EU MARKET SURVEY 2002

COMPUTER SOFTWARE AND IT SERVICES

CENTRE FOR THE PROMOTION OF IMPORTS FROM DEVELOPING COUNTRIES

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REPORT SUMMARY

This survey profiles the EU market for Software and IT Services. It is difficult for a small or a medium-sized company to obtain information the European markets, which is why a new version of the CBI market survey on computer software and IT services has been published. It aims to provide assistance during export activities to Europe. The main goal is to give some background information on the European markets, and on ways to access these markets.
The emphasis of the survey lies on those products which are of importance to developing country suppliers. The major national markets within the EU for those products are highlighted. Furthermore limited statistical market information on consumption, trade, and information on trade structure and prices and margins is provided. Due to the fact that no HS -codes are available and to the absence of much branch statistical information, the statistical information is limited.

As an exporter, you need this information to formulate your own market and product strategies. In order to assist you with this, CBI developed a matching EU Strategic Marketing Guide for Computer Software and IT Services. It offers a practical handbook for exporters engaged, or wishing to engage in exporting Software and IT Services to the European Union. It aims to facilitate exporters in formulating their own markets and product strategies, through the provision of practical information and a methodology of analysis and ready-to-fill-in frameworks.

Product groups
For the purpose of this survey, software and IT services are detailed in product groups:

Category	Product group
1 Software	
	1.1 System software
	- System infrastructure software
	- Application tools
	1.2 Application software
	- Standard software
	- Custom software
	- Embedded software
2 IT Services	
	2.1 Training
	2.2 Consultancy
	2.3 Implementation
	2.4 Operations management
	2.5 Support services

A separation has been made, because of the different categorisation and definitions used by EITO (European IT federation) and FENIT (Dutch IT federation). In this way, a structured and transparent product group figuration can be used.

Consumption
Because the West European economy has been affected by the global slowdown, uncertainty dominates the market. However, the European Union is not expected to reach such a negative peak as the USA, and total GDP is expected to grow by 1.5 percent in 2002, before recovering to 2.9 percent in 2003.

The West European ICT market grew by 5.1 percent in 2001, thanks to 3.9 percent growth in IT and 6.4 percent in telecommunications. The ICT market has been strongly impacted by the economic slowdown, even if the various markets have been affected at a different level: more in the hardware segments, less in software and services, more in the Nordic countries and Germany, less in Southern Europe. The West European ICT market amounted to € 643 billion in 2001 i.e. 7.5 percent of GDP.

Software spending was also affected by the market downturn, even if to a less extent compared with the hardware markets. The market grew by 8.0 percent in 2001 and is expected to have grown by 8.9 percent in 2002. Key trends characterising the software market include the following:

- The *security* software market will experience the greatest influence of the September 11 terrorist attacks, and this influence will of course be positive. Information security has quickly become a mandatory budget item. The increased co-operation between government and industry on security matters, both physical and electronic, will result in the creation of minimum-security standards for most industries, further driving investments.

- “Integration “ is currently an important watchword in the *Industrial Manufacturing* area, and strong investments are expected in Integrated Enterprise Applications to streamline back- and front-office operations. A full understanding of the operations and environment of the customer’s organisation is vital in these cases and therefore a presence on-site is needed.

- The market is experiencing strong demand coming from the *home segment* for streaming software for video and audio.

- More use of high-bandwidth networked applications (graphics and video), which requires higher performance.

- Investments in enterprise applications and E-business applications, both at the front end and the back end.

- Messaging, logistics, and sales applications as important foundations to supply-chain application demand.

- Content management, materials management, and marketing applications following developments in E-business.

- The shift in the demographics of Web users and E-commerce away from the United States and away from English, creating new opportunities for multilingual and cross-lingual applications.

- Professional services-specific applications as enterprises begin to apply product Supply Chain Automation principles to services functions.

The overall IT services market was the least impacted by the global slowdown and by the international crisis and showed an 8.0 percent growth, including support services, in 2001. A further 8.5 percent growth is expected in 2002. Overall, some key trends and drivers shape the West European IT services market:

- Economic slowdown forces companies to cut costs. Moreover competition is heating up. The slowdown of the economy and the impact of the Euro will further increase the competition in each of the vertical markets. Organisations have to be creative to find ways of increasing their efficiency and productivity. Transparency of their cost situation will help them to achieve these goals. The outsourcing of non-core competencies will increase, as these organisations will redefine their core competencies to become even leaner enterprises.

- E-Business remains one of the greatest challenges. Many organisations are rethinking their approach to E-business and asking for help and guidance to do so.

- Customer orientation is an absolute CRM applications are driving a large part of the IT services spending. This, of course, will not only be focusing on the technical side, but more so on the business side.

- The integration of applications is becoming a key priority of European businesses and this is driving demand for consulting and implementation services, as well as outsourcing if skills to do so are not found in-house.

- Mobile business opportunity creates new opportunities for IT services, as business models are evolving to reflect new mobile capabilities. Moreover, without many established vendors in the mobile application area, there are great opportunities for the custom development of these solutions.

- The demand for security services (from vulnerability assessment to remote monitoring and management of the security elements of networks) is increasing fast across Europe.

- The shortage of qualified IT staff still remains the greatest inhibitor to growth.

Highlighted in this survey are the consumption patterns in the most important markets in the EU: Germany, France, the UK, Italy and the Netherlands. The most important producing and consuming enterprises can also be found in these countries and in Spain.

Imports

Because of the absence of data, no import data can be provided. It is however very useful for exporters to get an idea of the procurement volume of the product groups examines in the EU. Therefore a chapter about outsourcing is incorporated. The trends per product group, the relative importance in volume and demands, and the opportunities for developing country exporters are mentioned.

The market for software, especially packaged software for the PC, is enormous in Europe. Nevertheless, *unfortunately, the opportunities for exporters in developing countries in this field in Europe are generally minimal*. One of the main problems is credibility: if there is a number of similar packages available from an industrialised country at a similar price, then they will usually be bought from the latter country. In many cases, application software is partly produced in a developing country, but it will be owned and traded by a (often well-known) American or European company. There are only very few firms in developing countries able to build and market application software themselves. It was found that success in their domestic market was essential and without any local market for packaged software it was almost impossible to finance the export marketing. The major criterion for success is to develop entry into the market with a niche item (a very specialised item).

IT services can be sold to a large number of European software producers and to end-user organisations. Traditionally, the large and information-intensive sectors have been users of the IT services from developing countries, such as banks, insurance companies, and airlines.

The major (sub) product groups of importance to developing countries are considered below.
Implementation - software development: building new and maintaining older IT systems.
The maintenance of the legacy systems is a labour-intensive and difficult task and a likely candidate for outsourcing to firms in developing countries.
A specific subject in the field of IT services is **training**. Various software companies in developing countries are already involved in making software to be used in Computer Based Training (CBT), especially for courses in the field of IT. This material is being sold on the European market by American or European training companies.
Also various activities in the field of **operations management - processing services** can be carried out by developing countries, since the tasks are often well defined, of a routine nature and require little interaction between client and vendor. Some examples of these services are listed below:

- Document conversion. The electronic publishing industry is very labour intensive and has been forced to use offshore services for data entry, image indexing, imaging, CD-ROM mastering etc.
- Remote data entry. Data entry requires the lowest level of computer literacy. It also requires very little interaction between the customer and the vendor.
- Geographical Information Services (GIS). GIS is a very important part of information management, in that it connects databases to a geographical reference point. Over 80 percent of the cost of a GIS is in data capture and data administration.
- Back-office management. Many international firms which require constant data conversions that are particular labour intensive have found it economically viable to set up back offices in a number of developing countries.

Opportunities for exporters in developing countries
The still-growing European markets for software and IT services are creating many opportunities for firms in developing countries. Software, arguably the driving force of the IT revolution, is particularly attractive when viewed from the perspective of developing countries. The production of software is labour-intensive and software professionals are constantly in demand. Information, unlike products such as textiles or automobiles, can be transported quickly and cheaply. Modern methods of communication and Information Technology make this possible. Thus, many information intensive tasks can be moved halfway across the world if it makes economic sense.

Data-entry was one of the earliest tasks to be globally outsourced, followed by back-office activities such as insurance claims processing. The current trend in global outsourcing lies in implementation - software development and in operations management - processing services. To design and to market application software on your own is very difficult. The most attractive option for firms in developing countries is in offering IT services. You can offer your services to software companies (which have the production of software as their core activity), also to end-user organisations. The large and information-intensive sectors (such as banking and insurance) are especially well-known users of the IT services from developing countries.

Market research
This EU Market Survey and the EU Strategic Marketing Guide serve as a basis for further market research: after you have read this survey and filled in the frameworks in the Strategic Marketing Guide, it is important to further research your target markets, sales channels and potential customers.

Market research depends on secondary data (data that have been compiled and published earlier) and primary data (information that you collect yourself). An example of secondary data is this EU Market Survey. Primary data are needed when secondary data fall short of your needs, for example when researching your specific type of consumer about the acceptance of your specific product. Sources of information are among others (statistical) databanks, newspapers and magazines, market reports, (annual) reports from branch associations, but also shops in target countries, products or catalogues from your competitors, and conversations with suppliers, specialists, colleagues and even competitors. After you received/collected your information you should analyse the information. In order to judge the attractiveness of the market, sales channel or customer, you should use/develop a classification or score system.

For more detailed information on market research, reference is made to CBI's Export Planner (2000).

1 PRODUCT CHARACTERISTICS

1.1 Product groups

Information Technology (IT) or Information and Communication Technology (ICT) is a very broad and complex subject and a variety of classifications is used. The Dutch Federation of IT (FENIT) uses a classification which divides IT into the following four general categories:

1. Software (divided into standard, custom, system and development software)
2. Services (consisting of a lot of different activities, such as training, consultancy, development and maintenance of software, outsourcing and processing services)
3. Hardware (such as PCs, servers, large systems, terminals, network equipment, data communication equipment, printers and other peripherals)
4. Supplies (computer books, diskettes, tapes, printer ribbons, components, cables etc.).

The European Information Technology Observatory (EITO) uses the following general segments:

1. ICT equipment (including computer hardware, end-user communications equipment, office equipment and data communication and network equipment);
2. Software products;
3. IT services;
4. Carrier services.

This survey targets exporters of software and IT services, so for this reason we will not cover the subjects of hardware and supplies. Our selection means in the FENIT definition: category 1 and 2 and in the EITO: segments 2 and 3.

Table 1.1 Product group definition

Category	Product group
1 Software	
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2 IT Services	
	2.1 Training
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	2.4 Operations management
	2.5 Support services

For the purpose of this survey, software and IT services are detailed in the product groups, presented in Table 1.1. A separation has been made, because of the different categorisation and definitions used by EITO and FENIT. In this way, a structured and transparent product group figuration can be used.

1.1.1 Software

Software can be categorised into system software and application software. System software can be broken down into system infrastructure software and application tools.

- System infrastructure software can in its turn be divided into:
  - system management software (used to manage the full range of computing resources for the enterprise);
  - middleware (a wide range of basic software that offers a solid interface for programming by hiding the specific characteristics of the hardware, the communication protocols, the operating system and even the different programming languages. It has been mainly designed for distributed and heterogeneous applications);
  - serverware (delivers capabilities to co-ordinate resources between distributed servers or nodes on the network); and
  - system-level software. System level software is the foundation of system software products that collectively operate the hardware platforms and communications networks upon which business applications are built. System-level software includes operating systems and subsystems, networking software and system utilities.

- Application tools include information access tools and programmer development tools. Programmer development tools are products that support the professional developer in the design, development and implementation of a variety of software systems and solutions. Examples include database engines, 4GL, AMD (analysis, modelling and design) and 3GL.

- Application software includes consumer, commercial and technical programmes designed to provide software solutions for specific problems inherent in the home, industry or in a business function.

Application software can be divided into:

- Standard software products (also known as ready-made packages) can be used directly with only limited modifications. They are commercially available from independent software vendors or system vendors. They can be bought or leased. Examples of these are general-purpose software for word-processing, spreadsheets, databases, project management, DeskTop Publishing etc.. There are also packaged solutions for specific problems inherent to an industry or business function. Software of this type can address cross-industry functions such as accounting, human resource management, payroll or specific industrial solutions for vertical markets such as banking/financial services, manufacturing, health care etc.

  Commonly used products at the moment are:

  + Customer Relationship Management (CRM; front office/sales and marketing);
  + E-...: business/commerce/marketplaces/ procurement (sales, procurement and communication via Internet);
  + Enterprise Resource Management (ERP; back office/manufacturing);
  + Supply Chain Management (SCM, planning/monitoring);
  + Advanced Planning and Scheduling (APS, detail planning);
  + Warehouse Management System (WMS; logistics).

  Software is called ‘proprietary’ if one specific vendor, such as IBM or Unisys, owns it. The trend is that larger companies, in particular, move more and more to standard packages such as Enterprise Resource Planning (ERP) and build their own IT solution on the basis of that.

- Custom software is when software needs to be created because it is not yet available on the market. This kind of software is produced specifically to suit the needs of one particular client; these applications are also known as ‘tailor-made’. It can be totally new software developed from scratch or it can be an adaptation of an existing standard software package. In the past, large companies were totally dependent on custom-built software because commercially available applications were not suitable to their specific conditions.

- Embedded software is a special category, since it is built into mechanical or electronic devices. It is device-specific software, developed to manage and monitor process(es).

1.1.2 Services

There are many different activities in the field of IT service provision. Five type of activities are considered in this survey.

- Training: all activities in the field of training and education in the field of IT, both in the form of customised and open subscription, internal and external courses, written and oral.

- Consultancy: advising and consultancy services specifically for IT purposes. Such as: information systems strategy assistance, information system and network planning, architectural and supplier assessments, product consulting and technical designs for information technology, and maintenance planning.

- Implementation: compromises all activities directly involved in the creation of technical and business IT solutions, specifically with procuring, configuring, installing, developing, moving, testing and managing information technology. Implementation services also include all activities involved in custom application development and work performed on packaged applications. Training and education could also be included in this segment. It includes activities required for the transmission of new behaviours, skills or actions that can be used to begin performing job-specific tasks or improve performance in IT-related functions.

- Operations management: involves taking responsibility for managing components of a client’s IT infrastructure. Specific activities include help-desk services, asset management services, systems management, network management, software update management, facilities management, back-up and archiving and business recovery services. Processing services, such as data-entry (text keying), GIS data entry, document conversion and insurance claims processing are also included under this category. Back-office management is another area, such as the operation of call centres and helpdesks.

- Support services: include all activities involved with ensuring that hardware, software and networking products are performing properly as a service to clients. Activities include all maintenance contracts for hardware, software and networking products, as well as services, such as telephone support to resolve problems for clients and help with workarounds. Services in this category can come as bundled packages.

2 INTRODUCTION TO THE EU MARKET

The European Union (EU) is the current name for the former European Community. Since 1 January 1995 the EU has consisted of 15 member states. Ten new countries will join the European Union in 2004. Negotiations are in progress with a number of other candidate member states.

In 2002, the size of the EU population totalled 379.4 million; the average GDP per capita amounted to approximately € 21,023 in 2002.

Within West Europe - covering 15 EU member countries, Iceland, Liechtenstein, Norway and Switzerland - more than 20 million enterprises are active. Small and medium-sized enterprises (SMEs) accounted for the lion's share. In 2000, the average turnover per enterprise of SMEs and large enterprises amounted to € 600 thousand and € 255 million respectively.

EU Harmonisation
The most important aspect of the process of unification (of the former EC countries), which affects trade, is the harmonisation of rules in the EU countries. As the unification allows free movement of capital, goods, services and people, the internal borders have been removed. Goods produced or imported into one member state can be moved around between the other member states without restrictions. A precondition for this free movement is uniformity in the rules and regulations concerning locally produced or imported products. Although the European Union is already a fact, not all the regulations have yet been harmonised. Work is in progress in the fields of environmental pollution, health, safety, quality and education. For more information about harmonisation of the regulations visit AccessGuide, CBI's database on non-tariff trade barriers at **www.cbi.nl/accessguide**

Monetary unit: Euro
On 1 January 1999, the euro became the legal currency within twelve EU member states: Austria, Belgium, Finland, France, Germany, Greece, Italy, Ireland, Luxembourg, The Netherlands, Spain, and Portugal. In 2002 circulation of euro coins and banknotes replaced national currency in these countries. Denmark, United Kingdom and Sweden have decided not to participate in the Euro.

The most recent Eurostat trade statistics quoted in this survey are from the year 1999. In this market survey, the € is the basic currency unit used to indicate value.

Trade figures quoted in this survey must be interpreted and used with extreme caution. The collection of data regarding trade flows has become more difficult since the establishment of the single market on 1 January 1993. Until that date, trade was registered by means of compulsory customs procedures at border crossings, but, since the removal of the intra-EU borders, this is no longer the case. Statistical bodies like Eurostat cannot now depend on the automatic generation of trade figures. In the case of intra-EU trade, statistical reporting is only compulsory for exporting and importing firms whose trade exceeds a certain annual value. The threshold varies considerably from country to country, but it is typically about € 100,000. As a consequence, although figures for trade between the EU and the rest of the world are accurately represented, trade within the EU is generally underestimated.

Overview 15 EU countries, 2002

Population	**379.4 million**
Area	**31,443,000 km²**
Density	**83 people per km²**
Languages	**15 (excl. dialects)**
GDP/capita	**€ 21,023**
Currencies	**€, UK£, DKr., SKr.**
Exchange	**€ 1 = US$ 0.99**

Population and GDP of selected EU countries, 2002

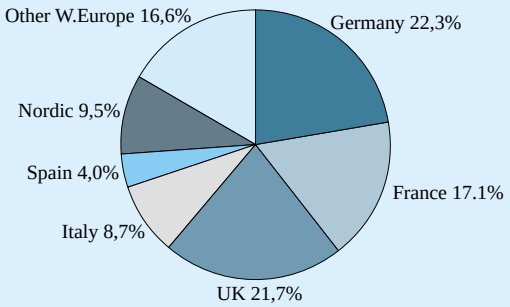
Countries/category	Population	Age 15-64	GDP (€ billion)
Germany	**83.3 million**	**68%**	**2,206**
France	**59.8 million**	**65%**	**1,556**
UK	**59.8 million**	**66%**	**1,485**
Italy	**57.7 million**	**67%**	**1,416**
Spain	**40.1 million**	**68%**	**836**
The Netherlands	**16.0 million**	**68%**	**417**

Source: The World Factbook 2002

Furthermore, the information used in this market survey is obtained from a variety of different sources. Therefore, extreme care must be taken in the qualitative use and interpretation of quantitative data, both in the summary and throughout the text, as also in comparisons of different EU countries with regard to market approach, distribution structure, etc.

For more information on the EU market, please refer to the CBI's manual Exporting to the European Union.

Figure 2.1: West European IT market by country, 2001



Source: EITO 2002

In this survey, the consumption patterns in the most important markets in the EU have been highlighted because of their relative importance in terms of consumption. Based on the above graph, Germany, France, the UK, Italy and the Netherlands market (3.4 percent of the total West Europe IT market) have been selected for further examination.

3 CONSUMPTION

3.1 Market size

3.1.1 European Union

The European Union (EU) consists of 15 member states: Belgium, Denmark, France, Germany, Greece, Ireland, Italy, Luxembourg, The Netherlands, Portugal, Spain, the United Kingdom, Sweden, Finland and Austria. The EU is a leading trade bloc, and this is also the case for software and IT services. The United States is the largest IT market in the world, and is followed by the European Union; Japan ranks third.

The Gross Domestic Product of the EU in 2000 was approximately US$ 7.8 trillion. Private consumption accounted for 5 percent of the EU's GDP, while gross fixed capital formation contributed 2 percent and government consumption added an additional 20 percent. It should be noted that total current expenditures by the government sector in the EU in 2000 were 46 percent of GDP. In the external sector, the average ratio of exports of goods and services to GDP for the EU-15 in 2000 was 33.4 percent, while imports of goods and services was 32.3 percent. Most of this trade, however, was among member states, as exports of goods to the rest of the world were 10.1 percent and imports 10.4 percent of GDP.

Germany has by far the largest economy in the EU, accounting for 23 percent of the EU's 1999 GDP, followed by France (16 percent), Italy (15 percent), and the United Kingdom (17 percent). Per capita income in 1999 for the EU as a whole was about $22,611, ranging from around 176 percent of the average in Luxembourg to Portugal (75 percent) and Greece (66 percent). The EU economy is heavily weighted towards the service sector, which in 1999 provided about 67.1 percent of the added value in the economy. Industry contributed another 24.5 percent and construction 5.8 percent, leaving agriculture at about 2.6 percent. As with most features of the EU, there is considerable variation between member states.

The West European ICT market (consisting of the 15 EU countries plus Switzerland and Norway) amounted to € 643 billion in 2001 or some 7.5 percent of GDP. The IT market (including office equipment, electronic data processing and data communication equipment, software, and services) was some € 324 billion, while the telecommunications market accounted for some € 318 billion.

3.1.2 Selected EU markets

The West European ICT market grew by 5.1 percent in 2001, thanks to 3.9 percent growth in IT and 6.4 percent in telecommunications. Growth was not even across Europe, because Nordic countries and Germany were more affected by the slowdown showing moderate growth, and South European countries grew above the European average. The market was expected to have improved slightly in 2002, with IT forecast to grow by 5.1 percent and telecommunications by 5.8 percent. In the following part, the selected markets will be highlighted.

Germany

GDP in Germany grew by only 0.7 percent in 2001. The slowdown was mainly caused by external factors, such as high energy and food prices and the strong US contraction hitting German exports hard. The country experienced a sharp increase in bankruptcies in 2001. Prospects for 2002 are rosier and GDP growth is expected to have picked up slightly to reach approximately 1 percent. This economic situation had a negative impact on IT investments. The German IT market grew by some 1.2 percent in 2001 and is expected to have grown by 2.9 percent in 2002. The market saturation and the economic slowdown were the key factors inhibiting growth in the German market. In the software space, German businesses are turning their attention from customised software to packaged software. This enables them to benefit from the experience and focused development efforts of software vendors, as well as to lower their own costs for development. As a result, packaged applications are becoming embedded in the business process itself. However, the emergence of new technology models and uses such as wireless continues to create short-term needs for customised applications.

In the area of IT services, E-business, CRM and SCM-related services were the hot topics in the market, in addition to strong growth in systems integration. The application outsourcing market was one of the fastest growing service categories in Germany in 2001. German organisations increasingly seek outside assistance in deploying, managing and enhancing their applications. This trend comes in response to the growing importance of applications within companies and the increased amount of time and skills needed to keep up with the rapidly changing technology cycles. Deregulation in the telecom sector in Germany is creating new opportunities as all types of telecom providers and Internet Service Providers (ISPs) build out their data network infrastructures to increase their overall competitiveness. The increasing need for network access is putting even more pressure on already scarce resources. This results in a growing need for network consulting services. Network security concerns and E-commerce initiatives are also becoming an

important driver. The telecommunication market in Germany grew by 4.7 percent in 2001, and was expected to grow by 5.6 percent in 2002. The German fixed-line telecommunications area continued to be affected by competition and rate cuts and was able to show a moderate growth mainly due to increases in Internet and online services revenues. Nevertheless the incumbent share remained high in 2001 especially in the local call area. Competition is starting to develop in the local access market and the percentage of population that can be reached by local network operators is steadily increasing. As a result of these trends, ICT in Germany grew by 2.8 percent in 2001 and was expected to grow by 4.1 percent in 2002.

France

Following three years of expansion the French economy is facing uncertainty, with real GDP growth reaching 2.0 percent in 2001 compared to 3.4 percent in 2000. The downturn was driven by the global slowdown, a reduction in corporate demand, slowing external demand from the US, Japan and Germany, as well as decelerated export growth. As a result of weaker production, companies curtailed investment. Prospects for 2002 are weaker with GDP expected to have grown by 1.6 percent. Although the French IT market is currently experiencing a downturn in PC spending, penetration for PCs and Internet usage still remains low in comparison to other West European countries, leaving much space for further development. The French government is keen to promote the benefits of the Internet in areas such as education and business, which will in turn allow for investment in the French IT market.

The software market registered healthy growth for both systems and application software. Customer Relationship Management (CRM) and Supply Chain Management (SCM) applications were key drivers of the software market. The extension of B2B E-commerce provoked a greater need within the larger organisations to co-ordinate product and customer information via CRM applications. This in turn has led to a greater realisation of the critical role of application integration that is required to support the extended enterprise. France has traditionally been an early adopter country and front-runner in Europe when it comes to the usage of Business Intelligence (BI). This trend was underlined by the continuing growth in analytical applications in 2001 such as financial, CRM, operations and production analytical applications/tools. Web site analytics is the fastest growing analytic application software segment, as companies increasingly analyse data from Web-based interactions, for understanding customer behaviour. These factors have also helped French IT services to grow by a notable 9.2 percent. The fastest growing segments were consulting and implementation services, driven by projects centred on the Euro, E-Business, Supply Chain Management (SCM), Enterprise Resource Planning (ERP) and Customer Relationship Management (CRM). The deregulation of major industries, in particular those of telecommunications and financial services, has been a catalyst for consulting and implementation services demand. Also the public sector has increased demand for IT consulting. Operations management services are also showing good growth as companies look for outsourcing to cut internal costs.

The French telecommunications market was up 8.9 percent in 2001. A further 5.7 percent increase was forecast for 2002. Growth in carrier services increased by 13.8 percent in 2001. The growth in fixed telephony (excluding Internet and online services) has slowed, and the number of fixed operators remained the same as in 2000, mainly due to consolidation of existing operators. Internet access and data communications services continued to show good growth. However, most growth in high-speed Internet access has been accomplished by the incumbent (ex-monopolist), especially for Asymmetric Digital Subscriber Line (ADSL), and actual competition is still not a reality in this area. With large potential user bases for both cable Internet and Digital Subscriber Line (DSL)services, broadband in France will grow quickly, catching up with Germany and the UK in the next two to three years. At the end of November 2001 there were still no unbundled lines in France: this is hampering competition in the French local access market.

Overall France saw ICT expanding by 7.0 percent in 2001, while it was expected to experience a 5.8 percent growth in 2002.

Italy

The Italian economy slowed in 2001 reaching GDP growth of 1.8 percent. However the indicators of the employment and inflation outlook were stable. If the economy revived in the first half of 2002 then it was expected GDP could reach 1.2 percent in 2002. The IT market in Italy recorded a growth rate of 7.8 percent in 2001 and was expected to each 6.8 percent in 2002.

On the whole the outlook for the Italian IT market is positive. New government initiatives designed to aid and encourage companies to make IT investments are helping create a buffer against the effects of the economic slowdown. Although the market is mature in some respects such as mobile adoption, both PC and Internet penetration remains low in Italy and healthy growth in these areas is likely. The Italian PC market was only partially affected by a slowdown in business demand and continued to show a growth trend in 2001. Declining prices and the ready availability of Internet-

ready PCs drove adoption in the consumer segment. Moreover, the newly created Ministry of Innovation should also help to counterbalance the effect of the slowdown. Internet penetration has been relatively low in Italy but a number of free Internet initiatives and the emergence of more portals have led to a market surge in the area.

The software market in Italy for both systems and application software continued to demonstrate healthy growth. Key drivers in this segment were the adoption of E-business, SCM and CRM software applications to maintain competitive advantage and extend market reach. With regard to the IT services market, there was strong growth in the outsourcing market, with major deals being signed by some of Italy's largest conglomerates. Systems integration and application management also achieved solid growth rates. Growth in the Italian telecommunications market was 5.4 percent in 2001 and was forecast to be 5.0 percent in 2002. Revenues coming from mobile services almost reached that of fixed-line telephony in 2001. Growth in fixed telephony continued to be restricted by competition and decreasing prices. To increase revenues in this highly competitive market, telecom operators are continuing to offer new services such as combined voice/data flat fees and discount plans for calls to preferred fixed-line numbers or preferred geographical areas or during preferred day time. The growing implementation of CRM strategies is helping companies in understanding and profiling their customers and being proactive in this changing and competitive market. Internet and online services remained the key driver of growth in the fixed-line area. The number of Internet users continued to grow as well as that of broadband users, as prices continued to fall since more operators are offering high-speed Internet connections.

These different dynamics helped Italy to reach a 6.3 percent ICT growth in 2001. A further 5.7 percent was forecast for 2002.

United Kingdom

2001 was a bumpy ride for the UK economy: the manufacturing market shrank faster than anticipated in addition to the added pressure caused by the high labour costs, lack of investment and rising costs of raw materials. However, the UK economy was buoyed by an increase in household spending, which was itself supported by the growth in employee earnings. In general the IT market in the UK grew by 5.8 percent in 2001 and was predicted to grow by 7.1 percent in 2002.

Overall, the IT market is beginning to see the first signs of the economic slowdown, particularly in the hardware sectors, where PCs and servers put in poor performance. Sales of data communications equipment are also being affected. The softness of the business sector continued with very little investment for IT infrastructure. There was evidence of capital investment cuts in large enterprises, leading to the slowdown of PC renewals and new equipment purchases. The small and medium business sector was also affected by this trend. Evident in the market was the aggressive pricing, which continued to pull prices down.

In terms of software and IT services, the market was driven by sales of Web-enabled software and outsourcing services. The market saw a shift from strategic spending to tactical investments that would either directly reduce costs or improve sales in the short term. Unnecessary infrastructure upgrades were put on hold. The market continued to see strong investment in CRM and SCM applications, as E-business continued to be a primary driving force behind the adoption or upgrading of enterprise applications and CRM strategies. Packaged software applications are playing an increasingly important role within UK organisations. As applications take on more business functionality, they become inherently more complex. Applications are evolving from those that facilitated a single business function (e.g. accounting, payroll) to integrated application environments that facilitate business processes spanning entire organisations (e.g. ERP, customer management, E-commerce). This evolution requires more people, planning, and on-going management, especially for mission-critical applications that must maintain a high level of availability. Hence many UK organisations are opting to outsource the management of their application environment.
The telecommunication market in the UK grew by 6.7 percent in 2001 and was expected to rise a further 4 percent in 2002.

In the fixed telecommunications area, despite strong volume growth especially in calls to mobile, total revenues continued to decline. One of the areas that experienced strong growth was that of Internet and online services. The carrier services market experienced only moderate growth in 2001.

A great opportunity for growth is seen in the Internet Protocol-Virtual Private Network (IP-VPN) sub-sector, as many companies are starting to realise it as an opportunity to save time and money at the same time. And IP-VNP also helps the convergence between data and voice, unifying network infrastructure and the services it supports. The major advantage of these technologies is also the opportunity to enable applications such as Voice over IP (VoIP), video and unified messaging, which after September 11 represent the best alternative to travelling for business. As a consequence of these trends, the UK ICT market grew by 6.2 percent in 2001. Growth for 2002 was expected to reach 5.6 percent.

The Netherlands

In 2001 and in the prognosis for 2002, the growth of the Dutch economy slowed down. After 5 years of healthy growth, the gross national product slowed down by 1 percent in 2001 and 1.25 percent in 2002. Due to the economic prognosis, the gross investments decreased in 2001 and 2002 to respectively -2.00 percent in 2001 and - 0.50 percent in 2002. It is notable that the percentage of ICT in the GNP has been consistent for the past 5 years. Since 1998 the percentage of ICT in GNP has fluctuated between 6.15 and 6.26 percent.

The Dutch Federation of IT (FENIT) organises more than 200 companies operating in the IT sector. Due to its size, the organisation represents almost 80 percent of the entire sector's suppliers of hardware, software and IT services. One of its activities consists of conducting market research and the information in this chapter comes partly from the Market monitor.

Table 3.1 reflects the share of hardware, software, services and supplies/other as parts of the total IT market for the last 5 years. According to this table, the share of software is increasing compared to hardware and services.

Table 3.1 Share of hardware, software, services and supplies/other in the total IT market, 1998-2002 in percent

	1998	1999	2000	2001	2002*
Hardware	52	54	51	48	46
Software	16	17	18	23	24
Services	28	25	27	25	26
Supplies/other	4	4	4	4	4

Source: ICT Market monitor 2001-2002 * = *forecast*

Software

In 2001 the software expenditures in The Netherlands amounted to 2.54 billion euro (2.8 billion US$), which adds up to 23 percent of the total IT turnover. In relation to 2000, this constitutes a growth rate of 27.7 percent. The main reason for this increase appears to be the new systems software for the PC market, which was purchased by a portion of the commercial market. These figures show that software continues to be a strong growth market, in spite of the decreasing economic growth in 2001.

The forecast for 2002 was also positive for the software market, with a growth of 10.3 percent for 2002, which will be an amount of 2.8 billion euro. This means that software will still be the driving force of the IT sector. Most of the growth is expected to come from the commercial market.

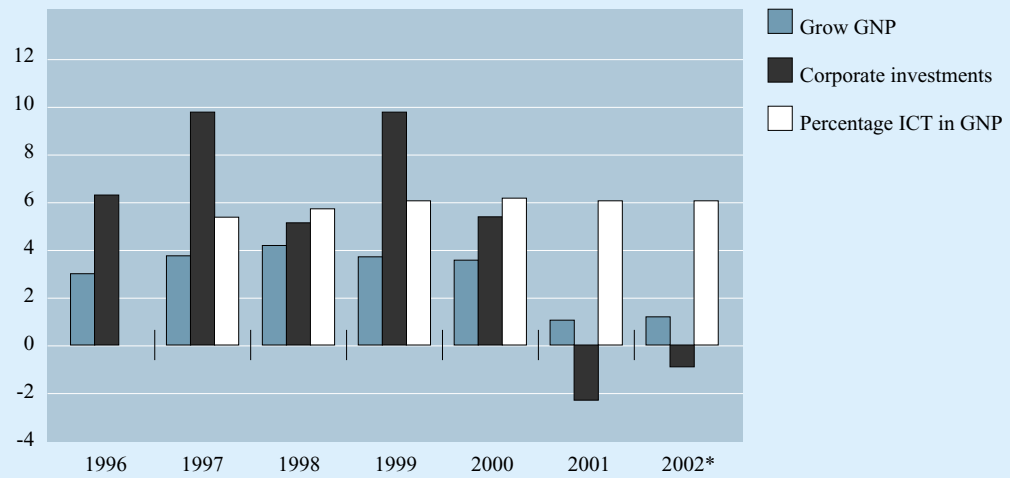
Table 3.2 shows the expectations of FENIT members; they expect a fall in system software sales.

Table 3.2 Growth in software turnover for FENIT members, 2000-2002 in percent

	2000	2001	2002*
Standard	30	0	10
Custom	25	20	20
System	15	-10	-5

Source: ICT Market monitor 2001-2002 * = *forecast*

Figure 3.1 Growth GNP, Gross investments, Percentage ICT in GNP, 1996-2002 in percent



Source: ICT Market monitor 2001-2002 * = *forecast*

Services

In 2000, a negative change could already be detected for IT services. This change pushed through making 2000-2001 a bad year for IT service providers. The service sector took a 25 percent share of the total of IT spending. In comparison to the previous years, this was relatively constant. Among the different activities, training and outsourcing in particular showed the biggest decrease (-10 percent). Maintenance and repair of hardware also dropped (-2 percent). Consultancy and subcontracting however were the big winners in 2001, with a growth of more than 20 percent. The expectations for IT services in 2002 were again somewhat more positive, since the market was expecting a growth of 1.7 percent to 3.42 billion euro.

As shown in table 3.3 software maintenance, in-service and outsourcing were the biggest growers. Temporary postings fell back, whereas hardware maintenance recovered a bit. Training was partly lifted because of e-learning.

Table 3.3 Growth of turnover inservices for FENIT members, 2000-2002 in percent

	2000	2001	2002*
Training	-5	-10	5
Temporary posting	-10	10	-10
Hardware maintenance	-10	-2	2
Software maintenance	-10	20	20
In-service	-7,5	25	25
Consultancy	-17,5	-11	-8
Outsourcing	-10	-3	15

Source: ICT Market monitor 2001-2002 * = *forecast*

Table 3.4 gives an overview of the most important economic figures for ICT services in The Netherlands.

The production value shows a steady growth of 20 percent per year, falling in 2000 (to about 12 percent). The gross added value is about 60 percent, of which about a half is employee rewards. This means that the

Table 3.4 Most important economic variables of the Dutch ICT Services sector, 1995-2000

in million euro

	1995	**1996**	**1997**	**1998**	**1999**	**2000**
Production value						
Total ICT services	13 944	15 649	18 633	21 827	25 506	28 794
of which						
postal & telecom compagnies	9 762	10 376	11 627	13 127	15 211	17 419
computer service bureaus	4 182	5 273	7 005	8 699	10 295	11 375
Gross added value						
Total ICT services	9 068	10 104	11 692	13 139	14 690	16 067
of which						
postal & telecom compagnies	6 408	6774	7 315	7 757	8 355	9 140
computer service bureaus	2 660	3 330	4 377	5 382	6 335	6 927
Employee rewards						
Total ICT services	4 433	4 934	5 674	6 727	7 653	8 623
of which						
postal & telecom compagnies	2 578	2 646	2 861	3 147	3 371	3 706
computer service bureaus	1 856	2 288	2 813	3 580	4 282	4 918
Investments						
Total ICT services	1 794	2 231	3 035	3 816	6 170	-
of which						
postal & telecom compagnies	1 526	1 847	2 629	3 319	5 613	-
computer service bureaus	268	383	406	497	557	-
Imports						
Total ICT services	1 134	1 213	1 466	2 148	2 884	3 758
of which						
postal & telecom compagnies	9932	952	1 109	1 669	2 246	3 003
computer service bureaus	202	261	356	479	638	756

Source: CBS

ICT sector has a significant input (knowledge, capabilities, products) in transferring basic materials into useful and profitable products. The imports have grown from 8 to 13 percent. The telecom sector in particular is importing more expertise and capacity from abroad.

3.2 Market segmentation

One of the most extensive sources of information in this field is the European Information Technology Observatory (EITO) yearbook. It has been published annually since 1993 and has grown in size to more than 430 pages. EITO sets the standard for market analysis and statistics and receives substantial support from the European Commission in Brussels, Belgium. The following information comes partly from the EITO yearbook 2002.

3.2.1 Software

Software spending was also affected by the market downturn, even if to a less extent compared with the hardware markets. The market grew by 8.0 percent in 2001 and was expected to grow by 8.9 percent in 2002. Key trends characterising the software market include the following:

- The *security* software market will experience the greatest influence of the September 11 terrorist attacks, and this influence will of course be positive. Information security has quickly become a mandatory budget item. The increased co-operation between government and industry on security matters, both physical and electronic, will result in the creation of minimum-security standards for most industries, further driving investments.

- "Integration " is currently an important watchword in the *Industrial Manufacturing* area, and strong investments are expected in Integrated Enterprise Applications to streamline back- and front-office operations. A full understanding of the operations and environment of the customer's organisation is vital in these cases and therefore a presence on-site is needed.

- The market is experiencing strong demand coming from the *home segment* for streaming software for video and audio.

The system software segment proved to be less positively dynamic in 2001, but continued to grow far above the IT market average. Key factors driving growth in the system software market include:

- increased requirements for high application availability, including scalability, redundancy, and the ability to switch, balance, and distribute workloads to alternative sites;

- capacity management to sustain higher traffic volumes;

- more use of high-bandwidth networked applications (graphics and video), which require higher performance.

Looking at the specific markets for application software, this area was less impacted by the downturn in 2001 and was expected to continue to grow above the total software average in 2002. Key areas of focus include:

- investments in enterprise applications and E-business applications, both at the front end and the back end;

- messaging, logistics, and sales applications as important foundations to supply-chain application demand;

- content management, materials management, and marketing applications following developments in E-business;

- the shift in the demographics of Web users and E-commerce away from the United States and away from English, creating new opportunities for multilingual and cross-lingual applications;

- professional services-specific applications as enterprises begin to apply product Supply Chain Automation principles to services functions.

3.2.2 IT services

The overall IT services market was the least impacted by the global slowdown and by the international crisis and showed an 8.0 percent growth, including support services, in 2001. A further 8.5 percent growth is expected in 2002. This can be explained by a number of factors including:

- services companies suffered less from over-capacity compared to global hardware companies. During 2001 the number and percentages of staff lay-offs have tended to be smaller than in the hardware sector;

- services are a more "people-centric "and local type of business than either hardware or software markets.

Overall some key trends and drivers shape the West European IT services market:

- Economic slowdown forces companies to cut costs. Moreover competition is heating up. The slowdown of the economy and the impact of the Euro will further increase the competition in each of the vertical markets. Organisations have to be creative to find ways of increasing their efficiency and productivity. Transparency of their cost situation will help them to achieve these goals. The outsourcing of non-core competencies will increase, as these organisations will redefine their core competencies to become even leaner enterprises.

- E-Business remains one of the greatest challenges. Many organisations are rethinking their approach to E-business and asking for help and guidance to do so.

- Customer orientation is an absolute condition. CRM applications are driving a large part of the IT services spending. This, of course, will not only be focusing on the technical side, but more so on the business side.

- The integration of applications is becoming a key priority of European businesses and this is driving demand for consulting and implementation services, as well as outsourcing if skills to do so are not found in-house.

- Mobile business opportunity creates new opportunities for IT services, as business models are evolving to reflect new mobile capabilities. Moreover, without many established vendors in the mobile application area, there are great opportunities for the custom development of these solutions.

- The demand for security services (from vulnerability assessment to remote monitoring and management of the security elements of networks) is increasing fast across Europe.

- The shortage of qualified IT staff still remains the greatest inhibitor to growth.

Overall the European consulting market remained the fastest-growing services segment in 2001 (10.6 percent), followed by implementation services (9.0 percent). These two markets are becoming increasingly interconnected and increasingly show similar patterns of growth. Growth was mainly driven by the rise of E-business projects and the introduction of new technologies around the Internet (CRM, SCM, E-procurement, E-marketplaces) as well as the need to prepare for the Euro. Interest in systems integration services has started to appear within the small and medium-sized business segments. In addition, E-government is becoming an important driver for the systems integration market over the next two to three years.

In the operations management area, the European economic slowdown is causing firms to consider outsourcing as a cost-effective alternative to building internal IT expertise. In addition, the ever-shortening life cycles of IT technology makes outsourced services more attractive as a way to keep up to date, without continuous retraining of internal staff. However, some factors are still depressing the European market for IT outsourcing, most notably the continued cultural resistance to the outsourcing concept in many European countries.

In the support area, small and medium-sized enterprises are becoming increasingly dependent on IT for mission-critical activities and thus have a higher propensity to purchase systems support services. This bodes well for the hardware support and installation market in Europe, where the vast majority of companies is small and mid-size enterprises. In parallel, we are witnessing increased demand for support provided remotely, which allows a more cost-effective delivery for smaller firms. However, this trend also serves to restrict growth in this market because remote diagnostics can now significantly cut system support costs. The software support and installation market in Europe is being driven by the high demand for new software technologies.

3.2.3 Focus on some specific sectors

The slowdown in ICT investments was not even across West European vertical sectors, because some industries were more impacted by the economic slowdown (manufacturing) than others; other industries directly were impacted by the terrorist attacks of September 11 (insurance, transport and tourism); others proved to be more resilient (public sector, banking).

The *manufacturing* sector was strongly impacted by the negative economic situation. The downturn in the technology sector had a strong impact on the whole industry, especially in Finland, Ireland, Sweden and Germany. The slow-down in the USA had two main implications: a fall-off in exports to the USA, and a slowdown in inward investment by the USA. In this context many ICT investments were postponed and ICT spending by manufacturing companies stagnated in 2001. Most attention was directed to protections of margins and RoI (Return on Investment), with investments concentrated on enterprise applications and E-business projects. The classic defensive sectors such as pharmaceuticals, oil, and firms with long-term government contracts outperformed the market.

In *retail*, IT spending continued to grow in 2001 among large retailers with investments focused on multi-

channel strategies and automation/integration of value chains. Small retailers' investments were already cautious (mainly PCs, basic accounting software, etc.), and were mainly postponed until "better times " (except small investments to adjust to the Euro). Future trends in the sector are strictly related to how consumer confidence will react to the uncertainty in the global economy.
After the investments in 3G licences, *telecommunications* companies started to experience financial problems. With the easing of deployment of 3G networks (network sharing agreements, and delayed payments of licences freeing up capital for other investments), telecommunications companies are expected to continue to invest in ICT technologies. They need to offer new services to win the competition and to increase consumers interest and demand for new GPRS technology (as UMTS is shifting from month to month). The main question about GPRS is how to price it. Billing technologies will play a key role in this emerging market, and all that concerns integration with CRM strategies and Sales Force Automation (SFA) solutions will at the same time be drivers (and driven) in the billing system market.

Transport was the most directly and worst-impacted market due to the general economic slowdown and the terrorist attacks in the USA. Business travel was especially affected, with companies limiting or even banning corporate travel. Regarding transport, airlines were the most adversely impacted by the economic slump. Investment priority is likely to be given to security in the short term. West European utilities were not significantly affected by the economic conditions. The slowness of deregulation, rather than the economy's decline, is becoming an inhibiting factor behind ICT investments.

ICT spending in the *public* sector is expected to remain slightly below the total market average. Even if government income decreases, as already happened in difficult economic situations, an increase in government spending is expected, so as to spur the national economy and to increase national security. The public sector is therefore not forecast to suffer from the slow-down and investments in ICT will continue, most European governments are aware they are behind schedule in the implementation of E-government initiatives (to achieve targets by 2005). This will not only contribute to ICT spending growth, but also spur innovation in West Europe.

In the *finance* sector, insurance is the segment of the financial industry that suffered most from the terrorist attack, first of all due to the impressive losses for reinsurance and insurance companies that had to pay for the disasters caused by the terrorist attacks. Secondly, the experience of September 11 has introduced a new concept/sensitivity for risk that requires a complete redefinition of primary insurance and re-insurance coverage, as well as terms and conditions for insurance policies. From the point of view of the demand for IT, financial institutions are expected to dilute their IT investments rather than cancel them. Moreover banks are "the next on the agenda " of European integration and this is expected to sustain ICT investments, as well as the demand for integration software and services backing banks' multi-channel strategies.

3.3 Consumption patterns and trends

Because the Western European economy has been affected by the global slowdown, uncertainty dominates the market. However, the European Union is not expected to reach such a negative peak as the USA, and total GDP was expected to grow by 1.5 percent in 2002, before recovering to 2.9 percent in 2003. The ICT market has been strongly impacted by the economic slowdown, even if the various markets have been affected at a different level, more in the hardware segments, less in software and services, more in the Nordic countries and Germany, less in Southern Europe. As mentioned earlier, the West European ICT market amounted to € 643 billion in 2001 i.e. 7.5 percent of GDP. The IT market (including office equipment, electronic data processing and data communication equipment, software and services) was € 324 billion, while the telecommunications market accounted for € 318 billion.

Table 3.5 West European Information and Communication Technology market,* 2001, billion euro **

	2001 Value	% of ICT
Computer hardware and datacom	96	14.9
End user communications equipment	44	6.8
Office equipment	10	1.5
Datacom and network equipment	48	7.5
Total ICT equipment	198	30.8
Software	67	10.3
IT Services	100	15.5
Support services	34	5.3
Carrier services	245	38.1
Total ICT	**643**	**100.0**

Note:
** West Europe includes the 15 EU and 2 non-EU countries (Switzerland and Norway).*
*** It should be noted that all figures have been rounded off to the nearest billion* **EURO** *at 2000 constant exchange rates. Total and percentages may not add up, due to rounding.*
Source: EITO 2002

Overall, the ICT market in West Europe grew only by 5.1 percent in 2001 (compared to 11.0 percent forecast in the EITO 2001). In the IT area, growth was mainly driven by investments in software applications and related services, especially in the E-business area. Prospects were better for 2002, with ICT forecast to grow by 5.4 percent in West Europe, as the market was expected to recover starting from mid-2002. These trends enabled West Europe to reach a 28.0 percent share of the world-wide ICT market in 2001 (28.6 percent of the world-wide IT market and 27.5 percent of the world-wide telecommunications market). The economic slowdown and the international crisis had a more negative impact on the USA than on Western Europe. The ICT market grew by 0.5 percent in the USA in 2001. The market was performing better in Japan, with a 5.3 percent growth in total ICT in 2001. The "Four Tigers " (South Korea, Taiwan, Hong Kong and Singapore) grew by some 7.5 percent, reaching a combined market of € 75 billion in 2001. The Rest of the World aggregate was a more positively dynamic, with ICT growing by some 8.7 percent in 2001.
One of the main sources of information for this chapter is the European Information Technology Observatory (EITO) yearbook 2002.

The largest national market for Information Technology in Europe is Germany, followed by the United Kingdom, France, Italy and Spain. From a business point of view, Europe should not be seen as one single market, but as a collection of countries with different cultures, languages and political systems. This has also an impact on the opportunities for firms from developing countries.

The slowdown in IT investments was more acute in the Nordic countries and Germany, while Spain and Italy, in particular, displayed stronger growth rates in 2001, thus continuing to fill the gap between more and less advanced European countries in terms of IT adoption. Nevertheless IT/GDP and IT per-capita ratios still present strong differences by country, with Northern

Figure 3.2: West European GDP, investment, IT and Telecom (TLC) market annual growth and forecasts, 1999-2003, in percent

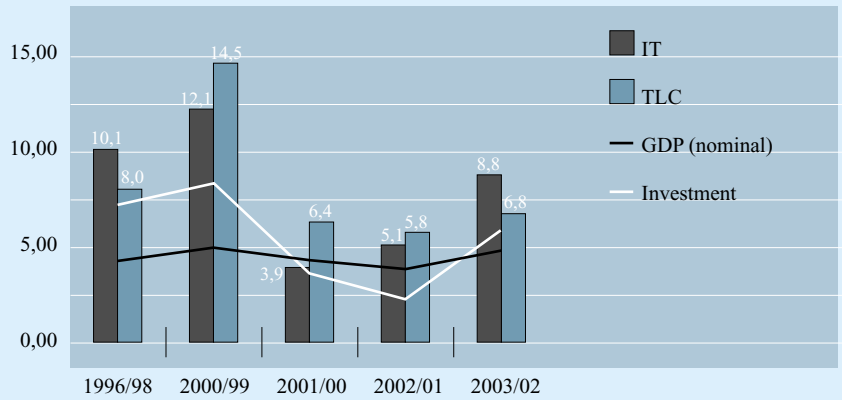


Table 3.6 West European IT markets by region: percentage breakdown and growth calculated on market values, 2001-2003, billion euro

	2001 Value	2001 %	2001/00 %	2002/01 %	2003/02 %
France	56	17.1	5.5	5.9	9.3
Germany	72	22.3	1.2	2.9	7.4
Italy	28	8.7	7.8	6.8	10.2
Spain	13	4.0	6.1	6.6	9.4
UK 71	21.7	5.8	7.1	10.3	
Nordic	31	9.5	-0.4	2.0	7.2
Other WE	54	16.6	3.4	5.0	8.1
West Europe	**324**	**100.0**	**3.9**	**5.1**	**8.8**

Note: Total and percentages may not add up, due to rounding off.

Source: EITO 2002

countries (Nordic, UK) still showing above-average penetration. The mobile market is reaching a saturation point across West European countries, with high penetration rates in most countries. The most growth will come from replacements.
The drop in the IT market was caused by both the consumer market and the commercial purchasers. Still, different trends can be seen in the different markets. For example, hardware sales in the commercial segment dropped considerably, while this was less the case in the consumer market. This can perhaps be explained by the advanced purchases in the commercial market in 1999 related to the millennium problem. In the software area, the reverse is the case: there the software sales increased in the commercial market (in the Dutch market by 28.6 percent) while it decreased (by more than 4 percent in the Dutch market) for consumers. Most of the increase in commercial software purchases are due to investments in packaged software and OS-upgrading software. In the telecommunications area, investments in equipment have been falling since the beginning of 2001. However, telecommunications services continued to grow, even if at a more moderate pace compared to previous years.

4 IMPORTS

Because of the absence of data, no import data can be provided. It is however very useful for exporters to get an idea of the procurement volume of the product groups examined in the EU. Therefore a chapter about outsourcing is incorporated in this survey. The trends per product group, the relative importance in volume and demands, and the opportunities for developing country exporters are mentioned.

4.1 Outsourcing trends per product group

Software
The market for software, especially packaged software for the PC, is enormous in Europe. Many companies in developing countries have designed and build packaged software themselves, and are selling these products on their local markets already. Nevertheless, *unfortunately, the opportunities for developing country exporters in this field in Europe are generally minimal*. One of the main problems is credibility: if there is a number of similar packages available from an industrialised country at a similar price, then they will usually be bought from the latter country. Any low labour cost advantage in development is quickly eroded because of the huge advertising and marketing budget required for a successful package (many major software multinationals spend 40 - 50 percent of their annual revenue on sales and marketing). Even R&D (Research and Development) is becoming costly, which is also a big problem for European companies. Experience suggests that only 1 - 5 percent of software products succeed, thus providing very little return on most package investments.

In many cases, application software is partly produced in a developing country, but it will be owned and traded by an (often well-known) American or European company. There are only very few firms in developing countries able to build and market application software themselves. It was found that success in their domestic market was essential and without any local market for packaged software it was almost impossible to finance the export marketing. The major criterion for success is to develop entry into the market with a niche item (a very specialised item). An example is the Indian software company Tata Infotech, which is selling its Customer Management system 'ES CUSTOMERview' to large foreign banks. STA, a firm in the Philippines, developed and sold a Year 2000 conversion tool in Europe.

IT Services
As mentioned before, many kinds of software are already (partly) produced in developing countries. Software products which are sold by well-known European IT companies such as SAP or Baan are often built in developing countries. This is the major business opportunity for firms from those countries: offering professional IT services. IT services can be sold to a large number of European software producers and to end-user organisations. Traditionally the large and information-intensive sectors have been users of the IT services from developing countries, such as banks, insurance companies, and airlines.

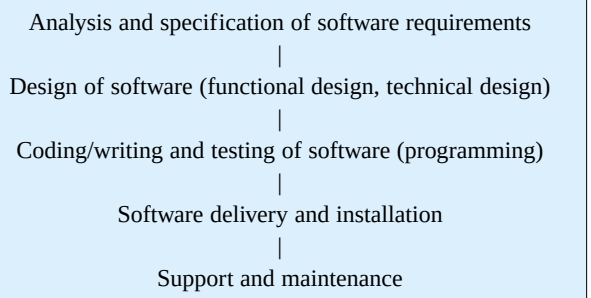
The major (sub) product groups of importance to developing countries are considered below.

Implementation - software development: building new and maintaining older IT systems. Developing new systems is often the most important priority of IT departments, but in many cases companies do not have sufficient people with the right skills available. Also the existing software systems form the IT heart of a company and they must be maintained on a regular basis. Any failure of critical elements can cause serious financial losses. As a result, timely and effective software maintenance has a vital role to play in the overall success of a corporation, for instance: error correction, testing, user support, and enhancement. In many cases these are legacy (older) systems which can be ten, twenty and sometimes even thirty years old. As systems undergo repeated modifications, their structures tend to deteriorate. Often, the information about these systems is stored in the heads of employees and when these people move on, so does the knowledge. In many cases, the IT staff does not enjoy working on maintenance projects; they prefer to be involved in more challenging new projects, using the latest technologies. For these reasons, the maintenance of the legacy systems is a labour-intensive and difficult task and a likely candidate for outsourcing to firms in developing countries.

The **implementation - software development** process can be divided into different phases, from the most abstract to the most structured. It is usually seen as being broken down into a series of relatively standardised production steps, as shown in the following figure.

Actual implementation - software development is more complicated than this simple picture would suggest, because of various processes being conducted parallel to each other and some iteration such as later processes feeding back into improved repetition of earlier ones. Software production overall is a skilled task, but this fragmentation forms the basis for a division of labour because the earlier stages of analysis and design require higher levels of skill and experience, whereas those of

Figure 4.1 Implementation - software development process



Source: Heeks 1996

coding and testing are relatively less skill-intensive but more labour-intensive. *Companies in developing countries can participate in all these phases*. Because of the different communication requirements within each phase, the required activities are sometimes related to a specific location. In the earlier stages, close communication is needed with the users of the software, which means that the work must be done on location of the client. Working like this is also called 'on-site' work. In the later stages, there is relatively less communication needed because of the availability of the technical documentation (specifications). The technical design and the programming work in particular can be done 'offshore', in the developing country itself.

A specific subject in the field of IT services is **training**. Various software companies in developing countries are already involved in making software to be used in Computer Based Training (CBT), especially for courses in the field of IT. This material is being sold on the European market by American or European training companies. It is surprising to see that some large Indian IT training institutes are now setting up their own computer schools abroad, especially in the United States, and it is expected they will start in Europe as well.

Various activities in the field of **operations management - processing services** can also be carried out by developing countries, since they are often well defined, of a routine nature and require little interaction between client and vendor. Some examples of these services are listed below.

- Document conversion. The electronic publishing industry is very labour intensive and has been forced to use offshore services for data entry, image indexing, imaging, CD-ROM mastering etc. Initially this was carried out by international firms which set up operations in a limited number of developing countries. These firms managed the data conversion work themselves and used local subcontractors or their own staff to do the work. They managed the quality control and provided their client with a quality product (more than 99.99 percent accuracy) at a highly economical price. This whole area has exhibited a strong technical growth, with on-site imaging being made on the clients' premises, transmitted offshore, digitally converted and returned to the client via a telecommunications network. Turnaround times of less than 24 hours are often achieved for critical data.
- Remote data entry. Data entry requires the lowest level of computer literacy. It also requires very little interaction between the customer and the vendor. Malta was one of the first countries to exploit this type of service. Already in the 1970s, this country processed many of the punch cards for one of the larger companies in North America. In more recent years, the Philippines, Jamaica and Barbados have become major centres for **operations management - processing services.** They provide a very broad range of data entry services for all types of applications. The major companies involved are able to key in data from paper, from microfilm, microfiche or from images.
- Currently there is a major business initiative in Europe to develop document image processing; this requires abstracting and indexing services, which can be performed more economically offshore. Hence this is an area with considerable growth potential, also because of the growth of Workflow Management Systems (WFM).
- Geographical Information Services (GIS). GIS is a very important part of information management, in that it connects databases to a geographical reference point. Over 80 percent of the cost of a GIS are in data capture and data administration. There are two types of data capture required, namely cartographic conversion and textual conversion. Both of these requirements are regularly outsourced offshore to developing countries. The digitising of maps is now being carried out in back offices of international firms in Jamaica, India, the Philippines and other developing countries such as Nepal which have facilities for digitisation. The textual data entry is also being carried out in a large number of offshore sites. This area of foreign opportunity will continue to grow as the general use of GIS increases, the requirement of lower costs grows, while the level of costs in European countries increases.
- Back-office management. Many international firms which require constant data conversions that are particularly labour intensive have found it economically viable to set up back offices in a number of developing countries. These back offices are either directly owned or are joint-venture business collaborations with local companies. The selection criteria of the industrialised country are

usually a need to find the lowest cost in a country that has a large trained professional workforce and good telecommunications at an affordable price. The People's Republic of China has become a very interesting area for international firms, while in the Spanish speaking world Cuba and the Dominican Republic are being considered by a number of countries. Examples of the activities performed are insurance claims processing, airline tickets processing, medical transcriptions and bookkeeping. A new trend is to operate international helpdesks and call centres on locations in developing countries. This specific market is expanding quickly and is especially interesting for countries belonging to the Commonwealth (offering people that speak English well).

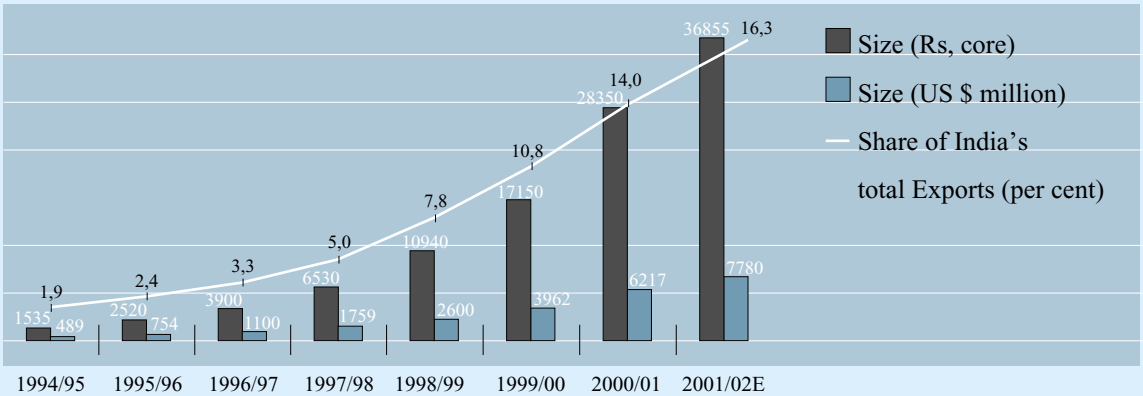
4.2 An example: India

Large amounts of **implementation - software development** and exports have already taken place in India. Some Indian companies have been exporting software services for about twenty years and the country is in the process of becoming a 'software superpower'. India has a specific history and some unique characteristics and has already developed the necessary skills, contacts, policies and infrastructure that are lacking in many other developing counties. This means that the Indian example cannot and should not be copied by other nations, because each country should follow its own direction. However, since India is perhaps the most successful example of a developing country in the field of software exports, it is worth a closer look.

India can be considered the pioneer among developing countries in the field of software exports. It already started offering IT services on foreign markets at the end of the seventies, mainly in the form of 'bodyshopping', when Indian programmers were sent to the United States to work 'on-site'. It is estimated that the Indian software exports, which were around 4 million US$ in 1980, grew to 100 million US$ in 1990. The export revenues for the 2000-2001 period were 26.2 billion US$. During recent years, the software exports show an annual growth of more than 50 percent. Some Indian optimists believe that the export of software will eventually become the number 1 export item of India, while at the moment it is still textile products. As a matter of fact, the size of the Indian software exports is even larger than its domestic software market. The Government of India has identified software as a thrust area both for exports and in the domestic sector.

India offers some distinct advantages. First of all, it is a very large country with a vast pool of skilled manpower. India is second only to the United States in its access to the highest number of English-speaking academics and technically educated staff. More than 320 universities, 32 engineering colleges and 700 private training institutes teach computer science courses. About 55,000 IT professionals, with varying skills, enter the workforce every year. Secondly, the people have decades of local and international experience with a large range of hardware and software platforms. This manpower is highly competent yet comparatively inexpensive, and much attention is being paid to quality. Already in 1995, the first organisation in India (Motorola) achieved the highest CMM level 5 certification from SEI (Software Engineering Institute). In later years, several other companies would follow with CMM level 5 and level 4 certifications. There are also many Indian software firms which are ISO 9000 certified. The national organisation for software companies, the NASSCOM (National Association of Software and Service Companies) has set a target that, by the year 2000, it would try to assist every Indian

Figure 4.2 IT market in India: Software and services exports



Source: NASSCOM

software company which employs more than 10 people to aim to acquire ISO 9000 or equivalent quality certification. The NASSCOM started in 1988 with only 38 members, and has grown into a large organisation with a variety of activities. The combined revenue of its 447 member companies constitutes almost 95percent of the total revenue of the Indian software industry.

There are now more than 800 Indian companies active in the field of software exports. Some are very large, with thousands of employees and dozens of offices abroad. Far more are medium-sized, and many others are small. There is a concentration of software houses in the southern Indian city Bangalore, which is internationally known as the Indian 'Silicon Valley'. A new national IT centre will be the central city Hyderabad, already nicknamed 'Cyberabad'.

Several measures have been taken by the Government of India to promote the export of software. The DoE (Department of Electronics) has set up STPs (Software Technology Parks) in cities all across India. These are 100 percent export-oriented software centres, where companies can use general infrastructure facilities like utility, power, office space and high-speed satellite communication links. 100 percent foreign equity is permitted and there are also other advantages, such as 5-year tax holidays.

Many international airlines, banks, insurance companies, financial companies, hotels and broadcasting companies have aligned with Indian software companies to outsource their software requirements. Various leading international IT companies such as Microsoft, IBM, Unisys, Texas Instruments, Hewlett Packard, Novell, SAP, Baan and Oracle have their development centres in India. Other operations are in the form of joint venture collaborations, or are totally Indian owned.

A major part of the work is still in the form of 'on-site' services, where the Indian programmers work abroad at the clients' sites. Almost 60 percent of the work is being done on foreign locations. Only 40 percent of the services is performed in India, but it is the expected that this percentage will increase. The bulk of Indian exports has been in the form of professional services. Indian companies are especially experienced in developing application software for three main sectors: banking, manufacturing and insurance and other financial services.

The major destination of the Indian software exports has always been the United States, which is responsible for 60 percent of the exports. Almost 25 percent of the Fortune 500 list (the 500 largest American enterprises) has now been working together with Indian software companies. Because the United States and India have an average 12-hour time zone difference, the Indian office can commence work when the American staff leaves the office at the end of the day.

Compared with the United States, doing business in Europe has always been more difficult for Indian companies. The United Kingdom is the exception, not only because of historical and language reasons but also because of the existence of a large Indian community. Over the years, the larger Indian companies in particular have put a lot of effort into penetrating the European markets. Some of those have now established

Figure 4.3 Indian Software and Services Exports: Key Service Lines 2000-2002,

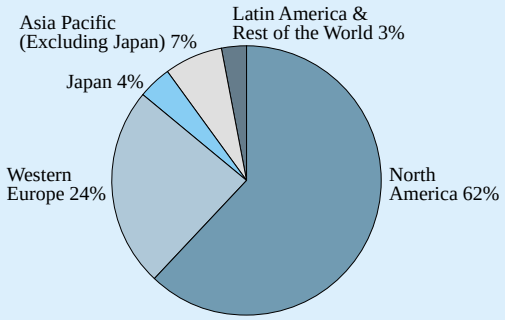
($ million)	**2000-01 E**	**2001-02 E**
Software and Services	4,750	5,780
Legacy application management, maintenance, migrations	1,700	2,100
Custom application development	1,950	2,350
Packaged software integration	300	350
E-business solution	550	600
Wireless integration	75	100
System integration	75	110
Network infrastructure management services	50	65
Consulting	50	55
IT Enabled services	**900**	**1,475**
Customer Interaction centres	185	350
BPO (incl. Transaction processing)	295	600
GIS/Engg services	350	450
Others	70	75
R&D services	**550**	**575**
Total	**6,200**	**7,780**

Source: NASSCOM

offices in several of the largest European cities. European companies are increasingly working together with Indian software houses. Europe is now responsible for around 24 percent of the Indian exports and this percentage is slowly rising. In 1999 it was still 21 percent. Indian companies can be seen taking part in the major IT exhibitions, such as the CeBIT in Germany, sometimes even together in the form of an 'India Pavilion'. In 2000-2001, a total export of Rs. 28,350 crores (US$ 6.2 billion) was achieved. It is estimated that one in four global majors outsourced their mission critical **implementation - software development** to India in the year 2000-2001.

Some international programmes from Europe have also given support to the Indian software industry and to individual companies. Examples of these are the German-sponsored IGEP (Indo-German Export Promotion Project) and 3SE (Software Services Support and Education Centre), which is an initiative of the European Commission and the Government of India. CBI (Centre for the Promotion of Imports from developing countries) in The Netherlands has also assisted several Indian companies. The NASSCOM initiated a project called NIESA (NASSCOM's India-Europe Software Alliance), which was partially funded by the European Community. NIESA has been set up to increase strategic alliances, joint ventures and partnerships between companies in India and Europe.

Figure 4.4 Indian Software and Services destinations 2001-2002



Source: IDC, NASSCOM

All these combined marketing efforts, continued over years, are now leading to results. Although India has the image of a poor and underdeveloped country, it is now generally recognised within the European IT branch as a quality software supplier. Nevertheless, India's success should be placed in perspective and there is *plenty of room for expansion, also for other developing countries*. The total exports from India, with a population of 1 billion people, constitute less than 0.4 percent of the world trade in IT and are less than half the trade in The Netherlands which only has 15 million people.

Figure 4.5 IT Services Spending: Regional Shares, 2000

Country/Region	IT services spending ($ billion)	India's exports ($ million)	India's market share (percent)	Relative Dependence Ratio	Share in exports
North America	219.2	3,894	1.78	1.3	62.7
West Europe	127.5	1,480	1.16	0.8	23.8
Japan	53.2	226	0.42	0.3	3.6
Latin America & Rest of World	21.7	191	0.90	0.8	3.1
Asia Pacific (excl. Japan)	18.5	426	2.30	1.7	6.9
Total	**440.1**	**6,217**	**1.41**		

Source: IDC, NASSCOM

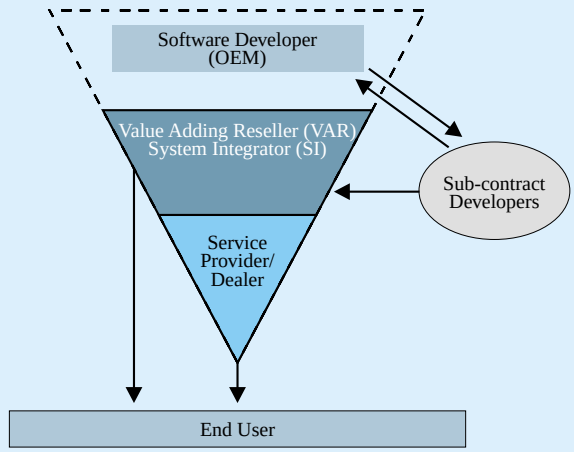
5 TRADE STRUCTURE

5.1 EU trade channels

In figure 5.1 an example of a trade structure for sub-contracted **implementation - software development** is presented. The software developer is the Original Equipment Manufacturer (OEM). The idea and basic development is done here. The intellectual property rights are owned by the developer. Often the realisation of demands for adaptations to existing software or development of new (parts of) software come from a Value Added Reseller (VAR). The System Integrator (SI) is also capable of doing this, but his competence lies moreover in the field of definition and realisation of interfaces between several software modules or systems. When referring to the service provider or dealer, we indicate the party representing the software supplier in other countries. They are inside an end-user organisation, estimating the needs of the customer and translating them into specifications for software.

The subcontracted software developer, from a developing or any other country from outside the home market of the software developer and its end-users, sees in this particular situation often only his own customer in the trade structure. In other words: he is usually a long way from the end-user. On the one hand, the parties that are directly in contact with the end user prove their added value. They know the end-user, are close to them and can therefore communicate effectively. On the other hand it presents a difficulty for the exporting developer. It is hard to understand where potential gaps between the end-user's needs and the programmed solutions arise when there is only an indirect picture of the end-user. There is quite a lot demanded of the communication skills of the involved parties to reach fitting solutions for the end-user. If an exporting software (co-)developer is communicating with his direct customer with an end-goal of just keeping friendly ties, and therefore has a reluctance to discuss too many complicated topics, the software developer might well miss crucial information concerning the end-user and his wishes. The software developer should always be aware that communication hick-ups inevitably occur, and they are the main pitfalls in trying to make the perfect solution for the end-user. The developer might not be the one causing the hick-ups, but he will still be held partly responsible for solutions which are not of sufficient assistance to the end-user.

Figure 5.1 Trade structure sub-contract implementation - software development



In the trade channel for ICT services companies (see the next figure 5.2), it is common practice to co-operate with other service companies, freelancers and recruitment agencies when the available resources within the own organisation fall short. ICT specialists working for an end-user while representing 2-5 different service companies and/or recruitment agencies are no exception. It is obvious that margins slink fast in these cases, unless the end-user is willing to pay the price.

5.1.1 An example: The Netherlands trade channels

About 75 percent of the Dutch IT market is supplied by 25 companies. The market is a dominated by independent software organisations, large hardware vendors with software divisions, and large international package software distributors. Further, there are hundreds of smaller and medium-sized suppliers and service providers. As in most other European countries, there is a relatively strong national market character.

Companies in developing countries can offer their services to the Dutch producers of standard software, although there are not as many large software companies as in some other European countries. Only a few Dutch software companies are well known on a global scale, such as Baan. However, a large number of companies is making standard software for specialised niche markets.

Targeting end-user organisations is another option. The following sectors can be distinguished: industry (around 24 percent), the services sector (around 29 percent), trade (around 15 percent), transport (around 5 percent), government (around 16 percent) and others (around 11 percent). All these sectors are being serviced by the large general IT service providers (system integrators), such as CMG, Cap Gemini, Origin and Getronics. In general, it has been very difficult for firms in developing countries to enter into partnerships with these large service providers. It is more useful to contact the end-user organisations directly, such as

banks and financial institutions, which are already using services from developing countries. The challenge is also to find customers among small and medium-sized companies.

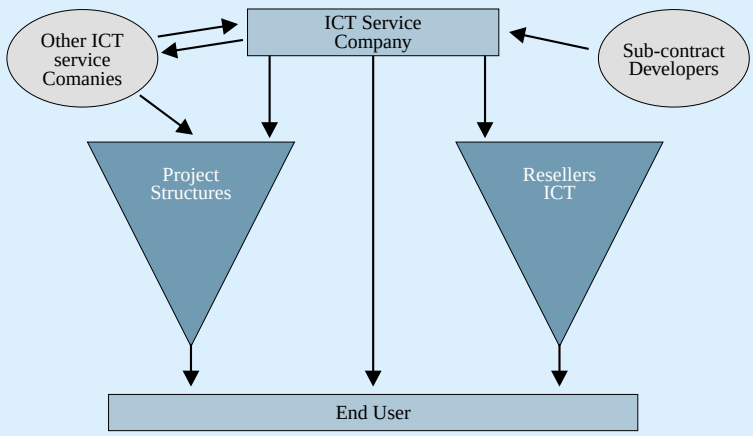
A general trend is a growing task division in the demand and supply chain. Time-to-market and price/performance are becoming more important in a globalising market. A distinction can be made between “technology-driven” and “product-driven” chains with regard to time-to-market.
In technology-driven chains, the first supplier to present new products with the demanded technology to the market is “the winning company”. The technology road map indicates the direction. Product-driven means less focus on technology and more on when to introduce a new product to the market. The market road map indicates the direction, too early or too late means diminished sales and loss of position.

Chains are established according to the demands set by the end consumer/user. The technology chain is characterised by on-time realisation of (sub)orders according to technology specifications. Prototypes and 0-series are realised in a project manner. The end-user works closely together with companies (service providers/integrators, software suppliers). Production of parts and the development of them is sometimes outsourced to “low-wage countries”. Service providers are outsourcing well documented parts. This is where there are opportunities for developing countries. As indicated earlier, it has to be taken into account that low price is not the only demand coming from the end-user, system integrator and the software supplier. Customers expect more and more on subjects like constant quality, effective communication (e.g. when potential problems are noticed) and delivery reliability. These factors can be regarded as order enablers. Service providers and end-users consequently have the need to work closely with the producing party, both in the development and the production phase. Being able to communicate effectively and perform in these fields constitutes an ‘added value’ that might prove to be essential, the order-winner, especially in the custom-made market.

Many firms in developing countries are increasingly able to offer skilled IT staff, against competitive prices. An appropriate time-zone difference between the customer and vendor and an on-line environment can allow for around-the-clock work, resulting in fast turn-around times. Thanks to state-of-the-art satellite links and wired communication, companies in developing countries can become ‘virtual labs’. This international IT co-operation can be described as a ‘win-win’ situation. It offers European companies the availability of skilled staff and a possibility of serious cost reduction. The IT sector in the developing country can provide highly skilled and well-paid jobs for its IT professionals, and it can offer a workplace for both male and female workers. Moreover, the production of software is environment-friendly and it is a means of earning foreign currency.

Data-entry was one of the earliest tasks to be globally outsourced, followed by back-office activities such as insurance claims processing. The current trend in global outsourcing lies in **implementation - software development.**

Figure 5.2 Trade structure ICT Services



5.2 Distribution channels for developing country exporters

The important players in the software distribution chain are the software supplier and its dealers, the service provider, the distributor and importers. In order to remain competitive and attractive, the importers, distributors and dealers are providing *added value*, i.e. apart from traditional functions. A good deal of attention is paid to transitional functions, among which are:

- quality assurance
- sourcing knowledge
- transfer of knowledge
- offering different methods of financing.

Also, project management with sub-contracting **implementation - software development** and other IT services (with other developers, software suppliers and system integrators) is considered to be an important added value.

The importer's activities are increasingly focused on additional services around the product or service itself. They need to be well informed about their customers and market, making use of information sources and the available infrastructures.

It is part of business practice in Europe to trade through importers for almost every technical product. There is a strong network of representatives in Europe. They have built up a reputation over the years based on market knowledge, their adding value to the product in the form of advisory, instructions and after-sales service. Nevertheless, the supplier is expected to provide added value on his own initiative too. Especially in an enduring relationship with the end-user, the role of the importer might diminish. Of course, contracts with importers have to be taken into account. Once agreed upon, they simply cannot be ignored.

In the appendices, we list some of the most important exhibitions in Europe, which attract a large number of local and international visitors and participants. We also mention the names of some national trade fair organisers (Appendix 6). Note that every European country has its own IT fairs, mainly targeting the local market. You should ask European sources (e.g. software branch associations, your local partners) for details. Internet is also a valuable source of information. Attendance at trade fairs and publishing in trade press (Appendix 7) could be a first step to get into contact with potential business partners. Contacting Trade Sector Organisations (Appendix 5) could help, but most of the time these are only administration offices. Many of them also protect the local players. Therefore coming into direct contact (after trade fairs) is likely to be the best way. Exporters must prepare a concise and convincing presentation to attract potential customers. The CBI Strategic Marketing Guide for computer software and IT services takes a closer look at the market approach.

6 PRICES AND MARGINS

6.1 Prices and margins

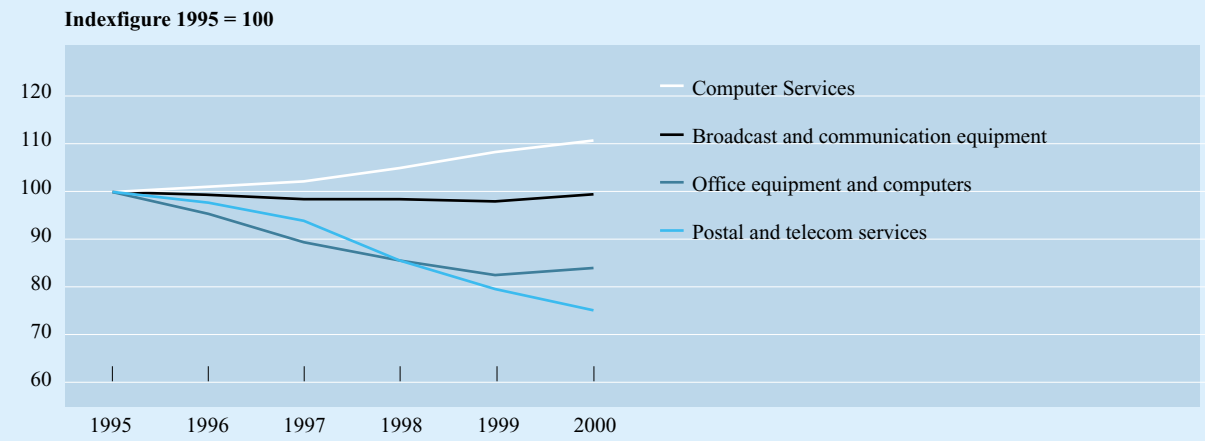
One of the preconditions for development of ICT is price development of the offered ICT goods and services. If these prices are relatively high, this constitutes an extra barrier to buying the necessary ICT goods and services, or to making complete use of them. Price development for the most important ICT goods and services in The Netherlands is shown in figure 6.1. In order to calculate price development investments, usage and consumption were taken into account. Looking at office equipment and computers, broadcast and communication equipment and computer services, it should be noted that households (consumption) usually buy different goods and services than companies (usage and investments). Because price development within a group of goods can sometimes vary considerably, the development will if necessary be commented in this chapter.

In the period 1995-2000 purchase prices of office equipment and computers fell by 16 percent in The Netherlands. Between 1995 and 1999 these prices declined structurally, but what is striking is the rise in 2000 (1 percent). When we take a closer look at households, which almost exclusively buy desktops and equipment like printers, it shows that prices for this category did decrease in 2000, by 8 percent. The price level of these goods is about half of that in 1995. The rise in prices of office equipment and computers must therefore solely be attributed to, especially, the higher purchase prices of special computer systems by companies.

Purchasing broadcast and communication equipment became a little cheaper between 1995 and 1999, after rising a bit again in 2000 (2 percent). Price levels in 2000 were practically level with those in 1995. It should be noted here that consumption of broadcast and communication equipment by households, which consists primarily of purchases of (mobile) telephones, became for the first time since 1995 considerably cheaper in 2000. The prices for this category in 2000 were 18 percent lower than in 1999 and 8 percent under the 1995 level.
Prices of postal and telecom services decreased constantly between 1995 and 2000. In 2000 postal and telecom services prices actually dropped by 25 percent compared to 1995.
Prices of computer services, combining software and IT consultancy in this context, rose annually by a few percent, pushing price levels up to 11 percent higher than the price level in 1995. When price development of consumption by households (for the most part consisting of software on CD-ROM) is looked at separately, it shows that it was 12 percent lower in 2000 than in 1995. The price increase consequently can be attributed to higher prices for IT consultancy aimed at companies. Table 6.2 gives you an idea of the numbers and trends concerning rewards in ICT services.

In the ICT industry, it is quite clear that where the total number of working persons stayed more or less at the same level, the total reward in this sector rose over 15 percent. In the ICT services area, work volume increased about 61 percent, but total rewards in the same sector rose by over 90 percent. It is expected that these rises will slow down in 2003 and 2004.

Figure 6.1 ICT price development in The Netherlands, 1995-2000



Source: CBS

Table 6.2 Rewards in the Dutch ICT sector, 1998-2000, € m/n

	1995	1996	1997	1998	1999	2000
Work volume						
working persons in working years, x 1000						
ICT industry	69	68	68	70	68	69
ICT services	132	149	167	185	210	213
Total ICT	200	218	237	253	270	282
ICT as percentage of total economy	3,53	3,75	3,69	4,10	4,27	4,36
Rewards of employees						
in million euro						
ICT industry	2441	2512	2558	2548	2642	2849
ICT services	4433	4934	5674	6727	7653	8623
Total ICT	6875	7447	8232	9276	10296	11472
ICT as percentage of total economy	4,47	4,67	4,90	5,15	5,37	5,57

Source: CBS

6.2 Sources of price information

As it is quite difficult for suppliers of software and IT services to give exact prices, it is also hard to obtain information about current levels of price. Software products can be broken down into licence prices per module and number of current or named users. Implementation costs are a lot vaguer still. The licence prices are usually on the websites of the software suppliers. Information on implementation costs can be found in reports concerning business software, also giving ranges of costs for software and implementations (In The Netherlands e.g. Berenschot, IPL).

To get information on, for example, hourly rates in particular IT service situations, there are several sources of information that you can use:

- Periodicals (newspapers, business magazines, IT magazines, etc.)
- Personal contacts with business and government circles
- Chambers of Commerce, trade and industry associations
- Internet
- International institutions (see ‘Assistance with market entry’, paragraph 2.4 of the Strategic Marketing Guide ‘Computer Software and IT Services)
- User groups of major software platforms, such as Microsoft, Oracle, Baan etc.

7 OPPORTUNITIES FOR EXPORTERS

7.1 Opportunities

Software, arguably the driving force of the IT revolution, is particular attractive when viewed from the perspective of developing countries. The European and the world market for software and IT services are very large and growing. The mismatch between the supply of and demand for software has created a large global market for software professional skills. Often the term 'software crisis' is used in connection with this mismatch: the effect of skill shortages in the IT sector and the lack of productivity and quality improvements in software creation. All the efforts to increase the productivity in producing software have not had the intended success so far: the production of software still remains labour-intensive and software professionals are constantly in demand.

Information, unlike products such as textiles or automobiles, can be transported quickly and cheaply. Modern methods of communication and Information Technology make this possible. Thus, many information intensive tasks can be moved halfway across the world if it makes economic sense. Apart from the lack of skills in Europe, cost reduction is another factor in favour of outsourcing.

Participation in the global software market provides developing countries with a window of opportunity for growth. The current economies of software production, in particular its low capital and high labour intensity, is particular attractive from the point of view of low-wage, labour-surplus economies. The availability in developing countries of technically trained graduates and improvements in infrastructure gives local companies business opportunities in the field of software exports. Many firms in developing countries are increasingly able to offer skilled IT staff, against competitive prices. An appropriate time-zone difference between the customer and vendor and an on-line environment can allow for around-the-clock work, resulting in fast turn-around times. Thanks to state-of-the-art satellite links and wired communication, companies in developing countries can become 'virtual labs'.

We define this international IT co-operation as a 'win-win' situation. It offers European companies the availability of skilled staff and a possibility of serious cost reduction. The IT sector in the developing country can provide highly skilled and well-paid jobs for its IT professionals, and it can offer a workplace for both male and female workers. Moreover, the production of software is environment-friendly and it is a means of earning foreign currency.

Data-entry was one of the earliest tasks to be globally outsourced, followed by back-office activities such as insurance claims processing. The current trend in global outsourcing lies in **implementation - software development.**

7.2 What can be done by developing countries and how?

To design and to market application software on your own is very difficult. The most attractive option for firms in developing countries is in offering IT services. You can offer your services to software companies (which have the production of software as their core activity) and to end-user organisations. The large and information-intensive sectors (such as banking and insurance) are especially well-known users of the IT services from developing countries.

7.2.1 Software

The market for software, especially application software for the PC, is enormous in Europe. Many companies in developing countries have designed and build software themselves, and are selling these products on their local markets already. Unfortunately, the opportunities in this field in Europe are generally minimal.
In many cases, software is partly produced in a developing country, but it will be owned and traded by an (often well-known) American or European company. The major criterion for success is to develop entry into the market with a niche item (a very specialised item). Chapter 4 provides detailed information.

There are many criteria if you are considering exporting a software product. We have listed a few:

- Do you already have experience and proven success in the home market or in neighbouring countries? Have you sold many licences or just a few?
- Does the functionality and user interface fit the European market? Is it 'state of the art' in technology?
- Does the European market want the product? Do you already have international customers?
- Is it well documented?
- Is it multi-language? One of the main disadvantages of the European market compared with the United States is the number of different languages.
- Good and attractive packaging?
- Good trade reviews?
- Is your pricing competitive?
- Are the commercial conditions attractive?
- Can you take care of support? Do you have an organisation for effective local marketing and technical support in Europe?
- Have you already found the right distribution channels?

- How will you do the licensing? Bundling with other software; integration into other environments; code transfer and right to modify; exclusive use in certain territories under your name?
- And are you prepared to invest heavily in marketing?

There are several trade channels you could contact: software distributors, IT companies, hardware vendors, mail-order houses, business supply chains, franchise chains and intermediary firms.

7.2.2 IT Services

This is the major business opportunity for firms from those countries: offering professional IT services. IT services can be sold to a large number of European software producers and also to end-user organisations. Traditionally the large and information-intensive sectors have been users of the IT services from developing countries, such as banks, insurance companies, and airlines. Below we give a list of IT services which are most promising for developing county exporters. Chapter 4 gives a more elaborated paragraph, with examples.

Implementation - software development: building new and maintaining older IT systems. Companies in developing countries can perform a variety of activities, such as:

- consulting services (e.g. Year 2000 conversion; testing and quality assurance)
- creating good documentation (which in turn teaches you the systems of the client)
- root cause analysis: by reviewing recurring maintenance at regular intervals, patterns can be identified and solutions provided
- performance tuning and code restructuring to improve the structure, efficiency, performance and maintainability of critical programmes
- re-engineering and downsizing (e.g. from mainframe to client/server)
- porting to multiple platforms (e.g. from Windows to Unix)
- Web enabling, to make systems ready for E-commerce
- migrations (e.g. to a new version of the operating system)
- conversions (such as resulting from the change to the euro currency)

Implementation - training

- software to be used in Computer Based Training (CBT)

Implementation - processing services

- Remote data entry.
  A very broad range of data entry services for all types of applications is possible.
- Geographical Information Services (GIS).
  Possibilities lie in: the digitising of maps and the textual data entry.
- Back-office management.
  The People's Republic of China has become a very interesting area for international firms, while in the Spanish speaking world Cuba and the Dominican Republic are being considered by a number of countries.
- International helpdesks and call centres on locations.

7.3 Government actions

It is very hard work for companies in developing countries to achieve successes in export markets. This success is not only dependent on the efforts and the commitment of the individual firm; it is also affected by various aspects and characteristics of the country. Here is a list of criteria which influence the competitiveness of a developing country:

- Political and economic stability
- Financial infrastructure
- Telecom infrastructure
- Ease of doing business
- Government incentives
- Security/piracy
- English-speaking capabilities
- Labour supply
- Labour cost
- Labour efficiency
- Technical competence
- Quality standards
- Education and training
- Domestic market
- Export credibility
- Specialised expertise.

Governments in developing countries should survey the current status, strategies and needs of the local software industry. Such a survey can be part of a national IT strategy. Having done so, they are likely to pinpoint a number of constraints that need to be addressed. Government action can not only be very helpful, in some cases it might be essential. In many cases, government and the IT industry can work together.

A small, heterogeneous domestic market with high piracy, poor IT awareness, and a consumer preference for imports will hamper the development of a local IT industry. A government could help firms to grow through participating in major government contracts. They could set up software technology development centres to provide small companies with access to computer equipment, facilities and engineers. This can improve the relevant technical infrastructure, such as modernising the telecommunications infrastructure and the power supply. It can assist in setting up national IT associations.

The difficulty of obtaining financing is a major obstacle for software firms. **Implementation - software development** methods are becoming more capital-intensive, marketing costs are escalating and the costs of hardware, software and training can be high. Unless there is substantial collateral to secure loans, software firms have little access to funds from conventional financial institutions for the large up-front, long-term investments required to develop services in the field of software and to expand marketing. The absence of venture capital markets in many developing countries inhibits the growth of small and medium-sized companies. A government could provide financial assistance through grants and loans to support investments in IT companies.

It could promote the academic links with the IT industry, and support manpower and training. Training could be supported in various ways, from promoting the greater use of computers in schools to courses in **implementation - software development** skills and management skills. The promotion of language courses is also important, since in many developing countries, the lack of proficiency in the English language makes international business difficult. The dominance of the English language places software producers in non-English speaking countries at a disadvantage in the international software market. The government could supply companies with information about local and foreign software markets, and could initiate software missions to foreign countries.

Here, the experience of other countries provides a valuable guide, such as India's certification scheme of computer training institutes. In the industrialised world, Ireland has become a favourite location for both North American and European back-office development. This is because the Irish government has spent large sums on infrastructure, to give it one of the most economically priced telecommunications networks in the world, which also has a highly trained workforce and a government committed to subsidising training and investments. There are many facilities to promote IT; an example is ISO 9000 certification sponsored by the government. Many American software companies are now using Ireland as an entry point into Europe.

APPENDIX 1 STANDARDS ORGANISATIONS

INTERNATIONAL

International Organisation for Standardisation (ISO)

Address: 1, Rue de Varembé, P.O. Box 56,
CH-1211 Geneva 20, Switzerland
Telephone: + 41 (0)22 7490111
Fax: + 41 (0)22 7333430
E-mail: central@iso.ch
Internet: www.iso.ch

American National Standards Institute (ANSI)

Address: 1819 L Street, NW, 6th Fl.,
Washington, DC 20036, United States
Telephone: +1 (0)212 6424900
Fax: +1 (0)202 2939287
Internet: www.ansi.org

EUROPEAN UNION

Comité Européen de Normalisation (CEN)

Address: Rue de Stassart 36, B-1050 Brussels, Belgium
Telephone: + 32 (0)2 25500811
Fax: + 32 (0)2 25500819
E-mail: infodesk@cenorm.be
Internet: www.cenorm.be

THE NETHERLANDS

Nederlands Normalisatie-instituut (NEN)

Address: P.O. Box 5059,
NL-2600 GB DELFT, The Netherlands
Telephone: +31 (0)15 2690390
Fax: +31 (0)15 2690190
E-mail: info@nen.nl
Internet: www.nen.nl

FRANCE

Association Française de Normalisation (AFNOR)

Address: 11, Avenue Francis de Pressensé,
F-93571 Saint-Denise La Plaine Cedex,
France
Telephone: +33 (0)1 41628000
Fax: +33 (0)1 49179000
E-mail: norminfo@afnor.fr
Internet: www.afnor.fr

GERMANY

Deutsches Institut für Normung e.V. (DIN)

Address: Burggrafenstrasse 6,
D-10787 Berlin, Germany
Telephone: +49 (0)30 26010
Fax: +49 (0)30 2601123
E-mail: webmaster@din.de
Internet: www.din.de

RAL Deutsches Institut für Gütesicherung und Kennzeichnung e.V.

Address: Siegburger Strasse 39,
D-53757 Sankt Augustin, Germany
Telephone: + 49 (0)2241 16050
Fax: + 49 (0)2241 160511
E-mail: ral-institut@t-online.de
Internet: www.ral.de

ITALY

Ente Nazionale Italiano de Unificazione (UNI)

Address: Via Battistotti Sassi 11b,
I-20133 Milano MI, Italy
Telephone: +39 (0)2 700241
Fax: +39 (0)2 70106106
E-mail: uni@uni.com
Internet: www.uni.com

UNITED KINGDOM

British Standards Institution (BSI)

Address: 389 Chiswick Highroad,
London W4 4 AL, United Kingdom
Telephone: +44 (0)20 89969000
Fax: +44 (0)20 89967400
E-mail: info@bsi-global.com
Internet: www.bsi-global.com

BM TRADA Certification Limited

Address: Chiltem House, Stocking Lane,
Hughenden Valley, High Wycombe,
Buckinghamshire HP14 4NB,
United Kingdom
Telephone: +44 (0)1494 569700
Fax: +44 (0)1494 565487
E-mail: enquiries@bmtrada.com
Internet: www.bmtrada.com

APPENDIX 2 PRICE SOURCES

Price information can be obtained through trade organisations, trade press or trade fairs. Other possibilities include checking for prices on the Internet, asking for prices at distributors, agents and other distribution channels. Please refer to the other appendices for details.

www.cbs.nl
The Dutch statistical institute, amongst other services also supplying information about price trends.

www.eito.com
The EITO (the European Information Technology Observatory) website gives (downloadable) information about market sizes and developments.

www.bitkom-service.org
German alliance for ICT, publishes frequently about the German market (software and services are separately visible) size and trends.

www.zvei.org/mk/
German institute for electronics industry (also in English) with information about market size, production, wages, etc.

www.witsa.org
The WITSA (World Information Technology and Services Alliance) is an alliance of several software and IT organisations from all over the world. Their website gives easy access to the Internet sites of each of these, plus a lot of additional information.

www.simo.ifema.es
This Spanish organisation reports under sectorial information (also in English) market sizes (hard-, software and services), added value, margins and price developments.

APPENDIX 3 TRADE ASSOCIATIONS

AUSTRIA
Verband Österreichischer Software Industrie (VÖSI)
Adress: Trattnerhof 2
A 1010 Wien
Telephone +43 1 533091378
Fax +43 1 533091377
E-mail office@voesi.or.at
Internet www.voesi.or.at

BELGIUM
Information Services Association (INSEA)
Adress: 40 Av. J. Wybronlaan
B-1070 Brussels
Telephone +32 2 5294803
Fax +32 2 5295820
E-mail info@insea.be
Internet www.insea.be

DENMARK
Dansk Dataforening (DDF)
Adress: St. Kongensgade 59A
1264 Kobenhavn
Telephone +45 33111560
Fax +45 33931580
E-mail ddf@sek.ddf.dk
Internet www.ddf.dk

FINLAND
Information Technology Services Association
Tietotekniikan Palveluliitto (TIPAL)
Adress: Eteläranta 10
FIN 00130 Helsinki
Telephone +358 9 62201001
Fax +358 9 62201009
E-mail tipal@tipal.fi
Internet www.tipal.fi

FRANCE
Syntec Informatique
Adress: 3, Rue Leon Bonnat
F-75016 Paris
Telephone +33 1 44304970
Fax +33 1 42882684
E-mail jpeybert@syntec.fr
Internet www.syntec-informatique.fr

GERMANY
Bundesverband InformationsTechnologien (BVIT e.V.)
Adress: Adenauerallee 18-22
D-53113 Bonn
Telephone +49 228 201360
Fax +49 228 2013699
E-mail info@bvit.de
Internet www.bvit.de

GREECE
Federation of Hellenic I.T. Enterprises
Adress: 23, Lagoumitzi Street
GR 17671 Athens
Telephone +30 1 9249540
Fax +30 1 9249542
E-mail sepe@hol.gr
Internet www.sepe.gr

ICELAND
Icelandic Society for Information Processing (SKY)
Adress: Baronsstigur 5101
Reykjavik
Telephone +354 5518820
Fax +354 5627767
E-mail sky@sky.is
Internet www.sky.is

IRELAND
Irish Software Association (ISA)
Adress: 84-86 Lower Baggot Street
Dublin 2
Telephone +35 3 16051582
Fax +35 3 16601717
E-mail isa@ibec.ie
Internet www.software.ie

ITALY
Associazione Nazionale Aziende Srvizi Informatica e Telematica (ANASIN)
Adress: Via Santa Tecla 4
20122 Milano
Telephone +39 2 878637
Fax +39 2 874259
E-mail anasin@anasin.it
Internet www.anasin.it

NETHERLANDS
Federation Dutch IT (FENIT)
Adress: P.O. Box 401
3440 AK Woerden
Telephone +31 348 493838
Fax +31 348 482444
E-mail bureau@fenit.nl
Internet www.fenit.nl

Vereniging ICT Nederland
Adress: P.O. Box 623
3440 AP Woerden
Telephone +31 348 493636
Fax +31 348 482288
E-mail info@v-ict.nl
Internet www.v-ict.nl

NORTHERN IRELAND

Software Industry Federation of Northern Ireland (SIF)

Adress:	123-127 York Street
	Belfast
Telephone	+44 1232 333939
Fax	+44 1232 333454
E-mail	angela@sif.co.uk
Internet	www.sif.co.uk

NORWAY

Norwegian Computer Society (DND)

Adress:	Postboks 8874, Youngstorget
	N-0028 Oslo
Telephone	+47 22364882
Fax	+47 22363701
E-mail	dnd@dnd.no
Internet	www.dnd.no

SPAIN

Associación Española de Empresas de Tecnologías de la Información (SEDISI)

Adress:	Avda. Diagonal 618 3 A
	E-08021 Barcelona
Telephone	+ 34 93 2418060
Fax	+ 34 93 2418061
E-mail	info@sedesi.es
Internet	www.sedesi.es

SWEDEN

Swedish IT-companies Organisation (SITO)

Adress:	Box 5501
	11485 Stockholm
Telephone	+46 8 7838300
Fax	+46 8 6670461
E-mail	info@sito.se
Internet	www.sito.se

SWITZERLAND

Schweizerischer Wirtschaftsverband der Informations-, Kommunikations- und Organisationstechnik (SWICO)

Adress:	Technoparkstrasse 1
	8500 Zürich
Telephone	+41 1 4453800
Fax	+41 1 4453801
E-mail	swicomail@swico.ch
Internet	www.swico.ch

UNITED KINGDOM

Computing Services and Software Association (CSSA)

Adress:	20 Red Lion Street
	London W1CR 4QN
Telephone	+44 171 3956700
Fax	+44 171 4044119
E-mail	john.higgins@cssa.co.uk
Internet	www.cssa.co.uk

APPENDIX 4 TRADE FAIR ORGANISORS

Below, we list some of the most important trade fairs/exhibitions in Europe, which attract a large number of local and international visitors and participants. We also mention the names of some national trade fair organisers. Note that every European country has its own IT fairs, mainly targeting the local market. You should ask European sources (e.g. software branch associations, your local partners) for details. Internet is also a valuable source of information.

FRANCE

Milia, Cannes, France, annual in February.
An important fair in Europe on multimedia, interactive entertainment and digital media distribution.
Reed Midem Organisation
Telephone + 33 1 41904479
Fax + 33 1 41904470
Internet: www.milia.com

GERMANY

CeBIT, Hannover, Germany, annual in February/March.
The CeBIT is the largest IT exhibition in the world. It takes place on an annual basis at the Hannover fair ground.
Deutsche Messe AG, Messegelände, D-30521 Hannover
Telephone +49 511 8933100
Fax +49 511 8933102
E-mail cebit@messe.de
Internet: www.cebit.de

CeBIT Home, Leipzig, Germany, annual in September.
The CeBIT Home is one of the largest fairs for consumer electronics, hardware and software for the SOHO market (Small Office/Home Office).
Deutsche Messe AG, Messegelände, D-30521 Hannover
Telephone +49 511 8933100
Fax +49 511 8933102
E-mail cebithome@messe.de
Internet: www.cebithome.de

Systems, Munich, Germany. Annual in October
This popular fair is the second largest IT exhibition in Germany, and not as crowded as the CeBIT.
Messe München GMBH, Messegelände, D-81823 München
Telephone +49 89 94920350
Fax +49 89 94920359
Internet: www.systems.de

ITALY

SMAU, Milan, Italy. Annual in April
The largest IT exhibition in Italy
Via Merano 18, I-20127 Milano
Telephone +39 02 283131
Fax +39 02 28313213
Internet www.smau.it

THE NETHERLANDS

RAI International Communications Group, organisers of (IT) exhibitons in The Netherlands.
P.O. Box 77777, 1078 NL Amsterdam, The Netherlands
Telephone +31 20 5491212
Fax +31 20 5491446
E-mail mail@rai.nl
Internet: www.rai.nl

Royal Dutch Jaarbeurs, organisers of (IT) exhibitons in The Netherlands.
P.O. Box 8500, 3503 RM Utrecht, The Netherlands
Telephone +31 30 2955911
Fax +31 30 206464469
E-mail info@jaarbeursutrecht.nl
Internet: www.jaarbeursutrecht.nl

SPAIN

SIMO TCI, Madrid, Spain. Annual in November
Parque Ferial Juan Carlos I, E-28067 Madrid
Telephone +34 1 7225000
Fax +34 1 7225807
Internet

UNITED KINGDOM

Online Information Show, London, UK, annual in December.
Is the largest information industry event in the world.
Learned Information Europe Ltd.
32-34 Broadwick Street, London W1A2HG
Telephone +44 20 73169744
Fax +44 20 73169282
E-mail sales@learned.co.uk
Internet: www.online-information.co.uk

More information on various types of exhibitions in the UK can be found at internet: www.exhibitions.co.uk
www.simo.ifema.es

APPENDIX 5 TRADE PRESS

There is a very large number of IT magazines in Europe. Most of these magazines are for the local markets only, and there are hardly any pan-European IT magazines. Names of the popular magazines can be requested from the various European software branch organisations.

In this appendix are the most popular magazines gathered in the several selected EU countries.

FRANCE

CIO France

Publisher: IDG Communications S.A.
Address: 5, rue Chantecoq, F-92808, Puteaux CEDEX, France
Telephone: +33 01 4197 6161
Fax: +33 01 4197 6100
Internet: www.idg.fr
Contents: analysis of management, cost management, marketing, organisation and legal concerns and detailed analysises of corporate strategies
Language: French
Frequency: quarterly

Distributique

Publisher: IDG Communications S.A.
Address: 5, rue Chantecoq, F-92808, Puteaux CEDEX, France
Telephone: +33 01 4197 6161
Fax: +33 01 4197 6100
Internet: www.idg.fr
Contents: magazine for distributors, VAR, and software and services companies analysing the main trends of the market, exposes the strategies of the major manufacturers
Language: French
Frequency: weekly (44 times per annum)

Le Monde Informatique

Publisher: IDG Communications S.A.
Address: 5, rue Chantecoq, F-92808, Puteaux CEDEX, France
Telephone: +33 01 4197 6161
Fax: +33 01 4197 6100
Internet: www.idg.fr
Contents: the development of new technologies, experiences of companies, and analysis and evaluation of the state of the art in software, hardware, market tendencies and manufacturing
Language: French
Frequency: weekly (44 times per annum)

GERMANY

InformationWeek Germany

Publisher: CMP-WEKA
Address: Gruber Str. 46A, D-85586 Poing, Germany
Telephone: +49 08121/95-1532
Fax: +49 08121/95-1667
Internet: www.informationweek.de
Contents: news and industry analysis; technology features; innovative solutions; product reviews; application development
Language: German
Frequency: biweekly

CIO - Germany

Publisher: IDG Magazine Verlag GmbH
Address: Leopoldstraße 252b, D-80807, München, Germany
Telephone: +49 89 360 86 02
Fax: +49 89 360 86 118
Internet: www.idgcom.de
Contents: strategy and perspectives, technology and trends, personnel and careers, people and profiles as well as IT and the market
Language: German
Frequency: monthly

Computer Partner Germany

Publisher: IDG Magazine Verlag GmbH
Address: Leopoldstraße 252b, D-80807, München, Germany
Telephone: +49 89 360 86 02
Fax: +49 89 360 86 118
Internet: www.idgcom.de
Contents: aimed at trading companies in Germany which gain their added value from reselling IT, telecommunications and digital photography products to end users or influencing their purchase decisions by offering services and advice
Language: German
Frequency: weekly

TecChannel

Publisher: IDG Magazine Verlag GmbH
Address: Leopoldstraße 252b, D-80807, München, Germany
Telephone: +49 89 360 86 02
Fax: +49 89 360 86 118
Internet: www.idgcom.de
Contents: tests and background reports concerning IT products, operating systems, hardware as well as trends from all areas of the IT industry
Language: German
Frequency: quarterly

Computerwoche

Publisher:	Computerwoche Verlag GmbH
Address:	Brabanterstrasse 4, D-80805, Munich, Germany
Telephone:	+49 89 360 86 0
Fax:	+49 89 360 86 118
Internet:	www.idgcom.de
Contents:	all aspects of information and communication technology in companies - on trends, new technologies, products and markets
Language:	German
Frequency:	weekly

Konstruktion + Engineering

Publisher:	verlag moderne industrie AG & Co. KG
Address:	Justus-von-Liebig-Straße 1, D-86899 Landsberg, Germany
Telephone:	+49 (0)8191 1250
Fax:	+49 (0)8191 125339
E-mail:	ke@mi-verlag.de
Internet:	www.k-e.de
Contents:	trends and developments in products and processes, implementation of components and systems, as well as organisational aspects of design engineering management
Language:	German
Frequency:	12 times per annum

ITALY

Computerworld Italia

Publisher:	IDG Communications Italia Srl. - Business Magazines
Address:	Via Zante 16/2, I-20138, Milano, Italy
Telephone:	+39 02 580 381
Fax:	+39 02 5801 1670
Internet:	www.cwi.it
Contents:	-
Language:	Italian
Frequency:	weekly

Network World Italia

Publisher:	IDG Communications Italia Srl. - Business Magazines
Address:	Via Zante 16/2, I-20138, Milano, Italy
Telephone:	+39 02 580 381
Fax:	+39 02 5801 1670
Internet:	www.nwi.it
Contents:	network technology, enterprise applications, the new telecommunications services, e-business and Internet Solutions for businesses
Language:	Italian
Frequency:	22 times per annum

THE NETHERLANDS

Automatisering Gids

Publisher:	Ten Hagen & Stam Uitgevers
Address:	P.O. Box 34, 2501 AG Den Haag
Telephone	+31 70 3046943
Fax	+31 70 3045815
Internet	www.wkths.nl; www.automatiseringgids.nl
Contents:	developments and financial economic information in the area of ICT, via articles and analyses. Section 2 is about opinions and background stories (world-wide developments and legal aspects)
Language:	Dutch
Frequency:	weekly

Computable

Publisher:	VNU BPA
Address:	P.O. Box 9194 , 1006 CC Amsterdam
Telephone	+31 20 4875349
Fax	+31 20 4875716
Internet	www.bpa.nl; www.computable.nl
Contents:	important developments (technical, product, market, profession, company, social economic and environmental) in the area of automation and IT, via articles, analyses, columns, interviews and background stories
Language:	Dutch
Frequency:	weekly

Software Release Magazine

Publisher:	Array Publications BV
Address:	P.O. Box 615, 2400 Alphen a/d Rijn
Telephone	+31 172 424177
Fax	+31 172 424381
Internet	www.array.nl ; www.release.nl
Contents:	focus on software development and IT services. Status and tests of software development environments and - tools. New software versions and products are presented. Real life cases of IT service providers
Language:	Dutch
Frequency:	eight times per year

UNITED KINGDOM

Call Centre Focus Magazine

Publisher: CMP Information Ltd
Address: 630 Chiswick High Road, London W4 5BG, United Kindom
Telephone: +44 (0)20 7921 8527
Fax: +44 (0)20 7921 8548
Internet: www.callcentre.co.uk
Contents: latest news, views and opinions as well as product information, case studies and in-depth articles on all key areas of development
Language: English
Frequency: 10 times per annum

Computing

Publisher: VNU Business Publications
Address: 32-34 Broadwick Street, London W1A 2HG, United Kindom
Telephone: +44 020 7316 9000
Fax: +44 020 7316 9160
Internet: www.computing.co.uk
Contents: stories about software, hardware, projects, plans, integration, budgets, licences, skills and staff
Language: English
Frequency: weekly

Infomatics

Publisher: VNU Business Publications
Address: 32-34 Broadwick Street, London W1A 2HG, United Kindom
Telephone: +44 020 7316 9000
Fax: +44 020 7316 9160
Internet: www.infomaticsonline.co.uk
Contents: magazine for IT sales and marketing professionals
Language: English
Frequency: -

ITWeek

Publisher: VNU Business Publications
Address: 32-34 Broadwick Street, London W1A 2HG, United Kindom
Telephone: +44 020 7316 9000
Fax: +44 020 7316 9160
Internet: www.itweek.co.uk
Contents: -
Language: English
Frequency: -

ComputerWeekly

Publisher: IDG Communications UK, Ltd.
Address: 99 Gray's Inn Road, WC1X 8UT, London, United Kingdom
Telephone: +44 20 7831 9252
Fax: +44 20 7831 8767
Internet: www.idg.co.uk
Contents: news and news analysis of industry trends and developments, company news, strategies, alliances, deals and financial and employment information
Language: English
Frequency: weekly

APPENDIX 6 BUSINESS SUPPORT ORGANISATIONS

DENMARK
The Danish Import Promotion Office for products from developing countries (DIPO)
Danish Chamber of Commerce
Børsen, 1217 Copenhagen, Denmark
Telephone +45 33 950500
Fax +45 33 325216
E-mail dok@commerce.dk
Internet www.commerce.dk

GERMANY
German Agency for Technical Cooperation (Protrade /GTZ GmbH)
P.O. Box 5180
D-65726 Eschborn, Germany
Telephone +49 6196 790
Fax +41 6196 79115
E-mail postmaster@gtz.de
Internet www.gtz.de

ITALY
Italian Institute for Foreign Trade (ICE)
Via Liszt 21
00144 Rome, Italy
Telephone +39 6 59921
Fax +39 6 59926900
E-mail sitoece@ice.it
Internet www.ice.it

THE NETHERLANDS
Centre for the Promotion of Imports from developing countries (CBI)
Beursplein 37
P.O. Box 30009, 3001 DA Rotterdam, The Netherlands
Telephone +31 10 2013434
Fax +31 10 4114081
E-mail cbi@cbi.nl
Internet www.cbi.nl

NORWAY
The Norwegian Agency for Development Cooperation (NORAD)
Tolbugaten 31, P.O. Box 8034 Deo, oslom, Norway
Telephone +47 22 242030
Fax +47 22 242031
E-mail informasjonssenteret@norad.no

SWEDEN
The Swedish International Development Cooperation Agency (SIDA)
Department for Infrastructure & Economic Cooperation
S-105 25 Stockholm, Sweden
Telephone +46 8 6985000
Fax +46 8 208864
E-mail info@sida.se
Internet www.sida.se

SWISS
International Trade Centre UNCTAD/WTO
Trade Information Service
Palais des Nations, P.O. Box 10
CH-1211 Geneva, Switzerland
Telephone +41 22 7300111
Fax +41 22 7334439
E-mail itcreg@intracen.org
Internet www.intracen.org

Swiss Import Promotion Programme (SIPPO)
Stampsenbachstrasse 85
8035 Zürich, Switzerland
Telephone +41 1 3655151
Fax +41 1 3655221
E-mail info.zurich@osec.ch
Internet www.osec.ch

APPENDIX 7 OTHER USEFUL ADDRESSES

AUSTRIA
United Nations Industrial Development Organisation
UNIDO
P.O. Box 300
A-1400 Vienna, Austria
Telephone +43 1 211314575/4571
Fax +43 1 211316855
Internet www.unido.org

BELGIUM
European Commisson
Wetstraat 200
1048 Brussels, Belgium
Telephone +32 2 2991111
Fax +32 2 2950138
Internet www.europa.eu.int

The above Internet site also provides information on the various Directorates-General (responsible for trade, external relations, development etc.) of the European Commission.

FRANCE
OECD
Directorate for Science, Technology and Industry
Rue André-Pascal 2
F-75775 Paris Cedex 16
Telephone +33 1 45248200
Fax +33 1 45 248500
E-mail webmaster@oecd.org
Internet www.oecd.org

Statistical information on member countries can be found on the OECD Web site as well.

GITEP TICS
Address: 11-17 rue Hamelin, F-75783 Paris Cedex 16, France
Telephone: +33 1 45 05 70 06
Fax: +33 1 47 55 66 22
E-mail: aweil@gitep.fr
Internet: http://www.giteptics.fr

SFIB
Address: 2, Place de la Défense, BP 240, F-92053 Paris La Défense Cedex, France
Telephone: +33 1 46 92 24 35
Fax: +33 1 46 92 24 48
E-mail: autexier@sfib.fr
Internet: http://www.sfib.fr

SIMAVELEC
Address: 11 rue Hamelin, F-75783 Paris Cedex 16, France
Telephone: +33 1 45 05 71 74
Fax: +33 1 47 05 71 72
E-mail: b.heger@simavelec.fr
Internet: http://www.simavelec.fr

GERMANY
BITKOM
Address: Albrechtstraße 10, D-10117 Berlin, Germany
Telephone: +49 30 27576 101
Fax: +49 30 27576 400
E-mail: b.rohleder@bitkom.org
Internet: http://www.bitkom.org

ZVEI
Address: Stresemannallee 19, D-60591 Frankfurt/Main, Germany
Telephone: +49 69 630 2219
Fax: +49 69 630 2361
E-mail: pett@zvei.org
Internet: http://www.zvei.de/

THE NETHERLANDS
IICD
International Institute for Communication and Development
P.O. Box 11586
2502 AN The Hague, The Netherlands
Telephone +31 70 3117311
Fax +31 70 3117322
E-mail information@iicd.org
Internet www.iicd.org

SERC
Software Engineering Research Centre/Espinode
P.O. Box 424
3500 AK Utrecht, The Netherlands
Telephone +31 30 2545412
Fax +31 30 2545948
E-mail espinode@serc.nl
Internet www.serc.nl/espinode

SPAIN
ESI
European Software Institute
Parque Tecnológico 204
E-48170 Zamudio, Spain
Telephone +34 94 4209519
Fax +34 94 4209420
E-mail itziar.ortega@esi.es
Internet www.esi.es

SPAIN

ANIEL

Address: Principe de Vergara 74, E-28006 Madrid, Spain
Telephone: +349 1 590 2300
Fax: +349 1 411 4000
E-mail: jgascon@aniel.es
Internet: http://www.aniel.es/

SEDISI

Address: Av. Diagonal 618, 3 A, E-08021 Barcelona, Spain
Telephone: +34 93 241 8060
Fax: +34 93 200 2339
E-mail: JO@sedisi.es
Internet: http://www.sedesi.es/

INDIA

NASSCOM

National Association of Software and Service Companies
#109, Ashok Hotel, Chanakyapuri
New Delhi - 110 021, India
Telephone +91 11 6885474
Fax +91 11 6885475
E-mail nasscom@nasscom.ernet.in
Internet www.nasscom.org

3SE (Software Services Support and Education Centre Limited) - India

Diamond Jubilee Commercial Complex
8th Floor, Hudson Circle
Bangalore - 560 027 India
Telephone +91 80 2211143
Fax +91 80 2211152
E-mail support@3seblr.soft.net
Internet www.3seblr.soft.net

Intellect (formerly FEI)

Address: Russell Square House, 10-12 Russell Square, UK- London WC1B 5EE, United Kingdom
Telephone: +44 20 7331 2001
Fax: +44 20 7331 2042
E-mail: anthony.parish@intellectuk.org
Internet: http://www.intellectuk.org

APPENDIX 8 LIST OF DEVELOPING COUNTRIES

Please note that the OECD list of developing countries, as applied in this market survey, may include countries that are usually not considered as developing countries (e.g. South Korea).

Afghanistan
Albania
Algeria
Angola
Anguilla
Antigua and Barbuda
Armenia
Azerbaijan
Bahrain
Bangladesh
Barbados
Belize
Benin
Bhutan
Bolivia
Bosnia & Herzegovina
Botswana
Brazil
Burkina Faso
Burundi
Cambodia
Cameroon
Cape Verde
Central African rep.
Chad
Chile
China
Colombia
Comoros
Congo
Cook Islands
Costa Rica
Côte d'Ivoire
Croatia
Cuba
Djibouti
Dominica
Dominican republic
Ecuador
Egypt
El Salvador
Equatorial Guinea
Eritrea
Ethiopia
Fiji
Gabon
Gambia
Georgia
Ghana
Grenada
Guatemala
Guinea
Guinea-Bissau
Guyana
Haiti
Honduras
Indonesia
Iran
Iraq
Jamaica
Jordan
Kazakstan
Kenya
Kiribati
Korea, Rep. of
Kyrghyz Rep.
Laos
Lebanon
Lesotho
Liberia
Macedonia
Madagascar
Malawi
Malaysia
Maldives
Mali
Malta
Marshall Islands
Mauritania
Mauritius
Mayotte
Mexico
Micronesia, Fed. States
Moldova
Mongolia
Montserrat
Morocco
Mozambique
Myanmar
Namibia
Nauru
Nepal
Nicaragua
Niger
Nigeria
Niue
Oman
Pakistan
Palau Islands
Palestinian Admin. Areas
Panama
Papua New Guinea
Paraguay
Peru
Philippines
Rwanda
Saudi Arabia
Senegal
Seychelles
Sierra Leone
Slovenia
Solomon Islands
Somalia
South Africa
Sri Lanka
St. Helena
St. Kitts-Nevis
St. Lucia
St. Vincent and Grenadines
Sudan
Surinam
Swaziland
Syria
Tajikistan
Tanzania
Thailand
Timor
Togo
Tokelau
Tonga
Trinidad & Tobago
Tunisia
Turkey
Turkmenistan
Turks & Caicos Islands
Tuvalu
Uganda
Uruguay
Uzbekistan
Vanuatu
Venezuela
Vietnam
Wallis & Futuna
West Samoa
Yemen
Yugoslavia, Fed. Rep.
Zaire
Zambia
Zimbabwe

Note: Eurostat figures do not include figures of Cook Islands, Niue, St. Kitts-Nevis, Timor and Tokelau

APPENDIX 9 LIST OF EU IMPORTERS

There are thousands of large, small and medium-sized ICT importers in the EU. We have made a selection of about 50 of these to give you the opportunity to obtain an initial view of their activities. You can use Internet search engines to investigate the EU market in more detail and to find more IT companies yourself.

Some well-known international Internet search engines are:

- www.google.com
- www.altavista.com
- www.yahoo.com
- www.infoseek.com

The most popular Dutch Internet search engines are listed below:

- www.ilse.nl
- www.startpagina.nl
- www.track.nl

FRANCE

AGILENT TECHNOLOGIES

Address: 1 rue Galvani, F-91745 Massy Cédex, France
Telephone: +33 1 64 53 50 00
Fax: +33 1 64 53 50 01
E-mail: gilbert_garin@agilent.com
Internet: http://www.agilent.com

ALCATEL

Address: 54, rue La Boétie, F-75008 Paris, France
Telephone: +33 1 40 76 10 00
Fax: +33 1 40 76 14 58
E-mail: jacques.dunogue@alcatel.fr
Internet: http://www.alcatel.com

BULL

Address: 68, route de Versailles, F-78434 Louveciennes Cédex, France
Telephone: +33 1 39 66 68 94
Fax: +33 1 39 66 63 36
E-mail: geraldine.capdeboscq@bull.net
Internet: http://www.bull.com

EADS-Telecom

Address: rue J.P. Timbaud, F-78392 Bois d'Arçy Cedex, France
Telephone: +33 1 34 60 75 74
Fax: +33 1 30 47 60 03
E-mail: michel.pierrugues@eads-telecom.com
Internet: http://www.eads-telecom.net

THOMSON

Address: 46 quai A. Le Gallo, F-92648 Boulogne Cédex, France
Telephone: +33 1 41 86 52 95
Fax: +33 1 41 86 56 30
E-mail: jean-françois.lecomte@thomson.net
Internet: http://www.thomson-multimedia.com

GERMANY

Deutsche Telekom AG

Address: Zentrale Bonn, Reuterstrasse 122, 53129 Bonn, Germany
Telephone: +49/228/181-0
Fax: +49/228/181-8872
Internet: www.telekom.de

SIEMENS

Address: Hofmannstraße 51, D-81359 Munich, Germany
Telephone: +49 89 722 26788
Fax: +49 89 722 28 139
E-mail: helmut.stocker@icn.siemens.de
Internet: http://www.siemens.de

ITALY

AMD (Advanced Micro Devices)

Address: Via Novara 570, 20153 Milano, Italy
Telephone: +39/02/381961
Fax: +39/02/38103458
Internet: www.amd.com

OLIVETTI TECNOST

Address: Via Jervis 77, I-10015 Ivrea (TO), Italy
Telephone: +39 0125 522 007
Fax: +39 0125 522 782
E-mail: b.lamborghini@olivetti.com
Internet: http://www.olivettilexikon.com/

Telecom Italia

Address: Direzione Generale, Corso d'Italia 41, 00198 Roma, Italy
Telephone: +39/06/3688-1
Fax: +39/06/3688-2701
Internet: www.telecomitalia.it

THE NETHERLANDS

Account View

Address: P.O. Box 9400, 1006 AK Amsterdam
Telephone +31 20 6171070
Fax +31 20 6171478
E-mail info@accountview.com
Internet www.accountview.com

ATOS Origin Netherlands
Address: P.O. Box 42611, 3006 DC Rotterdam
Telephone +31 10 2428150
Fax +31 10 2428155
E-mail info@nl.origin-it.com
Internet www.origin-it.com

Cap Gemini Ernst & Young
Address: P.O. Box 2575, 3500 GN Utrecht
Telephone +31 30 2526526
Fax +31 30 2543244
E-mail info@capgemini.nl
Internet www.capgemini.nl

Logica/CMG Nederland B.V.
Address: P.O. Box 159, 1180 AD Amsterdam
Telephone +31 20 5033000
Fax +31 20 5033012
E-mail infobalie@cmg.nl
Internet www.cmg.nl

Computer Associates BV
Address: P.O. Box 577, 3430 AN Nieuwegein
Telephone +31 30 6048345
Fax +31 30 6051234
E-mail info@www.cai.com
Internet www.cai.com

Exact Software
Address: P.O. Box 5066, 2600 GB Delft
Telephone +31 15 2624323
Fax +31 15 2617901
E-mail info@exact.nl
Internet www.exact.nl

Getronics Software Solutions
Address: P.O. Box 1218, 3430 BE Nieuwegein
Telephone +31 30 6083241
Fax +31 30 6081586
E-mail info@getronics.nl
Internet www.getronics.nl

Issue Information Technology BV
Address: P.O. Box 53233, 3008 HE Rotterdam
Telephone +31 10 2404242
Fax +31 10 2404200
E-mail info@issue.nl
Internet www.issue.nl

KSI International
Address: P.O. Box 105, 3400 AC IJsselstein
Telephone +31 30 6888244
Fax +31 30 68888671
E-mail info@ksi.nl
Internet www.ksi.nl

Ordina Holding BV
Address: Postbus 3069, 3502 GB Utrecht
Telephone +31 30 2984184
Fax +31 30 2984183
E-mail info@ordina.nl
Internet www.ordina.nl

Pink Roccade
Address: P.O. Box 2, 2700 AA Zoetermeer
Telephone +31 79 3207700
Fax +31 79 3207710
E-mail info@pink.nl
Internet www.pinkelephant.com

Syntegra
Address: P.O. Box 552, 2700 AN Zoetermeer
Telephone +31 79 3682222
Fax +31 79 3682306
E-mail info@syntegra.nl
Internet www.syntegra.nl

O2 (Netherlands) B.V.
Address: P.O. Box 23079,
1100 DN Amsterdam-Zuidoost
Telephone: +31 20 2002000
Fax: +31 20 2005050
Internet: www.O2.nl

Vanenburg Business Systems
Address: P.O. Box 888, 6710 BB Ede
Telephone +31 318 699899
Fax +31 318 699898
E-mail aschonewille@vanenburg.com
Internet www.vbsnetherlands.com

SPAIN
`AMPER, S.A.
Address: Cl Torrelaguna, 75, (28027) Madrid
Telephone: +91 724 30 00
Telefax: +91 325 30 10
E-mail: informacion@amper.es
Internet: www.amper.es

IBYS INFORMÁTICA Y TELECOMUNICACIONES, S.A.
Address: Esteban Palacios, 8 Of 12, (28043) Madrid
Telephone: + 91 885 40 00
Telefax: + 91 300 42 82
E-mail: admin@ibys.com
Internet: www.ibys.com

Consulintel
Address: Molino de la Navata, 75, (28420) La Navata
Telephone: + 91 858 75 09
Telefax: + 91 858 76 31
E-mail: info@consulintel.es
Internet: www.consulintel.es

INTERISA ELECTRONICA, S.A.
Address: Avda. de los Artesanos, 46,
(28760) TRES CANTOS
Telephone: + 91 555 75 65
Telefax: + 91 555 21 44
E-mail: interisa@seneca.net
Internet: www.interisa.es

JEMA EQUIPOS ELECTRÓNICOS, S.A.
Address: Paseo del circuito, 10, (20160) Lasarte
Telephone: + 94 3 36 36 40
Telefax: + 94 3 37 12 79
E-mail: jema@sarenet.es
Internet: www.grupojema.com

PAGE IBERICA S.A.
Address: Avda. Industria, 24, (28760) Tres Cantos
Telephone: +91 807 39 99
Telefax: +91 803 18 04
E-mail: page@pagetelecom.com
Internet: www.pagetelecom.com

UNITED KINGDOM
SAMSUNG EUROPE
Address: Samsung House, 225 Hook Rise South,
Surbiton, UK-Surrey KT6 7LD
Telephone: +44 208 3910 168
Fax: +44 208 3918 733
E-mail: mikesong@samsung.co.kr
Internet: http://www.samsung.com

APPENDIX 10 USEFUL INTERNET SITES

www.iicd.nl
The IICD, International Institute for Communication and Development, was set up by the Netherlands Ministry for Development Co-operation. It assists developing countries in keeping up with the developments in ICT. The website provides information on the latest developments and has linkages to databases.

www.outsourcing-experts.com
This site is devoted to the subject of outsourcing of Information Technology. It covers a vast range of subjects and has links to other sites in the field of outsourcing. It also hosts a discussion platform on outsourcing and related subjects.

www.witsa.org
The WITSA (World Information Technology and Services Alliance) is an alliance of several software and IT organisations from all over the world. Their website gives easy access to the Internet sites of each of these, plus a lot of additional information.

www.nasscom.org
Among the developing countries, India is a very successful exporter of software. The site of NASSCOM, the Indian national association of IT companies, gives information on its national and international activities and on the developments within the Indian software industry.

www.ciol.com
This site is a portal to the Indian software sector, and gives information both on domestic issues and on Indian exports. News on international developments and trends in the field of Information Technology are also presented.

www.btw-vta.be
This sight gives you a good insight on VAT policies in the EU.

APPENDIX 11 REFERENCES

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CBI (Centre for the Promotion of Imports from developing countries). Exporting to the European Union. Rotterdam, 1999

CBI (Centre for the Promotion of Imports from developing countries). Export planner. Rotterdam, 1999

CBS (Central Bureau for Statistics, The Netherlands). The digital economy 2002. Voorburg, 2002.

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National Association of Software and Service Companies (NASSCOM). Software Industry in India. New Delhi, 2002

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Yourdon, E. Decline and Fall of the American Programmer. Prentice Hall, New Jersey, 1992

Yourdon, E. Rise and Resurrection of the American Programmer. Prentice Hall, New Jersey, 1996

CBI: YOUR EUROPEAN PARTNER FOR THE EUROPEAN MARKET

The CBI (Centre for the Promotion of Imports from developing countries) is an agency of the Dutch Ministry of Foreign Affairs. The CBI was established in 1971. The CBI's mission is to contribute to the economic development of developing countries by strengthening the competitiveness of companies from these countries on the EU market. The CBI considers social values and compliance with the most relevant environmental requirements to be an integral part of its policy and activities.

CBI offers various programmes and services to its target groups:

Market information
A wide variety of tools to keep exporters and Business Support Organisations (BSOs) in developing countries in step with the very latest development on the EU market.
These include market surveys and strategic marketing guides for more than 40 product groups, manuals on export planning and other topics, fashion and interior forecasts and the CBI News Bulletin, a bi-monthly magazine. This information can also be obtained from our website at www.cbi.nl For all information on non-tariff trade barriers in the EU CBI has a special database, AccessGuide, at www.cbi.nl/accessguide
And finally CBI's Business Centre is offering free office facilities, including telephones, computers, internet and copiers for eligible exporters and BSOs. Market reports, international trade magazines, cd-roms and much more can be consulted in the information section of the business centre.

Company matching
The company matching programme links well-versed suppliers in developing countries to reliable importing companies in the EU and vice versa. The online matching database contains profiles of hundreds of CBI-audited and assisted exporters in developing countries that are ready to enter into various forms of business relationships with companies in the EU, as well as many EU companies interested in importing or other forms of partnerships such as subcontracting or private labelling.

Export development programmes (EDPs)
EDPs are designed to assist entrepreneurs in developing countries in entering and succeeding on the EU market and/or in consolidating or expanding their existing market share. Selected participants receive individual support over a number of years by means of on site consultancy, training schemes, trade fair participation, business-to-business activities and general export market entry support. Key elements usually include technical assistance in fields such as product adaptation, improving production, implementing regulations and standards and export marketing and management assistance.

Training programmes
Training programmes for exporters and BSOs on, among others, general export marketing and management; trade promotion; management of international trade fair participations and developing client-oriented market information systems. The duration of the training programmes vary between two days and two weeks and are organized in Rotterdam or on location in developing countries.

BSO development programme
Institutional support for capacity building for selected business support organisations.
The programme is tailored to the specific needs of participating BSOs and can include train-the-trainer assistance, market information systems support and staff training. CBI's role is advisory and facilitative.

Please write to us in English, the working language of the CBI.

Centre for the Promotion of Imports from developing countries
Centrum tot Bevordering van de Import uit de ontwikkelingslanden

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