## CBI MARKET SURVEY

# THE ELECTRONIC COMPONENTS MARKET IN THE EU

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**CONTENTS**



This survey was compiled for CBI by Facts Figures Future in collaboration with Mr G. Fandrich

# REPORT SUMMARY

**Objective**
The purpose of this Survey is to assist small to medium-sized exporters of electronic components from developing countries (DC) interested in entering or strengthening a position in European markets. This survey is a reference tool. The exporter will need to do his own research to determine if Europe is a suitable market and which country is (countries are) the most promising. Do not assume that what works in Spain will apply in Germany or France. Despite many similarities, each country must be treated differently.

**Products covered**
The product groups covered in this survey are active-, passive- and electromechanical components, and electronic assemblies (including PCBs).

**Electronic components**
The electronics and electronic components industry is a global market; the trend of globalisation will continue in years to come. In 2006, the Asia-Pacific region will account for as much as 44% of the global market for electronic components. This share is expected to increase the coming years, especially due to China's continuous expansion. The global market is recovering and is expected to grow 11% to € 295 billion. The EU market will reach a value of € 49.6 million. Germany, the UK, France and Italy represent the major part of the EU market. The largest growth, however, is foreseen in especially the new EU member states. Main reason is that a significant part of Western European production of electronics has recently been transferred to these countries.

**Active components**
Semiconductors account for the major share within active components. The world market shows very healthy growth figures (+39% to € 254 billion in 2008). Areas that show above average growth include Analog, MOS Micro, Standard Logic, Power- and Optoelectronics. Relatively, Europe is the smallest market of all global regions, both in value and in growth. The European market was expected to be worth € 33 billion in 2005. The largest market share was for the Asia-Pacific region.

**Passive components**
The world market for passive components is estimated to recover further in 2006, growing to € 25.7 billion. After Asia Pacific, the European market performed best of all global markets in 2005, and will be worth € 3.9 billion in 2006. Germany, the UK and France are by far the three largest markets. The most important challenges continue to be price pressure, the Asian competition and the overcapacity in the industry.

**Electromechanical components**
Much of the European industry has been transferred to low wage countries in especially Asia. As a result, only specialized producers remain. The total European market value is expected to decline to € 8.4 billion in 2006. Germany accounts for one third of the market, followed by the UK, France and Italy.

**Electronic assemblies**
In 2006, the global market value for Printed Circuit Boards is forecast to increase to € 33 billion. After South East Asia and Japan, Europe accounts for about 14% of the market. Severe price pressure is one of the main concerns in the industry, which is fed even more by increasing prices for raw materials.

The global value of electronic manufacturing services (contract manufacturing) will increase to around € 130 billion by 2007. The market in Western Europe will expand fast, to € 47 billion in 2009. The market in Eastern Europe will expand to € 11 billion that year. Germany is the

largest market, UK is second, followed by France, Italy and Scandinavia. The Computer segment is the largest in Western Europe, followed by telecommunications and automotive.

**Segments and trends**
The two most important segments for electronic components in Europe are the computer- (28%) and communication industry (23%). The automotive- and consumer markets are of considerable importance too. Especially the automotive industry is expected to use more and more electronics in the future. Some industry trends include a severe pressure on prices, miniaturisation, ongoing globalisation, complicated supply lines and outsourcing of non-core competences to Electronic Manufacturing Services (EMS) providers that take over more and more areas.

**Production**
The share of the Far East has increased fast on a global level, thanks to the shifts in production and outsourcing to this region from mainly the USA, Japan and the EU. The total production of electronic components (excl. electronic assemblies) in the EU-25 amounted to € 20.5 billion in 2004, which was a decrease of no less than 40% compared to 2000. In volume the decrease was even more disastrous: slightly more than 47%. This confirms the transfer of production to low wage countries, due to the continuous pressure on prices in the market. Production of active components was worth € 4.2 billion in 2004 (-70% compared to 2000). Passives production lost about one third and valued € 5.5 billion in 2004. On the other hand, the production of electromechanical components was hit less dramatic, a decrease of 'only' 11% in the period '00-'04 to € 10.7 billion. A reason is that high precision products have always been the domain of Germany (and Switzerland).

**Imports and exports**
The total imports of electronic components (excl. electronic assemblies) by the EU amounted to € 30.4 billion in 2005. This is a decrease of 62% compared to 2001. Germany was the largest importer, followed by the UK, France and Italy. The import value of electronic assemblies was almost € 34 billion. In total, DC supplied € 4.6 billion to the EU on electronic components and another € 8.6 billion on electronic assemblies. The total share of DC in EU-imports of electronic components (excl. assemblies) is rising: from 9.0% in 2001, the share increased to 15.3% in 2005. For electronic assemblies, this was 25.2% that year. The EU exported € 28.9 billion in electronic components in 2005, decreasing 62% compared to 2001, due to the relocation of production and the pressure on prices. Germany was the largest exporter, France followed at a distance at number 2 and the UK was third.

**Trade structure**
The trade structure for electronic components is quite complicated: markets are 'blurry'. Following the relocation of production facilities, generally only those Western EU companies remain that are more or less specialized. In most cases they are high tech (big & SME) companies in areas like automotive and medical. The most common target groups in the EU for DC exporters include agents and importers. An alternative includes the exporter's own sales office. EMS providers that perform all assembly, production and testing for OEMs are to some extent prospects for exporters, although this happens only in exceptional cases. This is because DC exporters need an OEM approval and must also be able to provide the necessary (big) volumes.

Prices and margins differ to a large extent in the industry and depend on many elements. Roughly, the commission for agents lies between 5 and 15% (on average 8%). Importers' margins vary between 25 and 30%. Prices of electronic components tend to decline each year by at least 10%. Semiconductors and most passive components decrease yearly anywhere between 10 and 30%; for electromechanicals and assemblies this is between 5 and 10%.

**Access requirements**
All products must comply with CE standard. In addition, compliance with EU regulations RohS and WEEE is compulsory since 1 July 2006. Furthermore, exporters could improve their competitiveness by meeting market driven requirements, such as ISO 9001.

**Business practice**
Business practice shows that professional communication is very important, and that only tailor made offers are common, as every product and application differs. Furthermore, most exporters from DC currently quote in Euros (€) and use CIF as the most common delivery condition. In general, visits to specialized trade fairs (like Electronica in Germany, November 2006) will generate valuable contacts in the long run. Finally: a professional website and a corresponding website promotion strategy is a must!

**Opportunities / threats for DCs**
- Competition from China is extremely severe, especially for mass volume standardized products. This leaves opportunities for niche markets, like added value products and tailor made solutions.
- DC suppliers have good possibilities in Eastern Europe, where much is invested and many factories are being built. This leads to a demand for electronic components in that area.
- An online questionnaire, held in 2006 among European buyers of electronic components by the author of this survey, shows –as an indication- that the interest in DC is present in all sectors in the industry. Both small and larger companies in the EU consider sourcing in DC. Both subassembly and sourcing of products are considered. The internet and trade fairs are mentioned as very important information sources. Important buying motives are price, quality and reliability.

# 1 INTRODUCTION TO CBI'S MARKET INFORMATION

CBI provides a wide range of documents containing EU market information. All CBI market information is targeted at developing countries. For the definition of developing countries used in CBI market surveys see appendix B Lists of developing countries.

**Sector specific market information**
CBI publishes market information for about 36 market sectors. For each market sector, the following kind of information is available:

- CBI market surveys **on the EU market in general**, focusing on developments and trends in the field of market size (consumption, production and trade), distribution and prices in the EU as well as on marketing. E.g. The fresh fruit and vegetables market in the EU.
- CBI market surveys **on specific EU markets**, focusing on developments and trends in the field of market size, distribution and prices in the EU market concerned. E.g. The fresh fruit and vegetables market in Spain. On average, about 20 documents per market sector are available. Those EU markets responsible for the highest share of total EU imports from CBI target countries are discussed in documents of about 10 pages. Less relevant EU markets are discussed in fact sheets of about 2 to 3 pages.
- CBI market surveys on **a specific product(group)** within the market sector concerned, focusing on developments and trends in the field of market size, distribution and prices in the EU and a number of specific EU markets as well as on business practices. E.g. The EU market for papaya.
- Information on market access requirements, focusing on legislative and non-legislative requirements based on environmental, consumer health and safety and social concerns in the EU and in specific EU markets.

**General trade related information**
Besides information on specific market sectors, CBI also publishes more general trade related information, the so-called Export manuals. At the moment, the following Export manuals are available:

- Exporting to the European Union – trade-related information on the EU
- Export planner - how to plan your export process
- Your guide to market research - practical and low cost research methods
- Your image builder - how to present yourself on the EU market
- Your show master - selection, preparation and participation in trade fairs
- Digging for gold on the Internet - internet as a source for market information
- Website promotion - how to promote your website in the EU

These Export manuals can be downloaded from the CBI website at www.cbi.nl/marketinfo
Go to 'Search CBI publications'.

**How to use the different CBI market information tools**
If you are new on the EU market, it is adviced to start by consulting the more general Export manuals, like *'Exporting to the European Union'* and *'Export planner'*, before consulting sector specific information. If you are a more experienced exporter, you can use these manuals as reference material while focusing on the specific information for your market sector.
Concerning the sector specific information, you are advised to start with the information on the EU market in general. After consulting this information, you should have gained a better idea on which surveys on specific EU markets are most interesting to consult. It is adviced also to check if a survey on your specific product(group) is available. And it is strongly advised always to check the documents on market access for your product.
Finally it is stressed that CBI market information serves as a basis for further research, meaning that you should - after consulting the CBI information - further research your EU target markets for more detailed and specific information related to your specific situation.

**The electronic components market in the EU**
This CBI market survey covers the EU market for electronic components. It consists of two parts: EU Market Information (Part A), and Export Marketing Guidelines (Part B).

***Part A EU Market Information***
Part A surveys the EU market. The emphasis of this survey lies on those products, which are of importance to developing country suppliers. Statistical market information on consumption, production and trade, and information on trade structure, prices and market access is provided. Opportunities and threats for developing country suppliers are highlighted and sources for more information are provided.

***Part B Export Marketing Guidelines***
How to get involved in the EU marketplace? Should exporting be part of a business plan? These are common concerns of manufacturers who realise the importance of international trade, but are not sure if exporting to the EU is right for them. That is what Part B is all about: to help you to evaluate whether or not to get involved in international business, and learn how to go about exporting to the EU.

The first Chapters 11, 12 and 13 deal with three out of four strategic steps in export marketing: the external analysis and internal analysis (Chapter 11 and 12), a SWOT and the decision-making process whether or not to export to the EU (Chapter 13).

Subsequently, Chapter 14 provides information and sources to enable you to further investigate what would be suitable to export, to which EU markets, through which channels, and at what prices. In other words, which marketing tools can be used for building a successful business relation in the EU? The combination of Chapters 11-13 and the elements of Chapter 14 provide tools that should enable you to draw up a Market Entry Strategy and Export Marketing Plan (fourth strategic step).

Keep in mind that the export marketing process is integrated; each individual part is inter-linked.

Part B is especially interesting for more experienced exporters. If you are a starting exporter, it is advised to read this survey together with CBI's *'Export planner'* and to use the interactive tool *'EMP Document Builder'* on the CBI website.

CBI market surveys covering specific EU markets, specific product(group)s or documents on market access requirements can be downloaded from the CBI website. Go to 'Search CBI database' on http://www.cbi.nl/marketinfo and select the market sector concerned and an EU country.

# 2 INTRODUCTION TO THE EU MARKET

The European Union (EU) is the current name for the former European Community. Since January 1995 the EU has consisted of 15 member states. Ten new countries joined the EU in May 2004. Negotiations are in progress with a number of other candidate member states. In this survey, the EU will be referred to as the EU25, unless otherwise stated. For general information on EU member states, reference is made to CBI's Export manual 'Exporting to the European Union'. Information can also be found at the official EU website http://europa.eu/abc/governments/index_en.htm or the free encyclopedia Wikipedia http://en.wikipedia.org/wiki/Portal:Europe.

**Monetary unit: Euro**

On 1 January 1999, the Euro became the legal currency within eleven EU member states: Austria, Belgium, Finland, France, Germany, Italy, Ireland, Luxembourg, The Netherlands, Spain, and Portugal. Greece became the 12th member state to adopt the Euro on January 1, 2001. 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. In CBI market surveys, the Euro (€) is the basic currency unit used to indicate value.

**Table 2.1 Exchange rates of EU currencies in €**

| Country | Currency | 2004 | 2005 | May 2006 |
|---|---|---|---|---|
| Cyprus | CYP | 1.734 | 1.741 | 1.743 |
| Czech Republic | CZK | 0.031 | 0.034 | 0.035 |
| Denmark | DKK | 0.134 | 0.134 | 0.134 |
| Estonia | EEK | 0.064 | 0.064 | 0.064 |
| Hungary | HUF | 0.004 | 0.004 | 0.004 |
| Latvia | LVL | 1.505 | 1.439 | 1.442 |
| Lithuania | LTL | 0.290 | 0.290 | 0.290 |
| Malta | MTL | 2.302 | 2.329 | 2.338 |
| Poland | PLN | 0.221 | 0.249 | 0.260 |
| Slovakia | SKK | 0.025 | 0.026 | 0.027 |
| Slovenia | SIT | 0.004 | 0.004 | 0.004 |
| Sweden | SEK | 1.110 | 0.108 | 0.107 |
| United Kingdom | GBP | 1.475 | 1.463 | 1.456 |

Source: Oanda http://www.oanda.com/ (June 2006)

**Statistics**

Trade figures quoted in CBI market surveys must be interpreted and used with extreme caution. In the case of intra-EU trade, statistical surveying 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. Furthermore, the information used in CBI market surveys is obtained from a variety of sources. Therefore, extreme care must be taken in the qualitative use and interpretation of quantitative data, it puts limitations to in-depth interpretation of relations between consumption, production and trade figures within one country and between different countries. Some market data for 2006 in chapter 4 have been converted from USD into EUR. For that purpose, the average exchange rate between January 1st and July 20th, 2006, was used (1 € = 0.81134).

**Scarce data**

Data on industrial demand are difficult to retrieve, due to limitations of data and varying definitions of products. This is especially true in the industry of electronic components, where data are scarcely collected, owing to confidentiality and high costs. However, data are provided wherever possible in order to give the exporter an idea of the market. Nevertheless, some data, tables and figures may not be as unambiguous as desired. In that case it is better to rely on at least good indications than on no data at all.

# 3 PRODUCT CHARACTERISTICS

**Product groups**
The four product groups covered in this survey are based on the classification of the European Electronic Components Manufacturers Association (EECA), past experiences of CBI Export Development Programs (EDP), the CBI 'scope of products' and industry experts. The product groups are:
1 Active components
2 Passive components
3 Electromechanical components
4 Electronic assemblies.

Below follows a list of the products that are part of these product groups.

**Ad 1) Active components**
- Application specific ICs (ASICs)
- Diodes (laser-, light emitting-, photosensitive-, microwave-, signal-, voltage reference and regulation-, zener diodes, power rectifiers)
- Delay lines
- Discrete semiconductors (transistors, FETs)
- Displays (L.C.D.-, L.E.D.-, plasma flat panel displays)
- Integrated circuits digital (memories, microcomputers, microcontrollers, microprocessors , programmable logic circuits, standard logic circuits)
- Integrated circuits linear (amplifiers, interfaces, regulators)
- Integrated circuits speech (synthesizers)
- Microcircuits (A/D-, AC/DC-, DC/DC converters, chip cards, DAQ circuits, memory cards)
- Photoelectric cells
- Sensors (axial force-, hall-effect-, light-, pressure-, temperature-, transmission control sensors)
- Thyristors (including diacs and triacs)
- Tubes (colour/monochrome television-, travelling wave-, x-ray tubes, image converters, magnetrons, klystrons, triodes, displays).

**Ad 2) Passive components**
- Capacitors (aluminium-, ceramic-, film-, tantalum-, variable and pre-set capacitors)
- Inductors (chokes, coils, cores, EMI filters, magnets)
- Transformers (line-, power-, toroidal transformers)
- Resistors (carbon-, metal-, wire wound-, variable resistors, ntc / ptc thermistors, potentiometers, resistor networks, rheostats)

**Ad 3) Electromechanical components**
- Connectors (audio,- board-to-board-, coaxial-, flat-cable-, multi-pin-,opto-, RF-, SMT connectors, adapters, power-, IC- /PLCC sockets)
- Fuses
- Relays (PCB mounting-, solid state relays)
- Switches (key-, micro-, power switches, touch panels, keypads, membrane keyboards.

**Ad 4) Electronic assemblies***
- Electronic (sub)-assemblies for e.g. consumer electronics, EDP and IT, industrial applications, office automation, telecommunication and wire-harness
- Printed Circuit Boards (single sided -, double sided-, multiplayer-, flex PCBs, hybrid substrates, laminates).

* Although the products in this product group have quite different characteristics, they will be treated as one group for statistical reasons.

Especially in chapters 4, 5 and 6 of this survey, electronic assemblies will be treated separately, otherwise they would count double in the total statistics. This is because electronic assemblies contain between 60 and 75% components. Electronic data processing (EDP) in this survey is primarily based on data from ZVEI (the German electronics industry association) and refers in most cases to hardware and IT applications.

**Statistical product classification**

On January 1, 1988, a unified coding system was introduced to harmonise the trading classification systems used world-wide. This system is called the Harmonised Commodity Description System (HS) and was developed by the World Customs Organisation (WCO). The system covers about 5,000 commodity groups, each identified by a six-digit code, arranged in a legal and logical structure and is supported by well-defined rules to achieve uniform classification. More than 179 countries and economies use the system as a basis for their customs tariffs and for the collection of international trade statistics. After the six-digit code, countries are free to use further subheadings. The trade data of Eurostat use an eight-digit system. Most codes, however, end with two zeros, i.e. effectively only using 6 digits. In some countries even 10 digits are sometimes used. Please refer to Appendix 1 for a list of the selected products and their HS codes.

The HS classification given differs from the product groups and products mentioned in the paragraphs above, which puts limitations to in-depth interpretation and to the possible relations between import and export figures on the one hand and consumption and production figures on the other hand.

# 4 INDUSTRIAL DEMAND

## 4.1 Global overview

This section both discusses the 1) world market for electronics and 2) the world market for electronic components. It gives an idea of the mid term development in the industry and shows that the globalisation of the electronics industry will only continue.

**Ad 1) World market for electronics**
To give an idea of the end market for electronic components, information on the electronics industry as a whole is briefly discussed here . The electronics industry is a global market with a flow of products around the world and this trend of globalisation has continued extensively in recent years. A brief overview of the global market for electronics is given here, as the market for electronic components depends on the industries in Europe, but also on those in the USA, Japan and South East Asia.

According to French research agency Decision Consult, the world market for electronics will show an average annual growth of 6% from 2005 onwards, to € 1,428 billion in 2010. As an indication: this growth is double the expected average global GDP growth rate. Table 4.1 shows the world electronics market between 2005 and 2010, split up by sector. The largest growth will be realized by two segments in particular, automotive- and consumer electronics. Automotive electronics will continue to lead the whole industry in growth terms. Increasingly, mid- and low range cars are also equipped with electronic applications. On average, the electronics content per car was 25% in 2005, and will climb to more than 30% in 2015. Some major European companies in this area are Bosch, Siemens-VDO, Valeo and Conti-Teves. The growth of consumer electronics is a result of innovation (e.g. digitalisation of cameras, printers, TV's), a constant drop in prices and the opening of new markets in for example Asia.

**Table 4.1 World electronics market, by sector, 2005-2010, € million**

| Sector | 2005 | 2010 | Growth '05–'10 |
|---|---|---|---|
| TVs & audio video | 152,818 | 214,610 | 7.0% |
| Home appliances | 71,943 | 85,648 | 3.5% |
| PCs & data processing | 258,294 | 340,353 | 5.7% |
| Telecoms & networks | 273,434 | 372,691 | 6.4% |
| Aerospace & defence electronics | 71,211 | 90,473 | 4.9% |
| Automotive electronics | 86,636 | 119,932 | 6.7% |
| Industrial & medical electronics | 155,338 | 204,486 | 5.7% |
| **Total** | **1,070** | **1,428** | **6.0%** |
| *- of which mass market products* | *51%* | *52%* | *6.3%* |
| *- of which professional* | *41%* | *40%* | *3.7%* |
| *- of which automotive* | *8%* | *8%* | *7.3%* |

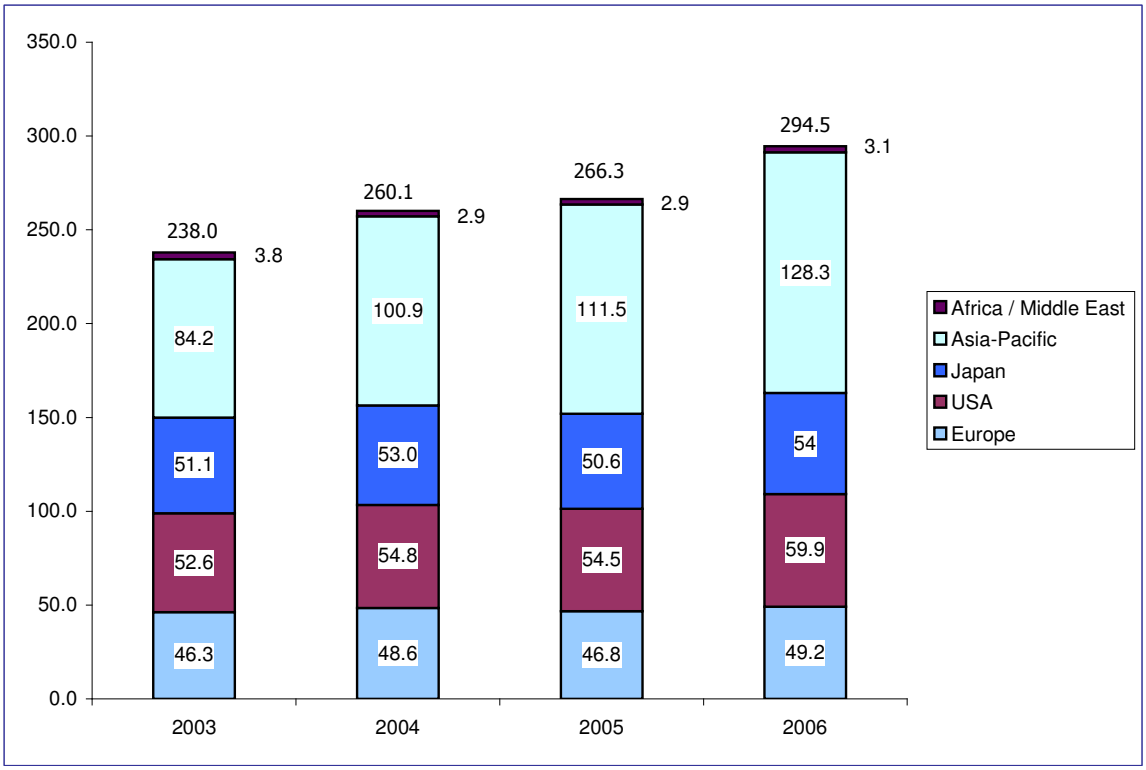
Source: Decision (July 2006)

**Ad 2) World market for electronic components**

**Market by area**
The total world market for electronic components is expected to grow to € 295 billion in 2006 (USD 363 billion). In dollar terms this is a growth of almost 6%. In Euro terms, this means a growth of 11%. On a global level, Europe, the USA and Japan roughly have an equal market share, with the USA as the largest of the three in 2006 (forecast by ZVEI). The Asia Pacific region is again expected to realize an increase in their position; together they hold 43.5% of the global market. At the same time it is the world's fastest growing market. Countries within this group are Australia, China, South Korea, Malaysia, Singapore, Taiwan and Thailand. Of these, China is by far the largest and fastest growing market. The increasing role of China is confirmed by several market experts. Prices of Chinese suppliers are extremely low and at the

same time their quality has become excellent, contrary to some years ago. Any competitor that only offers commodities is or will be soon in trouble. Figure 4.1 gives more details.

**Figure 4.1 World market electronic components, 2003 – 2006**
**EUR billion**




1

Source: ZVEI (2006)

**Market by product group**

On a global level, semiconductors are by far the largest segment (forecast 67%, was 64% in 2005). Due to technological developments, this share has been rising for years now and as global players continue to develop and move on forward technically, it will continue to grow at a similar pace in the future. The key market drivers for semiconductors are, for example, wireless PC accessories, wireless handsets, consumer audio and video, wireless and wireline networks and industrial controls. This could increase demand for e.g. charge-coupled devices, DRAM (dynamic random access memory), flash memory and wireless DSPs (digital signal processing) and wireless custom analogue and logic circuits. PCBs (printed circuit boards) have 13% of the market, bypassing electromechanical components (11%) and passive components (9%). This is result of the integration of passive functions inside silicium or module or electromechanical (mainly PCBs). Passives are also affected by a rapid decline in demand for cathode ray tubes, which used to be a very large market for inductive components.

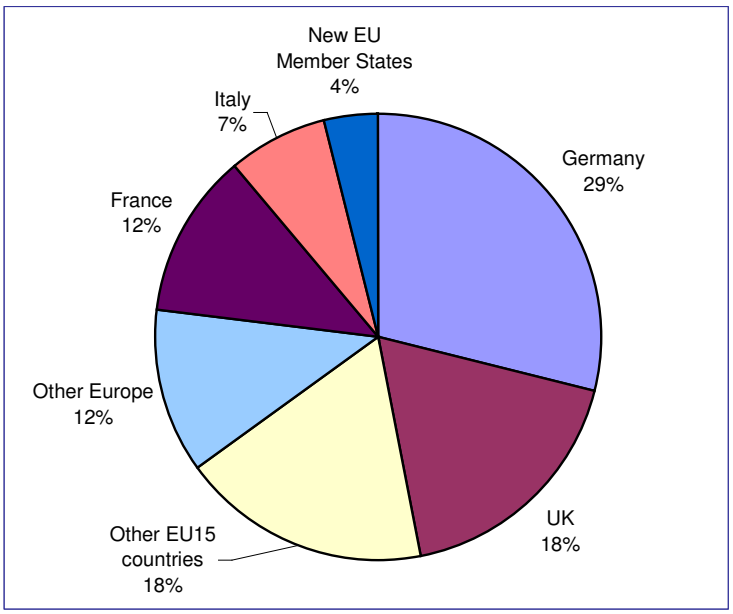
## 4.2 EU market size

**Market by EU country**

According to the EECA, in 2004, four EU member states represented more than two thirds of the total European electronic components market. These were France, Germany, Italy and the UK (figure 4.2). In 2005, this was still the situation according to industry experts. However, some countries will specialize themselves even more. Germany will play a major role in automotive electronics, whereas France will focus more and more embedded systems and R &

D. Also refer to the separate CBI market surveys covering the market in individual EU countries.

**Figure 4.2 EU market electronic components, by country, 2004**




Source: EECA (July 2005)

**Growth in new EU member states**

Table 4.2 gives the growth rate for each EU country, as expected by Decision Consult (July 2006). Although the new EU member states together accounted for only 4.3% of the European market in 2004, it is obvious that they will be the main growers in the coming years. A substantial part of Western European production of electronics has recently been transferred to these countries. Especially Poland (washing machines), Hungary (lighting) and the Czech Republic play a role. Major Japanese companies invest in the new member states too. That will trigger a demand for electronic components.

In the long run, the opinions of industry experts vary on the perspective of the electronic components industry in this area. On the one hand, they predict that production costs will increase in these countries. Within 3-5 years, Eastern European countries also are expected to transfer production to lower cost countries. This mainly applies to high volume components. For example, in Hungary all production of active & passive components has been relocated to lower wage countries. However, the production of electromechanical and electronic assemblies is developing well. There are some large EMS providers in the country.

On the other hand, some say that it is not at all certain that these countries will be too expensive. As a general rule, 'production follows markets'. The EU is still a very large market and it may very well the case that production will remain in Eastern Europe. Moreover, the alternative, doing business with the Chinese, is extremely difficult.

According to the industry experts, there are certainly opportunities for DC suppliers in Eastern Europe, especially by forming strategic alliances. It does not concern supplying electronic components. Instead, DCs should share know how and focus on building/assembling finished products and/or equipment. Medium sized companies in Eastern Europe may also be a good target group to start with. Much investment is done here in assembly lines of e.g. cars and audio/tv products, which automatically triggers a demand for components.

**Table 4.2 Annual growth rate, electronic components market, by EU country, 2005-2010**

| Country | '05-'10 (%) |
|---|---|
| Estonia | 15.6 |
| Poland | 13.1 |
| Slovakia | 13.0 |
| Hungary | 12.4 |
| Czech Republic | 11.9 |
| Latvia | 7.9 |
| Lithuania | 7.9 |
| Slovenia | 7.6 |
| Cyprus | 7.2 |
| Malta | 7.2 |
| Spain | 5.7 |
| France | 4.4 |
| Italy | 4.2 |
| Germany | 3.9 |
| Austria | 3.6 |
| Greece | 3.4 |
| Belgium & Luxembourg | 3.4 |
| Denmark | 3.0 |
| UK | 2.8 |
| Netherlands | 2.5 |
| Ireland | 1.9 |
| Portugal | 1.6 |
| Finland | 1.6 |
| Sweden | 0.9 |

Source: Decision (July 2006)

**Market by product**

Although it is difficult to give an exact idea, due to a scarcity of sources and different definitions, an indication on the market for each product group can be given. According to Decision Consult, active components formed the biggest group within the electronic components market in the EU in 2005, accounting for 65% of the total market. Electromechanical components took 27%, leaving 8% to passive components. In 2010, this will be as follows: actives 69%, electromechanicals 25% and passives 6%.

**Market by application**

EECA data indicate that, in 2004, most electronic components in Europe went to the computer segment (28%) and communications (23%). Other major customers are the automotive industry (19%), consumer appliances (14%), industry (13%) and also the government (2%). That year, the communications segment increased in importance, also as a result of the growing sales of mobile phones. In addition, the automotive industry is growing in importance (both plus 2%).

### 4.2.1 Active components

Active components consist for the major part of semiconductors, but also display components, micro mechanical electronic sensors and actuators are included. Although more products form part of this product group, these will be discussed below.

**Semiconductors**

Table 4.3 shows that the global market for semiconductors is very healthy. Growth figures show double digits, especially for the years 2007 and 2008. The growth in the semiconductor market is led by the ongoing increase in demand for end products like PCs, digital consumer appliances and mobile communications. Products that especially drive demand, are e.g. DRAM, Flash disks, micro controllers and optoelectronics. Obviously, one of the reasons that the Asia

Pacific region is the largest and fastest growing market is the continuous trend to outsource production to this area. However, another reason is that domestic demand is growing here too.

Europe shows a growth of 10.6% for 2008 compared to 2007, and is relatively the smallest of all regions. The Distributors and Manufacturers Association of Semiconductor Specialists (DMASS) reported that the first half of 2006 was a good one, with indeed higher sales volumes than in the previous year, Areas that show above average growth include Analog, MOS Micro, Standard Logic, Power and Optoelectronics. Also DSPs, Microperipherals and Standard Analog did well.

Some characteristics in the semiconductor industry are speed-to-market, short product cycles and a continuous pressure on prices. The European semiconductor industry is also to a great extent driven by innovation, like system-on-chip solutions or the exploration of nanotechnology. In general, it employs many highly skilled workers. Freescale Semiconductor Inc, a USA based manufacturer, expects that consumer products will play a more prominent role in the growth of the industry. In the long run, they expect the growth in the industry to slow down.. In line with the global trend, product complexity will drive higher development costs and they also confirm an increasing demand for integrated solutions.

**Table 4.3 World market semiconductors, 2005-2008**
**EUR billion (converted from USD*)**

| | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|
| Total | 183.0 | 203.2 | 225.6 | 254.4 |
| USA | 32.7 | 37.6 | 41.4 | 45.8 |
| Europe | 31.6 | 32.8 | 35.9 | 39.8 |
| Japan | 35.4 | 38.4 | 41.8 | 46.4 |
| Asia Pacific | 83.2 | 94.3 | 106.4 | 122.3 |

* average 2005 conversion rate 1 USD = € 0.80453
** 2006-2008: average rate 1 January – 20 July 2006 1 USD = € 0.81134
Source: World Semiconductor Trade Statistics (May 2006)

**Display components**
Almost all display components are applied in consumer goods like television sets, PCs and laptops. After the accession in May 2004, TV manufacturers in e.g. Poland, the Czech Republic and Lithuania were allowed to use picture tubes from countries outside the EU. Obviously, this raises opportunities for developing countries. The market for Colour Picture Tubes (CRT) in Europe consisted of 42 million pieces, which was almost 7% higher than in 2003. Most production took place in Turkey and in Russia as well. As a comparison: the number of LCD-, plasma and projection TVs amounted to 3.5 million pieces. In this industry too, prices go down each year by 10% (refer to chapter 9 as well). This has already led to the closing of plants of manufacturers and their suppliers.

**Micro mechanical electronic sensors and actuators**
The total world market for micro mechanical electronic sensors and actuators is expected to climb to € 4.3 billion in 2006, up from € 3.9 billion in 2005. Germany alone already covered € 602 million, all other EU countries valued € 559 million. On a global level, automotive and electronic data processing continue to be the largest client segments, together accounting for more than two thirds of the market. This differs to a great extent from the situation in Germany, which is shown in the CBI market survey on electronic components for Germany, where automotive is regarded as the main driving engine of innovation and investment for micro mechanical electronic sensors. There, this segment accounts for 85%.

### 4.2.2 Passive components

The global market for passive components will be worth € 25.7 billion in 2006. This is an increase of 4.5% compared to 2005. This is not yet the 2003 value, but at least the market is recovering. The major part is realized by Asia Pacific, accounting for 58% of the world market.

This area also realizes the largest growth. Europe is the second market. In Europe, 15 companies dominate the passive component market, accounting for 90% of the market. Its value is expected to be € 3.9 billion in 2006. The industry had been declining continuously since 2000. The European industry has been hit by price erosion, which is related to the weak US dollar, the severe Asian competition and the spare capacity in the global industry. It must be said that the volumes have increased in this period, but these higher volumes have not compensated the lower prices. The EECA is quite pessimistic for the future and fears a persisting stagnating market in the EU (in value terms).

**EU market by product**
On a product level, capacitors are still the largest product within passive components in Europe, although the market is declining very fast in the period 2003-2006. Also resistors go down in value. Inductive components and EMC components is the best performing product group. The CBI Product Brief 'Inductive components' gives more in-depth information on transformers, EMI filters and other relevant products. It is available on the CBI website. Table 4.4 gives an overview of the market development of passive components in Europe.

**Table 4.4 European market passive components, by product, 2003-2006 EUR million, growth in%**

| | 2003 | 2004 | 2005 | 2006 (f) | Growth 03-06 (%) |
|---|---|---|---|---|---|
| **Total** | **4,065** | **4,081** | **3,899** | **3,904** | **-3.9** |
| Capacitors | 1,373 | 1,358 | 1,224 | 1,208 | -12.0 |
| Inductors & EMC components | 1,130 | 1,164 | 1,156 | 1,163 | +2.9 |
| HF components & piezo ceramics | 928 | 936 | 915 | 920 | -0.8 |
| Resistors | 634 | 621 | 604 | 613 | -4.9 |

Source: ZVEI (2006)

Major client segments of passive components in the EU are the automotive industry (growing), telecom (growing fast, due to mobile phones) and industrial (e.g. lighting and medical). The demand for passives in subcontracting (EMS providers) has decreased, as this industry has moved further away from Europe. Some price developments for passive components are discussed in chapter 9.

### 4.2.3 Electromechanical components

A significant part of this industry has been transferred to low wage countries in especially Asia, resulting in an ongoing decline of the market in the EU. The demand that remains consists mainly of manufacturers of low volume, high value products end products that mostly demand their suppliers to be established nearby. Indeed, quite some small scale companies are still active in the EU. The total market value of electromechanical components in Europe is expected to decline to € 8.4 billion in 2006, coming from € 11 billion in 2002. The largest market in Europe is Germany, which holds around one third of the market. The UK, France and Italy are other major markets.

On a product level, connectors form the largest group in Europe, representing about 75% of the market for electromechanical components. Switches account for about 25% of the market.

### 4.2.4 Electronic assemblies

This section will deal with a) Printed Circuit Boards (PCBs) and b) Electronic manufacturing services (EMS).

**Ad a) PCBs**
After a decrease in 2002, the global market for PCBs is on the rise again. In 2006 the global value is forecast to increase to more than € 33.2 billion in 2006. This is almost 10% more than 2004. In Europe, sales amounted to € 4.8 billion in 2005 (+1.3% compared to 2004). For 2006, an increase of 3.5% is expected. Severe price pressure is one of the main concerns in the industry, which is fed even more by increasing prices for raw materials. A Custer Consulting study shows that the European PCB industry is strong in security, medical- and military electronics. Furthermore, local support is available.

**Ad b) Electronic manufacturing services (EMS)**
These are companies that design, assemble, produce, and test electronic components and assemblies for original equipment manufacturers (OEMs). Typically, OEMs retain ownership of product designs and brand names. Contract manufacturing is characterized by low margins. Contracts are won by offering low prices in combination with high volumes. There is a constant concern about control of costs in the whole organization. Leading trade journals estimate that the global value of contract manufacturing will increase to around € 130 billion by 2007.

According to Reed Electronics, the continuous trend for OEMs to outsource will lead to a growing market for EMS. The market in Western Europe will expand from € 19.7 billion in 2004 to € 47.1 billion in 2009. The market in Eastern Europe will grow from € 4.0 billion in 2004 to € 11 billion in 2009. Germany is the largest market (23% in 2004), the UK is second (18%), followed by France (13%), Italy (8.4%) and Scandinavia (9.4%). The computer segment is the largest in Western Europe, followed by telecommunications (12.6%) and automotive (19.5%).

Contrary to most other product groups in the electronic components industry, the market is dominated by American companies and not by Asians. This is because global EMS operations started in the US and they also quickly established subsidiaries in South East Asia, before the Asians realised what was happening. Today their global purchasing power is so enormous, that any newcomer can only cover niche markets. The top 10 EMS providers cover approximately 90% of the global market. Out of these 10, seven are American, one is Asian and two are European. However, also in this Area the Chinese and other Asian countries are coming up. Chapter 8 contains more information about EMS providers.

## 4.3 Patterns and trends in industrial demand

**Price pressure**
Prices in the industry are under severe and continuous pressure. Industry experts indicate that, on average, prices tend to decline each year by at least 10%. Only if prices of raw materials were to go up in a structural way, prices of components might be raised as well. Prices indeed rose in the beginning of 2006, when energy costs and prices of gold and led also increased. Another concern is the imbalance in currencies; especially the Dollar-Euro rate causes leads to worries.

**Minimising costs**
As a consequence, outsourcing of non-core competence continues across the electronics industry. Minimising costs (lean company) will be the key motive for most of the enterprises. Time-to-market and time-to-volume are important elements in this process.

**Globalisation - Complicated supply lines**
The electronic components market is very blurry, and supply lines are very complicated. End users of components source their products globally and may not order or pay for the product in the country of consumption. Some OEMs have moved on to become almost virtual companies, just inventing, designing and marketing products, but no longer manufacturing them. The location of innovation and design centres of these companies, as with traditional OEMs, remains vital to electronic component manufacturers because it is important for them to get their products designed into the products of equipment makers. This is particularly true of

customized electronic components, but it is less relevant for the manufacturers of commodity products such as diodes, small signal transistors, chip capacitors and chip resistors for which the main drivers are price and availability.

As far as the electronic components industry is concerned, Europe in its most comprehensive sense is a single entity. Production, distribution and purchasing are already centrally controlled within multi-national companies. Business to business (B2B) marketing is also centralized. The only business to be oriented locally (nationally) is the marketing and sales of business to consumer (B2C); but even this tends to go international, thanks to global marketing campaigns and commercials.

**Increasing role of EMS providers**
EMS providers are taking over more and more areas (e.g. component procurement, manufacturing, distribution, service). However, for the mid term EMS providers are also expected to look for ways to cut costs drastically. Their overhead costs are high as they are mainly very large companies, and their shareholders feel that the profits have not been high enough. As a consequence, EMS providers also switch to other segments than mass market products. For example, they start activities in professional segments like medical, aerospace and industrial.

**Other trends:**
Some other trends that were mentioned by industry experts include
a) miniaturisation
b) making products suitable for higher frequencies
c) making products suitable for higher temperatures
d) increasing attention for environmentally friendly production
e) zero defect (shift from parts per million to part per billion. A shipment of 1 billion components may have no more than 1 or 2 wrong products)

Additionally: a very important requirement in the industry is the legal requirement to meet EU-legislation of both recycling and recovery of waste materials and also the restriction of use of certain hazardous materials. Chapter 10 gives some more information.

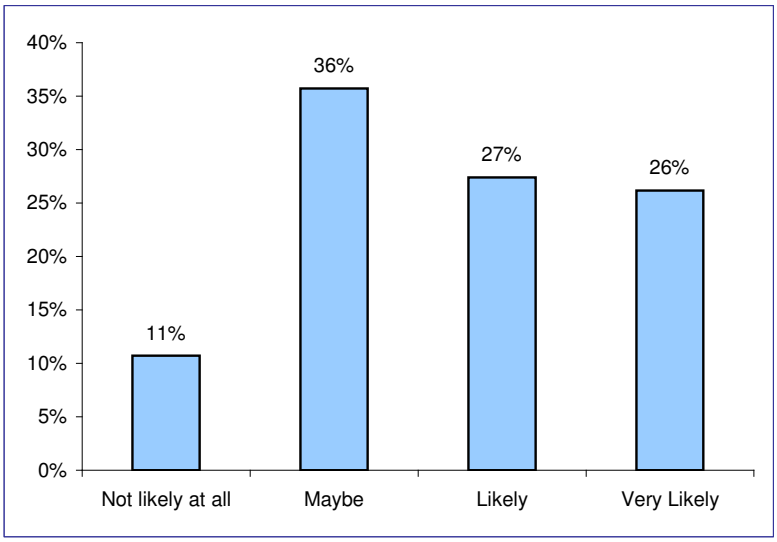
**Opportunities and threats for developing country exporters**
Component production and equipment production is clearly shifting to low cost countries. As a direct consequence, only approvals of components and designing are done in Europe, while production is done outside of Europe with EMS providers or subsidiaries. Markets are becoming 'blurry' and it is harder to find marketing partners in Europe that are willing to do all the design work without getting any future sales, on which they usually get their commission money. New terms of cooperation agreements will be necessary. Developing countries have good opportunities, provided their prices,as well as the quality of their products are market-conform.

## 4.4 Interest in developing countries

In February and March 2006, FFF held an online questionnaire among European buyers of electronic components. It can be roughly concluded that the interest in developing countries is present in all sectors in the industry. Both small and bigger companies in the EU are considering sourcing in developing countries.

**Level of interest**
Figure 4.3 shows the level of interest of European buyers in doing business with suppliers of electronic components from developing countries (excl. China). More than 26% answered 'very likely' and another 27% found it to be 'likely'. Some additional motivations included that reliability is important, beside the combination of quality, quantity and price.

**Figure 4.3 Likelihood EU buyers doing business with DC suppliers (excl. China) in next two years (n=84)**

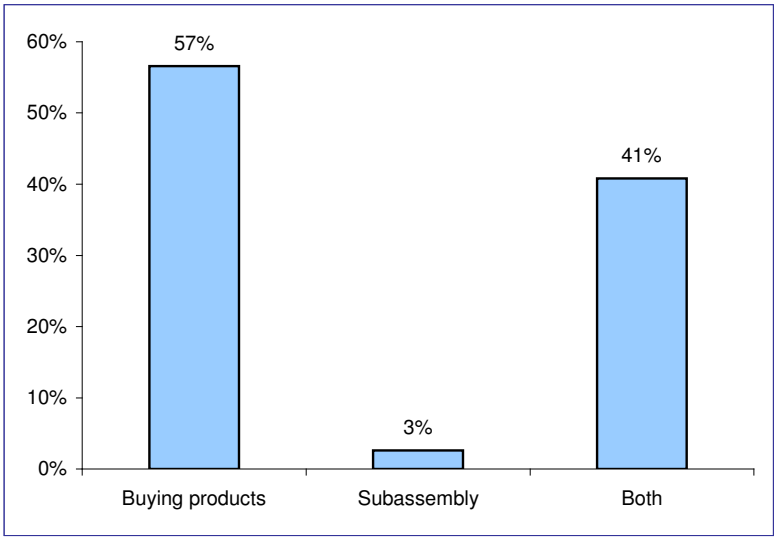



Source: Online questionnaire FFF (March 2006)

### Relationship

According to figure 4.4, just 'subassembly' is not a very likely option as a business relationship. 'Buying products' is a more logic option, while a combination of both is also considered. It is also becoming clear that EU buyers want to manage quality and time differences. Language and communication are important issues. EU buyers look for qualified partners that can contribute to reducing overall cost: good quality, low prices, fast delivery and good support.

**Figure 4.4 Possible business relationship DC suppliers with EU buyers (n=75)**




Source: Online questionnaire FFF (March 2006)

### Developing countries considered

The following countries are mentioned most as possible sourcing countries:

- India (mentioned 37 times out of 75 positive respondents)
- Indonesia (23)
- Thailand (23)

- The Philippines (18)
- South Africa (16)

**Products considered**
Among the product categories that were considered most for sourcing in developing countries were power supplies, capacitors, resistors, cables, sensors, cables, displays and switches.

### 4.5 Useful sources

- Custer Consulting - http://www.custerconsulting.com/
- Decision Consult - http://www.decision-consult.com/
- Electronics Weekly - http://www.electronicsweekly.com/
- European Electronic Component Manufacturers Association (EECA )- http://www.eeca.org/
- European Institute of Printed Circuits - http://www.eipc.org/
- EU Expanding Exports Helpdesk - http://export-help.cec.eu.int/

Go to: trade statistics

- Eurostat – official statistical office of the EU - http://epp.eurostat.cec.eu.int

Go to: 'themes' on the left side of the home page - 'external trade' - 'data – full view' - 'external trade - detailed data'.

- Evertiq - http://www.evertiq.com/newsx/default.aspx

News on company level in the industry. Mergers, subcontracting, investments in R&D and/or manufacturing plants.

- Reed Electronics - http://www.reed-electronics.com/electronicnews/
- World Electronic Forum - http://www.wefonline.org/
- ZVEI - http://www.zvei.de/

# 5 PRODUCTION

## 5.1 Global electronics production

Not surprisingly, global electronics production growth is the highest in China by far. During the period 2005-2010, its annual production growth will be 10.3%. It is followed at some distance by other countries within the Asia Pacific area (7.0%). Europe will realize a growth rate of 'only' 3.8%. By 2010, China has taken over as the leading producing country of electronics. Europe then still represents about one fifth of global production, due to strong positions in segments like automotive, industrial, aerospace and defence. Table 5.1 gives more details. It should be stressed that production takes place in China, whereas consumption mostly takes place in the Western world.

**Table 5.1 World electronics production, by region, 2005-2010, € mln**

| Region | 2005 | 2010 | Growth '05–'10 | Share '10 |
|---|---|---|---|---|
| Europe | 225,772 | 271,985 | 3.8% | 19.0% |
| North America | 236,337 | 283,639 | 3.7% | 20.0% |
| Japan | 166,261 | 193,090 | 3.0% | 13.5% |
| China | 241,716 | 394,373 | 10.3% | 27.6% |
| Other Asia Pacific | 156,401 | 219,166 | 7.0% | 13.1% |
| Rest of the world | 43,188 | 65,942 | 8.8% | 15.3% |
| **Total world** | **1,069,675** | **1,428,194** | **4.9%** | **100%** |

Source: Decision (July 2006)

## 5.2 EU production

### SMEs account for two thirds of EU production

More than 1,000 companies with over 216,000 employees are engaged in the electronic components industry across Europe. While a few names like Intel, Thomson, Motorola, Philips, Siemens, Texas Instruments are most visible with the public, over two thirds of the total production in Europe originates in SMEs, which control the electronic components industry in Europe.

### Relocation of EU production

Table 5.2 gives an indication for the (development) of the EU production for 2000-2004, the most recent available year. Note to these data: as explained in chapter 1, all data are gathered by Eurostat, which is dependent on the individual member statistical offices. Some manufacturers are not willing to provide any data. This explains the apparent low production value in some countries and the large differences in some data. Nevertheless, the data give an idea of the production and certainly of its development. The total production of the EU amounted to € 20.5 billion in 2004. This is a steep decline of 40% compared to 2000. In volume terms, the decline was even worse: the production went down by more than 47%. This confirms the information in chapter 4, that a significant part of production has been and is being transferred to low wage countries. Especially the UK was hit in the extreme; almost all production has vanished. Germany remains the top producer, decreasing from € 13.1 billion in 2000 to € 9.2 billion in 2004.

**Table 5.2 Production electronic components by EU member countries (excl. assemblies), 2000-2004, € million**

| | 2000 value* | units | 2002 value | units | 2004 value | units | % value, '00–'04 | % units, '00-'04 |
|---|---|---|---|---|---|---|---|---|
| **EU-25** | **34,252** | **74,461** | **30,675** | **77,563** | **20,500** | **39,456** | **-40%** | **-47%** |
| ***EU-15*** | ***34,221*** | ***74,450*** | ***29,966*** | ***72,500*** | ***19,684*** | ***38,245*** | ***-42%*** | ***-49%*** |
| ***EU-10*** | ***32*** | ***11*** | ***709*** | ***5,063*** | ***816*** | ***1,211*** | ***2,476%*** | **10,909%** |

| | 2000 value* | units | 2002 value | units | 2004 value | units | % value, '00–'04 | % units, '00-'04 |
|---|---|---|---|---|---|---|---|---|
| Germany | 13,195 | 21,050 | 12,762 | 20,220 | 9,220 | 19,391 | -30% | -8% |
| Italy | 5,050 | 8,398 | 4,742 | 10,189 | 3,014 | 9,906 | -40% | 18% |
| France | 6,863 | 35 | 5,559 | 3,487 | 2,562 | 95 | -63% | 171% |
| United Kingdom | 5,279 | 37,167 | 3,841 | 31,300 | 2,069 | 864 | -61% | -98% |
| Spain | 1,232 | 5,146 | 1,093 | 4,827 | 1,165 | 6,222 | -5% | 21% |
| Hungary | - | 0 | 508 | 4,775 | 505 | 307 | -1%* | - |
| Austria | 407 | 920 | 202 | 1,114 | 414 | 1,102 | 2% | 20% |
| Finland | 420 | 288 | 442 | 192 | 364 | 193 | -13% | -33% |
| Netherlands | 302 | 0 | 278 | 3 | 282 | 3 | -7% | - |
| Denmark | 288 | 37 | 235 | 132 | 203 | 84 | -29% | 127% |
| Poland | - | 0 | 85 | 177 | 164 | 355 | 94%* | - |
| Sweden | 796 | 216 | 416 | 218 | 160 | 95 | -80% | -56% |
| Czech Republic | 0 | 0 | 58 | 90 | 98 | 79 | 69% | - |
| Belgium | 295 | 917 | 226 | 580 | 79 | 31 | -73% | -97% |
| Portugal | 52 | 157 | 102 | 227 | 73 | 212 | 39% | 35% |
| Ireland | 2 | 100 | 44 | 1 | 43 | 30 | 2407% | -70% |
| Greece | 40 | 20 | 23 | 9 | 36 | 16 | -10% | -20% |
| Slovenia | - | - | 12 | 17 | 28 | 442 | 140%* | - |
| Slovakia | 31 | 2 | 42 | 2 | 15 | 18 | -51% | 800% |
| Estonia | - | - | 0 | 1 | 3 | 1 | 628%* | - |
| Lituania | 1 | 9 | 1 | 1 | 3 | 9 | 239% | 0% |
| Latvia | - | - | 3 | - | - | - | - | - |
| Luxemburg | - | - | - | - | - | - | - | - |
| Malta | - | - | - | - | - | - | - | - |
| Cyprus | - | - | - | - | - | - | - | - |

* change '02-'04
Source: Eurostat (2006)

**Active components**

- EU production value 2004: € 4.2 billion
- Decrease in EU production between '00 and '04(value): 70%
- Decrease in EU production between '00 and '04(volume): 58%
- UK production almost annihilated, also Italy and France are hit very hard
- Of the 'big four', Germany is relatively least affected (-11% in volume terms, -51% in value)

**Passive components**

- EU production value 2004: € 5.5 billion
- Decrease in EU production between '00 and '04(value): 32%
- Decrease in EU production between '00 and '04(volume): 86%
- UK production went down fast, same goes for Spain and France.

**Electromechanical components**

In contrast to active and passive components, European production of electromechanical components shows a different development. Although production value decreased 11% in 2004, compared to 2000, this decrease is low compared to actives and passives. The volume in that period even increased by 35%. This is because electromechanical components are high precision products, which are more complex to make. And of course, they have always been a domain of the Germans and Swiss. There are many SMEs, which are highly specialised. Those companies stay where they are and manufacture there. Some highlights:

- EU countries with growing production (volume) over '00-'04: Germany, Italy, Spain, Austria
- Hungary's production is increasing

**Electronic assemblies: PCBs**
Not surprisingly, most PCBs in the world are produced in the Asia-Pacific area, accounting for more than one third of global production. Growth is also largest in this region. After the USA (25%), Europe was third (14%). These two lost market share to Asia Pacific as a result of the transfer of production facilities to this area. The industry is characterized by overcapacity, very high customer demands like flexibility, quality, state of the art technology and reliability. As a result, the number of PCB producers in Europe decreased from 426 in 2004 to 379 in 2005. Asian competition and scaling up played a role, as well as the fact that some manufacturers have closed their PCB production facilities and import from Asia instead. Finally, the costs for raw materials went up drastically (energy, chemicals). More than one third of all European PCB production takes place in Germany. France, Italy, the UK and Austria follow. In 2005, the European PCBs found their way to end-users like industrial electronics (27%), communications (26%) and automotive (21%). Total value of production was € 3.1 billion in 2005 and will value € 3.6 in 2009, according to Henderson Ventures.

## 5.3 Trends in production

**Shift towards Asia**
European multinational component manufacturers have also started manufacturing operations in South-East Asia, initially not to serve the local region at all, but to lower their production costs. There is also a certain production shift to Hungary, Poland and the Czech Republic from Western European manufacturers, but these manufacturers are aware that this is just a short term cost relief as prices in the new territories will increase to EU standards very fast. Moreover, even some operations in a number of Asian countries are becoming too expensive for their clients, due to the continuous price pressure. They tend to relocate their production to countries that are cheaper, like China and India.

**'Production follows markets'**
According to Decision, the electronics production will find a balance between Asian and Western countries in the mid long term. Production versus market ratios should stabilize, although Asian countries will then still produce 60% more than domestic demand requires. Furthermore, the traditional saying that 'production will follow markets' goes for Asian producers too. Already, Asians are investing in Europe. In Eastern Europe, assembly lines for flat screens are built and module plants are also opened here. Production of portable devices (MP3 players) will be relocated to Eastern Europe. This is because the European market for electronics as a whole is still very large. Also an industry expert confirms this mid term development.

**Opportunities for developing countries**
Production of components and equipment is shifting to low cost countries. This clearly offers opportunities. There is, however, one huge disadvantage for DC suppliers. Their country has to be known as a supply country for electronic components. Developing country exporters tend to forget that not only they themselves but also their country itself might be completely unknown as a possible reliable and high-quality sourcing country for electronic components. India, for example, has been well known as a supply country for high class software, but is unknown for the supply of electronic components.

## 5.4 Useful sources

- Custer Consulting - http://www.custerconsulting.com/
- Decision Consult - http://www.decision-consult.com/
- European Electronic Component Manufacturers Association (EECA )- http://www.eeca.org/
- Evertiq - http://www.evertiq.com/newsx/default.aspx

News on company level. Mergers, subcontracting, investments in R&D and/or manufacturing plants.

- Reed Electronics - http://www.reed-electronics.com/

# 6 IMPORTS

## 6.1 Total imports

Refer to table 6.1 for the EU-imports of electronic components (excl. assemblies). No volumes are included, because Eurostat only has tonnes available, not units (as with production data). The highlights in short:

- Decrease in total imports between '01 and '05 by 62%: confirmation of enormous price pressure, while a comparison of developments in value and volume confirms that prices are under pressure.
- As a rough indication of the price pressure: the value/volume ratio for the EU imports was € 63 per tonne in 2001 and decreased to € 17 per tonne in 2005. Please use these figures only to analysis the development of prices!
- However: growth in imports between '03 and '05
- Germany confirmed as largest market by far in EU
- Hungary ranked 5th: imports destined for further processing
- Also other new EU member states show growth: all for purpose of further processing or assembly
- DC share in imports is increasing fast: from 8.9% in 2001 to 15.3% in 2005.
- In period '03 – '05, also in absolute terms, DC supply is on the rise.
- For the future, (import) prices are expected to continue declining (refer chapter 9). It is , however, difficult to predict what the effect on EU imports will be, given the complicated supply lines and the importance of EMS providers (chapter 8). These may be situated in the EU, but may very well assemble the final product outside the EU, e.g. in Asia, the USA or in Japan. This would mean that electronic components may be ordered by a client inside the EU, but will never be registered as EU-imports, because they are simply supplied to assembly lines of EMS providers in other continents.

**Table 6.1 Imports of electronic components (excl. assemblies) by EU member countries, 2001-2005, € million**

| | 2001 value* | 2003 value | 2005 value | % '01-'05 |
|---|---|---|---|---|
| **Total EU** | **79,386** | **28,095** | **30,393** | **-62%** |
| ***-Intra-EU*** | ***38,057*** | ***14,061*** | ***17,404*** | ***-54%*** |
| ***-Extra-EU*** | ***41,329*** | ***14,034*** | ***12,989*** | ***-69%*** |
| ***DC*** | ***7,127*** | ***3,721*** | ***4,662*** | ***-35%*** |
| | | | | |
| Germany | 19,713 | 6,776 | 8,235 | -58% |
| UK | 13,230 | 3,396 | 2,850 | -78% |
| France | 8,915 | 2,984 | 2,734 | -69% |
| Italy | 5,574 | 2,000 | 2,003 | -64% |
| Hungary | - | 2,280 | 1,882 | -17%* |
| Spain | 2,554 | 1,711 | 1,878 | -26% |
| Netherlands | 10,569 | 1,338 | 1,828 | -83% |
| Czech Republic | - | 1,192 | 1,398 | 17%* |
| Slovakia | - | 516 | 1,257 | 144%* |
| Austria | 2,745 | 1,410 | 1,096 | -60% |
| Belgium | 3,274 | 1,007 | 999 | -69% |
| Poland | - | - | 988 | - |
| Sweden | 2,038 | 772 | 792 | -61% |
| Finland | 1,914 | 572 | 521 | -73% |
| Ireland | 6,036 | 534 | 401 | -93% |
| Portugal | 1,278 | 361 | 389 | -70% |
| Denmark | 1,014 | 407 | 358 | -65% |
| Estonia | - | 141 | 211 | 49%* |
| Slovenia | - | 149 | 138 | -7%* |
| Lithuania | - | 104 | 130 | 24%* |
| Greece | 236 | 101 | 111 | -53% |

| | | | | |
|---|---|---|---|---|
| Malta | - | 151 | 72 | -52%* |
| Luxembourg | 295 | 156 | 72 | -76% |
| Latvia | - | 27 | 31 | 17%* |
| Cyprus | - | 10 | 20 | 88%* |

Source: Eurostat (2006)

**Electronic assemblies**

Refer to table 6.2. The highlights:

- Decrease in total imports between '01 and '05 by 12%
- However: growth in imports between '03 and '05
- The Netherlands ranked 1st: according to industry experts and research due to a high proportion of re-exports.
- Ireland: ranked 4th, used for assembly of e.g. PCs (Dell, Intel)
- Also other new EU member states show growth: all for purpose of further processing or assembly
- DC supply increases from 11.3% in 2001 to 25.2% in 2005.

**Table 6.2 Imports of electronic assemblies by EU member countries, 2001-2005, € million**

| | 2001 value* | 2003 value | 2005 value | % '01-'05 |
|---|---|---|---|---|
| **Total EU** | **38,447** | **27,719** | **33,975** | **-12%** |
| ***-Intra-EU*** | ***18,378*** | ***13,708*** | ***15,564*** | ***-15%*** |
| ***-Extra-EU*** | ***20,068*** | ***14,011*** | ***18,410*** | ***-8%*** |
| ***DC*** | ***4,365*** | ***3,796*** | ***8,562*** | ***96%*** |
| | | | | |
| Netherlands | 5,960 | 4,418 | 7,496 | 26% |
| Germany | 8,382 | 6,738 | 5,940 | -29% |
| Utd. Kingdom | 7,243 | 3,578 | 4,746 | -34% |
| Ireland | 4,042 | 2,019 | 2,754 | -32% |
| France | 4,627 | 2,771 | 2,453 | -47% |
| Italy | 1,879 | 1,582 | 1,519 | -19% |
| Czech Republic | - | 509 | 1,321 | 160%* |
| Hungary | - | 1,336 | 1,242 | -7%* |
| Denmark | 647 | 682 | 892 | 38% |
| Spain | 1,167 | 739 | 892 | -24% |
| Poland | - | - | 876 | - |
| Sweden | 1,074 | 781 | 869 | -19% |
| Austria | 698 | 517 | 656 | -6% |
| Belgium | 1,528 | 699 | 630 | -59% |
| Finland | 602 | 462 | 575 | -4% |
| Portugal | 267 | 221 | 252 | -6% |
| Slovakia | - | 126 | 208 | 66%* |
| Luxembourg | 151 | 116 | 182 | 21% |
| Greece | 179 | 173 | 137 | -23% |
| Estonia | - | 71 | 130 | 84%* |
| Slovenia | - | 76 | 67 | -11%* |
| Lithuania | - | 41 | 65 | 56%* |
| Latvia | - | 17 | 33 | 96%* |
| Malta | - | 25 | 22 | -15%* |
| Cyprus | - | 22 | 19 | -14%* |

Source: Eurostat (2006)

## 6.2 Total imports per product group

Refer to table 6.3 for the most important suppliers per product group. Per product group the main highlights will be discussed.

**Total**
- Actives, passives and electronic assemblies decreased in imports between '01 and '05 (value terms)
- An increase in imports is only realized by electromechanicals (+5%), confirming that massive relocation out of Europe of this product group is not the case yet (at least on the short run). Europe holds a strong position in this segment.

**Active components**
- Decrease in EU-imports between '01 and '05 (value): 80%
- Largest importers ('05): Germany, the UK, Spain
- Total share of DC: 17% in 2005 (was 14% in 2003)
- Largest DC suppliers: China, Malaysia and the Philippines
- Compared to '03: China growing fast, Mexico has disappeared from top 3
- Biggest intra-EU suppliers: Germany, the Netherlands and the UK (unchanged)
- Most important products: 1) photosensitive semiconductor devices, 2) matrix liquid crystal devices and 3) active transistors with a dissipation rate bigger than 1 w.

**Passive components**
- Decrease in EU-imports between '01 and '05 (value): 36%
- Largest importers ('05): Germany, the UK, France
- Total share of DC: 20% in 2005 (was 18% in 2003)
- Largest DC suppliers: China, Croatia and Malaysia
- Compared to '03: China growing fast, top 3 unchanged
- Major intra-EU suppliers: Germany, the UK and Austria (The Netherlands lost position 3)
- Most important products: 1) passive components with a PCB base, 2) multilayer fixed electrical capacitors and 3) inductors.

**Electromechanical components**
- Increase in EU-imports between '01 and '05 (value): 5%
- Largest importers ('05): Germany, France, the UK
- Total share of DC: 11% in 2005 (was 9.5% in 2003)
- Largest DC suppliers: China, Tunisia and Mexico
- Compared to '03: China growing fast, top 3 unchanged
- Major intra-EU suppliers: Germany, France, The Netherlands (the UK lost position 3)
- Most important products: 1) connections and contact elements for a voltage lower than 1,000 volt, 2) switchgear (voltage not exceeding 1, 000 volt) and 3) plugs and sockets for a voltage lower than 1,000 volt .

**Electronic assemblies**
- Decrease in EU-imports between '01 and '05 (value): 12%
- Total share of DC: 25% in 2005 (was 13% in 2003)
- Largest DC suppliers: China, Malaysia and Costa Rica
- Compared to '03: China growing fast, Costa Rica new in top 3 at the expense of Mexico
- Major intra-EU suppliers: The Netherlands, Germany, the UK (top 3 unchanged)
- Most important products: 1) electronic assemblies for automatic data-processing machines, 2) electronic assemblies for electrical apparatus for line telephony or line telegraphy and 3) assemblies for transmission- and reception apparatus for radio-telephony.

**Table 6.3 EU imports and leading suppliers of electronic components to the EU, 2001 - 2005, share in% of value**

| Product | 2001* x mln | 2005 x mln | Leading suppliers (%) | | Share (%) |
|---|---|---|---|---|---|
| Active components | 56,502 | 11,287 | Intra EU<br>Ext EU excl DC<br>DC | : Germany (20), Netherlands (8), Utd. Kingdom (5)<br>: Japan (15), USA (7), Taiwan (5)<br>: China (9), Malaysia (3), Philippines (2), India (1), Morocco (1), Thailand (1) | 47<br>35<br>17 |
| Electromechanical components | 11,032 | 11,565 | Intra EU<br>Ext EU excl DC | : Germany (27), France (8), Netherlands (5)<br>: USA (6), Japan (5), Switzerland (4) | 71<br>19 |

| | | | | | |
|---|---|---|---|---|---|
| | | | DC | : China (6), Tunisia (1), Mexico (1), Malaysia (1), Morocco (1), India (0) | 11 |
| Passive components | 11,852 | 7,541 | Intra EU<br>Ext EU excl DC<br>DC | : Germany (18), Utd. Kingdom (6), Austria (4)<br>: Japan (11), USA (6), South Korea (2)<br>: China (8), Croatia (3), Malaysia (2), Thailand (2), Philippines (1), Indonesia (1) | 52<br>29<br>20 |
| Electronic comp (excl elec ass) | 79,386 | 30,393 | Intra EU<br>Ext EU excl DC<br>DC | : Germany (22), Netherlands (6), Utd. Kingdom (5)<br>: Japan (10), USA (6), Taiwan (3)<br>: China (7), Malaysia (2), Philippines (1), Tunisia (1), Thailand (1), Croatia (1) | 57<br>27<br>15 |
| | | | | | |
| Electronic assemblies | 38,447 | 33,975 | Intra EU<br>Ext EU excl DC<br>DC | : Netherlands (12), Germany (10), Utd. Kingdom (6)<br>: USA (10), Taiwan (5), South Korea (3)<br>: China (13), Malaysia (4), Costa Rica (3), Philippines (2), Thailand (1), Mexico (0) | 46<br>29<br>25 |

Source: Eurostat (2006)

## 6.3 The role of the developing countries in imports per product group

Refer to table 6.4 for the EU-imports per product group from developing countries. Per product group the main highlights will be discussed.

- Total DC supplies to the EU are lower in 2005 than in 2001 (value terms)
- However, since 2003, the EU-imports from DC have started increasing again.
- Remark: prices in the industry tend to decline each year by 10% on average (chapter 9). Take this into account when analysing the data.
- Against the trend of declining EU-imports, DCs have realized an increasing share in imports.
- Total share of DC is largest in electronic assemblies in 2005 (25%)
- Refer to table 6.3 for an overview of supplying developing countries.

**Opportunities and threats for DC exporters**

- Total EU-imports decline fast, especially passives and actives are hit hard
- Huge competition from China
+ increasing share of DC suppliers in EU-imports for all product groups
+ Growing EU-imports, also in absolute terms from DC suppliers
+ According to industry experts, DCs could best position themselves as suppliers of solutions (sub systems) instead of offering low value, mass volume components.

**Table 6.4 Electronic components supplied to the EU by DC, 2001 – 2005**
**€ million/ share (%) of imported value**

| | 2001 value* | %* | 2003 value | % | 2005 value | % |
|---|---|---|---|---|---|---|
| Active components | 4,798 | 8.5% | 1,453 | 15.1% | 1,951 | 17.3% |
| Electromechanical components | 796 | 7.2% | 941 | 8.9% | 1,240 | 10.7% |
| Passive components | 1,534 | 12.9% | 1,328 | 16.8% | 1,471 | 19.5% |
| **Electronic comp (excl. elec ass)** | **7,127** | **9.0%** | **3,721** | **13.2%** | **4,662** | **15.3%** |
| Electronic assemblies | 4,365 | 11.4% | 3,796 | 13.7% | 8,562 | 25.2% |

Source: Eurostat (2006)

**Remark**

A remark on the import figures from developing countries should be made. First. the electronic components sector is a global industry with global trade flows. Products ordered by European manufacturers may never reach the EU continent, due to subcontracting to specialized EMS providers. Therefore these imports data 'only' give an indication and certainly give not the full picture. Also, the imports data for active components from developing countries are to some extent misleading. Particularly semiconductor imports from most developing countries are not imports of genuine products, as all major global players in the semiconductor industry have either their own production facilities there, or have EMS providers producing for them. They

increase the export data from these countries on paper while just the little labour content is added locally. The value of this so called "backend assembly" (labour cost) is approximately 10-15% of the semiconductor value.

### 6.4 Useful sources

- EU Expanding Exports Helpdesk - http://export-help.cec.eu.int/

Go to: trade statistics. Suggestion: choose 1 or 2 of your most competitive products and look for the corresponding HS code in this database.

- Eurostat – official statistical office of the EU - http://epp.eurostat.cec.eu.int

Go to 'themes' on the left side of the home page, go to 'external trade', then to 'data – full view' and then to 'external trade - detailed data'.

# 7 EXPORTS

**Total components (excl. assemblies)**
Refer to table 7.1 for the EU-exports of passive+active+electromechanical components. The main highlights:

- Total EU exports in 2005 decreased 62% compared to 2001. This is a consequence of the decreased production activities in the EU. A significant part of production has been relocated. In addition, the severe pressure on prices is confirmed again.
- Although the exact value of re-exports can not be given by means of Eurostat, industry experts confirm that a significant part of exports consists of re-exports.
- Countries that realize a growth in exports are mainly new EU member states. In these countries, electronic components are assembled and/or produced, which are then exported to their customers.
- Product groups: electromechanicals were exported most in 2005 (44%, the only increasing product group in value terms since 2001, +12%), followed by actives (31%, dramatic decrease since 2001 of 83%) and passives (24%, down 31% since 2001).
- Most components are sold to intra-EU countries (61%). Germany, the USA and France are important destinations of EU exports.

**Table 7.1 Exports of electronic components by EU member countries, 2001-2005, € million**

| | 2001 value* | 2003 value | 2005 value | % '01-'05 |
|---|---|---|---|---|
| **Total EU** | **75,617** | **28,105** | **28,888** | **-62%** |
| ***Intra-EU*** | ***44,506*** | ***14,551*** | ***17,521*** | ***-61%*** |
| ***Extra-EU*** | ***31,111*** | ***13,554*** | ***11,367*** | ***-63%*** |
| ***DC*** | ***9,165*** | ***4,116*** | ***4,709*** | ***-49%*** |
| | | | | |
| Germany | 19,049 | 8,885 | 8,917 | -53% |
| France | 10,193 | 3,404 | 3,444 | -66% |
| Utd. Kingdom | 13,233 | 3,537 | 3,196 | -76% |
| Netherlands | 11,575 | 1,504 | 2,206 | -81% |
| Italy | 4,240 | 1,801 | 1,736 | -59% |
| Czech Republic | - | 1,167 | 1,457 | 25%* |
| Austria | 2,763 | 1,610 | 1,447 | -48% |
| Belgium | 2,372 | 911 | 991 | -58% |
| Hungary | - | 960 | 944 | -2%* |
| Spain | 1,313 | 845 | 892 | -32% |
| Malta | - | 1,119 | 876 | -22%* |
| Sweden | 913 | 474 | 592 | -35% |
| Poland | - | - | 497 | - |
| Ireland | 7,656 | 347 | 299 | -96% |
| Portugal | 993 | 318 | 259 | -74% |
| Finland | 522 | 253 | 248 | -53% |
| Slovakia | - | 249 | 193 | -22%* |
| Denmark | 397 | 181 | 189 | -52% |
| Slovenia | - | 150 | 151 | 1%* |
| Luxembourg | 360 | 171 | 146 | -60% |
| Lithuania | - | 168 | 139 | -17%* |
| Estonia | - | 20 | 29 | 44%* |
| Greece | 38 | 23 | 24 | -37% |
| Cyprus | - | 2 | 12 | 470%* |
| Latvia | - | 6 | 7 | 11%* |

Source: Eurostat (2006)

**Electronic assemblies**
Refer to table 7.2 for the EU-exports of electronic assemblies. The main highlights:

- Total EU exports in 2005 decreased 18% compared to 2001.

- Although the exact value of re-exports can not be given by means of Eurostat, industry experts confirm that a significant part of exports consists of re-exports. The Netherlands for one is a major re-exporter of PCBs.
- 68% of exports goes to EU-countries. Germany, the UK and the USA are the most important destination countries.

**Table 7.2 Exports of electronic assemblies by EU member countries, 2001-2005, € million**

| | 2001 value* | 2003 value | 2005 value | % '01-'05 |
|---|---|---|---|---|
| **Total EU** | **33,040** | **24,560** | **27,103** | **-18%** |
| ***Intra-EU*** | ***21,595*** | ***15,499*** | ***18,518*** | ***-14%*** |
| ***Extra-EU*** | ***11,445*** | ***9,061*** | ***8,586*** | ***-25%*** |
| ***DC*** | ***2,951*** | ***2,056*** | ***2,868*** | ***-3%*** |
| | | | | |
| Netherlands | 6,578 | 4,994 | 7,277 | 11% |
| Germany | 6,614 | 5,085 | 5,441 | -18% |
| Utd. Kingdom | 5,402 | 4,152 | 4,059 | -25% |
| France | 3,569 | 1,844 | 1,494 | -58% |
| Sweden | 689 | 1,003 | 1,351 | 96% |
| Ireland | 4,423 | 1,504 | 1,324 | -70% |
| Italy | 1,927 | 1,359 | 1,078 | -44% |
| Finland | 601 | 468 | 746 | 24% |
| Czech Republic | - | 489 | 700 | 43%* |
| Belgium | 1,348 | 800 | 690 | -49% |
| Austria | 615 | 716 | 641 | 4% |
| Portugal | 212 | 318 | 601 | 183% |
| Hungary | - | 709 | 436 | -38%* |
| Denmark | 403 | 431 | 434 | 8% |
| Spain | 492 | 344 | 307 | -38% |
| Luxembourg | 154 | 156 | 177 | 15% |
| Poland | - | - | 150 | - |
| Slovakia | - | 102 | 84 | -18%* |
| Lithuania | - | 16 | 36 | 126%* |
| Estonia | - | 21 | 24 | 15%* |
| Slovenia | - | 31 | 23 | -27%* |
| Greece | 12 | 12 | 21 | 68% |
| Latvia | - | 1 | 5 | 356%* |
| Malta | - | 4 | 4 | 16%* |
| Cyprus | - | 1 | 3 | 150%* |

Source: Eurostat (2006)

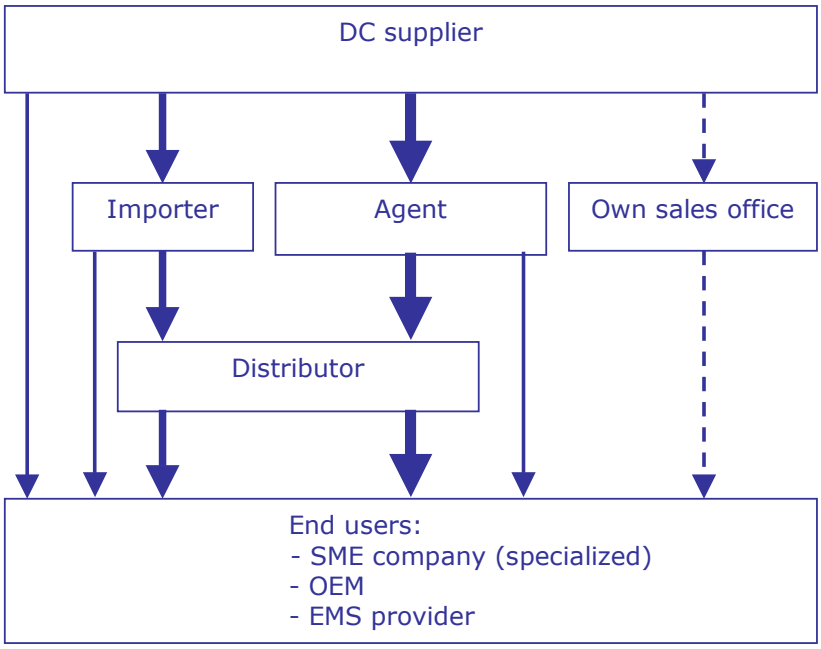
# 8 TRADE STRUCTURE

## 8.1 Distribution channels

This chapter gives the most relevant distribution channels in the EU for DC exporters. Although exceptions are possible, the trade structure as discussed in this chapter generally applies for all the main EU-members; there are no major differences. Please refer to the CBI market surveys covering the electronic components market in individual EU countries for names and websites of some major players per EU country.

The trade structure for electronic components is quite complicated, and markets are 'blurry'. A DC supplier may actually do business with a manufacturer in Germany, without physically shipping the goods to that country. Figure 8.1 gives the general distribution scheme for electronic components. The main links in the chain will be discussed thereafter, as well as their roles.

**Figure 8.1 Distribution channel electronic components in the EU**




**End users**
Roughly, three main types of end users can be identified, which are:
1 SME company
2 OEM
3 EMS provider

***Ad 1) SME company***
As can be read in chapter 5, a considerable part of the production of electronic components in the EU has been relocated to low cost countries. In general, only those EU companies remain that are more or less specialized. In most cases these concern high tech (SME) companies in areas like automotive and medical. They build highly specialized products that are used by their clients as ready-to-use modules. They will not often source directly in DCs, as volumes are too small and the products are too specialized. They mainly rely on middle men, like importers, agents and distributors as well.

This also has consequences for the types of product offered to EU companies by DC suppliers. A significant number of high volume products are produced in China. According to industry specialists, in order to distinguish themselves from this fierce competition, DCs would do better trying to fill the gaps that the Chinese leave. Certainly in the long run this is the only way to survive, since EU buyers are not looking for another 'me too supplier'. This implies staying away from mass volume products, and focussing on those products that add value for the EU customer. This means tailor made products or solutions, adapted to the clients' needs, like tailor made capacitors, embedded solutions and integrated software. Another reason to focus on solutions instead of commodities, is that electronic products today have very short life cycles. Personal computers last about one year, modern mobile phones only 3 months. As a result, those manufacturers look for solutions that help them respond to shifting markets.

***Ad 2) Original Equipment Manufacturer (OEM)***
The role of the major OEMs is changing, as many of the European ones tend to specialize in only designing and marketing the end products. They have closed or sold their manufacturing facilities to electronic manufacturing service providers (EMS, refer below). These external subcontractors put together the final product or subassembly from all kinds of parts. In this process, the OEM -in general- initially chooses, tests and approves electronic components. The EMS provider does the entire procurement and assembles them.

In practice the buying procedure is as follows. The DC supplier of electronic components will be asked to send a sample to the OEM, who will test all components on their functioning together. Once approved, he normally informs the supplier which EMS provider is going to assemble the final product. This means that OEMs approve DC suppliers to be allowed to supply the product. Assembly could be anywhere around the world, since EMS providers claim that they can produce anywhere (even in Europe) at the same low costs. They offer the same low price for goods manufactured in e.g. Ireland or India. OEMs occasionally buy directly from (DC) manufacturers, only when high volumes are involved and trade partners are cooperating on a long term basis.

***Ad 3) Electronic manufacturing service providers (EMS)***
As described, a very important business trend is the continued outsourcing of electronic manufacturing operations. Outsourcing today has already reached close to 30% of all the electronics manufacturing operations, and several market projections predict accelerated outsourcing from OEMs to EMS. Some truly global EMS operations have emerged that even rival the largest OEMs, both in size and revenue. Industry sources indicate that EMS providers are becoming more and more independent in choosing their suppliers, forced by the OEMs to lower their prices. So, DC suppliers could aim their marketing efforts not only at OEMs, but also at EMS providers. Price is a very important issue in this sector. To survive, EMS providers do not have another option either than than increasing their capacity to a great extent.

EMS providers undertake work for all main user sectors, although there is a tendency for the larger ones to concentrate on the high-volume consumer, communications and data-processing sectors, with smaller EMS providers servicing the lower volume producers in the medical, instrumentation, industrial, specialist communications and specialist computing sectors. The top 6 global EMS providers are all based outside the EU and include Foxconn (headquarters in Taiwan, http://www.foxconn.com/), Flextronics (Singapore, http://www.flextronics.com/), Sanmina-SCI (USA, http://www.sanmina-sci.com/), Solectron (USA, http://www.solectron.com/), Jabil Circuit (USA, http://www.jabil.com/) and Celestica (Canada, http://www.celestica.com/). Some European EMS providers are Elcoteq (Finland, ranked 7, http://www.elcoteq.com/), Zollner Elektronik (Germany, ranked 16, http://www.zollner.de/) and Neways (The Netherlands, ranked 35, http://www.neways.com/).

**Importer**
Importers add value to the product in the form of advisory work, stockholding, instruction, trading, and after-sales service. Their relation with OEMs (or EMS providers) is a very strong

one and they are sometimes regarded as house-suppliers for a whole range of specific products. They normally prefer to have an exclusivity contract with the manufacturer, and the same goes for agents. Importers source most of their electronic components from low cost countries and sell to distributors, EMS providers and/or OEMs directly. Importers generally work with commissions that vary between 25 and 30%.

**Agent**
Agents or specialized importers establish contacts between producers and buyers. There are specialized agents in the EU that serve especially the SME companies mentioned. Some of them specialize in certain segments or clients. They have wide networks and know markets well. As it is very hard for DC suppliers to do business with OEMs directly without a middleman, agents and/or importers are considered by industry experts as one of the most logic channels for DC suppliers to start doing business in the EU. Also the fact that most large companies work with large companies contributes to that suggestion.

**Sales office**
Having their own sales office should be the ultimate aim for DC suppliers, according to the industry experts. This way they are close to the market and give high customer support. Furthermore, they can bypass their middle men and do business directly with the client. However, a sales office of your own is very expensive to maintain.

**Distributor**
The distributor will be an additional channel, typically used to supply smaller volumes of electronic components from stock. Distributors in the components industry mainly sell products of a limited number of manufacturers. They do not introduce new products and perform limited marketing activities. They buy from importers or agents in most cases and only source directly when very high volumes are concerned. The larger ones also act more and more as partners for OEMs. They offer services like design services, materials planning, programming and assembly services. This way, the OEM can concentrate on its core activities. Nearly 40% of total sales of electromechanical components and approximately 25% of passive and active components goes through distributors. Some examples of major distributors with pan European activities are Acal (http://www.acal.co.uk/), Arrow Electronics Europe (http://www.arroweurope.com/) and Avnet (http://www.avnet.com/).

## 8.2 Useful sources

- Evertiq - http://www.evertiq.com/newsx/default.aspx

News on company level in the industry. Mergers, subcontracting, investments in R&D and/or manufacturing plants.

- Hobid - http://www.hobid.com/

Online global marketplace for electronic components

- IC4me - http://www.ic4me.com/

Online sourcing of components, powered by Focus EDL. Aimed directly at component buyers looking to source "hard to find" products. These prices refer mostly to low volume products.

- Ideal Electronics - http://www.ideaelectronics.com/

Identify distributors of electronic components in the EU

# 9 PRICES

## 9.1 Prices

It is very hard to give an idea of exact price levels in this industry. The range of products is very wide, and the specifications within the product ranges are even wider. There are, for example, at least 20 different types of PCBs, not including the European or Chinese standards. Prices of single electronic components can start as low as € 0.01 for resistors or diodes and can go up to € 500,- for a top of the line Pentium 4 microprocessor, with prices of electronic assemblies anywhere between € 1 and € 1,000. In addition to this chapter, the best thing for exporters to do in order to get an idea of price levels would definitely be to visit trade fairs and ask around.

**Price pressure**
It is clear that the prices in the industry are under severe and continuous pressure; this goes for (almost) all EU-countries. This also becomes clear from chapters 4 and 5. The fact that a semiconductor plant in Singapore was closed in 2005 and was transferred to countries with lower wages is another clear sign. Industry experts indicate that on average prices tend to decline each year by at least 10%. Semiconductors and most passive components decrease anywhere between 10 and 30% annually, for electromechanicals and assemblies this is between 5 and 10%.

According to a year report of the European Passive Components Industry Association (EPCIA), in 2005 especially tantalum capacitors (-8%) and HF filters (-7%) were hit, although ceramic and film capacitors were also affected. Thanks to the good performance of aluminium electrolytic capacitors, the price decrease for the product group capacitors as a whole was 'only' 3% in 2005. This is 2% for resistors and 4% for electromagnetic filters. For 2006, the EPCIA expected equal prices for passive components. Only if prices of raw materials were to go up, prices of components might be raised as well. This was the case with connectors in some periods of 2006. The increasing gold price, a raw material for the pins, had a boosting effect on the price of these components. Moreover, the continuously rising cost of energy as well as the implementation of the Restriction on Hazardous Substances (RoHS) directive is fuelling up manufacturing cost increases within the components industry. For example, during the period of January to April 2006, crude oil prices already rose more than 21%. In addition, metal prices, such as that of gold, aluminium, nickel, tin and copper have increased by 18, 21, 37, 41, and 59%, respectively. As a result, industry analysts forecast rising prices of PCBs as manufacturers are expected to pass on the costs to their customers.

One more factor is the combination of supply and demand, also relating to individual products. For some products, such as D-ram and flash memory, both demand an supply can fluctuate much. As a result, prices of these products are very volatile.

Please be aware that the information in this chapter differs from section 12.5, in which price structure and margins are explained, and section 14.3, which should include information on price setting.

## 9.2 Useful sources

**Examples of prices**
There are some sources available that exporters could use to get an idea of absolute prices. These are mostly websites of pan-European distributors, where indications of prices of products can be found. They are given below.

- Alibaba – www.alibaba.com

E-market

- European Electronic Component Manufacturers Association (EECA) – http://www.eeca.org/

Download year reports of the several product-associations, with their observations on price developments

Examples of distributors:

- Avnet - https://www.em.avnet.com

Search for component prices.

- IBS Store - http://www.ibsstore.com/

Online, global distributor

- Spoerle http://www.spoerle.com/

Click on the icon of the shopping cart

Furthermore, trade fairs and trade magazines may be useful to find information on price developments.

# 10 MARKET ACCESS REQUIREMENTS

As a manufacturer in a developing country preparing to access EU markets, you should be aware of the market access requirements of your trading partners and the EU governments. Requirements are demanded through legislation and through labels, codes and management systems. These requirements are based on environmental, consumer health and safety and social concerns. You need to comply with EU legislation and have to be aware of the additional non-legislative requirements that your trading partners in the EU might request.

## 10.1 Legislative requirements

European legislation is compulsory for all products traded within the EU. Therefore, as an exporter in a developing country you have to comply with the legislative requirements that are applicable to your products. For information on legislation for the market sector, go to 'Search CBI database' at http://www.cbi.nl/marketinfo, select your market sector and the EU in the category search, click on the search button and click on legislative requirements for an overview of all documents on legislation. In addition, please find brief information on two hot issues that have recently been put into force. They are WEEE and RoHs.

**Waste Electrical and Electronic Equipment (WEEE)**
Directive 2002/96/EC (also abbreviated as WEEE) provisions have been established that oblige Member States and producers to set up and operate through product take-back schemes.

**Restriction on Hazardous Substances (RoHs)**
Directive 2002/95/EC (abbreviated as RoHS) restricts the use of certain hazardous substances in electrical and electronic products as of July 2006. The substances covered are cadmium, lead, mercury, hexavalent chromium, polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE).

More information: http://www.cbi.nl/marketinfo/

## 10.2 Non-legislative requirements

Social, environmental and quality related market requirements are of growing importance in international trade and are often requested by European buyers through labels, codes of conduct and management systems. For information on non-legislative requirements applicable to the market sector go to 'Search CBI database' at http://www.cbi.nl/marketinfo, select your market sector and the EU in the category search, click on the search button and click on your subject of interest under non-legislative requirements for an overview of all documents on the subject concerned.

## 10.3 Packaging, marking and labelling

Special transport packaging is not necessary for most electronic components. Packaging is used to protect against mechanical damage and for certain products additional antistatic protection is needed. The packaging has to satisfy conditions in the field of handling. The use of firm carton boxes is recommended in order to avoid breaking and/or shifting.

If an import duty -no matter the country of origin- applies to a component that enters the EU, the exporter should be able to show a certificate of origin. Furthermore, a Bill of Lading (B/L) and a commercial invoice are obligatory. If a 0% duty applies, the so called Eur 1 Form for ACP countries for customs tax exemption is common.

You can download information on requirements on packaging, marking and labelling in specific EU markets from the CBI website. Go to 'Search CBI database' at

http://www.cbi.nl/marketinfo, select your market sector and the EU country of your interest, click on the search button and click on 'market surveys' for an overview of documents on the country of your interest.

## 10.4 Tariffs and quota

Products from outside the EU entering the market are in some cases subject to tariffs. The import tariff may depend on the product and the country of origin. Some countries face special limitations, advantages or agreements. Developing countries benefit from several trade preferences, of which the most important one was initiated in 1968 by the United Nations Conference on Trade and Development (UNCTAD) and is called 'Generalised System of Preferences' (GSP). As a result, for electronic components originating in DCs tariffs hardly exist. There are no quotas. To determine import duties and/or quota for your own product(s) and from your specific country, consult the Taric database of the EU (http://ec.europa.eu/taxation_customs/dds/en/tarhome.htm).

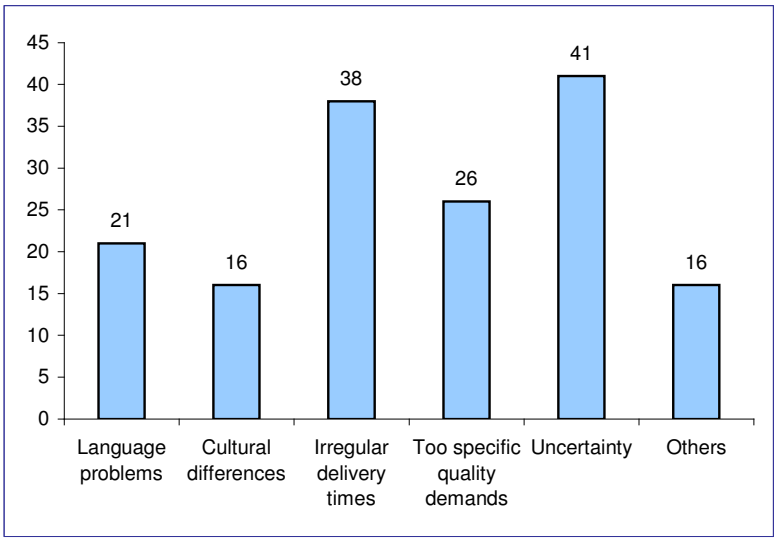
Value Added Tax (VAT) is a tax, levied by the individual member countries in the European Union. It is added to the price of products and services and will therefore influence the price companies have to pay. These VAT-rates differ per EU country and are discussed in the related CBI market surveys covering the electronic components market in individual EU countries. You can download information on requirements on tariffs and quota in specific EU markets from the CBI website. Go to 'Search CBI database' at http://www.cbi.nl/marketinfo, select your market sector and the EU country of your interest, click on the search button and click on 'market surveys' for an overview of documents on the country of your interest.

## 10.5 Online questionnaire

### Barriers according to EU buyers

According to the EU buyers that filled out the FFF online questionnaire (refer to chapters 4 and 8), it is especially uncertainty and irregular delivery times that are barriers to doing business with developing countries (figure 10.1). Other elements that were mentioned include high volumes, technical knowledge and transportation costs.

**Figure 10.1 Barriers for EU buyers in doing business with DC suppliers (n=84)**




Source: Online questionnaire FFF (March 2006)

### Barriers according to DC companies

In March this year, FFF also held an online questionnaire among DC suppliers of electronic components, participating in the Export Development Programme for these products. Those companies that were successful on the EU market have indicated their main causes for success. Most of the time it is a combination of certain elements. The ones mentioned most often include especially cheap prices and quality & quality management (ISO 9001 & TS 16949).

Those participants that were not successful mentioned the reasons for this. They mentioned quite a wide range of challenges, of which the price issue was the one mentioned the most. Moreover, some participants have not been able to find the right distributor or agent. Some other challenges include:

- Logistic problems / cost of transport (too far from buyer)
- EU companies do not respond to e-mails
- High quality demands
- DC supply does not match demand in EU
- No certification.

# PART B: EXPORT MARKETING GUIDELINES: ANALYSIS AND STRATEGY

The purpose of Part B is twofold: the chapters 12, 13 and 14 aim at assisting the exporter in the decision-making process whether or not to export. Chapter 14 informs the exporter which export marketing actions he has to undertake to successfully penetrate the EU market for his sector.

For general export marketing information, please refer to CBI's Export planner. Also on the CBI website, an 'EMP Document Builder' is available. This is an interactive tool which guides exporters step-by-step in preparing an export marketing plan.

For general information on conducting market research, please refer to CBI's manual 'Your guide to market research'.

# 11 EXTERNAL ANALYSIS: MARKET AUDIT

A good preparation is very important for a successful penetration of the EU-markets. Market research plays a key-role in this, since it gives a clear idea of the chances and limitations there are in these markets. This chapter hands exporters a structure for analyzing the external environment and gives procedures and sources based upon which they can do this all themselves. Section 11.1 is about market development and opportunities and the need for market research, and gives some useful websites for the exporter. The competitive analysis is the subject of section 11.2. The assessment of relevant sales channels follows in section 11.3, while logistics are discussed in section 11.4. The price structure is discussed in section 11.5, and section 11.6 concludes this chapter with two product profiles.

## 11.1 Market developments and opportunities

Looking at the entire range of electronic components, the developing countries' exporters to the European Union have performed best in the areas of electronic assemblies and passive components. No specific country of the European Union can be highlighted as the ultimate imports market, although Germany is clearly the largest one. Developing countries' exporters have performed better in the EU region than their competitors from Europe and from other parts of the world in recent years. Their share in EU-imports is increasing.

The centres of electronics production are distributed world-wide, with Europe's strength being in the production of mobile communication equipment, automotive electronics and industrial applications. These markets offer ample growth opportunities for the electronic components industry – and for exporters from developing countries.

**Market research**
For exporters of developing countries, an analysis of the opportunities and threats in EU-markets is very important before they start making decisions. Keep in mind that even in the early stages of market research it is important to focus on your product group. For instance, the market for AC capacitors differs substantially from the market for DC capacitors or inductors. It is no use putting effort in the analysis of the European market for a wide component range if you are specialised in a certain electronic component. Exporters would at least want to have data on:
I) Imports
II) Industrial demand
III) Market access requirements

**Ad I) Imports**
Imports is one of the most important indicators for market attractiveness. It indicates that internal supply within the EU is not sufficient and that import products are accepted. Chapter 6 contains detailed import statistics, subdivided by product group and EU country. The most important supplying countries have also been included, intra- and extra EU countries as well as developing countries. It would be interesting to determine at least the following:

- EU-imports of your specific product group (which products are imported most?)
- Share of developing countries in these imports
- EU-imports by country (which country is importing most?)
- What is the development of imports, are they growing?

**More information**
- Chapter 6
- Eurostat
- EU Helpdesk
- Refer to related CBI market surveys covering the electronic components market in individual EU countries

**Ad II) Industrial demand**

The economic situation and industrial confidence are important indicators in these cyclical industries. Chapter 4 gives the main highlights for the global and European market. Market trends are also discussed. Information to be determined includes:
- What is the demand for active, passive, electromechanical and/or electronic assemblies in each EU-country?
- How do these develop?
- What are developments in the EU for e.g. the automotive, telecom, ICT and consumer goods industry?
- What is the market for electronic components within the individual EU member countries?
- What is the market development (for EU and by country)?
- Which sub-segments within electronic components show potential / are interesting?
- What are the most important trends within electronic components?
- Which companies in the chain are typically potential customers?

**More information**
- Chapter 4
- Databases/websites providing access to importers/distributors, by country (CBI market surveys on EU countries)
- Industry associations
- Trade journals (CBI market surveys on EU countries)
    - Electronic Express (English)
    - Markt & Technik (German)
    - Electronics weekly (English)
    - EPN Electronic Product News (English)
    - Electronique (French)
    - Elektronik (German)
    - Industrie Anzeiger (German)
- Exporting colleagues
- (Industry experts at) trade fairs

**Ad III) Market access requirements**

**Non-tariff barriers and standards**

As section 10.1 of this survey already discussed, the European market sets high demands on quality. A wide array of non-tariff barriers that could be applicable to exporters of electronic components and assemblies were described in that same section. It is important to determine which standards and regulations apply to your product range.

Compulsory standards like CE should always be met. In the case of non-compliance, your products will be taken out of the market and in some cases even a fine could be imposed. However, not all standards are compulsory. It is important to note that in the electronics industry, market driven standards have in the meantime become the major yardstick of the industry. Keep in mind that regulations and standards are continuously changing. Therefore, it is recommended to check the up-to-date situations with the CBI website or your importer.

**Tariff barriers**
In the EU, the importer must bear the financial burden of customs duties. The forwarding agents mostly handle all the import formalities, i.e. they collect the goods from the seaport or the airport, deal with the Customs formalities and pay the respective customs duties on behalf and for the account of the importer. At the time of import, the applicable value added tax (VAT) also has to be paid on the landed goods price.

**Questions**
- Are there import restrictions that limit sales opportunities?
- Which import tariffs apply to your export products?
- Which import tariffs apply to those countries that produce the same products you are planning to export?

**More information**
- Chapter 10 of this survey
- CBI (http://www.cbi.nl/marketinfo)

Based on all the information, a company must decide which markets are the most promising. During the market assessment you should not only focus on large markets, but also try to find out whether there are interesting niche markets. Particularly for starting exporters in developing countries, application or user related niche markets may present interesting export opportunities.

**Internet sources**
There is a large number of internet sources available for the exporter to perform his own research. The chapters 4 up to and including 10 already contain a list with internet sources, of which the most relevant ones are mentioned below. They could be used as a start to find e.g. more market information, prospects and useful contacts in the electronic components industry. The same goes for country specific websites, which can be found in the related CBI market surveys covering the market in individual EU countries .

The CBI Manual 'Your guide to market research' (section 3.1.1 to 3.1.6) gives exporters information on conducting market research and how to find reliable sources. For more information you can also have a look at CBI's Export planner (section 3.1 and 3.2) and CBI's EMP document builder (chapter 3).

## 11.2 Competitive analysis

The competitors you know from your home market most likely will not be the ones you will be facing in the European market. Competitors and their pricing will have a direct effect on the potential success of your trade opportunities. It is therefore important to learn more about your competitive environment.

As an initial step towards understanding your competition, you should prepare a list of all the competition and then pinpoint who your main competitors are. To learn more about the competition you can do a secondary research and ask customers and suppliers for their opinions. You can also prepare a list of your main competitors' strengths and weaknesses. Websites of trade fairs (like that of the Electronica, http://www.global-electronics.net/) can be used to identify competitors.

Needless to say, there are also factors that weaken your competitive position. European companies, for instance, have the advantage of being close to their customers, which in general makes marketing of products and communication easier.

**Questions**

Determine direct competitors
1) Which other developing countries supply the EU with electronic components?
2) Which main companies account for these supplies?
3) Which companies are your competitors, regarding the product you look to export?
4) Who are the local direct competitors in the chosen country in the EU?

Analyze these competitors
5) What are the reasons for the (non-)success of their products?
6) Is there a supporting country policy?
7) What quality do they produce?
8) What is their specialization?
9) What is their spare capacity, and if they have relevant free capacity, what are they doing with it (e.g. price dumping)?
10) Do they supply in time?
11) What is their marketing policy (presentation? price?)
12) What is their cost price (operational cost)?
13) What is their added value, their 'extra' or USP?
14) Do they do product development?
15) In what way is your offer (product range and services, but also logistics and marketing) able to compete with the market leaders?

Determine own strengths and weaknesses
16) Use this information to compare: exploit the strengths and eliminate the weaknesses.
17) Prioritise strengths and weaknesses, some are (far) more relevant than others.

For general information, refer to section 2.5.4 and 3.3. of CBI's Export planner, chapter 3 of CBI's EMP document builder and section 3.1.7 of CBI's Your guide to market research.

### 11.3 Sales channel assessment

The most common trade channels in this industry have been described in section 8.1. The most common ones for developing country exporters include agents and importers. Direct trade with OEMs or EMS providers is not very common, because these normally have (too) high quality demands and orders will be too big. Of course, there are exceptions to this rule. Importers will not just import and trade products but will add value to a product by giving advice, information, service, guarantee or stocking the product. That is why it is best to sell through an importer or agent. He will be able to represent and present your company in the most professional manner, if he receives the proper backing.

An important aspect a DC exporter should take into account is the effect of the product liability act, which does not apply to standard components but certainly applies to electronic assemblies. In Europe, this places the burden for being liable for a defective product imported from outside the EU on the importer of that product. Hence it is not surprising that importers demand top-quality products. Other issues to consider before entering into business with an importer are his financial strength and stability, as well as the popularity on the market of a representative purchasing on his own account.

For today's products to be sold, they usually need to be advertised for introduction, and/or documentation for the local market has to be made, and representatives also have to invest in stock-building or after-sales service equipment. This means that they need to be assured by the manufacturer that the product will enter their covered area only and exclusively through them. This is simply to protect the investment the importer has made for the product on behalf of the manufacturer.

Many very successful business relations have been based and still exist on the basis of a gentlemen's agreement. Before signing a contract, companies in developing countries should be aware of the judicial consequences, as the agent or importer may derive claims from the contract if the agreement is terminated one-sidedly. However, if the exporter does have an exclusivity contract with an importer, the latter will insist on having full responsibility for the market and consequently not accept direct deliveries to the potential market. As a result, contracts with manufacturers based on exclusivity can prohibit representatives from trading in similar products.

Finally, selecting the right partner is a time consuming and difficult activity which should be prepared in every detail. A real selection can only be made after drawing up a profile of the ideal representative, but always keep in mind that the decision will make your product a success story in this market or just a "slow mover".

Refer to chapter 8 for information on potential sales channels. In section 14.2 you will find information on how to identify suitable business partners and how to further develop a business relationship.

For general information, refer to section 4.6 and 4.7 of CBI's Export planner, chapter 3 and section 7.7 of CBI's EMP document builder and section 3.3.3 of CBI's Your guide to market research.

**Questions**
- Which potential sales channels are there for your products in the target market?
- Which products do the different sales channels trade? What product assortment does this sales channel demand?
- What are the most important requirements of the identified sales channels? What are the conditions for an exporter to function in a specific supply chain?
- What quality standards do the sales channels demand? Are there internal qualification tests?
- What are the target markets of this channel? Regional or countrywide?
- What are the market driven requirements (ISO, QS, CE, other)?
- What sales support material is necessary for business contact with this sales channel? (price lists, quality certificates, campaign folders, sales statistics, sales brochures)

## 11.4 Logistics

When transporting electronic components/assemblies overseas, the exporter ideally looks for the fastest and most efficient mode(s) of transportation that will deliver the product in perfect condition at the lowest possible costs. The actual selection will be a compromise among these factors. The two most common ways include 1) ocean cargo and 2) air cargo.

**Ad 1) Ocean cargo**
Ocean transportation takes longer than air freight, but the cost of transportation is usually much lower. (typically between 10 – 20%). Conditions for sea transportation have considerably improved over the last few years. Supply in vessels has developed and diversified. The market share of containers tends to increase. Main reasons for this growth are the improved services and the decreasing prices.

**Ad 2) Air cargo**
Due to the fast in-transit time, air freight is mostly used for light and/or low volume products. However, the costs for moving electronic products by air tend to be five to ten times higher than the costs of ocean transportation. Products are loaded either onto passenger planes or onto cargo planes on regular routes. These can be planes operated by airline companies as

well as charter planes belonging to specialised companies. On scheduled flights, exporters are dependent on the freight space offered to them per stopover.

Freight rates vary depending on the product being shipped, its value, the level of service provided, the destination, weight, and on some routes also on seasonal variations in demand for cargo space. The costs of a shipment are either calculated on the basis of the volume (length x width x height) of the shipment or on the basis of actual weight.

**Freight forwarders**
It is a good idea to use a freight forwarder to arrange transportation services on your behalf. They can simplify the shipping process because they are familiar with import and export regulations. It is important to use a forwarder that is experienced in handling electronic goods and experienced in the destination country. Freight forwarders can also assist you in handling all the documents. Freight forwarders are cost effective to use, because they can negotiate the best rates with airlines. They usually operate on a fee basis paid by the exporter, and this is part of the cost price.

**Packaging**
Special transport packaging is not necessary for most electronic components. Packaging is used to protect against mechanical damage, and for certain products additional antistatic protection will be needed. The packaging has to satisfy conditions in the field of handling. The transportation volume must be as efficient as possible and a high level of uniformity is desirable. In order to optimise transportation, EU manufacturers generally use boxes of which the measurements are in accordance with pallet sizes.
Packaging design should take the following into account:
- Proper storage and transport;
- Standard packaging sizes; and
- Recyclable materials or two-way systems.

Where the sizes of the packaging are concerned, the general standards, as are common in practice, should be taken into account. The exporter should adapt to the generally accepted sizes:
- Boxes: 600 x 400 mm (ISO module), or 300 x 400 mm (half ISO module)
- Pallets: 1,000 x 1,200 mm (industrial pallets), or 800 x 1,200 mm (Europallets)

The exporter should discuss the preferred type of packaging with his customer. Important questions to be answered are:
- How often does the sales channel require delivery?
- Are part-shipments required/allowed?
- What formalities does the sales channel require from the exporter?
- Are any special packaging methods required?

Freight forwarders and carriers are the best sources for obtaining freight rates. There are also companies that specialise in publishing (notably air) cargo tariffs. These publishing companies charge a fee for their services.

Sections 10.2 and 14.2 contain more relevant information.

**More information**
- Directory of Freight Forwarding Services - http://www.forwarders.com
- Holland International Distribution Council (information on various aspects of using The Netherlands as a distribution centre for Europe; setting up a representative office, warehouse facilities and transport facilities, etc.) - http://www.hidc.nl
- International Air Transport Association (IATA) - http://www.iata.org
- International Federation of Freight Forwarders Association (FIATA) - http://www.fiata.com

Extensive lists of freight forwarders can be found at: http://www.cargoweb.nl and http://www.shipguide.com.

## 11.5 Price structure

Domestic, import and export prices of electronic components/assemblies are dependent on several factors, such as the total supply of the products, the type of the product and even its origin. In the case of commodity products like standard semiconductors and standard passive components, prices fluctuate subject to the supply and demand situation.

Other important factors will be the size of the order, technical specifications and tolerances, the quality of the product and exchange rate. Margins in the international trade of commodity products are under pressure. Margin requirements of European importers for electronic components have not changed; a rough indication is given in section 8.1. There is a number of reasons why it is not possible to give an accurate picture of the margins for all product and all parties in the import trade and distribution:

- The wide range of electronic components

A broad line electronic components distributor carries between 40,000 and 70,000 different electronic components. This range of product is covered in this survey.

- The great differences between the various product groups and specifications involved.

There are no standard prices for any component, and prices are always subject to order size and/or long-term price agreements made, independent of the single orders placed. Typically, prices for electronic components are set by negotiations and the prevailing market situation.

Refer to section 14.3 for drawing up an offer, and for general information, refer to section 2.5.4 and 3.3 of CBI's Export planner, chapter 3 of CBI's EMP document builder and section 3.1.7 of CBI's Your guide to market research.

## 11.6 Product profiles

In this section, two examples of product profiles are given for PCBs and electronic assemblies. These product profiles stand as models for the product profiles the exporter should develop for his own (prospective) export products. By constructing an overview of the key products, exporters improve their ability to determine what products to export to the EU.

<table>
<tr><td colspan="3">PRODUCT PROFILE – PCB</td></tr>
<tr><td>1. Product name: Printed circuit board (PCB)<br><br>HS codes: 8534 00, 8534 00 11, 8534 00 19</td><td colspan="2">Main varieties: single-sided, double-sided, multilayer (four to 60 layers), flexible.</td></tr>
<tr><td>2. Market requirements:<br><br><u>European quality standards</u><br>Other than EU regulation (http://www.cbi.nl/marketinformation), there are no additional quality standards for this wide range of different electronic components.<br>PCBs are manufactured to individual customer's requirements.<br><br><u>Packaging</u><br>PCBs are customised electronic components, packed according to the purchasers requirements.<br><br><u>Import regulation</u><br>Standard import documents will be needed:<br>-AWB or Bill of Loading<br>-Commercial invoice</td><td>3. Market structure:<br><br><u>Main markets</u><br>The markets with the highest components consumption are also the key markets for PCBs. In the EU the top 5 countries France, Germany, Italy, The Netherlands and UK represent around 70% of the EU consumption. New EU member states are coming up (Hungary).<br><br><u>Average prices</u><br>The price range for a "Europe card" (160 x 100 mm), an "unofficial" standard size varies widely, depends on the thickness of base material used, type of material, number of through-contacted holes, total number of holes, line structure and many other parameters, which have to be defined before placing a PCB order.</td><td>4. Main suppliers:<br><br>There are hundreds of suppliers across Europe supplying PCBs, most of them just in a radius of less then 100 km.<br><br>• Africa: South Africa, Tunisia<br>• Asia: China, Korea, Thailand, India, Japan, Malaysia, Philippines<br>• America: USA, Mexico, Brazil, Canada, Venezuela</td></tr>
</table>

| | | |
|---|---|---|
| -EUR 1 form for ACP countries<br>-Form A for other countries. | Although PCBs are customer specific products and prices are negotiated individually, as a rule of thumb the following prices per sq.m. for production quantities can be used:<br>Single-sided PCB: € 40.—<br>Double-sided PCB: € 80.—<br>Multilayer, 4 layers: € 150.—<br>Multilayer, 6 layers: € 210.—<br><br>Prices for PCBs with more layers and for flex PCBs as well will be subject to volume and individual negotiations.<br><br>Market trends<br>Growing demand for fine line circuits and flexible PCBs, but also for single/double-sided PCBs as low cost alternative for price sensitive products, if size of product allows larger PCB size. | |

| PRODUCT PROFILE – Electronic assemblies | | |
|---|---|---|
| **1. Product name:** Electronic assemblies<br><br>HS codes: 84731011, 84691100, 84731019, 8473 2110, 84732910, 84733010, 84734011, 84734019, 84735010, 85049091, 85179011, 85179082, 85229051, 85229059, 85281290, 85299072, 85389011, 85438979, 8543 9010, 85439020 | Main varieties:<br>customer specific electronic assemblies for all kind of end-products. | |
| **2. Market requirements:**<br><br>European quality standards<br>There are no general European quality standards for this range of products. Electronic assemblies are always customer-specific products. Depending on the final use of an electronic assembly, the customer will request different quality levels and will set additional individual standards.<br><br>Packaging<br>Electronic assemblies are always customer-specific products, which are packed and labelled according to the purchaser's requirements.<br><br>Import regulation<br>There are no specific import regulations or restrictions for these products.<br><br>Standard import documents will be needed:<br>• AWB or Bill of Loading<br>• Commercial invoice<br>• EUR 1 form for ACP countries<br>• Form A for other countries. | **3. Market structure:**<br><br>Average prices<br>There is no average price for these customer-specific products; even two assemblies for the same customer may vary by hundreds of% depending on the assembly. Only a price comparison in-house or at another EMS provider can give a comparative indication.<br><br>Main markets<br>The main European markets are France, Germany, Italy, The Netherlands and the United Kingdom. Key users will be found in the consumer goods, automotive market, telecommunication and IT sector, as well as the industrial market.<br><br>Market trends:<br>The electronic assemblies production is increasingly sourced out completely to electronic manufacturing services (EMS). The EMS market is growing by an average 12- 15% annually, much faster than the entire electronics | **4. Main suppliers:**<br><br>Global EMS providers with production facilities around the globe: Solectron, Flextronics, Sanmina-SCI, Celestica; Jabil CircuitRegional EMS providers across Europe, Asia and America<br><br>(also refer to chapter 4) |

| | | |
|---|---|---|
| Procedure<br>The EMS provider will receive from the buyer a bill of material together with a list of approved electronic components suppliers, possibly a finished sample, testing and, if necessary, manufacturing procedures. The buyer will expect the EMS provider to look for additional electronic components suppliers, do the pre-selection and pre-testing of products and handle the complete component procurement. | industry. There is increasing demand for a much wider range of EMS services including design, product development and complete support services (logistics and even distribution). | |

# 12 INTERNAL ANALYSIS

The internal analysis or company audit is a review of the company's strengths and weaknesses in terms of all company resources such as export marketing capabilities, finance, personnel, internal organisation, management, infrastructure, etc. As a result of this internal analysis, you can assess to which extent your company is able to take advantage of the opportunities identified in the former chapter. Furthermore, with a thorough understanding of your company's unique capabilities, you will be able to invest in opportunities that exploit your strengths.

## 12.1 Product standards, quality, USP and production capacity

A means to assess your company's potential in exporting is by examining the unique or important features of your company and products. A unique selling proposition or USP defines what makes your business unique from every other competitor in the field. It spells out the precise niche you seek to fill, and how you aim to fill it. However, the USP is an approach of the past for the fast moving electronics industry. Your product should preferably offer a solution to the need of the customer. Do not think too much about a "Unique Selling Proposition" (USP), but focus on the "Unique Buying Proposition" (UBP). Study the customer and identify what your product user really wants and how you can connect your product to that prime need.

Together with your prices, quality is probably the main competitive factor on which you will compete in the electronic components market. It is important to consider to which extent your company is able to deliver the quality that is required in the identified markets and sales channels.

Note that quality not only means product quality. Management quality is just as important. European companies looking for new (long-term) suppliers value delivery reliability and the ability to learn and adapt as being important selection criteria. Furthermore, keeping to the agreed quality is indispensable for building up a long-term business relationship.

Check your current quality standards with the voluntary and compulsory standards described in Chapter 10.

**Questions**
- What management quality standards does your company fulfil (ISO 9001)?
- What is the general level of your product quality compared to other products in the identified market? Does your product have any official quality standards?
- In case environmental labelling significantly improves the competitiveness of your export product, which one is the most interesting for your product-market combination?

**Production capacity**
European buyers in the electronics industry are hardly seeking a 'spot' purchase; most importers are looking for suppliers that produce a quality product at a fair price with continued availability. If you are merely looking to market your sporadic surplus capacity, then the entry to the European market will probably be a disappointment.

On the other hand, if the company is willing to devote even 10% of its production capacity to foreign markets and the servicing of these accounts, then it can reasonably expect to build substantial and permanent trade in those markets suited to its products. However, keep in

mind that the volume of the product marketed is often not as important as the consistent and reliable supply of the product.

For general information, refer to section 2.1 to 2.4, section 2.5.2 and section 4.2 and 4.3 of CBI's Export planner and section 4.1 and Section 7.5 of CBI's EMP document builder.

**Questions**
- What quantities do you produce?
- How is the present capacity being used?
- Will new export activity hurt domestic sales?
- What will be the cost of setting up additional production capacity and is that possible at all?
- What cycles of production apply to your products?
- Are there fluctuations in the annual workload for production staff, or the management? When? Why?
- Can you install an additional shift? Is the trained manufacturing staff, as well as the supervisory staff, available?
- What lead time will it take?

## 12.2 Logistics

Availability of low-cost and high-quality freight services between your country and the destination country is a major criterion for a successful export business. Depending on your product's characteristics and trade channel's requirements, you will have to decide whether air freight or sea freight is the best way of moving your goods to the European market.

**Clustering**
In many developing countries, exporters of electronic products can organise themselves in exporter's councils or shipping boards to be able to negotiate time and volume rates with ocean carriers. It could be interesting for you to determine whether your company could hook up with other exporters in your country. Trade associations, port authorities in your country and trade publications of origin and destination countries are the best sources of current information on services provided by competing air and ocean carriers.

**Questions**
- How often are you able and how often do you have to deliver?
- What lot sizes do you generally produce or are you able to produce?
- What is the preferred and most requested transportation method for your products?
- What are the typical costs of logistics? (Check with freight forwarders)
- Does your company have exporting experience?

**Points of interest when choosing the right packaging:**

**Have your customers / importers ever complained about the quality of your products? Have they ever received damaged products?**
Look for possible causes:
- Unsuitable packaging material
- Problems with the product itself (design, assembly)
- Other causes

**Do you use different packaging methods for different products?**
- Different products require different conditions during transport. (antistatic coverage)
- Some products need more space than others (bubble-packing, air-cushions).

*In case of marine transport, products shipped together in one container should be compatible:*
- Temperature needs· Relative humidity needs

**Does your importer use special transport packaging?**
- Perhaps you could use this special transport packaging as well? Using the wrong packaging size can have a negative effect on your business.
- Maybe you could make use of the importer's packaging know-how.
- Are the cardboard boxes including the products directly forwarded to the manufacturers?

*Fully recyclable packages must be used when trading with certain business partners.*
- In case of one-way systems, use cardboard and avoid plastic foil if possible.
- Colouring materials, used for printing, should not be harmful to the environment.
- Use glue that does not harm the environment or no glue at all.
- Do not use metal clips for the cartons.
- Avoid waxed boxes or any composite packaging materials

Useful information on packaging for marine container transport can be found at http://www.postharvest.ucdavis.edu/Pubs/Marine_Transport/Marine_Transport.shtml

### 12.3 Marketing and sales

How do you sell to current export markets? What works in one market is likely to work in another, subject to refinement based on market intelligence and knowledge about specific trade channel requirements.

What existing contacts does the company have in the target markets – suppliers, friends, relatives, etc? It is an advantage to have some local presence in the target market who can gather information, monitor progress and follow up leads. A serious export marketing campaign requires substantial management time to undertake it properly. Therefore, the company needs to be realistic as to how much time can be devoted to export marketing.

Refer to section 11.3. For general information refer to section 2.1 to 2.4 and 2.5.2 of CBI's Export planner and section 4.1 of CBI's EMP document builder.

**Questions**
- Does your company have people specifically assigned to marketing and sales activities?
- Which persons do you know in the target markets?
- Do you know what kind of user's internal test and qualifying procedures are required by the potential customer and how much time it will take?
- What sales support material is available?

### 12.4 Financing

Export marketing is expensive. If financial resources are limited, then marketing plans will have to be modest. It does not make sense to develop several new parallel markets if the company's financial resources only allow the development of one. Consider and budget the following expenses:
- Product adaptations
- Approval/certification costs
- Market research costs
- Costs for market evaluation/partner search
- Participation in an exhibitions

For general information, refer to section 2.1 to 2.4 and 2.5.2 of CBI's Export planner and section 4.1 of CBI's EMP document builder.

**Questions**
- What amount of money can be allocated to setting up new export activities?
- What level of export operating costs can be supported?
- How are the start-up expenses for an export effort covered? Is the money planned and allocated?
- What other new development plans are in the works that may compete with the export plan?
- Is outside capital necessary to support your export plan?

## 12.5 Capabilities

### Commitment to export

It is important to consider whether the company has people who are able to sell and develop an international business. The company should be able to generate the physical and administrative infrastructure to deal with increased activities related to exporting - not only in dealing with orders but also in processing Customs and shipping documentation. If this type of infrastructure is limited, then it is a weakness in developing sustained export activities.

**Questions**
- What kind of commitment is the top-level management willing to make to an export effort?
- How much senior management time should be allocated? How much could be allocated?
- What organisational structure is required to ensure that export sales are adequately serviced? Who will be responsible for the export activities (export department's organisation and staff)?
- What are the management's expectations of the effort?

### Export experiences

It is important to learn from past experiences. Has the company tried and failed to penetrate an export market previously? This can be analysed to determine where things went wrong.

**Questions**
- In which countries has business already been conducted and what were your experiences?
- From which countries have inquiries already been received and what did you do with them?
- What general and specific lessons have been learned from past export experiences?
- Do you know the business culture in the planned export market(s)?

### Language skills

When dealing with European trade partners in the electronic components/electronics industry, English is the language used most . Although most European trade partners will not be native speakers themselves, the vast majority speaks English fluently. In almost all cases, foreign language skills, particularly English, are essential when entering the European market. When dealing with France, however, knowledge of the French language is not only a distinct advantage but practically a necessity. If you can communicate in Spanish, you have a competitive advantage when you address the Spanish market.

On the few occasions when correspondence and documents in English will not suffice, exporters can usually find translation resources for the more popular European languages, but you will have a hard time conducting your day to day business activities. Language ability will certainly be advantageous since it facilitates cultural and social relationships.

For general information, refer to section 2.1 to 2.4 and 2.5.2 of CBI's Export Planner and section 4.1 of CBI's EMP document builder.

**Questions**

- Which language skills are necessary when dealing in your selected markets?
- Which language abilities are available within the export company?

# 13 DECISION MAKING

Having evaluated the external opportunities and the internal strengths or weaknesses, exporters can determine a strategy. Now it is time to select a main target country and main product with the help of country- and product selection. This is described in section 13.1. Once this has been determined, this market can be investigated thoroughly. In order to do this in a structured manner, a SWOT-analysis could be helpful. This analysis of strengths and weaknesses, opportunities and threats (SWOT) (section 13.2) will help exporters make these main decisions. Section 13.3 is about the strategic options & objectives.

## 13.1 Product- and country selection

Exporters should be aware that Europe is a continent and not one market. It consists of 25 individual member states with their own characteristics. For this reason, it is wise to make a country selection. Even within one member state there could be significant differences. For example, Italy can be divided into two parts (North and South) and Germany has several regions with large differences as well.

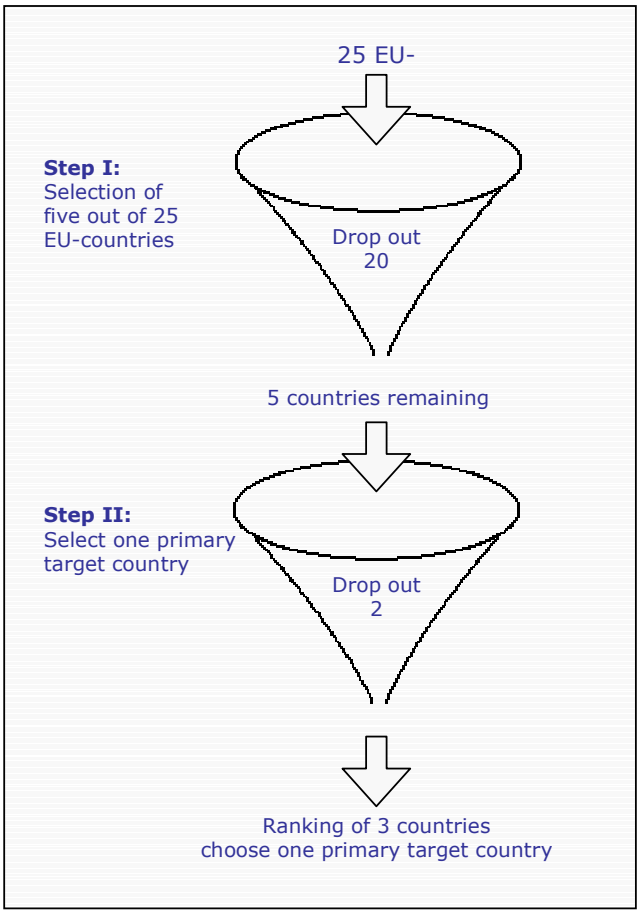
Generally speaking, export practice shows that an exporter should prioritise the EU destination countries. Individual exporters from developing countries could use the following general tips on how to perform:
1) product selection;
2) country selection.

**Ad 1) Product selection**
Already in the first stages of market research it is important to focus on a specific product (group). It is no use putting effort in the analysis of the European market for all products if you are specialized in only one product (group). The first rough product selection is based on a combination of the internal and external analysis. Factors that decide which products are most interesting in the EU could be:
- Import statistics
- Industry experts
- Other external market data such as industrial demand, income level and state of the economy
- Internal strengths of the company (company audit, last chapter 11).

**Ad 2) EU-country selection**
When a company chooses a country to export to, extremely trivial criteria often turn out to play a crucial role. The foreign language spoken by the secretary or a coincidental meeting with a foreign importer at a camp site may be decisive factors. There are many companies that use these criteria when choosing a suitable exporting country. One important question is: is there a correct way of choosing the most suitable exporting country?

We recommend you approach market selection as a two-step process. The first step would be to select the most interesting countries from all EU-25, followed by an in-depth survey of the chosen market(s). A rough country selection (I) is followed by a selection of one most promising country (II). Figure 13.1 graphically illustrates the country selection.

**Figure 13.1 Country selection**




Source: Exportmanagement (2004)

**Step I: Selection of five out of 25 EU-countries**

Apply some very pertinent questions to a broad range of markets – the questions you ask will depend on specific electronic components you are exporting. At this stage you want to find out:

- The demand for your product (import from developing countries / consumption);
    - Determine which product group in this survey suits your product most. Do this by consulting the HS-codes which will be used throughout the survey (Appendix A).
    - Collect the import figures from developing countries for the product (chapter 6).
    - Look at the trend / development of these imports over several years (chapter 6)
    - Collect relevant market data for your specific product (chapter 4)

- Ease of access to this market (legislation / transport / logistics);
- Availability of appropriate distribution channels for your product;
- Income per capita;
- The environment for doing business (image of your country, language, culture and politics);
- Opinion industry and CBI experts.

From these results, narrow your selection down to five markets by comparing data.

**Step II: Select one primary target country**
From these five chosen countries, three will remain as most interesting, including a ranking. From these you can choose the most promising one. For this, more in-depth research is necessary, especially in relation with the exported product. After data are collected from the countries, the most promising country can be chosen. Some of the questions you may want to ask at this stage are:

- The criteria mentioned in step 1 (again);
- What are the market access requirements that impact on exports of your product (difference per EU-country)? Check for conformity to:
    - Product and quality standards (CE, ISO, QS 9000, TS 16949)
    - Environmental requirements (ISO 14001)
- Competitor research (strengths, success factors, materials, added value). Who would your major competitors be?
- What is your point of difference? What makes your product unique? What are the key selling points for your product (USP)?
- Are there any niche markets, and if so, how big are they?
- Who are potential importers, agents or distributors?
- What are the prices or margins in different parts of the market (if available)?
- Are there any significant trade fairs or other events where you can promote your product?
- What are the import regulations, duties or taxes, including compliance and professional registrations?
- Will you need to translate promotional material and packaging?

**Subjects to consider**

- The filtering criteria must be quantifiable wherever possible, that is to say expressed in money or numbers.
- Weigh the relative importance of some factors over others.
- The import figures and their growth rate from the developing countries of the chosen product are by far the most important ones and should be weighed more heavily than other criteria.
- Product and country selection are separately displayed here, but influence each other. During the country selection, for example, you may find some specific requirements that could mean adaptation of your product.

From the results of this research an exporter can make his decision about which EU-country (or region) is the most promising export country (region). After this has been done, the selected market can be investigated thoroughly.

**Sources of information**
Exporters can gather much information from a variety of sources at little or no cost. Sources of information include:

- Part A of this survey (especially chapters 4 (industrial demand), 5 (production), 6 (imports), 8 (trade channels) and 10 (access requirements)
- Talking to colleagues and other exporters;
- Promotion organisations of the exporters country but also organisations like the CBI;
- Embassies, Chambers of Commerce;
- Trade fair organisations and brochures published on the Internet (section 14.5);
- Industry associations (chapter 4 and 5);
- Trade journals (CBI market surveys covering the market in individual EU countries);
- Internet (chapters 4-10 and CBI market surveys covering the market in individual EU countries)

## 13.2 SWOT and situation analysis

A SWOT analysis looks at the company's:

- Strengths (to build on)

- Weaknesses (to cover)
- Opportunities (to capture)
- Threats (to defend against).

Determining the most important (for instance two or three) Strengths, Weaknesses, Opportunities and Threats items can help exporters in the situation analysis. For easy identification, you could list them in four squares, separated by a large cross, e.g. like the example in table 13.1.

**Table 13.1 SWOT identification**

| | |
|---|---|
| ***Strengths:***<br>*…….(to be filled out)*<br>*…… (to be filled out)* | ***Weaknesses:***<br>*…….(to be filled out)*<br>*…… (to be filled out)* |
| ***Opportunities:***<br>*…….(to be filled out)*<br>*…… (to be filled out)* | ***Threats:***<br>*…….(to be filled out)*<br>*…… (to be filled out)* |

Now, your own internal situation is combined with the external environment in such a way that adequate strategies can arise. As a summary, table 13.2 shows the SWOT-combinations and the strategies in general.

**Table 13.2 SWOT-combinations and strategies**

| | **Strengths** | **Weaknesses** |
|---|---|---|
| **Opportunities** | Grow | Improve |
| **Threats** | Defend | Problems |

Now, insert them in the appropriate box in the matrix below, in the so called SWOT-matrix. The cells S, W, O and T are now completed. From this, appropriate strategies can be thought of in the other cells.

Please refer to chapter 2.5.5 of CBI's Export Planner, chapter 4.3 of CBI's EMP document builder and chapter 3.2 of CBI's Your Guide to market research for more information about formulating a MES and EMP.

## 13.3 Strategic options & objectives

By filling out the checklist for your own situation:

☑ You have identified products suitable for export development. Also, you know what modifications, if any, must be made to adapt them to overseas markets.
☑ You know what countries and market segments you are going to target for sales development and/or co-operation agreements.
☑ You have identified the best sales channel.
☑ You know what special challenges pertain to the selected markets (competition, cultural differences, import controls etc.) and what strategies you will use to address them.

Once a company has determined that it has exportable products, it must still consider whether the development of an export business adheres to the company objectives. In order to arrive at this conclusion the management should ask itself the following questions:

- What does the company want to gain from exporting?
- Is the goal of exporting consistent with other company goals?
- Are the benefits worth the costs or would company resources be better spent developing new domestic business?

Companies can waste a lot of time and money attempting to enter markets which do not have potential for them or for which their product is not suitable. To be successful in export

marketing, exporters need to focus on specific products and markets and be thoroughly prepared.

**Defining options**
Having defined his strategies by performing the SWOT-analysis, the exporter can divide them into three categories:
1) strategies which are a must and which are carried out
2) optional strategies, from which some are selected: choices have to be made by the exporter!
3) combination of several strategies, if possible

Subsequently, the exporter can make an overview of his various strategic export options, then formulate his business/export objectives and choose his strategies. Elements of the SWOT can also be used as an input for the export marketing policy.

An export plan gives some necessary guidelines and direction to reach your goals. It helps to define where you are now, where you will go, how fast this goes, what to do to accomplish your goals and how to deal with uncertainties and change. It does not always guarantee success, but it helps face important issues inside and outside the business. It allows developing strategies that should be built on strengths of the company and the opportunities that exist in the market and, moreover, it should reduce the risks.

As a summary, for the decision whether or not to export, the following strategic steps should be reviewed:
1 external analysis (market audit, chapter 11) and internal analysis (company audit, chapter 12);
2 SWOT (section 13.2);
3 decision making & formulation of objectives (section 13.3);
4 elements which can be used as inputs for the Market Entry Strategy (MES, as eg. level of risk, price level) and Export Marketing Plan (EMP, next chapter 14).

If you have come to the decision to export, the next phase of the export marketing process is to draw up an Export Marketing Plan (EMP) which defines a marketing strategy stating how the company plans to penetrate the identified market. Formulating an EMP is based upon sound information and its proper assessment increases the chances that the best options will be selected, resources will be utilised effectively and efforts will consequently be carried through to completion.

For more information on writing an EMP and a MES, please refer to chapter 4 and 6 of CBI's Export planner and EMP document builder and section 3.3 of CBI's Your guide to market research.

# 14 EXPORT MARKETING

Having determined the strategic objectives, the exporter has to make an export marketing plan, which includes a selection of marketing tools. This chapter is about the product (section 14.1), a partnership with the trading partner (14.2), drawing up an offer (14.3), handling the contract (14.4) and sales promotion (14.5).

## 14.1 Matching products and the product range

The electronics industry is a very dynamic and fast moving industry, which is driven by one global trend: upwards! Being part of it and staying in it is a continuous challenge. Electronic components have a major share in the on-going product advancements, and many new features, particularly in mobile electronic equipment, are possible only by using new, advanced electronic components. It is an absolute must for an electronic component manufacturer to review the products and the entire product range on a permanent basis – especially in an advanced and technically oriented market like the European Union. Not only sales and marketing personnel, but also R&D staff should constantly be in touch with the market, to be precise with the users of your electronic components. It is only by knowing the needs and wants of the component users and listening to them, that you can gain an additional competitive edge on your competition.

Many electronics based consumer goods have become life style and fashionable products with a life span of only one year. Their next generation will be "packed" with additional features, made possible by more sophisticated electronic components. Make sure that in your sales and marketing reporting system this essential market information is being fed back to the design and engineering people. Also, in an industrial-type market like electronic components, users no longer purchase what electronic component manufacturers have to offer, but are dictating what the electronic components manufacturers have to produce according to user wants and needs. It is a buyer's market on a global scale, not only in Europe.

In some cases, exporters may find out that their current product range does not match the identified market segment and sales channel's demand. A possible cause of this mismatch can be that there is no demand in the European market for such varieties, even if the products are successfully sold in the manufacturer's own country or other export markets.

A product range can consist of several product groups (range width), each with several different products (range depth). Again, one product can consist of several varieties (see table 14.1 for an example). A supplier can only select a suitable business partner when there is correct information about the range that he or she is able to offer. A precise review of the product range, therefore, aims at matching products offered with market opportunities.

**Table 14.1 Product range electronic components**

| **Example of a company's product range** | | |
|---|---|---|
| **Product range (range width)** | **Products (range depth)** | **Varieties** |
| capacitors | AC capacitors | motor start capacitors |
| | | motor run capacitors |
| | | lighting capacitors |
| Electromechanical components | connectors | DIN connectors |
| | | Coax connectors |
| | | Flat-cable connectors |
| etc. | | |

The next step is to review product characteristics of the products and varieties on offer; an example is shown in table 14.2

**Table 14.2 product characteristics electronic components**

| Example of product characteristics | | | | | |
|---|---|---|---|---|---|
| **Product** | **Variety** | **Size** | **Supply period** | **Packaging** | **Availability** |
| AC capacitors | Lighting capacitors | 1 – 10 µF | all year | Industrial standard | Within production capacity – with lead-time |
| Connectors | DIN connectors | According DIN standards | all year | Industrial standard | Within production capacity – with lead-time |

**Questions**
- Which products are you currently producing? How comprehensive is your product range?
- Which products do you consider to be your main products (core competence)?
- What new products are you able to produce?

For general information, refer to section 4.2 to 4.4 of CBI's Export planner, section 7.4 and 7.5 of CBI's EMP document builder and section 3.2 of CBI's Your guide to market research.

## 14.2 Building up a relationship with a suitable trading partner

**Finding prospects**
One of the most ominous obstacles for exporters can be to search, attract and secure a good importer or trading partner. Many venues are available for locating possible partners. You should employ any and all that seem appropriate for your product-market combination. The best ways for exporters in developing countries to approach potential trading partners in the European electronic components market are:

***In the producer country***
- The foreign-trade chamber of commerce of the country of destination
- The Economic Affairs departments of the official representative (Embassy or Consulate) of the country of destination.

***In the EU-country of destination***
- Trade associations
- Your own country's public and private trade promotion bodies
- Your own country's diplomatic and consular representatives
- Chambers of commerce
- Import promotion organisations

***Internet***
There are some very useful websites that can be used to identify potential prospects (or competitors) in the EU. Some highlights follow below; these are:
1) Europages
2) European Component Source Directory
3) Exhibitor database of Electronica 2004
4) Ideal Electronics
5) CBI company matching database

*1) Europages - http://www.europages.com*
A European business directory. Search for business contacts, such as distributors, in European countries. Per company you will be presented the address, telephone/fax and – if available- e-mail and website.

*2) European Component Source Directory –*
*http://www.componentssource.com/eursource.html*
This directory contains more than 5,000 addresses of manufacturers, distributors, brokers and importers of electronic components in Europe. It is not for free, but can be ordered for a small amount (€ 75 for printed version or € 49 for online access).

*3) Exhibitor database of Electronica - http://www.global-electronics.net/id/23661*
The database of trade fair Electronica can be used to identify key manufacturers worldwide that are active in the electronic components industry, searchable by detailed product.

*4) Ideal Electronics - http://www.ideaelectronics.com/*
This website of the International Distribution of Electronics Association contains links to distributors of electronic components in France, the UK and Italy. Click on 'regional information'.

*5) CBI company matching database*
Exporters can identify possible EU-importers at http://www.cbi.nl. This site has a 'company matching database' where importers and exporters could meet, categorized by product and country. The company matching programme aims to link well-versed exporters/suppliers in developing countries to reliable importing companies in the European Union in order to establish lasting business relationships. Moreover, the 'Market information and trade intermediary section' of the CBI could assist in identifying markets and opportunities as well.

***Furthermore***

- Direct mail

You can write a letter, e-mail or fax directly to a European company. Many companies will probably not respond at all or will inform you that they are not interested or that they already carry a competitive line. However, only a few positive replies are needed to continue your search and evaluation of prospective distributors.

- Visit international exhibitions (refer section 14.5)
- Personal visits

Once you have received a number of "interested" replies, plan a trip to that market. Additionally, while travelling, stop in other potential markets to assess the situation as well as attempt to make contacts. Many times a personal visit will pay for itself in terms of the benefits gained.

- Invite EU importers or potential business partners to visit your company.
- Build a network in order to extend your contacts.

**Identifying the most suitable trading partner**
Evaluate the potential trade partners about which you have obtained information, using the following criteria:

- Is the information complete? (full address, telephone / fax number, e-mail address, contact person)
- Is the importer active in the country you selected?
- Could the importer be interested in your products?
- What kind of trade relation is the potential trade partner interested in, i.e. arms-length, co-operative agreement, contract basis? Does this correspond to your preferred type of relationship?
- What is the position of the potential trade partner in the market?
- What is the financial status and credibility of the company?

Using these criteria, draw up a priority list of the contact addresses you have received. From the priority list, you must identify the trade partners that match best your own company profile, product range and export strategy. Particularly in the case of future long-term close

co-operation, it is important to get a clear picture of the company you are dealing with and understand their business activities; but not only technicalities have to fit – the "chemistry" between the two organisations is by far the most important! Any contract is only as good as the people behind it! When negotiating a strategic alliance, this becomes naturally far more complex, as you will have to consider many additional facets. On the other hand it will be also simpler, as a manufacturer peer from Europe will most likely already have an operating sales structure in all the European markets into which you would otherwise have to look one by one.

For more information on how to build a business relationship, please also refer to the recently published CBI manual 'Your image builder' and chapter 5 of CBI's Export planner.

### 14.3 Drawing up an offer

There are two different kinds of offers:
1) General offer
2) Specific offer

**1) General offer**
The purpose of a general offer is to attract the interest of potential trading partners with whom the supplier is not yet personally acquainted. A general offer consists of sending a short profile of your own company and a summary of your product range. In a personal letter, briefly introduce your company and tell what you have to offer.

**2) Specific offer**
Your product should offer a solution to the need of the customer. In addition to the USP, exporters could focus on the "Unique Buying Proposition" (UBP). Study the customer, identify what your product user really wants and how you can connect your product to that prime need. A specific offer is legally binding for a certain period of time. You must therefore be capable of fulfilling its terms of contract. You should make a specific offer only when you know the business partner personally or after you have made the initial contact. When sending a specific offer, it should consist of two parts:

**Written offer**
- Name of the person responsible in your company
- Exact description of the goods offered (preferably using an internationally valid quality standard specification)
- Price of the goods offered in accordance with the Incoterms 2000 (ICC publication, if applicable, split up by delivery quantities or quality) and
- Possible delivery date and terms of delivery.

**Product samples**
- Product samples must correspond to the goods available for delivery (if they do not, this can have a lasting negative effect on business relations);
- State the manufacturing methods used (if possible, provide quality certificates from an internationally recognised inspection organisation and send a reference list of existing customers).

**Additional tips to increase the effectiveness of your offer**
- A telephone call to ask whether the offer (and the samples, if applicable) has/have arrived.
- An invitation to visit your company.
- Perhaps propose a visit to the country of destination. In that case:
    - If necessary, hire an interpreter.
    - Ask your own consulate or other intermediaries for assistance.

First-time exporters could start with small samples, rather than large high-value commercial shipments. An exporter could be testing whether his products meet all importer requirements, transportation routing, handling and packing methods.

**Price setting**
To establish an overseas price, you need to consider many of the same factors involved in pricing for the domestic market. These factors include competition; costs such as production, packaging, transportation and handling, promotion and selling expenses; and most important in the electronic components market: the demand for your product and the maximum price which the market is willing to pay.

In most cases, an exporter will have to follow market prices. However, in the case of customized products, you will be able to set your own export price. There are two common methods of calculating your price for exports:

**Domestic pricing**
A common but not necessarily accurate method of pricing exports. This type of pricing uses the domestic price of the product as a basis and adds export costs, such as packaging, shipping and insurance. Because the domestic price already includes an allocation of domestic marketing costs, prices determined using the method might be too high to be competitive.

***Incremental cost pricing***
Determines a basic unit cost that takes into account the costs of producing and selling products for export, and then adds a mark-up to arrive at the desired profit margin. To determine a price using this method, first, establish the 'export-base cost' by stripping profit mark-up and the cost of domestic selling. In addition to the base cost, include genuine export expenses (export overheads, special packing, shipping, port charges, insurance, overseas commissions, and allowance for sales promotion and advertising) and the unit price necessary to yield the desired profit margin.

How you price your product is worth a great deal of thought and effort, since it directly affects your ability to make a profit. Take some time to research the following management questions:

**Questions to ask when setting your price**

**What are the production costs of your product?**
→ Production costs not only include costs of manufacturing, but also manufacturing overheads (including R&D costs)

**What are the marketing costs for your product?**
→ costs for packaging, distribution and promotion

**How will you market your product?**
→ Do you sell your products directly to customers in Europe?
→ Are you producing on a contract basis for a European buyer?
→ How high are the total distribution costs in Europe?

**What prices do competitors charge for comparable products?**
→ Take an industry focus on your pricing when researching what competitors are pricing.
→ By walking through the steps indicated in section 11.2 you will know the prices competitors charge. Use the competitive analysis to develop the upper limit of your price range. Be sure you compare your products to competitors' products.
→ Competition is intense in the electronic components market. You should therefore try to price at the lower end of the price range unless you can distinguish your product through offering a better 'solution' to your customer.

**What is the customer demand for my product?**
→ A customer never really pays for a product or a service but for the fulfilment of his wants/needs.
→ To price according to demand you have to know more about the size and nature of your customer base and their application of your product.
→ You will need to keep an eye on general market trends. See also Chapter 4.

Understanding how to price your product is an essential step in developing your business. You must continually monitor your price including your costs of production, your competition and your customers and be prepared to make adjustments. In competitive businesses like the electronic components industry, the successful company is the one that can adapt and continue to operate profitably. Below you find an overview of the way you can calculate the price of your export product (for information on Incoterms see next section 14.4).

| **Export price calculation** |
|---|
| Total costs per unit |
| + Profit |
| + In-house marketing expenses |
| + Commissions+ Domestic banking fees |
| + Palletisation / export packing |
| + Freight forwarding and documentation fees |
| + Other direct expenses related to shipping requirements |
| = EXW price (Ex Works) |
| + Inland transportation |
| = FAS price (Free Alongside Ship) |
| + Terminal handling charges |
| = FOB price (Free On Board) |
| + Ocean freight or air cargo charges |
| + Ancillary charges |
| = CFR price (Cost & Freight) |
| + Insurance |
| = CIF price (Cost, Insurance, Freight) |

Offering a CIF price calculated as above runs into the risk, that you can not cover future marketing expenses in Europe – and they will come! At least 15% should be included for marketing expenses, which will be needed anyhow for the DC supplier to set up European distribution and later for a partner. This percentage should be included in the CIF price from the beginning – call it whatever you want.

For general information refer to section 4.5 of CBI's Export planner, section 7.6 of CBI's EMP document builder and section 3.3.2 of CBI's Your guide to market research.

### 14.4 Handling the contract

In the electronic components industry, the use of contracts is not a widespread practice. Most importers prefer to work on a basis of trust with individual orders placed, arguing that it is not efficient to put a contract together each time a deal is made. An exporter should keep in mind, however, that in case of a conflict with you importer, communication via e-mail, fax or even over a telephone, also functions as a contract, although an e-mail and a phone call is not legal tender.

In case you do agree on a contract, please keep in mind that only an active contract stays alive! In other words, communicating with your partner is the key word. Only if he feels

supported and backed up, will your partner in Europe be convinced that you take this venture seriously. Appoint a responsible person within your organisation as the direct contact for your new partner; however do not give this person only the responsibility, but also the right to make decisions. There are several topics on which your newly appointed account manager could organise partner support. In the case contracts are used, the following terms should be considered:

**Contract terms**
- Conclude the delivery conditions according to international guidelines (e.g. Incoterms 2000)
- In the case of trial orders, which are delivered for the first time, a discount is typically given or goods are delivered on a commission base.

**Contract fulfilment**
- Procure the delivery documents in good time.
- Comply strictly with all parts of the supply agreement.
- If you cannot comply with some part of the agreement (e.g. delivery delays or quality problems), inform the customer clearly and in good time.
- Co-operate on a partnership basis and seek a common solution even if conflicts arise.
- Fulfilling the contract should have a high priority, particularly when delivering for the first time.
- Mention the total annual sales (in value) and the expected sales progress in the next few years.
- Invite your European partner to visit your factory. Give him (periodical) detailed information on the products and inform him about the product merits as well as product weaknesses. Trust him to sort out the sales motives himself.
- Give him all the information you have on the product and the manufacturing country. He should always be supplied with sufficient promotional material. Supply it to him free of charge or arrange for a joint promotional budget (in which he – for instance – will pay for the translation costs).
- Visit him regularly, at least twice a year. Let him tell and show you how your products are performing. Join his sales people on their trips to buyers. Talk with those buyers; they will appreciate it and you will find out more about what they think of your product.
- Pay him promptly – as you would like to be paid promptly yourself.
- Termination of the contract should be clarified (when, why and how).

Your trade partner can only function well if you allow him to. Much will depend on your ability to be a reliable supplier. If he is good, he will treat you the same way. Remember that he is working for you in a far-away market.

**Consignment basis**
Arrangements on consignment basis or 'at risk' are seldom used in the electronic components industry. In fact, consignment arrangements are not sales at all, in that title to the goods never passes to the importer. Goods are consigned to the importer until sold to a third party, whereupon title is transferred.
Under consignment sale the exporter bears the risk that prices may turn out to be less than expected, possibly resulting in a loss after transport costs are paid. Alternatively, prices and, hence, profits might be higher than expected.

**Terms of payment**
The determination of payment conditions for a regular export transaction is part of the package of negotiations between seller and buyer, who actually have more or less opposing interests. The seller wants to have the least possible payment guarantee. The buyer wants to be sure about quantity and quality of the goods he buys, before he pays the agreed price.

**Payment methods**
Different terms of payment in your planned export market might create an additional financial burden on the organization and you should plan for this. Typical/possible terms used in the electronics industry are listed below:

***Open account***
This is the most common method of payment in the EU. The bank carries out the transaction through swift electronic data system, once the buyer issues the bank with a transfer order. The process is fast and the transfer costs are relatively small. The system is based on trust, there is no guarantee for the seller. The buyer will have possession of the goods before payment has been issued.

It is not recommended to accept "open account" terms in the beginning of a business relationship without clearly agreed limitations, e.g. € 1,000 or € 2,000 and extend that line only after the first shipment has been paid in the terms agreed upon. Only when a business relationship is established and both parties have come to mutual understanding and trust, can payment on "open account" basis be accepted on an extended basis.

***Documents against payment (D/P)***
Also known as cash against documents. Seller supplies documents to the buyer's bank (which include invoice, bill of lading, certificate of origin, inspection certificates). Bank will hand over documents to the buyer upon payment or against a draft, a legally binding promise to pay: bill of exchange. Although this method is theoretically safe, practical complications may occur, for example when goods have been shipped to the destination and the buyer does not accept the goods and documents.

***Letter of Credit (LC)***
The LC is very often used in the beginning of a business relationship when the importer and exporter do not know each other very well yet. It is, next to advance payment, the best guarantee for payment. The LC, unless stated otherwise, is irrevocable and will always be paid (except in cases of fraud). The procedure is as follows: the buyer asks his bank to open credit in favour of the seller's bank. After shipment, the seller presents export documents to his bank, which will study the documents. The seller's bank presents documents to the buyer's bank. The seller will receive payment in the case that the documents are in order. The buyer will receive documents upon payment or promise to pay. The costs are higher when compared to the open account or D/P method. Nevertheless, LCs are widely used by importers in the European Union when dealing with exporters from outside Europe. Use of LCs is governed by the Uniform Customs and Practice for documentary credits (UCP 500) as issued by the International Chamber of Commerce. However, this preferred method of payment is not warmly welcomed in the electronic components industry, particularly with its many part shipments and relatively low invoice values.

***Cheques***
Payment takes place through a cheque which is issued in the name of a person. One has to be aware that the bank will only pay the amount if the customer's account shows sufficient balance, unless the cheques are guaranteed by the bank. Therefore, one should only accept guaranteed cheques that are issued by a reliable, preferably internationally recognised bank.

***Payment on consignment basis***
Payment on consignment basis is mostly used in the trade of perishable products, for example fresh fruit and vegetables. The products are sold at a predetermined price after a mutually appointed arbitrary person (General Super Intendance Company (GSC)) has controlled the quantity, quality and other aspects of the traded products at the moment of acceptance/sale. If the products do not meet the conditions as described in the contract, the contract is not valid and, depending on the conditions of the contract, prices are generally adjusted. An open account is used to make the payment after 14 – 30 days as from acceptance/sale.

***Advance payment***
This most favourable term of payment for any exporter is, understandably, not the most favourable for the importer. Therefore, in a buyer's market like the EU, it is not very common. However, it may occur in the arena of fair trade or in the case of a long standing business relationship where the exporter can convince his trade partner of the need for the advance payment.

**Terms of sale**
Export terms of sale determine what costs are covered in the price of the cargo. They also indicate at what point ownership transfers to the buyer and at what point responsibility for the cargo transfers. International commercial terms (Incoterms 2000) provide "the international rules for the interpretation of trade terms". It is recommended that quotations to new European customers should be made on a CIF basis. However, supplier and importer are free to negotiate any other condition.

For definitions of payment methods and delivery terms, refer to appendix 1 and 2 of CBI's Export planner.

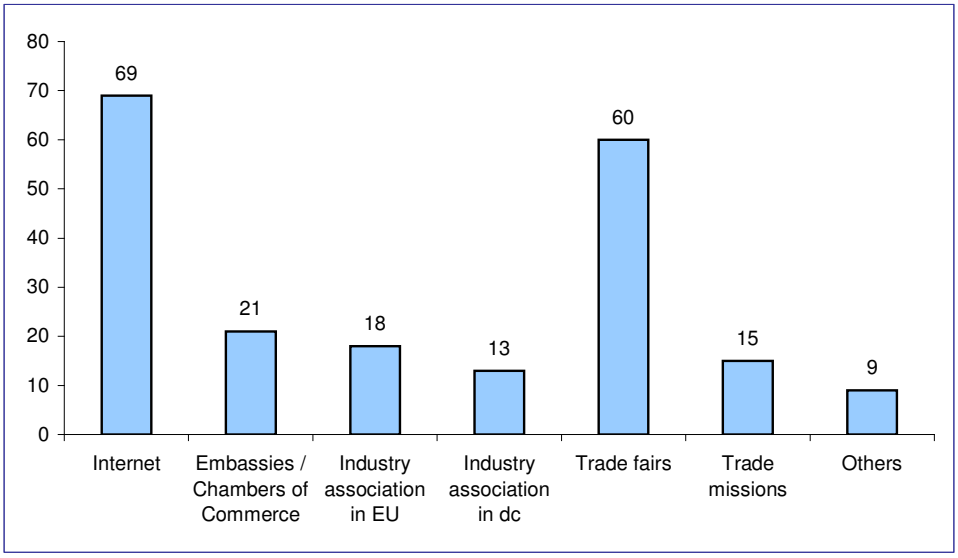
## 14.5 Sales promotion

This section first discusses some relevant highlights of an online questionnaire that FFF held among EU buyers. After this some information about relevant sales promotion tools will be discussed.

**Online questionnaire**
In February and March 2006, FFF held an online questionnaire among European buyers of electronic components. The respondents were also asked about their ideas on buying from DC suppliers. The main outcomes follow in this section.

***Information sources***
Figure 14.1 shows that the internet (92%) and trade fairs (80%) are by far the two most important information sources for EU buyers when they look for information about possible new suppliers. Some respondents even suggested that there should be some kind of "Internet Fair", where DC suppliers can offer their products and capabilities.

**Figure 14.1 Preferred information sources EU buyers (n=75)**



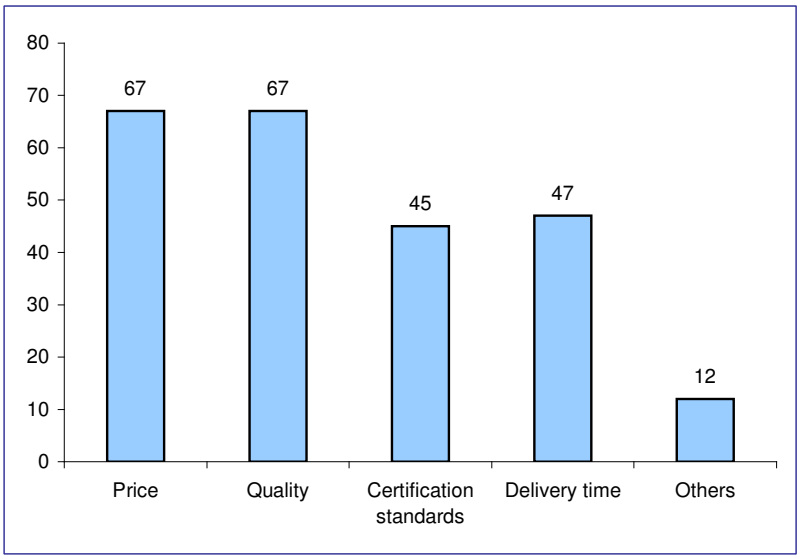

Source: Online questionnaire FFF (March 2006)

***Decision criteria***

The EU buyers base their purchasing decisions on a set of elements (figure 14.2). Not only price is important, it is mainly the whole package. The fact that not all respondents have mentioned certification as a major criterion can be explained by the fact that it is seen as a basic prerequisite in the industry. All suppliers are expected to have it. Some other elements include:

- good service level: proper answers to technical questions
- on time deliveries
- response time to technical and commercial inquiries
- technical knowledge
- reliability
- partnership

**Figure 14.2 Decision criteria EU buyers in selecting DC suppliers (n=75)**




Source: Online questionnaire FFF (March 2006)

**Sales promotion tools**

One of the major critical success factors for exporters of electronic components and electronic assemblies to the European Union is attention to customer requirements and the ability to maintain good relationships with their European business partners. Sales promotion revolves around developing and expanding these customer relations and thereby maintaining and increasing sales volume. Some tips in developing customer relations:

- Take good care of existing contacts. This includes, for example, expressions of thanks to business partners, regular information on company developments like product range, quality improvements, etc.
- Always reply to a letter of inquiry. If you cannot supply this contact, say so, explaining that you will get in touch with him for the next campaign.

***Communication***

It is recommended to commence with communication measures that only require a small amount of planning and co-ordinating, such as revising the company's standard printed matter:

- Standardise all printed paper used outside the company (letterheads, visiting cards, fax form, etc.)
- A brochure about your company (including photos of products, production and information on your ISO certification and other international approvals/certifications) will be useful for promoting new contacts and sales.

Constant, prompt and reliable communication is a vital prerequisite for maintaining a long-term business relationship with your customers. Smaller firms should also be reachable by (mobile) phone, e-mail and fax at office hours.

***Internet***

As a means of communication, Internet is generally considered to have many opportunities for companies in developing countries. The main advantages of the Internet are:

- Low cost of communication;
- Fast delivery of information;
- Independence of distance and timeline;
- Hardly any limits in size; and
- Multimedia possibilities.

Besides one-to-one communication, Internet offers opportunities for presentation, (market) research, distribution, sales and logistical improvements. If your target group consists of importers in overseas countries, you can advertise for (new) customers on your Internet site, showing your company, product range and indicating the production circumstances.

*E-commerce*

E-commerce is a relatively new method of transacting business using information technology, which allows physical processes to be replaced by electronic ones. In many cases, it is an open system, usable by all enterprises anywhere, provided an appropriate infrastructure is present, and has a low entrance threshold, unlike earlier forms of electronic data interchange. In the coming years, it will therefore also have a significant impact on exporters in developing countries.

The development of these B2B sites can be explained by three main objectives they serve: cutting transaction costs, improving efficiency, and expanding the trading horizon. Today B2B in the electronics industry is mainly used between established business partners but hardly used for starting up new business connections. A good example of a market place is http://www.netcomponents.com/. An overview of more of these marketplaces can be found on http://www.emarketservices.com (choose 'search directory'). More information on this subject can be found in CBI's Export Manual 'Your Image Builder' . A very practical guide on promoting your website via searchengines (CBI Manual 'Website promotion') is available at CBI.

***Trade fairs and other fora***

Visiting and participating in a trade fair abroad can be an efficient tool for communicating with prospective customers. It provides more facilities for bringing across the message than any other trade promotional tool. It can also be an important source of information on market development, production techniques and interesting varieties. Important motives for companies visiting European trade fairs are:

- Establishing contacts with potential customers;
- Orientation on the European market;
- Gathering information on specific subjects;

Key objectives of electronics industry trade fairs are:

- Presentation: to SEE and to be SEEN;
- Demonstration of seriousness;
- Market presence;
- However, please note: Order-taking at electronics industry fairs is the EXCEPTION and can only be achieved by considerable preparatory work!

Although significant costs are involved, actually participating in a trade fair could be an interesting way for a number of companies to give their export activities an extra boost. One of the major advantages of participating in a trade fair is the ability to present your company

and products in a more extensive way (3-D presentation, company video, and product displays). Furthermore, you will meet people whom you otherwise would not have met.

Nearly all important exhibitions for electronic components and assemblies are organised in Germany. The most relevant fairs for exporters in developing countries are listed in table 14.3 below. Participation in one of the key European trade fairs, particularly with the assistance of one of the European business support organisation like CBI, can be the right step in starting your export to the European Union. In practice, it turns out to be a must to participate.

**Table 14.3 Main European trade fairs electronic components**

| Trade fair | Where? | When? | What? | Website |
|---|---|---|---|---|
| Electronica | Munich, Germany | Biennial, 14-17 November 2006 | The leading exhibition for the electronic components industry world-wide | http://www.electronica.de |
| CeBit | Hannover, Germany | Annual 15-21 March 2007 | Exhibition for IT, EDP and Telecommunication | http://www.cebit.de |
| Hannover Industrial Fair | Hannover, Germany | Annual 16-20 April 2007 | Industrial electronics | http://www.hannovermesse.de |
| Productronica | Munich, Germany | Biennial 13-16 November 2007 | Manufacturing equipment for electronic components | http://www.productronica.de |

Source: AUMA (July 2006)

During a visit to the no. 1 global fair for electronic components, Electronica in Munich, Germany you not only have the chance to meet all global competitors but you can also see all the latest trends of the industry and most likely also learn about new product or application ideas for your own organisation. Already well ahead of the next Electronica, in November 2006 in Munich, the segmented exhibitor listing on their website http://www.electronica.de will show you your international competitive scenario, also giving links to practically all company websites of exhibitors. Prepared in such a way, you really can make full use of your visit to this fair.

More information on both major and more specialized trade fairs in the EU (including the acceding countries) can be found on the website of the German Trade Fair Association (http://www.auma.de). Its database can be used to find detailed statistics, profiles and venues for many industries and countries. Section 14.5 gives some suggestions for preparing and visiting a trade fair. Furthermore, the related CBI market surveys covering the electronic components market in individual EU countries contain more trade fairs.

***Europartners event***

Another interesting and promising way to get started on entering the European Union market is to participate in one "Europartners" event, formerly "Europartenariat", a European Commission Initiative. Initiated in 1988 by the European Commission, Europartners is an international cooperation exchange that has developed into an effective instrument for promoting external trade. The programme, which was designed by the Commission to assist structurally disadvantaged regions within the European Union, is targeted at small and medium-sized companies and serves to support cross-border cooperation in Europe and developing countries. To meet this need, representatives of companies from across Europe and developing countries are invited to attend a twice-yearly, two-day event designed to bring them together with potential partners from a host region selected by the Commission. Europartners is not only a " buyer meets seller" forum but can be considered as the first step for possible strategic alliances between peers. More information on

http://www.europartners.eu.com/ (summaries of market reports available, as are articles and news by sectors)

Assuming that a developing country manufacturer/exporter believes a more specific, somewhat narrower market approach by specific user group and/or region would work better for him, the CBI market surveys covering the electronic components market in individual EU countries list some specialised fairs in several countries and give you address material where you can get information on all kinds of user specific fairs and conferences across Europe.

For additional information on trade fair participation, please refer to CBI's Handbook "Your Expo Coach" and the recently published CBI manual "Your image builder".

***Trade press***

When you talk to journalists, they will always claim that the publication of any "interesting" article will be completely independent from any advertising you are planning to place or placing with a trade magazine, but there seem to be coincidences!

Nevertheless, an interesting story on your company or new product introduction will boost the company's image and increase user awareness. In that respect, building up contacts with the trade press will be helpful and should be used whenever possible.

Having experienced at the trade fair Electronica that too many people you met during this fair know too little about your country's competence in the electronics industry sector, it might be helpful to invite key press people to your country. Get the Ministry of Trade or Economics, trade promotion office, industry association and other manufacturers interested in export and involved in such a project. The European trade press is quite keen to learn about new and active industry groups, particularly in developing countries, and may give you good press coverage. Most likely there will be one or more European companies manufacturing in your country with a good track record and willing to give a testimonial about the many years of positive experience in your country– if this concerns the electronics industry, even better.

During such a press visit in your home country you should demonstrate the smoothly operating "infrastructure" necessary for the electronics industry stemming from the availability of qualified, well trained and English-speaking personal, good training and learning conditions at the academic level up to an industry-oriented government policy.

For general information refer to section 4.8 of CBI's Export planner, section 7.8 of CBI's EMP document builder and section 3.3.4 of CBI's Your guide to market research.

# APPENDIX A DETAILED HS CODES

| HS code | Description |
|---|---|
| **Active Components** | |
| 8504 40 50 | Polycrystalline semiconductor rectifiers<br>Diodes, transistors and similar semiconductor devices, photosensitive semiconductor devices, including photovoltaic cells whether or not assembled in modules or made up into panels; light emitting diodes; mounted piezo-electric crystals: |
| 8541 10 00 | Diodes, other than photosensitive or light emitting diodes |
| 8541 21 00 | Transistors, other than photosensitive transistors with a dissipation rate of less than 1 W |
| 8541 29 00 | other |
| 8541 30 00 | Thyristors, diacs and triacs, other than photosensitive devices |
| 8541 40 00 | Photosensitive semiconductor devices, including photovoltaic cells whether or not assembled in modules or made up into panels; light emitting diodes: |
| 8541 40 10 | Light emitting diodes, including laser diodes |
| 8541 40 90 | other |
| 8541 50 00 | other semiconductor devices |
| 8541 90 00 | Parts |
| 8542 12 00 | Monolithic digital integrated circuits:<br>Cards incorporating an electronic integrated circuit ("smart" cards)<br>Metal oxide semiconductors (MOS technology): |
| 8542 13 01 | Wafers not yet cut into chips |
| 8542 13 05 | Chips |
| 8542 13 11 | other: memories / dynamic random-access memories (D-RAMs) with a storage capacity not exceeding 4 Mbits |
| 8542 13 13 | with a storage capacity exceeding 4 Mbits but not exceeding 16 Mbits |
| 8542 13 15 | with a storage capacity exceeding 16 Mbits but not exceeding 64 Mbits |
| 8542 13 17 | with a storage capacity exceeding 64 Mbits |
| 8542 13 20 | Static random-access memories (S-RAMs), including cache random-access memories (cache-RAMs) |
| 8542 13 30 | UV erasable, programmable, read only memories (EPROMs) |
| 8542 13 42 | Electrically erasable, programmable, read only memories ($E^2$PROMs), including FLASH $E^2$PROMs, with a storage capacity not exceeding 4 Mbits |
| 8542 13 45 | with a storage capacity exceeding 4 Mbits but not exceeding16 Mbits |
| 8542 13 46 | with a storage capacity exceeding 16 Mbits but not exceeding 32 Mbits |
| 8542 13 48 | with a storage capacity exceeding 32 Mbits |
| 8542 13 49 | other |
| 8542 13 54 | other memories |
| 8542 13 55 | Microprocessors |
| 8542 13 60 | Microcontrollers and microcomputers |
| 8542 13 70 | Microperipherals |
| 8542 13 80 | other |
| | |
| | Circuits obtained by bipolar technology: |
| 8542 14 01 | Wafers not yet cut into chips |
| 8542 14 05 | Chips |
| 8542 14 11 | Memories |
| 8542 14 30 | Microprocessors |
| 8542 14 40 | Microcontrollers and microcomputers |
| 8542 14 50 | other: |
| 8542 14 50 | Microperipherals |
| 8542 14 90 | other |
| | |
| | Other, including circuits obtained by a combination of bipolar and MOS technologies (BIMOS technology): |
| 8542 19 01 | Wafers not yet cut into chips |
| 8542 19 05 | Chips |

| | |
|---|---|
| 8542 19 40 | Memories |
| 8542 19 55 | Microprocessors |
| 8542 19 66 | Microcontrollers and microcomputers |
| 8542 19 71 | Microperipherals |
| 8542 19 85 | other |
| | |
| | Other monolithic integrated circuits: |
| 8542 30 10 | Wafers not yet cut into chips |
| 8542 30 20 | Chips |
| 8542 30 30 | Amplifiers |
| 8542 30 50 | Voltage and current regulators |
| 8542 30 60 | Control circuits |
| 8542 30 70 | Interface circuits; interface circuits capable of performing control functions |
| 8542 30 90 | other |
| | Thermionic, cold cathode or photocathode valves and tubes (for example, vacuum or vapour or gas filled valves and tubes, mercury arc rectifying valves and tubes, cathode-ray tubes, television camera tubes): Cathode-ray television picture tubes, including video monitor cathode-ray tubes: with a screen width/height ratio less than 1.5, with a diagonal measurement of the screen: |
| 8540 11 11 | not exceeding 42 cm |
| 8540 11 13 | exceeding 42 cm but not exceeding 52 cm |
| 8540 11 15 | exceeding 52 cm but not exceeding 72 cm |
| 8540 11 19 | exceeding 72 cm |
| | |
| | other, with a diagonal measurement of the screen: |
| 8540 11 91 | not exceeding 75 cm |
| 8540 11 99 | exceeding 75 cm |
| 8540 12 00 | Black and white or other monochrome |
| | |
| | Television camera tubes; image converters and intensifiers; other photocathode tubes |
| 8540 20 10 | Television camera tubes |
| 8540 20 80 | other |
| 8540 40 00 | Data/graphic display tubes, colour, with a phosphor dot screen pitch smaller than 0.4 mm |
| 8540 50 00 | Data/graphic display tubes, b/w or other monochrome |
| 8540 60 00 | other cathode-ray tubes |
| | |
| | Microwave tubes (for example, magnetrons, klystrons, travelling wave tubes, carcinotrons), excluding grid-controlled tubes: |
| 8540 71 00 | Magnetrons |
| 8540 72 00 | Klystrons |
| 8540 79 00 | other |
| | |
| | other valves and tubes: |
| 8540 81 00 | Receiver or amplifier valves and tubes |
| 8540 89 00 | other |
| | |
| | Parts: |
| 8540 91 00 | of cathode-ray tubes |
| 8540 99 00 | other |
| | |
| | Liquid crystal devices not constituting articles provided for more specifically in other headings; lasers, other than laser diodes; other optical appliances and instruments, not specified or included elsewhere in this chapter: |
| 9013 80 20 | Active matrix liquid crystal devices |
| 9013 80 30 | other |
| 9013 90 10 | Parts and accessories for liquid crystal devices (LCD) |
| 8531 90 20 | Parts of indicator panels incorporating liquid crystal devices (LCD) or light emitting |

| | |
|---|---|
| | diodes (LED) |
| | |
| | |
| **Passive Components** | |
| | Electrical capacitors, fixed, variable or adjustable (pre-set): |
| 8532 10 00 | Fixed capacitors designed for use in 50/60 Hz circuits and having a reactive power handling capacity of not less than 0.5 kvar (power capacitors) |
| | |
| | other fixed capacitors: |
| 8532 21 00 | Tantalum |
| 8532 22 00 | Aluminium electrolytic |
| 8532 23 00 | Ceramic dielectric, single layer |
| 8532 24 00 | Ceramic dielectric, multilayer |
| 8532 25 00 | Dielectric of paper or plastics |
| 8532 29 00 | other |
| 8532 30 00 | Variable or adjustable (pre-set) capacitors |
| 8532 90 00 | Parts |
| | |
| | Electrical resistors (including rheostats and potentiometers), other than heating resistors: |
| 8533 10 00 | Fixed carbon resistors, composition or film types |
| | |
| | other fixed resistors: |
| 8533 21 00 | for a power handling capacity not exceeding 20 W |
| 8533 29 00 | other |
| | |
| | wirewound variable resistors, including rheostats / potentiometers: |
| 8533 31 00 | for a power handling capacity not exceeding 20 W |
| 8533 39 00 | other |
| 8533 40 10 | other variable resistors, including rheostats and potentiometers for a power handling capacity not exceeding 20 W |
| 8533 40 90 | other |
| 8533 90 00 | Parts |
| 8504 50 10 | other inductors for use in civil aircraft |
| | |
| | other: |
| 8504 50 30 | of a kind used with telecommunication apparatus and for power supplies for automatic data processing machines and units thereof |
| 8504 50 80 | other |
| 8504 90 11 | Parts of transformers and inductors: ferrite cores |
| | |
| | Electro-magnets; permanent magnets and articles intended to become permanent magnets after magnetization; electro-magnetic or permanent magnet chucks, clamps and similar holding devices; electro-magnetic couplings, clutches and brakes; electro-magnetic lifting heads: Permanent magnets and articles intended to become permanent magnets after magnetization: |
| 8505 19 10 | Permanent magnets of agglomerated ferrite |
| 8505 19 90 | other |
| 8534 00 90 | Printed circuits with other passive elements |
| 8542 40 00 | Hybrid integrated circuits |
| 8542 50 00 | Electronic microassemblies |
| 8542 90 00 | Parts |
| 8541 60 00 | Mounted piezo-electric crystals |
| 8541 90 00 | Parts |
| **Electromechanical Components** | |
| | Electrical apparatus for switching or protecting electrical circuits, or for making connections to or in electrical circuits (for example, switches, relays, fuses, surge suppressors, plugs, sockets, lamp-holders, junction boxes), for a voltage not exceeding 1,000 V: |
| 8536 10 10 | for a current not exceeding 10 A |

| | |
|---|---|
| 8536 10 50 | for a current exceeding 10 A but not exceeding 63 A |
| 8536 10 90 | for a current exceeding 63 A |
| | |
| | Relays: |
| 8536 41 10 | for a current not exceeding 2 A |
| 8536 41 90 | for a current exceeding 2 A |
| 8536 49 00 | other |
| 8536 50 07 | Electromechanical snap-action switches for a current not exceeding 11 A |
| | |
| | other, for a voltage not exceeding 60 V: |
| 8536 50 11 | Push-button switches |
| 8536 50 15 | Rotary switches |
| 8536 50 19 | other |
| | |
| | Lamp-holders, plugs and sockets: |
| 8536 69 10 | for co-axial cables |
| 8536 69 30 | for printed circuits |
| 8536 69 90 | other |
| 8536 90 10 | Connections and contact elements for wire and cables |
| 8536 90 85 | other |
| **Electronic Assemblies** | |
| | Printed circuits, consisting only of conductor elements and contacts: |
| 8534 00 11 | Multilayer circuits |
| 8534 00 19 | other |
| 8473 10 11 | Electronic assemblies of machines of subheading |
| 8469 11 00 | e.g. word processing machines) |
| 8473 10 19 | other (e.g. typewriters) |
| 8473 21 10 | Electronic assemblies of the electronic calculating machines of subheading 8470 10, 847021 or 8470 29 |
| 8473 29 10 | other electronic assemblies (e.g. posting, ticketing machines cash registers) |
| 8473 30 10 | Electronic assemblies of electronic storage units (EDP) |
| 8473 40 11 | Electronic assemblies of automatic bank note tellers |
| 8473 40 19 | other office machines |
| 8473 50 10 | Electronic assemblies of automatic typewriters and word processing machines |
| | Electronic assemblies of static converters: |
| 8504 90 91 | for telecommunication and EDP |
| 8517 90 11 | Electronic assemblies of telephone and telegraphic switching |
| 8517 90 82 | Electronic assemblies for line telephony – or other line based transmission |
| 8522 90 51 | Electronic assemblies of telephone answering machines |
| 8522 90 59 | other (e.g. record players, tape-, video-recorders) |
| 8528 12 90 | Electronic assemblies for incorporation into automatic data processing machines |
| 8529 90 72 | Electronic assemblies of other transmitter-receivers excluding VHF radio communication, transmitter-receivers and on-board intercommunication systems of receivers excluding radio-broadcasting or television apparatus and receivers for selective calling equipment other, excluding receivers for OMEGA radio navigation systems |
| 8538 90 11 | Electronic assemblies for wafer probers of subheading 8536 90 20 |
| 8538 90 91 | Electronic assemblies for e.g. electric distribution, optical- medical equipment, numerical controls |
| 8543 89 79 | Apparatus enabling automatic data processing machines and units thereof to process audio signals (sound cards); upgrade kits, for automatic data processing machines and units thereof, put up for retail sale, consisting of, at least, speakers and/or microphone, and an electronic assembly that enables the automatic data processing machine and units thereof to process audio signals (sound cards) |
| 8543 90 10 | Assemblies and sub-assemblies consisting of two or more parts or pieces fastened or joined together, for flight recorders, for use in civil aircraft |
| 8543 90 20 | Electronic assemblies for incorporation into automatic processing machines (EDP) |

# APPENDIX B LISTS OF DEVELOPING COUNTRIES

**OECD DAC list - January 2006 -** When referred to developing countries in the CBI market surveys, reference is made to the group of countries on this OECD DAC list of January 2006:

Afghanistan
Albania
Algeria
Angola
Anguilla
Antigua and Barbuda
Argentina
Armenia
Azerbaijan
Bangladesh
Barbados
Belarus
Belize
Benin
Bhutan
Bolivia
Bosnia & Herzegovina
Botswana
Brazil
Burkina Faso
Burundi
Cambodia
Cameroon
Cape Verde
Central African rep.
Chad
Chile
China
Colombia
Comoros
Congo Dem. Rep.
Congo Rep.
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
India
Indonesia
Iran
Iraq
Jamaica
Jordan
Kazakhstan
Kenya
Kiribati
Korea, rep of
Kyrghyz Rep.
Laos
Lebanon
Lesotho
Liberia
Libya
Macedonia
Madagascar
Malawi
Malaysia
Maldives
Mali
Marshall Islands
Mauritania
Mauritius
Mayotte
Mexico
Micronesia, Fed. States
Moldova
Mongolia
Montenegro
Montserrat
Morocco
Mozambique
Myanmar
Namibia
Nauru
Nepal
Nicaragua
Niger
Nigeria
Niue
Oman
Pakistan
Palau
Palestinian Admin. Areas
Panama
Papua New Guinea
Paraguay
Peru
Philippines
Rwanda
Samoa
São Tomé & Principe
Saudi Arabia
Senegal
Serbia
Seychelles
Sierra Leone
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-Leste
Togo
Tokelau
Tonga
Trinidad & Tobago
Tunisia
Turkey
Turkmenistan
Turks & Caicos Islands
Tuvalu
Uganda
Ukraine
Uruguay
Uzbekistan
Vanuatu
Venezuela
Vietnam
Wallis & Futuna
Yemen
Zambia
Zimbabwe

**List of CBI countries – January 2006** - CBI supports exporters in the following Asian, African, Latin American and European (Balkan) countries:

Bangladesh
Benin
Bolivia
Bosnia-Herzegovina
Burkina Fasso
Colombia
Cuba
Ecuador
Egypt
El Salvador
Ethiopia
Ghana
Guatemala
Honduras
India
Indonesia
Jordan
Kenya
Macedonia
Madagascar
Mali
Montenegro
Mozambique
Nepal
Nicaragua
Pakistan
Peru
Philippines
Senegal
Serbia
South Africa
Sri Lanka
Suriname
Tanzania
Thailand
Tunesia
Uganda
Vietnam
Zambia