Information Technology Market -- 2002
Figure 1-4



To varying degrees and in various Western European countries, the above factors caused postponement of spending on many other IT priorities (many European firms upgraded their computers and related systems during Y2K remediation). As a result, many European firms and government agencies have a huge pent-up demand for information technologies they could not purchase for many years, and they are eager to spend in these neglected areas and modernize their technology systems.

THE ECONOMY HAS AFFECTED IT SPENDING

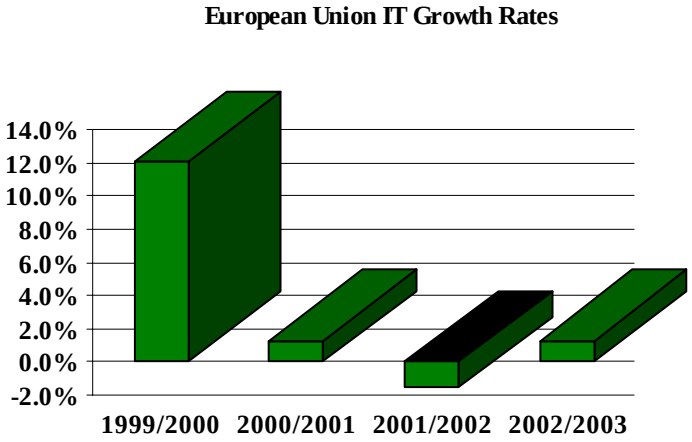
Western Europe's economic slowdown has affected its IT sector. IT budgets have tightened, as European businesses have become much more careful about their IT procurements, adopting a cautious, deliberate approach to investments. U.S. and other IT suppliers of all sizes report that selling into the market has become much more challenging. Although large European IT services firms have not been hit as hard as the telecommunications operators (described later in this chapter), in late 2001, they had share prices that were off as much as 60 percent from their peaks, and are under pressure to revamp their strategies. The slowdown in IT market growth in 2002 was continued across Europe, according to

[14]In 1989, the EU (then called the European Economic Community) recognized that its integration efforts were not moving quickly enough. In response, it launched the Internal Market program, which aimed to accelerate the creation of a more integrated economic community by 1992. The Internal Market program consisted of 190 directives to remove barriers to trade between Member States. Most of these have been in effect since 1992, but the EU continues to work toward further integration.

EITO 2003. Scandinavia and Germany were more adversely affected by the economic slowdown, recording declines in growth, while southern European countries recorded modest gains.

Western Europe's demand for information, Internet, and e-commerce technologies has mirrored the region's economic performance but is expected to rebound relatively quickly showing moderate growth in the latter half of 2003 into 2004. Key niche markets such as mobile data transmission technologies and IT security are expected to witness respectable gains especially with the heightened interest in cyber security and the concomitant concerns emanating from the Iraq war. Figure 1-5 reflects the economic picture in the European Union. *EITO 2003* predicts that the 2003/2004 growth rate will rise to 3.7 percent.

The economic slowdown has caused four key spending trends, both generally and on IT, particularly among large European companies. First, large European firms are realigning IT purchases. IT outlays are being more tightly linked to supporting core business operations and focusing on IT projects that are based on measurable cost saving and service improvements. Firms are carefully reviewing their installed applications and in many cases not renewing licenses for applications they do not use, nor are they upgrading hardware and software as rapidly as in the past. They are assessing current IT projects to concentrate on those projected to provide the highest returns. Concurrently, firms are forgoing IT projects they may have undertaken as recently as a year ago that are not clearly related to their bottom lines. For example, spending on areas such as content management or certain e-commerce technologies is being deferred. Companies also are consolidating their data storage facilities. Second, firms are avoiding high risk IT projects. Many firms are willing to engage only in measurable, low-risk projects, and are putting more emphasis on procuring IT products and services from long-standing or trustworthy suppliers. Third, firms are devoting more spending to developing e-business strategies, which they have realized are critical to leverage new e-business technologies. Industry representatives state that many firms are willing to spend money on the technologies necessary to support these e-business strategies, but, due to budgetary constraints, the emphasis is on maximizing such spending by buying proven technologies likely to remain in use for a long time. Finally, firms are outsourcing business processes



Source: EITO 2003 and IDC
Figure 1-5

that do not fall under their core competencies, and as these processes go, technologies that support them go as well.

General trends in IT spending

Generally speaking, IT investments in Western Europe are similar to patterns in the United States. As in the United States, many European firms and other organizations are purchasing technologies to increase their competitiveness and efficiency, and software and services are leading their investments. As would be expected, smaller European firms are much less advanced than their larger brethren in technology purchases.

Software and related services are driving Western Europe's IT market. IDC reported last year that some particular technologies postponed in recent years were customer relationship management (CRM), analytics, and collaborative technologies. Now, large European firms are spending on more advanced areas such as these, as well as supply chain management (SCM), and e-business. Notably, telecommunications operators are investing rapidly in CRM to attract and retain customers. Many European firms are investing capital to integrate their enterprise applications to streamline their front- and back-office operations and cut costs.

Information systems security will be an important element of IT investment and for many firms has become a mandatory budget item. A major driver in growing IT security spending is European organizations' increasing reliance on the Internet and external networks. Further, growing use of data-intensive solutions and new business models including e-business and supply chain management have made the use, preservation, and protection of data critical to many firms' bottom lines. Rising use of mobile applications and mobile transactions is propelling demand for technologies to secure mobile devices. In addition, there has been a surge in interest in new efforts to secure, and, in particular, back up data. Many businesses who saw how New York City firms with offices destroyed on September 11, 2001, returned to relatively normal operations a few days later thanks to remote network management products and redundant systems.

Larger firms also are increasingly worried about security breaches. Smaller European firms, hit by an increasing number of viruses in recent years, are increasing their investments in firewalls and similar technologies. Certain industries lead in IT security spending, namely those already relatively heavy users of IT or that rely on automated external relationships.

The growing cost and complexity of networks is driving a surge in IT consulting and outsourcing among European firms, particularly the larger ones. Systems integration expenditures are rising. Internet hosting is a high-growth area, and hosted data storage is expected to be a large market in the future.

In 2002, computer hardware was the IT sector most severely affected by the economic slowdown. Many European organizations deferred investments in nonessential hardware upgrades and large projects, according to *EITO 2003*. PC sales were hit by weak consumer demand and falling corporate investments, which more than offset rising demand for PCs from European SMEs. Nonetheless, some hardware segments are faring better. For example, investments in higher-end computers have shown some increases. And although server sales had been depressed, particularly as many European

organizations delayed replacing servers they already owned, the server market still will stablize in late 2003 and see slight improvements in 2004.

Demand for LAN equipment will grow by approximately 7.5 percent in Western Europe in 2003, according to IDC. *EITO 2002* reports that European organizations are purchasing LAN equipment to achieve greater bandwidth, to maximize their use of e-commerce, and to achieve remote network connectivity. Many organizations are investing in new equipment to standardize their LAN infrastructure to the Internet protocol (IP), moving away from older communications protocols such as ATM and frame relay. This trend is expected to continue as firms seek ways to cut costs.

There is growing investment in mobile devices, including wireless LANs (WLANs). Firms are investing in personal digital assistants (PDAs) and other handheld devices to improve their workers' productivity and efficiency. According to IDC, 2.8 million handhelds were shipped in Western Europe in 2001, up from 2.7 million in 2000.[15] Current spending on mobile devices is most concentrated in Europe's manufacturing, telecommunications, and utilities industries. Mobile computing is expected to be a key long-term opportunity in Europe, driven by the current low PC penetration rate and wireless developments.

SMEs are increasing IT spending

Small and medium-sized European companies (SMEs)[16] make up the vast majority of European firms. Western Europe has more than 19 million SMEs, and SMEs make up more than 99 percent of the total number of businesses in most EU Member States, according to the European Commission.

Although smaller European firms lag behind large EU enterprises in IT usage, they slowly are becoming more sophisticated in this regard. IDC reports that within many smaller European firms, IT decision-making is shifting from owners to staffs, and IT adoption is becoming more strategic (related to business processes) as well. SMEs in selected industries are using the Internet to integrate their procurement chains and are catching up in the areas of IT security. Investments in new LANs by SMEs is growing, as smaller firms want to develop internal connectivity. Some smaller firms are beginning to invest in basic CRM software and integrated logistics systems. However, supply chain management and other more advanced integrated technologies are not used very widely among European SMEs.

SMEs' IT usage is expected to get a boost from governments across Europe which are eager to help these smaller firms catch up in technology adoption. In fact, under the European Commission's 2001 "Helping SMEs Go Digital" initiative,[17] part of *eEurope* (detailed at the end of this chapter), the EU and Member State governments are providing SMEs with i1.4 billion[18] ($1.2 billion) in financial support for investments in hardware, software, training, and introduction of Internet and e-business practices.[19]

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[15]IDC includes two product categories under "smart handholds": 1) Pen or keypad-centric handheld devices designed to access and manage data; these items have wireless capabilities enabling Internet access, text messaging, and voice communications; 2) Pen or keypad-based, more rugged "vertical application devices" designed to fit the specific needs of vertical industries, such as protection against the elements or accidental damage. These devices are based on mobile operating systems and processors.
[16]SMEs in the European Union are defined as having 250 or less employees as opposed to the U.S. which defines an SME as having 500 or fewer workers.
[17] "*eEurope Go Digital*," Communication from the Commission to the Council, the European Parliament, the Economic and Social Committee and the Committee of the Regions, Brussels, March 13, 2001. See pp. 46-48 for description of *e*Europe.
[18]Ibid., See http://europa.eu.int/ISPO/ecommerce/godigital/Welcome.html
[19]1 Euro = $1.17

Further, the European Commission aims to promote better use of Structural Funding (also detailed at the end of this chapter) to promote e-business by European SMEs.

IT SPENDING IN VERTICAL MARKETS

IDC reports that, due to various pressures, the largest and fastest growing vertical markets for IT spending in Western Europe are banking and financial services, governments, business services, and telecommunications. These sectors' 2001-2002 IT spending growth rates all are at or above 8 percent.

BANKING AND FINANCIAL SERVICES LEAD IN IT INVESTMENTS

According to IDC, banking and financial services is the biggest and fastest growing vertical market consumer of IT in Western Europe. Banks and financial institutions are investing in IT to streamline their internal processes and lower their costs. Many of these institutions face increased credit risks, due in part to loans they provided to telecommunications operators to invest in 3G licenses, as well as lower margins on some of their services. Further, as this sector becomes increasingly competitive, institutions need to differentiate themselves from their competitors. To this end, banks are integrating their back-office functions with CRM solutions to personalize users' experiences, as well as investing in front office and marketing tools, according to IDC. Institutions also need technologies to enhance their corporate and risk management systems per new EU requirements under the Basle II directive (see text box for a description of the EU directives).

European banks also continue to invest rapidly in technologies to optimize and reduce the costs of online banking, which is extremely popular in Europe. In fact, 27 percent of European online consumers use online banking services regularly, compared to 14 percent of online consumers in the United States, according to a 2001 AOL Europe/Roper Starch Cyberstudy.[20] IDC reports that many banks are investing in solutions to convert branches to self-service centers. IT security and business continuity are major IT spending areas in this vertical market, where ensuring private and secure financial transactions as well as continuity of business functions in the event of an emergency are critical.

European Union Directives *are legal instruments which bind Member States as to the objectives to be achieved within a certain time-limit while leaving the national authorities the choice of form and means to be used. Directives have to be implemented in national legislation in accordance with the procedures of the individual Member States. Normally, the implementation period ranges from 15 months to three years. The European Commission may take legal action against a Member State that fails to implement an EU directive by the stipulated deadline. Directives are the most frequently used legislative tool to initiate regulatory policies for information and communications technologies, the Internet, and electronic commerce within Member States. For more information on EU law, see www.europa.eu.int/eur-lex/en/.*

EUROPEAN GOVERNMENTS ARE GETTING THEMSELVES ONLINE

Governments in Western Europe have been very conservative in their IT usage and innovation in general, and levels of IT usage vary by country. Finland reportedly leads in the sophistication of its online government services, while governments in France, Germany, Italy, the Netherlands, and the

[20]AOL Press Release. "First AOL Europe/Roper Starch Cyberstudy Shows Explosive Growth in European Internet and E-Commerce." May 10, 2001.

United Kingdom lag behind many other EU countries in this area. Regardless of degree of sophistication, fully transactional business-to-government (B2G) services in EU Member States are rare, according to *EITO 2002*, which reported that the only online government service available in a majority of EU countries is online VAT payment.[21]

European governments in all countries are eager to expand their range of online service offerings, and B2G services are expected to expand dramatically in the region. Although many governments had already begun to invest in online technologies on their own, they also are being pushed by the European Commission to do so more aggressively. Under its *eEurope* initiative, the European Commission set a 2005 deadline for governments in the EU to automate many of their processes and make many of their services, for both businesses and consumers, available over the Internet.

As a result of these internal and external pressures, government agencies in the region at all levels will spend considerable resources over the coming years to upgrade their IT infrastructures, secure their networks, and improve their Internet usage to interact with their businesses and citizens. IDC estimates that in 2000 the European public sector spent approximately 6 percent or $1.3 billion of the region's total IT services spending on e-government. E-government spending is expected to reach 12 percent of the region's total IT services spending in 2005, or $4 billion, representing a 26 percent CAGR over the five-year period.[22]

IDC predicted that particular technologies in demand would be ERP (enterprise resource planning) and back-office automation, e-procurement, Internet-based self-service technologies, web portals, and networking technologies to connect traditionally disparate agencies. IT security will also be a key investment not only because of government information, but also because governments are under heavy pressure to provide examples of online security to the private sector.[23] As in the United States, the e-government rollout in Western Europe will drive increased B2B and B2C e-commerce in the region, as people become more comfortable with and accustomed to online transactions with government bodies.

Business services firms need to be competitive

As mentioned above, during the economic downturn, many larger European firms have been outsourcing more and more of their noncritical operations in an effort to cut costs and focus on their core com-petencies. IDC reports that European services firms that compete to perform these outsourced tasks must increase their use of IT to cut their own costs and increase efficiency.

Telecommunications operators need various information technologies

As detailed in the telecommunications section later in this chapter, European telecommunications operators currently are struggling under growing competition, falling profit margins from basic voice services, and the slowdown in the EU's telecommunications markets. As a result, operators are eager to invest in IT solutions that ultimately can help them cut costs and acquire and retain customers.

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[21]Nine countries (Denmark, Finland, France, Greece, Ireland, Norway, Portugal, Spain, and the United Kingdom) have a complete online service for VAT declaration.
[22]IDC press release, November 29, 2001.
[23]Ibid.

In the highly competitive telecommunications environment, personalization is of paramount importance. According to recent analysis by IDC, many European operators already have invested in CRM and now look to leverage the data in these solutions to service and retain their customers. Investments are high in analytical and business intelligence tools such as data mining and customer service systems that can be used to up-sell and cross-sell services. Solutions to support personalized services such as online access to telephone bills and account details are in demand, as are those related to marketing, project management and implementation, and advanced billing (particularly for mobile data services). Operators are investing in IT security to protect their own systems as well as to be able to provide secure networks to their customers.

IT SUPPLIERS TO THE REGION

European firms are not especially competitive in the IT industry with notable exceptions such as Germany's Siemens (computer hardware) and SAP (computer software), and French software services firms Cap Gemini and others.[24] Generally speaking, the EU's IT markets are dominated by U.S. suppliers. U.S. exports of IT products to the 15 EU countries remained relatively steady in 1999 and 2000, averaging $7.2 billion. However, exports fell 12 percent in 2001 to $6.3 billion, due to the slowdown in the European economy.[25]

The dominant position of many U.S. IT firms notwithstanding, local software and Internet industries, comprised mainly of smaller firms, have become increasing competitive in many EU countries over the past few years. Local software companies tend to focus on niche or specialized areas, such as those requiring country-specific expertise (i.e., tax software). Although many Internet and e-commerce start-ups, including "dot.coms," have gone out of business as Europe's Internet bubble burst and as European economies have slowed, numerous small technology companies have remained successful, and new ones are emerging daily. In particular, Internet firms from Germany, the United Kingdom, and France are considered to be very competitive in both their home and each other's markets. Nonetheless, industry representatives point out that EU software firms, particularly those offering Internet and e-commerce solutions and services, still are at a disadvantage vis-à-vis their U.S. counterparts. U.S. firms are considered to have an edge due to their experience in the larger, more mature, and more homogeneous U.S. market, in which they can more easily and quickly market new ideas—and gain experience. Because of this perceived edge, many small software and Internet firms in Europe are eager to partner with U.S. companies to gain the latter's technological and marketing expertise.

[24]Several of the major Western European IT hardware suppliers are either owned now by Japanese firms or act as significant original equipment manufacturers (OEMs) for them. Examples are Siemens and Bull of France. ICL of the U.K. is Japanese-owned.

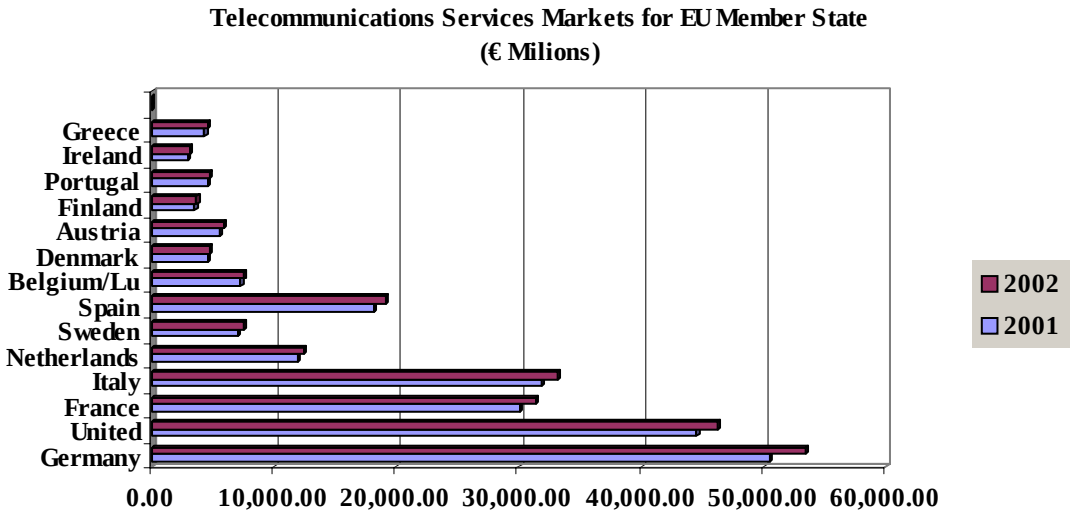
[25]U.S. Department of Commerce. Trade data include computer hardware and LAN equipment; they do not include software. The data understates U.S. firms' position in the European Union because many U.S. companies' plants are located outside the U.S.

1.3 TELECOMMUNICATIONS

SECOND LARGEST REGIONAL TELECOMMUNICATIONS MARKET

The European Union's telecommunications market, like its IT market, is the second largest regional market globally, after that of North America. The total value of the 15 EU countries' telecommunications services markets was i237.6 billion in 2002, according to *EITO 2003*. The bulk (46 percent) of the market in the EU during 2001 was basic wireline (including voice, Internet, and online) services,[26] while 42 percent was wireless (mobile) services. The remainder of the market was accounted for by switched data and leased line services (7 percent) and cable TV services (5 percent). In order, the region's largest telecommunications services markets were Germany, the United Kingdom, Italy, and France. (Figure 1-6).

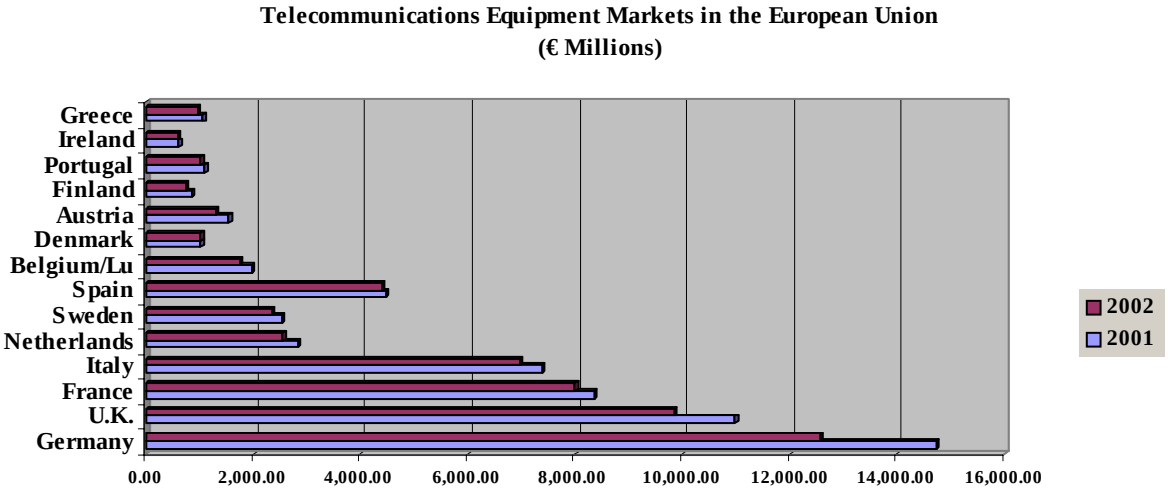
The EU telecommunications equipment market was valued at €54.1 billion in 2002, according to *EITO 2003*. Seventy-eight percent of the equipment market was wireless, due primarily to mobile telephone sets. In order, Germany, the United Kingdom, France, and Italy were the region's largest markets for telecommunications equipment in 2002 (Figure 1-7).



Source: EITO 2003

Figure 1-6

[26]Wireline telecommunications services are also commonly called "fixed line" because they are provided by fixed (not mobile) networks.



Source: EITO 2003

Figure 1-7

GROWTH MODERATING IN TELECOMMUNICATIONS SERVICES

Despite considerable turbulence, the telecommunications services market in the European Union proved to be more resistent to the global economic slowdown during 2001 than the information technology sector. The number of bankruptcies of new entrants has declined in the region during 2002, but smaller telecommunications firms continue to consolidate. The value of the telecommunications services increased by 9.7 percent in 2001, and expanded another 4.8 percent in 2002. The growth rate appears to be leveling off at 4.5 percent during 2003, according to *EITO 2003*. The growth is driven by the emergence of new value-added services, new mobile data services, and accelerating deployment of high-speed Internet access technologies such as DSL and cable modems, further details on which are in the following sections of this chapter.

EQUIPMENT EXPENDITURE DECLINES, LEVELS OFF

The value of the EU market for telecommunications equipment decreased by 7 percent in 2001 and a further 9 percent in 2002. It is expected to level off at €54.2 billion in 2003, virtually the same value as in 2002, according to *EITO 2003*. The bulk (76 percent) of the decline in expenditure on telecommunications equipment in 2002 was in wireless equipment, but expenditure on wireless equipment is expected by EITO 2003 to increase by 2.6 percent in 2003. The primary reason for the decline in spending on wireless equipment was a 27 percent decrease in equpenditure on cellular communications infrastructure to €7 billion in 2002, but spending on cellular infrastructure is expected by *EITO 2003* to increase by more than 4 percent in 2003. The value of the EU market for wireline equipment declined 4 percent in 2002 and is expected to decrease another 2 percent in 2003. Despite this gloomy outlook for equipment expenditures, there are subsectors that will grow in 2003 and beyond,

driven by ongoing investment in broadband and wireless Internet access, as described later in this chapter.

U.S. exports of telecommunications equipment to the 15 EU countries in 2002 were valued at $3.5 billion, a decline of 30 percent from $5.0 billion in 2001. This decline is even sharper than the 9 percent decline of the EU market for telecommunication equipment during 2002, due perhaps to the dollar's strength against the euro during most of 2002.[27]

Liberalization facilitates competition

In 1998, the EU liberalized regulations for basic wireline telecommunications services to allow competition. To this end, it adopted two new laws, the Telecommunications Services Directive and the Open Network Provisions Directive. These two directives both apply to wireline telecommunications service and related infrastructure, and they were implemented by all EU Member States except except Spain and four others by January 1, 1998.[28]

By 2002, all EU Member States had liberalized their basic wireline telecommunications markets and established a pro-competitive regulatory regime, although levels of competition vary widely by country. Telecommunications regulatory authorities, separate from telecommunications operators, have been established in all countries. Where competition has succeeded, primarily in long-distance and international wireline services, telcommunications prices have dropped, innovative services have multiplied, and a new focus on quality of service has emerged.

Despite liberalization, significant impediments to effective competition remain in EU telecommunications markets. This has been due in part to the uneven nature of the new national regulatory authorities' responsiveness to, and effectiveness vis-a-vis, incumbent telecommunications operators, which use their dominant market position to impede their competitors' business. This is the primary reason that local loop unbundling has progressed very slowly and incumbent operators continue to dominate local markets for both telephone services and dial-up Internet access. Incumbent telecommunications operators' foot-dragging has also delayed broadband deployment, which is just beginning to take off. Broadband deployment using DSL took off only after incumbents were pressed by the European Commission and Member States to deliver high-speed Internet access, and when the incumbents recognized that they faced competition from cable modems in providing broadband access. New entrants are beginning to win support of the European Commission for their efforts to overcome the incumbents' abuse of their dominant position to delay local telecommunications competition, including high-speed Internet access.

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[27]Export data are from the U.S. Department of Commerce. The value of U.S. telecommunications exports to the EU vastly understates U.S. firms' competitiveness in the region because they show only exports from the United States to the EU. Global telecommunications equipment manufacturers frequently supply the European market from manufacturing plants outside the United States, but these figures are not included in U.S. export data.

[28]The complete title of the Telecommunications Services Directive is Directive 96/19/EC of 13 March 1996 amending Directive 90/388/EEC with regard to the implementation of full competition in telecommunications markets. See http://www.europa.eu.it/comm/competition/ for the complete text.

INCUMBENTS STILL DOMINATE WIRELINE TELECOMMUNICATIONS SERVICES

Competition in most EU wireline telecommunications markets has succeeded only in long-distance and international services.[29] Even though most telecommunications operators have been wholly or partially privatized in recent years, they continue to dominate their domestic markets for basic telecommunications services, especially in local markets. In 2001, incumbents (e.g., Spain's Telefónica, Deutsche Telekom AG—DTAG, France Télécom—FT, and Telecom Italia) had the following shares of the public wireline voice telephony market in terms of retail revenues: 89 percent of local calls, 74 percent of long-distrance calls, and 68 percent of international calls, according to the European Commission.[30]

EU incumbent operators are parlaying their market presence into dominance in Internet service provision. As in the United States, numerous new ISPs entered European markets in the late 1990s. However, many small ISPs have gone bankrupt or consolidated in recent years, and this trend has been accelerated by falling share prices and the economic slowdown. Although numerous small ISPs still serve niche markets in the EU, most Europeans connect to the Internet via incumbent telecommunications operators' subsidiary ISPs, such as DTAG's T-Online and FT's Wanadoo. T-Online is the largest ISP in Europe and Wanadoo is the largest ISP in the United Kingdom as well as in France. Incumbents are translating their ISP market share into successful Internet portals, becoming formidable competitors to U.S. portals such as Yahoo!, AOL, and Lycos which used first-mover advantages to create pan-European operations before the Internet caught on in the region. Portals such as DTAG's T-Online.de, FT's Wanadoo.fr, and British Telecom's Openworld, which are leaders in their home countries, are becoming more aggressive in the pan-European market.

Although the EU wireline telecommunications services market is dominated by large local players, a significant number of foreign firms have gained a foothold there. MCI (formerly WorldCom) and AOL/Time Warner (AOL/TW), for example, are active in most of the region, the former providing network access and an array of value-added services such as leased lines and data hosting to businesses. AOL/TW is the only major foreign ISP active in Europe, offering primarily dial-up Internet access as it does in the United States. However, despite the presence of AOL/TW's flagship online service in over ten European countries, especially Germany, France, and the United Kingdom, AOL/TW usually places a distant second behind the ISP affiliated with the incumbent telecommunications operator. Smaller telecommunications operators, both from Europe and elsewhere, have had some success competing in the region, particularly on a pan-European basis. In addition, some small local telecommunications operators and ISPs serve limited geographic regions, such as cities or individual countries.

CONSOLIDATION OF TELECOM OPERATORS

During the bubble of the late 1990s and 2000, EU telecommunications operators focused on building their networks or acquiring other networks, as well as rapidly implementing new technologies. Many European telecommunications operators invested heavily in fiber optics, competing to lay fiber optic cables connecting cities throughout the region, as well as between Europe and other parts of the

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[29]Long-distance and international competition has progressed much more rapidly in Europe than it did in the United States after the divestiture of AT&T in 1984. Local competition has developed more slowly, as it has inthe United States, due in part to the huge investments required. The European Commission and Member State regulators have investigated incumbents for anti-competitive behavior periodically and have the power to fine them or sue them before the European Court of Justice.

[30]European Commission. *Eighth Report from the Commission on the Implementation of the Telecommunications Regulatory Package,* Brussels, December 3, 2002, p. 16.

world. Operators also invested heavily in DSL, wireless local loop (WLL), mobile, and other access technologies. In a rush to compete, operators reportedly focused on sales and revenue growth rather than profit margins. Additionally, market liberalization in the region in the late 1990s ushered in a flood of new telecommunications operators and ISPs.

Many firms have been hard hit by the economic slowdown and contraction of demand for telecommunications services. As the market has contracted, demand for bandwidth has dried up, and oversupply has left a glut of cheap country-to-country optical fiber transmission lines in Europe, both lit and unlit. Because of falling demand and oversupply, many of the new telecommunications operators from the late 1990s have left the market or merged with other competitive operators. Now, retrenchment and consolidation have become the norm. Even Incumbent operators retrenched, cutting their investments and service offerings or merged with other operators. It is unclear how long recovery in Europe's telecommunications sector may take, but many observers expect recovery to start in the fall of 2003. It is still unclear whether or when mobile operators will be able to recoup their expenditures for 3G licenses. As operators resume investments in their networks, equipment suppliers will stand to benefit from a resumption of growth.

Internet penetration

European awareness of the Internet has risen substantially, bringing many more people online. In 2002, 169 million Europeans used the Internet, or 44 percent of the population, according to *EITO 2003*. The EU currently trails the United States in the adoption of the Internet, but it is closing the gap quickly. The U.S. Internet penetration rate per capita of 72 percent,[31] exceeded that of the EU by 2002, when the absolute number of Internet users in the United States reached 190 million according to *EITO 2003*. IDC predicts the EU's Internet usage to have a CAGR of 16 percent from 2000 to 2005, compared to 11 percent in the United States during the same period.

Seventy-two percent of Internet users in the EU currently access the Internet over ordinary telephone lines. Such narrowband Internet usage is discouraged by the time-sensitive charges of most European telecommunications operators for dial-up Internet access. Since 2000, telecommunications regulators in seven key EU countries (France, Germany, Italy, Netherlands, Portugal, Spain and the United Kingdom) have introduced regulations requiring incumbent telecommunications operators to offer flat-rate interconnection to ISPs so that they may offer flat-rate ("unmetered") dial-up access to their retail Internet subscribers. The principal regulatory model for doing so is known as "flat-rate Internet access call origination" (FRIACO), which was first adopted by the United Kingdom.

Following its decision to require the British incumbent to offer FRIACO in May 2000, the telecommunications regulator in the United Kingdom required in February 2001 that FRIACO be provided at the incumbent's regional switches rather than at local switches.[32] This allows new entrants to offer flat-rate services by removing the obligation for them to invest in the capacity to reach local exchanges. Progress towards flat-rate Internet access in other Member States has been slower than in the United Kingdom. The European Commission stated in its November 2002 report, "flat-rate

[31]National Users' Association. "Internet use climbing in most markets" Ipsos-Reid, December 11, 2002.
[32]European Commission, *Eighth Report from the Commission on the Implementation of the Telecommunications Regulatory Package*, pp. 21-22.

interconnection must be offered to new entrants on a non-discriminatory basis by incumbents where they offer their own flat rate narrowband for Internet access."[33]

Three Main Drivers of Growth

Growing competition, falling profit margins from basic voice services, and the slowdown of growth in the EU's telecommunications markets have forced European telecommunications operators to focus on three main areas of growth, namely business communications, broadband, and mobile communications.

First Driver: Business Communications

As economies have slowed and profit margins from basic services have fallen, major operators in Europe, including European as well as U.S.-headquartered firms are increasing their emphasis on moving up the value chain to business communications services. The most successful business communications are value-added services for business, including bandwidth provisioning, managed data networks, web and data hosting, and other managed network services. Concurrently, European corporations have been increasing their use of intranets and extranets for valued-added telecommunications services as they connect their networks to the outside world and increase their reliance on these external connections. The EU market for switched data and leased line services increased by 12 percent in 2001 and 14 percent in 2002, when it reached a value of €17.6 billion, according to *EITO 2003*, which also predicts that this growth rate will accelerate to 16 percent in 2003 and 2004.

In recent years, leased line usage has grown rapidly as prices have fallen, and leased lines have become the most commonly used access mode for data networks of large and medium-sized European businesses. This trend is due in part to pressure from the EC, which has repeatedly stressed that the timely and efficient availability of a range of leased lines at cost-oriented prices is necessary for the development of effective competition, especially of high-speed Internet access. Recently, national regulatory authorities have been more successful in decreasing the prices for incmbents' international leased lines than for national (especially local) leased lines. Since late 2001, the EC has also urged significant improvements in the delivery time and quality of service associated with the leased lines of many EU incumbent operators.[34]

Nevertheless, industry experts predict that leased line usage will decline in the EU over the next five years as Internet Protocol-based virtual private networks (IP/VPNs) based on DSL become more popular. Some medium-sized and large European companies are reportedly already moving from leased lines to IP/VPNs to save money. In response to this demand, the rollout of IP/VPN services is gaining momentum as global and pan-European operators launch a wide range of IP/VPN services throughout the EU. Incumbent operators mainly target the large European firms, so there is a good opportunity to sell into the largely untapped SME market.

[33]Ibid., p. 21.
[34]Ibid., pp. 32-34.

SECOND DRIVER: BROADBAND[35]

The EU broadband market is still booming, but not at the torrid pace of 2001, when the number of broadband subscribers in the region more than tripled.[36] The number of broadband Internet connections[37] in the EU increased 85 percent during 2002, reaching a level of 10.7 million subscribers, and this number is expected to increase another 63 percent during 2003, according to *EITO 2003*. Nevertheless, broadband penetration in the EU still lags far behind the United States, where there were 33.6 million subscribers to broadband Internet access by the end of 2002.[38] Because competition in the provision of broadband Internet access was phased in at different speeds in various EU Member States, broadband penetration rates vary widely in the EU. The top six EU Member States in terms of the number of broadband subscribers in 2002 were: The Netherlands, Germany, Belgium, France, Spain, and Italy as noted in Figure 1-8.

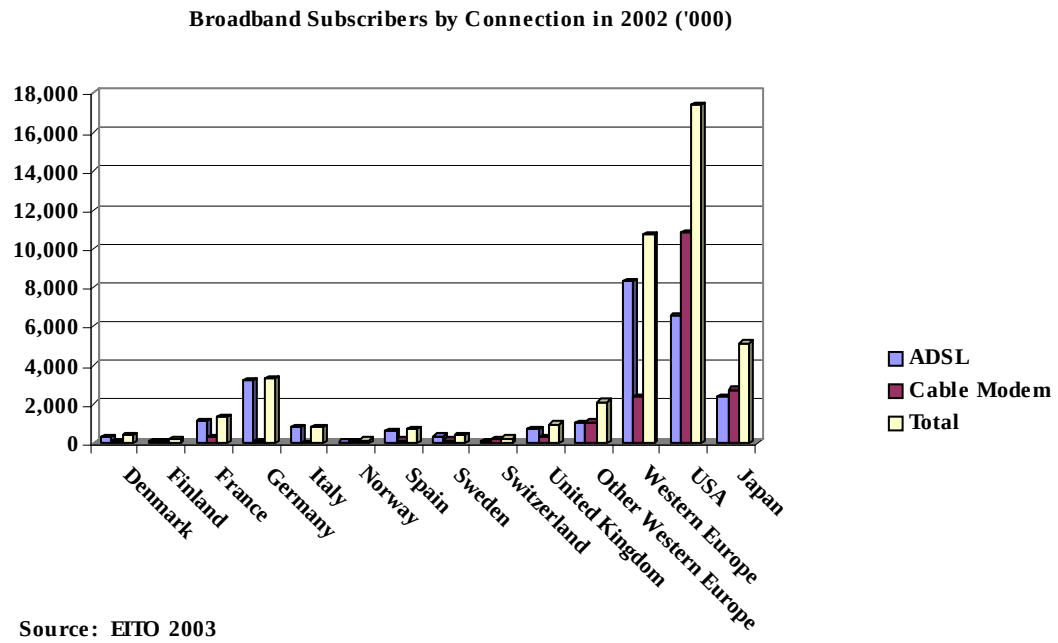

Figure 1-8

Note: Other Western Europe includes Turkey

The EU lags the United States in broadband deployment due to insufficient competition, especially before the year 2000. Incumbent telecommunications operators started to roll out DSL commercially in 2000, when they recognized that they could otherwise lose their dial-up Internet customers to the cable TV operators. Until recently, most cable TV operators in the EU were owned by the incumbent telecommunications operators. These incumbents had little incentive to upgrade their networks for high-speed Internet access by cable modems However, by 2000, most incumbents recognized that the European Commission and Member States expected them to divest themselves of their cable TV networks which

[35]Broadband definitions vary widely. The EC's broadband figures are based on the definition of the OECD. The OECD uses the term high-speed, or broadband, for those services with a downstream data transfer rate of at least 256 kilobits per second (Kbps) and an upstream data transfer rate of at least 64 Kbps, which includes ADSL.

[36]Kagan World Media, as cited in TIA, *2003 Telecommunications Market Review and Forecast*, p. 222.

[37]EITO counts the two leading kinds of broadband, ADSL and cable modems.

[38]*Nielsen/Net Ratings*, as cited in Communications Update, 1/21/03.

provide one of the few available platforms for competition with the incumbents in providing local telecommunications services, including broadband Internet access.

DSL DEPLOYMENT

Due to their desire to exploit first mover advantage, most incumbents in the region have rolled out DSL (primarily asymmetrical, or ADSL)[39] as rapidly as they could since 2000. Since that time, incumbents have dominated the supply of ADSL, in which they currently have a 78 percent market share in the region. This is because competitors did not have access to the incumbents' local loops until very recently, preventing the former from offering their own DSL. The surge in DSL rollout caused DSL to overtake cable modems in 2001 as the most common broadband access technology in the EU, according to the European Commission (EC). During 2002, the number of ADSL users increased by 93 percent, substantially faster than the number of cable modem users, which increased by 62 percent, but the two broadband platforms are expected to grow at about the same rate of 60 percent during 2003, according to *EITO 2003*. However, the penetration of each technology varies widely by individual country.

In an attempt to accelerate DSL deployment, the EU issued the Local Loop Unbundling Regulation, which mandated that such unbundling occur in all Member States by January 1, 2001.[40] However, local loop unbundling has not been nearly as successful in the EU as many governments had hoped. Incumbents have succeeded in stalling the unbundling process, and national regulatory authorities' actions against them have been inconsistent across Member States. Only 17 percent of the 1,656,700 DSL subscriber lines provided by competitive providers over public networks in the EU were fully unbundled as of August 2002. The majority of new entrants' DSL lines (53 percent) were simple resale of the incumbent's DSL, 29 percent used bitstream access, and the remaining 2 percent used shared access to customers' lines.[41] Since February 2002, in response to long-standing complaints by competitive operators, the EC has taken infringement proceedings against France, Germany, Ireland, the Netherlands, and Portugal for failing to establish and enforce adequate regulatory frameworks for local loop unbundling in their countries.

European Regulations are one of three mechanisms used in the European Union to regulate various common activities. As with directives, a regulation is binding and once approved by the EU, regulations apply to Member States immediately, unlike Directives which must be enacted by national legislation.

Another factor slowing competition in DSL provision has been excessive wholesale pricing by incumbent operators for unbundling and ADSL, respectively. The French consulting firm, IDATE, reported in March 2002 that retail ADSL prices charged by European incumbents were in most cases below the wholesale prices incumbents charged their competitors for access to the unbundled lines. The EC has accused the incumbent wireline operators in France and Germany of predatory pricing for access

[39]ADSL is asymmetrical in that its download speed is slower than its upload speed.
[40]Regulation 2887/2000 of the European Parliament and the Council of 18 December 2000 on unbundled access to the local loop, OJ L 336, 30/12/2000, p. 4.
[41]EC, *Eighth Report from the Commission on the Implementation of the Telecommunications Regulatory Package*, p. 30.

by competitors to their ADSL since late 2001. The European Commission recently announced a fine of of €12.6 million against DTAG for anti-competitive wholesale pricing for access to its local loop, where it still has a 95 percent market share. The EC position on this issue is that "vertically integrated operators like DTAG must indeed fix their retail prices at a level sufficiently above the wholesale prices so as to allow new entrants to compete."[42]

Other broadband access technologies

Although DSL is the leading platform for broadband Internet access in the EU, accounting for 70 percent of the 10.8 million broadband connections, as of August 2002, cable modems offer significant competition, accounting for most other broadband connections (28 percent). Moreover, 92 percent of cable modem service is provided by new entrants and only 8 percent by incumbent telecommunications operators. The remaining 2 percent of broadband connections are provided using several other technologies: wireless local loop (WLL) technologies,[43] fiber optical cable, leased lines and satellite connections. The majority of these alternative platforms are provided by the incumbent telecommunications operators.[44]

As in the United States, after an initial surge of interest in WLL technology, excitement about the prospects for this technology has abated in the EU. Some WLL service providers that had expanded aggressively in the regions, have all but abandoned plans for the European market or gone bankrupt. Nonetheless, WLL seems likely to continue to have a market niche in some EU countries, but with a smaller, more precisely defined target market. Leased lines and fiber optic cable also have a significant share of the EU market for broadband Internet access, particularly for business users. Another broadband platform used in the EU is satellites. Satellites are viewed by the British government as a way of providing broadband access to users in remote areas not readily accessible by DSL or cable TV, as is done in Italy already.

An existing medium which many analysts believe has great potential in some European countries is digital TV-based interactive services (ITV). In fact, 19 percent of EU households had ITV in 2002, substantially above their market share in the United States.[45] The research firm Jupiter MMXI predicts that the number of households with broadband access to the Internet via DTV will increase from the current level of 30 million to 86 million by 2006.[46] However, ITV penetration rates vary considerably by country in the EU and will probably continue to do so. The four EU Member States with the highest number of ITV households are: the United Kingdom, France, Spain, and Italy, according to the EC. The United Kingdom is the world's most advanced market for digital TV, and its use of DTV-based interactive services is very strong.

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[42] "EU Fines DTAG: Anti-Competitive Behavior re Local Loop Access," EU press release of May 21, 2003.

[43]Wireless local loop, also known as fixed wireless access, uses radio signals as a substitute for the wireline local loop to connect the end-user to the switches of the telecommunications network.

[44]European Commission, *The Eighth Report on the Implementation of the Telecommunications Regulatory Package*, December 3, 2002. p.30.

[45]EC, *Telecommunications Regulatory Package -- 8th Implementation Report -- Annex II*, November 2002, p. 74.

[46]As cited in *"Europeans Tuning in to Digital TV,"* eMarketer, August 1, 2002.

BROADBAND'S FUTURE

Broadband use by both residential and business (mostly SME) sectors is expected to become much more widespread in the EU over the next five years as competition increases, and providers offer various technology platforms to access the local loop. This trend is driven in part by a concerted effort of the European Commission to increase this competition (detailed in the *eEurope* discussion near the end of this chapter), leading to an increase in the diversity of broadband services available to choose from and decreases in prices for the services offered.

One indication of the success of the European Commission's recent efforts to promote broadband competition through such steps as reductions in wholesale prices for DSL is provided by recent developments in the United Kingdom. According to press reports, there has been a tremendous surge in demand for DSL in the United Kingdom since the incumbent telecommunications operator cut wholesale rates for DSL by about 50 percent in April 2002. The number of broadband subscribers surged from 300,000 to 1.6 million in the United Kingdom in the year ending December 31, 2002, nearly equally divided between cable modems and DSL, according to Strategy Analytics, which reports that this increases the U.K. broadband penetration rate to 6 percent, the second highest in the EU after Germany.[47] IDC predicts that the EU will have more than 50 million broadband Internet connections by 2005, at which point the broadband market will generate $15 billion in annual revenues.

However, broadband in the EU will only contiue to grow if the demand for it continues to grow. The two most important factors driving the mass market demand for broadband uptake in the EU are continued growth in narrowband Internet penetration (dial-up access) and the need for "killer applications." Some industry sources believe that because fewer Europeans than Americans use dial-up Internet access, Europeans are not as aware of what the Internet has to offer and thus do not see the need for broadband Internet service. However, the trend towards flat-rate narrowband access to the Internet in the EU, described earlier, is likely to increase the use of dial-up Internet access there. Another factor was revealed by a recent European Commission study, which found that consumers are not yet willing to pay a premium for broadband. There currently is no "killer application" to convince the majority of European consumers they need broadband.[48]

THIRD DRIVER: MOBILE COMMUNICATIONS

The European Union has the world's highest mobile penetration rate — 79 percent as of March 2003, according to Global Mobile (Figure 1-9). The region's mobile penetration rate is far ahead of that of the United States, which did not reach 50 percent until early 2003.[49] The EU has had more mobile than fixed (wireline) telephone lines since 2000, and the revenue from mobile communications is expected to exceed the revenue from fixed communications in the EU by this year. As with many other technology indicators, mobile phone penetration rates and usage vary widely by country. It is generally assumed that the mobile phone subscriber penetration rate in the EU cannot go much beyond 80 -85 percent, known as the saturation point. However, the number of mobile subscribers increased by 8 percent during the year ending in March 2003, and industry observers point out that a number of users have more than one mobile phone — one for personal use, one for overseas travel, one PDA, etc.

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[47]CIT Publications. *"U.K. Soars to Second Place in Broadband Europe."* Communications Today, February 5, 2003.
[48]CyberAtlas, *"Broadband Lacks a European Audience."* February 5, 2002.
[49]Global Mobile. *"Western Europe: Subscriber Count:" and "Western Europe: Regions adds 5.1 million subs in 1Q03, nears 80% penetration,"* May 21, 2003, ppp. 7, 14.

Figure 1-9
European Union's Mobile Penetration Rate

Country	Number of Users ('000)	Penetration Rate (%)	Yearly Growth Rate (%)
Austria	6,732	82	5
Belgium	7,590	74	6
Denmark	4,385	82	21
Finland	4,494	87	5
France	37,092	62	8
Germany	57,966	70	8
Greece	9,748	92	30
Ireland	3,129	81	5
Italy	52,967	92	5
Luxembourg	458	102	9
Netherlands	11,858	74	0
Portugal	9,322	92	10
Spain	34,005	85	14
Sweden	8,168	92	10
United Kingdom	50,245	84	9
EU 15	298,159	79	8

Source: Global Mobile, March 2003

Consequently, most mobile operators inflate their subscriber data by counting every mobile subscription as though it were a separate subscriber, and counting every occasional prepaid user (who account for some 70 percent of "subscribers" in the EU) as though the user had a monthly subscription contract. This explains why the mobile penetration rate already exceeds 100 percent in Luxembourg.

Many analysts attribute the early and rapid uptake of mobile phones in the EU largely to the economies of scale resulting from the adoption of a single, mandatory standard throughout the EU for second-generation (2G) mobile communications.[50] In 1987, all European stakeholders agreed on one standard for the system of digital mobile telephony that is currently deployed throughout Europe and most of the

[50]The European Union and Member States play a larger role in developing telecommunications standards than does the United States government in the U.S. economy. Market-driven forces dominated 2G development in the United States, allowing networks to use different standards from each other.

world, known as the Global System for Mobile communications (GSM). This standard was required by the European Commission and EU Member States in order to assure total compatibility of mobile phones and infrastructure throughout the EU, allowing users to roam from one country to another with uninterrupted service.[51] Another reason for GSM's success is the use in Europe of a calling-party pays system, which contrasts with the receiving-party pays system used in the United States. The calling-party system helped allay EU mobile phone users' initial concerns about paying for both calls received and calls initiated. Finally, calls from mobile-to-mobile are cheaper than fixed-to-mobile in Europe because of telecommunications rate structures that cross-subsidize mobile communications operators from the revenues of fixed operators.

Incumbent telecommunications operators in the EU do not dominate their home markets for mobile communications as much as they do for wireline telecommunications. For example, DTAG controls only 41 percent of the German mobile market, while its principal rival, Vodafone, controls 39 percent. There has been considerable consolidation of mobile operators in the EU since 1999, in order to take advantage of economies of scale, making Vodafone of the United Kingdom and Orange of France the largest two regional operators. With the takeover of Germany's Mannesmann in 1999, Vodafone became the number one mobile operator in the world, in terms of the number of subscribers. As a result of the acquisition by France Télécom (FT) of the United Kingdom's Orange in 2000, the wireless division of FT has been renamed as Orange.

Mobile operators in Europe face various challenges. In addition to the slowdown in growth due to the general economic downturn and tightening financial markets, as well as the challenges of rolling out new 3G networks, mobile operators face cuts in two revenue streams they have long enjoyed. Regulators are beginning to decrease mobile operators' charges for terminating calls from wireline networks, because these charges unfairly discriminate against wireline operators. Such charges now account for 20-25 percent of mobile operators' average revenue per user (ARPU) in 2002, according to ECTA.[52] Further, in April 2002, the European Commission started to take action against a number of mobile operators for their high roaming fees, which ECTA reports comprise another 5-15 percent of their ARPU in 2002. These steps to regulate mobile operators' rates are new in the EU, where mobile communi-cations have been exempt from the kind of strict regulation faced by wireline operators ever since competition was introduced into mobile communications in 1995. The rationale for regulating mobile operators' rates is the growing recognition in Member States, such as France, that their mobile communications market is not fully competitive, because certain mobile operators have significant market power.

MOBILE DATA COMMUNICATIONS

Industry analysts believe that the mobile phone market in the EU is approaching saturation, because of the sharp slowdown in subscriber penetration growth rates since 2000. As a result, mobile operators' focus has shifted from gaining new subscribers and market share to retaining current customers and increasing average revenue per user (ARPU). They seek to reach these goals by intro-ducing new mobile data communications services and by increasing their costs to increase operational efficiency. Mobile data communications has accounted for a small share of mobile operators' revenues

[51]In the first generation of mobile communications in the EU, there were eight standards. Now GSM is the most widely used mobile communications standard, accounting for about 70 percent of mobile subscribers in the world.
[52]ECTA, *"State of the European Telecommunications Market."*

for some time, because this market is currently driven largely by consumers, whose expenditures on such services are relatively low. Nevertheless, operators hope to increase their earnings from business clients by introducing new data communications services such as mobile access to corporate networks and e-mail with attachments.

There is a great deal of uncertainty on how fast mobile data communications will take off in the EU. Many operators are banking on rapid growth over the short to medium term in mobile data. Mobile access to the web, based on the wireless access protocol (WAP) over GSM networks was launched throughout the European Union with great fanfare in the beginning of 1999. However, people were disappointed by WAP's high prices, slow speed, and the low quality of its content. Early versions of WAP were unsuccessful in Europe. Nonetheless, other mobile Internet access technologies are expected to benefit from the lessons learned from WAP and succeed in a region where PC penetration is not as great as in the United States (where the Internet has been a PC-centric platform).

SMS NOW, MMS IN THE FUTURE?

An indicator of this potential is the explosion of short message services (SMS)[53] over GSM networks in the EU, particularly among teenagers, since 1999. SMS in the region has benefitted from interoperability between all European GSM operators and the high mobile penetration rate. According to Frost & Sullivan, by April 2002, European mobile operators earned more than 10 percent of their total revenues from SMS services.[54] Frost & Sullivan further reported that European operators supported an average of 186 billion messages per year, and it predicts this will rise to 265 billion messages per year by 2006. SMS allows the downloading of weather or stock updates from a WAP site using GSM phones with a plug-in subscriber identification module (SIM) card,[55] which have embedded micro-browsers that function like a PC web browser. SIM cards can also enable secure payments for m-commerce. M-commerce is discussed in the e-commerce section of this chapter.

To capitalize on the popularity of SMS, some operators and handset manufacturers have begun to invest in developing enhanced, or "next-generation" SMS technologies. There is also a growing interest in developing m-commerce over SMS to generate additional revenue. Content owners, too, seek to cash in on the success of SMS-based services. By December 2002, twenty European operators had launched multimedia digital pictures with MMS-enabled phones, using GPRS networks. The rollout of MMS was delayed by a lack of suitable handsets, but color screen phones with integrated cameras have been available since the second half of 2002. However, MMS's takeoff will be slow until mobile operators achieve full interoperability of MMS so that subscribers can send multimedia messages to subscribers on different networks using different manufacturers' handsets.[56]

Nevertheless, the more advanced mobile data technologies are expected to get off to a much slower start in Europe than had been anticipated. Only 5.8 percent of EU citizens surveyed in 2002 reported they use their mobile phones to connect to the Internet, according to *eMarketer*. Europeans' disappointing experience with WAP, based largely on overinflated expectations, has led to consumer skepticism

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[53]SMS is a wireless service for sending text messages up to 160 characters to GSM mobile phones. SMS is similar to paging, but does not require the receiving mobile phone to be on; messages are stored for a number of days until the phone is activated.
[54]*"Europe's SMS Love Affair Set to Continue Through 2004,"* Frost & Sullivan Press Release, March 12, 2002.
[55]SIM cards are removable smart cards developed specifically for mobile phone use and are already deployed with GSM phones in Western Europe.
[56]WMRC, *"Western Europe Mobile Market Outlook 2002-2007: 3G Risks for Operators,"* Telecommunications Sector Analysis, January 10, 2003, p. 10.

towards the faster speeds promised with new mobile services. Until mobile applications with enough proven features, speed, or high-quality content to drive demand come on the market, this skepticism is likely to remain. At the same time, some content providers in Europe have reportedly curtailed, at least for the near future, their investments in mobile Internet technologies due primarily to the negative experience with WAP.

A Big Push Toward 3G Licensing

In 2000, in a plan coordinated by the European Commission, Member States began granting licenses for spectrum to offer third generation wireless services, known as 3G.[57] During 2000-2002, a total of 66 licenses for 3G wireless were granted in every EU Member State. Eight Member States used auctions to distribute licenses, and six used traditional "beauty contests," whereby licenses were awarded based on discretionary administrative decisions of the national regulatory authorities. The other Member State, Italy, used a hybrid process that was part beauty contest and part auction. As a result of these differing approaches, licensing conditions for 3G roll-out and coverage vary considerably between the Member States.

The EC urged all Member States to license spectrum to operators for 3G networks by January 1, 2001, in order to give European operators a first-to-market advantage globally. Because of unexpected difficulties encountered in early 3G licensing, several Member States (such as France) delayed licensing until after this deadline. Recognizing that neither the industry nor the market was ready in 2000, the French telecommunications regulatory authority postponed 3G licensing in France until April 2001.

At the European Commission's request, the European Telecommunications Standards Institute developed its own standard for 3G wireless, wideband CDMA (known as WCDMA). 3G networks using the WCDMA standard are known as the Universal Mobile Telecommunications System (UMTS). WCDMA was subsequently adopted as one of five standards for 3G wireless communications. Although national regulatory authorities have allowed all but one licensee in each Member State to choose other international standards, as requested by the EC, all 3G licensees in the EU have chosen to have their 3G systems comply with the standard for UMTS.[58]

Auction expense & lack of handsets

The launch of the highly touted and much anticipated 3G has been delayed in Europe for various reasons. In some countries, operators spent so much money acquiring licenses that they had difficulty financing infrastructure construction in time to meet the schedules required under their licenses, a problem which was further compounded by the tightening of capital markets due to the current economic slowdown. Operators have already spent $102 billion to acquire 3G licenses in the EU (Figure 1-10).

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[57]Based on the Internet protocol, 3G phones are intended to provide high-speed Internet access, allowing images such as video to be displayed on handheld devices. Theoretically, 3G data transmission speeds are expected to reach at least 384 Kbps.

[58]In contrast, 3G deployment in the United States is expected to be based on either one of two ITU standards: WCDMA or CDMA-IX.

EU Member States: 3G Licensing Practices			
Country	**Method**	**# of Licenses**	**Amount Raised ($Millions)**
Austria	Auction	6	$690
Belgium	Auction	3	$416
Denmark	Auction	4	$473
Finland	B.C.	4	Nominal
France	B.C.*	2	$1,620
Germany	Auction	6	$46,894
Greece	Auction	3	$418
Ireland	B.C.	3	$145
Italy	Auction	5	$10,100
Lusembourg	B.C.	3	Nominal
Netherlands	Auction	5	$2,529
Portugal	B.C.	4	$339
Spain	B.C.	4	$520
Sweden	B.C.	4	Nominal
U.K.	Auction	5	$33,941

Figure 1-10

Source: Kagan World Media, 2002 and U.S. Embassy reporting
*B.C. = Beauty Contest

In countries which licensed 3G operators in early 2000, namely the United Kingdom, Germany, and Italy, operators were still convinced of huge profits to be made from 3G and paid an average of $441 per capita for the right to offer 3G services, compared to an average of $65 per capita in the 28 other countries around the world that have awarded 3G licenses according to a *Business Week* article.[59] Although the price paid during the following year for licenses by operators in other countries decreased substantially, many other operators also paid what now are considered excessive prices for licenses in the EU.

The rosy predictions of an exploding market for 3G, upon which operators based their decisions to acquire licenses, have disappeared as industry participants realize the monetary and technical limitations to launching 3G. WMRC forecasts that the total revenue from 3G services in the EU will be only $90 billion between 2003 and 2007.[60] As a result of these conditions, industry representatives expect industry consolidation to continue, and EU Member States have encouraged 3G licensees to share certain infrastructure, facilitating a 30-40 percent decrease in the cost of 3G network buildout. Despite requirements for 3G to be launched during 2002 in such countries as Sweden and the United Kingdom, 3G was not launched until the first quarter of 2003, and then only in the United Kingdom and Italy.

[59]Business Week. *"Searching for Enrons,"* February 25, 2002.

Observers blame various parties for creating a situation where many operators are so burdened by debt that their ability to build 3G networks is now called into question. Some industry observers have stated that the European Commission, eager to leverage Europe's competitive advantage in mobile communications to a comparative advantage in mobile Internet, pushed the Member States to grant licenses before the industry or market were ready. Other industry representatives fault Member State governments, who viewed licensing as an opportunity to gain revenues at the expense of the industry's long-term health , especially for those governments that chose to use auctions.

Another leading cause of the delay in 3G rollout is that most manufacturers underestimated the complexity of delivering 3G handset technologies. Until recently, current 3G handsets reportedly operated at a fraction of the speed originally promoted by manufacturers, and although they were designed for new services such as e-mail and digital photo transmission, their capabilities reportedly fell short of expectations. Due to various technological glitches, new 3G handsets were not ready to be mass marketed until more than a year behind schedule. Some EU countries have already postponed their 3G launch requirements, attributing the change primarily to the lack of 3G handsets. The only manufacturers that have delivered 3G handsets for the two 3G networks in operation commercially in the EU (both of which are affiliated with Hutchison and Whampoa) are Motorola and NEC. It is too soon to judge whether their performance is really at 3G levels or not.[61]

Most analysts expect that 3G phones' commercial launch will not occur on a large scale in the EU until 2004 at the earliest. The only reason that operators affiliated with Hutchison Whampoa have launched 3G services in the EU is that these operators have no license to offer any other mobile services, and they need to earn revenue to pay for their licenses and network construction. Both operators and manufacturers are fully committed to 3G technologies in the EU, so the question is not whether 3G will be rolled out commercially, but rather when and how 3G wireless will fulfill its intended capabilities. 3G wireless is generally viewed in Europe as designed to offer broadband Internet access along with other data applications and voice communications, but it is not clear whether it will also succeed in providing video-on-demand.

INTERIM OPTIONS: GPRS AND I-MODE

Nonetheless, European operators and handset manufacturers remain optimistic about the prospects for wireless Internet due to the success in Japan of NTT DoCoMo's "i-mode" service, which already offers various multimedia services. "I-mode" is one of the alternative mobile data transmission technologies which are starting to serve the European market's needs in the absence of 3G. These technologies are known as 2.5 generation (2.5G) because they achieve Internet access, but use transmission speeds substantially slower than 3G. 2.5G technologies require only upgrades to current 2G mobile (GSM) infrastructure and equipment, whereas 3G requires totally new base stations and more of them. The number of 2.5G subscribers in the EU is expected to increase by 71 percent in 2003, reaching a level of 28 million, and continue to grow until to 2005, when it will rearch 33 million.[62]

Currently, the 2.5G technology deployed in the EU is general packet radio service (GPRS). GPRS is popular with European mobile operators because it requires only a modest upgrade of their existing

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[60]WMRC. *"Western Europe Mobile Market Outlook, 2002-2007: 3G Risks for Operators,"* Telecommunication Sector Analysis, January 10, 2003, p. 12.

[61]EMC, *"H3G Italy first to launch UMTS network in Europe."* European Mobile Communications Report, April 2003.

[62]WMRC, *"Western Europe Mobile Market Outlook, 2002-2007: 3G Risks for Operators,"* Telecommunication Sector Analysis, January 10, 2003, p. 12.

GSM networks, and it has two key advantages over WAP. First, GPRS offers packet-mode transmission. As a result, the tariff structure for GPRS is more cost-based than for WAP, because GPRS prices are based on data volume rather than time spent on the network, allowing the user to be "always on," similar to 3G wireless. This appeals particularly to business customers who seek to minimize their mobile costs. Second, GPRS is substantially faster than WAP. GSM networks typically run at 14.4 kbps, whereas the maximum throughput speeds of GPRS reach 115 Kbps. Nonetheless, GPRS still lacks the speed and quality of 3G communications, 2 Mbps.[63]

However, few customers reportedly are using GPRS for data transmission because of limitations on network capacity. Industry analysts expect that the focus for 2003 will remain on the successful commercialization of GPRS over 2G networks, although there is some controversy about how widely GPRS will be marketed. Some industry representatives interviewed in Europe observed that 2G operators with 3G licenses are unlikely to promote GPRS very much for fear that if GPRS solutions are relatively successful, 3G rollout may be delayed even longer in Europe than would otherwise have been the case. Other observers see GPRS as a test of further investment in 3G networks.

Another 2.5G technology that enables mobile Internet access is i-mode. I-mode has already been launched in several EU Member States. The only European operator that has announced i-mode deployment during 2002 was KPN of the Netherlands, which is part-owned by NTT /DoCoMo of Japan, the world leader in i-mode. KPN deployed i-mode in Germany in May 2002, and in the Netherlands and Belgium. Telefónica launced i-mode in early 2003.

One more 2.5G technology, "enhanced data rates for GSM evolution" (EDGE), is another option under serious consideration by many EU mobile operators. EDGE has an advantage in that it is recognized by the ITU as a migration path towards 3G, unlike GPRS or i-mode. In addition, EDGE is expected to deliver data transfer rates up to 384 kbps, faster than GPRS and i-mode, according to WMRC, thereby enabling more high speed applications as well as increased capacity for transmitting voice communications. Despite these advantages, Telecom Italia is the only EU operator to have announced plans to deploy EDGE, because it requires more expensive upgrades of terminals and switches than does GPRS and i-mode. Furthermore, EDGE would be more competitive with 3G than GPRS and i-mode, competition that 3G license holders want to avoid.

THE KEY QUESTION: HOW TO MAKE MONEY

The key question for the advancement of any generation of mobile data services in Europe, in addition to overcoming technological limitations, is how operators can maximize revenues from these services and thus justify the costs of acquiring licenses and building or upgrading networks. Many European operators reportedly have been studying the pricing and revenue models of France Telecom's Minitel and NTT/DoCoMo's i-mode. In these systems, revenues are shared between operators and service/content providers. Helping European operators solve this problem, via technologies or viable models, is a niche opportunity for U.S. firms.

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[63]WMRC. p. 12.

OTHER TRENDS: *VOIP IS BEING ROLLED OUT SLOWLY*

Voice over IP (VoIP), although not yet widely used in the EU, is being used by many wireline operators for business communications, as mentioned in a previous section of this chapter. However, VoIP reportedly is still in the process of being launched by many well-established telecommunications operators such as Telecom Italia. There is almost as much hype about convergence technologies in Europe as in the United States, but industry sources report that ICT convergence is not yet happening on a large scale in the EU, outside the Internet. Nevertheless, the preparations to expand broadband penetration over various platforms assures that convergence is approaching the mass market in the EU.

CONTINUING EFFORTS TO PUSH TELECOMMUNICATIONS REFORM

The European Commission remains dissatisfied with the pace of telecommunications change in the EU, particularly as the Internet becomes more important to Europe's economic growth. Consequently, in July 2000, the Commission put forth a package of legislation aimed at further liberalizing the EU's telecommunications markets by adapting telecommunications regulations to the convergence of technologies of the "Information Society." The legislative package is designed to consolidate the 28 existing EU telecommunications laws into eight, constituting a comprehensive reform of the regulatory framework. The package simplifies and updates the regulatory framework for telecommunications while extending it to all electronic communications, including the Internet. It puts particular emphasis on the stimulation of affordable high-speed Internet access and aims to provide a less burdensome legal framework. The new regulatory package consists of the following eight laws, all but one of which were approved by the EU between 2000 and 2002.

New European Union Regulatory Framework

- *Directive on a Common Regulatory Framework for Electronic Communications Networks and Services*
- *Directive on Access to and Interconnection of Electronic Communications Networks and Facilities*
- *Decision on a Regulatory Framework for Radio Spectrum Policy in the EC*
- *Directive on Authorization (Licensing) of Electronic Communications Networks and Services*
- *Directive on Universal Service and Users' Rights relating to Electronic Communications Networks and Services*
- *Directive on Competition in the Markets for Electronic Communications*
- *Directive on the Processing of Personal Data and the Protection of Privacy in the Electronic Communications Sector*
- *Radio and Telecommunications Terminal Equipment Directive*

The eighth Directive went into force in 1999, and the EC required Member States to implement the first six laws by July 25, 2003. However, the EC does not require implementation of the seventh law (the Communications Data Protection Directive) until the end of October 2003, because it was the last part of the package to be approved by the European Parliament and Council of Ministers, in July 2002.

Furthermore, implementation of the first six directives has been delayed beyond July 2003 in all but four Member States due to difficulties in transposing them into national law by this deadline.

The Framework Directive underpins the entire regulatory package. It is intended to strike a balance between the independence of the national regulatory authorities (NRAs) and the consistency of the decisions they make. This is particularly important because the new rules give considerable discretion to NRAs to decide which communications market has effective competition, allowing an NRA to halt sector-specific regulation in that market and turn regulation over to anti-trust regulators. The EC issued a Recommendation on Relevant Markets in February 2002 that identified 18 markets (such as wholesale broadband access and fixed-to-mobile call termination) that must be assessed by NRAs to determine whether effective competition exists. The Framework Directive also establishes the European Regulators Group, which includes NRA and Commission representatives, to assure consistent implementation of the new rules. The Communications Data Protection Directive establishes special data protection rules for communications, supplementing the Data Protection Directive (described at the end of this chapter). It is intended to extend the Telecommunications Data Protection and Privacy Directive to all electronic communications, including the Internet.[64]

These eight measures are intended to simplify the regulatory framework and further stimulate the EU telecommunications market. The new laws are designed to phase out regulations specific to the telecommunications sector once a telecommunications market becomes competitive, making telecommunications regulation more like that in the IT industry. Although many industry observers herald these changes for recognizing the convergence of communications technologies, other observers have expressed concern that regulation over Europe's incumbent telecommunications operators should not disappear too soon. In any case, these changes have created the framework for the EU's communications policies for the next decade, which will shape the growth of the region's telecommunications, Internet, and e-commerce markets.

[64]Further information on this new EU regulatory framework is available at: http://www.europa.eu.int/information_society

1.4 Electronic Commerce

Trends in e-commerce use

In 2001, the EU surpassed Japan as the second largest source of e-commerce revenues globally after the United States. Nonetheless, the gap between e-commerce use in THE EU and the United States currently is vast. In 2001, The EU accounted for 25.7 percent of worldwide e-commerce revenues, compared to the U.S. share of 43.7 percent, according to IDC (Figure 1-11).[65] This gap is predicted to narrow in coming years as e-commerce in The EU grows rapidly. IDC predicts that THE EU's total e-commerce revenues will jump from $154 billion in 2001 to $1.5 trillion in 2005. Due in part to the region's growth, IDC predicts that in 2004 THE EU will command a 33 percent share of worldwide e-commerce revenues, while the United States will account for only 38 percent.

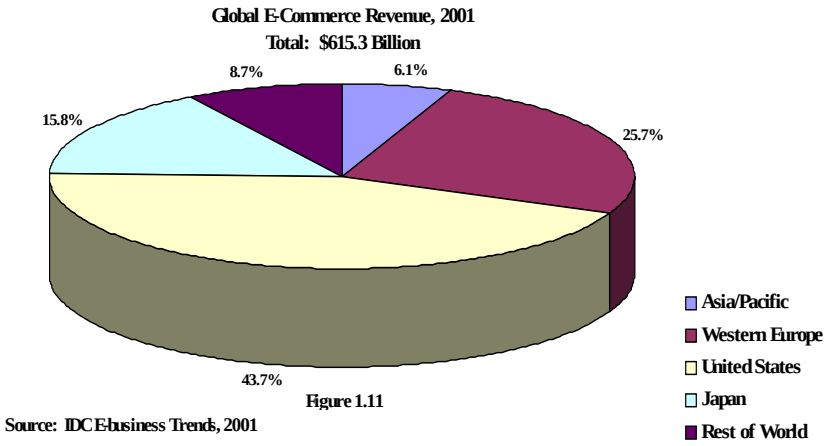

Figure 1.11

Source: IDC E-business Trends, 2001

Both B2B and B2C e-commerce are expected to grow in the region, for various reasons detailed below. One common factor expected to propel the growth of both types of e-commerce is the adoption of the euro. E-commerce in Western Europe has been long stymied by the difficulties of online merchants in achieving economies of scale in a region with so many different currencies; merchants had to have multiple currencies and conversion capabilities on their websites to be able to serve much of the European market. This hindered many merchants from coming online, and also depressed cross-border online purchasing to some degree since many consumers did not want to deal with currency conversions. Use of the euro means that businesses and consumers in the 12 participating Member States will no longer have to worry about currency conversions, making online price comparisons much more transparent, similar to the situation in the United States.

M-commerce?

Many people believe that Europe's relatively high mobile phone penetration rate combined with its relatively low PC penetration rate mean that there will be much more emphasis in the region than in the United States for e-commerce via mobile devices (m-commerce). GSM phones currently can enable m-

[65]IDC. *"Western Europe Pulls Ahead of the United States,"* IDC eBusiness Trends, January 3, 2002.

commerce by featuring plug-in "SIM"cards which enable secure transactions by storing a user's private key for access to the public key infrastructure.

This enthusiasm notwithstanding, industry observers point out that, as of yet, there are no "killer applications" on the horizon in Europe that will make m-commerce, whether for consumers or businesses, more than a niche technology and drive the necessary sales of mobile devices and services. Numerous industry representatives interviewed in Europe in November 2001 concurred that this is an area ripe in opportunities for U.S. companies with ideas or technologies for mobile applications to be used on various devices including mobile phones, personal digital assistants (PDAs), and laptops.

B2B HAS GREAT POTENTIAL

As in the United States, the greatest potential for e-commerce in Western Europe is in B2B, which already constitutes the bulk of the region's e-commerce use. The market research firm, Gartner, predicts that European B2B revenues will grow from $500 billion in 2001 to $2.3 trillion by 2005, at which time B2B e-commerce will account for approximately 8 percent of European interbusiness transactions.[66] Although large European multinational corporations (MNCs) are now quite advanced in their use of e-business technologies, many other European firms are not, and are eager to catch up with their U.S. counterparts.

Like in many other areas of IT, the adoption of B2B e-commerce has occurred much more slowly in Europe than in the United States. Although many of the MNCs referenced above did begin their investments in e-business solutions on a similar time frame to that of U.S. MNCs, most European companies that have invested in e-business started to do so later than their U.S. counterparts. Many e-business investments in Europe occurred only in the late 1990s.

Fearful of being left behind and eager to catch up, some European firms rushed into e-commerce projects with little strategic planning. Upper-level management reportedly was not involved in many e-business projects, many of which failed. Now, after the lessons learned, B2B e-commerce has moved to the management agendas of most large European companies. In fact, a summer 2001 study by the consulting firm Accenture found that nearly two thirds of Europe's top managers view e-commerce as a key competitive advantage.[67] Further, as in the United States, European corporations are changing tack to develop more comprehensive e-business strategies which aim to integrate e-commerce solutions into their core business functions.

With this new focus, the Western European market for e-business technologies is expected to experience considerable growth. Accenture predicted in its 2001 findings that European executives' expenditures on e-business technologies would increase by 15 percent over the coming year. It further reported that 80 percent of top-level managers in Europe plan to use e-commerce extensively by 2004, for purposes including marketing, sales, purchasing and procurement, and strengthening customer relations. Overall, Accenture reports that European firms are closing the gap with their U.S. counterparts in terms of e-business technology adoption. Gartner concurs, reporting that in January 2002, 18.5 percent of companies in Europe had adopted supplier enablement solutions and that this figure was going to rise to 73.6 percent by the end of 2003.[68]

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[66]Electric News. *"B2B E-Commerce Sales to Skyrocket,"* May 8, 2002.
[67]eMarketer. *"European Companies Closing the E-Business Gap,"* May 8, 2002.
[68]Electric News.

NOT SURPRISINGLY, SMES LAG IN E-BUSINESS USE

Like their global counterparts, SMEs in Europe lag far behind large firms in using e-business technologies and processes. Although approximately 70 percent of Western Europe's SMEs have Internet access (approximately 90 percent of those with more than 10 employees), most use it only for basic functions such as e-mail and research according to a February 2002 European Commission report.[69] Less than one third of SMEs use the Internet as a business tool, namely to engage in e-commerce, due in part to costs and hurdles to engaging in cross-border trade. Nonetheless, in May 2002 the Yankee Group reported that the ability to sell products and services via a company web site has become a top priority for European SMEs.[70]

One fourth of SMEs in Europe use either cable modem or ADSL broadband Internet connections, according to the same Yankee Group report. For the remaining 75 percent of SMEs, the metered cost of dial-up Internet access reportedly discourages Internet use. Traditional high-speed bandwidth solutions, such as leased lines, have been too expensive for European SMEs. The increasing availability of lower cost DSL will provide the European small business sector greater access to broadband and thus is expected to lead to more sophisticated Internet and e-business use.

A MORE SOBER APPROACH TO INVESTMENTS

Many industry representatives believe that Europe's delay compared to the United States in implementing e-business solutions may benefit European companies in the long run. They point out that European firms have been able to learn much from, and avoid some of the mistakes made by, their U.S. counterparts. Many U.S. firms made leaps of faith during the Internet rush, investing in e-business projects based on new and unproven technologies, only to see these projects, technologies, and vendors fail. In contrast, industry representatives believe that European firms will be able to develop more robust, time-tested e-business models and make better planned investments, in the long run, which in turn is hoped to provide a more stable technology market.[71]

BUSINESS USE OF MOBILE COMMERCE?

Mobile communications devices, such as PDAs and smartphones, generally are used more by European businesses than their U.S. counterparts. For example, waiters at restaurants throughout the EU often input orders into handheld devices. Nonetheless, large European firms, though keen to control costs in the mobile area, are increasing budgets for mobile devices.[72] Some people believe mobile e-business will grow rapidly in the region. Accenture predicted that European businesses would adopt e-commerce across various platforms, including mobile devices, reported in its summer 2001 survey that nearly half of all European executives it surveyed plan to adopt mobile e-business initiatives within the next three years.[73] Despite the optimism, m-commerce market development beyond niche uses will depend on the introduction of "killer applications" that fill a need of, and make sense to, business managers.[74]

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[69]European Commission. *"eEurope 2002: eEurope Benchmarking Report."*
[70]Yankee Group. *"Europe's SMEs Finally Embracing the Internet."* Yankee Group Press Release, May 1, 2002.
[71]European industry representatives, interviews by USDOC staff.
[72]Ibid.
[73]eMarketer. *"European Companies Closing the E-Business Gap."* May 8, 2002.
[74]European industry representives, interviews by USDOC staff.

B2C, ALTHOUGH GROWING, FACES NUMEROUS OBSTACLES

Jupiter Research estimated that Western Europe's 2001 B2C e-commerce revenues were $13.8 billion . A summer 2001 AOL Europe/Roper Starch Cyberstudy found that more than one third of online consumers in Germany, the United Kingdom, and France had come online in the previous year, (20 percent in the previous six months alone), an indication of the speed of the uptake of B2C e-commerce in Western Europe.[75] Despite this growth, B2C e-commerce in Western Europe has remained relatively limited compared to the United States, and is developing more slowly than had been predicted. Tackling the growth of consumer e-commerce has become a major focal point of the European Commission in its efforts to make the EU the world's most dynamic, knowledge-based economy by 2010.

On the producer side, it is difficult to reach the economies of scale necessary to maintain a profitable e-commerce business in Western Europe due to the fragmented nature of the European market. Although small online retailers exist in each country, few single countries, with the exception of Germany, have large enough populations to support many B2C vendors. To be profitable, vendors usually need to target numerous European countries, which requires them to invest in localizing their websites for multiple languages, currencies (much less of an issue since the introduction of the euro), and "look and feel," as well as offer country-specific products and information, including customer support. Although local large, multi-country B2C on-line retailers in Europe have risen in the past few years, they face growing competition from certain U.S. vendors. Amazon.com has very successful operations in Ger-many and France.

On the consumer side, Western Europe's home Internet penetration rate on average is lower than that of the United States, totaling 38 percent in December 2001, according to the European Commission, compared to slightly more than 60 percent in the United States, according to Gartner (Figure 1-12).[76] The limited figure is due in part to the region's low home PC penetration rate, and is also due to rising costs. A February 2002 report by the European Commission found that Internet access costs remain significantly higher in the EU than in the United States.[77]

Metered local phone calls in Europe have been a key factor contributing to cost and dampening European consumers' enthusiasm for shopping online, since dial-up Internet users, are billed per minute while browsing e-commerce sites, Despite attempts by ISPs and telecommunications providers in European countries to introduce unmetered dial-up Internet access plans, most campaigns have not been cost-effective and have been discontinued. The exception is AOL/TW, which continues to offer this service in some countries, notably in the United Kingdom, France, and Germany. One reason these campaigns have not been cost-effective for competitive service providers has been the high inter-connection rates charged by most incumbent telecommunications operators, discussed earlier in this chapter.

Unmetered phone calls seem unlikely to be introduced any time soon in most of Europe. Nonetheless, industry sources note that as the telecommunications markets have become more competitive, local phone prices have begun to decrease in many countries, and Europeans are now surfing the Internet for longer periods of time. However, recent statistics indicate that, ultimately, Europe's household Internet penetration rate could peak well below the U.S. level; the European Commission reported that the EU

[75]AOL Europe/Roper Starch. *"First AOL Europe/Roper Starch Cyberstudy Shows Explosive Growth in European Internet and E-Commerce,"* AOL Press Release, May 10, 2001.
[76]European Commission. *"eEurope 2002: eEurope Benchmarking Report."*
[77]Ibid.

household Internet penetration rate doubled from 18 percent in March 2000 to 36 percent in June 2001, but then only rose marginally to 38 percent by December 2001.[78]

Although industry observers point out that broadband Internet access has a flat fee, and thus consumers using it do not have to worry about their costs-per-minute, home broadband penetration in Europe is currently quite low. Gartner G2 reported in February 2002 that broadband penetration in EU households was only 2 to 3 percent, compared with 13 percent in the United States.[79] Gartner further reported that because of the high cost of broadband in the region– i45-60/month ($40-$53)– just 10 percent of the households in Germany, the United Kingdom, and France (Western Europe's largest markets) will have broadband by 2005. Overall, Jupiter Media Metrix predicts that 15 percent of households in Western Europe will be using broadband by 2006.[80] Gartner believes that to achieve widespread broadband adoption in Europe, prices need to fall to less than i30 ($26) per month.[81]

Credit cards are not used widely in the region, so the online payment method most common in the United States does not seem to be a viable option there. In contrast, most Europeans use smart cards for their noncash purchases; and few successful online payment methods incorporating smart cards have gained widespread acceptance there.[82] Low consumer confidence is also an issue. In many European countries, particularly Germany and France, cultural attitudes toward the protection of personally identifiable data mean that consumers are less apt than their U.S. counterparts to feel comfortable giving their personal information to online merchants. High delivery costs of ordered goods are add to consumers' final prices.

Finally, B2C e-commerce in Europe has been hampered by the economic slowdown in the region. European consumers, concerned about job security, have become generally more cautious in their spending. As economic growth in Europe rebounds and accelerates in the coming years, this caution may disappear.

Household Internet Penetration Rates, European Union
December 2001

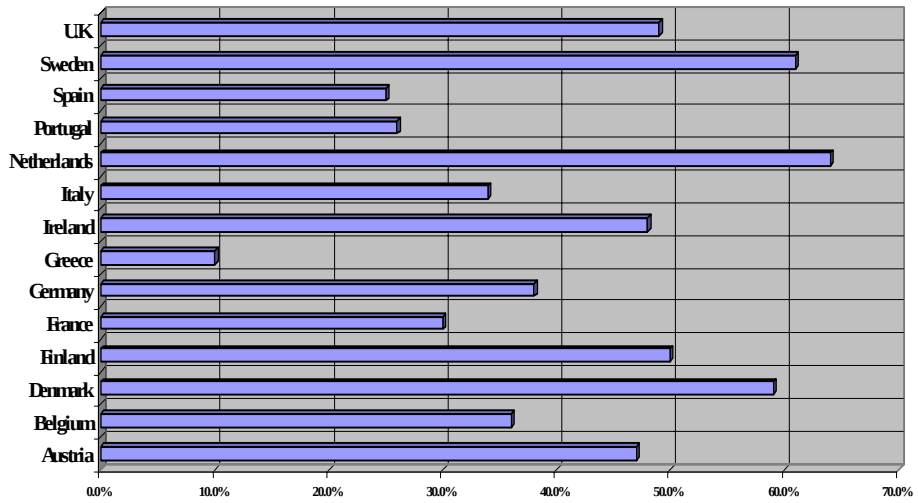

Figure 1-12

Source: European Commission

[78]Ibid
[79]Gartner. *"Gartner G2 Says Europe's Broadband Revolution is Still a Dream,"* Gartner Press Release, February 4, 2002.
[80]CyberAtlas. *"Applications May Lead Europeans to Broadband."*
[81]Gartner. "Gartner G2 Says Europe's Broadband Revolution is Still a Dream."
[82]Using smart cards for PC-based e-commerce requires a terminal attached to the PC, and the user must provide bank acount information.

1.5 Key EU Initiatives

Government interests in promoting IT, telecommunications, the Internet, and e-commerce

Although many advances in the adoption of IT, the Internet, and e-commerce in Western Europe have been market-driven, governments have also taken notable roles in helping promote and diffuse leading-edge technologies throughout the region. Governments at both the EU and national levels have taken the view that adoption of the Internet and e-commerce is important for economic growth, and are developing or implementing programs to help firms, schools, government agencies, and citizens increase their IT investments and use of the Internet and e-commerce. For example, the government of Ireland has been extremely active in this regard. Some specific actions being taken by the governments of Spain and Italy are cited in chapters 2 and 3 respectively.

Particularly at the EU level

In particular, the EU has undertaken a broad range of policy initiatives and programs related to the development, regulation, and deployment of the Internet and e-commerce within the region. In recent years, the EU has repeated its frequently stated goal of making Western Europe the world's most competitive economy via transformation into an "information society" and to catch up to or surpass the United States, as well as Japan, in telecommunications, IT, Internet, and e-commerce use. Emblematic of its commitment to this goal, the EU has a Directorate-General (DG)[83] for the Information Society. This department is in charge of supporting, promoting, and orienting Europe's private- and public-sector actions in the field of the "information society." Since September 1999, this DG's Commissioner (head) has been Erkki Liikanen, originally from Finland and a past member of the Finnish government. Many observers note that Liikanen's background from one of the most technology-savvy countries in Europe has been a key reason for the Commission's strong push during the past few years to promote "information society" policies and initiatives.[84] Liikanen has stated that his "main priority is to foster an entrepreneurial and innovative Europe based on an inclusive information society." In fact, Liikanen has been credited with spearheading the *eEurope* initiative described below.

Some of the EU's main initiatives to develop the "information society" include the *e*Europe initiative, certain EU directives, and regulations.[85] The EU's intention in developing such legislation is to create a harmonized regulatory framework throughout the EU that will support the rapid development of e-commerce.[86] This section highlights the most important developments and focuses on some regulations that may go into effect in the future. These and other efforts are expected to be a driving force for increasing technology investments in the region– and thus result in numerous market opportunities for U.S. SMEs. However, at the same time, some of them also could make doing business in Europe more complex, since some laws and policies are in a state of flux.

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[83]EU Directorate-Generals could be considered equivalent to U.S. government cabinet agencies and DG Commissioners the equivalent to U.S. cabinet secretaries.

[84]European industry representatives, interviews by USDOC staff.

[85]The policies and regulations discussed here are not exhaustive, and new ones appear regularly. Other influential directives are those related to telecommunications liberalization and competition.

[86]The EU also has directives mandating compliance with certain technical standards for IT and telecommunications products intended to be connected to telecommunications networks (both wireline and wireless).

eEUROPE[87]

In December 1999, the EU determined that Europe needed to focus on specific objectives with a sense of urgency to catch up in the Information Society (namely, to catch up to the United States). At that time, the EU recognized that attaining this goal strongly depended on making the best possible use of ICT technologies, notably the Internet and e-commerce. To this end, it launched *eEurope*, a political initiative to accelerate Europe's movement into the digital age and ensure that all Europeans– all Member States, regions, and citizens– benefit fully from the "information society." The key objectives of *eEurope* are bringing every EU citizen, home, school, and business into the digital age and online, creating a digitally literate Europe, and stimulating the use of the Internet throughout the region. The *eEurope* initiative was officially adopted at an EU summit in Lisbon, Portugal, in March 2000, where the EU set a new strategic goal for Western Europe "to become the world's most dynamic and competitive knowledge-based economy" within the coming decade.

In June 2000, the EU refined its objectives in an *Europe 2002 Action Plan* which listed specific measures necessary to ensure that *eEurope*'s goals were met by the end of 2002. The three main *eEurope 2002* objectives were:

- ***deploying a faster, cheaper, and more secure Internet throughout the region;***
- ***increasing digital literacy among all EU citizens; and***
- ***stimulating the use of the Internet throughout the region by taking four steps: accelerating e-commerce; increased electronic access to public services, including government and health; promoting European digital content, and investing in high-speed infrastructure throughout the EU.***[88]

Further, the EU determined that *eEurope* targets could be achieved by accelerating the establishment of an appropriate legal environment, supporting new infrastructure services throughout the EU, and coordinating government activities and benchmarking. The EU stated in its action plan that *eEurope* could only succeed if Member States, in addition to the EU, set new priorities, and it strongly encouraged them to do so.

An eEurope 2005 Action Plan

In February 2002, the EU and leading European experts from the private sector discussed the next challenges for Europe in the field of the "information society" and examined the impact of the *eEurope 2002 Action Plan.*[89] The consensus was that although important achievements had been made as a result of *eEurope 2002*, notably a significant increase in Internet access in the EU,[90] much remained to be done. In short, all objectives could not be met by 2002.

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[87]European Commission. http://www.europa.eu.int/information_society/eeurope/index_en.htm

[88]European Commission. *"eEurope 2002: An Information Society for All Action Plan."* www.europa.eu.int/information_society/eeurope/action_plan/pdf/actionplan_en.pdf

[89]EU Spanish Presidency. *"Informal Meeting of Ministers for Telecommunications and the Information Society Results."* Vitoria, Spain, February 22-23, 2002.

[90]Other achievements included: 1) an accelerated decision-making process for ICT and e-commerce regulation, pan-European research networks, and cybersecurity; 2)a more accurate vision of progress in EU by use of benchmarking, and 3) elevating the Internet to the top of EU member states' political agenda.

As a result, Spain, which held the presidency of the EU for the first six months of 2002,[91] proposed to extend *eEurope* until 2005. The *eEurope 2005 Action Plan* has the following five core priorities.

- *Promoting broadband Internet through various technologies, including DSL, cable modem, satellites, third-generation mobiles, fiber optic, and fixed wireless access.*
- *Promoting attractive content, services, and applications for all Europeans, localized to reflect Europe's diversity of cultures and languages.*
- *Greater provision of public (including government and health) services online.*
- *Pursuing digital inclusiveness for all Europeans, including education (fitting all schools with sufficient numbers of modern computers and broadband connections, and integrating technology into learning processes), training (including distance-learning), social (in addition to public Internet access points and cybercafés, the promotion of alternative access terminals including digital TV and mobile terminals), individual (accessibility to electronic services for the disabled and the elderly), and geographical (all regions and cities must have access to a state-of-the-art communications infrastructure).*
- *Ensuring trust and confidence in cyberspace.*

What is considered to be one of the most important, and potentially far-reaching, changes in the EU's priorities for coming years is the promotion of broadband Internet through a variety of technologies. This is a shift from the EU's former emphasis on promoting broadband via 3G communications, which the EU realized will be much later in coming than originally expected, and local loop unbundling, to promoting competition among all potential broadband Internet access technologies.

E-Commerce Directive[92]

The E-commerce Directive, adopted by the EU in June 2000, and with an implementation deadline of January 2002, has been heralded as a major piece of legislation to help encourage the development of e-commerce in the region, particularly across borders. The EU developed this directive in response to the belief that existing legal uncertainties in the region regarding online transactions, and divergent Member State approaches regarding the regulation of online services, were retarding e-commerce growth in the region, particularly across borders. To address these concerns, the E-Commerce Directive aims to create a comprehensive legal framework for the conduct of e-commerce within the EU. Its overarching goal is to ensure that "information society" services benefit from the EU's Single Market principles of free movement of services and freedom of establishment,[93] and can be provided throughout the EU if they comply with laws in their home Member State. At the same time, the directive is designed to provide a high degree of consumer protection and thus encourage European consumers to increase their use of e-commerce.

To these ends, the main provisions of the E-Commerce Directive are as follows.

- *defines the place of establishment as the place where an operator actually pursues an economic activity through a fixed establishment, irrespective of where web sites or servers are situated;*

[91]Presidency of the EU rotates among EU member states every six months. Greece currently serves as EU president.
[82]European Commission. Directive 2000/31/EC of the European Parliament and of the Council of 8 June 2000.
[93]Meaning that EU-based companies can provide services anywhere within the EU, and there is unrestricted mobility of capital and labor.

- *sets out requirements for service providers to provide information about their data processing methods to their customers, as well as requirements for the conclusion and validity of online contracts;*

- *establishes that the principle of mutual recognition for national laws and the principal of national origin must apply to online services;*

- *defines the extent to which online service providers can be held liable for unlawful information or activities they store or engage in; and*

- *establishes an exemption from liability for intermediaries where they play a passive role as a "mere conduit" of information from third parties and limits service providers' liability for other "intermediary activities" such as the storage of information.*[94]

The directive also seeks to strengthen mechanisms to ensure that existing EU and national legislation is enforced regarding online transactions. This includes encouraging the development of codes of conduct at the EU level, stimulating administrative cooperation between Member States, and facilitating the establishment of effective, alternative cross-border online dispute settlement systems. The directive requires Member States to provide for fast, efficient legal redress appropriate to the online environment, and to ensure that sanctions for violations of the rules established under the directive are effective, proportionate, and dissuasive.

Despite high expectations throughout the region regarding the E-Commerce Directive, in reality, its much-heralded changes could be longer than expected in coming. Only five EU countries—Austria, Finland, Germany, Ireland, and Luxembourg—met the EU's January 17, 2002, deadline for transposing the directive into national laws. With the exception of France, which stated its intention to implement the directive before its presidential and parliamentary elections in late spring 2002, the implementation timetable is unknown for the other remaining Member States, namely Belgium, Denmark, Greece, Italy, the Netherlands, Portugal, Spain, Sweden, and the United Kingdom The U.K. government reported that it had delayed the directive's implementation "because of the need for further consultation on the legal framework of the directive's requirements" and that the directive was too important to rush. A delay by EU countries in implementing this directive could potentially slow the development of e-commerce in the region, by leaving an uneven and uncertain regulatory environment, and thus discouraging the provision and consumption of online services. Some observers believe that a long delay could cause the Commission to take legal action against Member States that fail to implement the directive.

Electronic Signatures Directive

This directive, adopted by the EU in December 1999, with an implementation deadline of July 2001, created a new legal framework guaranteeing EU-wide recognition of electronic signatures. The directive aims to facilitate the use of electronic signatures and to contribute to their legal recognition. It defines requirements irrespective of the technology used. It was designed to build consumer trust as well as stimulate operators to develop secure systems and signatures without restrictive and inflexible regulation. Being a relatively new directive, industry sources report that electronic signatures are not yet used widely in Europe.

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[94]Examples of sectors and activities covered include online newspapers, databases, financial services, professional services, online entertainment services such as video-on-demand, online direct marketing and advertising, and services providing access to the web. The Directive applies only to service providers within the EU, not to those established outside its borders.

Distance Selling Directive

The Distance Selling Directive, adopted by the EU in 1997, with an implementation deadline of June 2000, aimed to harmonize laws, regulations, and administrative provisions of the Member States on contracts negotiated at a distance between suppliers and consumers. The directive helped facilitate cross-border sales within the EU by creating a comprehensive legal framework for all forms of "distance selling," including via the Internet.

Dual-Use Regulation

EU-wide availability of security products will increase users' trust in online communications and transactions. The Dual-Use Regulation, directly effective in all Member States from September 2000, authorizes the trade in most encryption products and services between Member States, and exports from the EU to ten designated countries, including the United States. Under this regulation, companies no longer need a license for intra-EU cross-border shipments of encryption technology (although reporting requirements may exist in some Member States).[95]

Resolution on Network and Information Security[96]

Concerns in the region, real and perceived, about Internet security are frequently cited as a major roadblock to greater Internet and e-commerce use. The Commission is studying a series of measures for 2002 to help increase the public's confidence in the Internet and online transactions. European Council resolutions from early 2002 propose a set of measures to be carried out, including: increasing awareness of security, establishing a cyber-security task force, fostering national Computer Emergency Response Teams (CERTs), and their coordination at European and international levels.[97]

The Commission is promoting R&D in IPv6

The European Commission also is trying to promote a stronger role for Europe in developing and mastering the basic technologies that support the next generation of the Internet, namely IP version 6 (IPv6).[98] The Commission views widespread deployment within the EU of IPv6 critical to the next generation of wireless services. As a result, much of its push stems from a desire not to fall behind other countries including Japan, widely seen as the current leader in IPv6 development. Thus, the Commission has recommended that Member States increase and refocus their support to encourage IPv6 services and applications' tests across wireline and wireless networks as well as the development of IPv6 equipment and services. To date, the European Commission has funded two PIv6 trials in an attempt to achieve its goals.

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[95]Regulation 1334/2000 setting up a Community regime for controling strategic trade in dual-use items and technology.
[96]European Commission. *Council Resolution on Network and Information Security.* January 15, 2002.
[97]The CERT Coordination Center is located at the Software Engineering Institute (SEI), a federally funded research and development center at Carnegie Mellon University in Pittsburgh, Pennsylvania. CERT aims to increase awareness of security issues and help organizations improve their systems' security. CERT analyzes Internet security vulnerabilities, responds to computer security incidents, publishes security alerts, researches long-term changes in networked systems, and devleops information and training to help industry and home users improve their computer and network security. http://ww.cert.org.
[98]Communications Week International. *"Europe Set for Next Step Towards IPv6,"* March 4, 2002.

EU FUNDING TO ENCOURAGE TECHNOLOGY UPTAKE

The EU expects the private sector to fund much of the investment in infrastructure and other technologies in Europe as the region moves towards an "information society." This expectation notwithstanding, the EU provides funding for some of these initiatives, underscoring its commitment to their progress and success.[99]

When adopting its *eEurope* initiative in March 2000, the EU also announced new funding to help support *eEurope*'s goals. Under the Innovation 2000 Initiative ("i2i"), the European Investment Bank (EIB)[100] would target lending of i12 billion to i15 billion ($10.6 billion to $13.2 billion) to five key objectives aimed to push the development of a knowledge-based economy and accelerate the take-up of ICT technologies in the region.[101]

Specifically, EIB lending from 2000 through 2003 will focus on:

> *1) venture capital to encourage innovative SMEs;*
> *2) supporting investments in hardware, software, networks, and online services by government agencies, the health sector, and the private sector;*
> *3) R&D in new technologies,*
> *4) supporting public and private sector initiatives to develop trans-European networks (in particular, fiber optic networks, with an emphasis on broadband and multimedia infrastructure, as well as wireless local loop and DSL projects) for transferring data between businesses and individuals and establishing local infrastructure linking into these networks;*[102] *and*
> *5) computerizing schools, training teachers in new technologies, and establishing centers to train IT and communications specialists throughout Europe to help bridge the skills gap.*

Also part of eEurope is the European Commission's 2001 "Helping SMEs Go Digital" initiative, described earlier. Under Go Digital, the EU and Member State governments are providing SMEs with i1.4 billion ($1.2billion) in financial support for investments in software, hardware, training, and introduction of Internet and e-business practices.[103]

Another source of funding for many IT- and telecommunications-related projects, though not specifically earmarked as such by the EU, are Structural and Cohesion Funds. These are nonreimbursable grants the EU gives to projects intended to boost the economic development of underdeveloped regions.[104]

During the period 2000-2006, the EU plans to provide grants totaling i213 billion ($187.4 billion), most assistance going to such regions in (by order of magnitude) Spain, eastern Germany, Greece, Portugal, Ireland, southern Italy, Finland, Sweden, and the United Kingdom Although governments decide how to

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[99]Since its inception, the EU has provided financial support for two kinds of objectives: 1) economic development within its borders, and 2) R&D in critical sectors.
[100]The European Investment Bank is an autonomous financial institution set up to finance capital investment. www.eib.org.
[101]See http://www.eib.org/pub/divers/i2i/en.pdf.
[102]From 1995-1999, the EIB funded i42 billion ($37 billion) for projects of this kind throughout the EU including i11 billion ($9.7 billion) for telcommunications projects alone.
[103]"*eEurope* Go Digital."
[104]Structural Fund grants are given to national, regional, and local authorities for a range of sectors including ICT, energy, and power. Cohesion fund projects are assessed and/or approved by relevant local and regional authorities, but performed by the private sector.

spend their EU funds, projects in ICT are expected to obtain high funding priority from many European governments that want increased investment in, and use of, these tech-nologies by their businesses and citizens.[105] For example, Ireland currently is leveraging some of its EU funding to develop a comprehensive countrywide program to help Irish SMEs invest in e-commerce technologies.

Some EU directives may make the market more difficult for U.S. firms

Although many EU policies and actions are expected to propel the use of the Internet and e-commerce in the region, and streamline related regulations, some EU initiatives could prove problematic or cumbersome for U.S. ICT firms doing business in the region.

Data Protection Directive[106]

While the United States and the EU share the goal of enhancing privacy protection for their citizens, the United States takes a different approach to privacy from that taken by the EU. The United States uses a sectorial approach towards privacy that relies on a mix of legislation, regulation, and self-regulation, coupled with the enforcement authority of government agencies such as the U.S. Federal Trade Commission for online privacy.

In contrast, European laws are based on ideas that rely on governments to limit the use of personally identifiable information. The EU's approach to privacy grows out of Europe's history and legal traditions, where protection of information privacy is viewed as a fundamental human right and where there has been a tradition of prospective, comprehensive lawmaking that seeks to guard against future harms, particularly where social issues are concerned. As a result, most privacy laws in Europe are comprehensive, applying to every industry, and closely regulating what data are collected and how they are used. The notable exception is the telecommunications sector, which is subject to the industry-specific Telecommunications Data Protection Directive (see the end of the Telecommunications section of this chapter).

The EU Data Protection Directive, which went into effect in October 1998, is the principal cross-sector EU directive regulating privacy. The directive seeks to secure personal data via a comprehensive set of rules enforced by independent national data protection authorities. Consistent with European tradition, the directive takes a regulatory and comprehensive approach to privacy issues. It has two basic objectives: 1) to protect individuals with respect to the "processing" of personal information, and 2) to ensure the free movement of personal information within the EU through the coordination of national laws (see sidebar).
Most importantly from the U.S. perspective, the directive requires that Member States enact laws prohibiting the transfer of personal data to countries outside the EU that fail to ensure an "adequate level of [privacy] protection" (as determined by the European Commission). For any country where the level of protection is deemed inadequate, Member States are required to take measures to prevent any transfer of data to the third country. Organizations outside the EU wishing to receive personally identifiable information from any EU country must provide "adequate" privacy protection.

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[105]Examples of ICT projects that received EU funding include technology promotion in Spain, telecommunications networks in Greece and Italy, and telecommunications services in Ireland and Portugal.
[106]For more information about the directive, visit: http://www.europa.eu.int/comm/internal_market/en/dataprot/law/index.htm or the U.S. Dept. of Commerce's Safe Harbor Workbook at http://www.export.gov/safeharbor.

The directive could have significantly hampered the ability of U.S. companies to engage in many trans-Atlantic transactions. To bridge the difference between the privacy approaches of the EU and the United States and to provide a streamlined means for U.S. organizations to satisfy the "adequacy" requirement of the directive, the U.S. Department of Commerce, in consultation with the European Commission, has developed a "safe harbor" framework. Safe harbor, approved by the EU in July 2000, is a way for U.S. firms to avoid experiencing interruptions in their business dealings with the EU or facing prosecution by European authorities under European privacy laws. Certifying to the Safe Harbor will assure that EU organizations know that a U.S. company provides "adequate" privacy protection, as defined by the directive. U.S. organizations wishing to receive personal information from European organizations legally must either join the safe harbor, satisfy one of the directive's other exceptions, or seek an adequacy determination.

As of September 2002, not all Member States had fully implemented the Data Protection Directive. The European Commission planned to conduct a review of Member State implementation of the directive in the fall of 2002.

NOTE: There are exceptions to the directive's adequacy requirement, which include the individual giving his/her unambiguous consent to the transfer or the transfer being necessary for the performance of a contract. Transfers can take place if data exporters are satisfied that "adequate safeguards" are in place even if the transfer is made to a thrid country without an overarcing adequacy finding. To facilitate this, the European Commission developed draft model contract clauses in January 2001 that could be included in contracts (between data importers and exporters) and which would be automatically accepted as providing adequate protection by all Member States' Data Protection Authorities. The European Commission provides further information on this subject at: http://www.europa.eu.int/comm/internal_market/en/dat/aprot/modelcontracts/index.htm.

Personal information is defined as information relating to an identified or identifiable natural person. An identifiable person is one who can be identified directly or indirectly, in particular by reference to an identification number or to one or more factors specific to his physicial, physiological, mental, economic, cultural or social identity. The scope of this directive is very broad, applying to all data processing, online and offline, manual as well as automatic, and all organizations holding personal data. It excludes from its reach only data used "in the course of purely personal or household activity." The directive establishes strict guidelines for processing persona information. "Processing" includes any operations involving personal information, except perhaps its mere transmission. For example, copying information or putting it in a file is viewed as "processing."

U.S. government concerns with the draft model contract clauses are described in a joint Commerce/Treasury letter and DOC staff comments that are available at: http://www.export.gov/safeharbor. Many businesses argue that the model contract provisions in their current form are too burdensome. A coalition led by the International Chamber of Commerce submitted alternative clauses in September 2001, which are currently under review. A key issue underlying the standard contract clause debate is that the model clause decision could create a high benchmark standard for data protection adequacy.

Pending Directives

The above-mentioned directives have been approved and are in effect. A directive on a value-added tax for digital trade has not yet gone into effect, but is a directive that U.S. firms should be aware due to its future impact. Some additional pending directives that will affect the development of the Internet and e-commerce in Europe are highlighted at the end of the telecommunications section of this chapter.

Directive on Value-Added Tax on online sales

In June 2002, the EU approved a new directive to apply the EU's value-added-tax (VAT) to digitally delivered products purchased by EU consumers from non-EU companies.[107] The directive will require non-EU vendors to register with an EU country and collect and remit an EU VAT on any sales of digitally delivered products to EU consumers.[108] The VAT would be charged at one of the 15 VAT rates found in the Member States, determined by the customer's country of residence. This directive will apply to products such as computer software and music delivered online; digitally delivered books, newspapers, and magazines; as well as subscription-based radio, TV broadcasting, and pay-per-view TV. Member States will have to implement the directive by July 1, 2003.

Critics point out potential problems with this directive. Tax collection on downloaded products raises significant administrative and policy issues, such as the limitations of available technological solutions and the implications for consumer privacy. Currently, U.S. critics state further that there appears to be no effective mechanism for determining online customers' residences to determine the appropriate VAT rate, other than relying on customer self-declarations. Further, U.S. vendors might potentially have to charge a higher VAT rate than their EU competitors for the same product, resulting in a price disadvantage. For example, if a U.S. firm sells a digitally delivered product to a Swedish customer, the U.S. company would charge a 25 percent VAT (the Swedish rate), while a U.K. company selling to the same customer would charge only 17.5 percent -- the U.K. rate. The U.S. government has opposed this directive, and Administration officials have concerns about the consistency of the EU directive with its international obligations to the WTO. The EU claims that the VAT is consistent with OECD rules.

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[107]This directive will cover the sale of digital products only to consumers. EU-based business customers of digitally delivered products will continue to account for VAT at their local rates. See http://www.europa.eu.int/comm/taxation_customs/taxation/council%20directive.pdf.

[108]VAT remittances are to be made to the vendor's country of registration, for distribution by that country to the other EU members based on the value of sales made to their residents.

CHAPTER II: SPAIN

2.1 POLITICAL AND ECONOMIC OVERVIEW

Spain's parliamentary democracy was established with the adoption of the constitution in 1978 following the death in 1975 of the country's longtime ruling dictator, Francisco Franco. King Juan Carlos I serves as the head of state and president José María Aznar of the center-right Popular Party has served as head of the government since May 1996. He and the party were reelected with an absolute majority in March 2000. The bicameral legislature, or "Cortes," consists of lower chamber or "Congress of Deputies" -- popularly elected at the provincial level and the upper chamber or Senate, which combines both directly elected seats and seats filled by voting in regional parliaments. Spain is divided into seventeen regional administrative units or "comunidades autonomas" which have their own governmental institutions including a chief executive or president and legislatures. Much of the power from the central government has been delegated to the regional administrations in varying degrees. Catalunya and the Basque country have more power than others.

After registering a 4.2 percent GDP growth rate in 2000, Spain's economy slowed to annual rates of 2.7 and 2 percent growth for 2001 and 2002 respectively. Expectations for 2003 are flat, holding at 2 percent for the year although rising towards the year's end. In 2004, growth is more promising with projections of 3 percent GDP growth over 2003.[109] Despite the slowdown, the economy remained relatively healthy when compared to other EU economies. A fairly resilient domestic demand and stable employment levels continued to support private consumption.[110]

This year, individual consumption is expected to rise principally because of the personal income tax reform package's implementation and continued jobs growth in the economy. Business investments in new equipment are expected to increase but will be partially offset by moderating residential construction and housing prices. Exports will not pick up until the latter half of the year, but will not significantly add to overall GDP growth.[111]

By U.S. standards, unemployment is relatively high in Spain hovering at just above 11.5 percent. This is slightly above last year's level but is expected to fall below that mark by year's end. Regional variations in unemployment are marked with some areas, e.g., Galicia, recording 19 percent unemployment and rates for women and the elderly are at peaks of 41.9 and 38.9 percent respectively.[112]

Spain's economy should continue to perform relatively well, as the government enacts additional reforms to liberalize certain economic sectors and curb unemployment. It remains a center for tourism, although growth has slowed in the wake of September 11, 2001 and the economic decline throughout Western Europe. Spain's growth within the euro-zone and the EU-15 continues to surpass the average as it plays catch up in terms of price levels and mobility. The three larger economies of the euro-zone, Germany, Italy, and France, had lower growth rates than Spain in 2002.[113]

[109]European Commission, Directorate-General for Economics and Financial Affairs. Economic Forecasts, Spring 2003, page 55.
[110]Ibid., p. 55.
[111]Ibid.
[112]Embassy of the United States, Madrid, Spain. Economic Assessment for 2002. January 31, 2003.
[113]Ibid.

Spain and the United States enjoy excellent bilateral relations. The two governments share common views on a broad range of issues and are allies in the North Atlantic Treaty Organization (NATO). Most recently, Spain joined with the United States and Great Britain in efforts to have the United Nations adopt a resolution to oust Iraqi dictator Saadam Hussein from power and is a member of the coalition to bring stability to that country.

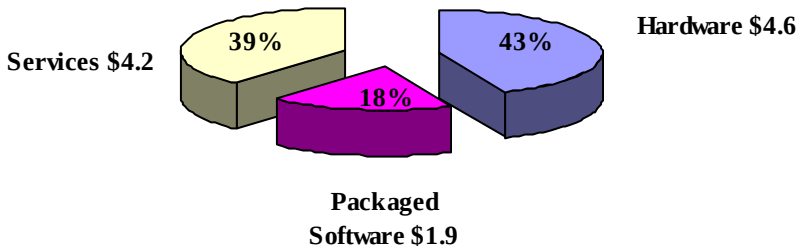
Figure 2.1 Key Economic Indicators in 2002

Population and GDP	Total Population GDP per Capita	40.1 million $14,260
IT Market	IT Services IT Hardware and Software	$4.2 billion $6.4 billion
Personal Computers	Total Penetration Rate (per 100 inhabitants)	6.7 million 16.80%
Telecommunications Market	Telecommunications Services Telecommunications Equipment	$23.83 billion $7.64 billion
Wireline Subscribers	Total Penetration Rate (per 100 inhabitants)	18 million 43%
Wireless Subscribers	Total Penetration Rate (per 100 inhabitants)	33 million 83%
Telecommunications Expenditures	Percent of GDP	2.5%
Cable TV	Total Subscribers Penetration Rate (per 100 inhabitants)	1.5 million 3.7%
Internet	Total Users	10.7 million 27.3%
Electronic Commerce	Total B2B and B2C	$6.38 billion

2.2 Information Technology in Spain

Spain has the sixth largest Information Technology (IT) market in Western Europe. Spain's IT market, including, hardware, packaged software, and IT services, grew 0.8 percent in 2002, reaching a value of $10.7 billion. The computer hardware, including local-area-and wide-area-networking (LAN and WAN) equipment, and IT services market segments were valued at $4.6 billion and $4.1 billion, respectively. The packaged software market was valued at $1.9 billion (Figure 2.2.1).[114]

Figure 2.2.1
Spain: IT Market 2002



in billions of U.S. dollars

Total: $10.7 billion

Source: IDC Black Book, April 2003

The Spanish IT market has not felt the global economic downturn as much as its northern neighbors. IDC predicts Spain's IT market will grow at a compound annual growth rate (CAGR) of 9.2 percent from 2003 through 2007 to reach $16.3 billion. The IT services and packaged software segments will increase at a CAGR of 10.3 and 7.6 percent, respectively, to reach $6.7 and $2.7 billion in 2007. Although the growth in computer hardware declined in 2002, the market is expected to expand at a CAGR of 8.9 percent, reaching $6.9 billion in 2007 (Figure 2.2.2).

IT Trends

IT Investments

Though Spain has the sixth largest IT market in Western Europe, it lags behind most of Western Europe in IT usage. Spain's IT spending in 2002 was only 1.92 percent of its GDP and its per capita spending on IT was only €291, according to the European Information Technology Observatory (EITO)[115]. Additionally, Spain's PC penetration rate in 2001 was only 13 percent.[116] Out of Western European countries, only Greece had a smaller per capita spending and PC penetration rate.

Spain has a conservative approach to entrepreneurship and investments and is still considered an early adopter of technology. Although this conservatism has helped it weather the global economic downturn, it also means that a large portion of Spain's technology expenditure focuses on capital investments related to the expansion of its basic infrastructure. While the need for IT is the biggest market driver, large firms also seek to maintain their dominant position by investing in better network infrastructures

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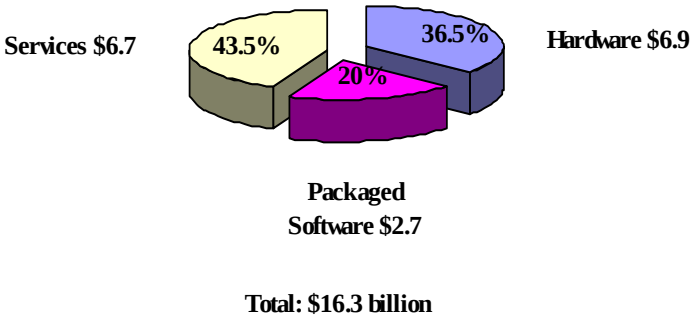
[114] IDC Worldwide Black Book, IDC, April 2003.

[115] European Information Technology Observatory 2002 ("EITO 2003"), Frankfurt, March 2003, p 396.

[116] Ibid, p. 76

Figure 2.2.2
Spain: IT Market 2007



Source: IDC Black Book 2003

and applications to improve the
ternal flow of information and
eir relationships with suppliers and
stomers. Thus, larger businesses,
an effort to obtain channel
tegration and streamline customer
lationships, are investing in
arketing and sales automation
plications, such as customer
lationship management (CRM),
pply chain management (SCM),
terprise resource planning (ERP),
d e-commerce applications.[117]

owever, there is still a lack of
siness confidence that is
mpering IT investment. Due to
e insecurities about the economy
d the previous IT investments made by firms in the late 1990s to prepare for Y2K and euro transition, many Spanish firms have followed the trends seen throughout Western Europe. Namely, they are either cutting, delaying, or reprioritizing IT projects and purchases until the economy improves. Most notably, smaller companies are cautious when it comes to investing in new technologies and look for proven technologies that offer immediate savings or a short-term return on investment – usually within a year.[118]

Security

Another concern affecting growth in the Spanish IT sector is consumers' belief that security does not exist. Consequently, information security is an important market and presents opportunities for U.S. suppliers of security products and services. The number of Spanish firms connecting their networks to the outside world is increasing, but many have not yet invested in IT and online security. Nonetheless, the security software market in Spain grew 18 percent in 2001, reaching $47 million, and is expected to have a 12.4 percent CAGR through 2006.[119] Larger Spanish firms witnessed how U.S. companies located in the World Trade Center used remote network management products and redundant systems to resume work immediately after the tragedy of September 11, 2001, and are now interested in obtaining similar technologies. Smaller firms have been convinced of the need for security systems by the media attention given to the increasing number of computer viruses.

Research and Development

There are very few Spanish firms that develop technology, with roughly 80 to 90 percent of IT products coming from outside of Spain. Research and development (R&D) exists in Spain, but, it is only 1.0 percent of GNP, while the European average is 1.8 percent. Additionally, the Spanish government pays for almost 50 percent of all R&D costs, whereas the European average for public sector R&D is around

[117] Ibid.
[118] Spanish industry representatives interviewed by USDOC staff, September 17-21, 2002.
[119] Biscotti, Fabrizio, Schroder, Norma, Graham, Colleen, Contu, Ruggero and Dang Van Mien, Alain, "Security Software Market: Europe, 1999-2006 (Executive Summary)," Gartner, Inc., January 2003, p. 4.

34 percent. To promote innovation and encourage corporate R&D expenditures, the Spanish Ministry of Science and Technology (MCYT) is planning to offer tax incentives, in the form of binding certificates, to Spanish companies that invest in R&D.[120] As part of its commitment to build Spain's information society, the Spanish government is also offering subsidies worth €54 million to firms involved in R&D, as well as €301 million in credit advances between the years 2001 and 2003.[121]

IT Sector

Overview

Roughly 82 percent of imported IT products and services are sourced from other EU countries while only 7 percent came directly from the United States ($106 million in direct hardware equipment in 2002). However, most of Spain's IT imports are ultimately supplied by U.S firms, either directly or from another EU country through a U.S. subsidiary. Spanish imports and exports in the IT sector are mainly in hardware, which represent 70 percent of all IT imports and 69 percent of IT exports. Computer software represents a much smaller portion of foreign trade - only 15 percent of imports and 17 percent of exports. Spain's primary export markets are other EU member states (71 percent) and Latin America (22 percent).[122]

Most of the IT firms in Spain are subsidiaries of multinational companies from the United States, Germany, Japan and France. The top players in the IT industry are foreign firms (Hewlett-Packard, IBM, Siemens, Tech Data, Ingram Micro, ADLI or Cisco). But some local firms (such as Grupo Informatica El Corte Ingles, Landata or Indra, to name a few) are also considered leaders in the local market.[123]

Software

Packaged software represented only 18 percent of the total Spanish IT market in 2002. However, demand for software in Spain continues to grow at an ever-increasing rate. Spanish firms are boosting their investments in marketing and sales automation to expand productivity and efficiency and improve customer relationships. Demand for packaged software is expected to increase moderately over the next several years. In 2002, the packaged software market grew 3.1 percent to reach $1.9 billion, and is expected to have a 7.6 percent CAGR from 2003 to 2007.[124]

Operating systems represent the largest percentage of the software market, followed by horizontal application software, software for communications, and database software (Figure 2.2-3).[125] The fastest growing software segments in 2002 were multimedia software (36.9 percent), database software (18.3 percent), vertical applications (17.1 percent), operating systems (13.2 percent), and communications software (9.3 percent).

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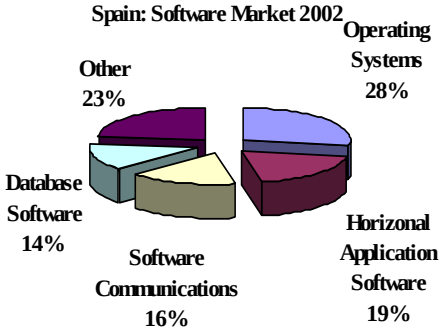
[120] "From E-business to Just Business: transforming companies," ebCenter, www.ebcenter.org.
[121] Spanish government representative interviewed by USDOC staff, September 17-21, 2002.
[122] "Spain: Computer Services," *Industry Sector Analysis*, U.S. Department of Commerce/U.S. Commercial Service, Spain, September 2002.
[123] Ibid.
[124] IDC Worldwide Black Book, IDC, April 2003.
[125] It should be noted that EITO and SEDISI value Spain's 2002 software market at $2.7 billion, while IDC values it at $1.9 billion (April 2003 Black Book). Data from EITO and SEDISI are used in this instance to show a further break down of the market; IDC breaks down the packaged software market into three segments – systems infrastructure (27%), application development and deployment (24%), and applications (49%).

Figure 2.2.3
Spain: Software Market 2002



The main areas of growth in the application segment of the software market are those related to customer relationship management (CRM), supply chain management (SCM), and enterprise resource planning (ERP). The need for companies to incorporate their customers' requirements into the business process is increasing the demand for CRM and SCM applications. Additionally, many firms are re-engineering their business processes via ERP. Thus, ERP, which has typically only been used by large firms in Spain, is now becoming increasingly popular among medium-sized companies. Software vendors, in an effort to tap into the medium-sized business market, have begun to offer cheaper, less all-encompassing, client-oriented applications that can be customized to fit the needs of the end-user. Investments in these applications, along with the globalization process, are driving the demand for system software, middleware, serverware, and security software.

Large software vendors in the Spanish market not only import software, but also develop, in country, Spanish language versions of their software packages. These account for more than 70 percent of domestic software production. Local developers typically produce very specific applications, which are then sold as add-on products with the software sold by large companies.[126]

SOFTWARE PIRACY

Although software piracy in Spain has decreased from 77 percent in 1994 to 47 percent in 2002, Spain still had the second highest piracy rate in Europe. The Business Software Alliance estimates that there was $97 million in revenue lost in 2002 due to retail software piracy. Despite these rates, 77 percent of Spanish business people stated that they were aware of Spain's legislation on software piracy and the consequences derived from the use of unregistered software.[127]

The Law of Protection for computer software was approved in December 1993, and was a transposition of the EU software directive. The content of this law is currently included in the consolidated text of the Law on Intellectual Property Rights enacted in April 1996, and has provisions that allow for unannounced searches of the prosecuted firm, closures of businesses, payment of fines and compensations, among other measures.[128]

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[126] "Spain: Logistics Software," *Industry Sector Analysis*, U.S. Department of Commerce/U.S. Commercial Service, Spain, September 2002.
[127] Ibid.
[128] Ibid.

Concerned groups, including the Spanish and Regional Governments, the Spanish Associations of Information Technology (SEDISI) and the industry, in general, have focused increasingly on enforcement. Industry and government are cooperating in a series of measures aimed at educating the judiciary, police and customs officials to be more rigorous in their pursuit of software piracy. Additionally, the industry is heading a campaign against software piracy among users. The objectives of this campaign are to publicize the Law of Protection for computer software, increase the level of conscientiousness of the benefits of legitimate software, and support the sector in their activities and all legal actions against organizations or firms that commercialize, produce, buy or use illegal software.[129]

IT SERVICES

The IT services market, out of all other segments in Spain's IT market, was affected the least by the global economic slowdown in the IT market. This segment, representing 39 percent of the total sales, is also the fastest growing, increasing 7.3 percent in 2002 to reach $4.2 billion. The market is expected to grow at a CAGR of 10.3 percent over the next five years and reach $6.7 billion in 2007.[130] The large growth in the IT services market in 2002 is mainly due to the increased sales of consulting, integration, and development and support services, particularly in the areas of software maintenance and software development. The IT services market in Spain is closely connected to software, particularly software development and tailored installations. Roughly 38 percent of IT services are in development services and most of this is customizing software.

Although the IT services industry in Spain includes both large and small providers, it is very concentrated with 10 firms providing more than half of the IT services in the Spanish market. In addition, most IT services are provided by local firms or foreign subsidiaries in the local marketplace, not through imports (only 7.0 percent of IT services are imported directly by foreign firms).[131]

Many local industry experts believe that outsourcing will never flourish in Spain because most companies do not want to give up control over any part of the value chain. However, growing enterprise data traffic and increasingly complex networking connections have raised IT management costs, driving many Spanish firms to turn to outsourcing as a way to save money. In addition to saving money, the growing need for hosted data storage and the trend to outsource CRM are driving application services provision (ASP), desktop outsourcing (DTO) and call centers in Spain. In general, large Spanish firms tend to outsource part of their services and medium-sized companies tend to outsource manufacturing.[132]

• Hosted applications, particularly analytical, are becoming increasingly in demand in Spain. ASP is not yet fully understood by all companies and is the most unpredictable type of outsourcing. Spanish companies have tended not to use ASP in the past because of the lack of control and customization inherent in the model. However, Spain is one of the few countries where the ASP model has been successful. It is now the most popular form of outsourcing in the Spanish IT services market. Due to the economic downturn, many medium-sized companies have found savings in using ASP because of its cost sharing nature and the fact that they only have to pay a monthly fee instead of a large, up-front investment.

[129]Ibid.
[130]IDC Worldwide Black Book, IDC, April 2003.
[131]"Spain: Computer Services," *Industry Sector Analysis*, U.S. Department of Commerce/U.S. Commercial Service, Spain, 2002.
[132]Spanish industry representatives interviewed by USDOC staff, September 17-21, 2002.

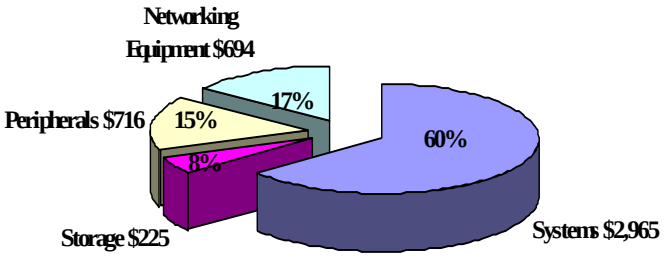
- The increased cost of maintaining and supporting desktop computers has driven more Spanish companies to use DTO. Since DTO is becoming a commoditized service, Spanish companies are finding extremely competitive prices and more sophisticated services offered, such as support for multiple devices and remote maintenance.

HARDWARE

The hardware segment is the second fastest growing segment in Spain's IT market, with an 8.9 percent CAGR from 2003 to 2007. Hardware sales, representing roughly 43 percent of Spain's IT market, declined in 2002 due to cautious business investments. However, Spain's hardware market is expected to recover in the next three years, growing 7.3 percent in 2003, 10.5 percent in 2004, and 11 percent in 2005. The hardware system's segment (servers, PCs, and traditional workstations), representing 64 percent of the entire hardware market, declined 5.7 percent in 2002 to reach $3.0 billion (Figure 2.2-4).[133] In 2003, the hardware system's market is expected to remain flat at 2002 levels.

Although Spain only has a 13 percent PC penetration rate, the PC market is one of Spain's largest IT segments. It represents over 50 percent of the hardware market and 22 percent of Spain's entire IT market. In 2002, Spain's PC market declined 2.7 percent to reach $2.3 billion. This decline is following the worldwide industry trend for unit PC shipments to increase and revenues to decline because of price competition. However, the decline in value in Spain's PC market was lower than many industry analysts expected after the first three quarters of 2002. The higher than expected figures for PCs in 2002 is largely due to the double-digit growth seen in the fourth quarter (23 percent). Sales were spurred on by active supplier initiatives in the under-penetrated Pequenas y Medianas Empresas (PYME)[134] market and the need for the public sector to spend 2002 budget allocations by the end of the quarter. While weak demand by large companies was the primary obstacle to PC sales in 2002, the PYME and public sector markets are the primary drivers of the PC market.[135]

Figure 2.2.4
Spain: Hardware Market 2002



Source: IDC Black Book, April 2003

Total: $4.6 billion

Spain's consumer market was a primary driver of PC sales in 2002. PC suppliers have successfully fought concerns consumers have over growing inflation and unemployment through pricing initiatives and attractive product offerings. The popular demand for Internet access and new multimedia

[133] IDC Worldwide Black Book, IDC, April 2003.
[134] PYMEs are Spanish enterprises with less than 100 employees.
[135] "Healthy Business Demand Boosts Growth in the Spanish PC Market," *IDC*, February 11, 2003.

applications are the primary drivers for the home-user market. The notebook market continued to increase in 2002, growing 24% from the previous year. These sales were driven by demand from PYMEs and the home-users market.[136]

U.S. companies led the Spanish PC market, controlling roughly 33 percent at the end of the first quarter, 2003 (Figure 2.2.5).[137] Other foreign companies held 19 percent of the market. However, local PC venders (Airis Computer, Jump, Datalogic, Investronica, and ADLI) still had 26 percent share of the market.

Figure 2.2.5
PC Market Share in Spain

Hewlett Packard	18.6%
Dell Corporation	9.0%
Airis Computers	7.7%
Acer	5.8%
IBM Corporation	4.9%
Fujitsu Siemens	4.8%
Toshiba	4.6%
ADLI	4.6%
Data Logic	4.0%
NEC CI	3.6%
Others	32.4%

Source: IDC, Final Results 1Q03

In an effort to maintain their dominant position in the Spanish market and despite the uncertainty in the economy, many large Spanish firms continue to upgrade their networks and automate more of their processes. This investment in more sophisticated Intranets and extranets, as well as storage to hold increasing amounts of data generated by businesses, has driven the server, networking equipment, and storage segments of the hardware market.

Midrange and low-end servers, increasingly used to support web sites and high-end databases, are expected to have 2003 – 2007 CAGRs of 5.4 and 6.3 percent, respectively. However, mid-range servers declined 29.4 percent in 2002 to $137 million, while low-end servers, valued at $382 million, declined 3.6 percent. Growth is expected to return over the next several years as Spanish companies increase their investments in projects related to the development of e-business, especially in CRM, SCM, and ERP.[138]

The ever-increasing need for Spanish firms to become connected and the use of Internet-enabled enterprise applications are driving the networking equipment segment. Currently, only 50 percent of Spanish firms have their computers interconnected via Intranet.[139] However, as seen in Figure 2.2.6, Spain's vertical markets are very interconnected compared to the European average, particularly in the retail/wholesale, professional services, and health care user segments.

[136]Ibid.
[137]Data for HP includes HP and Compaq combined.
[138]IDC Worldwide Black Book, IDC, April 2003.
[139] "Spain: Networking Equipment and Software," *Industry Sector Analysis*, U.S. Department of Commerce/U.S. Commercial Service, Spain, February 2003.

Figure 2.2.6
Presence of Intranets by vertical markets, 2001
Percent of sites with Web Access with an Intranet

Industries	Spain	Western Europe
Banking	75.6%	62.0%
Insurance/other finance	46.1%	42.0%
Process manufacturing	42.6%	45.8%
Discrete manufacturing	83.6%	62.5%
Transport/telecom/media/utilities	76.0%	48.1%
Retail/wholesale	94.1%	47.6%
Professional services	94.0%	61.4%
Health care	97.6%	47.1%
Education	59.5%	54.3%
Government	53.8%	63.0%
All industries	70.6%	51.2%

Source: EITO 2003

Growth of traditional Local Area Networks (LAN) hardware will continue to slow in the next few years as end-users shift from hub technologies to high-speed alternatives, such as advanced switching, based on Fast Ethernet and Gigabit Ethernet. Although many larger firms have already invested in LANs, the size of these LANs will continue to grow, driving the need for add-on sales. Additionally, medium-sized businesses will continue to seek the advantages of internal connectivity. Demand for networking is expected to have a 2003-2007 CAGR of 14.1 percent.[140]

IT USAGE

TECHNOLOGY USE IN BUSINESSES

Although Spanish companies continue to invest in IT at a sustainable rate, they lag behind other businesses in Europe, the United States, and other OECD members.

Spain's business PC penetration rate is 73 percent, while the average in Western Europe is 78 percent.[141] Most of the roughly 744,000 Spanish businesses with at least one employee use some form of IT, according to a report published by DMR Consulting and SEDISI.[142] Additionally, 85 percent of Spanish companies surveyed used computers, terminals, or workstations in 2001, an increase of 1.5 percent over the previous year. This trend is expected to continue for the next several years, since 6.0 percent of the

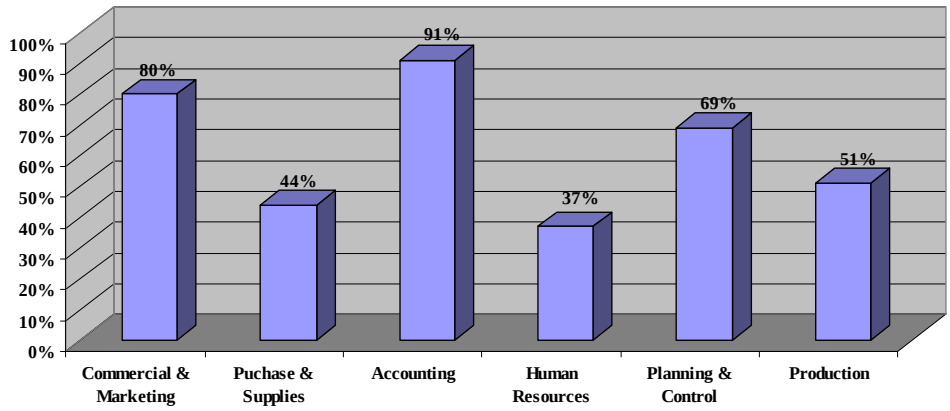
[140]IDC Worldwide Black Book, IDC,April 2003.
[141]European Information Technology Observatory 2002 ("EITO 2003"), Frankfurt, March 2003, p 76.
[142]Information Society Technologies in Spanish Companies 2001, DMR Consulting and the Asociacion Espanola De Empresas De Techologias De La Informacion (SEDISI), March 2002.

companies not using IT planned to do so within two to three years. Although this is an improvement, it is still well below the 96 percent average of the OECD countries surveyed.

SEVENTY-FOUR PERCENT OF COMPANIES THAT PARTICIPATED IN THE SURVEY REPORTED THEY DID NOT USE IT FOR THEIR BUSINESS ACTIVITIES, BECAUSE THEY DID NOT HAVE A NEED.

Accounting and financial management are the areas in which Spanish firms make the most use of computers, followed by commercial and marketing activities, planning and control, production, purchases and supplies, and human resources. The reason computers are least used in the human resources is because these tasks are often outsourced to other companies (Figure 2.2.7).[143]

Figure 2.2.7
Use of IT in Spanish Businesses



Source: SEDISI and DMR Consulting

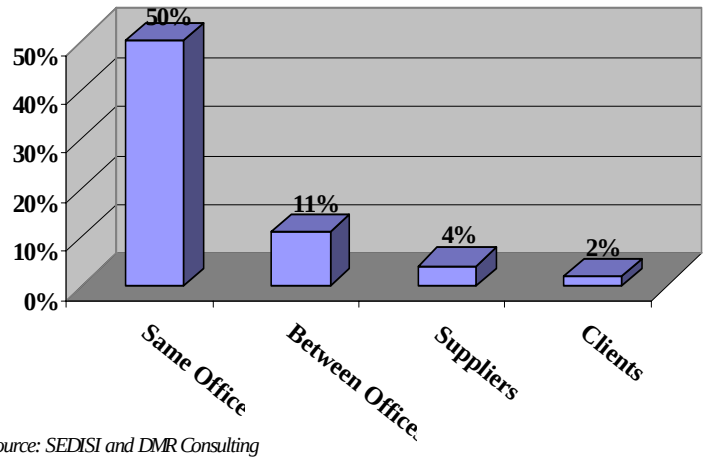
Slightly over 50 percent of Spanish companies are connected to the Internet - the EU average is 72 percent. The Spanish figure falls to 42 percent for very small companies with under two employees, but in those with over 250 employees it is close to 100 percent. Spanish services companies lead all industry segments with an Internet penetration rate of 75 percent, while retail and construction companies are well below the average. Regarding employees, roughly 15 percent of employees in Spanish companies, both large and small, have access to the Internet. Additionally, some 32 percent of employees in Spanish companies have access to e-mail, 46 percent of which are large companies and 23 percent small companies. When asked in SEDISI/DMR's survey what the primary reasons were that companies were not connected to the Internet, the main barriers were said to be the technical difficulty in its introduction, operation and use and, to a lesser extent, the loss of time represented by useless browsing on the web.[144]

[143] Ibid.
[144] "La Sociedad de la Información. La Visión Empresarial," Confederación Española de Organizaciones Empresariales (CEOE), February 11, 2002.

Roughly 54 percent of Spanish firms interconnected their computers in 2001, either through LAN networks in the same office or WAN networks interconnecting different offices (Figure 2.2.8).[145] This is an increase over the previous year, in which 45 percent of companies were connected.

The use of IT specialists and teleworking in Spain is limited. Less than a third of companies have IT specialists, most of whom do not receive any IT training. In addition, few Spanish firms offer employees teleworking.[146]

Figure 2.2.8
Type of Interconnection in Spanish Firms

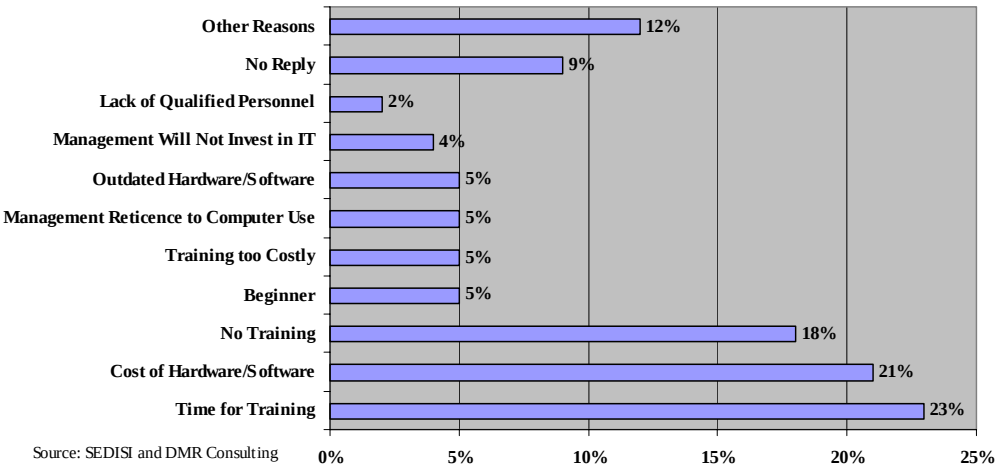


Source: SEDISI and DMR Consulting

Over a quarter of the managers of companies believe that their company has reached the highest possible development in IT. However, managers that believe their company is not at the optimal level of IT development cite the lack of time for training, cost of IT in general, and no offered training as the main reasons (Figure 2.2.9).[147]

Major end-users of IT in Spain include the banking and financial services, telecommunications, pharmaceutical, transportation, and chemical industries. As in many other countries, the banking industry is one of Spain's early adopters of technology and most intensive end-users of IT. The financial services market revenues in Spain were $1.16 billion in 2001, and have an expected 11.1 percent CAGR through 2005.[148] Although banking fees are bigger than the European average, banks tend to invest large amounts of money in technology (Figure 2.2.10).

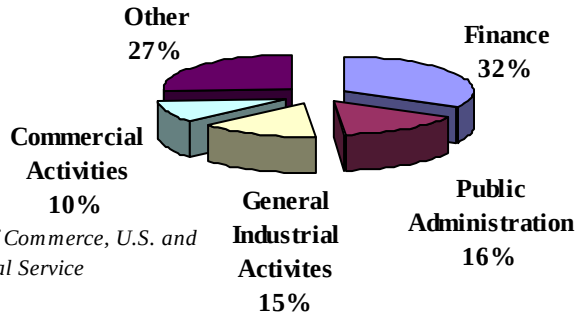
Figure 2.2.9
Why IT Development has not Reached Optimum Level



Source: SEDISI and DMR Consulting

[145] Information Society Technologies in Spanish Companies 2001, DMR Consulting and the Asociacion Espanola De Empresas De Techologias De La Informacion (SEDISI), March 2002.
[146] Ibid.
[147] Ibid.
[148] Redshaw, Peter and Brown, Robert, "Financial Services Sourcing in Western Europe," Gartner, Inc., January 2002, p. 3.

Figure 2.2.10
Direct Sales Market for IT Products and Services



U.S. Department of Commerce, U.S. and Foreign Commercial Service

TECHNOLOGY USE BY THE GOVERNMENT

The government ICT budget is very limited and it rarely meets its budgetary expenditure targets, which are seen by industry experts to be very high and unrealistic. However, public administration is one of the biggest ICT market segments in Spain, growing 20.8 percent in 2001.[149] The Spanish government spent €1.89 billion on IT and telecommunications in 2001, according to *EITO 2002*. EITO predicts this will rise to €1.93 in 2002, giving Spain a CAGR of 5.2 percent between 2000 and 2002. Spain spends roughly 0.27 percent of its GDP on public administration ICT, which currently places it in the bottom half of Western European countries in this measure of usage.

The Spanish government's INFO XXI plan (see section 2.8 in this chapter), if implemented, would mean that government spending on IT will increase at a fast pace. The plan estimates that €5 million are needed for IT investments in the central administration over the next 3 years. The government would like to spend this much on IT equipment but, as always, this depends on annual budget appropriations. Additionally, the plan's expected increase in IT investment in the majority of schools, the introduction of "network centers," and replacing Spain's national identity (ID) cards with electronic ID cards, are three of the primary projects expected to significantly increase government spending on IT. The government's use of online technologies is described in the e-commerce section of this chapter.

[149]Director sales (proprietary sales force) represent 71.5 percent of the total IT market; indirect sales (distributors) represent the remaining 28.5 percent of the market.

2.3 TELECOMMUNICATIONS

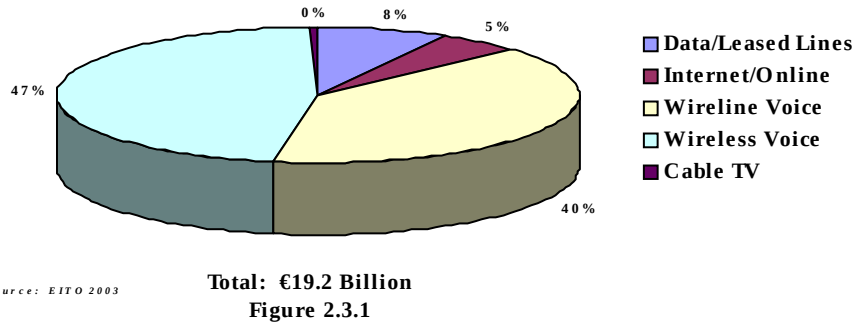
FIFTH LARGEST EU MARKET

Spain has the fifth largest market for telecommunications equipment and services in the European Union, with value of €23.6 billion in 2002. The value of the Spanish market for telecommunications services was €19.2 billion in 2002, accounting for 8 percent of the EU market for telecommunications services. Wireline and wireless telephone services accounted for the bulk (40 percent and 47 percent, respectively) of the Spanish market in 2002. The remainder consisted of: Internet and online services (5 percent), switched data/leased line services (8 percent) and cable TV services (0.5 percent), according to *EITO 2003.*[150]

GROWTH MODERATING IN TELECOMMUNICATIONS SERVICES

The Spanish market for telecommunications services continues to grow steadily, but the growth rate is decelerating. During the latter half of the 1990s, the value of the market grew at an average annual rate of 20 percent, but this growth rate dropped to 6 percent in 2001, when the market was valued at €18.2 billion. The annual growth rate is expected to average only 5 percent from 2002 to 2004. The moderation in this growth rate is due to both the global economic slowdown and sector-specific factors. A breakdown of telecommunications services reveals that the bulk of the growth in 2002 and 2003 is expected to be in wireless services, even though the growth rate in the value of wireless services is expected to drop from 10 percent in 2001 to 8 percent in 2002 and to only 5 percent in 2003. Meanwhile, rapid growth in the value of data communications, online services and cable TV services is expected to more than offset a gradual decline in the value of fixed (wireline) telephone services, according to *EITO 2003*. Consequently, over the medium term, the value of the Spanish market for retail wireline network services is expected by Gartner to grow at a compound annual growth rate (CAGR) of 3.8 percent from €12.4 billion in 2001 to €14.9 billion in 2006. Because the Spanish wireline market is growing faster than that of the rest of the EU, this would increase Spain's share of the Western European retail market for wireline network services from 8.5 percent in 2001 to 10.2 percent by 2006.[151]

Telecommunications Services Market in Spain, 2002



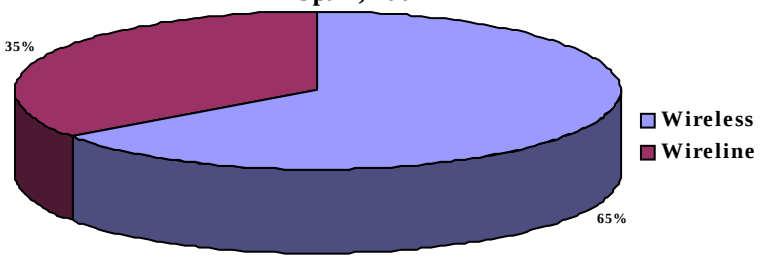
Source: EITO 2003

Total: €19.2 Billion
Figure 2.3.1

[150] *EITO 2003* is the annual report of the European Information Technology Observatory.
[151] "Trends in Fixed Public Network Services: Spain, 2000-2006 (Executive Summary)" Gartner, October 18, 2002, p. 1.

The value of the Spanish market for telecommunications equipment (excluding LANs, which are included in IT equipment, in the previous section) was €4.4 billion in 2002, accounting for 8 percent of the EU market for telecommunications equipment. 50 percent of the Spanish market for telecommunications equipment in 2002 was wireless (both telephone sets and infrastructure equipment), and the remainder was wireline equipment, according to *EITO 2003.*

Telecommunications Equipment Market in Spain, 2002



Total: €4.4 Billion

Source: EITO Update 2002

Figure 2.3.2

EQUIPMENT EXPENDITURE DECLINES, RESUMES

For the first time in about a decade, the value of the Spanish market for telecommunications equipment decreased by 19 percent to a value of €4.5 billion in 2001. This decrease was due to sharp decreases in purchases of mobile telephone sets (down 22 percent) and related wireless infrastructure (down 45 percent) in 2001, related to the slowdown in growth of wireless communications services, especially wireless Internet access, which suffered from users' disappointment with Wireless Access Protocol (WAP). However, the rate of decrease in equipment expenditures was only 2 percent in 2002, and is expected to be only 1 percent in 2003. By 2004, growth is expected to resume at a rate of 3 percent. The turnaround is due primarily to a resumption of growth in purchases of wireless infrastructure in 2002 and 2003, according to *EITO 2003*. U.S. exports of telecommunications equipment to Spain declined sharply in 2002 to a level of $89 million, a decline of 46 percent compared to the previous year, a faster decline than that of U.S. telecommunications exports to the entire EU (down 30 percent).[152]

INVESTMENT IN SPANISH TELECOMMUNICATIONS INFRASTRUCTURE

Although investment in infrastructure has slowed down in Spain, it has slowed less than in the more developed EU Member States. The telecommunications sector's contribution to GDP in Spain decreased from 4.15 percent in 1999 to 3.87 percent in 2002, but it was still higher than the average for Western Europe, which was 3.38 percent in 2002. The incumbent wireline telecommunications operator, Telefónica de España, has invested heavily in network modernization for many years, so that 90 percent of its network is digitized. However, telecommunications investment in Spain peaked at €10 billion in 2000, and declined by 20 percent in 2001, due largely to a 30 percent decrease in investment by mobile

[152]Source: U.S. Department of Commerce. The value of U.S. telecommunications exports understates U.S. firms' competitiveness because many large U.S. telecommunications manufacturers supply the Spanish market from overseas manufacturing plants located in Spain and elsewhere.

operators. 42 percent of telecommunications investment in 2001 was by wireline network operators and 26 percent by wireless operators.[153]

Telefónica's investment is currently focused primarily on asymmetric digital subscriber lines (ADSL), in which it invested €1.15 billion between 2001 and 2002. Five alternative operators have also invested to build substantial wireline networks in Spain since competition was authorized in 1998. Much current investment in wireless communications infrastructure is to expand existing second generation (GSM[154]) networks, in order to satisfy demand, which continues to grow. Spanish mobile operators are also investing to improve their existing networks' data services, especially messaging services, and to build new networks to offer third generation digital wireless services (known as UMTS or 3G services).

Liberalization of the regulatory regime

Many opportunities for U.S. telecommunications exports and investment in Spain result from the liberalization of the Spanish regulatory regime for telecommunications services. The Spanish government ended the monopoly of Telefónica and created a duopoly in basic, wireline telecommunications services and related infrastructure in January 1998, allowing a cable TV operator, Retevisión, to compete with Telefónica. In December 1998, the government opened the sector to unlimited competition. To safeguard competition in the telecommunications sector, the government established the Comisión del Mercado de las Telecomunicaciones (the Telecommunications Market Commission, known as the CMT) in 1997. The CMT is the principal telecommunications regulatory authority in Spain, but broader antitrust decisions are still the primary responsibility of the Spanish Competition Authority, as in other EU Member States.

Principal Functions of Comisión del Mercado de las Telecomunicaciones (CMT)

- Publish regulations to safeguard competition between operators
- Issue permits, except those issued by tender
- Monitor market to enforce compliance with regulations
- Ensure adequate access to networks & services, including interconnection & interoperability

The CMT is a relatively autonomous agency, the funds for which are almost exclusively derived from the fees that it charges the operators that it regulates.[155] Since July 2002, the CMT has been organizationally affiliated with the Spanish Ministry of Science and Technology, which has its own powers for regulation of the telecommunications sector, such as frequency allocation, spectrum management, regulatory policy for rights of way and planning of telephone number allocation.[156] This reorganization should facilitate coordination between these two regulatory authorities, but Spain's Ministry of Economy remains res-

[153]Comisión del Mercado de las Telecomunicaciones (CMT), *Annual Report (Summary) - 2001: Main Data for the Sector* (Madrid, 2002), p. 24.
[154]GSM represents Global System for Mobile, which is the standard developed by the European Telecommunications Standards Institute (ETSI) for cellular communications. GSM is known as a second generation (2G) mobile communications technology, because it is digital, whereas first generation mobile technology is analog. GSM is currently the most widely used mobile technology in the world, accounting for about 70 percent of the world mobile market.
[155]Further information about CMT is available on its website, at www.cmt.es, both in English and Spanish.
[156]Further information on the Ministry of Science & Technology is available at www.mcyt.es).

ponsible for setting the tariffs that limit the prices to be charged for many telecommunications services. Competitive telecommunications operators emphasize the need for further coordination between these authorities to achieve greater regulatory certainty. The Ministry of Economy is primarily concerned with minimizing inflation, a goal that is not always consistent with the sector-specific objectives of the CMT and the Science & Technology Ministry when they regulate the prices charged by the incumbent operator.

Nevertheless, the Spanish regulatory authorities were increasingly active in 2002 to ensure the effective implementation of their decisions. The CMT imposed a fine of €18 million **(**the largest fine ever) on Telefónica in July 2002 for failure to comply with its decision about closed user groups, and the CMT initiated proceedings for four more sanctions against the incumbent. Meanwhile, Telefónica became increasingly aggressive, like the incumbent in Germany, by launching 25 appeals against the regulator's decisions during the first half of 2002, compared with 21 for the whole of 2001. Recently, Spanish regulators seem to be heeding the calls of Spanish telecommunications operators to shift their focus from the level of end-user prices to conditions in the wholesale market. In October 2002, Spain's new Minister for Science and Technology announced measures to relax the current price cap regime (which is pegged to the consumer price index and controlled closely by the Economy Ministry) and to increase opportunities for telecommunications competition as a means of improving competitiveness and decreasing end-user tariffs.[157]

TELEFÓNICA: POWERFUL INCUMBENT AND MARKET LEADER

Despite increasing competition, the Spanish telecommunications market continues to be dominated by the Telefónica Group, which is the fourth largest telecommunications operator in the EU and the tenth largest in the world, ranked by revenue in 2001, according to CIT Publications. Formerly a state-owned monopoly, Telefónica was almost completely privatized by 1997, leaving the Spanish government with only one "golden" share of Telefónica.[158] During 2001, the revenue of Telefónica was $27.8 billion, 9 percent more than in 2000, and it earned $1.9 billion, the highest profit of the top twenty telecommunications operators in the EU.[159] However, Telefónica recently reported its first net loss in history, valued at €5.6 billion, for fiscal 2002, due to a write-off of €4.6 billion from the value of its 3G investments in Germany, Italy, Austria and Switzerland, a write-down of €1.4 billion in the value of its Internet subsidiary, and a 8.5 percent decrease in its revenue. Telefónica's wireline business in Spain contributed the most to the group's revenues, generating €10 billion, followed by its global wireless business (€9 billion).[160] Nevertheless, Telefónica's domestic wireline operation is reportedly considering a reduction of 33 percent of its 45,000 employees over the period through 2007.[161]

Increasing domestic competition persuaded Telefónica to expand further into foreign markets in early 2001, when it recognized that its ultimate survival depends on competing with the largest European operators and not just its domestic and Latin American competitors. Telefónica focuses primarily on

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[157]European Commission (EC), Telecommunications Regulatory Package - 8th Implementation Report- Annex III: Spain, EC Staff Working Paper, Brussels, November 2002, p. 51.
[158]EC, Telecommunications Regulatory Package - 8th Implementation Report- Annex I, Staff Working Paper, Brussels, November 2002, p. 20.
[159]CIT Publications, "Deutsche Telekom Tops CIT's European Telcos League Table", Communications Update, 10/31/02, and "Top 100 Operators' Revenues Break USD 1 Trillion Barrier", Communications Update, 10/8/02, both sourced from CIT's Yearbook of European Telecommunications 2003.
[160]CIT Publications, "Wireless write-down makes Telefónica wince", Communications Update, 2/27/03, p.1
[161]CIT Publications, "Telefónica de España set to lose 15,000 staff", Communications Update, 6/25/03, p.1.

Spain, Portugal and Latin America, but it had begun to expand into other parts of Europe, Asia, Africa, and Oceania. During 2001 and 2002, it paid €6 billion to obtain licenses to offer 3G wireless services in five European countries: Spain, Germany, Austria, Switzerland and Italy. Nevertheless, Telefónica continues to be the only large European operator with such a manageable debt burden (€22.5 billion at the end of 2002), and it boasts the highest capacity for generating cash flow. In order to avoid facing such huge debt burdens as other leading European telecommunications operators, Telefónica curtailed its obligations for further expenditures on 3G by withdrawing from the competition for 3G licenses in France and Brazil and by halting in July 2002 its other 3G activities throughout Europe, except in Spain. Telefónica's primary focus remains on its home country (which accounted for 58 percent of its revenue in 2002) and Latin America (35 percent of its revenue in 2002), but it maintains a presence in 50 countries, and further global ambitions are being deferred.[162]

Reorganization of Telefónica's Global Businesses

During the two years preceding June 2002, Telefónica reorganized its businesses into global product lines for strategic and competitive reasons. The company is now organized by centrally coordinated business lines that are managed by some 14 subsidiaries, which, in turn, act as parent companies for other entities in the same business.[163] Most of these subsidiaries are wholly owned by the Telefónica Group, with the notable exceptions of Telefónica Móviles (of which Telefónica owns 92%), Telefónica Publicidad e Información (about 60 %), and Terra Lycos (37%).[164] The principal subsidiaries are:

Telefónica de España provides wireline telecommunications services in Spain.
Telefónica Móviles, a holding company for many of Telefónica's mobile subsidiaries, world-wide.
Telefónica Internacional provides wireline services in Latin America.
Telefónica Data provides data communications and integrated business solutions, world-wide.
Terra Lycos provides Internet-related services, world-wide.
Telefónica Media produces and broadcasts audiovisual media content, world-wide.
Telefónica Publicidad e Información publishes telephone directories.
Alento Holding Telecomunicaciónes operates call centers in Spain, Italy, Morocco, Japan, and Latin America.
Katalyx develops business-to-business (B2B) marketplaces.
Emergia provides broadband communications services in Latin America.

This reorganization created three important new business divisions: Telefónica Móviles, Telefónica DataCorp, and Terra Lycos. These changes have led the operator to combine, modify and discontinue a number of its services. The only product line that remains unchanged is wireline services, which continue to be offered directly by Telefónica in Spain over 19 million fixed lines, 12 percent of which are ISDN. As a result of the consolidation of its global mobile operations into a single carrier, Telefónica Móviles is the sixth largest mobile operator in the world, with over 25 million customers. Telefónica Móviles also formed a joint venture with Terra Lycos to develop a global wireless Internet portal, named Terra Mobile. Telefónica DataCorp offers basic data transmission service, global IP services and value-added services for corporate customers. Terra Lycos (formerly known as Terra Networks) merges all of

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[162] CIT Publications, "Wireless write-down makes Telefónica wince", p.1
[163] Stuart, Donald and Tuset, Joe "Product Report: Telefonica Network Services" Gartner, June 2002, p.2.
[164]CIT Publications, "Telefónica – Company Profile," Data File of European Telecommunications, Exeter, U.K., April 2003, p.1

Telefónica's Internet-related services to the consumer and small office/home office (SoHo) markets, including operations acquired in 2000 by Telefónica when it took over the U.S. web portal, Lycos. Terra Lycos claims to be the world's third largest ISP, operating over 140 websites. At the end of 2002, it had 6 million subscribers world-wide.[165]

LIBERALIZATION HAS BROUGHT GROWTH & COMPETITION IN WIRELINE SERVICES

One result of liberalization that is not widely recognized is its stimulation of additional demand for wireline services in Spain, especially online services. According to the CMT's *Annual Report- 2001*, the number of wireline call minutes increased by 92 percent from 1998 to 2001. The principal cause of this sharp increase in wireline services is Internet access calls, which accounted for 32 percent of this traffic in 2000 and 43 percent in 2001. Another cause of this additional demand is the 47 percent decrease in the prices of wireline services in Spain since 1998.[166] Wireline liberalization has also promoted the rapid development of competition for the incumbent operator. Alternative wireline operators have been most successful in winning market share from Telefónica in long-distance and international calls, in which their share of retail revenues was 21 percent, as of August 2002.[167] One reason for the success of alternative operators is marketing of their long-distance and international services through call centers, which are small shops with telephones and/or computers that are springing up throughout Spanish cities, and are particularly popular among Spanish immigrants.

TELEFÓNICA'S WIRELINE COMPETITORS

Only 14 of the 72 national licenses that have been issued by the Spanish government for public voice telephony since 1998 are now being used for long-distance and international calls, due largely to consolidations and bankruptcies.[168] Only three of these operators have made the necessary investments in national networks and marketing to mount a significant across-the-board challenge to the powerful incumbent operator: Grupo Auna (formerly Retevisión and owned primarily by Banco Santander, Endesa and Unión Fenosa), Ono (owned primarily by foreign and domestic banks), and Uni2 (wholly owned by France Télécom). Another potential challenger to Telefónica, called Jazztel, (owned mostly by institutional investors) is just beginning to emerge as a national competitor. Jazztel is using a different business model, seeking to become Spain's first competitive local exchange carrier, with a strong focus on SMEs.[169]

Retevisión became Spain's second telephone company in January 1998, when it introduced long-distance and international service. It was renamed Retevisión Auna in April 2000, when it was established as a subsidiary of the Auna Group that merged the Spanish interests of its owners in telecommunications, broadcasting and cable television. Retevisión Auna is currently consolidating its position as the second largest Spanish operator in all key wireline services. As of the end of 2002, the wireline network of Retevisión served 1.7 million phone customers and 1.2 million Internet subscribers in nine provinces of Spain. Its direct access network provides voice, data and Internet transmission, primarily to business customers. In addition, it has a multimedia and Internet division, Iddeo. Retevisión holds one license to

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[165] I*bid., p.1.*
[166] CMT, Annual Report (Summary)– 2001: Main Data for the Sector , pp. 33 & 36.
[167] Telecommunications Regulatory Package - 8th Implementation Report- Annex I, p. 29.
[168] *Ibid.*, pp 11 and 13.
[169] CIT Publications, "Spain – Wireline," Data File of European Telecommunications, Exeter, U.K., March 2003, pp. 1-2, 5-7.

offer cable television services in Spain, and its parent company (Auna) owns seven such licenses through another wholly owned subsidiary, Aunacable.[170]

Despite a three-fold increase in its revenues during 2001 to a level of €2.3 billion, the buy-out of Telecom Italia's stake in Retevisión Auna and financial difficulties led the Auna Group to announce a restructuring of its businesses in June 2002 that is expected to lead to a merger of Retevisión with Aunacable and the sale of its audiovisual division. In August 2002, a group of investors (consisting mostly of Retevisión owners and led by Spain's largest bank, Banco Santander) bought Telecom Italia's share of Retevisión Auna (27 percent). In October 2002, the Auna Group announced plans to lay off an unspecified proportion of its 3,900 employees, and it is unclear when it will resume investment in network construction.[171]

NASCENT COMPETITION IN LOCAL WIRELINE SERVICES

As in most countries, competition in local wireline telecommunications services has not taken off as fast as competition in long-distance and international telecommunications services. However, the proportion of telephone subscribers using an alternative provider for local calls had already reached 17.5 percent by August 2002, higher than the EU average of 15 percent and almost as high as the proportion of subscribers using an alternative provider for long-distance and international calls (21 percent), according to national regulatory authorities. The infrastructure was in place by August 2002 for local competition to take off rapidly in Spain, because all subscribers in Spain had a choice of 5 or more alternative providers for local, long-distance, and international calls, as well as for direct access. Furthermore, there was a big increase in the number of operators authorized to provide such calls during 2002, when many cable TV operators transformed their provisional cable modem access concessions into national licenses for facilities-based telecommunications services, according to the CMT.[172]

GOVERNMENT'S STEPS TO SUPPORT LOCAL COMPETITION

The most important remaining barrier to local competition, especially for high-speed Internet access, is the difficulty of unbundling the local loop of the incumbent telecommunications operator, access to which is critical because Telefónica is the only operator with a nation-wide local access network. Two years after unbundling was legally required under the EU Unbundling Directive, only 1,181 local loops have been unbundled in Spain, compared to a over a million throughout the EU, and only 6 operators have concluded an unbundling agreement with Telefónica.[173]

Nevertheless, the CMT has managed to simplify the cumbersome process of complying with Telefónica's requirements in its reference unbundling offer, which was substantially improved in April 2002. For example, the new reference unbundling offer improves the information systems and procedures available to new entrants by allowing them to access the incumbents' services and databases on-line, and it provides a standard contract form that includes a service level agreement. There are 13 operators in Spain that abandoned efforts to reach an unbundling agreement with Telefónica, and no loops are in shared use yet. However, this lack of demand by operators is temporary, reflecting the current

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[170]Interviews in Madrid and Barcelona, September 17 and 20, 2002
[171]CIT Publications, "Auna – Company Profile" Datafile of European Communications, Exeter, U.K., November 2002, p. 1-3.
[172]EC, Telecommunications Regulatory Package - 8th Implementation Report- Annex I, pp. 10, 27-30.
[173]EC, Telecommunications Regulatory Package - 8th Implementation Report- Annex III: Spain, p. 56

worldwide telecommunications slowdown and the difficulty of obtaining capital financing for investment.[174] In September 2002, three other operators (Retevisión, Unidos and BT Ignite) remained interested in obtaining access to unbundled local loops to offer services to businesses.[175]

CMT'S RIGOROUS REGIME FOR INTERCONNECTION

One reason that new entrants have been able to seize a significant share of local, long-distance and international wireline traffic from Telefónica is that Spain has been more successful in establishing an effective regulatory regime for interconnection than for unbundling. The current reference interconnection offer (RIO) has been in effect since August 2001. For the first time, the CMT based this RIO on its analysis of the incumbent's cost accounts, leading to a decrease in interconnection charges of 26 percent (on a weighted average) compared with the RIO of 2000. In both 2001 and 2002, the CMT also changed the RIO by introducing a number of novel approaches to give the new entrants more flexibility in setting their end-user tariffs so that they could differentiate their offers from those of Telefónica. The most novel improvement in the RIO was the establishment of a capacity-based interconnection service.[176]

Although the 2001 RIO was welcomed by new entrants, it has been difficult or impossible to implement many of its components, especially capacity-based interconnection. Consequently, the CMT adopted five precautionary measures, which in turn have been appealed by Telefónica. CMT responded by imposing a fine of €13.5 million in October 2002, when the Minister of Science & Technology announced that implementation of capacity-based interconnection is one of his priorities to promote telecommunications competition. Nevertheless, the EC has found that most interconnection charges have decreased considerably during the year ending in August 2002. Telefónica has an appeal pending in court against the 2001 RIO, arguing that discounts by volume and capacity-based interconnection obligate it to charge the lowest interconnection fees in Europe.[177]

Furthermore, Spanish regulators have regulated interconnection of fixed operators with mobile operators more strictly than such an advanced EU Member State as Germany, which refuses to regulate any mobile operator. By imposing a decrease of 17 percent on the fixed-to-mobile call termination rates of the principal two Spanish mobile operators (Telefónica Móviles and Vodafone) in June 2002, the CMT brought these rates in line with the average European rate, and it plans to continue such steps to assure that they do not impose excessive termination fees on wireline operators.[178]

THE MARKET FOR INTERNET SERVICES IS BOOMING

The number of Internet users in Spain increased by 21 percent during 2002, reaching a level of 13 million, which is 32 percent of the population, but this is still substantially below the percentage of the Western European population using the Internet in 2002 (44 percent). Another measure of the rapid growth of the Internet in Spain is that the value of Internet and online services increased by 36 percent in 2002 to a level of €969 million, according to *EITO 2003.* The Internet is a mass market phenomenon in Spain, as demonstrated by the fact that the largest and fastest growing part of the revenues earned from Internet service provision is from services to individuals, which more than doubled in 2001,

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[174]*Ibid,* pp. 55-56.
[175]Interview with CMT representatives in Madrid, September 18, 2002.
[176]EC, Telecommunications Regulatory Package - 8th Implementation Report- Annex III: Spain, p. 52
[177]*Ibid,* p. 53
[178]Interview with CMT representatives in Madrid, September 18, 2002.

reaching €243 million, largely due to the revenue from individual access to ADSL service, which more than tripled to a level of €104 million. More encouraging for ISPs is the fact that the number of individual subscribers paying for Internet access increased by 42 percent in 2001, while the number of corporate subscribers paying for access increased by 38 percent, and the number of users accessing the Internet for free decreased by 2 percent.[179]

Telefónica, the leading Internet Service Provider

Like the ISP affiliates of the incumbent telecommunications operators in France and Germany, the three ISP affiliates in the Telefónica Group (Terra Lycos, Telefónica Data, and Telefónica de España) supply half of all Internet services in Spain, accounting for 46 percent of both Internet traffic and Internet revenues, respectively. As of August 2002, there were 401 ISPs in Spain, according to the CMT, and the largest operator in terms of traffic was Terra Lycos, with 37 percent of the market in 2001. It was followed by Wanadoo España (affiliated with France Télécom's Internet subsidiary, Wanadoo) and Erasmus Interactiva, which each had 17 percent of the traffic in Spain. As a result of the takeover of Erasmus by Wanadoo in October 2002, Wanadoo is now a more formidable competitor with Terra Lycos.[180] Viewing the Spanish market in terms of the number of Internet users, the Telefónica Group is also dominant, accounting for 51 percent of the 10.7 million Internet users in 2001, but it accounts for only 35 percent of paid users, because it has a larger share of unpaid users (56 percent) than most ISPs. The four ISPs with the largest total number of users in 2001 were: Terra Lycos (44 percent), Eresmas (13 percent), Wanadoo España (8 percent), and Airtel Movíl (5 percent).

Progress towards flat-rate Internet access

As is customary in Europe, most Spanish users of narrowband Internet services pay a metered fee, based on minutes of access, to the telecommunications operator that provides the dial-up connection. However, the CMT has taken steps to assure that narrowband Internet access is available on a flat-rate basis, as in several other EU Member States. As mentioned above in the section on interconnection, the CMT has required Telefónica since August 2001 to offer a capacity-based interconnection rate for both voice and data, based on the European regulatory model called flat-rate Internet access call origination (known as FRIACO). Nevertheless, difficulties have emerged with its implementation, as in Germany, primarily because of Telefonica's refusal to offer "FRIACO plus" by making this available at a limited number of interconnection points, as in the United Kingdom and Italy. Telefónica has agreed to a single interconnection point for its broadband offer (ADSL—which is flat-rate because it is always on) but not for narrowband Internet access.[181] Consequently, only three Spanish operators had reached agreements with Telefónica by November 2002 that allow them to offer flat-rate, narrowband Internet access to their subscribers, but three other operators continue to negotiate with Telefónica on the terms of such a capacity-based rate.

The CMT opened a proceeding against the incumbent operator for failure to provide capacity-based interconnection for voice and data over the same link, which resulted in the imposition of a €14 million fine in October 2002. Implementation of capacity-based interconnection remains one of the Spanish government's priorities and is an important part of the measures announced by the Minister for Science

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[179]CMT, Annual Report (Summary) – 2001: Main Data for the Sector, p. 53
[180]Garcia, Jesus, USCS, U.S. Embassy, Madrid, April 2003.
[181]Interview with CMT representatives in Madrid, September 18, 2002.

and Technology in October 2002 to promote telecommunications competition. In order to keep pressure on the incumbent, the CMT has commissioned a study of the prices for capacity-based interconnection for inclusion in the next reference interconnection offer of Telefónica.[182]

THREE MAIN DRIVERS OF GROWTH

As throughout western Europe, growing competition, decreasing profit margins in basic telecommunications services, and the broader economic slowdown are driving Spanish telecommunications operators and business users to focus on three main areas of growth: business communications, broadband communications, and mobile communications.[183]

FIRST DRIVER: BUSINESS COMMUNICATIONS

Although voice communications still accounts for the lion's share (81 percent) of revenues from wireline networks, the revenue from voice calls has stagnated since 1998 in Spain due to declining prices. Increasingly, wireline operators in Spain are finding opportunities to boost revenue through data communications and Internet-related services for business users because voice services will have a CAGR of only 0.6 percent for the period from 2001 to 2006. During the same five-year period, the value of data services in Spain is expected to grow from €1.7 billion to €2.8 billion, with a CAGR of 11 percent, while Internet and IP services grow from €629 million to €1.7 billion, with a CAGR of 22 percent. Wholesale services for business communications in Spain are also expected to increase steadily at a CAGR of 10 percent during the period from 2001 to 2006, driven by voice over IP, Internet server collocation, and content distribution/caching.[184]

In recent years, the fastest growing business communications services in Spain have been managed data services and value-added services, including messaging and directory services for voice, call centers, and private network management. In 2001, the value of the business communications market increased by 32 percent, reaching €1.98 billion, paced by data transmission services, which increased by 40 percent to €795 million. The value of the other two categories of business communications also increased, but not quite so rapidly: leasing of circuits to end customers expanded by 29 percent and corporate communications increased by 26 percent. The bulk of data transmission services (67 percent) were provided over dedicated data lines, and the remainder were provided by Internet access and other data services (17 percent), as well as other information services (16 percent). The value of Internet access and other data services increased the fastest of any category of data transmission service (65 percent) from 2000 to 2001, due to the continuing trend towards billing for these services, instead of allowing free access to them.[185]

The bulk of data transmission in Spain is still over frame relay platforms, but IP was the second most important transmission protocol, increasing its share of revenues from 3 percent in 2000 to 15 percent in 2001. SMEs use three different platforms for data communications: Integrated Services Digital Networks (ISDN), high-speed ADSL, or Local Area Networks (LANS, which are covered in the IT section of this report).[186] Although data communications will remain a much smaller share of the Spanish market than in more developed European countries, growth in managed data services is increasingly fuelled by the uptake of IP virtual private networks (IP-VPNs) and broadband services.

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[182]EC, Telecommunications Regulatory Package - 8th Implementation Report- Annex III: Spain, p. 53.
[183]Interview with a consulting firm in Madrid, September 17, 2002.
[184]"Trends in Fixed Public Network Services: Spain, 2000-2006 (Executive Summary)" p. 1
[185]CMT, Annual Report (Summary) – 2001: Main Data for the Sector, pp. 48-49.
[186]Interview with consultant in Madrid, September 17, 2002.

Spanish companies are increasing their use of IP-based applications such as IP-VPNs and voice over IP (VoIP). However, Telefónica and other major operators provide VoIP only if it is required by their corporate clients, because it would be too expensive to launch it on a nation-wide basis.[187] Although IP-VPN use has been primarily by large firms so far, an increasing number of small and medium-sized firms are expected to adopt IP-VPNs due to their cost efficiency and flexibility.[188] Value-added IP services offer new revenue opportunities to operators that are not possible over legacy platforms.

NASCENT COMPETITION IN BUSINESS COMMUNICATIONS

The Telefónica group dominates business communications in Spain, especially corporate communications services, in which it accounted for 96.1 percent of revenues in 2001. However, competitive operators such as Retevisión increased their share of corporate communications from 2.4 percent in 2000 to 3.9 percent in 2001, and they had a much larger market share of the market for data transmission (24.5 percent) and leased line services (17.0 percent) in 2001. In response to the opportunities in business communications, the number of operators serving businesses increased from 28 in 2000 to 45 in 2001.[189] SMEs and the majority of large Spanish firms do not possess their own data communications infrastructures. Instead, they use those of telecommunications operators, primarily the incumbent. Leased line services are used primarily by larger corporations in Spain, and SMEs generally prefer the less expensive Integrated Services Digital Network (ISDN) of the incumbent. However, as xDSL offers of telecommunications operators improve over the next five years, both corporate users and SMEs are likely to migrate to xDSL to accomplish similar data transmission rates at a lower cost, as elsewhere in the EU. In October 2002, Telefónica reportedly contracted with Riverstone Networks to purchase routers that would allow it to offer corporate clients broadband bandwidth guarantees, back-up resources, and multi-protocol label switching (MPLS) services.[190]

The value of leased line services to business customers is likely to continue to grow in Spain for several more years, unlike leased line revenues in more developed EU Member States, because the Spanish regulator has required Telefónica to improve its reference interconnection offer several times since 2001. Consequently, the monthly fees for leased short-distance lines fell considerably in 2002, but they remain the highest in the EU for popular 2 Mbit/s lines.[191] CMT introduced regulation of higher speed leased lines (34 Mbit/s and 155 Mbit/s) in 2001 and decreased wholesale rates for leased lines substantially in February and August of 2002. Since 2001, the CMT has also regulated service level agreements for Telefónica's leased lines to assure that there are penalties for failure to satisfy delivery and repair commitments. These measures have been welcomed by the new entrants, but there had been little impact on retail prices by September 2002.[192]

SECOND DRIVER: BROADBAND

Broadband deployment in Spain has been extraordinarily rapid since the end of 2000, when Spain ranked 20th among OECD members, in terms of broadband penetration per capita, behind 14 other European

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[187]Interview in Barcelona, September 20, 2002.
[188]"Trends in Fixed Public Network Services: Spain, 2000-2006 (Executive Summary)" p. 1.
[189]CMT, Annual Report (Summary) – 2001: Main Data for the Sector, pp. 49-50.
[190]"Spain: Telefónica de España Awards Broadband Contract to Riverstone Networks," World Markets Research Centre, London, U.K., 10/31/02
[191]EC, Telecommunications Regulatory Package - 8th Implementation Report- Annex III: Spain, p. 54.
[192]Interview with CMT representatives in Madrid, September 18, 2002.

countries in an OECD report. By June 2001, Spain had overtaken Italy in the same OECD ranking, with the 19th highest broadband penetration rate[193] By the end of the first quarter in 2002, Spain's broadband penetration per household ranked second in Europe, with broadband reaching 2.8 percent of households, second only to Germany, where broadband reached 4.7 percent of households, according to Gartner.[194] This is primarily due to recent rapid deployment of DSL, which accounted for 75.8 percent of retail broadband access to the Internet, as of August 2002, according to Spanish regulatory authorities. The only significant competition to DSL in Spain is provided by cable modems, which accounted for 23.4 percent of retail broadband Internet access at the same time, while the remainder (0.8 percent) was provided by other means, such as leased lines and wireless local loop.[195] The prospect for continuation of rapid broadband deployment in Spain is promising, because only 37 percent of Spanish Internet users have opted for broadband, as of April 2003.[196]

TELEFÓNICA'S RAPID DEPLOYMENT OF DSL

Like many leading incumbents in Europe, Telefónica introduced ADSL as a commercial service in October 1999, in 10 Spanish cities. Since then, the incumbent has concentrated on ADSL services and has not offered cable modem services, recognizing the opportunity to deploy ADSL more rapidly than cable modems, because ADSL does not require such major network upgrades as cable modems do. The rapid roll-out of ADSL in Spain since 2000 contrasts sharply with the slower growth in penetration of PCs and the Internet in Spain, which continues to lag behind most other EU Member States, despite the availability of a good telecommunications infrastructure in Spain.[197] During the first half of 2002, the rollout of DSL was almost twice as fast in Spain as it was in Italy, allowing Spain to overtake Italy in terms of the number of DSL subscribers.[198] Telefónica had 957,204 ADSL connections in Spain at the end of 2002, 154 percent more than at the end of 2001. It plans to provide ADSL to 3.5 million customers by 2005.[199]

The rapid deployment of ADSL in Spain is due primarily to Telefónica's skillful exploitation of its first-to-market advantage, focusing first on the needs of its business customers, who have been a key driver of ADSL deployment in Spain, while recognizing the mass market potential of ADSL. Telefónica has not cut back on its capital expenditures for ADSL deployment, unlike many European incumbents, despite the global slowdown. Consequently, more than 86 percent of Spain's exchanges have been upgraded to support ADSL services. In addition, it has offered attractive tariffs for ADSL at both the retail and the wholesale levels, despite the fact that there are only 1,181 fully unbundled local lines in Spain. The incumbent currently offers three options: basic ADSL costs only €30 per month and offers download/ upload speeds of 256 Kbps/128 Kbps; medium-speed ADSL costs €84 per month and offers 512 Kbps/ 128 Kbps; and "business solutions" begin at €52.99 per month and offer 2 Mbps/300 Kbps.[200]

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[193]Paltridge, Sam, "The Development of Broadband Access in OECD Countries," OECD Committee for Information, Computer and Communications Policy, Paris, October 29, 2001, p.14

[194]Stuart, Donald and Bhalla, Kiran, "Operational Management Report: DSL and Cable Modem Services in Europe" Gartner, August 1 2002, p. 4.

[195]EC, 8th Report from the Commission on the Implementation of the Telecommunications Regulatory Package: European telecoms regulation and markets 2002,(Brussels, December 3, 2002), p. 30.

[196]"Porn Driving Broadband Growth," *CNNMoney*, CNN, May 29, 2003. [197]Stuart, Donald and Bhalla, Kiran, "Operational Management Report: DSL and Cable Modem Services in Europe", p. 20

[198]DSL Benchmarking Report: Q2 2002, Point Topic Ltd., London, U.K., 10/02, p.5.

[199]CIT Publications, "Wireless writedown makes Telefónica wince" Communications Update, 2/27/03.

[200]Stuart, Donald and Bhalla, Kiran, "Operational Management Report: DSL and Cable Modem Services in Europe", pp. 20-22

Another reason for the rapidity of ADSL deployment in Spain is a political decision by the Spanish government to encourage inexpensive access to broadband by allowing Telefónica to market only ADSL, but not other DSL platforms (xDSL), because ADSL was already a stable, proven technology by 1999. This allowed Telefónica to target businesses early, but at minimum cost, so that business users accounted for over half of its 376,000 ADSL customers at the end of 2001.[201] The incumbent continues to dominate business users' ADSL market, but the value of corporate ADSL access peaked in 2000 at €1.3 million, and it decreased by 39 percent to a level of €800,000 in 2001, similar to the declining trend in other corporate Internet access. One reason for this may be the disappointment of business users with the asymmetric speeds of ADSL, but there is still no symmetric DSL available in Spain.

Competitive Landscape for DSL

Despite the first mover advantage of Telefónica, new entrants supplied DSL to 22 percent of the 746,316 DSL subscribers in Spain as of August 2002, the same as the average market share of new entrants in the entire EU market for DSL. All 166,413 of these new entrants' DSL lines in Spain relied on bitstream access from the incumbent, and no DSL service was able to use shared access to an end-user's line or an unbundled local loop. Bitstream access describes the situation where the incumbent is required to make available to a new entrant at an appropriate interconnection point the high-speed transmission capacity of any qualified line to a customer's premises. Bitstream access is critical to development of sustainable competition in DSL services, because it allows new entrants to offer their own, tailor-made DSL services to customers, instead of merely reselling the incumbent's DSL services. The EC has required shared access and bitstream access for many years, and it emphasized their importance in January 2001, when its Local Loop Unbundling Directive went into force. In December 2002, the EC recognized that for new entrants' market share to develop further, a strong regulatory effort and implementation of non-discrimination by incumbents is essential to prevent a price squeeze by incumbents on bitstream access. This is particularly important where the retail DSL line rental charge is lower than the unbundling charge to operators, as it is in Spain.[202]

Bitstream is very important to business users of DSL, because it usually entails xDSL services (which are symmetrical), rather than ADSL. Most businesses prefer xDSL because it allows them the same bandwidth for uploading as for downloading. However, xDSL has not yet been launched in Spain, where new entrants are able only to resell the same three ADSL offers that are provided to them wholesale by Telefónica. All significant new entrants except Equant offer ADSL.[203] The new entrants will offer xDSL as soon as they can obtain it from Telefónica, which planned to launch VDSL in October 2002, but postponed the launch. However, new entrants will need the support of Spanish anti-trust regulators to assure that Telefónica does not delay providing its wholesale offer to them for several months while it captures the cream of the interested customers, as it usually does when it introduces a new product.[204]

Prospect for DSL in Spain

There has been no indication of any slowdown in the rapid deployment of DSL in Spain yet, and the prospect of increased competition in DSL could help it continue for years. Competitive DSL providers

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[201]Ibid., p.20.
[202]EC, 8th Report from the Commission on the Implementation of the Telecommunications Regulatory Package: European telecoms regulation and markets 2002, p. 30.
[203]CIT Publications, "Spain – Business Networks," Data File of European Telecommunications, Exeter, U.K., October 2002, p.2.
[204]Interviews in Barcelona on September 20, 2002 and in Madrid, September 17, 2002.

should receive a boost from the emphasis of both the EC and Spanish regulators on buttressing competition in broadband by focusing on both the wholesale and the retail DSL market, especially for local loop access, bitstream access and shared access. This should help new entrants increase their share of the DSL market, especially for business users, who are increasingly dissatisfied with the incumbent's ADSL offer. The launch of xDSL services such as VDSL should appeal to business users, a market that new entrants should be more successful in because they can tailor VDSL products to their customers' requirements better, as in France and Germany.

The demand for ADSL may also get a boost from current customer trials by Telefónica of a package of additional services to be delivered over ADSL. Telefónica reportedly plans to launch a package of voice, video, and Internet access (known as a triple play) over ADSL in 2003, in order to compete with Retevisión, which provides these three services over its cable TV network. Since 2002, the incumbent has been testing the case for a triple play in a service trial with 300 participants in the city of Alicante. Participants pay €37 for the ADSL service and about €2 for each video they rent during the service trial. The package includes 22 broadcast TV channels, 4 broadcast PC channels, and 256 Kbps Internet access. Telefónica has a potential advantage in this triple play over other operators because it has ready access to content through its subsidiary, Admira, which has holdings in a cable TV operator, a pay TV broadcaster, and a leading TV broadcast channel.[205] Furthermore, Telefónica's network was already capable of delivering TV quality video to the majority of Spanish households in 2001, according to an OECD report. This assessment is based on the fact that Telefónica had 6 Mbps lines which pass 53 percent of Spanish households in 2001, when Telefónica stated that a transmission rate of 4 to 5 Mbps could provide video and TV quality at current levels.[206]

CABLE MODEMS

As mentioned earlier, cable modems provide the only significant competition for DSL in Spain's broadband Internet access market, in which cable modems had a market share of 23 percent in August 2002, serving 200,000 broadband customers. Nevertheless, the ability of cable TV operators to offer cable modem service is limited by the penetration rate of cable TV services in Spain, which is only 12 percent, less than half the average penetration rate in the EU (32 percent).[207] The Spanish government awarded cable TV licenses to Telefónica and an independent operator in each of 43 franchise areas in 1995. However, there was little investment in cable TV until 1999, when Telefónica decided to offer broadband access by ADSL only and not build cable networks. Since 1999, independent cable TV operators have built their networks as fast as they could, spurred on by the competition from DSL services[208] and recognizing that Internet access by cable modems offers cable TV operators their best opportunity to increase revenues without harming their cable TV business. This late start provided cable TV operators with an unforeseen advantage, because more than 95 percent of cable TV infrastructure in Spain is capable of offering the bi-directional service necessary for broadband Internet access, unlike the cable TV networks in France and Germany.[209]

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[205]Donegan, Michelle, "Operators test cost case for triple-play" Communications Week International, September 23, 2002.
[206]Paltridge, Sam, p.38.
[207]Strategy Analytics, "European Digital TV Set-top Box Market Forecast, January 2002, as cited in EC, Telecommunications Regulatory Package - 8th Implementation Report- Annex II: Digital TV, p. 67.
[208]Paltridge, Sam, p.38
[209]Stuart, Donald and Bhalla, Kiran, "Operational Management Report: DSL and Cable Modem Services in Europe" p. 20.

Investment of Spanish cable TV operators increased 93 percent in 2000, peaking at €1.5 billion, and decreased 4 percent to €1.4 billion in 2001.[210] The operating income of cable operators increased by 184 percent in 2001 to about €356 million, which is still relatively low.[211] The largest provider of cable modem services in Spain is CableEuropa, which trades as ONO in Spain. 49.5 percent of ONO is owned by Spaincom, with the backing of such leading equity partners as GE Capital, Bank America, and CDP Capital. Licensed to operate in 12 franchise areas covering 23 percent of the households in Spain and 18 percent of the businesses, ONO had 37,155 cable modem customers at the end of 2001, almost three times the level of the previous year (13,459). In 2002, ONO acquired Telia Iberia, a business-oriented IP network in over 40 Spanish cities that is connected to the Infonet pan-European backbone. This acquisition allows ONO to expand its coverage to the rest of the Iberian peninsula and diversify its broadband and IP service offerings. Other cable TV operators in Spain cover only parts of the country. The principal competitor of ONO for cable TV and cable modem services is Aunacable, the subsidiary of the Auna Group for cable TV, 27 percent of which is owned by France Télécom.[212] Aunacable operates primarily in Seville and Andalusia. Andalusia, in eastern Spain, boasts the highest cable TV penetration rates in the country.[213]

The transmission rates offered by ONO are very similar to those offered by ADSL operators, except ONO's offer is symmetrical in terms of download/upload speeds. ONO offers three transmission speeds to the general public: 128 Kbps, 300 Kbps, and 512 Kbps. It also offers speeds of up to 4 Mbps to business users. Its prices are slightly higher than those of Telefónica for a similar download speed. Aunacable offers two asymmetric transmission rates (128/64 Kbps and 256/128 Kbps) and one symmetrical rate (600 Kbps) at prices slightly lower than those of Telefónica for a lower download speed.

Future of Cable Modems in Spain

Investment in network upgrades for high-speed Internet access by cable TV operators is faltering in Spain, as elsewhere in the EU, due in part to the current global economic slowdown, which makes it difficult to finance further capital expenditure. Industry observers attribute this to technical problems associated with the roll-out of cable modems, excessive regulatory constraints, excessive competition, and the reputation of most cable operators for poor service and customer care.[214] Although less strictly regulated than telecommunications operators, cable TV programming and consolidation of operators is restricted by Spanish regulators. Spanish cable TV network operators are not attracting as many customers as they had expected and are being forced to consolidate. There are currently five cable TV operators in Spain, and they seem likely to merge into a single operator to spread investment costs across the entire Spanish market.

Cable TV operators also face increasing competition from terrestrial TV broadcasters and satellite TV service providers, who have converted to digital formats more rapidly than cable TV operators. However, the only terrestrial TV broadcaster that implemented digitization in Spain, a subsidiary of the

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[210]CMT, Annual Report (Summary) – 2001: Main Data for the Sector, p. 24
[211]EC, Telecommunications Regulatory Package - 8th Implementation Report- Annex III: Spain, p. 58.
[212]Stuart, Donald and Bhalla, Kiran, p. 21, and Stuart, Donald and Tuset, Joe "Operational Management Report: Internet Services - Spain" p. 13.
[213]Interview in Madrid, September 17, 2002.
[214]Interview in Barcelona, September 20, 2002.

Auna Group for pay-TV broadcasting (Quiero), went bankrupt and was liquidated in June 2002. Already, 25 percent of Spanish TV viewers have digital TV, but only 0.4 percent of cable TV subscribers receive digital TV.[215] What little investment there is in Spain's TV industry is primarily by the two satellite TV service providers, Via Digital (controlled by the Telefónica Group) and Sogecable, but the two of them are proposing a merger for economies of scale. The EC expressed concern about this proposed merger on several anti-trust grounds, but the case was referred to Spanish anti-trust regulators, who have yet to decide whether to approve the merger. Spanish authorities seem likely to do so, while attaching certain conditions to it, according to industry observers.[216]

The Spanish government is trying to decrease the regulatory burdens it imposes on cable TV operators. In February 2003, Spain's Minister for Science and Technology, Josep Pique, reportedly announced that the government has finalized plans to fully liberalize the cable sector to promote greater competition in telecommunications services. A draft bill is being prepared by the Spanish cabinet to remove bureaucratic obstacles to consolidation of cable networks into larger, more economical networks and to encourage them to increase the roll-out of multimedia and high-speed data services.[217] If approved, this bill should help the cable TV industry in Spain resume the investment necessary for it to remain competitive with telecommunications operators' DSL in providing high-speed Internet access. This would support the efforts of cable operators to exploit the convergence of telecommunications, video, and Internet technologies by offering triple play packages such as that of Retevisión to their customers. 50 percent of Retevisión's customers already subscribe to all three services, although the only service it supplies to all of its customers is voice telephony, while it provides Internet access to 80 percent and television to 60 percent.[218]

OTHER BROADBAND TECHNOLOGIES

As mentioned above, other broadband technologies for Internet access besides DSL and cable modems account for less than 1 percent of Spain's broadband Internet access market. As elsewhere in the EU, the principal alternative broadband platforms in Spain are leased lines and wireless local loop, but two other significant platforms are currently satellite communications and fiber optical lines. None of these platforms seem likely to offer significant competition with DSL or cable modems for broadband Internet access in the next couple of years, but the prospect for these alternative technologies could improve as the European Commission develops its current proposal for structural funding in support of broadband investments in remote areas that are currently unable to access broadband.[219] Spain traditionally receives more EU structural funding to support infrastructure development than any other EU Member State. In the medium to long term, the best prospect for growth among these existing broadband platforms may be digital television, because 100 percent of the existing digital TV infrastructure in Spain is interactive, regardless of whether it is in cable TV, satellite, or terrestrial networks. Broadband via leased lines is currently growing for corporate users, as mentioned in the section on business communications above, primarily due to decreasing leased line rates. Fiber optic lines may also offer growth prospects for SMEs, who already use ISDN over fiber optic lines to access high-speed Internet services. However, the cost of extending fiber optics into the last mile to connect with end users is likely to delay any mass market applications of fiber optics such as those being contemplated by Retevisión. One other

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[215]Strategy Analytics, p. 69.
[216]Interview in Madrid, September 17, 2002.
[217]Newsletter of www.europemedia.net of February 26, 2003.
[218]Interview with official of Retevisión in Barcelona, September 20. 2002.
[219]"EU Competition Commission Backs Broadband Spending in Poor Areas," World Markets Research Centre, March 5, 2003.

broadband platform deployed in Spain uses existing electrical power lines, but its signal quality is only high enough for accessing narrowband Internet.[220]

One platform that definitely offers a significant prospect for competition with DSL and cable modems in the medium term is wireless local loop (also known as fixed wireless, using LMDS technology). Wireless local loop offers great potential to serve SMEs, particularly in the many remote regions of Spain that do not have broadband Internet access.[221] Spain awarded licenses to eight operators for wireless local loop services in March 2000, two of which merged during 2001. Some of these licensees have commenced services in 72 Spanish towns, serving primarily SMEs. However, the roll-out of wireless local loop networks in Spain has been slower than anticipated, due to the difficulties in financing network construction, which were aggravated by a huge spectrum fee that was imposed by the government in 2001. Nevertheless, the government reduced this spectrum fee by 75 percent for 2002 and possibly 2003, and it liberalized some of the obligations imposed on the operators under their licenses.[222]

Telefónica is reported to be considering use of wireless local loop or satellite connections in a €300 million project that it is proposing to the Spanish Ministry of Science and Technology, designed to renovate 206,000 of its analog phone lines in Spain's most under developed areas. The EC is considering the Ministry's plan for it to co-finance 30 percent of this infrastructure project if it complies with the pro-competitive requirements for funding by the European Regional Development Fund.[223] Outside of these existing broadband platforms, the best prospects for competition with DSL and cable modems in the next few years are likely to be new wireless platforms, especially third generation (3G) wireless communications. However, facilities using 3G technology are just being deployed in Spain, and their ability to deliver genuine broadband transmission speeds for Internet access in Spain has yet to be demonstrated on a commercial basis, as explained in the next section.

THIRD DRIVER: MOBILE COMMUNICATIONS

With 33 million cellular telephone subscribers at the end of 2002, Spain has the fifth largest mobile communications market in western Europe.[224] Although Spain did not allow competition in cellular services until required to do so by the EC in 1995, mobile communications has been the fastest growing telecommunications service in Spain ever since, and it is expected to continue driving growth for the foreseeable future. Despite the late start of competition in mobile communications, the number of cellular subscribers in Spain overtook the number of fixed subscribers in 2000, many months before Germany or France reached this landmark.[225] At the end of 2002, Spain's mobile penetration rate of 83 percent substantially exceeded the average mobile penetration rate across western Europe of 77 percent. Although the pace of growth in the number of Spanish mobile subscribers is not as rapid as during the previous two years, subscribership increased by 15 percent during 2002, more than twice the average growth rate for western Europe, according to Global Mobile.

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[220]Paltridge, Sam, p. 39.
[221]*Ibid.*, p. 39.
[222]Telecommunications Regulatory Package - 8th Implementation Report- Annex III: Spain, p. 57.
[223]Ibid., p. 65.
[224]"Western Europe" Global Mobile, February 12, 2003.
[225]EITO 2002, p.62.

THREE MOBILE OPERATORS

There are currently three mobile network operators in Spain: Telefónica Móviles, Vodafone, and Amena (Retevisón Móvile). Telefónica Móviles de España established its second generation digital GSM network under the brand name Movistar in 1995 and is the leading Spanish cellular operator, with 56 percent of the subscribers at the end of 2002, according to Global Mobile. Telefónica Móviles is the fourth largest mobile operator in western Europe, with 18.4 million subscribers at the end of 2002. Vodafone Spain also entered the Spanish GSM market in 1995, when it was known as Airtel, and it had a market share of 25 percent at the end of 2002. Vodafone Spain was partially acquired by its parent, Vodafone (of the United Kingdom), in 2000, and Vodafone recently increased its stake to 100 percent, as it seeks to do with all its mobile subsidiaries. Amena started offering GSM services in Spain during 1999 and had obtained a market share of 20 percent by 2002. Amena, which is the brand name Retevisón Móvile, is almost entirely (98 percent) owned by Grupo Auna. As the newest operator, Amena increased the number of its subscribers the fastest during 2002, growing at a rate of 24 percent, while Vodaphone Spain grew by 20 percent and Telefónica Móviles increased by 10 percent.[226]

The rapid success of Spanish mobile communications is primarily due to the tremendous popularity of prepaid cellular services, but it is also due to low prices and number portability. At €10 per month, Spain has the lowest average monthly expenditure on cellular communications in the EU, a level half that of the average throughout the EU.[227] The implementation of number portability since 2000 has also facilitated the switching of users to alternative operators, although implementation by mobile operators has not been without some difficulties.[228]

BEAUTY CONTEST FOR 3G LICENSES

In response to pressure from the EC to expedite 3G licensing so that the European standard for 3G could get an early start, like the GSM standard, in March 2000, the Ministry of Science and Technology issued licenses to four operators for third generation (3G) wireless services: the three incumbent GSM operators described above and a new entrant named Xfera.[229] The licenses were awarded based on a "beauty contest" competition. Although this selection process generated considerably less national revenue than the auctions used to award 3G licenses in such countries as German and the United Kingdom, it had several advantages that may benefit Spain in the long run, i.e.:

- The 3G operators were not overburdened with excessive charges years before they could start earning revenues from 3G services, as elsewhere.
- They accepted obligations under the licenses to roll out a nation-wide network that could reach 95 percent of Spain's population (one of the most extensive areas of coverage in Europe) within two years of launching 3G.
- They agreed to invest a total of $20 billion over the next decade to develop their 3G network.[230]

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[226]"Western Europe"
[227]EC, 8th Report from the Commission on the Implementation of the Telecommunications Regulatory Package: European telecoms regulation and markets 2002, p. 11.
[228]Stuart, Donald and Tuset, Joe "Operational M
[229]Interview in Barcelona, September 20, 2002.
[230]"Spain: Mobile Telephony Market," *Industry Sector Analysis*, U.S Department of Commerce, U.S. Commercial Service, Spain, October 12, 2001, p.2.anagement Report: Wireless Services – Spain" p. 19.

GOVERNMENT INCREASES, DECREASES 3G FEES

However, the Spanish government decided in 2001 that the licensing fee of the previous year (a flat fee some €130 million per operator and an annual spectrum reservation fee of €5 million) was insufficient, after the governments in Germany and the United Kingdom received payments of $7.6 billion and $6.5 billion, respectively, for each 3G license, as a result of their auctions. Spectrum reservation fees for Spain were increased in 2001 for all operators using spectrum. The largest increases were for 3G mobile operators, for which spectrum fees in 2001 were more than 30 times higher than in the previous year. Like other spectrum users, the 3G licensees protested mightily, pointing out that the additional fees compounded their difficulties in financing the construction of 3G networks years before receiving revenues from 3G services. This led to a 65 percent reduction in 3G spectrum reservation fees in 2002 and a commitment that the fees would not increase more than 5 percent annually until 2006. [231]

OTHER EFFORTS TO FACILITATE 3G ROLL-OUT

Another increasingly critical problem for Spanish mobile operators is obtaining rights of way for antennas. There are currently more than 500 different municipal regulations governing antenna installation, which is particularly important for 3G communications because 3G requires Spain to nearly triple the number of antenna that it currently has for GSM.[232] The Spanish government's Royal Decree of September 2001 established limits on antennas to control exposure to electromagnetic emissions, implementing the EU Council Recommendation of July 12, 2001. Although this was welcomed by the operators, it did not allay public concern about the effects on human health of electromagnetic emissions by antennas, so the Spanish regulator adopted a regulation in January 2002, requiring annual certification of all installed antennas.[233]

The Spanish authorities have taken a more pragmatic approach than many other EU Member States to 3G operators' difficulties in meeting the commercial launch deadlines they agreed to under their licenses. They postponed the original deadline of August 2001 until June 2002, and in April 2002 they announced that this deadline was only for experimental purposes. No specific date has been set for commercial launch, which has been left to operators' discretion. In response to requests from operators for further relaxation of license conditions, the government granted in January 2003 rebates of the €6 billion in financial guarantees they paid in 2000, after the government obtained updated investment plans from all four licensees. This came too late to resolve the financial problems of the one operator that has no network in service yet (Xfera), so in October 2002, it laid off most of its employees and froze its 3G roll-out plans until at least 2004. Another step planned by the government was announced by Spain's Minister of Science & Technology, who proposed in early 2003 legislation to authorize spectrum trading, which would allow mobile operators such as Xfera to sell their 3G license to another operator. [234] In addition, the Spanish regulator has, at the request of 3G operators, provided a clarification of how they can share infrastructure while still maintaining control of their own customers and allotted frequencies, as recommended by the EC.[235]

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[231]EC, Telecommunications Regulatory Package - 8th Implementation Report- Annex III: Spain, p. 62.
[232]"Deployment of Mobile Telephony Antenna Infrastructure Hindered," *Industry Sector Analysis*, U.S Department of Commerce, U.S. Commercial Service, Spain, 3/23/02
[233]EC, Telecommunications Regulatory Package - 8th Implementation Report- Annex III: Spain , pp. 62-63.
[234]Spain," Global Mobile, January 15, 2003

3G NETWORK ROLL-OUT

Despite these problems, the three incumbent mobile operators continue to roll out their 3G networks in Spain. According to Telefónica Móviles, it fulfilled the targets under its license by June 2002, and it had rolled out 3G services to 21 cities in Spain by July 2002. In order to accomplish this, Telefónica Móviles announced that it would postpone any further investment in European 3G activities outside of Spain, because it had suffered losses of $5.6 billion in these areas, and it closed down Group 3G, its German venture with a minority partner, Sonera. Vodafone had rolled out its network to 23 cities and 19 municipalities in Spain by August 2002, when it was testing its equipment. Amena had installed infrastructure in 15 Spanish cities by the same date. As elsewhere in Europe, the roll-out of additional transmitters has been delayed by environmental concerns over deployment of antennas. By April 2002 Spain's mobile operators had installed only 42 percent of the transmitters scheduled for deployment in 2001.[236]

LAUNCH OF 3G SERVICES

As throughout Western Europe, the launch of 3G services in Spain has been delayed since 2001 due to several factors. The most important single factor is the lack of suitable handsets, and the likelihood that operators will be unable to subsidize handsets, at least at the outset.[237] Another important factor is a range of technical problems such as insufficient data transmission rates, a lack of interoperability, and the lack of dual mode 2G/3G handsets, which is likely to prevent operators from offering full 3G functionality until 2004. A third, critical constraint on the development of 3G services is the uncertain demand for 3G services. Previous platforms offering mobile, narrowband access to the Internet have not been very successful yet, most notably the Wireless Application Profile (WAP) that has been deployed in Spain since 1999. Furthermore, there is little evidence to show that consumers are as willing to pay for access to multimedia content, one of the principal services enabled by 3G, as they are to pay for communications services such as voice, e-mail and messaging. Industry observers in Spain expect the demand for 3G to be driven first by business users, as was the case for both previous generations of mobile technology.[238] Two other deterrents to the launch of 3G services are the reduced spending on infrastructure by major mobile operators because of the costs associated with obtaining 3G licenses and the broader economic slowdown, as well as the environmental limitations on antenna deployment described above.[239]

Since the summer of 2002, even Telefónica Móviles, the market leader, has slowed down the roll-out of its 3G network and been reluctant to announce when it will launch commercial 3G services, saying it is "awaiting developments." Analysts expect it to launch 3G in June 2003. Its principal mobile competitor, Vodafone Spain, announced in January 2002 that it would not introduce full 3G services until 2004, because it expected that an earlier launch at genuine broadband transmission rates would not earn significant revenues. Despite expressing hopes during the summer of 2002 to launch 3G services in

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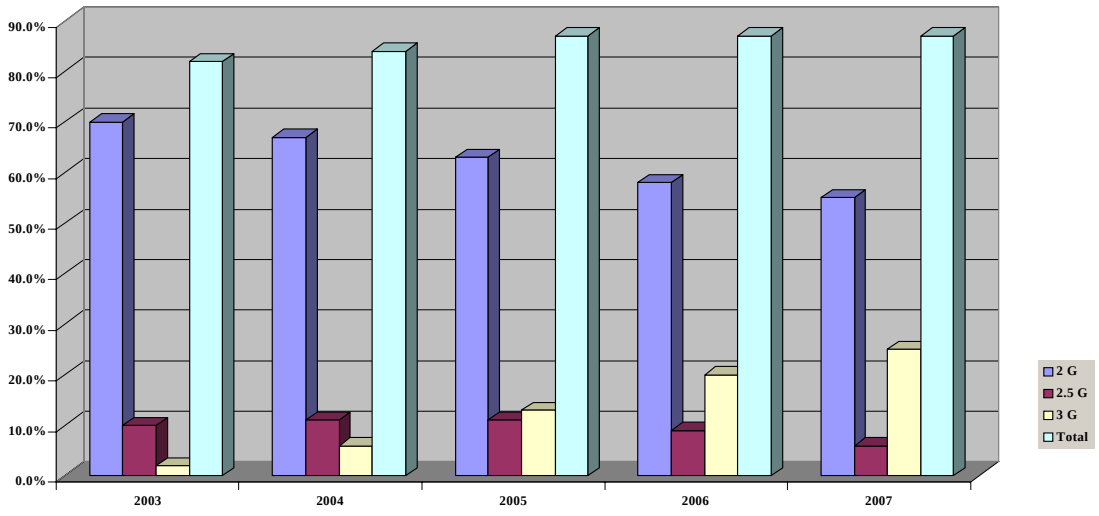
[235]EC, Telecommunications Regulatory Package - 8th Implementation Report- Annex III: Spain, pp. 67-68
[236]CIT Publications, "Spain – Mobile Communications," Data File of European Telecommunications, Exeter, U.K., August 2002, pp.1 and 3.
[237]BWCS, "3G Status Report – Spain: Q1 2003" Ledbury, United Kingdom (www.bwcs.com).
[238]Interviews in Madrid on September 17 and Barcelona on September 19 and 20, 2002.
[239]WMRC, "Western Europe Regional: 3G Executive Overview," *Telecommunications Sector Analysis*, May 27, 2002, pp. 1-2.

early 2003, Amena has been increasingly cautious about committing itself to any specific launch date since then.[240] The fourth 3G licensee, Xfera, announced in November 2002 that it will not launch 3G services before 2004 at the earliest due to lack of suitable equipment.[241]

Nevertheless, the World Markets Research Center (WMRC) predicted in January 2003 that 3G services would account for 2 percent of mobile subscribers in Spain during 2003, a penetration rate that only seven other European countries are expected to reach by then. The same forecast predicts that 3G penetration in Spain will reach the mass market by 2005, with a penetration rate of 13 percent, when it will earn $2.2 billion in revenue. The findings of WMRC are presented in Figure 2.3.3, below.[242]

Dearth of 3G Handsets

Due to the current global slowdown, telecommunications equipment manufacturers have reduced their investment in research and development, which is slowing the development of 3G handsets. Nevertheless, Motorola and NEC delivered enough 3G handsets to the 3G operators in the United Kingdom and Italy that are controlled by Hutchison Whampoa so that it could launch 3G services in those two countries in the first quarter of 2003. In addition, the leading global manufacturer of mobile handsets, Nokia, reportedly plans to start shipping its first 3G handset to European cellular operators during the first half of 2003, making it the third supplier to begin selling UMTS handsets in Europe.[243] Another leading European handset manufacturer, Sony Ericsson, plans to market its principal 3G handset, which is dual mode (2G/3G), in the second half of 2003, priced at around €750.[244] According to an industry source in Spain, another problem that is retarding the development of handsets in Europe



Source: WMRC, Western Europe Mobile Market Outlook to 2007 Figure 2.3.3

[240]CIT Publications, "Spain – Mobile Communications," Data File of European Telecommunications, Exeter, U.K., Augusta 2002, p. 2.
[241]"Spain," Global Mobile, November 20, 2002.
[242]WMRC, "Western European Mobile Market Outlook to 2007: 3G Risks for Operators," *Telecommunications Sector Analysis*, January 10, 2003, p.14.
[243]CIT Publications, "News Shorts" Communications Update, February 19, 2003.

is the lack of agreement on an industry standard such as that used in Japan, leading to the lack of compatibility between the 800 designs of mobile handsets currently used in Europe.

Despite the delay in launching 3G services, Spanish 3G operators are contracting for infrastructure, frequently using framework contracts to allow close cooperation with one or two manufacturers. In 2001, Nokia was the lead supplier of 3G infrastructure for Telefónica Móviles, Nortel Networks for Vodafone, Siemens and Ericsson for Amena, and Nortel Networks for Xfera.[245] Despite these framework contracts, there are still many opportunities for other suppliers to compete for specific contracts. In 2002, a Siemens executive told the 3GSM show in Cannes that 80-90 percent of the market for 3G infrastructure was still open to competition.[246]

THE MARKET FOR 2.5 G WIRELESS

As mobile penetration rates approach the saturation level in Spain, like much of the EU, mobile operators are shifting their focus from customer acquisition to customer retention, and looking for ways to increase the average revenue per user. Increasingly, operators have been investing in various interim technologies (dubbed 2.5G) for mobile data communications and Internet access to boost the performance of existing GSM networks, as elsewhere in the EU. The first of these 2.5G technologies to be deployed was the wireless access protocol (WAP), which has been available from every mobile operator in Spain since 1999. However, WAP was a flop in Spain because it was expensive and its transmission rate was very slow for Internet access. Customers have to pay extra for a WAP-enabled handset, and then they have to pay for every second of Internet access. WAP was too expensive to use for web access, so its use was limited to e-mail.

The leading 2.5G technology in Spain is general packet radio service (GPRS), as throughout the EU. GPRS is seen as an inexpensive test of the market for 3G services. All three mobile operators in Spain introduced GPRS with data transmission speeds comparable to that of a standard PC modem in late 2001, because GPRS required only minor alterations to existing GSM infrastructure.[247] They now offer GPRS with data speeds of up to 150 Kbps, and GPRS reduces the costs of data transmission. Because GPRS has the same always-on feature as 3G, GPRS users are charged for the amount of data they access, not the number of seconds they use the service. Consequently, GPRS is increasing the penetration of data services such as Internet access among both consumer and business users.[248] Although GPRS has yet to reach the mass market scale, it is expected to before 3G takes off. The chief of Vodafone Spain's corporate business unit, Antonio Aleman, was reported to have said that he believes revenue growth in the Spanish market will only come from data traffic, because the voice market had dried up. He expects the proportion of data subscribers to increase from the current level of 10 percent to about 25 percent in four or five years.[249]

There are three other leading 2.5G technologies that may be deployed in Spain some time during 2003: i-mode, EDGE, and TDD. Telefónica Móviles plans to launch i-mode services for packet-switched mobile data access in June 2003, based on a five-year license from NTT DoCoMo. NEC will supply the

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[244]CIT Publications, "Sony Ericsson launches new 3G terminal" Communications Update, February 18, 2003.
[245]Expansion Digital, Dinero, and web pages of companies, as cited in "Mobile Telephony Market," *Industry Sector Analysis*, U.S. Department of Commerce, U.S. Commercial Service, Spain, October 12, 2001, p.6.
[246]Taaffe, Joanne "3G contracts still up for grabs despite vendor announcements," Communications Week International, March 4, 2002.
[247]"Spain: Mobile Telephony Market," p. 6.
[248]Stuart, Donald and Tuset, Joe "Operational Management Report: Wireless Services - Spain", p. 19.
[249]"Spain eyes data growth" Global Mobile, January 29, 2003.

technological platform and the first i-mode handsets.[250] Early in 2003, at least one mobile operator in Spain started a trial network for another 2.5G technology, Enhanced Data for GSM Evolution (EDGE), to fill the gap left by the delayed launch of 3G, according to Nokia.[251] It is recognized in Spain that EDGE is more efficient than GPRS for data and video, because it uses real-time packet switching, but it has not been rolled out commercially anywhere except in the United States.[252] However, European operators have been reluctant to adopt EDGE, perhaps for fear that it might undercut demand for 3G, and they seem unlikely to commit to capital expenditures for EDGE until they are certain that suitable handsets will be available. Nokia and Motorola reportedly have commitments to deliver EDGE terminals to European operators during the second half of 2003 and the first half of 2004.[253] However, another technology may be deployed first, time division duplex (TDD). All three incumbent mobile operators in Spain received a license for TDD in the 1900-1920 MHz band along with their 3G licenses. The launch in November 2002 of Mobile Broadband, a high-speed radio access technology from IPWireless, has advanced the opportunity to launch TDD to 2003, instead of 2005, as originally anticipated. TDD is expected to be packaged with GPRS, where it is likely to be a major challenger to EDGE as well as wireless LANs for mobile, broadband Internet access.[254]

2.5G EQUIPMENT

Four companies have supplied most GPRS equipment to Telefónica Móviles: Motorola, Cisco, Nokia, and Nortel Networks, while Vodafone and Amena have relied primarily on Siemens and Ericsson. Adaptation of existing GSM infrastucture was mostly accomplished in 2001, but there were delays in the roll-out of GPRS-enabled handsets. By April 2002, the majority of handsets on the market were GPRS-enabled, but interoperability problems still remain to be solved. However, the principal driver of handset sales in 2002, as in 2001, was the demand for accessories to personalize handsets, e.g., colored phone cases and individualized ring-tones.[255] GPRS also enables the use of PDAs such as Blackberrries, which are known only to international professionals in Spain.

European handset manufacturers are developing close partnerships with mobile operators, as well as application developers and other players in the mobile communications business. These new relationships enable operators to present packages that include mobile data services, specialized handsets, and relevant user interfaces with compelling content. Initial results are encouraging: high market acceptance and significant revenue increases for all participating parties.[256] One example of this is Ericsson Innova, part of the Ericsson Group, which has a venture capital fund in Spain that invests in mobile Internet and multimedia applications that can be bundled with its products to satisfy the needs of mobile operators. [257]

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[250]"Telefónica to launch I-mode in June" Global Mobile, March 19, 2003.
[251]"Nokia pushes EDGE" Global Mobile, January 15, 2003
[252]Interview in Barcelona, September 20, 2002.
[253]"Carriers look to EDGE to bridge 3G gap" Global Mobile, February 26 2003.
[254]"WLAN success brings TDD market forward" Global Mobile, December 4, 2002.
[255] Chihota, Tawanda, "Color screens rather than multimedia services attract subs" Global Mobile, February 12, 2003, p.2 and EITO 2002, p.63.
[256]"Simon Gregory argues that 'customize to thrive' is the new challenge facing handset manufacturers" Global Mobile, February 26, 2003.
[257]Interview with official of Ericsson Innova, in Barcelona, September 20, 2002.

STRONG GROWTH IN SMS

One driver of data communications in Spain is the current boom in short message services (SMS) there, driven primarily by Spain's high mobile penetration rates. All three mobile operators have offered SMS since 1999, and it accounted for a substantial share of each operator's average revenue per user (ARPU) in 2001 (15 percent of Telefónica's ARPU).[258] Revenue from SMS in Spain increased by 117 percent in 2001.[259] One reason for this growth is that Spanish companies have found it to be a very effective way of advertising at minimal cost. One of the most innovative and costly applications for SMS (known as premium SMS) is by Spanish TV broadcasters, which use it to poll their viewers at a cost of €0.60 per SMS, with half the revenue going to the TV broadcaster.[260] Another form of messaging service that is growing in Spain is enhanced messaging service (EMS), which allows users to personalize their mobile phones with individualized ring-tones and their own icons on display.

Telefónica Móviles launched the latest form of messaging, multimedia message service (MMS), in August 2002. MMS enables transmission of digital photos. Spanish mobile operators are introducing MMS to reverse the decline in their ARPU. They consider the demand for such data communications to be elastic, because it reflects the user's emotions, whereas the demand for voice is inelastic. They hope to exploit the same demand for non-intrusive, personal communications that is driving SMS, especially for users 18 to 24 years old.[261] The principal suppliers of MMS and SMS equipment are Nokia and Ericsson.[262] MMS still has various hurdles to clear, such as interoperability, and it will not be clear whether it succeeds in the mass market until the end of 2003 or 2004, but it is addressing a different market from SMS, which is perceived as a cheaper and easier form of communication than voice. The driver for MMS will be entertainment, so it is likely to substitute for only some 10 percent of the SMS market.[263]

MOBILE INTERNET AND M-COMMERCE

Spanish mobile operators view mobile Internet access as a means of keeping customers and increasing revenues. They believe that mobile devices offer the opportunity to challenge the dominance of PCs in terms of Internet access because the penetration rate for mobile phones is already more than twice the PC penetration rate in Spain. Operators believe that the ability of mobile devices to connect to the Internet wherever the user is located offers an advantage over wireline access, and mobile devices are less expensive and easier to carry than PCs. Furthermore, a unique cultural perspective may help drive mobile Internet access in Spain. Mobile handsets are viewed as genuinely personal in Spain, unlike PCs, which are used primarily in schools, businesses, or public places and often shared.[264]

However, for mobile Internet access to succeed, it needs to find applications that motivate users to use these new platforms. The key is to find mobile data applications of interest to business users. The first step to enable mobile commerce (m-commerce) using SMS has already been taken by an SME in

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[258]"Mobile Market Spain" EEM/ME Strategic Planning, July 2002, p. 11.
[259]CMT, Annual Report (Summary) – 2001: Main Data for the Sector, pp. 39.
[260]Interview in Barcelona, September 19, 2002.
[261]Interview in Barcelona, September 20, 2002.
[262]"SMS players less successful with MMS" Global Mobile, February 12, 2003.
[263]Dhaliwal, Josh "MMS: the mobile industry's saviour or WAP revisited?" Wireless World Forum, London, U.K., August 7, 2002.
[264]Interviews in Madrid, September 17, 2002 and Barcelona, September 19, 2002.

Barcelona named Step2u, in cooperation with Telefónica Móviles. Step2U allows a customer to purchase content seen on the Internet by sending and SMS to the content provider using a cellular phone. The content provider then sends another SMS with a pass code that the customer uses to purchase the item. The customer is then charged for the product on his cellular phone bill. In this business model, the content provider receives 50 percent of the revenue, the SMS operators receives 10 percent, and the cellular operator retains the remaining 40 percent.[265]

In December 2002, Telefónica Móviles launched what it claims to be the first Web services-based mobile data applications service in the world. Most mobile operators are still struggling to build systems that can provide multiple applications, authorize their use by individual subscribers, and then bill content-providers and end-users alike. Telefónica's system accomplishes this using integrated Web services developed over a three-year period by Hewlett-Packard. Telefónica expects to thousands of developers to join the system, which will be used for premium SMS and I-mode services. According to industry analysts, this is the first system to combine the key technology standards for securely managing services in the public Internet, in a mobile network. The senior analyst for e-infrastructure at Ovum, Ltd. in London commented that, "It is the first time a mobile operator has got web services into the market."[266]

To better address the need for a payment mechanism that facilitates m-commerce, Telefónica Móviles joined three other leading European mobile operators (Vodafone, T-Mobile, and Orange) in establishing the Mobile Payments Services Association in February 2003. The non-profit association is intended to encourage more customers, content providers, banks, and merchants to use m-commerce. One way that it will do this by enabling wireless device users to record credit or debit card information with the wireless operators so that it is not necessary to enter the data each time a purchase it made. It will also allow users to charge purchases of up to €10 to their monthly cellular phone bills. The association is also intended to establish a set of industry standards for m-payment in hopes that m-payment will become widespread, like SMS.[267]

OTHER TRENDS IN MOBILE COMMUNICATIONS

Mobile operators in Spain, as elsewhere in the EU, also seek to increase their ARPU by increasing customer loyalty and by decreasing handset subsidies. Operators are using various tactics to persuade pre-paid users to sign contracts for post-paid service, because this increases customer loyalty. Vodafone has been most successful at doing so over the past year, decreasing the pre-paid share of its customers to 55 percent as of June 2002, while 70 percent of Telefonica's GSM customers are pre-paid and 67 percent of Amena's are prepaid. Operators are also reducing their "customer acquisition costs" by reducing the subsidies they offer for a handset when a new customer purchases one in a package deal including a post-paid service contract.[268]

WLANS AND MVPNS

Wireless LANs (WLANs, also known as Wi-Fi) have not been launched in Spain yet, but the government is now considering a suspension of regulations that prevent public or private access to the 5 GHz bands

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[265]Interviews in Barcelona on September 19, 2002.
[266]Molony, David "Telefónica first to adopt Web services platform for mobiles" Communications Week International, December 16, 2002.
[267]CIT Publications, "Major wireless operators to collaborate on m-payment" Communications Update, February 26, 2003
[268] Interview in Barcelona, September 20, 2002, and "Mobile Market Spain", EEM/ME Strategic Planning.

that are used elsewhere for WLANs. As the benefits of WLAN hotspots for broadband mobile Internet access are demonstrated in such neighboring countries as France, Spain is likely to make this spectrum available for WLANs. Another development that is likely to facilitate further competition in mobile communications is the recent authorization of mobile virtual private networks (MVPN) in Spain. 25 companies have acquired a provisional license to operate MVPNs under a Ministerial Order published by the Spanish Ministry of Science and Technology in March 2002. This is intended to increase mobile competition, but it is unlikely to achieve that objective unless the government requires the incumbents to offer competitive wholesale rates and conditions to the MVPNs for access to the incumbents' mobile services.[269]

New Regulatory Framework in 2003

The government of Spain has prepared a draft telecommunications law to implement the new EU regulatory framework for electronic communications, which is supposed to be implemented by July 24, 2003. The draft law does not alter the division of responsibilities between the government agencies that regulate the sector, and operators have expressed concern that it does not clarify how these agencies will coordinate their action, especially for the National Competition Authority, which is intended to take over regulation in markets deemed to be open to competition. However, the recent attachment of the CMT to the Ministry of Science and Technology is intended to assist such coordination, and the draft telecommunications law provides for a regulation to be adopted describing the respective responsibilities of the CMT and its counterpart within the Ministry of Science and Technology, which is named the State Secretariat for Telecommunications and the Information Society.[1] Another concern that was expressed by a U.S. operator in Spain during an interview in September 2002 is that the draft law did not provide for implementation of the EU Interconnection Directive, a critical underpinning of competition in telecommunications services.

[1] EC, Telecommunications Regulatory Package – 8th Implementation Report – Annex III – Spain, EC Staff Working Paper, Brussels, November 2002, p.68.

[269] "Legislation Approved for Virtual Mobile Network Operators in Spain" *International Market Insite* U.S. Department of Commerce, U.S. Commercial Service, Spain, 10/12/01, p. 6.

2.4 Electronic Commerce in Spain

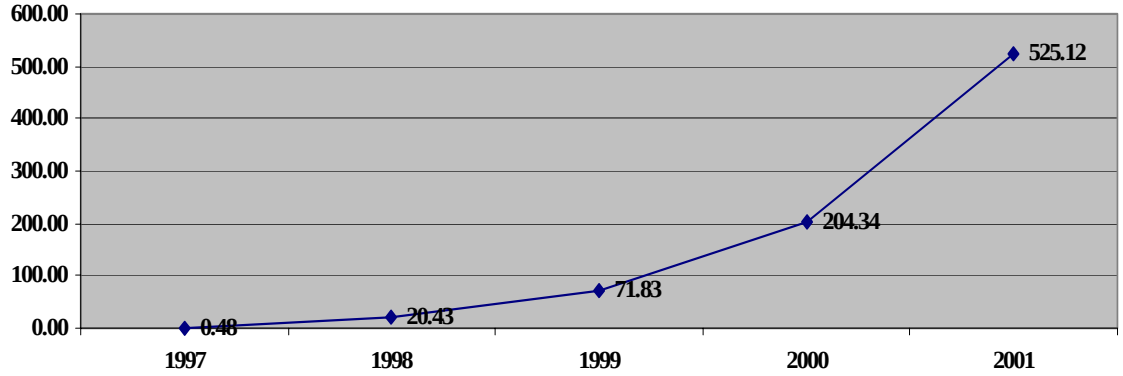
Overview

Spain ranks as the 5th largest European Union member in terms of the number of its citizens connected to the Internet. However, this figure understates the number of Spaniards who *share* internet connections. Figure 1 illustrates the growth in electronic commerce transactions in Spain and Figure 2 identifies the reasons why Spaniards use the Internet. These reasons have important implications for prospective B2C companies considering Spain as a potential market. Although online sales are relatively small in comparison to the country's gross domestic product, the B2C growth rate surpasses Spain's GDP growth. B2C sales for 2001 totaled €525.12 million — a 257% increase over 2000 sales.

The country is divided into 17 autonomous regions or communidades. The central government delegates authority to the regional administrations for implementing most of the nation's social and health programs and provides funding from its annual budget. And as with most European Union states, the central administration — in this case, the Ministry of Science and Technology — designs comprehensive plans for implementing specific programs including Spain's e-Espana initiative. Of the 17 autonomous communities, four – Catalunya, Madrid, Andalucia, and Valencia – account for 57 percent of the country's Internet connections. Catalunya and specifically Barcelona, the regional capital, is also the commercial heart of the country where Internet incubators (communities of startups) are found and the bulk of B2C and B2B transactions are conducted. Madrid follows closely and represents the financial center of Spain as well as the seat of government. All the major banking institutions in Spain offer online services to their customers – residential and commercial and have been one of the principal driving forces in advancing Internet use and adoption as a new marketing channel.

B2C Electronic Commerce Sales in Spain
1997-2001
Millions of Euros

Figure 2.4.1



Source: Asociacion Espanola de Comercio Electronico, Estudio de Commercio Electronico B2C, 2002, page 8.

Figure 2.4.2
Top Ten Uses of the Internet in Spain

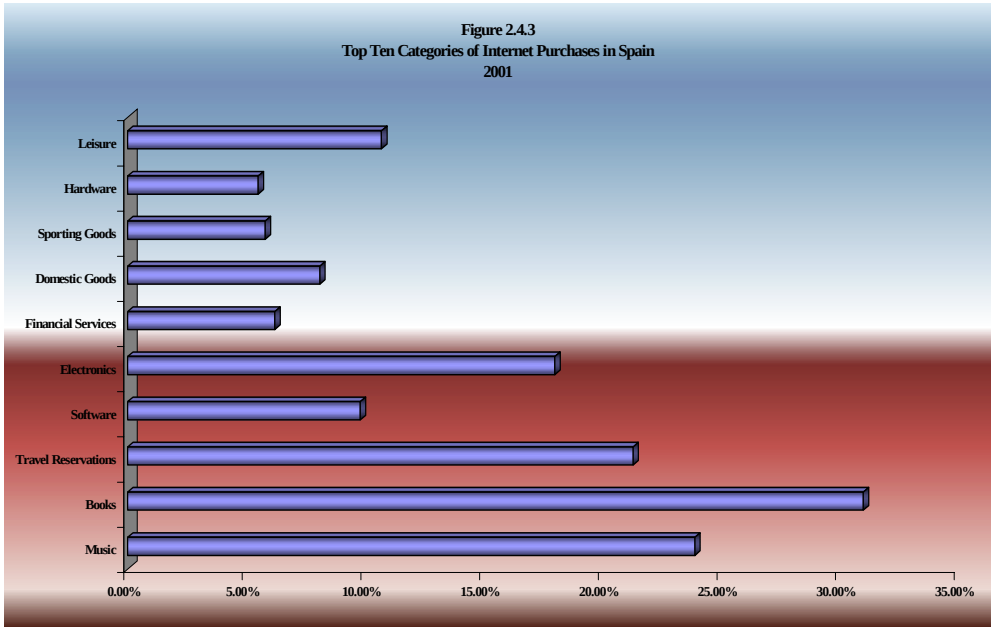
Reasons for Using the Web	Total Users of the Internet
World Wide Web	96.9%
E-Mail	87.7%
Current Events and News	62.5%
General Product Information	51.7%
Download Software	51.4%
Mobile Messages	51.3%
Information about the Internet	47.8%
Movie and Television Listings	43%
Tourist Information	41.6%
Download Music	39.0%

Source: Asociacion de Usuarios de Internet. Study conducted by AUI in February 2002 based on survey of 6.8 million known Internet users.

Despite institutional, cultural, and technological obstacles that limit rapid diffusion of the Internet throughout Spain, steady growth in new internet connections is predicted, albeit at a slower pace than in previous years. This situation is attributed to the sharp slowdown in the information and communications sector coupled with the dot.com's collapse and the slump in the Spanish economy. The downturn's effects are just beginning to ripple throughout the economy following the U.S. high tech crash of a year ago. Sales of new asymmetric digital subscriber line (ADSL) services are expected to pick up as common carrier prices stabilize over the next 18 months. And according to the Spanish Association for Electronic Commerce's 2001 study on B2B electronic commerce, B2B revenues for 2001 exceeded €30,500 million. However, the European Information Technologies Observatory (EITO) reported in its findings for 2002 that B2B sales were only €5.7 billion.[270]

Of the 8,360,000 million people in Spain with Internet access, only 13.8 percent made at least one purchase online in 2001.[271] The ten most popular and frequently purchased products and services online in 2001 are found in figure 3 – Top Ten Purchases on the Internet.

[270]European Information Technology Observatory, EITO 2002, pg. 29.
[271]Asociacion Espanola de Comercio Electronico, Estudio de Comercio Electronico *B2C*, 2002, page 63.



Source: Asociacion Espanola de Comercio Electronico, Estudio sobre Comercio Electronico 2002, pg. 73.

Spain's growth rate for new Internet users ranks as one of the highest in the European Union tied with Italy at 18 percent (figure 4). This factor alone should bode well for B2C and B2B electronic commerce as more and more Spaniards become acquainted and comfortable with the online economy.

Figure 2.4.4
Web Users 2001-2005 ('000s)

	2001	As a % of Population	2005	As a % of Population	CAGR 2001-2005
France	21,740	36.4	37,455	61.8	15%
Germany	32,891	39.5	53,394	63.4	13%
Italy	17,450	30.6	33,793	59.4	18%
Spain	10,715	27.3	20,914	53.4	18%
United Kingdom	27,316	45.8	40,818	67.4	11%
Nordic Countries	13,698	57.1	18,977	78.2	8%
Other Western Europe	24,690	37.4	41,849	62.5	14%

Source: EITO 2002, Part One, The Evolution of the European e-Economy, page 25. March 2002.

THE SPANISH INTERNET CONSUMER

Internet users typically access the Web via a personal computer (98.4%) either in their homes or offices (67.5%), Internet cafes, or mobile communications devices (32.5%). The typical user averages 34 hours of connect time monthly.[272] Nearly 1 million "Internautas," or Internet users, have high speed ADSL service. This figure represents 12.5% of all Internet service connections. The vast majority relies on dial-up modems to access their Internet Service Providers (ISP). Most Spanish Internet users are between 19-30 years old, are male and have a monthly income that ranges from €601 – 1,202. Most "Internautas" (87.5%) do not buy online and those that do buy books, music, and software, followed by domestic goods.

The Spanish association for information technologies (SEDISI) reports that the PC penetration rate for households in Spain is 26.9% or 3,767,836 households with the highest concentrations in the autonomous regions mentioned above.[273] Most "Internautas" access the Internet from their homes followed next by their offices, schools and other sites, i.e., Internet cafes.[274]

FACTORS INFLUENCING B2C E-COMMERCE

Five major forces influence ICT adoption in Spain and the consequent use of the Internet for B2C electronic commerce. These factors are: cost, competition, content, culture, and confidence. While several are clearly economic, others, e.g., culture, are rooted in Spanish society and are more resistant to adaptation.

- ***Costs***. In Spain, because of perceived high investment costs for acquiring information technologies in the home, Internet cafes have become popular locales for the student and university communities who are regarded as the primary early adopters of new technologies. Fees are relatively low at Internet cafes – 4 a day or €12 a week – and have served as catalysts to increased usage and acceptance. ISPs' dialup service remains expensive because the user pays for telephone connect charges by the minute. Flat-rate Internet service is offered by few ISPs and is not widely available. The incumbent common carrier, Telefonica, controls nearly 90 percent of telephone and Internet services provided to Spanish subscribers and to common carriers that lease lines from it. Although ISP monthly access fees are relatively low even compared to those of the United States (see figure 2.4.5), the variable telephone connect fees and contract offerings from ISPs limit connect time on the Web (figure 2.4.6).

- ***Competition.*** The advent of telecommunications liberalization in 1998 offered opportunities for new investments and choices to the Spanish consumer. Telefonica, the Spanish monopoly went through a series of restructuring and emerged with its market share intact. Unbundling of the local loop was not achieved as quickly as expected, and new market entrants subsequently closed down leaving a handful of common carrier providers. Investments in new fiber optic backbones were stymied and infrastructure remains under Telefonica's control. The economic slowdown has contributed to consolidation and maintenance of the status quo ante liberalization.

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[272]Asociacion Espanola de Empresas de Technologias de la Informacion (SEDISI). *Las Technologias de la Informacion en Espana – 2001*, Page 99.
[273]Ibid,page. 95.
[274]Comision del Mercado de Telecomunicaciones (CMT). *El Mercado de las Telecomunicaciones, audiovisuals, e Internet.* Page 323.

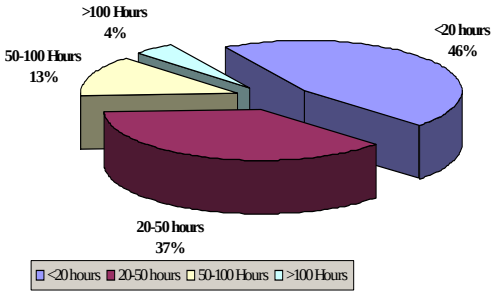
Figure 2.4.5
Internet Service Provider Offerings -- 2001[275]

ISP	Service Plan	Characteristics	Monthly Cost
EresMas (Retevision)	Indirect Access	6pm to 8am, weekends and holidays	**€ 16.00**
Jumpy (Retevision)	Basic Plan	6pm to 8am, weekends and holidays	**€ 16.00**
Terra	Personal Tariff Plan Terra	6pm to 8am, weekends and holidays	**€ 10.52**
Telefonica	Internet Tariff Plan	6pm to 8am, weekends and holidays	**€ 16.53**
Airtel	Tariff Plan	6pm to 8am, weekends and holidays	**€ 16.53**
Arrakis (BT Telecom)	Barra Libre Tariff Plan 6x4	6pm to 8am, weekends and holidays	**€ 16.53**
Ya.com	Tariff Plan Ya.com	6pm to 8am, weekends and holidays	**€ 23.44**
Wanadoo	Basic Plan	6pm to 8am, weekends and holidays	**€ 16.50**
ONO	High Speed, unlimited access	24 hours, 300 kbps	**€ 39.03**
	High Speed, unlimited access	24 hours, 128 kbps	**€ 24.01**
	Internet ONO	24 hours	**€ 21.61**
Supercable	Super 128	24 hours, 128 kbps, 2 accts, Web page	**€ 24.01**
	Super 256	24 hours, 256 kbps, 2 accts., Web page	**€ 33.01**
	Basic Plan	24 hours, 56 kbps, w accts., Web page	**€ 15.00**
Euskaltel		24 hours	**€ 16.53**
Cable de Aragon	Able 128	128 kbps, 4 email accts, Web page	**€ 27.05**
	Able 256	256 kbps, 5 email accts, Web page	**€ 48.08**
Madritel	Active business	No hours	**€ 10.22**

- ***Content.*** Competitive issues affect the quality and diversity of content on the Internet. Additionally, applications available to a Web user are confined to electronic games, email, and other standard services, i.e, chat rooms, news groups, etc. As many users and non-users alike view the Web with some trepidation, "killer" applications are needed to lure new entrants to cyberspace. That these applications have yet to be developed and deployed augers poorly for future incremental

[275]Comision del Mercado Telecomunicaciones – *El Mercado de las Telecomunicaciones, audiovisual, y Internet –Annual Report 2001,* pages 328-329.

Figure 2.4.6
Monthly Internet Usage in Spain



Source: SEDISI Los Technologias de la Informacion en Espana – 2002. pg. 99

growth in Internet usage and e-commerce transactions. It is believed by experts in the Spanish ICT community that the emergence of 3G wireless technology coupled with mobile communications Internet interface will lead to increased demand for Internet services.[276]

- ***Culture.*** Perhaps one of the most salient factors influencing the adoption of B2C e-commerce is Spanish culture. Spaniards are a social people, live in apartments in urban areas, and do not use distance-selling channels to purchase goods and services. The Spanish consumer typically does not use credit cards to the extent they are used in the United States and normally pays outstanding balances in full each month. High annual fees (€60) limit the number of credit cards one has. And bank debit cards are not accepted for online purchases. The consumer in Spain tends to be more conservative when it comes to financial matters and prefers to use bank debit cards for online purchases. Several industry leaders referred to these attributes as deterrents to ICT diffusion in Spain. The absence of delivery services also serves as an obstacle to e-commerce acceptance. To expand and broaden its market share in retailing, El Cortes Ingles, the largest retailer in Spain (comparable to Marks and Spencer in England) has introduced its own electronic card for online purchases, offers delivery services for groceries and other consumer goods, and has provided online payment services for its customers.[277] Spanish consumers like to "kick the tires," that is use the senses to aid in making buying decisions.

- ***Confidence.*** Ironically, consumer confidence does not play as large a role in determining whether an "Internauta" will buy online. Consumers do care about their personal information, availability of payment mechanisms, recourse to resolving disputes, and trust in the company represented by a web site. However, of paramount importance to the Web buyer, is receipt of goods ordered and quality. It is the latter that represent significant barriers to sustained e-commerce growth beyond the top ten categories of goods and services procured over the Internet.

While Internet usage in Spain hovers under 1/3 of the population, its average annual growth rate in adding new users exceeds all of the largest economies save Italy with whom it shares CAGR of 18 percent. Additionally, authorities in Spain report that while the number of registered Internet account holders is around 10 million, the number of people in households who share one account may be 2-3 times the official calculation. Thus, the demand for services, clamor for improved and secure payment

[276]Spanish public and private sector experts, interviews by Commerce ICT research team, Madrid and Barcelona, September 17-20, 2002.
[277]Ibid., September 17-20, 2002.

mechanisms and wider choices will contribute to shaping the growth and direction of B2C commerce for the coming decade in Spain.

Trends in B2C Electronic Commerce

Convergence of telecommunications and information technologies has led to several innovative solutions to stimulate B2C electronic commerce growth. Unconventional Internet access options are being designed into mobile terminals (cellular telephones) that incorporate the latest 3G (UMTS) technologies that offer the consumer the opportunity to download movies and mp3 files, and send pictures and text without being connected via a personal computer. More than 70 percent of the population subscribe to mobile telecommunications services – there are 25 million wires lines in Spain, more than wired lines. Thus, the immediate benefit to B2C e-commerce growth by extending Internet access via WAP (wireless access protocol) is apparent. Additionally, wireless personal data assistants (pdas) with enhanced functionality that expands upon 3G features and incorporates the pda's standard operating capabilities to manage personal data. The principal limitations with these devices are size of the units and costs for 3G services.

It is also believed that universal broadband service availability throughout the country will trigger significant growth in B2C sales by lowering costs to the consumer. That this action will stimulate significant sales growth is yet to be assured as current broadband service use represents less than ten percent of all Internet subscribers.

Over the past two years, many exclusively online stores closed because of lack of profitability due to falling sales. Traditional brick and mortar companies, however, have established web sites to expand their markets and clientele. These firms are active in the tourism, financial services, telecommunications, and retail sectors.[278] Market leaders include IBERIA, Banco Santander, Telefonica, and El Cortes Ingles.

The preferred payment mechanisms to use for online transactions in Spain are credit cards and debit cards. However, as mentioned above these methods are not widely employed. Alternative payment methods include cash on delivery and bank transfers. Absence of widespread use of credit and debit cards presents special problems when cross-border transactions are attempted. Many countries, especially the United States, do not accept bank transfers and will not ship COD. Several financial institutions including Banco Santander and VISA have introduced special payment cards designed exclusively for electronic transactions but they have not received broad-based acceptance. VISA, in particular, has invested in an expensive promotional campaign to increase acceptance of its e-card in Spain.[279]

According to the Comision del Mercado Telecomunicaciones (CMT), in 2001 there were 2.367 million online electronic commerce transactions which are grouped into three components: domestic-only e-commerce transactions, domestic to foreign transactions, and foreign to domestic transactions. The three principal foreign regions where Spanish consumers placed international orders are: the European Union, the United States, and Latin America (a distant third). These accounted for nearly €19 million in sales

[278]Interview with representatives of the Asociacion Espanola de Comercio Electronico y Marketing Directo, September 19, 2002, Barcelona, Spain.
[279]Comision del Mercado Telecomunicaciones. Informe Annual 2001. pg. 323-333.

and resulted in a balance of trade of €35.5 million. Spanish e-commerce consumers bought more products from foreign sources than Spanish e-commerce vendors sold to foreign e-commerce consumers in 2001.

Leading authorities in both the public and private sectors agree that to motivate consumers in Spain to adopt electronic commerce as another mechanism to satisfy needs, the cost of information technologies and Internet service must be reasonable. Nontheless, efforts to minimize costs and to provide services have met with uneven results. In 2000, America Online (AOL) entered into a partnership with Banco Santander, one of the five largest financial institutions in Spain to introduce a low-cost limited use personal computer designed by Intel Corporation (Intel.dot terminal). Both AOL and Banco Santander had a 40% share in the venture; the remaining 20% was held by independent partners. Of the 300,000 information stations purchased, only one third were sold and they didn't work. The bank is seeking to liquidate its holdings in the project and AOL has also withdrawn. Additionally, flat-rate Internet service offered at low costs during off-peak hours has not attracted many new subscribers because of the hours of availability are 6pm-8pm only. As in other industrialized countries, online banking seems to be the leading driving force to influence citizens who are not conversant with information technologies and the Internet to consider learning about the online world. The Spanish government and regional administrations have launched ambitious programs to promote the Internet and hope to expand Internet penetration nationwide within the next ten years. Details on their efforts are found under the E-Government section.

Note: Statistics on electronic commerce sales in Spain vary widely. The European Information Technologies Observatory 2002 annual study indicates that B2C sales in 2001 were €1.162 billion whereas the Asociacion de Comercio Electronico reports that 2001 B2C sales totaled €525 million. The Comision del Mercado Telecomunicaciones (CMT) annual report for 2001 mentioned there were €127 million in sales. Methodologies differ in capturing data and the reader should be aware of the discrepancies. It is important to note the generally upward trend in electronic commerce as an indice of growth.

Approximately 7-8% of Spain's Internet users subscribe to asymmetric digital subscriber line (ADSL) Internet service. The main deterrent to wider use is cost. ADSL prices range from a low of €39 per month from ISP Wanadoo to a high of €180.27 from ISP Eres Mas (Retevision). While service options vary – the latter offers 5 accounts and high-speed (2 Mbps) upload – ADSL is beyond the means of the average Internet user. Telefonica and its ISP subsidiary, Terra, offer ADSL for €39.07 and €42.04 respectively. The main difference is that Terra offers 5 accounts each with 25mb capacity and 50 mb of virtual disk storage.[280]

[280]Ibid., CMT annual report., pg. 330.

B2B ELECTRONIC COMMERCE IN SPAIN

OVERVIEW

According to the Asociacion Espanola de Comercio Electronico (AECE), B2B revenues in 2001 reached €30.5 million, an 8% increase over reported transactions in 2000.[281] These results contrast sharply with data found in the EITO 2003 study which reported that B2B e-commerce in Spain for 2001 was €5.74 billion.[282] The discrepancy may be attributed to approaches to data collection and how inter-bank transfers and electronic data interchange transactions are recorded. To put this figure in context of the Spanish economy, the European Union reports that Spain's gross domestic product for 2000 was €608.8 billion (*Eurostat Yearbook 2002*). The former is statistically insignificant and the latter represents 1% of GDP.

AECE's most recent study conducted under the auspices of and in cooperation with the Spanish Ministry of Science and Technology found that of Spanish enterprises of 200 or more employees, 35.6% engage in B2B electronic commerce. These enterprises reported that B2B applications have a clear impact on productivity and efficiency. Additionally, firms that developed B2B solutions, reported significant cost reductions and improved customer/supplier relations. Inventories were reduced and suppliers were better equipped to satisfy their clients material needs due to accelerated order and payment solutions not available offline. The autonomous regions of Catalunya and Madrid lead the country with the highest concentration of B2B sales and the highest number of companies (nearly 47%) that employ B2B strategies. They are followed by Valencia and the Basque region.

In the near term, Spanish enterprises do not plan to incorporate new B2B applications into their information systems. This is no doubt due to the downturn in the ICT sector coupled with the overall slowdown in the domestic economy. Only 19.4% intend either to use or to add electronic commerce in 2003.[283] As expected, the highest B2B adoption rate is found with very large corporations who believe the opportunities to reduce costs, expand their customer base, and improve operational customer/supplier relations are worth the investment in new technologies and methods for doing business. Interestingly, these companies do not expect an immediate return on investment and, as early ICT adopters, clearly understand the advantages that will accrue eventually from B2B implementation.

Figure 2.4.7 illustrates Internet penetration by industry sector in Spain; figure 2.4.8 shows the extent to which Spanish enterprises use the Internet for B2B by industry sector.

Most companies in Spain are classified as ***PYMES (pequenas y medianas empresas)*** – small and medium-sized enterprises with less than 100 employees. In fact, a sizeable percentage of these firms are sole proprietorships whose principals either lack computer skills or who do not have the capital to invest in information technologies. Thus, the challenge continues being B2B incorporation and adoption by ***PYMES***. The Spanish central government and regional administrations have devised comprehensive plans to broaden use of IT and to train entrepreneurs in the use of the Internet to expand markets. The dilemma for the government is where the funds for these ambitious programs will be found in a period of economic contraction when competing interests seek investment support to stimulate their sectors.

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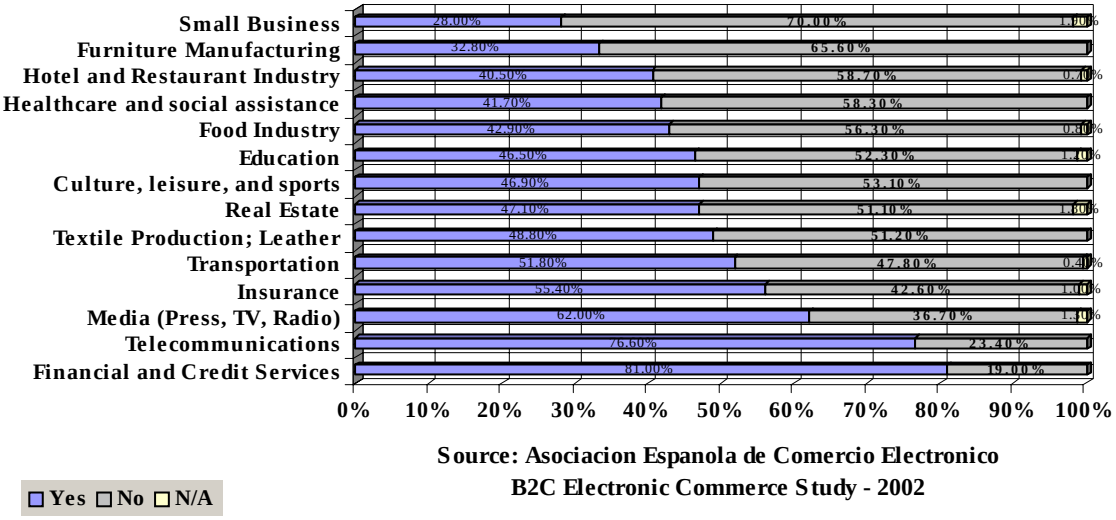
[281]Asociacion Espanola de Comercio Electronico, B2B Estudio 2002, page 61.
[282]European Information Technology Observatory – EITO 2003, page 29.
[283]Asociacion Espanola de Comercio Electronico, B2B Estudio 2002, pg. 26.

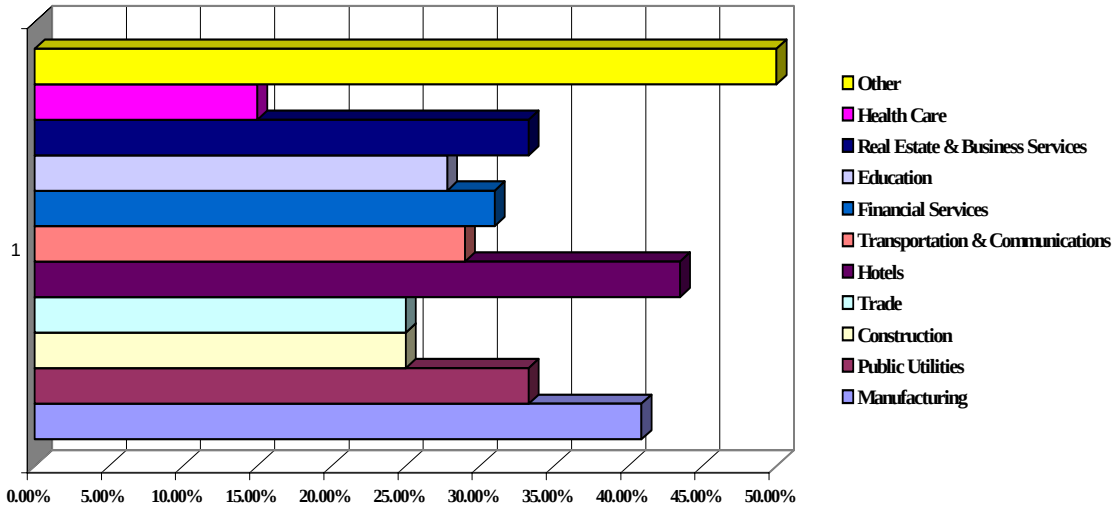
THE SPANISH B2B PRACTITIONER

Figure 2.4.7
Internet Presence by Industry Sector
SPAIN - 2002



Source: Asociacion Espanola de Comercio Electronico
B2C Electronic Commerce Study - 2002

Figure 2.4.8
Percentage of Spanish Companies Using B2B by Sector
(Enterprises with 200 or more employees)



Source: Asociacion Espanola de Comercio Electronico, B2B E-Commerce in Spain 2001

THE SPANISH B2B PRACTITIONER

Spanish enterprises that use B2B typically are manufacturers that seek cost efficiencies, improvements in raw materials deliveries, enhanced customer relations management with both suppliers and clients, and market expansion via Internet presence. In 2003, ACEC estimates that 14,000 enterprises will be conducting some form of B2B electronic commerce over the Internet – an increase of 5% over 2002.[284]

However, many companies still do not perceive the long-term benefits of B2B adoption, cannot afford the start-up costs of €35,000, or their products are not suited to electronic commerce.[285] Information technology adoption levels in very small companies are very low and small enterprises use the Internet essentially for market research, email, and electronic banking.

E-GOVERNMENT

Two years ago on January 24, 2001, the Spanish government announced INFO XXI's launch, an ambitious government-wide initiative to provide citizen-centric services throughout Spain. More than 300 projects were conceived and were to be implemented under the leadership of the Ministry of Science and Technology. More than 1/3rd were exclusively e-government and the remainder were intended for education and training, content, and promotion of e-government and e-commerce.[286] Several key priorities that the central government strongly supports include:

- **Citizen Identification Card** (Documento Nacional Identificacion or DNI). The DNI is envisioned as the principal identification tool for citizens to access health and social services and for routine security checks.

- **Ministry of Labor**. 1/3rd of its resources are currently committed to information technology training. At least €1.2 billion over three years were earmarked for these activities.

- **Taxation and tax submissions**. VAT declaration and notification is 100% electronic as is corporate income tax filing.

- **Online Customs and Statistical Data**. Customs declarations are now fully automated on line as are national statistics.

Lagging behind these initiatives are environmental permitting, company registrations and other social programs. Other important steps down the electronic highway include a national citizens and business portal (www.administracion.es), an intranet for the central government, and linkages to regional and municipal administrations. Regional administrations, e.g., Generalitat of Catalunya (www.gencat.es) are leading in the development of one-stop shops for businesses and citizens.[287]

Best practices cited by EITO include the Patent and Trademark Office of the Ministry of Science and Technology (www.administracion.es/empresa), which accelerates an administrative filing procedure for companies. Additionally, the CERES digital signature service (www.cert.fnmt.es/) operated by the Royal Spanish Mint are held high as examples of the potential for Spain's e-government program.

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[284]Asociacion Espanola de Comercio Electronico. Estudio sobre Comercio Electronico B2B en Espana 2001, pg. 11.
[285]Ibid.
[286]Interviews with representatives of the Ministry of Science and Technology, September 18, 2002.
[287]EITO Report 2002, Part Two – E-government and the business environment, page 333.

The Royal Spanish Mint's digital certificate program is designed to foster the development of secure electronic transactions and communications….more than 115,000 digital certificates were being used by Spanish citizens. CERES' birth was in 1997 when the Mint began work on the processes, technology and infrastructure to ensure security, authenticity and confidentiality for electronic data communications….During 2001, more than 500,000 income tax returns were filed via the Internet using digital certificates. This represents more than 5% of total submissions. (EITO 2002, pg. 334)

LAW OF THE INFORMATION SOCIETY AND ELECTRONIC COMMERCE (LSSI)

On June 27, 2002, the Spanish Congress of Deputies approved the Law of the Services of the Information Society and Electronic Commerce known commonly as LSSI. The LSSI implements the provisions of the European Union's directive on electronic commerce that went into force on June 8, 2000 (2000/31/EC). Article 22 of the EU directive states " ***Member states shall bring into force the laws, regulations and administrative provisions necessary to comply…before 17 January 2002***." As of this writing, Austria, Germany, Finland, Ireland, Luxembourg, and now Spain have enacted national laws to comply with the European Commission's directive. Spain's passage of LSSI was especially important to the government because Spain served as president of the EC when the directive was approved and it was due to Spain's leadership that the directive was approved. The law went into effect in Spain on October 12, 2002.

Under Article 35, Supervision and Control, the Ministry of Science and Technology is responsible for ensuring that service providers fulfill the provisions of the law. Additionally, the Ministry will cooperate with other official institutions that have primary responsibility for various elements in the law. For example, the Ministry of the Interior will have jurisdication over a controversial provision that allows the central administration to intercept electronic communications for public safety and anti-terrorism activities. It is this requirement that has caused the most concern among Spanish web site operators and privacy advocates. The monetary penalties and lack of judicial recourse to appeal decisions made by the Spanish Data Protection Authority (see sidebar) also are under criticism.

Under Title II, chapter I, articles 7.2 and 8 address service providers that are not located in EU member states or the broader European Economic region. LSSI applies restrictions to these providers in accordance with EU principles delineated in the legislation. Among other provisions, the law prohibits the use of Short Message Services (SMS) and/or email for advertising unless the recipient has expressly approved such notices (opt-in).

SPANISH DATA PROTECTION AUTHORITY (DPA)

The Spanish Data Protection Authority is an autonomous agency responsible for enforcing regulations and laws pertinent to protecting personal information. The DPA conducts many of its investigations in secret and its decisions cannot be appealed to a judicial court as no court oversees it deliberations. There continues to be considerable debate over this issue in Spain and how to remedy ill-considered enforcement actions. The DPA has the authority to levy large fines against websites or "virtual"

Web sites blackout over Spanish monitoring law
By John Leyden
Posted: 14/10/2002 at 13:00 GMT

Spanish Web site operators have taken their sites offline in protest at government proposals to regulate online content.

The spontaneous protest comes amidst deep concern among free speech advocates about Spain's "Law of Information Society Services and Electronic Commerce" (or LSSI as it is known in Spain), which became effective on Saturday (October 12th).

Under the law Web sites must register with the government and ISPs are obliged to monitor sites for illicit content, which they must report to the authorities.

Failure to comply with the law would result in heavy fines of up to €600,000.

The law, put forward by Spain's Ministry of Science and Technology, would allow the authorities to obtain judicial orders to shut down sites and seize their contents and activity logs, which ISPs must retain for up to 12 months.

Protestors, who succeeded in securing minor changes to the proposals in Spain's Senate, are trying to secure a hearing challenging the law in Spain's Constitutional Court.

In the interim, people are voicing their protests against the "inquisitorial" new law by taking their sites off line. Online community site Kriptopolis, A member of the Global Internet Liberty Campaign, which began but is not organising the offline protest, has published a list of 90 sites that have taken part in the protest so far.

Jose Manuel Gomez, Editor of Kriptopolis, who's been involved in the campaign since the Spanish government first drafted its proposals in May last year, told us "clearly this law has been passed for controlling web contents and to force editors to self-censure."

"As a protest we've closed our own site (about 500,000 visits per month., until then) from October 1. The Law became effective on October 12 and from that very moment many Web sites have *spontaneously* decided to go off-line to support the closedown, to protest against the law or simply because of fears of the way that inquisitorial new law will be applied in Spain from now on," he said.

International privacy organisation STOP 1984 has changed its main page to show its support for the close-down.

"We lament the loss of many web sites of Spanish NGOs. They had to go offline or will go offline soon because of the LSSI," the site comments, above a tombstone declaring "RIP: Democracy". ®

companies that violate data protection or other related actions that transfer data to countries that are not EU members. Unfortunately, these €600,000 fines (established in the LSSI) would bankrupt most small and medium-sized enterprises or at the least cripple them during a period of economic sluggishness.

One of the chief inconsistencies within the regulatory framework in Spain lies with data exchange provisions. Data protection law grants data holders the right to pursue challenges to enforcement decisions in civil court. However, the DPA was given independent authority that did not allow judicial recourse to alleged offenders.[288]

Data holders (ISPs, commercial vendors, etc.) must register their files with the Data Protection Authority. The form used to provide this information includes a section for international data transfers to entities residing outside the European Union. The kind of data must be identified and the enterprise to whom the data is transferred must be divulged. Additionally, ISPs must provide a "caveat" to subscribers that warns data is being transferred to a country where misuse of data can occur. Even if there is a "capital" relationship between the companies and communications are internal to their relationship, e.g., parent and subsidiary, the possibility exists that a data violation could be assessed. Fines are fixed and "non-discriminatory. The implications for PYMES in Spain are apparent. The risks associated with the penalties to do business online are too great to attempt electronic commerce. [289]

As Spain recognizes Safe Harbor certificates of adequacy through the U.S. Department of Commerce, U.S. firms contemplating online business in Spain may mitigate the scrutiny of the DPA by joining Safe Harbor.

[288]Interview with Spanish office of U.S. law firm, September 17, 2002.
[289]Ibid.

CHAMBER OF COMMERCE IN SPAIN (CAMBRA DE COMERC DE BARCELONA)

The Consejo Superior de Camara (High Council of the Chamber) is the umbrella organization for the chamber's 85 branches located throughout Spain. Currently, all companies in Spain must join a local chamber. The Barcelona Chamber of Commerce, the largest of all and with the highest concentration of companies, has 350,000 member companies most of whom are enterprises with less the 250 employees and are family-owned. These firms primarily are service-based and include information technology services. The Barcelona CoC's budget is allocated 50% for member services and 50% to export assistance.

As a service to its members, the Barcelona Chamber administers a digital certificate service – Carne Firma – to its members that complies with Spanish and European Union law. One half of the 85 branches offer this service to their members. Begun in 1999 following enactment of Spain's electronic signature law, this digital signature service is good for one year when issued. It is available with or without power of attorney. An individual's supervisor must provide a letter to the CoC authorizing the certificate's issuance. The service fees for the certificate are: €100 (no power of attorney), €200 – power of attorney, and €300 for a secure server.

The system uses PKI (public key and private key infrastructure).[290] The digital certificate or electronic signature is intended to provide security safeguards for online commercial transactions and the CoC hopes that this service will aid in stimulating Internet use via e-business. Further, the government, when the law was enacted in September 1999, hoped that this service would contribute to economic growth stimulation, particularly via the Internet. However, the numbers of companies that have applied and received a digital certificate represent less than 5% of the CoC's membership and e-business has not taken off as hoped.

2.5 CASE STUDY – THE CATALUNYA REGIONAL ADMINISTRATION'S PROGRAM FOR THE INFORMATION SOCIETY

Consistent with the *e*Europe Action Plan for the Information Society of 2002 and its successor, *e*Europe 2005, the regional administration of Catalunya developed its own program to meet the benchmarks set forth by the European Commission. As explained earlier in this chapter, the government of Spain delegates much of its authority to the 19 regional administrations and provides funds to carry out legislative mandates. Regional governments or *"communidades"* supplement these funds independently and develop a program based on economic and social conditions within their respective jurisdictions.

The regional government has adopted a series of initiatives to accelerate ICT technology diffusion in Catalunya. The administration negotiated with the leading telecommunications services providers, Telefonica and Retevision to provide ADSL Internet connections to all cities with populations greater than 2,500 citizens. Today, more than 90 percent of the Catalan population has access to ADSL services. To advance technology diffusion in the regional economy, the government intends to accelerate ICT use among *pymes* – small and medium-sized enterprises – to increase profitability, improve customer

[290] Interview with Chamber of Commerce representatives, September 19, 2002.

service, and streamline back-office operations. Currently, about 50 percent of *pymes* have a web site and use it primarily for advertising.

Central to the government's plan to eliminate the digital separation between urban and rural communities is it's goal to build and operate "Public Interest Access Points." These facilities or Omnia Centers are intended to have 1,011 access points and are to be concentrated in the most marginal quarters of cities and in rural communities. The typical center would feature at least 9 personal computers and be staffed with IT instructors to train citizens on using information technologies, accessing the Internet, and communication via e-mail. This program extends to those incarcerated in prisons where seven jails have access points to the Internet.

Another initiative the government is promoting is telework. Telework centers equipped with an average of 20 personal computers are located in 17 rural communities and include public Internet access points. These centers also serve as a resource base for distance learning and commuting. The Catalan government intends to promote use of the telework centers as a means to connect enterprises with people and train, educate and promote the use of new technologies. These centers, organized by municipalities, operate on a low fee-for-service basis. To date, though, telework remains a pilot project that has not received widespread acceptance.

With funding from the central government, Catalunya has begun three new programs for its educational system. The first of these is entitled "Internet at the School." This initiative is designed to improve the ratio of personal computers to students from 20 students per PC to 15 students per PC. The financing package for this initiative totals €55 million, 40/60 percent cost sharing between the central government and regional administration respectively.[291] The objectives are to improve ICT connectivity in the schools, and to eventually construct intranets within individual educational institutions. The government also plans to promote libraries as Internet access points and has allocated €1.7 million for this purpose (40% Catalunya, 60% central government.). Of the 350 libraries in Catalunya, 270 already have Internet access points installed.

DIGITAL CITIES

An ambitious joint venture between the central government in Madrid and the Catalan regional administration is the "Digital Cities" initiative. On a 50/50 cost sharing basis, both entities plan to spend €7.2 million to develop demonstration projects that illustrate information society activities, promote telework, e-tourism (especially attractive areas in Catalunya), agriculture, and e-learning. This two-year program is designed to demonstrate the utility of sustainable development activities employing ICT technologies.[292]

In partnership with the national government and as part of Info XXI, Spain's action plan for the information society, The Catalan government is working with telecommunications operators to build infrastructure in the region to deploy broadband services and to build content pertinent to Catalunya including incorporation of the Catalan dialect into web site and content. The regional government is also

[291]Secretaria per la Societat de la Informacio. USDOC staff interviews with Catalan officials, September 19, 2002.
[292] Ibid.

working to facilitate e-commerce between suppliers, manufacturers, and distributors with financial support from the EU. This effort is focused toward the SME (<250 employees).

ICT Penetration In Catalunya

The regional administration of Catalunya reports that 45.7 percent of households in the province have personal computers (1,161,000), of which 27.1 percent have Internet connections and 7 percent have either ISDN, ADSL, or cable.[293] Business ICT use is fairly common in Catalunya. Eighty-three percent of enterprises with more than 10 employees have access to the Internet. Of these, 50 percent have a web site and 82.7 percent use e-mail. However, only 15.4 percent of enterprises engage in B2C or B2B electronic commerce. The industries most frequently engaging in E-commerce are the hotel and catering industries, and the financial services sector followed by the automotive and chemicals sector. The general trend toward e-commerce is that the larger the firm, the more apt it is to engage in a full range of online commercial transaction.[294]

In the Generalit or regional administration, there are 55 computers for every 100 workers and in municipalities there are 48 computers for every 100 public employees.[295] Public Internet Access Points (PIAPS) are increasing in numbers among municipalities in Catalunya. Of the 196 municipal councils surveyed, 43 reported that they had one or more PIAP for a total of 133 PIAP centers. Add to this sum, the number of libraries with PIAPS and the total available to the public in the province reaches more than 350 PIAPs.[296] This degree of ICT adoption in public administration has enabled nearly 45 percent of public service workers to have email accounts to carry out their official duties. While this figure may seem tiny when compared to the United States, it is not too far off the EU mark.

The Educational System – A Driver for ICT Diffusion

The average number of pupils per computer in Catalunya is 16 versus 12 in the EU. However, nearly 100 percent of the schools in the province have Internet access – 10 points above the EU average. More than 50 percent of the schools have their own web sites and usage trends indicate that more students are using IT and the Internet between 1-4 hours per week.[297]

As ICT diffuses throughout the province via the educational system, more and more households will be exposed to the benefits of ICT, the Internet, and the opportunities available via ICT use. As students mature, graduate, and enter universities, technical, and vocational institutions, ICT will become more prevalent in daily society as these students enter the workforce, start businesses, and engage in digital trade.

The Catalan government along with the national government and the EU serves as a principal driver of ICT diffusion and adoption. Its aim is to realize the potential of its citizens, bring citizen-centric governmental services to everyone via the Internet, and to train all for the information society.

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[293]Secretaria de Telecomunicacions I Societat de la Informacio. *"Statistics on the Information Society Catalonia 2001."* Pages 21-24.
[294]Ibid., pp. 69-71.
[295]Ministry of Public Administrations. *Survey on Infrastructure and Local Equipment*. 2001.
[296]Ibid., pg. 77.
[297]Ibid., pg. 81.

CONCLUSIONS

Adoption of electronic commerce in Spain is influenced by the absence of distance-selling history (direct marketing) in Spain and by the Spanish consumer's preference for shopping in person for clothing, household items, etc. The exception is groceries. El Cortes Ingles, the largest department store group in Spain, markets groceries and other goods online, delivers them to customers, and offers other services online to provide value-added services to its clientele. It is viewed as one of the early adopters of B2C e-commerce and one of the most successful. B2C will evolve differently than in the United States and be led by financial services, tourism, telecommunications services, and food marketing. Ultimately, the key to successful B2C marketing will be the personal relationships and trust that exist between the buyer and seller. Structural concerns about personal information security, dispute resolution, and payment mechanisms are known and have had an impact on the rapidity with which the population embraces the online culture. And as the young generation of early technology adopters enters the work force, the rate at which the Internet penetrates Spain will accelerate albeit via avenues rarely used in the United States.

The pace of B2B e-commerce growth will also be influenced by similar concerns and trends. Most PYMEs, especially the very small companies, will not engage in B2B marketing because their products are not suited for the Internet, enterprises do not have the discretionary capital to invest in ICT infrastructure, or the level of computer literacy is not adequate to understand the long-term advantages in competition that B2B offers. Rather than a general countrywide diffusion of B2B, autonomous regions via their administrations will be expected to offer island of significant growth over the next ten years. When the economies in Europe rebound from the global meltdown in the ICT sector, we will see a return to B2B investments. It is believed that by 2010, Spain will have reached the same level of Internet penetration as the leading economies in the EU, bringing with it a rising interest in exploiting the Web for electronic commerce.[298]

Even though the legal framework for electronic commerce is beginning to take shape under the umbrella of the Law on the Information Society Services and Electronic Commerce and other legislation, the LSSI's provisions are, in some respects, the most controversial. Some view the LSSI as the primary instrument of the government to control content and force editors into self-censorship. The data retention provisions are expected to be challenged in Spain's Constitutional Court and the Congress is expected to review the law with the aim of clarifying some of the more ambiguous provisions that have been responsible for ISPs' opposition to the law.

[298] Interview with public and private sector leaders in the Internet community, Sept. 17-19, 2002.

2.6 INFO XXI – The Government of Spain's Information Society Agenda[299]

In order to fulfill the commitments that were undertaken in terms of the eEurope Action Plan, Spain has launched INFO XXI: La Sociedad de la Informacion para todos (the Information Society for Everybody), which covers the period 2001-2003. The $4.8 billion plan consists of a group of initiatives (more than three hundred activities and projects) that provide an important impetus for the development of the information society (IS) in Spain. The plan includes regulatory measures as well as activities and projects with objectives, time periods, persons in charge, collaborators and financing. The Ministry of Public Administration is responsible for promoting the dialogue and coordination of e-government and IT projects among Spain's autonomous regional administrations. Each region has a central administration office to coordinate with local municipalities for the purchase of IT equipment, interconnection services, and software.

INFO XXI is aimed at implementing strategies that will improve e-government services (see E-commerce chapter) and increase technology diffusion, digital literacy and, to a lesser degree, technology development.

Technology Diffusion

Internet para Todos (Internet for Everyone)

The Spanish government's *Internet para Todos* initiative aims to have 3 million homes connected to the Internet in its first phase and to extend broadband networks beyond the largest population centers to smaller Spanish towns with fewer than 50,000 inhabitants. The long-term objective is to ensure that every business and citizen has access to the Internet at affordable prices. Its goal is to attract one million new users to the Internet per year. The efforts by the Spanish government include:

> ***Network Centers*** - In an attempt to provide Internet access and dispel the fear many citizens have of using technology, the administration has started to introduce "network centers." These network centers not only offer Internet access, but also offer instructions on how to use computers and the various uses that can be made of computers and the Internet.
>
> ***ADSL Service*** – Until September 2001, Telefonica was only present in the ADSL wholesale market and by law could not enter the retail market. The operator rented its network to other companies for them to resell ADSL to the end-user. In July 2001, the Telecommunications Market Commission (CMT) established the range of wholesale prices Telefonica must apply if it is to enter the ADSL retail segment. The prices are set to guarantee alternative telecom operators may compete in the ADSL retail market.[300] Additionally, the Spanish government recently signed an agreement with Telefonica to make ADSL available to 92% of the population and to every city with over 2,500 people.[301]
>
> ***Flat Rates*** – In June 2000, a law was enacted to open the local access loop and set limits on the maximum flat rate for Internet use on weekends and weekdays from 6:00pm to 8:00am.[302]

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[299]This section is written to give the reader a broad overview of Spain's information society (IS) and highlight the primary activities and projects that have the greatest affect on the IS. Additional information can be found at: www.info21.es.
[300]"IT Policy Profile: Spain," OECD, August 2002.
[301]Spanish industry representatives interviewed by USDOC staff, September 17-21, 2002.
[302]"IT Policy Profile: Spain," OECD, August 2002.

PYMES[303]

Since more than 90 percent of the Spanish industry consists of PYMES, the Spanish government has launched various programs aimed at increasing the use of ICT by them. These include:

Fiscal Incentives – Fiscal measures are in place offering incentives for PYMES to adopt ICT. PYMES receive incentives for improving business processes and all activities related to e-commerce (cost of hardware, software, system installation, personnel training, designing web pages and portals, and IT security).

Local Business Centers – Local business centers have been created all over Spain to offer a reference point to PYMES, delivering various services related to e-commerce, such as information, training, and consulting. The network is widening to include sector specific business centers.

Micro Enterprises – The Prince Program is designed for micro enterprises (less than 20 employees) located in small towns and is aimed at helping them use ICT by training them on using computer, the Internet, e-mail, and new management techniques. The program is both online and as well as through personal training sessions.

ARTEPYME – The Spanish Ministry of Science and Technology (MCYT) created the ARTEPYME project to design advanced service application for use by PYMES in different industry sectors. The final product is made available to industry associations and business centers so that they can assist their clients.

DIGITAL LITERACY

As part of the government's nationwide effort to encourage IT adoption, the Ministry of Labor has devoted $1.2 billion between 2001-2003, a third of which is for IT training.[304]

BASIC IT SKILLS

Network Centers – see above reference under Internet para Todos.

IT in Schools – The central administration has agreed with regional administrations to increase IT spending in schools to provide Internet access and decrease the ratio of students per PC (the goal is to have 15 students per PC – Spain currently has a nationwide average of 20 students per PC). Additionally, both the central and regional administrations have agreed to increase the amount of time for IT usage and training in the school's syllabi, increase the supply of educational multimedia in mathematics, physics, and English, and increase the training of teachers in these subjects.

[303]PYMEs are Spanish enterprises with less than 100 employees.
[304]Spanish government representatives interviewed by USDOC staff, September 17-21, 2002.

Public/Private Partnership – In January 2003, Spanish president Jose Maria Aznar formed the basis of an agreement with Sun Microsystem's managing director Scott McNealy. The agreement calls for Sun to provide 9 million licenses for its StarOffice software package to users in the Ministry of Education. The €725 million operation will be used to provide Spanish schools with free software.

PROFESSIONAL IT SKILLS

INEM Project – The national Institute of Employment (INEM) is collaborating with business associations to train and inserting 14,000 new professionals in IT over a three-year period.

FORINTEL – MCYT's FORINTEL program aims at offering continuing education courses to ICT sector employees.

TECHNOLOGY DEVELOPMENT

R&D Incentives - In an effort to promote innovation by Spanish companies, MCYT is planning to offer tax incentives, in the form of binding certificates, to Spanish companies that invest in R&D. In addition, as part of the Spanish government's commitment to build Spain's information society, it is offering subsidies worth €54 million to firms involved in R&D, and €301 million in credit advances between the years 2001 and 2003.[305]

Spain: 25th in the IT world
by Blanca Tapia
Posted: 28/02/2003

The Spanish Ministry of Science and Technology hasn't received any good news from the recently published Global Information Technology Report 2002-2003, which has rated Spain as twenty-fifth in the world in terms of the integration of information technology into the society.

After all the investment in the Spanish IT plan, INFO XXI, which promised to educate a million of the country's citizens in new technologies and to increase public access to the internet, the reality is that fewer than 100,000 citizens have received the intended education, and that public internet access points are very limited, e.g., only 18 percent of public libraries offer access to the internet.

The INFO XXI received a lot of support from last year's first Global Information Technology Report, but this year is not mentioned due to the negative results. The Ministry of Science and Technology is working at the moment on the re-structuring of the plan, which will be ready for March.

Spain has climbed only one rung, above last year's almost equally abysmal twenty-sixth place, even after a year of 'doing its homework'. Borja Adsuara, former director of the Development of the Information Society, believes that the Spanish public administration should be satisfied with the results. On the other hand, in the discussion panel at the Technological Integration Forum of Public Administration last week in Madrid, José Borja Tomé, from the Technological Innovation Centre of the Guardia Civil replied that he lamented being the only one to think that "we are not doing things that well, because surprisingly, the best services we provide to the citizen are those that we charge for."

The Spanish Internet Users Association claimed that the Ministry "limits its actions to cover up the big holes of the Spanish Information Society with patches." They asked the Spanish government to aim at universalising internet access to citizens, as well as reducing the connection prices, which are some of the highest in the EU. ®

[305]Spanish government representative interviewed by USDOC staff, September 17-21, 2002.

CHAPTER III: ITALY

3.1 POLITICAL AND ECONOMIC OVERVIEW

Italy has been a democratic republic since June 2, 1946, when the monarchy was abolished by popular referendum. The constitution was promulgated on January 1, 1948.

The Italian state is centralized. The prefect of each of the provinces is appointed by and answerable to the central government. In addition to the provinces, the constitution provides 20 regions with limited governing powers. Five regions--Sardinia, Sicily, Trentino-Alto Adige, Valle d'Aosta, and Friuli-Venezia Giulia--function with special autonomy statutes. The other 15 regions were established in 1970 and vote for regional "councils." The establishment of regional governments throughout Italy has brought some decentralization to the national governmental machinery, and recent governments have devolved further powers to the regions. However, many regional governments, particularly in northern Italy, are seeking additional powers. The constitution established a bicameral parliament (Chamber of Deputies and Senate), a separate judiciary, and an executive branch composed of a Council of Ministers (cabinet), headed by the president of the council (prime minister). The president of the republic is elected for 7 years by the parliament sitting jointly with a small number of regional delegates. The president nominates the prime minister, who chooses the other ministers. The Council of Ministers, comprised mostly of members of parliament, must retain the confidence of both houses.[306]

National elections held March 13, 2001 returned Silvio Berlusconi to power following a six year hiatus at the head of the five-party center-right "Freedom House" coalition, comprising the prime minister's own party, Forza Italia, the National Alliance, the Northern League, the Christian Democratic Center, and the United Christian Democrats. Because the center-right coalition holds the majority of seats in parliament, Berlusconi's government is expected to be longer lived than its many predecessor governments, and could well last a full 5-year term.

U.S.-ITALY RELATIONS

The United States enjoys warm and friendly relations with Italy. Italy is a leading partner in the war against terrorism. Both are NATO allies and cooperate in the United Nations, in various regional organizations, and bilaterally for peace, prosperity, and security. Italy has worked closely with the United States and others on issues such as NATO and UN operations as well as with assistance to Russia and the New Independent States; the Middle East peace process; multilateral talks; Somalia and Mozambique peacekeeping; and combating drug trafficking, trafficking in women and children, and terrorism.[307]

The U.S.-Italian bilateral economic relationship is strong and growing. The United States and Italy cooperate closely on major economic issues, including within the G-8. With a large population and a high per capita income, Italy is one of the United States' most important trade partners. In 2002 the United States was the fifth-largest foreign supplier of the Italian market and the largest supplier outside the European Union. Total trade between the United States and Italy was $34.4 billion in 2002. The U.S. ran a $14.2 billion deficit with Italy in 2002.

[306]U.S. Department of State. Country Background Notes -- Italy. June 2003.
[307]Ibid.

Significant changes are occurring in the composition of this trade. More value-added products such as office machinery and aircraft are becoming the principal U.S. exports to Italy. The change reveals the growing sophistication of the Italian market, and bilateral trade should expand further. In 2002, the United States imported about $24.3 billion in Italian goods while exporting about $10.1 billion in U.S. goods to Italy. U.S. foreign direct investment in Italy at the end of 2001 exceeded $23.9 billion.

Figure 3.1.1
Key Economic Indicators for Italy - 2002

Population and GDP	Total Population GDP per Capita	**57.7 million** **$21,500**
IT Market	IT Services IT Hardware and Software	**€9.7billion** **€13.65 billion**
Personal Computers	Total Penetration Rate (per 100 people)	**11.3 million** **19.5%**
Telecommunications Market	Telecommunications Services Telecommunications Equipment	**€33.2 billion** **€6.4 billion**
Wireline Subscribers	Total Penetration Rate (per 100 people)	**27.6 million** **48%**
Wireless Subscribers	Total Penetration Rate (per 100 people)	**52.6 million** **91%**
Telecommunications Expenditures	Percent of GDP	**2.70%**
Cable TV	Total Subscribers Penetration Rate (per 100 people)	**52,000** **.1%**
Internet	Total Users Penetration Rate (per 100 people)	**22,151** **38%**
Electronic Commerce	Total B2B and B2C	**€17.3 million**

Sources: EITO 2003, Department of State Background Notes for Italy, 2003.

As with other EU Member States, Italy's economy has struggled in recent years to maintain consistent growth. Since 2000, when GDP growth registered 3.1%, GDP has slowed significantly (1.8% in 2001, .4% in 2002, and est. 1% in 2003).[308] GDP growth remained flat in the first half of 2002 and only began to increase in the latter half with increased consumer spending primarily for durable goods. Aided by government fiscal incentives, both car purchases and investment picked up albeit not to the levels the government projected.

Short-term prospects in 2003 are poor. Economic growth will hover around 1% and industrial production will not pick up until the second half of the year. Private consumption is expected to retreat and investment expenditures are expected to fall after the upturn in the latter half of 2002. The euro's appreciation has affected Italian exports, especially those goods that are labor intensive. Overall, exports will suffer another decline this year. Imports, on the other hand, are expected to rise by 4.6% over 2002, in part due to the dollar's position against the euro.[309]

Unemployment averaged 9% in 2002 despite a 1.1% increase in job growth. However, in 2003, job growth is expected to be anemic with barely .4% increases in new jobs. Unemployment remains uneven reaching 21% in the agricultural south, and about 3% in the industrialized north.

The harmonized index of consumer prices (HICP) for 2002 was 2.6% and is expected to be 2.4% in 2003. The HICP in 2004 is expected to fall below 2% as OPEC oil prices fall to the $22-28 level. The government's budget deficit is expected to remain at 2.3% of GDP, the same as 2002.[310]

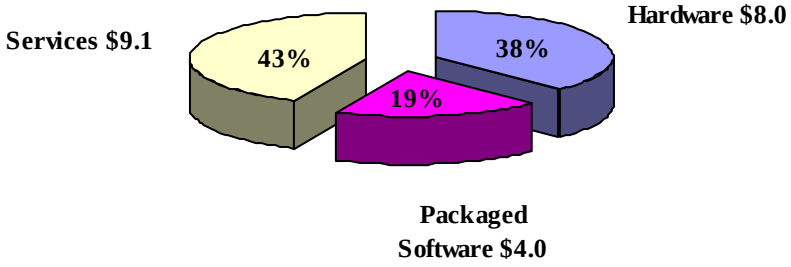
[308]European Commission, Directorate-General for Economic and Financial Affairs. *"Economic Forecasts, Spring 2003."* Page 64.
[309]Ibid., Page 65.
[310]Ibid, Page 66.

3.2 Information Technology in Italy

Italy has the fourth largest IT market in Western Europe, after Germany, the United Kingdom, and France. Italy's IT market – including hardware, packaged software, and IT services – was valued at $21 billion in 2002. The computer hardware, including local-area-and wide-area-networking (LAN and WAN) equipment, and packaged software segments were valued at $8.0 billion and $4.0 billion, respectively. The IT services segment made up over 43 percent of Italy's IT market and was valued at $9.1 billion (Figure 3.2.1).[311]

The current global economic slowdown has affected Italy's IT market to a much lesser degree than the rest of Western Europe. Italy's IT market is expected to grow at a CAGR of 6.7 percent from 2003 through 2007 to reach $28 billion. The IT services and packaged software segments are growing moderately with an expected 2003-2007 CAGR of 5.2 percent and 7.3 percent, respectively. IT services are projected to reach $11.5 billion in 2007, while Italy's software segment should total $5.4 billion. Italy's computer hardware market, which declined 1.8 percent in 2002, should rebound over the next few years and is expected to lead all IT segments with an 8.0 percent CAGR from 2003 through 2007 to $11.1 billion in 2007 (Figure 3.2.2).[312]

Figure 3.2.1
Italy: IT Market 2002
$billion



Source: IDC Black Book, April 2003

Total: $21.1 billion

Investment in IT

Though Italy is the fourth largest market in Western Europe, it lags significantly behind most other Western European countries in terms of IT spending and new technology adoption. In 2002, Italy's IT spending was only 2.10 percent of its GDP and its per capita IT spending was €428.[313] Only Spain, Portugal, and Greece had lower IT spending figures in Western Europe.

Although much of Italy's lag in adopting new technology can be explained by various factors, the primary obstacle to technology adoption is cultural in nature. Except for mobile services, Italy has not reacted favorably to new technologies. This is exacerbated by the territorial and economic disparities that exist between the technologically advanced and industrialized north and the mainly agricultural south.[314]

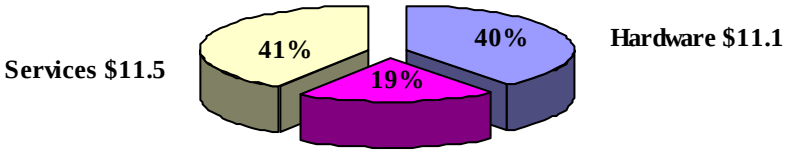
IT investment has been particularly hindered by Italy's poor economic climate, which has not affected all companies and markets equally. There is a significant difference between Italy's large and medium

[311] IDC Worldwide Black Book, IDC, April 2003.
[312] Ibid.
[313] European Information Technology Observatory 2002 ("EITO 2003"), Frankfurt, March 2003, p. 396.
[314] Italian industry representatives interviewed by USDOC staff, September 23-26, 2002.

companies, on the one hand, and Piccoles e medies Impreses (PMIs) and Small Offices/Home Offices (SOHOs) ,[315] on the other. This difference exists both in terms of the type of technology they use and their buying patterns. Large to medium-sized companies continue to be the primary IT spenders in Italy. However, since PMIs and SOHOs make up over 90% of all Italian companies, they represent a significant market as well. In addition, the Italian government is a large investor in IT, and will remain so in the coming years as it continues to increase and improve its online services and advance Italy's information society.

Figure 3.2.2
Italy: IT Market 2007

$billions



Total: $28 billion

Source: IDC Black Book, April 2003

Large Businesses

Despite the economic slowdown, Italy's large firms are continuing to invest in IT. In the late 1990s, large portions of IT budgets were earmarked for Y2K remediation and euro transition. Now that these investments have taken place, Italian businesses have realized that they must further invest in technology to maintain their competitive edge over smaller companies and catch up to their counterparts in other European countries. Italy's large companies are now investing in network infrastructures, IT security, and applications to improve the internal flow of information as well as their relationships with suppliers and customers. Additionally, in an effort to cut costs and improve efficiency, large firms are increasingly using IT services for systems integration, selective outsourcing, and consulting services. The boundary between IT services and software is increasingly becoming blurred, particularly in the area of development services and customized applications. Both segments make up 62 percent of Italy's IT market.

Medium-sized Businesses

The amount of IT investments made by Italy's medium-sized firms largely depends upon their type of business and industry sector. Companies in vertical markets, particularly in banking, professional services, manufacturing, media, ICT, and health care, continue to invest in IT. The Italian banking sector, which has been the most active in investing in new technologies, is focusing on new delivery

[315] PMIs are Italian companies with 10 to 100 employees; SOHOs are Italian companies with fewer than 10 employees.

channels to allow customers access to their services.[316] Italian banks invested heavily in software and IT services to integrate the IT systems of the banks acquired in previous years as a result of ongoing consolidation in the sector. Firms in the other above mentioned markets are investing in the same technologies and solutions in which larger businesses are investing, although many have delayed or reprioritized their IT projects until there is an improvement in the economic climate. Other medium-sized firms are investing primarily in basic front and back-office technologies.

PMIs and SOHOs

IT investment by PMIs and SOHOs in Italy is relatively stagnant. PMIs and SOHOs have been traditionally reluctant to invest in new technologies and are still decreasing their spending on IT. Since PMIs and SOHOs constitute a large portion of Italian businesses, they have hampered Italy's overall investment in IT. This is largely due to the low Internet penetration rate in Italy, limited computer literacy among workers, and poor awareness of the opportunities offered by the Internet and e-business solutions in general (only one out of six know what an eMarketplace is).[317] These companies often claim that IT is difficult to use and expensive, and that it is not practical to move away from traditional business processes. Those who have already invested in some form of IT, typically for basic tasks such as word processing, invoicing, and calculations, are hesitant to invest in upgrades and new products. Many PMIs and SOHOs consider IT a cost and not an investment, demanding a short-term return on investment.[318] This view of IT is likely to change as the economy begins to improve, and these companies begin to understand that IT can facilitate their businesses and increase their return on investment. Additionally, many large IT service and software firms are beginning to focus their attention on PMIs and are offering cheaper, off-the-shelf, and user-friendly software solutions. This trend, along with government initiatives to increase ICT use by PMIs and SOHOs, will eventually increase IT investment in this market segment.

The lack of financing also constitutes a major barrier to PMIs and SOHOs' investment in IT. Many PMIs and SOHOs, particularly in the early stages of development, have difficulties with undercapitalization, insufficient cash flows, and lack the resources to invest in IT. This insufficiency is primarily due to risk aversion and conservative lending practices in Italy's fragmented banking sector. The lack of merchant banking in Italy has caused many entrepreneurs to start their businesses from their private resources, largely in the form of their savings accounts and friends and relatives.[319]

Public Administration

Italy's public sector is one of the biggest ICT market segments in Italy. The Italian government spent €2.82 billion on IT and telecommunications in 2001, according to EITO 2002. This investment is expected to rise to €2.87 billion in 2002, giving Italy a CAGR of 5.2 percent between 2000 and 2002, making Italy's government one of the fastest growing public markets in Western Europe. However, in terms of public administration expenditure on ICT as a percent of GDP, Italy lags behind most other EU members except Portugal, Greece, and Ireland. In 2000, Italy spent 0.21 percent of its GDP on public administration ICT; the EU average was 0.3 percent.

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[316] Italian industry representatives interviewed by USDOC staff, September 23-26, 2002.
[317] Ibid.
[318] Ibid.
[319] Ibid.

Italy's public sector will continue to be a vibrant market for IT products as the government attempts to advance Italy's information society. In June 2000, the Ministry of Public Administration published an E-government Action Plan (Action Plan), based on the eEurope Action Plan, with the goals of bringing

> The primary government work programs and funding in 2002, worth a total of €410 million, were aimed at develping online services in local government (€260 million), developing the national smart ID card (€55 million), and increasing the government network, IT training, national portals, and e-procurement (€95 million). One of the most important aspects of the Action Plan is the diffusion of funds to local governments, whose IT spending has always been relatively low because of inadequate funding. However, since local administrations are required to match funding from the national administration, there should be a real commitment to develop credible IT projects and an effort to establish public/private partnerships.[320]

both the government, and the country as a whole, into the information age. The new Ministry of Technology and Innovation (www.innovazione.gov.it), which was created in May 2001, adopted the overall objectives and work plan of the Action Plan. In order to achieve the goals set out in the Action Plan, the government will need to invest in hardware and software applications, as well as IT services for designing, managing, implementing, and updating these solutions. For additional information on Italy's E-government Action Plan, see section 3.6 of this chapter.

IT Security

Italy is still in the early adoption phase of IT security technologies. There has been a resistance by companies to invest in IT security technologies, particularly when the company has yet to encounter a security breach or to lose money from a direct attack. However, as firms become more interconnected and dependent on Extranets and Intranets to support their core businesses functions, they are increasingly compelled to invest in IT security technologies. Additionally, the worldwide media attention given to viruses and cyber attacks is convincing company managers to consider IT security as an investment as opposed to an expenditure. As a result, the security software market in Italy grew 20 percent in 2001 (the highest growth in Western Europe), reaching $78 million, and is expected to have a 12.7 percent CAGR through 2006.[321] Most large companies are still only at the firewall and virus level of IT security though, and do not perceive internal risks significant enough to justify additional spending. Much of the investment in IT security technologies comes from Italy's public sector and large businesses. Many medium-sized companies and the majority of PMIs and SOHOs have little need for IT security (because they are not networked or connected to the Internet), or lack awareness of the need for IT security.

IT SECTOR

Overview

The Italian ICT market relies heavily on imports and on the expertise of foreign-owned companies. Although the U.S. only had roughly $177 million in direct hardware exports to Italy in 2002, most of Italy's IT imports ultimately come from U.S firms, either directly or from another EU country through a U.S. subsidiary.

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[320] Maio, A. Di, "Fresh Funds at last for E-Government in Italy," Gartner, Inc., April 2002, p. 1.

[321] Biscotti, Fabrizio, Schroder, Norma, Graham, Colleen, Contu, Ruggero and Dang Van Mien, Alain, "Security Software Market: Europe, 1999-2006 (Executive Summary)," Gartner, Inc., January 2003, p. 4.

Italy's hardware sector is dominated by the PC segment, which represents over 47 percent of the hardware market in Italy. There are over a thousand local PC manufacturers, the top 30 of which represent 82 percent of the market. They meet approximately 35 percent of domestic PC demand and also export to nearby countries. The remainder of the domestic market for computers and peripherals is dominated by US producers and, to a lesser extent, by Far East producers.

- **United States:** All of the leading U.S. computer hardware manufacturers are directly present in Italy through subsidiaries or branch offices, including Apple, Hewlett-Packard, Dell, IBM, Sun Microsystems, Unisys, Storage Technology, etc.

- **Other foreign:** The primary foreign competitors include Acer (Taiwan), Fujitsu-Siemens (Japan/Germany), NEC (Japan), and Bull (France). In the peripheral sector, the main competitors are the Japanese Canon, Epson and Ricoh.

- **Local:** The Italian production of computer hardware is mostly limited to PCs. The major Italian PC manufacturers are CDC Point, Olidata, ICS-Olivetti, Vobis Microcomputers, Tecnodiffusione Italia, Opengate, Computer House and CHL.[322]

The Italian software and services market is heavily fragmented among 48,000 operating companies. However, the top five largest companies hold approximately 45 percent of the business, while the top thirty largest companies possess approximately 90 percent of the market. The remaining 10 percent is divided among a plethora of small companies, often very specialized by vertical market segments. Italy depends highly on foreign production of software, which account for approximately 75 percent of the total market. The United States is the leading exporter of multiple platform and application software, with a share of over 80 percent of imports. U.S. owned companies are also leaders in the services market.[323]

- **United States:** All of the major U.S. companies are strongly positioned in the Italian software and services market, including, Microsoft, Oracle, CSC, SAS Institute, EDS, Computer Associates, Cap Gemini Ernst & Young (U.S./France joint venture), Bearing Point (formerly KPMG), Price Waterhouse Coopers, J.D. Edwards, and GE Information Services.

- **Other foreign:** The other foreign companies are Siemens Informatica, SAP, and T-Systems/Debis (Germany); Getronics Solutions (Netherlands), Atos-Origin (France/Netherlands), ECS (France), and Schlumberger/Sema (France).

- **Local:** The major Italian competitors are IT Telecom Group, Elsag, Gruppo Engineering, SIA, Gruppo Datamat, Gruppo Zucchetti, Etnoteam, and Finmatica.[324]

Software

Although packaged software represents only 19 percent of the total Italian IT market in 2002, demand continues to grow at an ever-increasing rate. In 2002, the packaged software market grew 3.1 percent to reach $4.0 billion. However, Italy is expected to have a 2003-2007 CAGR of 7.3 percent in packaged software, reaching $5.4 billion in 2007.[325]

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[322] "Italy: Trends in the ICT Market," *Industry Sector Analysis*, U.S. Department of Commerce/U.S. Commercial Service, Italy, August 2002.
[323] Ibid.
[324] Ibid.
[325] IDC Worldwide Black Book, IDC, April 2003.

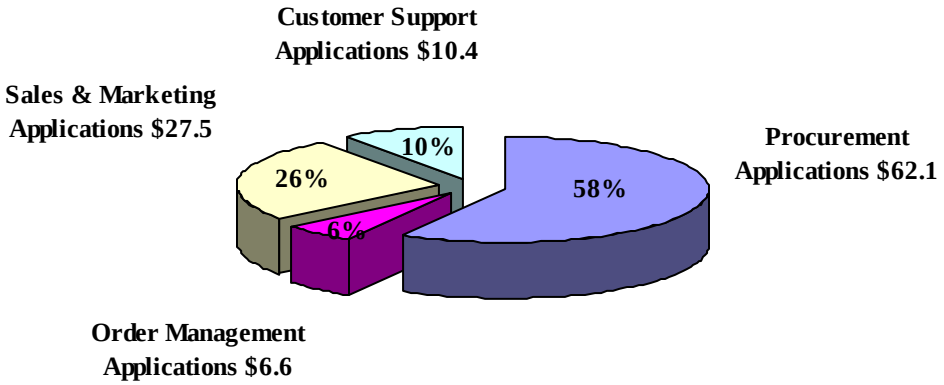
The systems software segment, while hampered by low PC sales, still grew over 9.0 percent in 2002.[326] The middleware segment, which was driven by data warehousing, Internet and web application servers, and storage software grew exceptionally in 2002.

The application software segment[327], comprising almost 50 percent of Italy's software market, grew 3.1 percent in 2002 to reach $2.0 billion.[328] This growth is driven by the need for Italian firms to improve the internal flow of information, streamline customer relationships, and expand their markets. This translates into increased investments in ERP, SCM, CRM, and e-commerce applications.

Large companies primarily drive the growth in applications software. However, demand from medium-sized companies, PMIs, and SOHOs is continuously increasing as these companies begin to find value in software solutions to help save money on personnel and support staff, reduce time, integrate core functions, and expand the customer base. In an effort to expand their customer base, software and IT service firms are increasingly focusing on smaller companies by offering cheaper solutions with a shorter implementation period. In addition, software and IT service companies have found their niche by offering customized software solutions at reasonable prices.

Although e-commerce in Italy is still in an embryonic stage, the e-commerce applications segment is one of the fastest growing segments in the software market (Figure 3.2-3). Large and, to a growing extent,

Figure 3.2.3
Italy: E-commerce Applications 2002
$million



Source: IDC Black Book 2003.

Total: $107 million

medium-sized companies are adopting e-commerce systems and practical applications to take advantage of the Internet. Italy's e-commerce applications market is expected to be $107 million in 2002, with a 31.4 percent 2002-2006 CAGR (Western Europe's average is 24.1 percent).[329] Procurement applications currently dominate this market segment.

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[326] European Information Technology Observatory 2002 ("EITO 2002"), Frankfurt, March 2002.
[327] E-commerce applications comprise sales and marketing, procurement, order management, and customer support applications.
[328] IDC Worldwide Black Book, IDC, April 2003.
[329] "Western Europe eCommerce Applications Forecast, 2002-2006," IDC, April 2002.

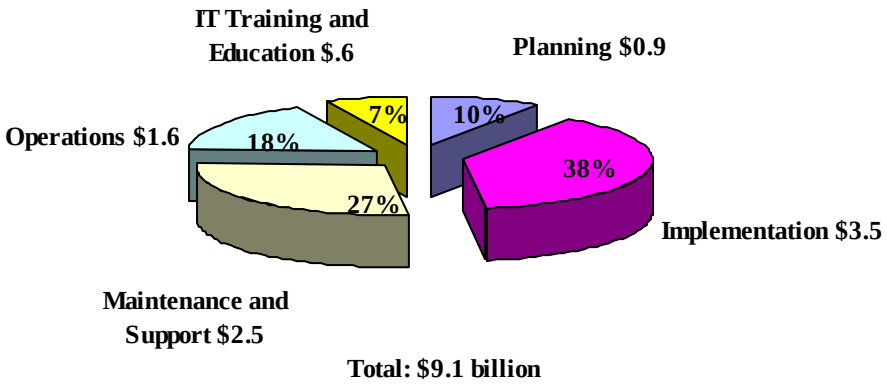
Software piracy in Italy continues to be a significant problem. According to the Business Software Alliance (BSA), Italy's software industry lost roughly $511 million in 2001 due to piracy. While the amount of piracy has remained between 43 and 47 percent for the past several years, the loss of revenue continues to increase (47 percent in 2002). The Italian government attempted to deal with piracy by enacting the 2000 Copyright Law in September 2001. In the past, businesses accused of sharing software or licenses claimed that the illegal copying of computer programs was not done for commercial gain. The law, however, states that any profiting, including saving money by internal use, is illegal and punishable by six months to three years in jail, with fines of up to $13,000.

The law also seeks to raise criminal penalties and increase awareness among the public and law enforcement officials that piracy is a crime. As a result, enforcement activities have increased in 2002. At the end of 2002, police shut down an Internet piracy ring that made over $60 million a year in revenues. However, enforcement is sporadic, varies from city to city, and depends greatly on the willingness of local leaders and the support they have from their police departments. Also, many prosecutors are unwilling to bring charges against, and judges are unwilling to convict, street vendors for what they consider to be minor offenses.

IT Services

Like Spain, the services sector in Italy was the least affected IT segment by the global economic slowdown in the IT market. This is because service companies are usually smaller, more local and dynamic than hardware or software firms, and suffer less from over capacity. Although the IT services segment will be the slowest growing component of the Italian IT market for the next several years, it nonetheless makes up a significant portion of the market, representing over 43 percent of the total sales in IT. The market for IT services grew 3.2 percent in 2002, reaching $9.1 billion (Figure 3.2.4).[330] The market is expected to reach $11.5 billion in 2007.

Figure 3.2.4
Italy: IT Services Market 2002
$billions



Source: IDC Black Book, April 2003

Italian firms now perceive IT services as a means to gain productivity, reduce costs, and make business processes more efficient. The Italian IT services market is mainly driven by consulting and implementation projects, maintenance and support services, and selective outsourcing.

[330] IDC Worldwide Black Book, IDC, April 2003.

Consulting and implementation services, which are becoming increasingly connected, continue to grow at a moderate rate. These services are being driven by CRM, ERP, and SCM. While most Italian companies have been traditionally focusing on the business process and supply chain, many are increasingly becoming more customer oriented and investing in CRM applications both on the technical side as well as the business side. Many firms have started to incorporate CRM into ERP, which is increasingly becoming the IT backbone of many businesses. Italy's ERP services market was worth $469 million in 2001 and is expected to reach $647 in 2005, making Italy the fastest growing market in Europe.[331]

Outsourcing in Italy is growing faster than all other segments in the IT services market. In fact, Italian manufacturers are more likely to rely on external IT services than manufacturers in any other European country. Application management, one of the most proven forms of outsourcing, is the most popular form in Italy. Application management has become an alternative to the application service provider (ASP) market, which local industry experts believe will never succeed. According to local experts, Italian firms have complex requirements and they dislike the lack of control and customization the ASP model prohibits. Other high growth areas are desktop and network management, data center, and business process outsourcing.

HARDWARE

The hardware segment, which represents roughly 38 percent of the total IT market in Italy, suffered the most from the worldwide economic downturn. Hardware sales decreased 8.6 percent in 2002 to $8.0 billion. However, the long awaited replacement and upgrade cycles in the corporate market are expected to increase sales in hardware, making this segment Italy's fastest growing over the next several years. Hardware sales are expected to have an 8.0 percent CAGR between 2003 and 2007.[332] The cautious spending on hardware by consumers, PMIs and SOHOs, brought on by the poor economic situation, had the greatest effect on the overall sale of hardware equipment in 2002. On the other hand, large to medium-sized companies provided sales in the hardware market as they continued to invest in newer and larger infrastructures to maintain their competitive advantage. Public sector initiatives continue to be important drivers in the hardware market.

The hardware system's segment (servers, PCs, and traditional workstations), representing 65 percent of the entire hardware market in Italy, declined 8.7 percent in 2002, reaching $5.1 billion (Figure 3.2-5). The peripherals segment is the fastest growing segment of the hardware market, with 2.3 percent growth in 2002. It will also be the fastest growing segment in the Italian hardware market with a CAGR of 14.1 percent through 2007.[333] Although networking equipment declined 7.3 percent in 2002, it is expected to follow closely behind peripherals with a projected 13.9 percent CAGR from 2003-2007.

PC sales are one of the most important components of Italy's hardware market. Revenues from PCs represented over 70 percent of the hardware systems segment in 2002 and 47 percent of the entire hardware market in Italy.[334] Italy's PC market is one of the most complex and fragmented in Western Europe. After the Italian PC vendor, Olivetti PCs, left the market in 1997, international vendors steadily increased their share of the market. However, national and local PC assemblers have since gained ground, acquiring control of over 40 percent of the Italian PC market. Italy now has more than a

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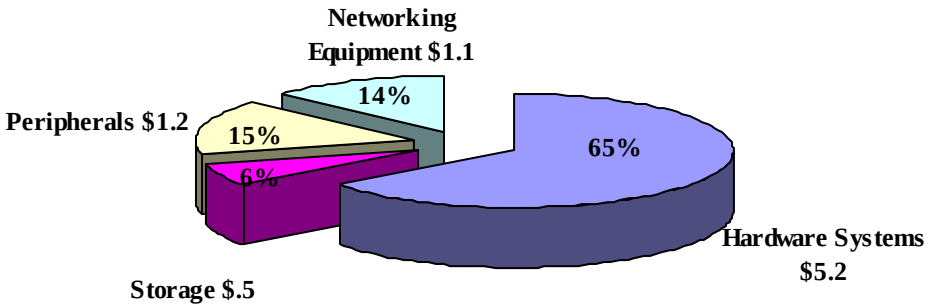
[331] DeSouza, Robert, Kempf, Ted, Pring, Ben and Franc, Nicole, "ERP Solutions for 2002-2005: Opportunities in a Mature Market," Gartner, Inc., June 2002, p. 7.
[332] IDC Worldwide Black Book, IDC, April 2003.
[333] Ibid.
[334] Ibid.

thousand small PC vendors scattered across the country with only several Italian-based assemblers having a strong national presence. The leading national PC assemblers are CDC Point, Olidata, Vobis Microcomputers, Tecnodiffusione Italia, Opengate, Computer House, CHL and ICS-Olivetti (the third version of the Olivetti PC brand).[335]

Although Italy's PC market declined 2.7 percent in 2002 to $4.0 billion, it has performed better than other Western European countries.[336] This is primarily due to Italy's underpenetrated PC market with a 62 percent penetration rate in corporate PCs and a 15 percent penetration rate for the entire population.[337] As a result, Italy's PC market is less dependent on replacement cycles and can reduce its exposure to the slowdown in demand. In addition, PC growth in the consumer market, although slower compared to the other user segments, continues to be driven by special promotions and government initiatives. The popularity of the Internet and increase in users are the most significant factors driving PC growth in all user segments. Growth in PC revenues should continue over the next several years, reaching $4.6 billion in 2007 and having a 5.0 percent CAGR between 2003 and 2007.[338]

Figure 3.2.5
Italy: Hardware Market 2002



Source: IDC Black Book, April

All server segments (high-end, midrange, and low-end) suffered greatly from the economic downturn in Italy. The closure of many startup companies in Italy's Internet and telecommunications sectors flooded the market with midrange and low-end servers, which were often repackaged and sold as new by local and international brokers. This lowered the value of all systems and greatly affected the sales and price of new systems being introduced.

Low-end servers, declining 13.1 percent in 2002 to $773 million, have nonetheless performed better than all other server segments (servers priced under $10 thousand have the highest growth). This is partly due to the price decline that is bringing traditional mid-range servers into the low-end price range. Low-end servers are expected to show positive growth from 2003-2007, with a 5.6 percent CAGR. The midrange

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[335] "Italy: Trends in the ICT Market," *Industry Sector Analysis*, U.S. Department of Commerce/U.S. Commercial Service, Italy, 2002.
[336] IDC Worldwide Black Book, IDC, April 2003.
[337] European Information Technology Observatory 2002 ("EITO 2003"), Frankfurt, March 2003, p 76.
[338] IDC Worldwide Black Book, IDC, April 2003.
[339] Ibid

server segment, declining 31 percent to $292 million in 2002, is also expected to rebound over the next several years, with a 3.7 percent CAGR. [339]

The high-end server segment, which declined 34 percent in 2002 to $299 million,[340] is going through a transformation in Italy as well as throughout Western Europe. Mainframes continue to struggle against a falling demand for proprietary systems, price erosion, and the mounting appeal of *reduced instruction set computer* (RISC)/Unix servers. High-end RISC/Unix servers are increasingly making technological advances, (such as workload management, partitioning, and clustering), cutting into the competitive advantage of traditional mainframes. The mid-range and low-end mainframe market will continue to deteriorate as users go over to the RISC/Unix platform. However, high-end mainframes will have a niche until RISC/Unix servers can match the reliability, availability, and serviceability of mainframes.[341]

Although the high-end server segment is not expected to have a positive growth rate in Italy for the next several years, there is a growing trend for some low-end server users to move towards high-end servers (particularly in data centers). This trend is due to a renewed interest by many users to consolidate servers as well as the improved price/performance ratio and easy scalability of new high-end servers. Demand for high-end servers is expected to fall 2% through 2003-2007.[342]

The revenue growth and fall of networking equipment has also been largely affected by the economic slowdown. After years of growth at around 20 percent, demand in 2002 declined 7.3 percent to $1.1 billion.[343] This segment was hit hard by the reduction in sales of network interface cards, which are now

Figure 3.2.6
Presence of Intranets by Vertical Markets, 2001,
Percent of Sites with Web Access with an Intranet

Industries	Italy	Western Europe
Banking	70.50%	62.00%
Insurance/other finance	33.30%	42.00%
Process manufacturing	25.90%	45.80%
Discrete manufacturing	39.50%	62.50%
Transport/telecom./media/utilities	39.90%	48.10%
Retail/wholesale	-	47.60%
Professional services	66.70%	61.40%
Health care	39%	47.10%
Education	35.10%	54.30%
Government	45.30%	63.00%
All industries	39.30%	51.20%

Source: EITO 2003

[340] Ibid
[341] Malik, Samina, "High-End Servers in Western Europe: Steady Growth for Some," Gartner, Inc., April 23, 2002.
[342] IDC Worldwide Black Book, IDC, April 2003.
[343] Ibid.

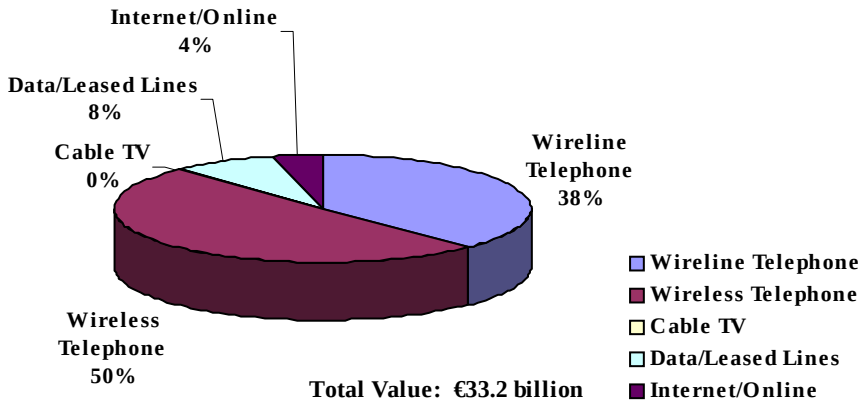
being sold as a standard set-up of PCs and seldom sold separately. Additionally, the growth of traditional Local Area Networks (LAN) hardware will continue to slow as end-users shift from hub technologies to high-speed alternatives, such as advanced switching, focusing on Fast Ethernet and Gigabit Ethernet. Although many large companies have already invested in LANs, particularly in the banking and professional services markets, the size of these LANs will continue to grow, driving the need for license upgrades of installed network operating systems (NOSs) and add-on sales (Figure 3.2-6). Small to medium-sized businesses will continue to seek the advantages of internal connectivity. Demand for networking is expected to grow 2.4 percent in 2003 and reach 13.9 percent by 2007.[344]

[344]IDC Worldwide Black Book, IDC, April 2003.

3.3 TELECOMMUNICATIONS IN ITALY

Italy has the third largest market for telecommunications equipment and services in the European Union, with a value of €40 billion in 2002. The value of the market for telecommunications services was €33.2 billion in 2002, accounting for 14 percent of the EU market for telecommunications services. Wireline and wireless telephone services accounted for the bulk (38 percent and 50 percent, respectively) of the market in 2002. The remainder consisted of: Internet and online services (4 percent), switched data/leased line services (8 percent) and cable TV services (0.3 percent), according to *EITO 2003*.[345]

Figure 3.3.1
Italy: Telecommunications Services Market, 2002



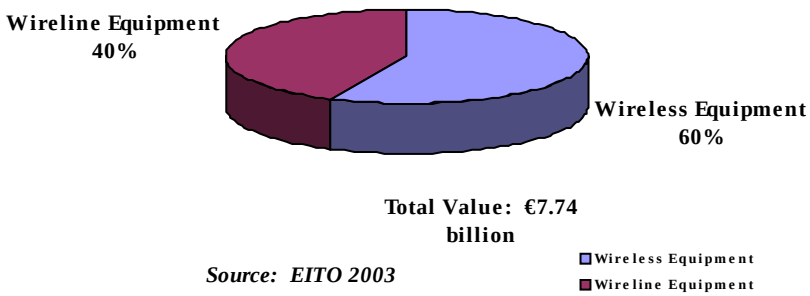
Source: EITO 2003

The value of the Italian market for telecommunications equipment (excluding LANs, which are included in IT equipment, in the previous section) was projected to be €7 billion in 2002, accounting for 13 percent of the EU market for telecommunications equipment. Fifty percent of the market for telecommunications equipment in 2002 was wireless (both mobile phones and infrastructure), and the remainder was wireline equipment, according to *EITO 2003*.

GROWTH MODERATING IN TELECOMMUNICATIONS SERVICES

The value of the market in Italy for telecommunications services continues to grow steadily, but the growth rate is expected to decrease until 2003. The growth rate decreased from 10 percent in 2001 to 4 percent in 2002, and it is expected to decelerate to 3 percent in 2003. This gradual slowdown in growth has been due to both the

Figure 3.3.2
Italy: Telecommunications Equipment Market, 2002



Source: EITO 2003

[345] *EITO 2003* is the annual report of the European Information Technology Observatory

global economic slowdown and sector-specific factors. About half of the growth in 2002 and 2003 is due to wireless (mobile) even though the wireless growth rate is expected to decrease from 7 percent in 2002 to 3 percent in 2003. Meanwhile, rapid growth in the value of Internet and online services, as well as switched data and leased line services is expected to more than offset a steady decline in the value of wireline (fixed) telephone services, according to *EITO 2003*. Over the medium term, the value of the Italian market for retail wireline network services is expected to grow at a compound annual growth rate (CAGR) of 2.2 percent from €17.6 billion in 2001 to €19.6 billion in 2006, driven by rapid growth in data, Internet and IP services.[346]

GROWTH RESUMES IN TELECOMMUNICATIONS EQUIPMENT

For the first time in many years, the value of the Italian market for telecommunications equipment decreased at a CAGR of 6 percent from 2000 to 2002. This was primarily due to sharp decreases in purchases of cellular infrastructure and mobile phones, largely resulting from disappointment with WAP and delays in equipment availability for its successor, general packet radio service (GPRS). U.S. exports of telecommunications equipment to Italy declined 53 percent in 2002 to a level of $128 million, a greater rate of decrease than that for U.S. telecommunications exports to the entire EU (down 30 percent).[347] However, growth in the Italian market for telecommunications equipment is expected to resume in 2003 at a rate of 1.4 percent. The turnaround is expected to be primarily due to increasing purchases of wireless telephone sets and related infrastructure, according to *EITO 2003.*

INVESTMENT IN TELECOMMUNICATIONS INFRASTRUCTURE

Investment in telecommunications infrastructure was valued at €7 billion in 2001, 47 percent of which was for wireless networks, 26 percent for wireline networks, and 21 percent for telecommunications cables and installation.[348] However, investment for most telecommunications infrastructure decreased in 2002. The decline in investment by wireless operators during 2002 resulted from the slow takeoff of 2.5G wireless services and delays in the construction of 3G wireless networks. The four wireless operators in Italy also saved on new investment by cannibalizing the network of one operator, Blu, which went out of business and sold its assets to the other operators in 2002. Investments in wireline networks during 2002 continued the decline that has occurred for several years, due to competition based primarily on decreasing prices. This was due in part to the exit from the market by 20 of the 138 companies that had been licensed to provide wireline voice services. The only bright spots in wireline infrastucture were for IP networks and fiber optic cable infrastructure for delivery of broadband services, which continued the rapid growth rates of the previous year, according to *EITO Update 2002* and *EITO 2003*.

The outlook is promising for investment to increase again, starting in 2003, due to the resumption of wireless operators' roll-out of 2.5G and 3G infrastructure and increasing investment by wireline operators in IP networks and broadband infrastructure. In addition, Telecom Italia reportedly plans to invest €6.7 billion in domestic network development over the next three years, including €2.5 billion for DSL alone.[349]

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[346] "Trends in Fixed Public Network Services: Italy, 2000-2006 (Executive Summary)" Gartner, September 30, 2002, p. 1.

[347] Source: U.S. Department of Commerce. The value of U.S. telecommunications exports understates U.S. firms' competitiveness because many large U.S. telecommunications manufacturers supply the Italian market from overseas manufacturing plants located in Italy and elsewhere.

[348] Assinform, *Report on the ICT Industry in 2001,* Milan, 2002, pp. 346-347.

[349] Donegan, Michelle "Operators test cost case for triple play" *Communications Week International,* September 23, 2002 and CIT Publications "Telecom ltalia opens up broadband market" Communications Update, May 12 2003.

LIBERALIZATION OF THE REGULATORY REGIME

Many opportunities for U.S. telecommunications exports and investment in Italy result from the liberalization of the Italian regulatory regime for telecommunications services in January 1998. On that date, like most EU Member States, the Italian government ended the monopoly of Telecom Italia and opened the sector to unlimited competition in basic, wireline telecommunications services and related infrastructure.

To safeguard competition in the telecommunications sector, the government established an independent regulatory agency called Autorità per le Guaranzie nelle Comunicazioni (the Communications Authority, known as AGCOM) in 1998. AGCOM was originally intended to be the only Italian government regulator for the communications, press and broadcasting sectors, modeled after the U.S. Federal Communications Commission. However, in 2001, the government transferred the responsibility for issuing licenses back to the Italian Ministry of Communications, because AGCOM has insufficient resources to fulfill this role. Italian industry welcomes this change because the Ministry is well equipped to license efficiently, with adequate procedural safeguards, having long-maintained responsibility for the allocation and assignment of spectrum.[350] In 2001, the government also gave the leadership role on e-commerce and Internet development to the newly created Italian Ministry for Innovation and Technology. AGCOM remains in charge of monitoring compliance with public service licensing conditions, while the Ministry of Communications is responsible for monitoring compliance with technical and administrative conditions of licenses.[351]

AGCOM is still a powerful part of the Italian national government, funded primarily under the Italian State budget, with the authority for communications policy granted to it under EC and Italian law. For example, it has frequently used its power to resolve disputes between telecommunications operators over interconnection and access issues. AGCOM has rules to assure transparency of documents and public consultations. It has taken a number of steps to prevent anti-competitive behavior, including the imposition of substantial fines on the incumbent operator, but there have been difficulties in obtaining timely enforcement of its legal obligations, as in several other Member States. AGCOM also cooperates effectively with the Italian national competition authority. Nevertheless, its authority was further eroded during the reform of Italy's constitutional framework in 2001, when legislative tasks in communications were delegated to Italian regional governments. This increases the complexity of the Italian regulatory environment and decreases regulatory certainty.[352]

TELECOM ITALIA: POWERFUL INCUMBENT AND MARKET LEADER

Despite increasing competition, the Italian telecommunications market continues to be dominated by Telecom Italia SpA (TI), which is the fifth largest telecommunications operator in western Europe, ranked by revenue during 2001, when it declared revenue of $27.6 billion.[353] Formerly a state-owned monopoly, TI was almost completely privatized in 1997, leaving the Italian government with one "golden" share of 3.5 percent. Although the government sold its residual stake for budgetary reasons in 2002, it retains a symbolic "golden" share and a seat on the board of directors, which allows it de facto veto power over certain strategic decisions. The principal shareholder of TI is Olivetti, which owns 55

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[350] Interview in Rome, September 26, 2002.
[351] Further information about AGCOM is available at its website, parts of which are in English (http://www.agcom.it).
[352] European Commission (EC), Telecommunications Regulatory Package - 8th Implementation Report- Annex III: Italy, EC Staff Working Paper, Brussels, November 2002, p. 95.
[353] CIT Publications, "Deutsche Telekom Tops CIT's European Telcos League Table", Communications Update, 10/31/02

percent of its shares, and the remainder is distributed among public shareholders. 27 percent of Olivetti, in turn, is owned by Olimpia, itself owned by Pirelli (60 percent), Benetton (20 percent), and Banco Intesa and Unicredito Italiano (20 percent).[354]

In 2001, revenue from public voice services remained the principal source of income for TI, which plans to maintain its focus entirely on wireline activities for the foreseeable future. This will be facilitated by increasing cooperation with its parent company, Pirelli, for which the manufacture of fiber-optic and other high-speed transmission cables is a major part of its business. Pirelli took control of TI in July 2001 when, together with the Benetton Group, it acquired a 23 percent stake in Olivetti. Although the TI network is virtually 100 percent digital, with 3.2 million km. of fiber-optic cables, its revenue from domestic wireline service decreased by 1.3 percent in 2001. In response to intensifying competition, TI continued to roll out broadband infrastructure, so that its ADSL was available in 700 Italian cities by the end of 2001.[355]

TI'S SUBSIDIARIES: ALSO LEADERS

TI has a 55 percent stake in its mobile subsidiary, Telecom Italia Mobile (TIM), which is the ninth largest telecommunications operator in western Europe, ranked by its own revenue during 2001, when it declared revenue of $9.2 billion.[356] TIM is the second largest cellular operator in Europe, and the leading cellular operator in Italy. Like the Telefónica Group, TI has its international activities concentrated primarily in Europe and Latin America. It manages its assets outside Italy primarily through two holding companies – STET International Netherlands and TIM International – for wireline and wireless assets, respectively. TI's Internet and media business unit had over 5 million registered customers in 2001, when its ISP, named SEAT, had 1.9 million active customers, of which 207,000 had DSL connections. TI has a wholly-owned subsidiary for satellite services named Telespazio, and it owns 50 percent of a subsidiary for cable TV and digital satellite broadcasting named Stream. One other significant telecommunications subsidiary in which TI has a 19 percent share is Italtel, based in Milan, which is a manufacturer of telecommunications equipment.[357]

PIRELLI'S STRATEGIC RESCUE PLAN FOR TI

Since its takeover of TI in 2001, Pirelli has been committed to large-scale asset disposal by TI, in order to reduce the excessive debt burden that its parent, Olivetti, has struggled under ever since the hostile takeover of TI by Olivetti (a much smaller company) in 1999. In June 2003, announced plans to write off €3.7 billion in its less profitable assets as part of a three-year plan to increase TI's profitability and reduce costs, which caused TI to post a net loss in 2002. The write-off was for investment shares controlling telephone directories, directory assistance, and business information operations of SEAT Pagine Gialle.[358] TI plans to reduce its net debt to less than €15 billion by 2004.[359]

In May 2003, shareholders of Olivetti and TI approved the proposal of TI Chairman Marco Tronchetti Provera to simplify TI's complicated ownership structure through such steps as a merger of TI with

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[354]CIT Publications "Italy – Basic Telephony" *Datafile of European Communications,* March 2002, p.2.
[355]*Ibid., loc. cit.*
[356]CIT Publications, "Deutsche Telekom Tops CIT's European Telcos League Table", Communications Update, 10/31/02.
[357]CIT Publications "Telecom Italia – Company profile" and "Telecom Italia – Subsidiaries and ownership*" Datafile of European Telecommunications,* July 2002.
[358]"New Seat" Sold to a Consortium formed by BC Partners" press release of TI, June 11, 2003.
[359]CIT Publications, "Telecom Italia writes off EUR 3.8 billion and announces three-year plan", Communications Update, March 15, 2003

Olivetti in order to improve cash flow and reduce net debt of around €39 billion.[360] This corporate restructuring should relieve TI's concern with its crushing debt burden and allow it to focus better on managing its core business, operating wireline networks. In order to remain competitive with alternative operators in Italy, TI needs to maintain and launch innovative services and focus investment on enhancing its network, which lost market share in 2001, suffering from decreased quality of service and a poor reputation for customer support that is particularly important to SMEs.[361]

Liberalization has brought growth & competition in wireline services

Liberalization has promoted the rapid development of competition for TI, especially for long-distance and international calls. At the end of 2001, alternative operators in Italy had succeeded in seizing 36 percent of long-distance revenues and 25 percent of international revenues. Competitive providers had won a market share of 13 percent for local call revenues, which is slightly above the EU average (11 percent).[362] Competition in local calls for both voice and Internet access seems likely to continue increasing, because by August 2002 Italy had the highest percentage of subscribers in the EU that actually use an alternative provider for local calls (40 percent).[363] Another reason that local competition is growing rapidly in Italy is the success of local loop unbundling during the year ending in September 2002, as described below.

Wireline competitors

As a result of consolidations and bankruptcies in 2001 and 2002, only some 30 of the 206 licenses that have been issued by the Italian government for public wireline networks and service providers since liberalization in 1998 are now being used for networks providing voice telecommunications services.[364] The most notable merger was between rival wireline operators Wind and Infostrada in 2001, creating the only serious, across-the-board competitor of TI. The new company has retained the name of Wind and claims to be gaining ground on the incumbent, having won 62 percent of the new wireline customers in Italy during 2001. 73 percent of Wind is owned by the Italian power company, Enel, which has reportedly agreed to purchase the remaining shares of Wind that are owned by Orange, the mobile subsidiary of France Télécom.[365] Because the Italian government owns 70 percent of Enel, it directly controls Wind, which is the third largest wireless operator in Italy, as well as the second largest wireline operator.

Established in 1995, Wind had seven million wireline customers at the end of 2001. Much of Wind's network is fiber optic cable, especially its backbone and metropolitan area networks in more than 30 Italian cities, but it relies on TI to access local loops. The only other significant wireline operators in Italy are Albacom and Tiscali. Albacom was also founded in 1995, but it serves only some 100,000 business users in Italy. Owned by Italian energy company ENI (35 percent), British Telecom (23 percent), Banca Nazionale del Lavoro (23 percent) and Mediaset (20 percent), Albacom also has an extensive fiber network. In March 2002, Albacom launched Albacom Direct, allowing business customers to connect directly with its services. Tiscali was founded in 1998 as a regional telecom-

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[360] CIT Publications, "Telecom Italia shareholders up in arms over restructuring plan", and "Telecom Italia takeover gets shareholder approval" Communications Update, March 13, 2003 and May 27, 2003.
[361] Stuart, Donald and Tuset, Joe, "Telecom Italia Network Services" *Product Report*, Gartner, May 8, 2002.
[362] EC, Telecommunications Regulatory Package - 8th Implementation Report- Annex I, EC Staff Working Paper, Brussels, November 2002, p. 17.
[363] EC, 8th Report from the Commission on the Implementation of the Telecommunications Regulatory Package: European telecoms regulation and markets 2002, Brussels, December 3, 2002, p. 10.
[364] Interview in Milan, September 24, 2002.
[365] "Wind of Change" BWCS Staff, March 23, 2003.

munications operator and ISP. Tiscali launched Italy's first free Internet subscription service in 1999 and became a pan-European ISP in 2001, based on its own extensive fiber optical network. Tiscali is owned primarily by its chief executive, Renato Soru (32 percent), and other private owners, and Intel owns almost 4 percent of its shares.[366]

GOVERNMENT'S STEPS TO SUPPORT LOCAL COMPETITION

The most important steps the Italian government has taken to support local competition and Internet access have been to support unbundling, collocation and bitstream access. As a result of two years of AGCOM's intervention to assure effective implementation of unbundling, Italy has the second largest number of unbundled local loops in the EU: 82,000, as of September 2002. Thirty-one unbundling agreements have been signed between TI and its competitors. The price of full unbundling fell during the year ending in September 2002, when they were well below the price of line rental for residential and business customers. Shared access has not been so popular; only 19 lines have been shared. However, the price for shared access was reduced by 62 percent to the lowest level in the EU in September 2002, which may increase their use. [367]

Since 2000, AGCOM has prohibited TI from launching a new retail offer of bitstream until a comparable wholesale offer is available and has been approved by AGCOM. The key issue in the bitstream market is non-discriminatory implementation by TI of its obligation to make the same wholesale offer to its retail division that it makes to new entrants. AGCOM and the Italian Competition Authority have intervened in several cases to assure wholesale offers provide a level playing field for new entrants. As a result, most of the DSL lines provided by new entrants (105,000) by August 2002 were obtained from TI's wholesale offer, and the remaining 42,300 DSL lines of new entrants were offered via unbundled loops.[368]

AGCOM'S RIGOROUS REGIME FOR INTERCONNECTION

New entrants have been able to seize a significant share of local, long-distance and international wireline traffic from TI because the Italian regulatory regime for interconnection has been relatively effective. A key step was taken in 2001, since when interconnection charges have been based on costs. The reference interconnection offer (RIO) has been adapted every year so that it is below the EU average at each of the three levels of interconnection. The principal problem has been for fixed-to-mobile call termination rates of the two mobile operators with significant market power, which have been regulated since 1999. The EC singled out Italy in November 2001 as being one of the EU Member states having the highest termination charges. AGCOM recently introduced a price cap system to orient termination charges more closely to costs that reduced fixed-to-mobile termination charges of the leading two mobile operators by 12-14 percent in June 2003, to be followed by further reductions in 2004 and 2005.

New entrants also expressed concerns to the regulator in 2002 about delays in TI's provisioning of leased lines, the transparency of the process, and the effectiveness of service level agreements (SLAs). After conducting an inquiry in 2002, AGCOM concluded that TI failed to pay the penalties that it was obligated to under the SLAs for late delivery of leased lines.[369]

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[366] CIT Publications "Italy – Basic Telephony" *Datafile of European Telecommunications*, March 2002, pp. 2-3.

[367] EC, Telecommunications Regulatory Package - 8th Implementation Report- Annex III: Italy, EC Staff Working Paper, Brussels, November 2002, p. 99.

[368] Ibid., p. 100.

[369] Ibid., p. 102.

ONE OF EUROPE'S HOTTEST INTERNET MARKETS

It is estimated that the number of Italian Internet subscribers increased faster than in any other European country except France during the period 2001-2002. According to Gartner, the number of Internet subscribers in Italy increased by about 50 percent in 2001, and preliminary estimates in January 2003 indicate that Italy maintained the same growth rate in 2002, although final numbers were not yet available.[370] Another measure of the rapid growth of the Internet in Italy is the increase in the household penetration rate of Internet access from 32.9 percent in June 2001 to 35.4 percent in June 2002, according to the Flash Eurobarometer survey carried out for the European Commission by EOS Gallup between May and June 2002. Although these EC data indicate a much slower Italian growth rate than Gartner's data, the EC survey does indicate that Internet penetration per household was six percent higher in Italy than in Spain, as of June 2002, while it was still significantly below the EU average of 40 percent.[371]

Italy's adoption of the Internet is slower than its adoption of mobile communications due to various socioeconomic factors such as the high costs of computer hardware, high local access costs, and cultural barriers. However, penetration rates are approaching the European average, with business and consumer accounts expected to surpass 38 percent and 49 percent, respectively, by the end of 2003, according to Gartner Research. The rate of business adoption is slowed by the fact that some 95 percent of Italian companies are SMEs and are reluctant to invest in IT, especially in southern Italy, which consists largely of agricultural communities. Nevertheless, use of the Internet for commercial purposes is experiencing exponential growth, driven by increasing awareness of corporations about its usefulness in decreasing costs.[372]

The use of the Internet as a business tool opens up many opportunities for ISPs and telecommunications operators, especially in security and value-added services. The main ISPs are also increasing the demand for basic telecommunications services and generating Internet-related services such as portals. Despite the continuation of steady growth in IP services, the consolidation of Italian ISPs is expected to continue at the cost of independent ISPs. The principal beneficiaries are expected to be the larger telecommunications operators that also serve as ISPs, as also in Spain.[373]

INTERNET SERVICE PROVIDERS

Italy had 800 ISPs, as of August 2002, more than any of the other 10 EU Member States that were listed in a recent EC Report.[374] However, TI accounted for only 23 percent of all Internet subscribers in Italy (both narrowband and broadband) as of August 2002, the smallest share of the 9 incumbent EU operators listed in the same Report, except BT in the United Kingdom. The principal ISPs in Italy are TI, Wind, Albacom, and Tiscali. Wind claims that its Inwind subsidiary is Italy's largest ISP, with over 8.9 million subscribers (narrowband and broadband) at the end of 2001, almost double the number of a year earlier and equivalent to a market share of 35 percent.[375] Albacom served over 100,000 business customers in March 2002, 30,000 of whom accessed the Internet over DSL.

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[370] Stuart, Donald and Tuset, Joe "Internet Services: Italy" *Operational Management Report*, Gartner, January 30, 2003, p.2

[371] EC, Telecommunications Regulatory Package - 8th Implementation Report- Annex I, p. 67.

[372] Stuart, Donald and Tuset, Joe "Internet Services: Italy" , pp.2 and 16, and interviews in Milan and Rome, September 24-26, 2002.

[373] Stuart, Donald and Tuset, Joe "Internet Services: Italy" , pp. 16-17, and interviews in Milan and Rome, September 24-26, 2002.

[374] EC, Telecommunications Regulatory Package - 8th Implementation Report- Annex I, p.68.

[375] CIT Publications "Italy – Basic Telephony" *Datafile of European Telecommunications*, March 2002, pp. 2-3.

The other significant ISP in Italy is Tiscali, based in Sardinia, which claims to be Europe's largest ISP.[376] Tiscali claimed to have 7.3 million active Internet subscribers located in 15 European countries at the end of 2001, as a result of a series of major acquisitions. It is unclear how many of these users are in Italy, where Tiscali offers a host of residential and corporate IP services. Tiscali is also Europe's leading web property, with almost 15 million visitors to its portal. Tiscali expects to start earning profits by 2004. However, Tiscali is the only major European ISP that is not affiliated with a larger telecommunications company. Consequently, Tiscali lacks access to the subsidies that those carriers provide to their ISPs, and it can not achieve the same economies of scale. Because it is not the dominant player in any key national market, it cannot capitalize on its pan-European base, and it is currently in takeover talks.[377]

Progress towards flat-rate Internet access

As is customary in Europe, most Italian users of narrowband Internet services pay a metered fee, based on minutes of access, to the telecommunications operator that provides the dial-up connection. However, AGCOM has taken steps to assure that narrowband Internet access is available on a flat-rate basis, as in Spain and several other EU Member States. Since January 2002, AGCOM has required TI to offer a capacity-based interconnection rate for Internet access, based on the European model known as FRIACO (flat-rate Internet access call origination). FRIACO has been incorporated in TI's reference interconnection offer since 2002. The monthly prices for FRIACO service were approved by AGCOM in March 2002, and the only complaints received by AGCOM have been about the prices. TI does offer "FRIACO plus" by making FRIACO available to competitive operators at a limited number of interconnection points, as in the United Kingdom. Nevertheless, only four operators have signed contracts with TI that allow them to offer flat-rate, narrowband Internet access to their subscribers.[378]

Despite the recent availability of such a flat-rate subscription, the cost of narrowband Internet access (including the charges of both the ISP and the telecommunications operator) remains relatively high in Italy, especially for business users. Internet access pricing for business users using dial-up modems in Italy averages €44 per month, the third highest in the EU, according to a study for the European Commission by Total Research Teligen in May 2002 of Internet access cost for 40 hours at peak time. Internet access pricing for residential users using dial-up modems in Italy averages €27 per month, near the EU median, according to the part of the same study that analyzed the Internet access cost for 20 hours at off-peak time.[379] Nevertheless, recent increases in Internet use seem to be stimulated by the decline in the cost of Internet access due to flat-rate access and to the "free" Internet access of ISPs like Tiscali that offer free Internet access to those willing to pay for the costs of the dial-up call to the telecommunications network.[380]

Three main drivers of growth

As in Spain, growing competition and decreasing profit margins in basic telecommunications services as well as the broader economic slowdown are driving telecommunications operators and business users to focus on three main areas of growth in Italy: business communications, broadband communications, and mobile communications.

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[376] CIT Publications "Tiscali maintains position as Europe's leading ISP" Communications Update, May 16, 2003.
[377] Stuart, Donald and Tuset, Joe "Internet Services: Italy" pp. 14-15.
[378] EC, Telecommunications Regulatory Package - 8th Implementation Report- Annex III: Italy, p. 98.
[379] EC, Telecommunications Regulatory Package - 8th Implementation Report- Annex I, p. 70.
[380] Stuart, Donald and Tuset, Joe "Internet Services: Italy" p. 15.

FIRST DRIVER: BUSINESS COMMUNICATIONS

Although voice communications still account for the lion's share (79 percent) of retail revenues from wireline networks, the revenue from voice calls has stagnated since 1998 due to competition based primarily on price. Italian wireline operators are turning to business communications services to boost revenue, recognizing that the value of voice services is likely to decrease at a CAGR of 1.9 percent from 2001 to 2006, when voice is expected to account for only 64 percent of wireline revenues. The three types of business communications that have the greatest growth potential during the same five-year period are: Internet-related services, data communications, and miscellaneous wholesale services for business users. Internet and IP services are expected to grow the fastest, at a CAGR of 16 percent, increasing from €1.2 billion in 2001 to €2.5 billion in 2006. Data services will grow at a CAGR of 12 percent, rising from 2.5 billion in 2001 to €4.5 billion in 2006. As of September 2002, revenue from such wholesale services as VoIP, Internet server collocation, and content distribution/caching was expected to grow at a CAGR of 10 percent, reaching €3.6 billion in 2006.[381]

One month after the above projections of growth in business communications, TI announced a massive VoIP project which has been described as "the most significant development in the Italian market in recent times" by CIT Publications. In October 2002, TI revealed plans to replace 66 transit voice switches with 24 IP gateways by 2004, in a project using such suppliers as Cisco Systems and Italtel (a TI subsidiary). TI estimates that this project will make it possible by the end of 2003 for 80 percent of its voice traffic to travel over VoIP networks. TI already offers VoIP managed services as an additional feature of its IP VPN solutions for enterprises. This new investment allows TI to combine separate VoIP systems designed for enterprise and carrier networks, respectively, to offer raw IP services to business users.[382] Through this investment, TI is heeding the advice of industry observers, who warn that incumbent operators risk losing some 45 percent of their market in voice VPNs and PBX sales/ maintenance by 2007 if they fail to embrace VoIP as TI is doing.[383] TI has successfully marketed IP-VPNs to large firms, including banks, now that their security concerns can be addressed by multi-protocol label switching (MPLS). TI finds that an increasing number of small and medium-sized firms are willing to share an IP-VPN due to its cost efficiency and flexibility, because smaller firms are not so concerned about security. Value-added IP services also offer new revenue opportunities to operators that are not possible over legacy platforms.[384]

Internet and IP services have been the fastest growing business communications service in Italy since 1998. The value of Internet-related services increased by 64 percent in 2001, riding on the growing demand for Internet data center services such as security, hosting, and warehousing. The two principal components of Internet-related services are Internet access revenue, for which the CAGR is forecast to be 15 percent until 2006, and broadband access along with value-added IP services, forecast at a 24 percent CAGR. After slowing down to a growth rate of only 7 percent in 2001, data transmission services are expected to resume their strong growth rates of previous years, driven by the increasing demand for broadband transmission and managed data services.[385]

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[381]"Trends in Fixed Public Network Services: Italy, 2000-2006 (Executive Summary)" p. 1.
[382]CIT Publications "Italy –Business Networks" *Datafile of European Telecommunications,* October 2002, p.1, and interview with TI executive in Rome, September 26, 2002.
[383] *News,* Analysis, Cambridge, U.K. (www.analysis.com), October 2002, p.1.
[384] Interview with TI executive in Rome on September 26, 2002.
[385] "Trends in Fixed Public Network Services: Italy, 2000-2006 (Executive Summary)" p. 1.

COMPETITION IN BUSINESS COMMUNICATIONS

Significant competition already exists in business communications. However, TI still dominates data transmission, with a 62 percent market share for asynchronous transfer mode (ATM) frame relay and an 84 percent share in leased lines. Nevertheless, alternative operators continue to gain market share from TI and the prospect is encouraging for them because the Italian regulator has been proactive in interconnection and unbundling. Interconnection charges are below the EU average and the adoption of a cost-accounting model should help keep them reasonable. The well-established regulatory regime should also stimulate continued growth in the number of unbundled lines. Recent regulatory intervention to reduce leased line prices and introduction of a wholesale leased line offer will also help support competition using leased lines. As in Spain, revenue from switched data and leased lines continues to grow steadily in Italy and is expected by EITO 2002 to grow by 14 percent in 2003.

The recent merger of two leading Italian wireline operators, Wind and Infostrada, will help the new firm - to be named Wind - mount a serious challenge to TI in business communications. Albacom is also a strong competitor because it specializes in corporate services. Some U.S. firms are beginning to follow the lead of TI, Wind and Albacom by capitalizing on their existing infrastructure to become significant players in broadband platforms for business communications.[386] U.S. companies will also find many opportunities in such business applications as Internet security, which is still at an embryonic level in Italy.[387]

SECOND DRIVER: BROADBAND

Spain has been deploying broadband faster than Italy since the end of 2000, and it overtook Italy in terms of broadband penetration in June 2001, when Italy had the 12th highest penetration rate in the EU – 0.44 connections per 100 inhabitants.[388] Nevertheless, Italy has been expediting the deployment of broadband since then. By the end of March 2002, Italy had connected broadband to 1.7 percent of households, and it was ranked fourth in Europe in terms of broadband penetration per household, behind Germany, Spain, and France.[389]

DSL is Italy's main technology for broadband Internet access, accounting for 84 percent of broadband subscribers, because neither cable TV operators nor satellite service providers have provided substantial competition. The roll-out of ADSL by TI was slowed throughout 2000 by court injunctions initiated by both competitive operators and the regulator. Since December 2000, when TI paid a $50 million fine levied by the Italian competition authority for abuse of dominant position, TI has rolled out ADSL as rapidly as possible, after opening some of its exchanges to competitors. The number of DSL subscribers in Italy increased by 41 percent in the first half of 2002, but that was still not as fast as the increase in Spain, which was 76 percent during the same period.[390] The rate of DSL deployment in Italy is increasing due to TI's ambitious roll-out plans, recent decreases in prices for ADSL, and growing competition by competitive providers of DSL. The only significant competition to DSL for broadband Internet access in Italy is provided by fiber to the building, satellites and leased lines, which accounted for 16 percent of retail broadband Internet access by August 2002.[391]

[3861] CIT Publications "Italy –Business Networks" , pp.1-2.
[387] Interviews in Rome, October 25, 2002 and "Internet Security" Industry Sector Analysis, US&FCS, Rome, April 5, 2001.
[388] Paltridge, Sam, "The Development of Broadband Access in OECD Countries," OECD Committee for Information, Computer, and Communications Policy, Pairs, October 29, 2001, p.14.
[389] Stuart, Donald and Bhalla, Kiran, "DSL and Cable Modem Services in Europe" Gartner, August 1, 2002, p.4.
[390] Point Topic Ltd., *DSL Benchmarking Report: Q2 2002*, London, U.K., August 2002, p.5.
[391] EC, 8th Report from the Commission on the Implementation of the Telecommunications Regulatory Package: European telecoms regulation and markets 2002, p. 30.

Rapid Deployment of DSL by TI

TI rolled out ADSL rapidly to its business customers when it launched ADSL in 2000, when businesses accounted for some 25 percent of TI's ADSL customers. Since 2001, TI has increased its focus on a rapid roll-out to consumers, using free truck rolls and installations as an incentive at first. In February 2001, the Information Society Forum in the Italian Prime Minister's office published a report proposing widespread broadband deployment, especially in less developed areas. The report highlighted the need to develop the telecommunications network as a platform for widespread access to broadband, suggesting that universal service be extended to include broadband access. It noted that ADSL is better suited for broadband access throughout Italy than cable TV networks, because it would be too expensive to build cable TV networks across Italy's mountainous terrain. In July 2001, the government announced the preparation of a national broadband action plan to implement these proposals.[392] The new support from the Italian government for DSL roll-out has provided a positive environment for rapid ADSL roll-out by the incumbent. In March 2002, TI reduced its prices for ADSL by 45 percent to speed up roll-out and postponed its objective of connecting 1.4 million subscribers until the end of 2004, one year later than previously planned. In December 2002, TI started marketing Europe's first pre-paid ADSL service, as well as an ADSL offer called "Alice" for only €30 per month plus 90 cents per hour and predicting that 85 percent of Italian Internet users will be on DSL by 2004.[393]

TI's deployment of ADSL was rapid at first because it focused on those who could afford its high prices, especially business users, to whom it also guarantees a minimum transmission rate, such as 640/128 Mbps, under a service level agreement. TI uses a high-powered monitoring system to develop a mass-market for ADSL that was not as high-speed as in more advanced countries like Germany, but was adequate for most residential Internet users in Italy, with speeds up to 256 Kbps.[394]

TI did not succeed in mass marketing ADSL as rapidly as Telefónica did in Spain until the Italian government adopted broadband over telecommunications networks as a national objective in 2001. However, TI's motive for aggressively promoting the mass market for ADSL using substantial price discounts in March 2002 was not simply to satisfy this government objective. This was also the next step in TI's effort to have the first-to-market advantage with DSL, because it recognized that its first real competition in broadband Internet access was appearing from other DSL providers, due largely to the government's pro-competitive measures. TI also recognized that Italy is conservative in adopting new technologies that are expensive, such as PCs and the Internet, for which Italy still has one of the lowest penetration rates in the EU. However, it also recognized that the Internet adoption rate has been increasing recently, in part due to the increasing availability of low-cost, subscription fee Internet access. According to TI, SoHos with three employees or less are the fastest growing category of its DSL subscribers, accounting for 10 percent of its ADSL connections in June 2002.[395]

Competitive Landscape for DSL

Despite the first mover advantage of TI, new entrants supplied DSL to 24 percent of the 622, 502 DSL subscribers in Italy as of August 2002, slightly above the EU average of 22 percent. Since early 2002, Wind has offered ADSL to residential customers at less than €25 per month. The bulk of the DSL provided by new entrants (71 percent) relied on bitstream access from the incumbent, as in Spain. The prospect for further growth in the new entrants' DSL market share seems better in Italy because the

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[392] Interview in Rome, October 24, 2002 and Paltridge, Sam, pp. 29-30.
[393] Burstein, Dave "Europe is joining Asia in takeoff" *DSL Prime*, December 23, 2002.
[394] Interview with a contractor in Rome, September 25, 2002.
[395] Interview with executive of TI in Rome on September 26, 2002.

remaining 31 percent of new entrants' DSL access in Italy is provided over fully unbundled local loops, which are not yet used for DSL in Spain.[396] In September 2002, Italy had the second highest number of unbundled local loops in the EU (82,000). 60 percent of these unbundled lines are being used to provide xDSL services, all by the same company, which is named Fastweb. New entrants are finding various new business applications for DSL in Spain, as mentioned above, in the section about business communications. The biggest opportunity for U.S. operators may be to provide national or international access to virtual private networks (VPNs), an application that is already widely deployed in the United States. Equant (a subsidiary of France Télécom) reportedly planned to offer DSL to its IP-VPN service customers in Italy during February 2003, but it is apparently the only carrier with a formal international DSL-to-IP-VPN offering that spans multiple countries.[397]

Another advantage of new entrants in Italy is that since 2000, TI has offered HDSL (which is a type of symmetrical xDSL), unlike Telefónica. TI's HDSL offers transmission speeds comparable to its leased lines (2-8 Mbps).[398] Revenue in Italy from HDSL was €101 million in 2001 and was estimated to reach €254 million in 2002, exceeding the estimated revenue from ADSL in 2002 (€219 million).[399] In November 2001 Albacom contracted with Lucent Technologies in a deal valued at over $27 million to supply a network with ADSL and SHDSL interfaces over three years. Albacom intends to tailor various xDSL services to the needs of SoHos (small office/home offices), SMEs and corporate users.[400]

The regulator is likely to pressure TI to offer a range of wholesale xDSL options at different bit rates, in response to complaints from new entrants that the current bit-stream offer of TI, like that of most incumbents in the EU, is stifling competition. xDSL services are preferred by business users to ADSL, and new entrants are usually more successful with xDSL because smaller operators have the flexibility to tailor their products to business users' requirements better than such a large operator as TI. AGCOM has already persuaded TI to increase incentives for new entrants to offer DSL by making commitments to install DSL within 5 working days of receiving an order from a new entrant.[401] Furthermore, the EC is urging Italy and other Member States to increase pressure on incumbent operators to offer shared access and bit-stream access on wholesale terms that will allow new entrants to use them for broadband Internet access.

PACKAGING DSL WITH OTHER SERVICES

The demand for DSL in Italy is also getting a boost from various innovative package deals being offered by TI and its competitors. Since October 2002, Wind, the second largest wireline operator in Italy, is marketing a package called CanoneZero that offers free local and long-distance calls in a package with ADSL. An even more innovative ADSL marketing plan of TI will soon offer a package of voice, video, and Internet access (known as a triple play) to be delivered over ADSL, similar to the plans of Telefónica described in the telecommunications section of the Spain chapter. TI reportedly signed a two-year contract for €80 million with Marconi in February 2003 for the development of broadband infrastructure to support this project.[402] In a commercial trial with 21 users in Milan and Rome during 2002, TI

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[396] EC, 8th Report from the Commission on the Implementation of the Telecommunications Regulatory Package: European telecoms regulation and markets 2002, p. 30.
[397] Pappalardo, Denise "DSL to VPN support issues" *Network World Newsletter*, February 27, 2003
[398] Interview with TI executive in Rome, September 26, 2002.
[399] "Telecom Market- Italy" data prepared by 2Ginvest, consultant to Assintel in Milan, Italy.
[400] CIT Publications "Italy – Basic Telephony" p.2.
[401] Stuart, Donald and Bhalla, Kiran, p. 19.
[402] CIT Publications "Telecom Italia contracts Marconi for broadband upgrade" *Communications Update*, February 5, 2003

reportedly offered 23 broadcast TV channels, web browsing via television, and 256 Kbps Internet access via PC.[403] Such an offer by TI would not be without competition in Italy, where a new Italian firm named Fastweb is offering the same three services over its own 10 Gigabit fiber optics network, as described in the following section.

No broadband via cable modems

Italy and Greece are the only countries in the EU where cable modems are not used to provide broadband Internet access. TI retains a monopoly over cable TV services until around 2012 through its Stream subsidiary, a 50/50 joint venture with News Corporation. Because TI seeks to divest its holdings in Stream, it is unlikely to make the investment necessary for upgrading the network by installing coaxial cable to support broadband Internet access. News Corporation seems no more likely to invest in cable TV, because its primary interest in Stream is focused on Stream's pay-TV activities, which involve DTV via satellite, not cable TV. [404] The Italian antitrust authority blocked a proposal of TI to sell its stake in Stream to Canal Plus in March 2002, on the grounds that it would block competition because Canal Plus already dominated Europe's pay-TV market.[405]

Alternative Broadband Technologies: Fiber

16 percent of broadband subscribers in Italy use alternative technologies besides DSL, primarily fiber optical cables, satellites and leased lines. Because of the lack of a coaxial cable TV network in Italy, the only serious competition with DSL for broadband Internet access in Italy is fiber to the building (FTTB), in which Italy is one of the most advanced countries in Europe. Several new companies have deployed this technology recently to take advantage of the fact that Italy has high population density in its cities, with a large share of the population living in apartment buildings. The principal two companies using this platform are Acantho, a consortium of publicly owned utilities, and Fastweb. Acantho offers customers an Ethernet connection over fiber optical cable to deliver broadband at 10 Mbps to 100 Mbps in the Bologna region.[406]

Supported by guidance and vendor financing from Cisco Systems, Fastweb has deployed a triple play of voice, video-on-demand and broadband Internet in the six cities that contain the majority of the Italian population and GDP, i.e.: Rome, Milan, Bologna, Genoa, Turin, and Naples. Fastweb is the brand-name for the Italian network operated by a subsidiary of e.Biscom, which was founded in Milan in 1999.[407] Earnings before interest, tax, depreciation and amortization (EBITDA) of e.Biscom were €35 million in the first half of 2003.[408] Fastweb is the second largest broadband operator in Italy, after TI, and the fastest growing operator in the Italian broadband market. It served 103, 906 business and consumer subscribers with its switched Ethernet service at the end of June 2002, offering much faster speeds for broadband tranmission than any other provider in Italy, including TI. While 81 percent of Fastweb's customers were residential, as of June 2002, 87 percent of its revenues came from business customers. 10 percent of these business clients were small companies and 86 percent were SoHos.[409] Fastweb's

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[403] Donegan, Michelle, *loc. cit.*
[404] CIT Publications, "News Corp's global pay-TV empire set to become a reality" Communications Update, April 2, 2003.
[405] Stuart, Donald and Bhallla, Kiran, "DSL and Cable Modem Services in Europe," p. 18, and Stuart, Donald and Tuset, Joe,Internet Services: Italy", p.15
[406] Stuart, Donald and Bhalla, Kiran, p.19.
[407] Interview with Fastweb executives, Milan, September 23, 2002.
[408] WMRC "Western European Regional: e.Biscom Client Base reaches 330,000" July 8, 2003
[409] "e.Biscom: case study of broadband service deployment" Ovum, U.K., October 2002, pp. 1-8

network operations director, Guido Garrone, explained that, "Big corporates are conservative towards voice and data integration, but smaller companies are less religious on technical approach."[410]

Other Broadband Technologies

The other leading broadband platform deployed in Italy is satellites, which are used primarily for television broadcasting but also offer broadband Internet access. There are some 60,000 asymmetric broadband Internet access connections in Italy via satellite, offered by one operator. This technology is not competitive with DSL or FTTB, but it is the only alternative available for customers in certain remote areas that are inaccessible to fixed operators. Several telecommunications operators also offer broadband Internet access to Italian corporate users over leased lines, the market for which is described in the above section on business communications. In addition, the IT division of Enel, the Italian utility, has been testing powerline technology for delivering broadband Internet access since mid-2001 in what it describes as the largest European test of this new technology, but there have been no reports that it has succeeded in reaching broadband speeds yet. Another new broadband platform in Italy is wireless local loop (WLL or fixed wireless), for which the government issued 73 licenses in May 2002, while requiring TI to wait four years before launching its own WLL. Four operators had launched WWL services in Italy by September 2002.[411]

Italy established a regulatory framework under a decree issued in February 2003 that allows W-LANs (Wi-Fi), both for public and private use, without a license, but W-LAN operators must inform the government before starting operations. Italy's frequency plan envisions three bands for W-LANs. In a joint venture with an ISP named Megabeam, TI reportedly began trials of a public W-LAN service in a number of "hot-spots" in Rome and Milan during December 2002.[412] The mobile operators are also interested in W-LANs now that its transmission rate has been standardized at 10 Mbps. However, W-LANs need security to protect against data theft.[413] Another wireless technology that is expected to offer broadband Internet access is third generation wireless communications, which is about to be launched in Italy, as described in the following section of this report. The prospect for broadband access by satellite and these other wireless technologies could improve as the European Commission develops its current proposal for structural funding in support of broadband investments in remote areas that are currently unable to access broadband.[414] The prospect for all broadband technologies will also get a boost from the Italian Ministry of Communications, which plans to stimulate broadband diffusion using tax incentives to stimulate private demand and to increase broadband penetration in the government from the current level of 20 percent to 90 percent by 2005.[415]

Third driver: mobile communications

With 53 million cellular telephone subscribers at the end of 2002, Italy has the second largest mobile communications market in western Europe, after Germany.[416] Mobile communications has been the fastest growing telecommunications service in Italy since a second cellular operator launched service in 1995, and it is expected to continue driving growth for the foreseeable future. In Italy, there are now almost twice as many mobile subscribers as fixed subscribers. At the end of 2002, Italy's mobile penetration rate of 92 percent was second only to Luxembourg in the EU. Although the pace of growth

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[410] "breaking out" *Communications Week International*, September 23, 2002.
[411] EC, Telecommunications Regulatory Package - 8th Implementation Report- Annex III: Italy, pp. 101, 104.
[412] CIT Publications, "News Shorts" *Communications Update*, December 18, 2002.
[413] Interviews in Rome, September 24, 2002.
[414] "EU Competition Commission Backs Broadband Spending in Poor Areas," World Markets Research Centre, March 5, 2003.
[415] U.S. Embassy, Rome.
[416] "Western Europe," Global Mobile, February 12, 2003.

in the number of Italian mobile subscribers decreased by 23 percent from December 2001 to December 2002, subscribership increased by 7 percent during 2002, the same as the average growth rate for western Europe, according to Global Mobile.[416]

THREE MOBILE OPERATORS

There are currently three GSM mobile network operators in Italy: Telecom Italia Mobile (TIM), Vodafone, and Wind. TIM established its second generation digital GSM network in 1992 and is the leading Italian cellular operator, with 47 percent of the subscribers at the end of 2002, according to Global Mobile. TIM is the largest mobile operator in western Europe, with 25 million subscribers in the region at the end of 2002. Vodafone entered the Italian GSM market in 1995, when it was known as Omnitel, and its market share in Italy was 34 percent at the end of 2002, making it the sixth largest mobile operator in western Europe. The two principal owners of Vodafone/Italy are Vodafone (of the United Kingdom - 77 percent), and Verizon Communications (23 percent). Wind (owned primarily by Enel, the Italian utility) started offering GSM services in Italy during 1999 and had obtained a market share of 19 percent by the end of 2002, due in part to its acquisition of the customers of Blu, a fourth mobile operator that went out of business in 2002, passing its 4 percent market share to Wind.

As the newest operator, Wind increased the number of its subscribers the fastest during 2002, growing at a rate of 27 percent, while Vodafone's rose 11 percent and TIM's GSM subscribers increased by 8 percent.[417] The rapid success of mobile communications in Italy is due to three of the four factors applicable to Spain: a desire for personal communications, prepaid calling cards, and number portability. Like Spaniards, Italians consider cellular communications useful for spontaneous, private communications. Another driver of cellular services in Italy is the tremendous popularity of prepaid cards, which are used by more than 80 percent of cellular users[418], an even higher proportion than in Spain. Mobile number portability was initiated in Italy during 1999, but there must be difficulties in its implementation, because very few subscribers have taken advantage of it to transfer to competitive operators.[419] The one driver of mobile penetration in Spain that is definitely absent in Italy is low prices. The average monthly expenditure on cellular communications for a typical personal profile in Italy was €20 in 2002, twice the level in Spain, but the same as the EU average.[420] However, Italy has an advantage over Spain in terms of a substantially higher per capita income.

HYBRID PROCESS FOR AWARDING 3G LICENSES

In response to pressure from the EC to expedite 3G licensing so that the European standard for 3G could get an early start, like the GSM standard, the Italian government awarded licenses to five mobile operators in October 2000 through a hybrid process that was part beauty contest and part auction. The licensees were: TIM, Vodafone, Wind, IPSE 2000 (a consortium backed by Telefónica), and H3G (an affiliate of Hutchison Whampoa Ltd. of Hong Kong). The cost of each license was approximately $2 billion, considerably less than in the countries that used pure auctions, but substantially more expensive than resulted from the beauty contest in Spain, even if the subsequent Spanish spectrum fees are factored in. The licensees still believe that they overpaid for these Italian licenses, which discourages most of them from further investments to roll out 3G services until there is some assurance that 3G services will be successful.

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[416] "Western Europe," Global Mobile, February 12, 2003.
[417] *Ibid.*
[418] *EITO Update 2002*, p. 10.
[419] Stuart, Donald and Tuset, Joe, "Wireless Services: Italy" *Operational Management Report*, Gartner, November 7, 2002.
[420] EC, 8th Report from the Commission on the Implementation of the Telecommunications Regulatory Package: European telecoms regulation and markets 2002, p. 11.

REALISTIC 3G LICENSING CONDITIONS

The schedule and coverage obligations under the Italian 3G licenses are more realistic than under the 3G licenses in Spain and many other EU countries. The licenses obligate them to offer 3G services in 20 regional capitals by June 2004 and in all main provincial capitals by the end of 2006. Furthermore, AGCOM established asymmetric regulatory measures in such areas as roaming rights to facilitate the entry of 3G operators that do not have 2G networks in Italy. As elsewhere in the EU, AGCOM has recognized the right of 3G operators to share network infrastructure with other operators to facilitate the roll-out of 3G services, but no operators had agreed on network sharing as of September 2002. Another step taken by the Italian government to expedite the launch of 3G services was the announcement in December 2001 that the licensing period has been extended from 15 to 20 years at no additional cost. In the fall of 2002, the Ministry of Communications was considering a request from one licensee (presumably IPSE 2000) to cancel its 3G license and return the associated frequencies.[421] As mentioned in the Spain chapter, Telefónica announced in August 2002 its decision to freeze investment in its 3G networks outside of Spain, such as IPSE 2000.

OTHER EFFORTS TO FACILITATE 3G ROLL-OUT

As in Spain and elsewhere in Europe, health and environmental concerns have been delaying the efforts of 3G operators to obtain the rights of way necessary for them to roll out their 3G networks. The Italian government has adopted several measures between 1998 and September 2002 to resolve the rights of way problems of mobile operators. The two most recent legislative provisions are particularly useful for operators because they harmonize the varying requirements under the laws of Italian regional governments concerning antennas and backbone networks.[422] The government is also currently working with regional authorities to set a national standard for electromagnetic emissions from mobile transmissions to assuage public concerns about possible health hazards.

LAUNCH OF 3G SERVICES

Undeterred by the pullback of the only other new entrant (IPSE 2000), H3G Italy launched the first 3G network in Europe on March 10, 2003.[423] Not having the luxury of revenues from other operations in Italy, H3G was determined to be the first operator to launch 3G services in Italy, the same strategy that it is pursuing in the United Kingdom. The three incumbent mobile operators in Italy had initially hoped to launch 3G networks as quickly as possible, and so they had claimed that their 3G networks would be fully operational by the end of 2002, as H3G originally planned to do. Since October 2002, TIM and other incumbents have taken a more cautious, wait and see approach, remaining undeclared about the timeframes for commercial launch, while professing optimism for 3G in the long term. Nevertheless, both TIM and Vodafone displayed the capability to offer 3G services at the end of 2002, according to *EITO 2003.*

The launch of 3G services in Italy is being delayed by the same factors, in varying degrees, as in other EU Member States, which were described in the chapter on Spain. Listed in order of importance for Italy, these factors are: lack of suitable handsets, unwillingness to subsidize handsets, lack of interoperability, uncertain demand for 3G services, reluctance to invest in 3G infrastructure, and

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[421] EC, Telecommunications Regulatory Package - 8th Implementation Report- Annex III: Italy, p. 108.
[422] *Ibid*., pp. 104-105.
[423] EMC "H3G first to launch UMTS network in Europe" European Mobile Communications Report, April 8, 2003.

constraints on obtaining rights of way for 3G infrastructure. The *EITO Update* of October 2002 reported that a number of 3G licensees have had discussions about 3G network sharing to decrease construction costs, so there may be grounds for optimism that they will overcome this barrier soon. However, many Italian industry observers in both the private and public sectors believe that the most fundamental obstacle to the successful launch of 3G is the lack of unique applications that would justify the extra cost that is required for 3G.[424] There may be a role for U.S. industry in finding such "killer applications," because U.S. mobile operators are better at addressing the needs of business users, who are likely to be the first adopters of 3G.[425]

The World Markets Research Center (WMRC) predicts that 3G services will win a 6 percent share of Italian mobile subscribers by 2004 (the same share as in Spain), and reach the Italian mass market by 2005, with a penetration rate of 11 percent.[426] Based on the assumption that the total Italian mobile penetration rate will remain at its current level of 92 percent until 2007, the WMRC predicts that 3G services will substitute for previous generations of mobile services as follows:

Figure 3.3.3
Italy: Mobile Penetration by Technology

	2003	2004	2005	2006	2007
2G	81.00%	75%	71%	67%	62%
2.5G	11.00%	11%	0%	10%	9%
3G	0.00%	6%	11%	16%	21%
Total	92.00%	92%	92%	92%	92%

Source: WMRC: "W. European Mobile Market Outlook to 2007"

The market for 2.5 G wireless

Now that the mobile penetration rate in Italy has reached the saturation level, mobile operators are focusing on customer retention and revenue maximization even more than in Spain. Delays in the launch of 3G have allowed operators additional time to focus on improving their messaging and mobile Internet access. Messaging has been a successful service in Italy since TIM launched SMS in 1996, which already averaged 7 million messages per day at that time. Familiarity with SMS helped open the Italian market to other wireless data and Internet access technologies. Vodafone/Omnitel took back the initiative in 2000, when it launched the first Internet portal in Italy with voice access via wired or wireless phones and computers. This service was also successful, because it overcame two major obstacles for e-commerce: the limited penetration rates of PCs and credit cards. WAP services were launched by both Vodafone and TIM in 2000, but WAP was a flop because of the low data transmission speeds of the Italian telecommunications infrastructure.[427]

The beginning of the transition from GSM to 3G wireless that has come to be known as 2.5G was TIM's launch of GPRS service to all of its clients, both prepaid and contract, by May 2001, followed by

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[424] U.S. Embassy, Rome and interview in Rome, September 25, 2002.
[425] Interview in Rome, September 26, 2002.
[426] WMRC "Western European Market Outlook to 2007: 3G Risks for Operators", *Telecommunications Sector Analysis*, January 10, 2003, p. 14.
[427] Stuart, Donald and Tuset, Joe, "Wireless Services: Italy" p. 11.

Vodafone and Wind shortly thereafter. At only 115Kbps, the maximum data rate of GPRS is not very much faster than GSM (14.4Kbps), but it offers Internet access with the "always on" feature of 3G, based on a packet-switched overlay for the existing GSM network. Most Italian telecommunications lines were upgraded to enable GPRS during 2002, while data applications matured rapidly enough for GPRS to become a fundamental service in the corporate market.[428] All three operators are pioneering new value-added services and data applications enabled by GPRS, such as multi-media messaging (MMS), which TIM launched in May 2002. Although SMS messaging is still a huge business in Italy, MMS addresses a different market, allowing users to transmit images. During late 2002, operators such as TIM were still looking for suppliers that could support the transition from voice and text to multimedia applications.[429] GPRS is the primary 2.5G platform in Italy, driving 2.5G services to account for 11 percent of mobile penetration in Italy during 2003, the highest penetration rate for 2.5G in western Europe except for in Austria, according to WMRC.

Although GPRS is the only 2.5G technology deployed in Italy, four other 2.5G technologies have potential applications there: W-LANs, EDGE, i-mode, and TDD. Preparations of AGCOM and TI for the roll-out of W-LANs (Wi-Fi) in Italy were described above in the broadband section. TIM announced its commitment to EDGE in June 2003, the first European operator to do so. TIM will reportedly use EDGE in areas where it is not economically feasible to deploy 3G technology, such as rural areas.[430] Wind, Italy's third largest mobile operator, reportedly announced a five-year licensing agreement with NTT DoCoMo in June 2003 that will allow Wind to offer i-mode service on its GPRS network before the end of 2003. Wind will also offer pan-European roaming with NTT DoCoMo's other European partners, including Telefónica Moviles in Spain, Bouygues in France, and NTL in the Netherlands.[431] As for TDD technology, there is no indication yet of any Italian interest in it, but the 3G licenses of all five Italian mobile operators authorize them to deploy a high-speed wireless access network using TDD whenever they choose to deploy it, and this platform is expected to mount a major challenge to WLANs for broadband Internet access.

The investment in any of these alternative 2.5G platforms by Italian mobile operators was delayed by the break-up of the fourth incumbent mobile operator (Blu) in August 2002 and the distribution of its property and customers to TIM, Vodafone, Wind and H3G. Throughout 2002, these four mobile operators were preoccupied with acquiring and integrating parts of the former Blu network into their existing GPRS operations.[432]

2.5G EQUIPMENT

Most investment in 2.5G infrastructure was between 1999 and 2001, which is the prime reason for the decline in value of the Italian equipment market in late 2001 and 2002. Like most mobile operators in Italy, TIM prefers to rely on a single infrastructure supplier through a long-term framework agreement and periodic contracts. However, TIM considers alternate suppliers each time it adopts a new technology. TIM relies primarily on Ericsson for both 2.5G and 3G in Italy to assure the rapid, reliable roll-out of each technology. Ericsson is the principal manufacturer of wireless equipment in Italy, especially infrastructure equipment. Vodafone relies primarily on Nokia for infrastructure eqipment.[433]

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[428]Ibid., *loc. cit.*
[429]Interview with TIM executive, September 26, 2002.
[430]Wendelken, Sandra "Italy's TIM Commits to EDGE" RCR Wireless News, June 10, 2003.
[431]CIT Publications "DoCoMo announces Wind assistance" Communications Update, June 26, 2003.
[432]WMRC "Italy: Everyone's a winner as EC Approves Break-up of Blu" *Telecommunications Sector Analysis*, August 6, 2002.
[433] Interviews in Rome, September 26, 2002.

A moderate decline in sales of handsets in 2001 and 2002 resulted from the flop of WAP technology and delays in the development of GPRS handsets. Mobile operators in Italy recognize that mobile handsets are becoming critical to the rapid deployment of new technologies as well as powerful tools to differentiate between operators in the mass market. Nokia has been the leading handset supplier in Italy since 1997, and Motorola is now the second largest. According to a TIM executive, TIM's GSM subscribers replace their handsets every 14-18 months. TIM professes to sell handsets to its subscribers without subsidizing them, and yet its sales accounted for 36 percent of the 14 million handsets bought by its 22 million GSM customers in 2001. TIM seeks small start-ups to provide infrastructure that would allow it to establish a service center platform for monitoring connection of handsets to TIM's network.[434]

Handset sales in 2002 were not stimulated very much by the launch of MMS, but rather by the range of colors and color screens for handsets equipped with individualized ring-tones, as in Spain. The prime obstacles to the success of MMS seem to be the failure of operators to communicate its usefulness for picture messaging and the failure to develop genuine interoperability between 2G and 2.5G handsets, particularly when operating on different networks.[435] Handset sales are likely to increase significantly from 2003 to 2006, driven by a surge in corporate wireless messaging by professionals. The increase is currently being driven largely by sales of personal digital assistants (PDAs), which are marketed by TIM in the same shops where it sells cellular phones. Smartphones are also expected to drive the handset market, becoming the most common type of device used by professionals for e-mail by 2006.[436]

Mobile Internet and M-Commerce

Italian mobile operators view mobile Internet access as a means of keeping customers and increasing revenues. Like their counterparts in Spain, they believe that mobile devices offer the opportunity to challenge the dominance of PCs in terms of Internet access because the penetration rate for mobile phones is already more than twice the PC penetration rate in Italy. Operators believe that the ability of mobile devices to connect to the Internet wherever the user is located offers an inexpensive and convenient advantage over wireline access. They also share the cultural perspective of many Spaniards, viewing cellular phones as genuinely personal, unlike PCs, which are used primarily in schools, businesses, or public places and often shared. Since 2001, incumbent Italian mobile operators have viewed mobile communications as a key channel to market Internet-related services and business-to-consumer services.[437]

However, for mobile Internet access to succeed, it needs to find applications that motivate users to use these new platforms. The key is to find mobile data applications of interest to business users, and Italian mobile operators have not made as much progress in doing so as the Spaniards have. As mentioned above, Italian operators are focusing primarily on increasing their revenue by introducing new value-added services over 2.5G. Nevertheless, TIM reportedly announced signing a contract in January 2003 with RAI, the Italian TV broadcaster, concerning mobile content. TIM agreed to offer entertainment, information and news programs of RAI over MMS handsets in video format. The CEO of TIM, Marco de Benedetti, reportedly commented that this video content represented a 3G service, which could be offered "without having to wait for UMTS (3G)."[438]

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[434] *Ibid.*
[435] "MMS still has numerous hurdles to clear" *Global Mobile*, December 4, 2002.
[436] "Mature Market Dynamics Enable Corporate Mobile Messaging Growth in Western Europe" Aberdeen Group, Boston, March 6, 2003 (www.aberdeen.com) and interview in Rome, September 26, 2002.
[437] "Mobile Commerce" *Industry Sector Analysis*, US&FCS, Rome, November 22, 2001.
[438] WMRC "Italy: TIM Signs Mobile Content Deal with RAI" *Western Europe Datafile*, January 24, 2003.

TIM is approaching m-commerce cautiously, recognizing that millions of SMS messages are currently sent without requiring any specially branded content. TIM is choosing the business model for m-commerce carefully because it believes it to require a market larger than the existing cellular market. Charging for digital content would also require a mature technology, according to TIM. Nevertheless, TIM already sells SIM cards ("smart cards") that support prepayment of cellular service fees in the same stores where it markets handsets and PDAs.[439]

Italian mobile operators recognize that mobile Internet access still accounts for only some 1 percent of their mobile revenue, while messaging accounts for over 10 percent of revenue. MMS has the potential to become the second largest source of revenue from mobile data services, after SMS, while also transmitting other applications such as file transfer and location-based services. Vodafone's strategy in Italy, as elsewhere in the EU, is to use such 2.5G services as messaging to migrate its subscribers to 3G services by gradually offering a greater range of access speeds and applications. Mobile operators are marketing the applications that are enabled by 2.5G and 3G platforms, rather than the enabling technology, which confuses most consumers.[440]

OTHER TRENDS IN MOBILE COMMUNICATIONS

Mobile operators in Italy, as elsewhere in the EU, are experimenting with other ways of maximizing their revenue and minimizing their costs, besides introducing new technologies. Operators have already decreased their customer acquisition costs by decreasing handset subsidies for new subscribers. However, Italy has not yet seen as much effort as Spain has by operators to increase their ARPU by persuading their pre-paid users (who average much smaller monthly expenditures) to sign contracts for post-paid service. Like the Italian broadband market, competition in its mobile communications market is increasingly focused on prices. However, TIM's primary concern is to improve the efficiency of its customer billing operations by introducing online billing, and it does not plan to abandon its huge number of prepaid users any time soon.[441]

The only Italian operator to seek to switch prepaid users to contract users has been Vodafone, which used an increasing range of applications and competitive pricing plans during 2002 to increase the loyalty of its customers, especially corporate clients. This effort succeeded in reversing the decline in Vodafone's ARPU in Italy, which increased significantly to a monthly average of €28.90 in 2002.[442] However, this change also had the perverse effect of decreasing Vodafone's subscriber base in Italy from 16.2 million to 13.77 million during the first half of 2002, due to a change in accounting policy whereby the operator no longer counts inactive pre-paid subscribers in its customer base. Nevertheless, Vodafone's subscriber base increased to 18 million by the end of 2002, according to *Global Mobile*.

Meanwhile, the ARPU of TIM was slightly higher than that of Telefonica in 2002, despite the fact that TIM has an extraordinarily high proportion of prepaid users (almost 90 percent). Wind is the only Italian operator with a very low ARPU (averaging €19.29 during the first three quarters of 2002) due to a

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[439] Interview with TIM executive in Rome, September 26, 2002.
[440] WMRC, "Western European Mobile Market Outlook 2002-2007" *Telecommunications Sector Analysis*, January 10, 2003.
[441] Interview with TIM executive in Rome, September 26, 2002.
[442] CIT Publications "Vodafone: the world's biggest just got bigger" *Communications Update*, January 27, 2003.

combination of low prices and a high prepaid user rate, but its ARPU increased steadily throughout 2002.[443] Although Wind has used low-priced prepaid service to win market share until now, its strategy has changed recently. Wind is differentiating its services by offering its unique package of mobile and fixed services, exploiting its advantage as the only operator in Italy that has both wireless and wireline networks. Wind uses a simplistic approach to pricing that offers only three options: a converged fixed/mobile plan, a business plan and a family plan.[444]

[443] "Wind blows critics aside in search for success" *Global Mobile*, November 20, 2002.
[444] Stuart, Donald and Tuset, Joe, "Wireless Services: Italy" pp. 11-12.

3.4 Electronic Commerce in Italy

Overview

According to the European Information Technology Observatory (EITO), 17.45 million Italian citizens or 30 percent of the population, were connected to the Internet in 2001.[445] Italy, thus, is the 4th largest EU member state wired to the web and although it lags behind the United Kingdom, Germany, and France in absolute terms, its rate of growth for new Internet connections surpasses them. Business to consumer (B2C) transactions totaled €1.845 billion in 2001 and are expected to climb to €27.5 billion by 2005. Business to business (B2B) online sales reached €15.427 billion in 2001 and are projected to reach €156.5 billion by 2005.[446] However, these projections were based on a far brighter economic picture than has emerged from the dot.com crash whose effects are rippling through the European Union. Italy's gross domestic product grew at only 1.8% in 2001, a drop of nearly 40% from the previous year. GDP growth in 2003 is projected to show modest improvement.[447]

Even though the European Union's Information Society has made universal free access to the Internet a goal for all EU member states, the success achieved thus far in Italy has fallen short and the definition of what "free" means is open to discussion. Dial-up access to the Internet is nominally free and is offered from many Internet Service Providers (ISP) but cost policies associated with using the telecommunications network to log on vary and can be viewed as a deterrent to extended Internet use. Connect fees are tied to the "time of day," duration of call (per minute or per second) at local rates, and are determined by contracts with the telephone service provider and the number called. Thus, while dial-up Internet access may be "free" from the standpoint that no monthly subscription fee is paid to the ISP, local carrier charges assessed on a usage basis may severely limit long-term e-business growth.[448] As a result, the potential customer base for B2C and B2B is small. The dilemma enterprises face in Italy with respect to e-business adoption is that with a small online customer base there is less incentive to invest in developing and promoting proprietary e-business strategies.[449]

B2C Electronic Commerce

Despite significant growth in the percentage of Italian consumers that have used the Internet at least twice a week over the past two years, average access time remains around 5.4 hours per week. Internet purchases are infrequent and the delivery mechanisms to support such transactions are inadequate to sustain significant sales expansion. The percentage of consumers who have purchased products or services online has risen from 4 percent in 2001 to 6 percent in 2002. Electronic banking continues to be the impetus for B2C e-commerce stimulation and growth. Other B2C categories cited as drivers for future growth include travel and tourism services, entertainment (music, games, and video), and email.[450]

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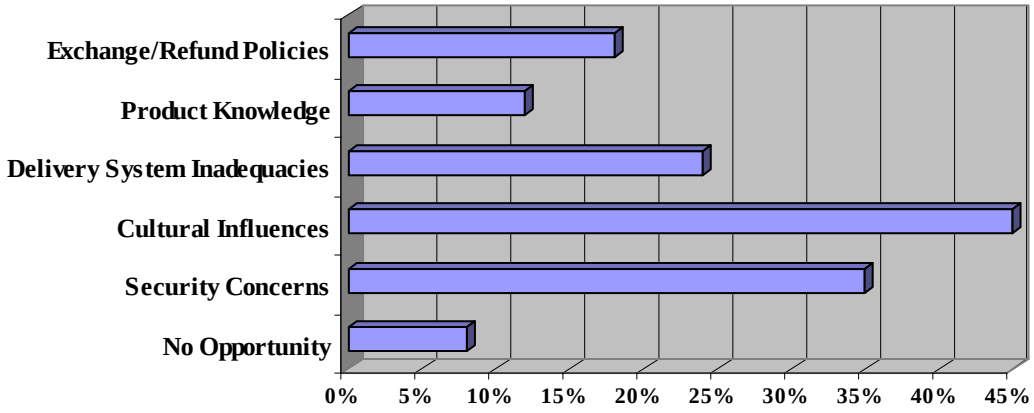
[445] European Information Technology Observatory, EITO 2002, Part I, page. 25.
[446] Ibid., page. 29.
[447] Organization of Economic Cooperation and Development, OECD Information Technology Outlook 2002, page. 7.
[448] Gartner Research, Internet Services: Italy, January 30, 2003.
[449] European Commission, Enterprise Directorate General; The Development of E-Commerce in the European Union, A General Assessment, May 2002, pg. 11.
[450] MATE, s.r.l, September 19, 2002 Interview and Presentation, Milan, Italy.

As with Spain, institutional, cultural, and structural obstacles stymie B2C e-commerce growth. No single factor adversely affects e-commerce growth but several socioeconomic barriers converge to impede growth. In Italy, these barriers are:

- Users' perception that online transactions are not safe (security),
- Users do not find anything they have an interest in,
- Lack of adequate payment mechanisms,
- E-signature requirement by central government,
- Preference for personal interaction with product and vendor when shopping,
- Delivery services are inadequate, and
- Postal system.[451]

Other inhibiting factors include poor foreign language skills for cross-border transactions, the absence of significant Italian businesses online, and the availability of content choices to shop online. Although approximately 72 percent of Italian pmis, companies with 10-100 employees (small and medium-sized enterprises), are online, their Internet activity is confined primarily to email and publicity.[452] Figure 3.4.1 illustrates the reasons why the Italian consumer does not buy online.

Figure 3.4.1
Reasons why the Italian Consumer does not buy Online



Source: OECD, Measuring the Informatin Economy

Trends in online buying suggest that growth in B2C e-business will reach 5% of all retail sales by 2005 and the Web will influence another 5%. Online consumer buying rates have increased by 50 percent and although turnover is low, the growth rate is expected to result in a 90% increase in online sales (€1.3 million in 2002). Web shoppers continue to experience problems navigating web sites and this factor is another inhibitor to a smooth transition to consumers' comfort with B2C. [453]

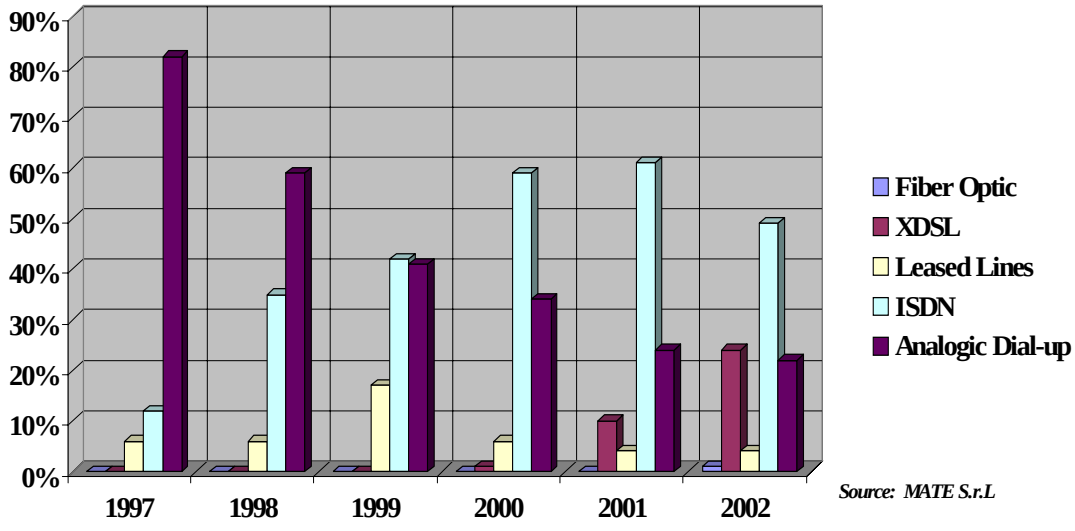
[451] Research Center for Information Systems, LUISS "Guido Carlo" University, Italy Country Report, March 2000, page 13.
[452] MATE s.r.l., September 24, 2002 Interview and Presentation, U.S. Consulate, Milan, Italy.
[453] Ibid.

Mobile communications technologies have revolutionized Internet possibilities in Italy. There are more than 51 million wireless telephone lines in a country of 57 million people. Many innovators think e-business possibilities are endless because of the use of wireless technologies and believe that the advent of multi-media services (MMS) will offer "killer applications" that will serve as the catalyst for elevating Internet usage to the main stream Italian consumer. Italy is moving rapidly toward an intersection of mobile communications, Internet technologies, and web applications that conceivably will bypass conventional home personal computer Internet access and shopping. That widespread short message service (SMS) is used by the early technology adopters (18-30 year age group) promises to restart the stagnant B2C e-commerce. Nonetheless, the sector's growth rate is contingent on new content and products, user-friendliness, and new mobile communications devices based on either GPRS or 3G technologies that are affordable to the Internet consumer. As discussed in the telecommunications section, the jury is still out on 3G's future.

B2B E-COMMERCE

In Italy, when it comes to ICT and e-business adoption, size and sector do matter. Although computers and access to the Internet are common among *PMIs*, the gulf between *PMI*s and large companies widens considerably. For example, 86 percent of SMEs have acquired information technologies in contrast to 99 percent of large enterprises. Seventy-two percent have web access as opposed to 97 percent of large firms. On its face, it would seem that that discrepancy between the SME and large enterprise is not too wide and that, in time, and given the right economic circumstances, the gap will be

Figure 3.4.2
Connectivity by Technology in B2B (SME)
ITALY



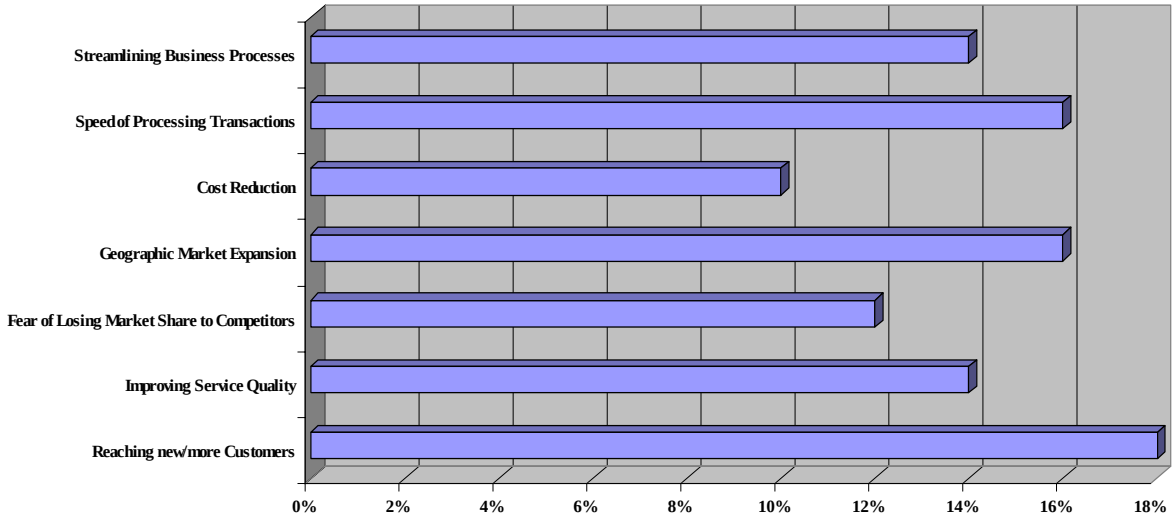
bridged. However, when it comes to e-commerce adoption, the crevice becomes a canyon. About one-fifth of all large Italian firms use e-commerce for purchases; only 10 percent of SMEs engage in B2B.

An even smaller percentage of large Italian companies engage in e-commerce sales (8 percent). Only 3 percent of SMEs have incorporated B2B and B2C in their corporate strategies.[454]

MATE reports that small and medium-sized enterprises have shifted their technology of choice for Internet connectivity. Figure 3.4.2 on the previous page illustrates SMEs' migration to xDSL technologies at the expense of analog dial-up services. Figure 3.4.3 identifies the Internet commerce drivers recently identified in an OECD study: Measuring the Internet Economy 2002. As with most industrialized states, companies apply technologies to improve service, increase markets, reach more customers, and streamline back-office operations.

Availability of xDSL in northern Italy where high technologies companies and most of industry are located has led companies to convert. Fiber-optic options exist in several cities; in particular, FastWeb offers citywide services using a network whose pipes it purchased from a failed venture several years ago. Unfortunately, terrain and stringent antiquities laws that govern excavations throughout Italy limit widespread availability of XDSL and fiber optic services. These factors will compel Italian enterprises to seek other technology solutions to apply e-commerce solutions via the Internet.

Figure 3.4.3
B2B Internet Commerce Drivers in Italy
Enterprises with 10 or more Employees



Source: OECD, Measuring the Information Economy 2002, pg. 71

According to the Italian National Statistical Institute (ISTAT), business development is concentrated in northern and central Italy where intensive ICT use is found in Milan, Turin, Genoa, Bologna, Venice, and Rome. More than half of the country's population is found in these regions and nearly half is located in the north. Southern Italy is generally rural, unemployment high (nearly 25%), and ICT indices low.[455]

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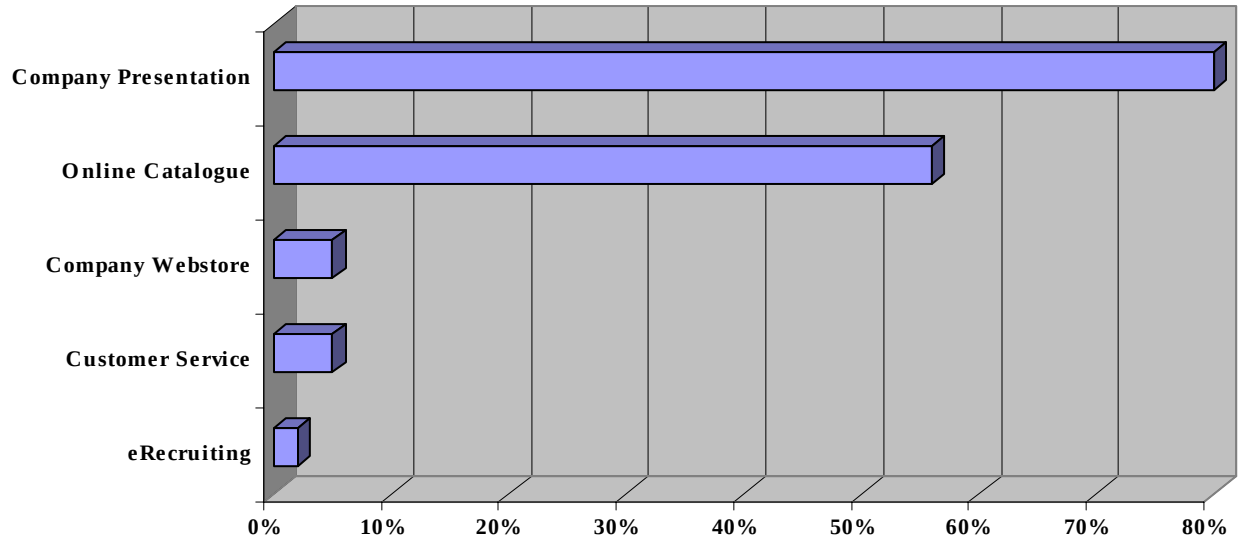
[454] European Commission, Enterprise Directorate General; The Development of E-Commerce in the European Union, A General Assessment, May 2002, pp. 13-14.
[455] ISTAT, Italy in Figures 2001.

Some 3.5 million Italian companies employ 13.8 million workers and the average Italian firm has 4 employees. Less than 5% or 175,000 enterprises have more than 10 employees and 5,000 companies have an annual turnover of €20-250 million.[456] This translates to a very small population of large enterprises and a very large market segment of very small to medium-sized enterprises whose ICT investments and links to the Internet are in their infancy. The large companies invest heavily in ICT and use electronic data interchange (EDI) to conduct B2B e-business but the time needed to develop relationships with them is long and there are internal organizational and bureaucratic delays that make the process to conduct B2B long and complex.

Fiat Grupo and Ensaldo are known to have extensive B2B based on EDI and most major banking institutions offer online services to both the individual and the enterprise. Fiat has established an "E-Business Marketplace" for procuring parts, supplies, etc. for internal consumption. A "framed" contract (model) is based on auction. Once an offer is accepted from a bidder, then traditional issues apply. Negotiations on price, terms, performance, and delivery are carried out as is typical in physical B2B commerce.[457]

Many SMEs with websites employ them to achieve a number of business objectives. Figure 3.4.3 illustrates the principal reasons for going online. While not included in the chart, virtually all SMEs with a website use email, two-thirds have an online, static catalogue, and another 13% plan to add one in the near-term (less than one year).[458]

Figure 3.4.4
How SMEs use their Websites



Source: MATE s.r.l and Forrester Research

Because of the unique characteristics of the Italian SME who is typically a 1-4 employee operation, investments in ICT are limited to back-office applications. Additionally, website developmental costs for an SME are high and most cannot see the return on investment for developing and launching an e-commerce application. Figure 3.4.5 shows those barriers to B2B electronic commerce identified by the OECD in its study: *Measuring the Information Economy 2002*.

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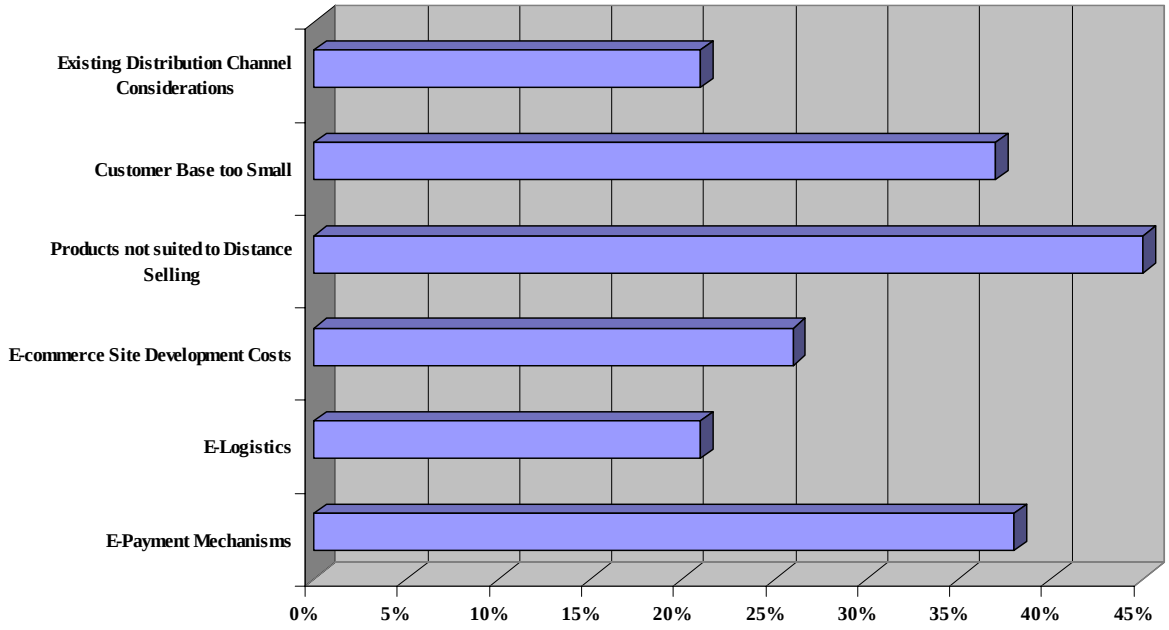
[456] MATE, S.r.L.., September 24, 2002 Interview at U.S. Consulate, Milan.
[457] Ibid.
[458] Ibid.

Figure 3.4.5
Barriers to B2B Electronic Commerce
Enterprises with 10 or more Employees



Source: OECD, Measuring the Information Economy 2002, pg. 72

3.5 The Regulatory Climate for E-Commerce

The regulatory framework in Italy for electronic commerce is based on European Union directives and regulations that govern telecommunications, privacy, the information society, and value added tax. The EU directive on information society services, in particular electronic commerce (2000/31/EC), was issued on June 8, 2000. Member countries were to enact national implementation legislation to comply with the directives' provisions that form the basis for a legal framework within the European Union to insure the free movement of information society services between member states. Article 22 of the Decree stipulates *"Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive before 17 January 1992."* To date, Austria, Finland, Germany, Ireland, Luxembourg, and, most recently, Spain have passed enabling legislation. Italy has not publicly announced a timetable for considering legislation to comply with the E-Commerce Directive.

Data Protection and Privacy

The Italian Data Protection Commission (DPC) is charged with enforcing the body of law enacted to safeguard personal information in a variety of settings and situations whereby personal data is processed between EU and non-EU states. The DPC, or *garante*, is an independent agency whose sole responsibilities are to enforce, monitor, and penalize entities that violate any of the regulations concerning personal data protection, storage, retention or sharing across national boundaries. The text box citations refer to the principal statutes that authorize the DPC to carry out its duties and demarcate the perimeters within which it functions. Complete English language translations of the following excerpts are found

on the DPC's web site.[459] U.S. companies should consult with the DPC to ensure their businesses comply with the data protection regulations.

Protection of individuals and other subjects with regard to the processing of personal data Act no. 675 of 31.12.1996. Ensures that the processing of personal data is carried out by respecting the rights, fundamental freedoms and dignity of natural persons, particularly with regard to privacy and personal identity; it shall further ensure the protection of the rights of legal persons and of any other body or association. This Act shall apply to the processing of personal data carried out by any person whomsoever on the State's territory. Applies to the processing of personal data carried out by any person whomsoever on the State's territory.

An Act enabling the Government in the field of the protection of individuals and other subjects with regard to the processing of personal data Act no. 676 of 31.12.1996 Provisions enabling the government to issue legislation supplementing that already in force relating to the protection of individuals and other subjects with regard to the processing of personal data. Note: This Act provides the government the legal authority to enact legislation to enforce laws, EU decrees and regulations pertinent to data protection.

Decree by the President of the Republic No. 501 of 31.03.98 Rules on organization and operation of the office of the Garante [Supervisory Authority] for the Protection of Personal Data pursuant to Article 33(3) of Act no. 675 of 31.12.96

Legislative decree No. 171 of 13.05.98 Provisions applying to the protection of privacy in the telecommunications sector, implementing EC Directive 97/66, of the European Parliament and of the Council, and to journalistic activities

Legislative decree No. 135 of 11.05.99 [As amended by legislative decrees no. 281 and no. 282 of 30.07.99] Provisions Supplementing Act no. 675 of 31.12.96,on the Processing of Sensitive Data by Public Bodies

Presidential Decree No. 318 of 28.07.99 Regulations including provisions for laying down the minimum security measures applying to the processing of personal data in pursuance of Article 15(2) of Act no. 675 of 31.12.96

Legislative Decree no. 281 of 30.07.99 Provisions concerning the processing of personal data for historical, statistics and scientific research purposes This decree shall set out modalities for the processing of the personal data that are used for historical, scientific research and statistics purposes; in addition, safeguards shall be laid down in order to ensure respect for data subjects' rights and fundamental freedoms by taking account of the principles included in Council of Europe Recommendations no. R (83) 10, adopted on 23.09.83, and no. R (97) 18, adopted on 30.09.97.

Legislative Decree No. 171 of 13th May 1998 (as amended by Legislative Decree no. 467 of 28.12.01 – Amendments in italics) Provisions *applying to the Protection of Privacy in the Telecommunications Sector, Implementing EC Directive 97/66, of the European Parliament and of the Council, and Provisions Applying to Journalistic Activities.*

[459] Italian Data Protection Commission, http://astra.garanteprivacy.it/garante/

ELECTRONIC SIGNATURES LAW – IMPLICATIONS FOR E-COMMERCE

Italy was one of the first countries in the European Union to grant full legal validity to digital signatures. Of the various legislative measures enacted, the most important is Presidential Decree 513 of 10 November 1997, later incorporated in the Consolidated Law on Administrative Documentation (Presidential Decree 445 of 28 December 2000) amending and repealing Presidential Decree 513, and Legislative Decree 10 of 15 February 2002, which set out the primary regulations for the implementation of Directive 1999/93/EC.

Legislative Decree 10/2002 introduced the following changes:

- The introduction of various types of digital signatures with differing legal validity;
- A prohibition on the imposition of any requirement for prior authorization to engage in the activity of certification;
- The introduction of a voluntary accreditation system for "qualified" certification authorities.

In particular, Legislative Decree 10/2002 granted probative validity to documents signed with advanced ("strong") digital signatures (the digital signature in Presidential Decree 513/1997 is the main but not the only example of this type) in cases in which the signature is based on a qualified certificate and created with a secure system. To disavow a document created with such a signature the signatory has to undertake the complex action for fraud.

The legislative decree also permitted the use of "weak" digital signatures (digital signatures that do not comply with the technical and organizational security requirements envisaged for strong signatures). A document signed electronically with this type of signature will be recognized as a written document, but the courts are free to assess its probative validity.

Digital signature technology will enable more effective and extensive use of computerized systems in the management of electronic documentation, helping to streamline government activity and enhance the security of online transactions. The procedure uses asymmetric key technology (public key encryption), where the signature holder is assigned two unique keys: a "private" key, known and held only by the user, and a "public" key, which is distributed with the certificate issued by a certification authority.

The digital signature system is based on electronic certificates issued by bodies known as certification authorities, who are responsible for guaranteeing the association between the digital signature and signature holder; for publishing on their websites the list of public key certificates of the signature holders that use their certification service; and for maintaining an up-to-date list of suspended or revoked certificates.

The Ministry for Innovation and Technologies is the oversight authority for certification bodies. If certification authorities wish to provide "basic" services (i.e. offering an average level of quality and security), they are not required to give prior notice to the Department. However, if they intend to issue certificates with a high level of quality and security, acting as "qualified" certification authorities, they must notify the Department (including by electronic means) before beginning operations. The ministry's goal in 2003 is to issue and promote the use of 1 million digital signatures among the public, firms and persons with signing authority in government by year's end. Digital signature diffusion may also be facilitated with the distribution of the Electronic ID Card and the National Services Card, both of which are smart cards capable of storing digital signature certificates.

Certifiers may also apply to the Department to be recognized as "accredited" certification authorities if they meet the highest quality and security requirements. In this case, the certification authorities will be registered in a special public list maintained by the Department and checks will be carried out both before and after granting such status (certifiers previously accredited by the Italian Authority for Information Technology in the Public Administration (AIPA) maintain their status). Legislative Decree 10/2002 also grants validity to applications and returns submitted electronically to government departments that have been signed with a digital signature based on a qualified certificate issued by an accredited certification authority and generated by a secure system.[460]

Despite Italy's well-known predilection for inefficient and ponderous bureaucracies, it has taken the lead in the European Union to initiate an advanced, legally binding digital signature which will give computer contracts equal juridical standing as paper ones. If adopted and used by SMEs and larger firms on a large-scale basis, electronic commerce – both B2C and B2B – conceivably will take off as many market research firms have predicted in recent years.

Actalis, Italy's leading provider of ICT security and PKI services for the Italian banking sector selected Baltimore Technologies (UK) to provide the platform for securing interbank B2B tansactions in compliance with Identrus requirements. In one of the largest Identrus implementations worldwide, four of Italy's major banks were slated to go live with the service by early 2003. The four banks are: San Palo IMI, Intesa-BCI, Monte dei Paschi di Siena, and Banca di Roma. All are members of Gruppo Utenti Identrus Italia (GUII), an organization of seven Italian banks that joined the Identrus network. Additional banks have already committed to launch the service during 2003 and 2004.

Identrus LLC is owned by the world's largest banking institutions and is the Internet's only global trust system that allows organizations to manage B2B e-commerce risks through a trusted relationship with their financial institution. From its inception, Identrus opted for PKI as the security mechanism to underpin its trust system.

Actalis will be able to deliver the Identrus trust service to identify and verify the authenticity of electronic trading partners. And using Baltimore Technologies' certification platform will ensure the information integrity and non-repudiation for the creation and management of digital certificate based identifies and signatures.

Source: Baltimore Technologies/ December 16, 2002 press release, Milan, Italy.

Even though the institutional framework and sanction for widespread digital signatures is in place, in practice, very few have been issued to enterprises and virtually none to individuals. The government maintains, though, that as with automatic teller machines and credit cards, once the Italian citizen becomes familiar and comfortable with the technology, e-signatures, too, will gain acceptance. The government's plan to issue 3 million national service and electronic identify cards that have embedded chips will help to stimulate use of e-signatures in commercial online transactions.

Electronic Government (EGOV)

The European Union's eEurope Action Plan 2005 for the information society features objectives for EU member states to achieve in expanding and accelerating use of the Internet. One element central to achieving the above is e-government. The Action Plan embodies goals for member states in the e- government realm. These goals foster more interactive, citizen-centric services designed to familiarize people with the Internet by accessing these services via the Web. Three of the 23 indicators in the EU's benchmarking assessment pertain to e-government. They are: percentage of basic services online, public use of government online, and public procurement. Overall, the results among member states thus far are mixed and the pace at which more

[460] Ministry for Innovations and Technologies, www.innovazione.gov.it/eng/infrastratture/

services become available online will depend on numerous socio, political, and economic factors.

Italy's EgovStratgey dates from 2000 when it was first introduced to comply with the EU's information society initiative. Targets are similar to those stated in the EU Action Plan and the sequence in which the plan is implemented is predicated of establishing the institutional legal framework first before moving ahead with implementing e-government programs.[461] The government's strategy is composed of the following five key elements:

- **Service provision** - A set of high-quality services delivered with innovative methods to user-customers (citizens and businesses). In order to focus development efforts, a number of priority services for users have been identified for inclusion in digitalization initiatives. These services will be provided through a unified access point even when they involve more than one government department. In other words, the complexity of the public administration will not be apparent to users.

- **Digital identification** - Techniques for user identification and secure signatures adopting the Electronic ID Card, the National Services Card and digital signatures.

- **Access channels** - a multiplicity of innovative channels for accessing services: the Internet, call centers, cell phones, third-party networks, etc.

- **Service provision agencies** - efficient and low-cost back office operations for service providers.

- **Interoperability and cooperation** - establishment of standards for interfaces between departments that permit efficient and transparent communication with the outside world.

The lead Italian government agency responsible for implementing the strategy is the Ministry for Innovation and Technologies, formerly the Ministry of Industry (www.innovazione.gov.it). The government's guidelines for developing the information society in Italy were published in June 2002 and enumerate ten e-government objectives that were established by the Committee of Ministers for the Information Society. These objectives' are directed to the central administration of the government but are recommended for regional administrations and municipalities as well.[462]

The ten e-government objectives are grouped under five categories:[463]

Online services to citizens and enterprises

- All priority services available online
- 30 million electronic identity cards and national services cards distributed
- 1 million digital signatures issued by the end of 2003

Internal efficiency in government

- 50% of all goods and services sold via e-procurement
- All internal mail of the public administration sent via e-mail
- All payment commitments and orders to be managed on line

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[461] European Information Technology Observatory, EITO Outlook 2002, page 325-326.
[462] Ministry for Innovation and Technologies, government of Italy, www.innovazione.gov.it.
[463] Ministry for Innovation and Technologies, The Government's guidelines for development of the information society, pgs. 33-34, June 2002.

Human resources development

- Certification of computer literacy for all eligible public-sector employees
- 1/3 of all training via e-learning

Transparency

- 2/3 of all central government offices to offer citizens online access to administrative procedure files.

Quality

- All offices that deliver services must also have a system for measuring customer satisfaction.

Since the plan's inception, the government's achievement record is mixed. According to the European Information Technology Observatory, the Italian government ranks low among other EU member states in meeting the EU's benchmarks for e-government. The EU's 2002 eEurope benchmarking survey reported that only company registration was fully online. Other services, i.e., social contributions for employees, income tax filings, VAT declaration and notification, customs declaration, range from the 33rd to the 50 percentiles. However, more Italian citizens are taking advantage of specific services such as electronic income tax filing to avoid traditional and awkward off-line procedures. Although the government's plan to push digital certificates and national identify cards to access governmental services is ambitious, the funds allocated for implementing this element of the EGOV program are considered inadequate for the targets cited above.[464]

ELECTRONIC SIGNATURES

The Ministry for Innovation and Technologies plans to issue at least 1 million digital signatures by 2003 to the public, enterprises and civil servants with signing authority in government. The diffusion of digital signatures may also be facilitated with the distribution of the Electronic ID Card and the National Services Card, both of which are smart cards capable of storing digital signature certificates.

TELAMACO: Secure electronic filing in the business register. Infocamere, the Informatic Consortium of the Italian Chambers of Commerce, administers Telamaco. Infocamere falls under the Unioncamere, the National Association of Italian Chambers of Commerce. TELAMACO employs digital signatures and electronic payment systems to process the registration of an organization in the Italian business register. The Ministry of the Treasury's E-procurement website (www.acquisti.tesoro.it) led the government's *adoption of e-procurement. The site allows agencies to purchase equipment and supplies for their consumption.*

The city of Siena seems unique in its drive to apply ICT technologies to governance. It has extended broadband services to all citizens by erecting its own broadband infrastructure. Further, it has created a municipal portal for citizen-centric services, and has provided an e-commerce site for 80 companies that lets them market their products online. The city also introduced smart cards for various services. It is valid within the city's borders only.

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[464] EITO, EITO 2002, pp. 326-327.

3.6 The Information Society

Government continues to play a leading role in developing countrywide programs to facilitate the information society's reach to every citizen in Italy. The minister of the Ministry for Innovation and Technologies chairs the Committee of Ministers for the Information Society whose role is:

- To coordinate all public administration activities related to the information society;
- Oversee the definition and execution of a coherent strategic plan to implement the information society and associated activities

Other ministries included in the Committee range from economy and finance, communications, interior, labor and social policies to cultural heritage, education, universities, and health.

Although Italy has not passed legislation to implement the EU directive on electronic commerce, it has promulgated an action plan for the information society that was announced on June 16, 2000. The plan's thrust tracks closely with the EU directive's provisions and matches the *e*Europa 2002 and 2005 action plans. The chief areas of activity are:

- Human capital (training, education, research, development);
- E-government (citizen-centric government services, e-procurement, e-tax filing);
- E-commerce (coordination, regulatory and institutional framework development);
- Infrastructure, competition and access.

The government considers the plan to be a strategic initiative that cuts across all sectors of society, government, and the economy and that its implementation will elevate the economic growth rate by 20 percent, raise per capita income, improve governmental services, streamline operations of small and medium-sized enterprises, and broaden education opportunities for all.

Quantitative objectives for 2001 were:

- 15 laboratories and university courses in economics and ICT ;
- 5 centers of excellence devoted to ICT;
- 40 multimedia centers for training and ICT access;
- 1 computer for every 25 students at the primary school level, 1 computer for every 10 students at the secondary school level;
- 900,000 hours of training for teachers, organized at the regional level;
- Professional ICT training for 150,000 workers;
- Courses for computer literacy and social inclusion in southern Italy;
- 12 local portals at the district level and 12 business incubators
- Academic spin-offs;
- Exchange of university researchers and faculty with firms;
- Development of the Nuovo Mercato stock exchange with 20 new listings;

- Reform of bankruptcy law.

DIFFUSION OF COMPUTERS

The Government is also committed to obtaining approval for measures to increase computer access among students and employees. Current market trends will see the sale of about 2.5 million computers in 2001, including 700,000 to households. The incentives already contained in the accompanying measures to the Finance Law for 2000 were expected to increase the number of computers available to students and workers by about 20 percent. The current PC penetration rate in Italy does indicate the efficacy of this initiative as economic realities have restricted outlays for the information society goals, however. Fiscal resources earmarked for the information society's plan have been reduced and diverted to the central administration of the government.

E-COMMERCE ACTION PLAN OF THE INFORMATION SOCIETY

The Italian government recognizes the benefits that ICT adoption throughout all segments of society in the country will bring to the nation's economic and social well-being and to its improved standing among its industrialized neighbors. The Internet and applications such as e-commerce have opened up new vistas in the global market, contributed to ICT investments in factories, public and private offices, households and society as a whole, and accelerated the process of global economic and commercial integration. To the extent that electronic commerce may generate many new commercial opportunities, the most significant will be in the B2B sector and its impact will be most deeply felt among innovative small and medium-sized enterprises. Certain more specific actions must also be taken to complete the process of stimulating market supply and demand.

The e-Commerce Plan involves a series of actions and tools designed to accelerate the pace of change and help Italy reach the goals that it can and must attain.

Electronic commerce must be stimulated in all its forms and at each stage of its adoption. These include Web-based promotions of products and services, electronic transactions (contracts, orders, invoices, payments etc), the use of electronic procedures for internal company processes (legacy system) and the integration of activities with external systems upstream and downstream of the business (along the entire value chain).

The intended beneficiaries of the e-Commerce Plan are industrial, commercial, artisan and service-sector companies, with special regard to small and medium concerns. In fact, SMEs:

- Constitute the backbone of Italy's industrial system as regards both quantity (number of such companies, turnover and total employees) and quality (the specifics of their output and organizational structures);
- Are more flexible and capable of responding to market demands;
- Are the main engines driving expansion into new business sectors and geographical regions;
- Are highly exposed to international competition;
- Have a low capacity for technological and organizational innovation;
- Experience considerable problems in accumulating knowledge, developing plans and obtaining the human and financial resources they need.

The plan's success will depend greatly on the methods used, which currently are geared less towards targeted action on single companies or product lines, and more towards the creation of general conditions conducive to development and competitiveness.

Government-led intervention is therefore aimed at putting the right external factors in place, for example by encouraging ICT adoption, which boosts productivity, generates demand for products and services and improves the ICT system's efficiency which, with closer relations between businesses and political, economic and social institutions, may create development, wealth and employment.

The government's implementation plan for e-Commerce consists of seven main areas:

I. **THE SPREAD OF COMPUTER LITERACY AND THE DEVELOPMENT OF AN IT CULTURE AMONG ECONOMIC OPERATORS:** *In collaboration with Unioncamere (the Association of Chambers of Commerce) and various other trade associations, the creation of a National Network to guide and raise the awareness of entrepreneurs:* (a) National awareness-raising campaign, and (b) Computer-literacy course for 45,000 entrepreneurs, with the creation of 100 multimedia and technical help centers in local chambers of commerce and trade associations.

II. **SPECIFIC PROFESSIONAL TRAINING:** *English-language lessons and training in IT and Internet skills to be organized at local chambers of commerce and trade associations or in state schools. There are plans to introduce a professional certification system for teachers who will require training. All participants will be given IT equipment (a PC, printer, software), which will become theirs once they successfully complete the course: Goal:* 3,000 specialized teachers trained in English(with Universities)

III. **INCENTIVES FOR COMPANIES:** *Incentives for SMEs for the creation and launch of portals for particular zones, production lines and product sectors:* the creating 300 vertical portals with an average of 200 companies in each one.

IV. **High-tech start-ups:** *Within the framework of its relations with the social partners, the Government intends to develop relations between industry and the universities and encourage academic spin-offs. We therefore propose the rapid enactment of procedures to provide funding for the pre-competitive development of new companies and for start-ups of high-technology ventures, including the acquisition of risk capital. These measures can draw on the support of Sviluppo Italia*.

V. **Sectoral actions:** *Content.* Actions to be taken in conjunction with the Ministries of Culture and Agriculture to safeguard but also capitalize on natural and cultural assets that can be used in an electronic environment to enhance the country's tourist potential. *New Online Logistical Services.* The delivery of support services for e-commerce activities.

Campaign to encourage the digital signature adoption to drive the development of e-procurement and on-line transactions; Incentives for the construction of the platforms; Transportation operator training programs.

VI. System of rules

The approval of a bill on the registration of Domain Names and the subsequent enabling legislation to make it possible to set up an integrated system with reference also to industrial copyright, patents and trademarks.

Adopting the European Directive on electronic commerce and the enactment of enabling legislation. Formulating guidelines for codes of conduct, self-regulation in e-commerce, and actions to encourage out-of-court dispute settlement are to be considered in the process.

Within the framework of the European guidelines and in compliance with the principle of avoiding changes to the overall tax burden, arrangements for taxing on-line transactions have to be found that do not penalize Italian corporations.

VII. **Best practices and security**

The various duties and competencies currently scattered among several different committees are to be brought under the umbrella of a single Internet Board of Advisors, which will be supervised by the Committee of Ministers for the Information Society. The Board will provide assistance to the government in:

- Drawing up strategies for the development of online services
- Representing Italy at international meetings and events on matters pertaining to the regulation of Internet and on-line services

As one may readily surmise, the action plan for electronic commerce is ambitious, visionary, and costly. That the government has yet to establish a predictable, steady funding stream for these activities has tempered early enthusiasm for the Information Society. Although its membership and commitment to the European Union limits the government's ability to find its own way down the information highway of the 21st century, in many respects it leads its neighbors or soon will be there equal in ICT adoption as seen in wireless lines subscribed and the rate at which new Internet accounts are being established.

CHAPTER IV. MARKET ENTRY STRATEGIES AND BUSINESS OPPORTUNITIES

4.1 MARKET ENTRY STRATEGIES

Because of the time commitment, cost, and complexity involved in conducting international business, small U.S. firms should consider focusing their efforts initially on one or two foreign markets versus dispersing limited resources among many. Industry and market experts from various western European countries stress that a U.S. firm should base its choice on the demand for its technologies or service offerings in a particular country. Careful research, thorough planning, and detailed strategies can make the difference between success and failure.

UNDERSTAND EU AND NATIONAL DIRECTIVES, REGULATIONS, AND POLICIES

Although individual Western European governments make many of their own policies, many of the regulations and policies related to telecommunications, the Internet, and e-commerce in western Europe are determined and legislated at the EU level, as explained in Chapter 1.

Therefore, understanding the compliance requirements as well as opportunities presented by developments in EU policy and regulation is essential for U.S. firms to formulate successful business strategies aimed at entering and expanding in Spain, Italy, or any other EU market. The EU directives instruct member states to implement national legislation to comply with the directives' essential requirements. Some leeway is given to allow national government to fit the directive to national circumstances. Thus, it is critical to obtain pertinent legal advice when considering market strategies for EU member states, including Italy and Spain.

In some cases, the *need to comply with European regulations can make navigating the market somewhat complex*. For example, until the new EU telecommunications regulatory framework is transposed into nation laws, as scheduled for July 2003, licenses are required to offer various types of telecommunications services in Western Europe that might not require licenses in the United States. In another example, some form of representation in Europe that can assume legal responsibility for compliance with regulatory requirements is necessary to sell products subject to regulatory approval there, including telecommunications equipment such as modems. Finally, firms wishing to sell digital signature technologies in EU Member States must make sure their products comply with the requirements of the EU Electronic Signatures Directive.

Understanding EU regulations and policy developments also can provide valuable insight into market trends and opportunities that result from them. In many cases, market opportunities will arise as European companies or other organizations work to comply with EU mandates, such as the Data Protection Directive or the EU's push to have European governments offer more of their services online by 2005.

In another example, the stable legal framework created by the Electronic Signatures Directive is expected to encourage the use of digital signatures, opening up promising market opportunities for those companies which provide privacy-enhancing technologies and services. Nonetheless, it may be difficult

to persuade potential customers to accept a product that serves this function without complying with European standards.

Despite the EU's goal of complete harmonization of Member State laws with EU directives and regulations, in reality this is not always the case. As a result, European industry representatives stress that it is *important for U.S. firms to get legal advice on regulations at both the EU and national levels.*

Localize your Marketing Efforts

A key strategy for success is localizing products and services, as well as market entry strategies, for the target markets.

Governments require that some ICT products be certified to be sold in the region.

ICT hardware intended to be connected with telecommunications networks (both wireline and wireless equipment) must meet the following directives' requirements to be sold in the EU.

- Low Voltage Directive
- Electromagnetic Compatibility Directive
- Radio and Telecommunications Terminal Equipment Directive

CE mark. To prove compliance with these directives, products must be affixed with a Conformite European (CE) mark. This mark is a European proof of conformity with the essential health, safety, and environmental requirements of the harmonized EU directives. The CE Mark indicates that a manufacturer has satisfied all the assessment procedures specified by law for its products. The CE Mark is not a quality mark and only signifies to surveillance authorities that the product is in compliance with EU legislation. The accompanying declaration of conformity provides the details of the directive(s) with which the product complies and the standards relied upon in assuring compliance.

Product adaptation for local and regional markets critical to success

Although many people in Western Europe understand English, many more do not, and most people who do understand English still prefer to purchase goods and services offered in their own language.

There are 12 official languages in the EU. However, although Spanish is Spain's official language, it also has regional languages in its Autonomous Communities (Catalan, Basque, Galician, and Valencian). Other countries have languages, such as Germany, that differ from region to region, including between northern and southern Germany and Austria. Swiss German is its own distinct dialect.

In certain cases, localization is necessary even for those markets in which English is spoken, such as the United Kingdom and Ireland, because some words in American English are spelled differently and will be viewed as typographical errors.[3]

Language localization should be undertaken by a local partner or localization firm, not in the United States, to ensure cultural nuances are incorporated into the localization process. Brand and product

localization are not only key to easing customer accep-tance, but are critical to show that a U.S. firm is making a long-term commitment to the European market.

Localize your website.

Having a local-language website is an excellent way to advertise, establish a brand in Europe, or to attract customers to the U.S. firm. This website's content and structure (including "look and feel") should be localized to the target market/country. Hiring people to localize the website who have a native understanding of the target country's culture is the best strategy. However, for web sites, particularly those used for e-commerce, language issues can have many hidden costs. Native-language staff need to maintain the sites, answer customers' questions, and fulfill orders generated electronically, if this is desired.

Make sure your solutions are localized appropriately for your target markets.

U.S. firms should confirm that their technologies are compatible with local technologies, markets, and habits. Some technologies simply may not be used in Spain, Italy, or other countries in Western Europe, or may need to be modified for local habits or regulations.

A caveat about translating software

Spanish and Italian market specialists state that U.S. firms bringing their software products to these countries for the first time in an attempt to gauge market receptivity do not need to spend the time and money to localize the software for this initial step. However, for software to succeed in these markets in the long term, it must eventually be localized for language. A U.S. software producer may wish to seek a local partner who can perform this task.

Language localization is not as imperative for software programs that perform back-office and technical functions. Industry observers state that users of niche software products are often eager to obtain new software programs quickly and prefer not to wait for translations.

For instance, Western Europe's heavy usage of smart cards, as opposed to credit cards, means that credit card-centric online payment technologies do not generate nearly as much demand there as in the United States.

Localize your market entry strategy.

Market entry and expansion strategies must be adapted to the local markets and may differ depending on which country is targeted. Local industry observers state that many U.S. firms which simply try to replicate successful business models used in the United States often fail, because they do not take into account the differences and intricacies of foreign markets.

4.2 Have a Local Presence

Industry experts interviewed in both Spain and Italy stress that for smaller U.S. firms to serve their markets successfully, some form of local presence is essential. They state that it is extremely difficult for U.S. firms to serve their markets from the United States or third countries for a variety of reasons, and they caution against attempting this strategy.

A U.S. firm can develop a local presence either by setting up its own operations in the target market or by finding a local firm that can represent it there. Using local lawyers or consultants from the country is essential as well.

How a presence in the market benefits SMEs.

- It gives small U.S. firms more credibility, helps them overcome a lack of brand recognition, and shows commitment to the market. Industry observers report a wariness among end-users in Europe of foreign firms that want to sell a product or service without a local presence.

- Doing business in Western Europe requires long-term relationships. Establishing these takes time and can be done much more easily via a local presence. A local partner can be beneficial in this case, since a local firm might either already have the necessary relationships in place or, if not, is better situated in terms of language, culture, and logistics to develop new ones.

- Industry representatives in Western Europe state that communicating constantly with clients in their region is critical. Having a local presence makes this possible, especially if after-sales service is to be available 24/7. Local representation should include a local sales force as well as local support to provide reliable pre-sales and after-sales service, training, and timely delivery, all of which have become crucial as budgets tighten and the market becomes more challenging.

- Having a local presence makes potential customers more comfortable knowing that they will not need to call the United States (many time zones away) if they have questions, problems, or need technical or customer support.

- Local customers tend to trust a local firm better because it is subject to local legal liabilities.

- Having a local presence brings the U.S. firm critical firsthand knowledge about and understanding of the local market structure, sales cycles, economic trends, regulatory issues, and cultural factors and tastes.

- A local presence is particularly important in Spain and Italy for reasons specific to these countries.

In Spain and Italy, and other (Latin-based) southern European countries, business is very relationship-oriented, and "face-to-face" interactions are much more important than in Anglo-Saxon cultures such as the United States or the United Kingdom. A local partner will give a U.S. firm a local "face" and will use personal ties to locate and approach new customers more effectively and to develop and strengthen long-term personal relationships.

- In certain cases, a local presence is required. Spanish and Italian telecommunications operators frequently require that their suppliers have an office somewhere in the EU, if not in Spain or Italy. One reason for this requirement, besides after-sales support, is their desire to assure that every supplier is legally liable for any failure of its product to satisfy regulatory requirements in their countries.

WHICH FORM OF LOCAL PRESENCE?

An excellent option is to set up a local office and hire local employees to do marketing, training, and provide ongoing support for the company's products. However, for small U.S. firms just entering a foreign market, and with limited resources and manpower, there are lower cost options with which to begin. Each of these are detailed in the sections below.

Partnering with a large, established IT or telecommunications firm, systems integrator (SI), or consultant already active in the region.

Working with established, larger IT and telecommunications firms, systems integrators, or consultants already doing business in Western Europe can help a U.S. firm with its initial expansion into the region.

- Small companies in the international marketplace often lack the brand recognition and delivery channels enjoyed by larger firms. Larger firms help build name recognition by integrating the U.S. SME's technologies into their product or service suites, allowing the SME to reach customers it might not otherwise know about.

- In the context of the economic slowdown in Europe, references have become much more important to end-users. Large firms that integrate an SME's technology into a turnkey solution and can provide related services essentially serve as the SME's reference.

European industry representatives report that many ICT firms, SIs, and consultants working in the region (including European, U.S., and other firms) are constantly on the lookout for new leading-edge technologies from small U.S. firms.

Subcontracting to large, established firms in the telecommunications sector

Industry specialists state that U.S. SMEs can penetrate Western Europe's telecommunications markets most effectively as subcontractors or in partnerships with the larger equipment vendors or SIs already active in the region. For example, small U.S. telecommunications equipment providers could subcontract to major multinational infrastructure vendors such as Cisco, Ericsson, Lucent Technologies, Motorola, Nokia, and Nortel Networks, all of which are very active in Western Europe. SMEs whose telecommunications equipment competes directly with larger equipment vendors' products will have more difficulty establishing a foothold, but SMEs with niche products that are successful in the United States or elsewhere should be able to sell their products in Western Europe's markets as well.

Local industry experts stress that prior to choosing a local presence strategy, such as a partner or representative, the U.S. firm should visit the target market and try to understand firsthand the local market and business and consumer cultures. Trade fairs offer an excellent opportunity to carry out this function.

Partnering with a like-minded Western European ICT SME with complementary skills and solutions

Industry experts in Western Europe recommend that U.S. SMEs form strategic alliances or partnerships with small, well-established local technology firms that have complementary products or services. Both Spain and Italy have a large and growing number of such small, competitive firms, providing numerous partnering opportunities. At the same time, many Spanish and Italian technology SMEs are interested in finding U.S. partners.

Small Spanish and Italian firms seek partnerships with U.S. technology SMEs for various reasons. These include:

- Access to leading-edge Internet and e-commerce technologies. Many technologies associated with the Internet were invented in the United States, and thus U.S. firms are viewed in Western Europe as being at the forefront of Internet technology developments. Small software firms in Europe are eager to partner with U.S. Internet and e-commerce technology developers to gain the latter's technological expertise.

- Small local IT firms are eager to learn from their U.S. counterparts the latest trends and technologies in the more mature U.S. Internet and e-commerce markets.

- Some Spanish and Italian SMEs are eager to serve the U.S. market and view partnerships with U.S. firms as a means of achieving that goal.

Contracting with agents, distributors, or other representatives who can represent the U.S. firm and support its customers.

Like other partners, agents and distributors can assist a U.S. firm with their knowledge of the intricacies of the target market, including regulations, taxes, and end-user demands.

Agents and distributors differ slightly:

Agents. Agents generally take orders for and sell a product or service, but do not take possession of a product and are not directly responsible for payment. In most countries, an agent has more than one client and therefore may sell products or services that compete with those of the U.S. supplier. A distributor typically pays for a product or service that it resells.

- Local market experts state that small U.S. firms providing products for telecommunications end-users and services such as Internet or e-commerce consulting, and who do not choose to partner with a similar small IT firm, will need an agent to sell their services locally.

Distributors. Distributors sometimes combine their own products with that of the U.S. exporter, which makes the distributor more committed to selling the exporter's product. Traditional distributors simply sell products to resellers, with no further services. Value-added distributors perform additional services, such as training, maintenance, and technical support.

- Local market experts state that using local software distributors, who sell to systems integrators or directly to end customers, is a good avenue for U.S. software firms.

Finding agents and distributors

- Lists of agents and distributors are sometimes included in Industry Sector Analytical reports published regularly by U.S. Department of Commerce market specialists located in Spain and Italy.[3] However, market specialists state that lists change often because the industry changes quickly.

- Agents or distributors can be found in specialized magazines in the target country, similar to industry journals in the United States.

- Agents or distributors can be found by participating in trade fairs, such as the largest international IT fair, Germany's CeBIT, described below.

Agents and distributors are not recommended in some instances.

- *For U.S. SMEs in the ICT industries with highly sophisticated technologies, after-sales service, which often includes working closely with the customer on technology issues, is critical. This is a function likely best handled by the U.S. firm or an IT or telecommunications partner.*

- *Agents and distributors may not work very well in selling sophisticated services such as Internet or e-commerce consulting because of their lack of knowledge about these service offerings.*

- *Providing telecommunications or Internet services may require a foreign firm to build its own network or lease facilities, in which case agents or distributors have no role. A local partner would be the best route for an SME in this case.*

- The U.S. Department of Commerce provides an International Partner Search service that will locate and qualify potential candidates in target markets.[465]

Things to keep in mind about agents and distributors:

- Agents and distributors should be qualified to understand the technology, products and services offered, can provide customer services, and can cover the region under consideration.

- Always use a contract to establish the business relationship – the costs associated with terminating an agency or distributorship agreement can be exorbitant.

Companies planning to target the EU market should consult with the Country Commercial Guides (CCGs) prepared by the U.S. Department of Commerce.[466]

[465] Industry Sector Analysis reports are described in Chapter 5
[466] The International Partner Search Service is described in Chapter 5.

4.3 Spain – Regional Economies Are Important to Success

The Spanish market is made up of a number of regional markets joined by two major hubs: Madrid and Barcelona. The vast majority of agents, distributors, foreign subsidiaries and government-controlled entities that make up the country's economic power are located in these two hubs. Dealers, branch offices, and government offices found outside these two hubs will almost invariably obtain their supplies from their Madrid and Barcelona contacts rather than engage in direct importation. The key to a foreign firm's sales success is either to appoint a competent agent or distributor, or to establish an effective subsidiary in the Madrid or Barcelona areas. However, investment incentives designed to reward investors for establishing manufacturing operations in less developed areas have dispersed some investment from the major hubs in recent years.

Regional characteristics influence buying patterns. A competent agent or distributor considers regional variation when marketing his or her products. The Basque Country, part of Spain's north coast, and Catalunya, which includes Barcelona, are autonomies with ancient traditions and their own languages and cultures. There are 15 other autonomous communities in Spain (similar to U.S. states) with varying, but lesser degrees of autonomy and cultural identity. The official national language of Spain is Spanish which is used jointly with other official languages such as Catalan, Basque,Galician, and Valencian in specific autonomous communities.

Madrid is Spain's center for banking, administration, telecommunications and transportation and it serves as the headquarters of many large international companies. Barcelona is the capital of Catalunya. It boasts a strong industrial tradition, with primary industries in textiles, paints, chemicals, printing, plastics, electrical engineering, and machinery manufacturing. Barcelona and Bilbao, the Basque Country's industrial center, are Spain's leading ports.

As an important container port, the Bilbao region has extensive shipyards, steelworks, iron-ore mines, chemical and cement works, pulp and paper mills, and oil refineries. In eastern Spain, Valencia is the center of the Spanish furniture and ceramic industries, as well as a major center for citrus fruits and vegetables.

Seville, located on the Guadalquivir River, is the commercial center of Andalusia and is a major source of olive oil, cork, wine and other agricultural products. The free port city of Vigo, in the far northwest, is one of Europe's most important fishing and fish-canning centers.

Distribution and Sales Channels

As a result of the growth of the Spanish economy, distribution has become a key factor in supplying the consumer market. Different sales channels to consumers have developed significantly in the last few years, ranging from traditional distribution methods, in which wholesalers sell to traditional shops and those shops sell to the public, to more sophisticated methods, characterized by an increased presence of large multinational supermarkets, retail-stores and Central Purchasing Units.

The major competitors to U.S. exporters and investors in Spain are Western European firms. Japanese companies are also emerging as formidable competitors. Cost, financing terms, and after-sales service play important roles in a firm's marketability. Since Spain joined the EU, Member States' exports to Spain have benefited from lower tariffs than U.S. goods. Beginning January 1, 1993, import duties for all

EU goods entering Spain were zero while U.S. goods remain subject to EU's Common External Tariff. Almost all ICT products from the U.S. are exempt from duties in the EU, as required under the Information Technology Agreement of the WTO.

Nonetheless, American products are still competitive with EU exports, often due to the U.S.'s lower production costs derived from economies of scale. European exporters provide generous financing and extensive cooperative advertising and most of their governments support their exporting efforts with trade promotion events. Although U.S. products are well respected for their high level of technology and quality, U.S. firms often fall short of their competitors in terms of flexibility on financing, adaptation of product design to local market needs and assistance with marketing and after-sales service. Spanish procedures follow the rest of Western Europe, where price remains paramount. However, credit terms, marketing assistance and after-sales service are key factors in local purchase decisions.

The use of credit to purchase consumer goods is widely accepted in Spain, particularly in the cities, and banks compete aggressively to offer coverage. All major U.S. credit cards are used, including Visa, Master Card, American Express, and Diners Club. Department stores and some upscale retailers sometimes offer their own credit, particularly for purchases of large ticket items. Consumer credit is commonly used for the purchase of cars and homes. Housing developers, automobile dealers and some manufacturers offer direct consumer financing.

Direct Marketing and Electronic Commerce

Direct marketing is a favored distribution tool in Spain. In 2001, this sector's annual sales reached USD 1.44 billion. The Spanish Association of Direct Marketing forecasts 8 percent annual sales growth at least through the year 2005. Several factors have fueled direct marketing in Spain. They include technological advances in printing and distribution, a steady development of credit card use, and changing lifestyles. The Spanish urban population is moving out of the cities to residential areas, which are often away from the main commercial centers. Therefore, these communities use mail order to fulfill their consumer needs. Also, more women are entering the job market and are seeking ways to save time in making household purchases. Consequently, mail order and TV direct marketing have become increasingly popular and profitable.

Recent reports indicate that direct marketing is the non-conventional advertising medium (i.e. direct marketing, directories, point of sale advertising, street and road signs, trade shows, promotional items, sponsorship and pharmaceutical advertising) with the highest increase rate and the one showing the highest level of advertising investment among general advertising media, even over television and newspapers. Mail order houses lead the direct marketing sector in Spain. This sub-sector makes up over 43 percent of total direct marketing sales at present. Mail order companies sold $616.8 million during 2001, a 3.8 percent increase over 2000 and these sales figures are expected to increase by another 4 percent by the end of 2002. Approximately 90 percent of total mail order sales, (USD 555.1 million) were made to individuals and households. The remaining 10 percent, USD 61.7 million, were to businesses, government offices and other institutions. In 1999-2000, mail order sales registered a growth of 8 percent and reached billings of USD 608 million, 94 percent of which was sales to end users and 7 percent sales to firms (business to business). The main categories are credit cards, cosmetics, health and hygiene, collectibles, etc. (32 percent), books, records and training materials (28 percent), housewares (18 percent), and apparel and textiles (16 percent).

Telemarketing firms had sales revenue of $565.23 million in 2001, and their sales are expected to reach $633.05 million by the end of 2002. Most of the telemarketing firms' sales were achieved in the months of March, May, June, October and November in the regions of Madrid, Catalunya, the Basque Country and Andalucia. The telemarketing companies in Spain had telephone expenses of $71.7 million in 2001 and had 15,000 telephone lines in operation at call centers.

Television direct marketing companies started to operate in Spain in 1990, when television was opened to private broadcasters. Since that time, television direct marketing has become increasingly popular and profitable. Television direct marketing companies had sales revenue of $124 million during 2001. Direct mail advertising firms achieved sales of $131.2 million in 2001 and their sales are expect to reach $138 million in 2002.

Internet B2C is starting to compete strongly with mail and television direct marketing but it is still under development in Spain. B2C complements conventional direct marketing channels, as is proven by the profitable Internet versions of the largest catalog companies in Spain and the huge increase of telemarketing to promote Internet financial and insurance services. It is estimated that approximately 8.75 million users had access to Internet. According to industry sources, over 1,100,000 people bought products and services via the Internet in 2001. Spanish consumers average two to three online purchases a year, spending approximately USD 200 per annum.

Trust is an important competitive factor in this market. Often, consumers trust the direct marketing firms who are members of the Spanish E-Commerce and Direct Marketing Federation (Federacion Española de Comercio Electronico y Marketing Directo). Membership implies adherence to a number of ethical codes. The Spanish Parliament passed a Data Protection Omnibus Law in October 1992. Known as LORTAD, the law regulates all aspects of data protection against the misuse of personal data.

It is estimated that approximately seven million users have access to Internet, about 20.3 percent of the population as of October 2001. Of this number, only 12.5 percent make purchases online. On average, Spaniards make two to three online purchases a year, spending approximately a total of USD 200.[467]

On average, over 24 percent of Spanish firms are now present on Internet (around 204,000 companies) and it is expected that 50 percent will have web sites by 2003. Most companies currently consider Internet as a vehicle to generate greater awareness of their brand name, products and services, while sales rank fifth on the list of their priorities. Most of the leading stores are now online, and utilities are sponsoring the most important B2B marketplaces.

Despite reservations arising from different traditional purchasing habits and concerns about security on the Internet, internet usage is expected to maintain a strong growth, both on the domestic and the business side, over the coming years.

Furthermore, the Spanish Government, in order to promote the new Information Society in the country, has launched a program called INFO XXI, a USD 4.8 billion action plan focusing on different Internet related initiatives, from e-government to providing access from schools and rural areas to the Internet.

[467] U.S. Department of Commerce. *Country Commercial Guide for Spain, 2003.*

JOINT-VENTURES/LICENSING

Another way for a U.S. company to penetrate the Spanish market is through a joint venture. There are different types of joint ventures which companies may pursue. For example, it is common for companies to invest as minority shareholders in existing companies, or to set up jointly controlled companies. Other joint ventures consist of companies that take majority stakes which fall short of full ownership or join temporary arrangements with other companies. A description of temporary joint ventures under Spanish law follows. For other forms of joint ventures, such as setting up a company in Spain with a local partner, see the subsection entitled "Steps to Establishing an Office in Spain."

A group of companies can form temporary business associations (Uniones Temporales de Empresas - UTE) to undertake specific projects for a limited time. This type of association does not have a separate legal personality. Therefore, companies maintain their legal status while allowing common operations under a pre-established set of rules. Foreign companies can enter this type of arrangement.

An Economic Interest Group (Agrupacion de Interes Economico -AIE) is also a type of joint venture between Spanish participants (please note that American companies established in Spain are considered Spanish companies). It is similar in concept to a partnership because its participants have joint and separate liability for their debts. To form an AIE, the participants must execute a public deed, incorporating bylaws, and record it at the commercial register. The internal operation of an AIE is similar to that of a corporation and one can transform an AIE at any time into any other type of commercial entity.

There is also a European version of the AIE, the European Economic Interest Group (Agrupación Europea de Interés Económico -AEIE). This is a cross-border version of the Spanish AIE introduced by EU Regulation 2137 in 1985. A local AEIE is a separate legal entity and must be incorporated in Spain and recorded in the commercial register. In most respects, it is similar in constitution and operation to an AIE.

These three models of joint ventures are tax transparent, and they apportion their income among members. In all of these cases, the members are responsible for losses and profits.

License contracts in Spain may cover industrial property rights (patents, utility models, trademarks), intellectual property rights (rights of use for literary, scientific or artistic works, or software), know-how or other uses of technology. Regarding the contents, Spanish regulations allow the parties a wide range of freedom to negotiate the terms and conditions of the agreement. Even so, there are many clauses common to this type of contract:

- exclusive clauses, sometimes complemented with exclusive purchase obligations;
- measures to limit the licensor's commercial activity;
- confidentiality and non-competition obligations;
- obligations relating to improvements and innovations (this includes updating the rights granted to the licensee and communicating to the licensor innovations developed by the licensee); and
- indemnification in case of breach of contract by one party.

In Spain, license contracts are only valid if they are drafted in accordance with regulations. License

contracts for trademarks, patents, and utility models must be in writing, and the Spanish Patent and Trademark Office must register them before they take effect.

The license contracts covering intellectual property rights (copyright) must also be in writing. If the author of a contract requires it to be recorded in writing, and the licensee fails to draft such a contract, the author may rescind the contract. Publishing contracts must also be formalized.
There are other license contracts which are not subject to special requirements or form. Please note that under Spanish law, the term intellectual property is limited to the author's rights (copyright) and does not include patents and trademarks (industrial property rights). Under Spanish law, a royalty is defined as the consideration paid by the licensee to the licensor for the knowledge transmitted. The knowledge may or may not be patentable, but it must allow the licensee to use it within a commercial or industrial process.

Steps to Establishing an Office in Spain

The first decision a foreign investor in Spain must make is whether to incorporate a subsidiary (i.e., a separate corporation) or a branch. Both have full legal status and their profits are taxable in Spain.

If the investor decides to incorporate a subsidiary, the next decision is whether to incorporate a public limited-liability company (Sociedad Anonima, SA) or a private limited company (Sociedad de Responsabilidad Limitada, SL or SRL). The structure of the SA is for larger operations and the SL for smaller. Three other kinds of business entity can be formed, but they are not so frequently used: General Partnership (Sociedad Regular Colectiva), Limited Partnership (Sociedad en Comandita), or Limited Partnership by Shares (Sociedad en Comandita por Acciones).

Shareholders in corporations (S.A.) and limited liability (S.L.) companies are not liable for the company's debts. The main differences between them are in their capital (10 million pesetas versus half a million), the number of founding members (three versus two), flexibility permitted at general meetings, transfer of shares and management of an SL.

Companies interested in setting up operations in Spain should obtain legal advice. Major consulting groups and law firms are available to help firms incorporate. A summary of the steps involved follows.

(A) To acquire legal status, an American firm must follow the following steps:

- Registration of company name: Promoters must certify that the name chosen for the future company is not already registered. Applications must be presented at the Central Mercantile Registry. The certification is valid for two months.

- Public deed or incorporation charter: The founding partners sign the constitution deed for the business according to the company's charter. This is done at any of the notary publics that exist in Spain. Both the name certification and the company's charter are required.

- Pay asset transfer tax and legal proceedings document tax: These are taxes paid for new incorporation (they amount to roughly one percent of capital stock). The company has to pay the taxes at the provincial tax delegation where the company incorporates. Necessary documents: a completed form model 600, and both a legalized and simple copy of the Public Deed (provided by the notary public).

This must be done within 30 working days from the date of the Public Deed.

- Acquire the Tax Identification Code (locally called CIF - Código de Identificacion Fiscal): This number becomes the means of company identification and is required for all transactions. The provincial tax delegation provides the code. Necessary documents: form model 036, a copy of the public deed, and a photocopy of the applicant's I.D. if it is a partner or a photocopy of the power of attorney authorizing the applicant. This must be done within 30 working days from the signature of the public deed. The CIF number must be withdrawn within six months of application.

- Registering the company: The company must register at the corporate registry corresponding to the incorporation address. Necessary documents: first copy of the public deed (provided by the notary public) and certification that taxes (see above) have been paid. On average, it takes two months to complete registration.

(B) To start any economic activity the following are required*:*

- A fiscal license: Companies must get a fiscal license. This is a local tax levied on fiscal year activities and can be acquired at the local tax administration. Necessary documents: I.D. of the individual or C.I.F. (tax identification code) for companies, I.D. of the legal representative, and motor vehicle tax and technical inspection card if it is a transport enterprise. In some professional services the approved seal of the professional association or bar is required. The individual or company must request this license 15 days before starting any economic activity.

- Census declaration: Companies must register in the corporate census for Value Added Tax purposes and inclusion under the personal tax declaration system. This is done at the local tax administration. Necessary documents: a photocopy of C.I.F. (tax identification code) and identity card. Documents must be submitted prior to the beginning of business activity.

- Tax books: Regulations establish that companies must reflect different internal operations in special books: an income and sales book, an expenses or purchase book, and an inventory book. Necessary documents: fiscal license and photocopy of I.D. The local tax administration must legalize the books within 30 days following the issuance of the fiscal license. As of January 1999, with Spain's participation in the European Monetary Union, companies may have begun to keep their books in euros.

(C) Social Security Registration*:*

- Registration of a company: Once incorporated and ready to start operations, companies have to register with the Social Security system. This registration is unique for each province where a work center exists. The self-employed have to register as well. Necessary documents: a copy of the deed of the constitution of the company and photocopy of the applicant's I.D. or power of attorney. For individual businesses, an I.D. is needed. This procedure also requires a contract with the Workers Compensation Fund. The local Social Security delegation carries out the necessary procedures.

- Opening communication: Communication of the opening of the work center or resumption of economic activity must be done within 30 days of opening. Companies and individual businesses must also keep two logs: a visitor's log and a personnel registration book. This needs to be completed at one of the

Social Security's provincial delegations. Necessary documents: details of the company and work center plus a description of business activities.

(D) The town council may require the following procedures (it varies from town to town):

Municipal tax liability depending on the street category.

- Construction licenses if there is going to be any work carried out on the premises to adapt it to the new economic activity.
- Opening license that accredits that the project's installations conform with municipal regulations.
- Notification every time there is a change in ownership.

(E) Other specific requirements

- Industry Property Registry for trademarks, patents, commercial names, distinguishing signs, industrial models, etc.
- Industrial Registry for industrial activities, workshops, toxic or dangerous substance warehouses, and manufacturing operations of any product.
- Company Qualification Certificate for construction, installations and/or electrical repairs, wood and cork sectors, and engineering and consulting activities.
- Identification papers or certificate for individual persons or companies involved in electrical installations, gas, air conditioning and compressors.
- Special Registry for food industries and wholesale establishments (except supermarkets and hyper-markets).
- Special Registry for industries that transform and store agricultural products.
- Special registry for manufacturers, importers, retailers and distributors of gambling equipment.
- Commencement authorization for bars, cafeterias, restaurants and hotels.
- Application license for travel agencies.
- Special registry for companies involved in the security sector.

SELLING FACTORS/TECHNIQUES

Until recently, customer satisfaction was not a major concern in Spain. Foreign distribution companies that have entered this market have introduced this concept. Spain passed a new product liability law in July 1994 to protect consumers. Relationships are still very important in selling U.S. products in Spain. This factor is sometimes more important than price or quality, especially in large account sales. The decision-making process within a Spanish company is different from that in the United States. In Spain, for example, the company's leading executives are responsible for decisions. This person takes action after review by different departments, making the sales process longer. An initial "yes" usually means that the company will study the situation, and not necessarily that it will buy the product.

Department stores, hypermarkets, shopping centers and very specialized outlets are introducing the "fidelization", or customer fidelity concept, which usually involves issuing of client cards, cumulative discounts and special offers for frequent customers. New selling techniques are becoming very popular. Vending machines have spread throughout Spain in the last decade. Direct marketing by mail order, telephone, TV or electronic commerce is growing considerably (see Direct Marketing section). Demand for logistical services is also rising sharply. Otherwise, selling techniques, taking into consideration local tastes, are very similar to those in the western world.

(A) Advertising

Television

Almost every Spanish home (99.7 percent) has a television and ninety-one percent of Spaniards watch television each day. Peak viewing hours are 2:00-4:00 p.m. and 9:00-11:30 p.m. Prior to 1990, state-run *Televisión Española* (Channels 1 and 2) and regional stations run by the autonomous governments were the only options available to Spanish viewers. In 1989, the Spanish government authorized the creation of commercial television and issued licenses to three national private commercial channels (Antena 3 TV, Canal Plus, and Telecinco). Under the *Real Decreto-Ley* of January 1997, Spain adopted EU regulations Directive 95/47/CE in order to undertake measures for the liberalization of TV. The Liberalization of Telecommunications Act took effect December 1, 1998, and cable TV is starting to be introduced at a local level.

On January 8, 1999, Spain's Council of Ministers called for a competition to manage the introduction of terrestrial digital TV throughout Spain. Terrestrial digital TV went on the air on June 30, 1999.

Radio

Almost 60 percent of Spaniards listen to the radio every day, most (two-thirds) to FM. Spain has 16 networks, 811 FM stations and 129 AM stations. Peak listening hours are early in the morning and late at night.

Wire News Services

The three major Madrid-based news agencies are EFE, Europa Press and Colpisa.

AGENCIA EFE: Government owned EFE was founded in 1939. EFE News Agency gained international prominence in a remarkably short time. In 1966, with the inauguration of the Buenos Aires bureau, EFE entered the American market where AP, UPI, Reuters and AFP were already in close competition.

Print Media

Today, Spain publishes more newspapers and magazines per capita than any other European country. Ironically, circulation figures are among the lowest in Europe and are attributed to the lack of newspaper readership. Only thirty-six percent of Spanish citizens read newspapers every day; of these, sixty-five percent hold a university degree and fifty-four percent belong to the upper middle class.

There are approximately 120 daily newspapers in Spain. Five major media holding companies own most of them: Grupo Prisa, Grupo Godó, Grupo Zeta, Grupo Correo, Grupo Voz. The most influential national dailies are Madrid's left of center *El País*, centrist *El Mundo*, conservative *ABC*, and Barcelona's centrist La *Vanguardia*.

Daily News Papers. In the year 2000, the circulation of the major national dailies increased a 1.1 per cent with regard to 1999. Over 140 different dailies (mainly local) plus eight supplements are published in Spain. However, sports daily newspaper Marca continues to be the paper with the most readership (2,256,000).

(B) Product Pricing/ Payment Terms

Pricing practices in Spain are similar to those of the United States, although markups tend to be slightly higher. Products and services in Spain are subject to a Value Added Tax, which is presently 16 percent. A reduced rate of 7 percent is applied to the sale and imports of human or animal foodstuffs, water, agricultural chemicals, pharmaceuticals for animal use, medical and health products, mopeds, personal dwellings, hotel and restaurant services, transportation services, agricultural services, street cleaning services, entertainment services, building and construction services, medical services and funeral services. A further reduced rate of 4 percent is applied to bread, dairy products, eggs, fruits and vegetables, books and newspapers, pharmaceuticals for human use, vehicles and medical items for handicapped people and vehicles for public transportation. The VAT is not imposed in the Canary Islands, Ceuta and Melilla. The General Indirect Canarian Tax of 4.5 percent is imposed in the Canary Islands.

Payments are usually based on 30, 60 or 90 day terms. Large corporations (including large retailers) negotiate or impose longer payment terms that can last up to six months. The government defers all payments. Depending on the department, payments can be deferred up to one year. Product pricing must also include the necessary financial charges.

Companies in the United States also need to be 'euro-ready' as Spain is one of the 12 countries participating in the Economic Monetary Union. From January 1, 1999 to January 1, 2002, the euro went through a transitory phase during which only financial transactions that do not require the physical use of bills and coins –- mainly bank operations — were done in euros. Circulation of euro bills and coins began on January 1, 2002. On March 1, 2002, individual currencies disappeared and the euro became the official currency. Additional information on the euro can be found in the following web page: http://www.europa.eu.int/euro .

(C) Sales Service/Customer Support

Demand among Spanish consumers for sales and customer service is growing. All technical products and most consumer products have sales service/customer support. Regulations require that sales service be available for government procurement.

Customer support is not as developed as it is in the United States. Many shops have no return policies. Only large department stores and new retailers (usually foreign) have liberal return policies similar to those in the United States.

(D) Selling to the Government

In Spain, all different levels of administration (Central Government, Autonomous Communities, Local Municipalities and companies that have over 50 percent government ownership) have to follow certain procurement practices encompassed in Law 13/1995, Contracts With Public Administration, decreed in November 19, 1995.

The Authorities that are allowed to contract or obligate funds on behalf of the Government are:

- Central Government: Ministers and State Secretaries

- Autonomous Communities: Legal representatives as established by the local government (usually a member of the cabinet)
- Local Municipalities: The Mayor or any other formally designated official
- State-owned companies: The Chief Executive Officer.

Furthermore, any contract over 2 billion Pesetas (just over USD 12 million at current exchange rates) requires approval by the Council of Ministers (Executive Cabinet).

All potential suppliers to the Spanish Government (both foreign and domestic) need to register with the Ministry of Economy in the 'Registro Oficial de Contratistas.' Any company that can prove economic/financial as well as technical solvency is eligible to contract with the government. A company can demonstrate its economic/financial solvency by proving the security of financial risks, shares, business balances and cash flows, and by stating its global business obligations. Technical solvency can be established by means of academic titles, experience, description of work done in the past five years, and via machine, materials and technical equipment at the company's disposal for the completion of the work.

There are three different types of contractual proceedings: open, restricted and negotiated. In open proceedings, all opportunities are published and open to all interested companies. It is more difficult for foreign companies to participate in restricted proceedings. Between five and twenty companies are invited to present their documentation for evaluation and, upon completion of this process, qualified companies are invited to bid. Negotiated proceedings are even stricter. No less than three companies are invited to bid and invitations are presented based on known qualifications, so documentation is not necessary. In certain situations, urgent or emergency proceedings may be necessary and will follow different rules. Government agencies can also pre-qualify companies and invite them for a restricted procurement. Although this is a practice that governments often use for military and other sensitive procurement, it can also be applied in the environmental technology field.

All requests for proposals must be published in the 'Boletin Oficial del Estado' a publication similar to the Federal Register. Invitations to bid on government contracts are published at least 26 calendar days before the due date of bids. In addition, all contracts above USD 4.5 million are published at least 40 calendar days before the due date of bids in the European Community Bulletin.

The procedure to bid for a specific tender is relatively straightforward. All proposals are kept secret and must be accompanied by proper documentation. This information should include:

1) Accreditation of the legal representation used by the company.
2) Proof of economic, financial, technical or professional solvency and competence plus a declaration that the company is not prohibited from contracting.
3) Provisional guarantee must be accredited to prove it has been deposited.
4) For foreign companies, formal acceptance of the jurisdiction of the Spanish courts if necessary (Spanish legal representation is required).
5) Accreditation of having met all fiscal and social security obligations.

Foreign companies wishing to contract with the Spanish government need to validate all certifications with the Spanish Consulate. It is possible for foreign companies to be involved in the negotiated and restricted procedures if qualified. According to local law, all foreign firms must have a legal presence in Spain (formal agency agreement, distributor, branch office or subsidiary) before bidding on contracts. In case of dispute, the Spanish national and local governments will only recognize Spanish courts.

Arbitration procedures are not accepted.

American companies interested in bidding for a contract with the public administration must contact Spain's Embassy in Washington, D.C., to document their compliance with the norms.

Embassy of Spain
Commercial Service
2558 Massachusetts Ave. N.W.
Washington, DC 20008-2865
tel: (202) 265-8600
fax: (202) 265-9478

PROTECTION AGAINST IPR INFRINGEMENT

Spain is a signatory to the Paris Convention for the Protection of Industrial Property. The Spanish Patents Act of March 20, 1986, brought Spain into conformity with the European Patent Convention and the anticipated EU Patent Convention as a requirement for its entry into the EU. Both the Trademark Law of November 1988 (Law 32) and the Intellectual Property Law 1750/87 address protection for brand names and trademarks. Spain is also a party to the Madrid Agreement on Trademarks. These laws follow EU standards. The Intellectual Property Law of November 1987 offers copyright protection.

Patents: A nonrenewable 20-year period for working patents is available if the patent is used within the first three years. Spain is revising its patent laws for chemicals, pharmaceutical, and biotechnology to conform with EU standards.

Industrial Designs: Known by their form or external characteristics, industrial designs are eligible for exclusive exploitation for renewable periods of 10 years. Although third parties may oppose registration on the basis of similarity to already registered models, registration is not forfeited because of nonuse.

Trademarks: The Industrial Property Registry provides protection of trademarks for a 10-year period from the date of application. Trademarks must be registered for protection and may be renewed. Protection is not granted for generic names, geographic names, those that violate Spanish customs or other inappropriate trademarks.

Copyrights: The law extends copyright protection to all literary, artistic or scientific creations, including computer software. Spain and the United States are members of the Universal Copyright Convention. For protection, U.S. authors must register with this organization.

The Office for Harmonization in the Internal Market (OHIM) for the registration of community trademarks in the European Union started its operations in 1996. Its headquarters are located in Alicante:
Oficina de Armonización del Mercado Interior
(Office for Harmonization in the Internal Market)
Avenida Aguilera, 20
03080 Alicante
Tel: (34/96) 513-9100
Fax: (34/96) 513-9173

4.4 Italy - Personal Relationships and Market Fragmentation

American businesses will find that marketing in Italy offers unique challenges, but no overwhelming problems. More than 7,500 American companies are actively represented in Italy, with approximately 850 of them having subsidiaries there. U.S. executives may find that some commercial practices differ from those in the United States, but most will be very familiar. The system of retail and wholesale distribution, for instance, centers on small family-operated stores, although the supermarket-type operation has gained importance and there are a number of substantial department store operations.

Marketing products in Italy is achieved through a variety of channels, depending on the product's characteristics, the customer and how he/she buys, the geographical region, and the marketing strategy employed to market the product. Brokers, commission merchants, and independent representatives are used extensively for the sale of raw materials, semi-finished products, and capital goods to the larger manufacturing organizations. However, well-established distributors are normally employed to reach industrial firms as well as the large number of wholesalers and retailers engaged in the marketing of consumer goods.

If the product normally has a high sales volume and low profit margin, the Italian firms seek to deal directly with the manufacturer. Sales to a department store, chain store, or end-user often yield the best sales results, but require greater promotional effort by the American exporter. The direct sales method eliminates the added shipping and warehousing expenses, but the U.S. exporter and Italian importer must handle the shipping formalities and expend greater effort to ensure a successful business relationship.

Distribution and Sales Channels

Retail Distribution in Italy

As Italy has a population of 57.7 million, its retail distribution sector is large in total sales and serves the consumer at the retail level through numerous small, family-owned, retail outlets rather than large, mass market operations. The market offers many commercial opportunities because of the large sales volume and a lack of competitive companies. Many large retail stores have recently been opening on Sundays. Recent legislation has liberalized the range of products and hours of operation permitted at retail outlets and should promote a more modern, competitive retail system.

In order to satisfy Italian consumers, firms operating in the Italian retail distribution sector find that they must invest large amounts of money in new techniques, management, research, media promotion, and equipment. The industry's average return on investment is approximately 13 percent. In terms of existing points of sale, there is a trend away from the family-type stores and street vendors to the distribution chains. Italian distribution systems include small family-owned stores, street vendors, supermarkets, shopping malls, specialized stores and discount stores.

Horizontal points of sale such as general stores, which had experienced boom conditions in the early 1980s, have begun to lose ground to specialized stores, franchising chains, and hypermarkets. To create a unique business identity, department stores have begun a process of realignment and now tend to attract the more affluent, quality-oriented consumers, as well as compete on price and product selection. Supermarket chains now look toward further expansion, particularly in creating and operating large shopping malls. Where such shopping centers exist, they are proving to be successful.

The Italian retail distribution system is faced with the new challenges of competition and technology. It is in the process of being reorganized in terms of number of points of sale and of marketing strategies. The small traditional retail outlets are considered obsolete, but the Italian distribution groups are still too small in many cases to compete effectively with large chains operating in some of the other European nations. A process of internationalization is now taking place among Italian and foreign chains with some agreements already signed. There is, however, room for more.

Using Agents and Distributors; Finding a Partner

Italy represents a large and affluent market where language and personal relationships are valued when conducting business transactions. Consequently, local presence is generally required to be successful in capturing market share. American firms have found that relying on local Italian sales agents or distributors, who have the contacts and understand the market, can most effectively develop sales.

There are important distinctions in Italian law between distribution and agency agreements.

- *Agency*. Agency contracts are governed by the Italian Civil Code and by a number of other legislative decrees. An Italian agent for a foreign firm is generally regarded as being authorized to act for the firm. Depending on the contract, the principal may be subject to termination compensation payments and to income taxes and other levies on sales effected through the agent.

- *Distributorship***.** Under this arrangement the local distributor takes title of the merchandise and assumes the risks, and has the obligation to pay any taxes. Distribution agreements are subject only to the terms of the contract itself. There are no laws or regulations currently in effect in Italy providing for advance notice of termination, termination compensation, or social security payments in connection with these agreements.

- Frequently, a distributorship agreement provides for exclusive sales rights. There is nothing in Italian law preventing exclusive arrangements in all or part of Italy. However, if these agreements provide for exclusive sales rights in all or part of the EU, they should be examined carefully, and with the assistance of a competent international lawyer, in light of the antitrust provisions of the EU regulations.

Appointing an Agent or a Distributor

It is important to obtain specific legal advice on appointing an agent or distributor. However, some general guidelines apply and are outlined here. Italy implemented the EU directive 86-653 in October, 1991. As a result, Italian agency law is now in conformity with EU requirements. All agent agreements should be in writing and state the marketing area and any exclusivity arrangements.

Agency termination is the area that most frequently causes problems for American exporters. Generally, the civil code protects the interests of the representative. In the absence of termination provisions in a written agreement, the law provides for a minimum notice of termination of one month during the first year of the agreement, two months during the second year, three months for the third year, four months for the fourth year, five months for the fifth year, and six months for the sixth and additional years. Parties may agree to other terms, provided the notice of termination is not less than the above. An agreement with a definite period terminates on the agreed expiration date. If the parties continue to

operate under the agreement after that date, the agreement becomes an agreement of indefinite term, which can be terminated in accordance with the aforementioned notice periods. If the American principal wants to terminate the relationship, notice of termination should be given, even with a definite term contract.

The termination of an agreement without the required notice makes a U.S. principal liable for compensation. The Italian sales agent could seek to claim the amount of the commissions that would have been earned during the termination period or for the amount of actual damages suffered. In exceptional cases, and only for just cause (such as competition or fraud), an agreement may be terminated without notice provided the other party is immediately advised of the reason. In such cases, the courts may be requested to terminate the contract.

At the expiration or termination of an agreement, by whatever means, an agent who has increased the value of the business is entitled, in principle, to an adequate remuneration which cannot exceed the average of the commissions in 1 year. Such claims by agents are subject to an expiration period of 1 year.

Three kinds of distribution agreements are commonly used:

- Exclusive distributorships, where the distributor has the sole right to sell specified goods within a defined area.

- Quasi-exclusive distributorships, where the distributor sells almost all the specified products within a defined area.

- Informal distributor arrangements, under which the grantor imposes heavy obligations on the distributor and which would cause damage to the distributorship if the grantor terminated the agreement.

In the absence of mutual agreement, or the failure to meet contract obligations, a distribution agreement of indefinite term cannot be terminated by the grantor without reasonable notice or fair compensation. In general, grantors should consider protecting themselves by entering into agreements for definite periods rather than an indefinite period. Also, specific minimum performance clauses should be considered, such as percent of distributor's sales, minimum annual sales, and number of business contacts to be made, and grantors should propose that U.S. law and courts have jurisdiction.

A continued and close working contact between the American firm and the agent or distributor is very desirable and should be developed early in the relationship. Certain products and equipment require servicing to maintain their useful life. The U.S. exporter should determine if servicing is needed and develop a distribution network to include such servicing by qualified personnel. To build trust, loyalty, and marketing skills, U.S. producers frequently bring their agents or distributors to the United States for training and marketing assistance.

Direct Marketing

There are many logistical problems of operating a nationwide sales network as well as managing the growing personnel and promotion costs. Part-time employment is presently restricted, although there are now some moves to liberalize regulations governing part-time employment. Marketing firms are developing new distribution techniques designed to employ the casual worker and to target groups of consumers by catalog, door-to-door sales, teleshopping or telemarketing. The most widely used methods

of direct marketing are:

- Direct selling, mainly used in the nonfood sector.
- Mail order, catalog sales, or orders placed directly with the supplier.

Mail-order marketing has been in Italy for approximately 15 years. Although direct marketing is considered a very effective marketing technique, it still remains a modest distribution channel for Italian companies. One important disadvantage of this technique, which may be overlooked by foreign investors, is the postal system. However, semiprivate nationwide express mail service, the proliferation of couriers, and the arrival of foreign parcel delivery services now offer alternatives to the national mail system.

Telemarketing is growing faster than any other selling technique. With the advent of new telecommunications technologies, the business world has turned to the use of the facsimile, making Italy the second largest per capita user in the world.

Teleshopping (home shopping through TV) is becoming a popular sales approach to reach the consumer. There are a number of privately owned television stations which mainly host telemarketing programs.

Telecommunications technologies are playing an increasing role in the process of restructuring the distribution system. Scanners, electronic cash registers, and display management systems are now common. Computerized stock control systems, customer databases, and inventory control programs are being used by the large distribution networks. The more sophisticated groups have also resorted to consulting services, resulting in technical cooperation agreements between a number of Italian and international chains.

Electronic Commerce**.** Electronic commerce applications have taken off and, although in their early stages, they will experience exceptional growth in the next 3-5 years. Electronic commerce in Italy is discussed in Chapter 3 and is mentioned here to highlight the evolving nature of direct marketing practices and methods.

LEASING

It has become common to lease, rather than buy, certain types of machinery. The leasing of foreign machines is usually arranged with Italian clients through local branch offices or agents of foreign manufacturers established to provide this type of service. Leasing is complicated by the fact that the importation, payment of customs duties, and other related business formalities must be taken care of by a firm established in Italy. Such tasks would usually be done by either an agent of the foreign manufacturer or by the Italian lessee. Because the lessee is often not willing to assume the inconvenience of handling importation of leased equipment, local representation is usually necessary.

JOINT VENTURES/LICENSING

A joint venture (Associazione in Partecipazione) involves the participation by a supplier of capital in the profits of the business. The operator manages the business and is solely responsible for the obligations he or she assumes toward third parties. The person furnishing the capital is responsible for

any loss in direct proportion to his or her share in the net profit, limited to the amount of his/her original investment.

Joint ventures can be for onetime defined transactions with a definite duration (contractual joint venture) or a permanent cooperation between separate groups through the incorporation of a joint-stock company (corporate joint venture). Corporate joint ventures are now seen frequently in Italy.

Licensing in Italy allows foreign entities to profit from technology transfers of a formula, process or patent without the need to invest substantial capital. The Italian government imposes no exchange control limitations on the transfer of royalties abroad. Protection over the use and ownership of the technology transferred should be included in the terms of the licensing agreement.

Establishing an Office

A foreign citizen wishing to establish temporary or permanent residence in Italy to administer a business or to manage a corporation should obtain a business visa for this purpose from one of the Italian Consulates in the United States. All individuals or firms in business in Italy must be registered with the local Chamber of Commerce, Industry and Agriculture. This is a quasi-government office, operating essentially as a field office of the Ministry of Industry and Commerce. To register with this office, an agent for a foreign company must produce a power of attorney duly notarized by Italian consular or diplomatic official in the country of the principal.

Advertising and Trade Promotion

Advertising in Italy has grown rapidly in volume, importance, and sophistication. This growth in advertising has been accompanied by a proliferation of advertising agencies and an expansion of services. Along with Italian-owned agencies, there are joint ventures with other European or American firms. While some agencies specialize in specific services and media, a large number of full service agencies deal with all advertising aspects and have market research capabilities.

Advertising media are: newspapers, 35 percent; magazines, 35 percent; radio and television, 22 percent; movies, 2 percent; other methods, 6 percent.

Newspapers and magazines: The main means of product advertising in Italy is through daily newspapers. Newspapers work closely with advertising firms, both Italian and foreign. However, since the newspapers themselves do not maintain advertising departments, advertising firms must place their ads with special agencies commissioned by the papers to receive advertising for them.

Of about 90 daily newspapers in Italy, only a dozen or so are distributed throughout the country. While some 230 Italian and foreign periodicals are on sale in Italy, only about 20 have a large circulation (see list below).

Television: Italy is served by three public television networks operated by Radiotelevisione Italiana (RAI), a government-regulated company in which the state owns a majority interest. The three networks carry commercials in programs all day long. There are also four major nationwide privately-owned television stations. In addition, some 100 private television stations are licensed for local broadcasting.

Radio: There are three radio stations owned and operated by RAI. These are on the air for more than 340

hours weekly, and commercial time is available. In addition to the three networks, there are hundreds of local radio stations and several national private stations.

Motion Picture Theaters: Wide use of film clips is made for advertising purposes. There are some 10,000 motion picture theaters in Italy and many regularly show advertising. The rates for advertising vary according to the show time and class of the theater. Advertising is shown during every intermission. Therefore, this medium may be used to reach a wide market and cuts across economic strata.

Posters and Billboards: Poster advertising is handled by a number of specialized companies, as is electric sign advertising, which is subject to special regulations. Poster advertisement on walls, along streets, in street cars, buses, and other means of transportation are used to reach the consumer market. Both posters and billboards are subject to the approval of provincial authorities and to payment of a tax on poster advertising.

Show Windows and Flyers: Show window advertising is extensively used in Italy. Displays are usually attractively done and show prices of the items for sale. Advertising flyers are in common use, and street banners are used also for special occasions. Loudspeakers are used for advertising at sporting events. Direct advertising, through the distribution of gifts, samples, and price reduction coupons, is frequently used to motivate consumers.

Trade Fairs: Exhibitions are a cost-effective method to enter a foreign market and meet a wide range of buyers interested in a particular industry sector. Sales professionals find that trade fairs attract extensive buyer attendance and frequently can be used to gauge acceptance and pricing of new products and to observe the competition. In the course of a few days, a new market entrant may be able to generate more qualified and motivated prospects than by using any other sales approach. Also, fairs are useful for finding an agent, distributor, or representative. The U.S. Department of Commerce frequently organizes U.S. pavilions at events that are identified as providing excellent prospects for American exporters. Information on participating in Italian trade fairs can be obtained from Department of Commerce Export Assistance Centers located throughout the United States.

For information about trade fairs at Fiera Milano (www.fmi.it), the large international trade fair site in Europe, firms can contact Fiera Milano's U.S. representative for information by calling 1-800 524-2193. They can also contact the U.S. Commercial Service in Milan at +39-02-659-2260. Fiera Milano organizes an extensive variety of international shows each year, and the U.S. Department of Commerce participates in some of these events.

Product Pricing

When providing the Italian buyer with a price quote, American firms most frequently provide a quote that includes sales price plus packing costs, insurance, and freight to the named point of destination. This is called the c.i.f. price. The average Italian business representative can then usually determine the charges for customs, taxes, and local transportation to arrive at the final landed cost to the importer. The customary terms of sale in Italy are either cash on delivery (which is rare) or settlement 60-120 days after invoice date (more common).

Sales made on cash terms call for payment before delivery, on delivery, or shortly after delivery —

usually within 10 days from the date of delivery. A two to five percent discount is made for payment of the full amount of the transaction at the end of the specified period from 1 to 4 months from the date of the invoice. The length of the period depends on the commodity involved, the credit standing of the buyer, and the marketing and sales objective of the seller. A period of up to 2 years is often allowed for payment of capital goods, store equipment, trucks, and similar heavy equipment.

Italian firms indicate that some American suppliers are too rigid in their payment terms and have thus lost business to other suppliers. Financing is considered as much a competitive factor as the product itself, the delivery date, or after-sales service.

While some U.S. manufacturers request payment upon receipt of the goods, more successful sellers are offering terms allowing settlement of the account from 60 to 120 days following the invoice date, which is the most common practice in Italy. The use of irrevocable letters of credit for the Italian market has declined appreciably in recent years. Although such instruments are still required by American exporters, especially when the Italian customer's credit reputation is not well known, the growing reluctance of Italian firms to provide letters of credit has required American exporters to turn to other methods to assure payment or lose the sale to other suppliers in the competitive Italian market. The Italian business person is reluctant to pay a high fee for a letter of credit when other suppliers or means of payment are available. American firms have put to greater use the export credit insurance and guarantee programs available through the Foreign Credit Insurance Association (FCIA).

Quotes and Payment Terms

Large Italian firms and department stores may prefer to buy on other terms than cited above when they arrange for the shipping and insuring the goods. Quotes and invoicing are usually in terms of the currency of selling country.

American quotes, usually stated in dollars and on a f.o.b. basis, are completely acceptable to Italian buyers. The usual practice of American firms selling to a new customer is to require cash against documents for the first sale or two. After establishing credit, the importer will expect to pay by 30-, 60-, or 90-day letter of credit. When first starting out, American firms may often find it necessary to offer their best price and payment terms in order to land the sale in the competitive international market. Later, prices may be adjusted as sales and volume permit.

The Italian buyer may request a quote or shipment of goods under INCOTERMS. This is a set of international rules defining the important commercial terms and practices. By referencing INCOTERMS in contracts or invoices, both buyer and seller will have a uniform understanding of their responsibilities in an agreement. Copies of the 90-page publication Guide to INCOTERMS are obtainable from ICC Publishing, 156 Fifth Avenue, New York, NY 10010, (212) 206-1150. Exporters can also obtain information from the Dun & Bradstreet Exporters' Encyclopedia.

The Italian importer may examine merchandise before customs clearance for inventory purposes. Goods cannot clear customs without shipping documents and payment of any required customs duty, applicable value-added taxes, and excise taxes. The importer must execute these formalities when clearing customs. The importer should present import licenses, if required, within the period for which they were issued.

Marketing / Service / Customer Support

An American company that is successful in Italy becomes so because its products are marketed with the same diligence employed in the U.S. market. Whether the firm establishes a manufacturing operation or a sales branch, or appoints a commission agent, a stocking distributor, or a combination agent/distributor, the American exporter must make a long-term commitment to exporting and follow sound marketing practices in order to sell successfully in the Italian market. A key factor in this commitment to serving the overseas buyer is the local stocking of parts and giving priority to immediate air shipments upon the request of the European customer.

An American company that is entering the competitive Italian market is advised to commit the resources needed to market the products properly and establish long-term sales to achieve maximum sales volume. The appointment of a resident representative is extremely important. For business promotion and market knowledge, there is no effective alternative to a resident representative who is part of the local business community and readily available to customers. Having a local representative is particularly important when the product is complex and may be expected to require follow-up service or modification. Local representatives are familiar with the product and needs of the customer and are in a position to solve problems. Personalized service is frequently demanded by customers, creates goodwill, and often stimulates repeat sales. Technical manuals and promotional literature should be in Italian. Italy is a competitive market where reliability is important. Local representatives with solid reputations and promotional material in Italian reflects a commitment to customer service and enhances the prestige of the American firm.

A number of U.S. firms maintain their own sales organizations in Italy. Still others sell through specialized importers or appoint sales agents who often are manufacturers' brokers. A large, well-established Italian firm with an efficient nationwide sales organization is likely to insist on an exclusive arrangement. About 7,500 U.S. firms are represented in the Italian market through agents, branches, subsidiaries, or licenses. Of these, nearly 850 have a substantial direct capital investment in the form of stock as a sole owner or partner in an enterprise. Generally, the sales territory includes all of Italy. In other cases, the territory also covers the entire European Union, depending on the type of product and degree of technical support needed. Italian distributors also have excellent contacts with Eastern Europe and the Mediterranean Basin.

Selling to the Government

The Italian government does not typically purchase goods and services abroad unless they cannot be procured locally through domestic sources, which would include subsidiaries, branches and agents of American companies. In order to be considered as a source for Italian government purchases, it is recommended that the American firm be represented by an agent/distributor rather than try to deal directly with Italian government agencies.

Each of the Italian agencies maintains its own list of contractors and suppliers. Therefore, U.S. firms need to contact each agency directly to establish their eligibility. U.S. companies must first establish their financial and technical capabilities by presenting them directly to the Italian agencies.

LEGAL REPRESENTATION

American companies which are interested in setting up agencies, distributorships, licenses or joint ventures are encouraged to seek professional legal advice and counsel. The American Embassy in Rome and the individual Consulates maintain a list of lawyers (according to geographic jurisdiction) which is available to the public.

Performing Due Diligence

Information on specific Italian firms is available from a variety of private agencies. American companies can contact their local U.S. Department of Commerce Export Assistance Center for a listing of firms offering this service. In addition, this section includes a list of Italian private sector firms which provide this service. American banks also provide credit information services.

Just as the terms of any sales offer should be presented in a clear and detailed manner, shipments should conform to the contract and to any samples, which may have been sent to the Italian importer. Special attention should be given to the prompt observance of agreed delivery schedules, as prompt delivery may be a decisive and possibly an overriding consideration of the importer in placing additional orders. When shipping on letter of credit, all terms specified on the letter of credit must be strictly observed. If the terms are not followed, the letter of credit may not be honored by the issuing bank.

4.5 MARKET OPPORTUNITIES IN SPAIN AND ITALY FOR ICT

INFORMATION TECHNOLOGIES

Industry experts interviewed in Spain and Italy in September 2002 believe that the best and fastest growing IT market segments in their countries are:

- IT security;
- Internet and e-commerce-related solutions; and
- Business productivity solutions.

Drivers of growth in these segments are a blend of private sector demand as well as government policies that stimulate needs for such systems.

IT SECURITY — SNAPSHOT OF MARKET SEGMENT DRIVERS

Information systems security is one of the most rapidly rising priorities for IT investment in Western Europe. In general, Western European organizations' use of IT and online security lags that of the United States. Organizations are eager to catch up.

- IT security products and services became much more important to Spain and Italy firms in 2001 due to the increasing realization of the potential harm that can arise with inadequate protection of data.

- European government efforts and regulations are expected to give the IT security market a further boost. The European Commission and the Spanish and Italian governments are trying to increase the

public's trust and confidence in cyberspace to encourage the growth of e-commerce.

- EU regulations such as the Data Protection Directive and the Electronic Signatures Directive are creating markets for IT and Internet security solutions. The former fosters demand for technologies among those organizations that need to comply with its requirements. The legal framework created by the latter is encouraging investments in technologies and services that underpin the signature system such as digital certificates, encryption technologies, and electronic signatures.

SELECTED SOLUTIONS:

*Network Security***.** Demand for products and services is growing as Spanish and Italian firms and other organizations increasingly rely on the Internet for communications and open their LANs to the outside through extranets. Larger firms' more recent demands, spurred by the events of September 11, 2001, have expanded to remote network management products and technologies to ensure redundant systems, such as data recovery and file and web server backup software. Smaller European firms, hit by an increasing number of viruses in the past year, are investing in anti-virus protection, firewalls, and similar solutions.

*Internet-related Security***.** This is a particularly strong market. U.S. advances in Internet security are widely recognized in Western Europe, and there is the perception that the most efficient tools related to Internet security come from the United States. U.S. SMEs that specialize in Internet security tools are in an excellent position to capitalize on their know-how in the Spanish and Italian markets.

Online Payment Security Solutions. There is a huge need for PC-based and mobile Internet access payment products. The demand for products and services that underpin secure cross-border payment systems, including ones that incorporate the euro, is far from satisfied. As more European customers go online, this demand will continue to grow.

There is strong demand for solutions for securing mobile devices such as personal digital assistants, mobile phones, and others.

Internet and e-Commerce Solutions — Snapshot of Market Segment Drivers

- Western Europe is six to twelve months behind the United States in the use of Internet and e-commerce solutions, and European firms are keen to improve their competitiveness and efficiency so that they are on par with their U.S. counterparts.

- Governments in Europe, to improve the overall strength of European economies and further the EU's information society initiative, *e*Europe, support their firms, investment in these technologies. Further, European governments have committed themselves to promoting e-government, e-health, distance learning, and e-procurement.

SELECTED SOLUTIONS:

Customer Relationship Management (CRM), Supply Chain Management (SCM), and E-Business. In general, European organizations need a wide variety of Internet and e-commerce solutions. Larger European firms are investing in advanced solutions and smaller firms are spending on basic versions of these solutions as well, particularly in CRM and e-business.

The current effort of large European firms to incorporate e-business investments in corporate strategies has resulted in a growing demand for professional Internet and e-commerce consulting services. These include strategy, design, and deployment. Many small and medium-sized European firms are eager to develop such strategies as well. This offers opportunities for small U.S. consultants to partner with local consultants or establish their own offices in the region. Both Spain and Italy share a very high proportion of small and medium-sized enterprises with less than 250 employees and a high concentration of firms with less than 100 employees. Customized solutions specific to their needs will present opportunities for U.S. companies specializing in CRM, SCM, and e-business applications.

There is also a strong demand building for attractive and localized web content, as well as content creation applications, to foster greater Internet use. Many European organizations are eager to or need to make money from the web, driving demand for web site billing and tracking technologies to enable online advertising and paid content. In addition, the European Commission's *eEurope 2005 Action Plan* includes a commitment to promoting attractive content, services, and applications for all Europeans, localized to reflect Europe's diversity of cultures and languages.

Given the relatively limited deployment of broadband in Western Europe compared to the United States, particularly among households, U.S. technology vendors should consider focusing at least for the short and medium term on Internet content solutions that can optimize narrowband access.

There is a huge need for new and unique web content for mobile devices to drive demand for mobile data communications.

Business productivity solutions – Snapshot of market segment drivers

Although many large European firms already have automated many of their internal processes, many smaller firms have not, and they are investing in various types of business software.

Firms of all sizes need solutions to maximize their data storage as the use of intranets, extranets, and web sites grows.

Selected solutions:

Smaller European firms are beginning to invest in enterprise resource planning (ERP) software and other business productivity solutions, and there is a niche for U.S. SMEs that make affordable ERP and other business software aimed at the small firm market.

For firms of all sizes, rising data storage needs are driving demand for data storage solutions. Many European firms that purchased storage hardware in the past now need to maximize that hardware's capabilities via storage software and services. Redundant data storage needs are growing as concerns about intellectual property backup have been spurred by the events of September 11, 2001. In addition, organizations in the EU may need or decide to mirror their data to comply with data protection regulations at the national and EU levels that preclude the easy transfer of personally identifiable information.

European companies are strongly concerned about protecting data integrity as they migrate technologies. End-users increasingly seek cost-effective "Vanilla applications" that integrate easily with existing technologies. They also seek platform standardization to lower hardware and software costs.

Unique aspect of Western Europe's market for Internet and e-commerce solutions.

Market intricacies and differences in Internet and e-commerce adoption trends mean that some U.S. solutions may not succeed or must be modified for the markets in Western Europe. For example, low credit card usage in the region creates opportunities for e-commerce and online financial transaction applications and services that do not require credit cards. European financial institutions are investing solutions to allow web-based vendors to debit online shoppers' bank accounts. One niche in this segment is smart card-based solutions for e-commerce applications, which are a key market opportunity due to the widespread use of smart cards in Western Europe.

Two Main End-User IT Market Segments to Target in the Region

1. Key vertical markets: banking and financial services, government, business services, and telecommunications.

These four vertical markets lead IT spending in Western Europe. Nonetheless, other vertical markets such as manufacturing, retailing, insurance, education, health, and utilities have 2001-2002 IT spending growth rates of between approximately 4 and 8 percent, according to IDC.

2. SME end-users.[468]

Numerous industry representatives interviewed in Spain and Italy state that Europe's SME end-user segment is one of the best for U.S. IT SMEs to target. The principal reasons for this are:

- The SME market segment is extensive. There are more than 19 million SMEs in Western Europe, and SMEs make up more than 99 percent of all businesses in most EU Member States.
- Many SMEs in Western Europe are not yet frequent users of IT, particularly e-commerce solutions.
- The SME market segment is largely untapped. For years, IT vendors in Europe did not target the SME market aggressively, preferring to focus on the large firms. Although some large vendors recently have revamped their products and marketing strategies to target SMEs, much room for competition remains.
- Prices of larger technology vendors remain too high for many European SMEs.
- Since IT is now seen as directly linked to revenue, SME customers want to work with other companies that understand their business. Therefore, they prefer working with other small companies that understand a small firm's business model. (Note: many of the SMEs interviewed in Spain and Italy in September 2002 stated that they would prefer to work with senior employees from a small firm, rather than a junior employee from a large firm.)
- Many European SMEs prefer to work with smaller companies that specialize in solutions,

[468]Small and medium-sized enterprises (SMEs) are defined in Europe as having up to 250 or 300 employees. In Spain and Italy an SME has up to 100 employees. The common definition in the United States is 500 or fewer employees. Spanish SMEs are referred to as Pequenas y Medianas Empresas (PYMES) and are defined as enterprises with less than 100 employees. Italian SMEs include both Picoles e medies Impresas and Small Offices/Home Offices (SOHOs). PMIs are Italian companies with 10 to 100 employees. SOHOs are Italian firms with fewer than 10 employees.

rather than many of the larger vendors that often offer "all solutions." Small companies are perceived as being more flexible and customer-oriented than large vendors.

- Due to European technology vendors' lack of experience in selling to SMEs, U.S. IT firms with a track record of serving the SME market in the United States are at an advantage in Western Europe. However, U.S. firms should keep in mind smaller European firms' cost constraints and concerns, while recommending and pricing technologies accordingly. In addition, many small European companies lack knowledge about IT options. Information about technologies, including the best technologies for a firm's particular business goals, would be well-received.

TELECOMMUNICATIONS

Industry experts interviewed in Spain and Italy in September 2002 believe that the best and fastest growing telecommunications market segments in their countries are:

1. *Business communications;*
2. *Broadband; and*
3. *Mobile communications.*

Solutions that address these market segments are the best prospects for U.S. SMEs. Drivers of growth in these segments are private-sector needs as well as government policies.

Business Communications

Snapshot of market segment drivers:

- The ability to make money from Internet-related services, data communications, and miscellaneous wholesale communications services has become critical for many wireline telecommunications operators' survival. This results from the following three developments: as telephone service markets in Italy and Spain have become more competitive, prices for many voice services have dropped, and wireline telecommunications operators struggle to manage unprecdented debt burdens due primarily to over-expansion in the late 1990s.

Competitive advantages of U.S. IT SMEs.

Competition in the region from European IT solutions providers, notably German, French, and U.K. software producers, has risen in the past few years. Local firms have become more conversant in Internet and e-commerce technologies. Nonetheless, U.S. SMEs have advantages over their foreign counterparts which they can leverage to enter and succeed in markets in western Europe.

- *U.S. information technologies are viewed as reliable and effective in Europe. U.S. IT firms have an advantage over their European counterparts due to a faster time-to-market cycle and a reputation for efficiently meeting the needs of clients.*
- *U.S. IT firms are considered to have an edge due to their experience in the larger, more mature, and more homogeneous U.S. market, in which they can more easily and quickly market new technologies and ideas, as well as gain experience.*
- *U.S. IT firms understand the latest trends in the U.S. IT, Internet, and e-commerce markets, which are more advanced than the markets in Spain and Italy.*
- *Many technologies associated with the Internet, including Internet Protocol (IP) and the Java programming language, were invented in the United States. Therefore, U.S. firms are viewed in Western Europe as being at the forefront of Internet technology developments.*

Selected solutions:

There is demand for leading-edge technologies to enable operators to offer a wide variety of business communications services, including Internet access services (especially broadband), value-added IP services, broadband transmission services, managed data network services, IP/VPNs, and VoIP services. In addition, telecommunications operators that have rolled out voice-over IP (VoIP) on a limited scale for business communications are now beginning to roll it out on a broader scale in the wholesale market, thereby increasing the demand for the best VoIP technologies.

What about targeting large European IT end-users?

This end-user market often can be very difficult for U.S. IT SMEs to penetrate. Industry observers state that large European end-users often prefer, and can afford, to procure technologies and IT services from larger, well-established vendors with track records of serving large clients. In addition, many large European firms want to work only with their established technology providers, integrators, consultants, or distributors. These preferences have been amplified during Europe's economic slowdown as European organizations take fewer risks on their technology purchases. Serving Europe's large end-user market is not impossible for small U.S. firms. To reach this market, European industry representatives suggest that small U.S. firms work with a third-party technology vendor such as a systems integrator (SI) with large firms and organizations as its clients. The large SI could integrate the U.S. firm's technology into its solutions for the end-user market

BROADBAND

SNAPSHOT OF MARKET SEGMENT DRIVERS:

- There is a dearth of broadband in Europe. Businesses and consumers seek broadband connections, and both incumbent and competing operators are rolling out technologies to meet demand.

- The EU, eager to hasten the deployment of broadband Internet access throughout the region, has shifted from focusing nearly exclusively on promoting DSL and 3G to a new emphasis on stimulating competition among all possible types of broadband\ platforms. These include satellites, 3G and other mobile technologies, fiber optics, wireless local loop, DSL, and cable modems. Opportunities abound for U.S. vendors of any and all broadband technology platforms that can help operators and European governments meet these EU objectives.

Selected solutions:

Because DSL, cable modems and fiber to the building have taken off as the initial broadband technologies in Western Europe, technologies related to these platforms provide some of the best market opportunities, especially in Spain and Italy. There is a need for technologies to increase the speed and reliability of xDSL while lowering its cost and hastening its deployment, particularly among corporate clients for whom it is a potential alternative to leased lines. Cable TV operators in countries like Spain need technologies to upgrade their networks; less than 20 percent of cable TV infrastructure in Western Europe has been upgraded to support the two-way transmission necessary for broadband Internet access. Investment in cable TV networks seems likely to resume in Spain as soon as the current consolidation and restructuring is complete. Over the medium term, fiber to the building seems likely to

remain the principal competitor with DSL for broadband Internet access, while also offering video and telephone service.
There are also opportunities for U.S. vendors of alternative broadband platforms in the longer term. The principal existing alternative platforms in Spain and Italy are leased lines, satellites, and wireless local loop. In addition, W-LANs are approaching the take-off stage in both Spain and Italy for public broadband access in hotspots. Interactive digital TV is believed to have much potential in the region (albeit over a longer term horizon), and there is a demand for hardware and software to allow set-top boxes to offer new services necessary to drive future growth. The prospect for these alternative platforms as well as 3G wireless communications is expected to get a boost from the Spanish and Italian governments as well as the EC, insofar as these alternative technologies can help provide broadband Internet access to users in remote regions that are otherwise unable to obtain broadband access.

Media companies and telecommunications operators need attractive, practical, and robust applications and content to drive broadband adoption across Europe, particularly among consumers. There currently is no "killer application" to convince the majority of Spanish or Italian consumers they need broadband, let alone to pay for broadband content. Applications in the areas of e-work, e-education, e-government, e-health, and e-entertainment could help provide such demand.

MOBILE COMMUNICATIONS

Snapshot of market segment drivers:

- As the European market nears saturation for existing GSM wireless technologies, mobile operators are switching from customer acquisition to average revenue per user (ARPU) maximization. Most operators in Spain and Italy are experimenting with mobile data communications at less than 3G transmission rates to build demand for new applications such as MMS.

Selected solutions:

There is a demand for all of the technologies that can enable new mobile applications, including Bluetooth, voice recognition software, compression technologies, and algorithms.

Most Spanish and Italian telecommunications operators are reluctant to launch 3G wireless networks until there is adequate demand to assure a successful take-up. Nevertheless, they share the desire of other European operators to launch 3G as soon as possible to begin to recoup their enormous investments in obtaining 3G licenses and to survive the 3G shakeout that has already started in both Spain and Italy. As a result, there remains a latent demand for 3G infrastructure, particularly that which allows 3G to reach its theoretical maximum transmission speeds and thus live up to public expectations.

In the near term, there is a major opportunity for solutions to improve the transmission speeds, capacity, and capabilities of current GSM/GPRS networks. Limited bit rates in the GSM network currently preclude quality downloads or real-time streaming. New types of billing technologies based on volume usage as opposed to time are needed to support the migration to GPRS (and eventually 3G) networks with associated packet-switched data transmission modes. Other 2.5 G technologies, such as i-mode and

W-LANs, have potential applications in Spain and Italy, but a business model for successful deployment has yet to be found.
As they become ubiquitous throughout Western Europe, mobile networks are no longer an end in themselves. Mobile telecommunications operators need unique, high-quality mobile content and services to differentiate themselves from their rivals and increase ARPU as they struggle to try to lead the markets for 2.5G and 3G. For example, software for personalized mobile data services is considered to be a strong market.

Although Western Europe's mobile data market currently is driven largely by consumers, operators are counting on businesses becoming their main customers for 2.5G and 3G, at least for the foreseeable future. As a result, there is a need for intelligent mobile solutions and content which make sense to, and meet the needs of business managers.

Many operators in Europe are eager to capitalize on the popularity of short message service (SMS) and its proven ability to generate revenues, particularly because of the uncertainty of when mobile web access will finally gain widespread acceptance or use. Profits from message services also are seen by many operators as a way to help finance their 3G investments. Technologies that enable the deployment of multimedia message services (MMS) have taken on prime importance, along with unified messaging, enhanced message services (EMS), e-mail transfers supporting attachments, and increased messaging security.

Although there are already significant security technologies available in Western Europe, they have not yet won widespread acceptance by mobile consumers. There is a large demand for more effective payment and security solutions for wireless devices, including personal digital assistants and mobile phones. Many Europeans predict that their mobile devices of the future will essentially function as electronic wallets, performing identification, authentication, and payment. As a result, operators and service providers seek technologies to guarantee high security for transactions to push the growth of m-commerce and corporate mobile services.

Location-based services are still fledgling in Europe, as in the United States. However, many European operators are eager to offer such services. In fact, certain automakers selling into European markets reportedly are looking to install two-way global positioning system (GPS) technologies directly into automobiles. This would stimulate demand for solutions, including middleware systems, which manage an array of geographic databases and serve to support the development of location-based services.

Mobile communications handsets are taking on increased significance as they determine the range of services that can be offered. Advances in memory capacity are crucial to allow more rapid downloads and real-time audio or video streaming. Handset components such as smart cards, memory sticks, and media cards need to be optimized to enable downloading of information to mobile phones for later upload to PCs. The development of 2.5G and 3G technologies will require further progress in the development of embedded applications. Screens that can support fixed and mobile images will be key to enhancing a number of consumer and corporate information services, such as restaurant or hotel guides, as well as entertainment services such as videos and games. In addition, there is a need for multiband compatibility between handsets operating on different networks, including personal digital assistants and mobile phones, incorporating power PC boards, and using attractive, ergonomical designs.
Mobile operators seek viable business and revenue models that will allow them to profit from content, so that they may continue to profit from building and maintaining mobile networks. There is a need for

Q: Can U.S. Suppliers be competitive in Europe's more advanced mobile market?

A: Yes.

Many U.S. firms believe that, due to Western Europe's lead over the United Sates in mobile communications, European (as well as Japanese) suppliers will dominate mobile data markets in Western Europe.

European indusry represenatives state that Europeans have an edge over U.S. firms in integrating mobile, Internet, and e-commerce technologies. However, they concede that U.S. firms lead in many of the underlying Internet and e-commerce technologies that will be critical to newer mobile data services. This allows U.S. firms to be very competitive in this market in Europe. Four indications of this U.S. advantage are:

- *3G is based on Internet Protocol (IP), which was invented in the United States.*
- *The Java programming language,also invented in the United States, is expected to play a key role in developing mobile Internet in Europe and elsewhere. Java has significant appeal for mobile Internet because it makes possible the development of all kinds of mobile devices. It also enables a wealth of content, including audio, video, and images.*
- *U.S. firms have broad-based experience with web content delivery,critical to the success of mobile data communications.*
- *The European 3G standard, UMTS, is based on a U.S. technology, Qualcomm's CDMA.*

ideas, technologies, and services and support to help European operators develop and implement such revenue models for the provision of mobile data services.

Two Key End-Users to Target in the Region's Telecommunications Markets

A) Competitive operators

Incumbent telecommunications operators dominate the Spanish and Italian telecommunications sectors, and thus are the largest customers for telecommunications technologies in those countries. Nonetheless, targeting their competitors is the best choice for U.S. SMEs.

- To gain market share, competing operators need new and different equipment and technologies from those used by Telefónica and Telecom Italia (TI).
- Telefónica and TI have 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. Nevertheless, even large European incumbents prefer to purchase from firms that are no larger than they are themselves.

B) Business users

Businesses are the primary consumers of value-added telecommunications services in Western Europe. U.S. firms are very competitive in offering value-added and broadband communications services tailored to the requirements of European SMEs. Although consumers currently use the majority of mobile services in Western Europe, operators are currently targeting their mobile data communications at the business segment in hopes of maximizing their revenues from new applications of this technology. European mobile operators

recognize that U.S. mobile operators have been more successful than their European counterparts at targeting business users.

4.6 Electronic Commerce in Italy and Spain

The growing complexity of network technologies and the need for specialized skills to implement e-business strategies is leading large and medium-sized Italian businesses to outsource services to supplement their in-house capabilities. It is expected that American e-commerce integrators and service providers will play a key role in providing the strategy, marketing, design, and technical services associated with developing an e-business culture and with building advanced e-commerce sites.

More than 90 percent of Italian companies with more than 100 employees are connected to the Internet, while this rate falls to 70 percent for SMEs with between 10 and 100 employees. Many small enterprises are less inclined to innovate and have yet to invest in the Internet.

The relatively low diffusion of personal computers has represented one of the major deterrents to the B2C e-commerce transactions. High telephone tariffs and cultural factors have also hindered development of this market segment. Free Internet access, combined with new Italian Government investments to foster ICT and have all Italian schools connected to the Internet by 2001, the increasing availability of inexpensive personal computers and the decreasing costs of Internet-related telephone calls are acting as strong driving forces for the development of the sector. More importantly, as mobile phone diffusion in Italy is among the highest in the world, the Internet consumer market may be driven by the availability of web-enabled new-generation mobile phones.

B2C transactions via the Internet have been marginal in Italy, but are expected to grow significantly over the next 3-5 years. The most promising sectors for B2C in Italy are computers and software, publishing, Internet music and videos, and bookings for entertainment events, vacation and travel. The media and publishing sector is increasing IT outlays to develop B2C solutions.

Financial Services. Banks are investing considerable resources in e-commerce applications both to sell their own home and corporate banking services, and to support the e-business strategies of their clients by developing virtual malls and portals and by supporting secure transactions. The on-line trading market took off in 1999, totaling 4 percent of all traded securities, a share that is forecast to increase to 20 or 30 percent in the next two to three years. It is expected that the number of clients utilizing on-line trading services has grown from 200,000 in the year 2000, to 450,000 in 2001, and will grow further to 700,000 in 2002. Total on-line investments in stocks and bonds are expected to increase from $4 million in the year 2000, to $11.5 million in 2001 and to $19 million in 2002. The possibility of accessing financial markets through new generation cellular phones may contribute to the development of this market, and demand for specially developed smart cards should increase.

E-government. The Italian government's action plan called for significant investments in coming years to place all citizen-centric services online. The government recently approved more than €4.2 billion over a three year period to comply with the EU's *eEurope* action plan. It aims to offer more efficient, more integrated, and higher quality public services. Among the actions planned were the creation of a nation-wide extranet, which will connect and integrate all central and local government networks; the

creation of specific portals for accessing different government services; issuance of one million electronic ID cards/smart cards to allow easier access to public services; adoption of e-procurement at the central and local government levels; and countrywide promotion and use of digital signatures. Economic realities and the global downturn have compelled the government to redirect funds to the central administration of the government. How long will the e-government plan will be delayed is unknown but the government's commitment has remained steady.

E-commerce has made steady progress in Spain. According to the Spanish E-Commerce Association (AECE), B2C generated more than €500.8 million in 2002, an increase of 257 percent over 1999 figures. However, because of the overall economy's slowdown, e-commerce is expected to remain flat in 2003 and possibly into 2004.

E-commerce is a nascent technological means to advance and expand direct marketing in Spain. Consumer buying habits, ICT penetration, and availability of payment mechanisms will have a direct bearing on B2C growth. As reported in Chapter 2, a small percentage of the population is connected to the Internet and of these only 12 percent buy online. So, growth opportunities may exist for e-commerce solutions. An apparent anomaly, however, is that a high percentage of those online customers order 65 percent of their purchases from foreign (non-Spanish) web pages. On average, Spaniards make two to three online purchases a year, spending approximately a total of USD 200. *EITO 2002* estimates that B2B sales for 2002 were €5.7 billion. The sectors that use e-commerce most frequently are services (21.1 percent), wholesale (15.7 percent) and the financial and insurance sectors (14.9 percent). ""On average, over 24 percent of Spanish firms are now present on the Internet and it is expected that 60 percent will have web sites by 2003. Most companies currently consider the Internet as a vehicle to generate greater awareness of their brand name, products and services, while sales rank fifth on the list of their priorities. Most of the leading stores are now online, and utilities are sponsoring the most important B2B marketplaces.

Online banking and electronic delivery of financial services will be the principal growth sectors for e-commerce. Strictly online enterprises tend to fail thus leaving new market growth to the brick-and-mortar firms that have expanded to the web.

Despite reservations arising from traditional purchasing habits and concerns about security on the Internet, Internet usage is expected to maintain a strong growth, both on the domestic and the business side, over the coming years. This is not due solely to the arrival of e-commerce, but also because of a continuing economic and social evolution that the country is experiencing.

Like the Italian government, the Spanish government has launched a program called INFO XXI; a USD 4.8 billion action plan focusing on different Internet related initiatives, from e-government to providing access from schools and rural areas to the Internet society. This multi-year program will offer various opportunities for American companies.

Finally, those American companies interested in the sector must be aware of the stringent Data Protection requirements of Spanish legislation. As discussed in Chapter 2, the Law on the Information Society Services and electronic commerce (LSSI) has imposed strict regulations governing, inter alia, treatment and protection of personally identifiable information. U.S. firms planning to do e-business in Spain

should retain competent legal advice concerning the requirements the LSSI places on data holders.

4.7 Important Points to Consider When Exploring Italy and Spain

U.S. companies should be cognizant of several points when investigating whether to enter into a partnership with either an Italian or Spanish enterprise. The European market is not monolithic and in southern Europe in particular, the American company's approach to a business relationship is critical to a profitable, long-term relationship. Here are some points to consider:

- ***Patience***. Building strong, personal relationships in Spain and Italy is critical to developing a productive business venture in both countries. This process takes time and U.S. representatives should invest in the time requisite to accomplish this goal. A common mistake U.S. firms make is to rush in, expect immediate success, and walk away. Nothing will ruin a U.S. company's prospects for establishing a market presence in these countries more than neglecting the importance of cultivating a sound, personal relationship with one's local representatives.

- ***Persistence***. Because of the high number of small and medium-sized enterprises, marketing ICTproducts, services, and technologies is especially challenging. Standard, off-the-shelf products or systems will not meet SMEs' needs. The size difference between U.S. and EU SMEs demands closer, personalized attention. Tailored-made software packages for CRM or SCM based on a client's needs are more attractive. They also take more time to develop and market.

- ***Thoroughness.*** Before entering into an agency, distributorship, co-production, or joint-venture agreement, investigate the market, identify the criteria to choose a qualified partner, and review its bona fides before consummating a deal. Review and meet with several candidates before finalizing an agreement. Consult with local legal representatives before formalizing the arrangement.

Be wary of using "pan-European" agents and distributors.

Find one local agent or distributor for each country in which you wish to do business. European market experts report that several U.S. firms try to take the "easy route" by signing one representative for all of Europe. However, such representatives face the same challenges as any firm faces in understanding cultural nuances between countries, and have business relationships in, each European market. U.S. SMEs are advised to verify that a potential business partner has a strong distributorship network alrady established to serve the country (ies) targeted.

4.8 Locating the Partner or Commercial Representative

Careful research to find the best local representation in foreign markets is necessary. A variety of organizations exist that are eager to help U.S. ICT SMEs find partners or representatives in Spain, Italy, and Western Europe generally.

THE U.S. DEPARTMENT OF COMMERCE

- U.S. Department of Commerce ICT market specialists based in Italy and Spain specialize in working with their numerous industry contacts to find local firms interested in meeting potential U.S. partners.

- U.S. Department of Commerce matchmaking services, such as the International Partner Search and the Gold Key Service, are summarized in Chapter 5.

LOCAL TRADE ASSOCIATIONS, CHAMBERS OF COMMERCE, AND GOVERNMENTS

- Italy and Spain have a number of ICT trade associations that aim to encourage profitable business practices of their member firms, many of which are SMEs.

- Membership in chambers of commerce in many countries in Western Europe is compulsory, i.e., required by law. These organizations also work to help their member firms succeed, frequently playing a more formalized role in this regard than their counterparts in the United States. In some countries they function as government agents carrying out specific programs to serve national economic interests.

Common mistakes in partnering. Spanish and Italian industry representatives report three principal mistakes U.S. firms commonly make with their local partners:

- *Failing to nuture the relationship -- communications*
- *Lack of information exchange*
- *Being arrogant vis-a-vis the local partner.*

- Offices of regional and local governments in Italy and Spain work closely with ICT firms. These organizations often take steps to assist in forming partnerships between foreign companies and local firms or to attract foreign companies to invest locally.

Trade and government institutions interviewed in Italy and Spain are eager to help their local ICT SMEs collaborate with interested U.S. firms, and these organizations have various matchmaking capabilities. They might alert their local companies about potential U.S. partners and help set up meetings between firms — for example, when a U.S. firm plans to come to the target country, when a local firm plans to travel to the United States, or when firms could meet in tandem with a major trade fair.

Contact information for some of these Italian and Spanish organizations is in the Appendix. Other local trade associations that may be helpful would be listed in the Industry Sector Analysis market research reports written by U.S. Department of Commerce staff based in the target markets (these reports are described in Chapter 5). These trade associations and state-level organizations also exist in the United States and provide similar services for U.S. companies.

Trade fairs

Trade fairs are another avenue for finding partners or representatives, although unless meetings are pre-arranged this is a less targeted approach.

- Because Europeans use trade fairs to do business, not merely to advertise their products, trade fairs are an excellent way for U.S. SMEs to learn about local markets, introduce their technologies to them, and find partners. Trade fairs are particularly strong in Germany, which has a long history of trade fairs dating from World War II, and where firms are usually international in scope and attract a large attendance.
- The largest and most important ICT-related trade fair worldwide held annually is CeBIT, in Hannover, Germany, each March. The second largest show in Europe is SMAU, held annually in Milan during September. In addition, more focused trade fairs also exist that may be more appropriate for smaller firms. For example, the European Banking Technology Fair, held annually in Germany in October, focuses on technologies used by financial institutions.
- Trade fairs focused on specific vertical industries can be excellent avenues for SMEs with niche or vertical industry-specific products or services. Key ICT trade events in Spain, Italy, and Western Europe are listed in the Appendix.

Internet Sales: An Option?

The Internet is significantly changing distribution channels and customer relationships in Western Europe, as it is doing in the United States. Although Internet-based sales are one way to serve the European market, Internet sales to Western Europe from the United States can be challenging for both seller and customer. Some considerations must be kept in mind.

Fulfilling orders placed via the Internet

European countries have their own distribution laws. U.S. producers who ship orders from the United States or third countries must take care not to violate applicable laws.

- Even if a U.S. firm can fulfill an order taken over the Internet, it may need to modify the product before sending it to the customer to assure that the product satisfies local requirements, such as compatibility with local electrical power standards, which require 220 volts throughout the region. Any products sold in any EU country for connection to a telecommunications network must meet relevant technical requirements and so indicate with the CE mark.
- ICT products often require support and service which U.S. firms relying solely on Internet sales may be unable to offer.
- European customers will need to pay taxes (primarily value-added taxes or VATs) and import duties[6] on any imported items, which a web site should make clear prior to purchase.
- Industry observers report that, in some cases, customers must travel to international airports to clear their purchases through customs, which is time-consuming.

USING THE INTERNET TO DIGITALLY DELIVER PRODUCTS TO WESTERN EUROPE

U.S. SMEs often cut costs by using electronic software distribution (ESD). However, ESD into western Europe could prove problematic.

- The somewhat high costs associated with Internet use in western Europe, particularly metered local phone calls which affect dial-up Internet use, means that ESD can be prohibitively costly for some potential customers such as home users or small firms.
- Broadband penetration in western Europe is still relatively low, including among SMEs. The availability of broadband varies widely by country.

The European Commission's VAT directive scheduled to go into effect in July 2003 will institute a VAT on digitally delivered goods sold to EU consumers from non-EU suppliers. This regulatory regime will apply across the EU as of July 1, 2003. This VAT could impose a significant tax burden on U.S. software producers or producers of other digital content who sell to consumers. Under this directive, the U.S. firm will be responsible for determining each customer's country of residence, charging and collecting the applicable VAT, and remitting it to EU authorities. (EU-based businesses that purchase digitally delivered goods from U.S. (or any other foreign) firms have been and will remain responsible for paying the applicable VAT to their local authorities under EU law.)

Chapter V. How the Department of Commerce can help you Explore Spain and Italy

The International Trade Administration

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

One-Stop Information Database for Exporters

Export.gov is a multi-agency trade portal that brings together U.S. Government export-related information under one easy-to-use web site, organized according to the intended needs of exporters, especially small businesses. Whether a company is exploring the possibility of exporting, searching for trade partners, seeking information on new markets, or dealing with trade problems, this web site can help. Additionally, the site has easy links to information on advocacy, trade events, trade statistics, tariffs and taxes, market research, export documentation, financing export transactions, and much more. For more information, visit the Web site at: http://www.export.gov.

Trade Development

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

TD's Industry Expertise

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

Trade Negotiations and Agreements

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

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

TD's Information Technologies Industries

The Deputy Assistant Secretary for Information Technology Industries (ITI) oversees the activities of the three high-technology industry offices: the Office of Information Technologies and Electronic Commerce (OITEC); the Office of Telecommunications Technologies (OTT); and the Office of Microelectronics, Medical Equipment, and Instrumentation (OMMI). These offices dedicate their resources to supporting industry's interests in multilateral and bilateral fora, trade negotiations, trade promotion activities, and the Market Development Cooperator Program, a TD administered matching grants program designed to combine private sector and goverment resources to expand U.S. exports of products, services, and technologies.

Office of Information Technologies and Electronic Commerce

The Office of Information Technologies and Electronic Commerce (OITEC) focuses on numerous IT industry segments including but not limited to: computers and peripherals; software; networking equipment; and Internet and e-commerce technologies. The office conducts market research and provides general trade and policy analysis of the IT industry, including policy reviews of foreign countries' e-commerce laws and initiatives.

OITEC actively supports U.S. IT firms' efforts to expand their business overseas. Industry specialists track the growth and competitiveness of domestic and foreign IT industries; counsel U.S. businesses on overseas market conditions and the practical aspects of exporting their products; identify market barriers as they affect IT exports; and work closely with USTR to negotiate the removal of such barriers. The office's export promotion activities include trade missions, trade fairs, catalog shows, and technical seminars that introduce U.S. businesses to end-users and potential trading partners located overseas.

OITEC also fosters a favorable policy environment by focusing on keeping both the Internet and foreign markets open to private sector-driven global growth. OITEC participates in various fora such as the Organization for Economic Co-operation and Development (OECD), the World Trade Organization (WTO), the Asia Pacific Economic Cooperation forum (APEC), the U.S.-Japan information technology working group under the Regulatory Reform Initiative, the Free Trade Agreement of the Americas (FTAA), as well as bilateral free trade agreements. The office manages the International Functional Advisory Committee on E-Commerce for Trade Policy Matters (IFAC-4), and participates in formal as well as informal policy dialogues with other nations.

Industry specialists compile and disseminate detailed information and analyses on the IT industry sectors they cover, contribute to the annual Department of Commerce *U.S. Industry & Trade Outlook* publication that describes current and future IT industry and market trends on a domestic and global basis and prepare with other ITI offices ExportIT reports on key foreign markets. These specialists also work to update and expand the export.gov/infotech Web site with information on foreign markets and

regulations, including tariff and tax rates for IT products, U.S. and foreign policies that affect IT exports, upcoming trade events, and additional government and private sector resources. The office also distributes a free electronic newsletter highlighting trade leads, partnering opportunities, and trade events.

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

Office of Information Technologies and Electronic Commerce (OITEC)
U.S. Department of Commerce, Room 2003
14th Street & Constitution Avenue, N.W.
Washington, DC 20230
Tel: (202) 482-0216
FAX: (202) 482-5522
Internet: http://www.export.gov/infotech

Office of Telecommunications Technologies

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

OTT provides business counseling to U.S. telecommunications firms seeking to enter or expand in specific markets by developing and disseminating information on the telecommunications market in foreign countries based upon information from US&FCS and a wide range of other industry resources. The office promotes international trade and investment opportunities for the U.S. telecommunications industry by sponsoring events that offer direct contact with foreign government and industry officials. OTT, in conjunction with sister ITA units and government agencies, acts as an intermediary between U.S. firms and foreign governments to provide advocacy on behalf of U.S. companies bidding on public projects abroad. It supports the USTR in trade negotiations to open foreign markets for U.S. telecommunications equipment and services exports. Additionally, OTT monitors both bilateral and multilateral telecommunications agreements and provides input to the USTR regarding compliance by foreign countries.

OTT conducts market research and statistical analysis of the domestic and international telecommunications industry and posts a variety of industry information to the export.gov/infotech Web site. The office distributes complimentary electronic newsletters that deliver up-to-date information on foreign market opportunities and changes affecting the industry. OTT contributes the telecommunications chapters featured in the Department of Commerce *U.S. Industry & Trade Outlook* publication.

To obtain more information, including OTT international trade specialists and the regions/industry sectors they cover, contact:
Office of Telecommunications Technologies (OTT)
U.S. Department of Commerce, Room 4324
14th Street & Constitution Avenue, N.W.
Washington, DC 20230
Tel: (202) 482-4466
FAX: (202) 482-5834; Internet: http://www.export.gov/infotech

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

OMMI covers electronic components such as electron tubes, printed circuit boards, semiconductors, capacitors, resistors, transformers, and connectors, as well as semiconductor manufacturing equipment. Additionally, the office supports several industry sectors with high IT content, including medical and dental equipment and electro medical apparatus, process control instruments, laboratory analytical instruments, optical instruments, and instruments used to measure electricity and electrical signals.

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

OMMI staff gathers and disseminates market research and statistical analyses of the domestic and international microelectronics, medical equipment and instrumentation industries. Trade and industry reports, trade statistics, information on foreign markets and regulations, U.S. and foreign policies that affect exports, trade events, and links to additional government and private sector resources are available on the export.gov/infotech Web site. OMMI industry specialists profile current and future industry and market trends on a domestic and global basis in the Department of Commerce *U.S. Industry & Trade Outlook* publication.

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

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

Additional Trade Development Facilities and Services

Trade Information Center

TD's Trade Information Center (TIC) is an excellent first stop for new-to-export companies seeking export assistance from the federal government. TIC Trade Specialists: 1) advise exporters on how to find and use government programs; 2) guide businesses through the export process; 3) provide country and regional business counseling, foreign import tariff/tax rates and customs procedures, trade opportunities and best prospects for U.S. companies, distribution channels, standards, and common commercial

difficulties; 4) provide information on domestic and overseas trade events; and 5) provide sources of public and private sector export financing. TIC trade specialists also assist exporters in accessing reports and statistics from the computerized National Trade Data Bank and direct them to state and local trade organizations that provide export assistance. To contact the TIC, call 1-800-USA-TRADE; FAX (202) 482-4473; e-mail: TIC@ita.doc.gov; or visit the Web site http://tradeinfo.doc.gov.

Advocacy Center

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

Trade Missions And Events

Working in coordination with the private sector and the US&FCS, TD industry analysts help plan, organize, and execute trade events, including high-level executive missions with the Secretary or Under Secretary of Commerce. Additionally, there are a host of trade conferences and shows held throughout the U.S. and abroad. A searchable list of all ITA trade events can be found at http://www.usatrade.gov.

Small Business Program

ITA's Small Business Program is the focal point for trade policy issues concerning small and medium-sized enterprises (SMEs). The program brings the small business point of view to international trade policy discussions, primarily through the Industry Sector Advisory Committees (ISAC) on Small and Minority Business for Trade Policy Matters (ISAC 14), the only advisory committee to the U.S. Government on small and minority business export concerns. The Small Business Program also provides outreach to and plans events for small, women-owned, and minority-owned firms.

Additional information can be found on the Industry Consultations Program's Web site at http://www.trade.gov/td/icp, or by contacting the:

Industry Consultations Program
U.S. Department of Commerce
Tel: 202-482-3268
FAX: 202-482-4452
E-mail: Trade_Advisory_Center@ita.doc.gov

Industry Consultations Program

Industry has a voice in U.S. trade policy formulation through the Industry Consultations Program (ICP). The ICP includes more than 500 members and is comprised of seventeen (17) Industry Sector Advisory Committees (ISACs) on Trade Policy Matters and four (4) Industry Functional Advisory Committees (IFACs) on Trade Policy Matters. The ISACs represent industry sectors of the U.S. economy, including IT and small and minority businesses. The IFACs address crosscutting issues affecting all industry sectors - customs, standards, intellectual property rights, and e-commerce. Advisors on these committees have direct access to trade policymakers at the Department of Commerce and the USTR and help develop their industry's positions on U.S. trade policy and negotiation objectives.

Additional information can be found on the ICP's Web site at http://www.trade.gov/td/icp, or by contacting the:

Industry Consultations Program
U.S. Department of Commerce
Tel: 202-482-3268
FAX: 202-482-4452
E-mail: Trade_Advisory_Center@ita.doc.gov.

Export Trading Companies and Trade Intermediaries

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

Market Development Cooperator Program

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

The U.S. and Foreign Commercial Service (The Commercial Service)

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

in more than 150 overseas posts, in approximately 80 foreign countries, which combined represent more than 96 percent of the world market for exports. Lists of trade specialists by U.S. city or country can be found at http://www.usatrade.gov.

Office of International Operations

Overseas US&FCS offices are housed in U.S. Embassies and Consulates where Commercial Officers serve as intermediaries to foreign markets. US&FCS staff members are industry-focused and offer numerous products and services that assist U.S. companies to enter or expand their sales in a particular market. The main activities of these offices include establishing key industry and foreign government contacts, helping match U.S. suppliers with local buyers, and organizing or facilitating trade events. Contact information for US&FCS trade specialists who cover the IT, telecommunications, and e-commerce sectors in China is listed in the appendices of this report.

Office of Domestic Operations

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

US&FCS Services

Market Research

Industry Sector Analysis (ISA). ISAs are structured market research reports produced on location in leading overseas markets and cover market size and outlook, with competitive and end-user analysis for the selected industry sector. ISAs are available through the U.S. Commercial Service's Web site http://www.usatrade.gov and are a component of the National Trade Data Bank (NTDB) subscription service detailed below.

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

Country Commercial Guide (CCG). CCGs are prepared annually by U.S. Embassy staff and contain information on the business and economic situation of foreign countries and the political climate as it affects U.S. business. Each CCG contains the same chapters, covering topics such as marketing U.S. products, foreign trade regulations and standards, investment climate, business travel, and in-country

contact information. CCGs are available through the U.S. Commercial Service's Web site (http://www.usatrade.gov) and are also a component of the NTDB subscription service noted below.

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

Export Prospects

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

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

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

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

BuyUSA.com. BuyUSA.com (http://www.buyusa.com) is a unique public/private partnership between the U.S. Commercial Service and IBM. It established a one-stop international marketplace for U.S. small to medium-sized enterprises to identify potential international partners and transact business on-line. The BuyUSA.com e-marketplace includes managed/targeted trade leads, on-line catalogs, automated searching and sourcing, financing, logistics, currency conversion, due diligence, landed-cost calculation, and tariff and duty calculation. BuyUSA.com is the only Web site of its kind to combine an on-line interface with a worldwide network of one-on-one trade counselors.

Export Promotion

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

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

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

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

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

Commercial News USA (CNUSA). CNUSA, a catalog-magazine containing advertisements of U.S. products, is published 12 times per year by the Commercial Service through its private-sector partner, ABP International, to promote U.S. products and services to more than 400,000 potential buyers and partners in 145 countries.

APPENDIX

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Secretaria per a la Societat de la Informació
Av. Diagonal, 605, 5e 1a
08028 Barcelona
Telephone: 93 363 83 60
Facsimile: 93 363 83 70
www.gencat.es/dursi

Chambers of Commerce

Consejo Superior de Cámaras
de Comercio, Industria y Navegación
(Higher Council of Chambers of Commerce)
José Manuel Fernández Norniella
President
C/ Velázquez, 157, 1º
28002 Madrid
Tel: (34) 91-590-6900
Fax: (34) 91-590-6908
www.camaras.org

Cámara Oficial de Comercio e Industria de Madrid
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Mr. Fernando Fernández Tapias
President
Loira, 56
28042 Madrid
Tel: (34) 91-538-3500
Fax: (34) 91-538-3677/4
www.camaramadrid.es

Cámara Oficial de Comercio, Industria y
Navegación de Barcelona
(Barcelona Chamber of Commerce, Industry and Navigation)
Mr. Miguel Valls
President
Elizabeth Ann Lynch, Electronic Commerce and Internet Services
Avda. Diagonal, 452
08006 Barcelona
Tel: (34) 90-244-8448
Fax: (34) 93-416-9301
www.cambracn.es

Cámara Oficial de Comercio, Industria y
Navegación de Bilbao
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Mr. Ignacio Echeverría Monteberria
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Tel: (34) 94-470-6500
Fax: (34) 94-443-6171
www.camaracombilbao.com

American Chamber of Commerce in Spain
Mr. Jaime Malet
President
Tuset, 8 -
Entresuelo-3
08006 Barcelona
Tel: (34) 93-415-9963

Fax: (34) 93-415-1198
http://www.amchamspain.com

Spain-U.S. Chamber of Commerce
Mr. Miguel Sebastia
Executive Director
350 Fifth Avenue, Room 3514
New York, N.Y. 10118
Tel: (212) 967-2170
Fax: (212) 564-1415

American Business Council
Mr. Mario Armero Montes
President
American Business Council
28006 Madrid
Tel: (34) 91-631-1604
Fax: (34) 91-631-1290

E-Commerce

Federación Española de Comercio Electrónico y Marketing Directo
(Spanish Federation of E-commerce and Direct Marketing)
Avda. Diagonal, 437, 5º 1ª
08036 Barcelona
Tel: (34) 93-240-4070
Fax: (34) 93-201-2988
Web site: http://www.fecemd.org/
Email: fecemd@fecemd.org

Asociación Española de Comercio Electrónico
(Spanish Association of E-commerce)
Avda. Diagonal, 437, 5ª planta
08036 Barcelona
Tel: (34) 93-240-3133
Fax: (34) 93-201-2988
Web-site: http://www.aece.org
Email: aece@aece.org

Asociación de Usuarios de Internet
(Association of Internet Users)
Mesena, 71 bajo A
28033 Madrid
Tel: (34) 91-221-0323
Fax: (34) 91-302-6177
Web-site: www.aui.es
Email: infoaui@aui.es

Commercenet
(Spanish E-Commerce Association)
Plaza Reyes Magos, 12, 1D
28007, Madrid

Tel: (34) 91-434-1149
Fax: (34) 91-552-8006
Web-site: www.commercenet.org
Email: feedback@commercenet.org

Asociación Española de Empresas de Tecnologías de la Información
Avda. Diagonal, 618, 3º A
08021 Barcelona
Telephone: 34-932 418 060
Facsimile: 34-932 418 061
www.sedisi.es
e-mail: jo@sedisi.es

Other Helpful Web-sites

Online Banking:
www.ebankinter.com (leading online bank)
www.bsch.es (Santander Central Hispano - country's largest bank)
www.patagon.es (part of Santander Central Hispano group)
www.bbva.com (Banco Bilbao Vizcaya Argentaria - 2nd largest bank)
www.uno-e.com (part of the BBVA group)
www.ingdirect.es (ING Direct)
www.evolvebank.com (Lloyds online banking division)
www.ceca.es (Confederation of Savings Banks)
www.lacaixa.es (La Caixa - leading savings bank)
www.cajamadrid.es (CajaMadrid - Madrid's leading savings bank)
www.bancsabadell.es (Banco Sabadell)
www.openbank.es (Openbank)

Online Construction:
www.e-uralita.com (B2B construction)
www.eporticus.com (construction)
www.e-difica.com (B2B construction industry)
www.cnc.es (National Confederation of Construction Companies)

Online Energy/Utilities:
www.endesamarketplace.com (B2B energy)
www.B2Benergia.com (energy)

www.agbar.es (energy/environment)
www.gasnaturalsdg.es (Gas Natural)
www.endesa.es (Endesa - large utility)

Online consulting firms:
www.accenture.es (Accenture)
www.kpmg.es (KPMG)
www.pwc.es (Price Waterhouse)
www.adade.es (consultants)
www.ey.com (Ernst&Young)
www.deloitte.es (Deloitte Touche)

Online shopping/entertainment:
www.abcserrano.com (distribution - shopping mall)
www.elcorteingles.es (El Corte Ingles - largest department store)
www.consumalia.com (B2B Non-strategic goods)
www.supertiendaviaplus (largest virtual store)
www.hoteles-restaurantes.com
www.metropolis.com (entertainment)

Online Telecommunications:
www.telefonica.com (Telefonica - telecommunications)
www.vodafone.es (Vodafone)
www.amena.es

Online Media:
www.recoletos.es
www.elpais.es
www.abc.es
www.lavanguardia.es
www.elmundo.es
www.cincodias.es

Further Information on Trade Agreements and EU Regulations

WTO Agreement on Basic Telecommunications Services:
Dan Edwards
Office of Telecommunications Technologies
International Trade Administration
U.S. Department of Commerce
Room 4324
Washington, DC 20230
Tel: 202-482-4331
Fax: 202-482-5834
Email: daniel_edwards@ita.doc.gov
or see http://telecom.ita.doc.gov

WTO Information Technology Agreement:
1) Danielle Kriz
Office of Information Technologies
International Trade Administration
U.S. Department of Commerce
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Washington, DC 20230
Tel: 202-482-0568
Fax: 202-482-3002
Email: danielle_kriz@ita.doc.gov
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Room 4324
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U.S.-EU Safe Harbor Agreement:
Jeff Rohlmeier
Office of Electronic Commerce
International Trade Administration
U.S. Department of Commerce
Room 2003
Washington, DC 20230
Tel: 202-482-0343
Fax: 202-482-5522
Email: jeff_rohlmeier@ita.doc.gov
or see http://www.export.gov/safeharbor

EU IT and telecommunications product standards:
In the United States:
U.S. Department of Commerce, National Institute of Standards and Technology (NIST)/ National Center for Standards & Certification Information (NCSCI)
Bldg 820, Room 164
Gaithersburg, MD 20899
Tel: 301-975-4040/4038/4036/5155
Fax: 301-975-2128
Email: ncsci@nist.gov
Web address: http://ts.nist.gov/ts/htdocs/210/217/bro.htm

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Fax: 32 2 513 1228
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The telecommunications and IT annexes of the U.S.-EU Mutual Recognition Agreement (MRA):
Myles Denny-Brown
U.S. Department of Commerce
(See above address)

EU directives:
1) The U.S. Department of Commerce's National Institute of Standards and Technology publishes "Information Guides on European Directives."
see http://www.tcc.mac.doc.gov/cgi-bin/doit.cgi?204:52:167442015:332

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eEurope:
Martin Whitehead
U.S. Department of Commerce
(see above address)

The new EU Regulatory Framework for Electronic Communications:
Myles Denny-Brown
U.S. Department of Commerce
(See above address)

Selected ICT Trade Events in Spain and Italy

Participation in in trade fairs is one of the most cost-effective ways of testing a foreign market's receptivity to a product, investigating and identifying competitors, and of finding customers or potential agents and distributors. In Europe, participants use trade fairs to do business, and not just to promote their products.

The fairs listed below represent several of the principal commercial events in Spain, Italy, and Europe. They tend to be international drawing companies from throughout Europe and other world regions. Attendees include buyers and exhibiting companies. For a complete listing of ICT events and related trade events in Western Europe and elsewhere supported by the U.S. Department of Commerce, please see www.export.gov. In addition, the Department's Office of Information Technologies and E-Commerce's web site (http://www.export.gov/infotech) and the Office of Telecommunications Technologies list events in the ICT sectors.

SPAIN

SIMO TCI

DATE: Every November
Place: Madrid, Spain
Contact: Emilio Arranz
Commercial Specialist
Ph: 34 93 280 2227 ext. 289
Fax: 34 93 205 7705
emilio.arranz@mail.doc.gov

DESCRIPTION: SIMO is Spain's international office equipment and information technology show held every November in Madrid. It includes a very large exhibit of information technology featuring computers and peripherals, software packages, computers supplies and accessories, maintenance, consulting services and telecommunications equipment and services. The last show occupied an area of more than 52,000 square meters where 700 participants exhibited their products/services to nearly 260,000 visitors.

ExpoComm Spain

DATE: Every April
Place: Madrid, Spain
Contact: Jesus Garcia
Commercial Specialist
Ph: 34 91 5648976 ext. 2619
Fax: 34 91 5630859
jesus.garcia@mail.doc.gov

DESCRIPTION: ExpoComm Spain is the leading communications and business solutions exhibition and conference for the Iberian Peninsula. The show is supported by ANIEL (Spanish Association of Electronic and Telecommunications Industries). Over 190 Spanish and international companies are expected to exhibit. Companies such as Telefonica, Vodafone, Alcatel, Amena, Auna, Harris, Amper, Astra, BT, Cable & Wireless, Comverse, Ericsson, are expected to participate in this event. A total of 15,000 trade visitors from different countries are expected to attend the event.

ITALY

SMAU

DATE: Every October
Place: Milan, Italy
Contact: Nicoletta Postiglione
Commercial Specialist
Ph: +39/02/659-2260
Fax: +39/02/659-6561
Nicoletta.Postiglione@mail.doc.gov

DESCRIPTION: SMAU (Salone Macchine Automazione Ufficio) is Europe's second largest annual exhibition in the ICT sector. In 2002, SMAU featured 2,500 exhibitors and 450,000 visitors. By participating in SMAU, small and medium-sized new-to-market companies are introduced to top Italian distributors and business partners, and stand an excellent chance of benefiting from the existing market opportunities.

INFOSECURITY 2004

DATE: February 2004
Place: Milan, Italy
Contact: Nicoletta Postiglione
Commercial Specialist
Ph: +39/02/659-2260
Fax: +39/02/659-6561
Nicoletta.Postiglione@mail.doc.gov

DESCRIPTION: InfoSecurity is the most important Italian show exclusively devoted to Information and Communication Technology security. Organized by Reed Exhibitions Italy, the show features over 100 exhibitors and 5000 visitors.

WESTERN EUROPE

CeBIT

DATE: Every March
PLACE: Hannover, Germany
CONTACT: Joachim Schaefer, President
Hannover Fairs USA
103 Carnegie Center
Princeton, NJ 08540
USA
Tel: 609-987-1202
Fax: 609-987-0092
Email:jschafer@hfusa.com, Event Web Page: www.cebit.de

DESCRIPTION: CeBIT is the world's largest trade show for computers, software, telecommunications, and office automation. Approximately 750,000 visitors and 7,500 exhibitors from 60 countries attend the show, which has 26 halls. This trade show is very important to U.S. firms. The competitiveness of U.S. products and the large number of international buyers make CeBIT popular among U.S. IT and telecommunications firms.

European Banking Technology Fair

DATE: Every October/November
PLACE: Frankfurt, Germany
CONTACT: Elizabeth Powell
Market Specialist, Financial Services
U.S. Department of Commerce/U.S. Commercial Service
American Consulate General
Siesmayerstrasse 21
D-60323 Frankfurt
Germany
Tel: 49 69 9562 0417
Fax: 49 69 561114
Email: elizabeth.powell@mail.doc.gov
Event Web Page: http://www.eurobanktech.com/

DESCRIPTION: A trade show for the financial community of Europe. The event also includes a policy conference on the European Monetary Union, information technology and the globalization of financial markets.

INFOBASE

DESCRIPTION: An annual trade fair showcasing databases, online services, communications technology, and software for personal and mainframe computers. The fair is rather small (216 exhibitors and 6,000 visitors attended in 2000) and specialized, in comparison to larger fairs such as CeBIT. It is a key show for companies interested in selling software "online."

DATE: Every May
PLACE: Frankfurt, Germany
CONTACTS: Messe Frankfurt GmbH
Ludwig-Erhard-Anlage 1
D-60327 Frankfurt
Germany
Tel: 49 69 7575 6586
Fax: 49 69 7575 6433
Email: infobase@messefrankfurt.de
Event Web Page: http://www.infobase.de

Internationale Funkausstellung (International Consumer Electronics Show)

DATE: Every other August/September
PLACE: Berlin, Germany
CONTACT: Messe Berlin GmbH
Messedamm 22
D-14055 Berlin
Germany
Tel: 49 30 3038 0
Fax: 49 30 3038 2325
Email: central@messe-berlin.de
Event Web Page: http://www.ifa-berlin.com

DESCRIPTION: This biennial show's main product groups include computer software, multimedia, and online services in addition to the traditional audio-visual and television/cable technology sections.

Internet World
DATE: Every May/June
PLACE: Berlin, Germany
CONTACT: ComMunic GmbH
Konrad-Celtis-Strasse 77
81369 Munich
Germany
Tel: 49 89 7411 7270
Fax: 49 89 7411 7279
Email: messe@internetworld.de
Event Web Page: http://www.internetworld.de

DESCRIPTION: An annual trade fair focusing on Internet-related hardware and software.

SYSTEMS
DATE: Every November
PLACE: Munich, Germany
CONTACTS: Messe Munchen GmbH
Messegelaende
D-81823 Munich
Germany
Tel: 49 89 9492 0361
Fax: 49 89 9492 0369
Email: poellmann@messe-muenchen.de
Event Web Page: www.systems.de

DESCRIPTION: This fair is held annually in Munich and is achieving major growth rates with respect to exhibitors and visitors alike. It is one of the major German computer exhibitions and is attended by most of the world's computer and communication products manufacturers.

ITU Telecom World 2003
Date: October 12-18, 2003
Place: Geneva, Switzerland
Contacts: Patricia Benoit-Guyot; http://www.itu.int/WORLD2003/
email: patricia.benoit-guyot@itu.int

DESCRIPTION: Held every four years, ITU Telecom World is the largest exhibition of it kind in the world.

CONTRIBUTORS TO THIS REPORT

SPAIN

ASOCIACIÓN ESPAÑOLA DE COMERCIO ELECTRÓNICO
ASOCIACIÓN ESPAÑOLA DE EMPRESAS DE TECNOLOGÍAS DE LA INFORMACIÓN
COMISION DEL MERCADO DE LAS TELECOMUNICACIONES
CAMBRA DE COMERC DE BARCELONA
E. J. KRAUSE & ASOCIADOS ESPAÑA
ERICSSON INNOVA
Expert Forum
FIRST TECHNOLOGY SALES
GENERALITAT DE CATALUNYA, SECRETARIA PER A LA SOCIETAT DE LA INFORMACIÓ (SECRETARY FOR THE INFORMATION SOCIETY)
GENERALITAT DE CATALUNYA, CIDEM
INFONOMIA!COM
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MERCER MANAGEMENT CONSULTING
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PARLAMENT DE CATALUNYA
RETEVISION
SOUTHWING
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TANGO
Technosis
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U.S. DEPARTMENT OF STATE, EMBASSY OF THE UNITED STATES, MADRID
WORLDCOM ESPAÑA
ZERO FACTORY, S.L.

ITALY

AMERICAN CHAMBER OF COMMERCE IN ITALY
ASSOCIAZION NAZIONALE IMPRESE SERVIZI INFORMATICA TELEMATICA ROBOTICA EIDOMATICA (ASSINTEL)
ASSOCIAZIONE NAZIONALE PRODUTTORI TECNOLOGIE E SERVIZI PER L'INFORMAZIONE E LA COMUNICAZIONE (ASSINFORM)
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KOINÈ CONSULENZA E SERVIZI
LUISS (LIBERA UNIVERSITA INTEERNAZIONALE DEGLI STUDI SOCIALI, CERSI)
MATE MARKETING TECNOLOGIE
2GINVEST
TELECOM ITALIA
TELECOM ITALIA MOBILE

U.S. Department of Commerce, Commercial Section in Rome and Milan
U.S. Department of State, Embassy of the United States, Rome, Italy
Valtellina S.p.A.
WorldCom SpA

The U.S. Department of Commerce would appreciate input from U.S. businesses that have used this ExportIT report in conducting export market research. Please review the privacy statement/ disclaimers at the bottom of this document/website. Please take a few moments to complete the attached survey and fax it to 202/482/0952, mail it to OITEC, Room 2806, U.S. Department of Commerce, Washington, DC 20230, or Email:timothy_miles@ita.doc.gov

ExportIT Report User Survey

About Our Report

ExportIT Report title:_____

1. How did you obtain a copy of the report?

____Online through the Information Technology Industries website
____Direct mail
____Other Commerce office
____Trade association
____State or local government office
____At a conference/seminar
____Other source (specify): _____

2. Do you prefer these reports in hardcopy or electronic form? _____

3. Please indicate the extent to which your needs were met by assigning a number to each of the following statements:

1-Very satisfied
2-Satisfied
3-Neither satisfied or dissatisfied
4-Dissatisfied
5-Very dissatisfied
6-Not applicable

__Overall needs addressed
__Accuracy of information
__Completeness of information
__Clarity of information
__Quality of analysis
__Relevance of information to your business

4. In your opinion, did reading the ExportIT report facilitate any of the following?

__Decided to enter or increase presence in market
__Developed an export marketing plan
__Added to existing knowledge of country/market
__Corroborated market data from other sources
__Decided to bypass or reduce presence in market
__Other (specify): _____

5. What other countries/regions should we cover in the ExportIT report program?

_____

6. Comments:

_____

About Your Firm

1. Number of employees:__1-99 __100-249 __250-499 __500-999 __1,000+

2. Location (abbreviation of your state only): ___

3. Business activity (check one):
__Manufacturing
__Service
__Agent, broker, manufacturer's representative
__Export management or trading company
__Other (specify): _____

4. Value of export shipments over the past twelve months:
__less than $10K
__$11k-$100K
__$101K-$500K
__$501K-$999K
__$1M-$5M
__More than $5M

_____
_____

Thank you——we value your input!

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_____

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