SECTOR FICHE: EU TRADE IN ELECTRONICS

EXECUTIVE SUMMARY

- **THE ELECTRONICS SECTOR**

The importance of the sector is not only determined by the direct economic activity. There is also a multiplier effect as the sector accounts for a much larger share of overall productivity growth thanks to the important role that ICT plays in boosting innovation throughout the economy. The electronic sector is itself characterized by high R&D intensity, short innovation cycles and highly developed global supply chains. Another typical feature of the sector is the increasing link between goods, software and services.

The electronics sector can be divided into five sub-sectors: computer and related office equipment, telecommunications equipment, electronic components (including semiconductors), electronic measuring devices and consumer electronics. The borders between these categories are often fluid, with consumers increasingly having access to professional equipment and multifunctional devices ("product convergence").

- **TRADE IN ELECTRONICS**

World trade in electronics products has doubled over the last 10 years (despite decreasing unit prices), with an important shift towards Asian and lower income countries. This shift is more pronounced than in other sectors. The EU encounters a large trade deficit in electronics (104 bn € in total in 2010). This occurs in all sub-sectors except measuring devices. The EU position remains relatively strong on telecommunication and components, and relatively weak on computer and office equipment and consumer electronics. For some, often newer Member States electronics represent an important share in their overall sales. The EU market remains the key market for this sector with only about 30% of sales going for exports.

It has to be noted that a large proportion of global electronics trade (about 70% of EU imports, 55% of EU exports, with the notable exception of consumer electronics) is covered by the *Information Technology Agreement* (ITA) of 1997 and thus not subject to customs duties in countries that are, like the EU, member of the agreement. Tariffs remain an issue with non-ITA members and for non-ITA electronic products, including new product developments.

Non-tariff barriers (NTBs) are the key issue for EU industry, such as burdensome certification procedures and IT encryption requirements, different standards, double testing, lack of IPR protection, also impediments to access to raw materials (e.g. rare earths). Due to their close linkage, market access problems for services can also impact on trade in goods. Given its importance for innovation and economic growth, the electronics sector is often in the focus of industry policies that include trade distortions such as subsidization or local content policy and that encourage foreign investment and technology transfer.

In a nutshell, the key problems for the electronics sector could be summarized as follows: a variety of trade issues in China, tariff barriers in Brazil, Argentina and Russia, NTBs worldwide, subsidies particularly in Asia, and market access related to services and to goods and services convergence.

- **TRADE POLICY RESPONSES AND CONCLUSIONS**

On the basis of the existing situation mainly defined by the ITA and existing FTAs, three main areas remain to be addressed: 1) widening of the scope of products that benefit from zero duty treatment and adaptation to new technological developments; 2) geographical widening of duty concessions (to non-ITA/FTA partners), and 3) reducing Non-Tariff Barriers (NTBs).

These goals are presently pursued via the negotiations in the WTO through the Doha round (sectoral on electronics/electrics and TBT sectoral on electronics), EU proposals for an ITA revision, in Free-Trade Agreements (tariffs and TBTs, e.g. Korea FTA), market access activities on NTBs, including with the tools of the Market Access Strategy (e.g. IT encryption in China) and specific activities such as the plurilateral "Government/Authorities Meeting on Semiconductors" (GAMS, tariffs, NTB, IPR, subsidies).

In order to keep the trade policy in line with technological development and actual business practices, continued efforts will be needed to address technological convergence and the close link between goods, software and services.

TABLE OF CONTENT

LIST OF ACRONYMS

ICT: Information and Communication Technologies
ITA: Information Technology Agreement of 1997
NTB: Non-Tariff Barriers
R&D: Research and Development
SMEs: Small and Medium-sized Enterprises (~below 250 employees)
TBT: Technical Barriers to Trade

DISCLAIMER

This document is not an official document prepared by the EU institutions, but the result of an interactive process of various players, mainly the European Commission, Member States and industry. The sector fiche is an attempt to reflect the various inputs in a balanced way. The views expressed in the sector fiche do therefore not represent the official position of the European Commission.

1. THE ELECTRONICS SECTOR

1.1. Introduction

The importance of the electronics sector is not properly determined by its economic activity: electronics manufacturing represents 13% of value added by total manufacturing[1]. Indeed, the sector weight accounts for a much larger share of overall productivity growth thanks to the important role that ICT plays in boosting innovation throughout the economy.

Though representing not more than 5% of EU's GDP, the ICT sector (manufacturing *and* services) has a 25% share in total business R&D[2]. The semiconductor sector, for instance, has recently been ranked as Europe's most R&D intensive industry sector[3], with a record ratio of 21.8 % of annual R&D expenditure over annual sales. This is eight times higher than in the EU industry average. Semiconductors are also recognized as a *key enabling technology* for the electronics and many other sectors such as automotives, machinery or medical devices[4].

This is the reason why a large number of policy documents, reports and studies on innovation, industry policy, the knowledge economy or economic growth dedicate an important part to the electronics sector[5]. Trade policy can play a role in this by reducing costs, facilitating exchange and technological development, addressing and eliminating non-tariff barriers and establishing a global level playing field. In the past, this has been demonstrated by the Information Technology Agreement (ITA) of 1997, leaving the way open to further trade policy responses.

1.2. Definition of the electronics sector and sub-sectors

Sector Definition

This sector fiche focuses on electronic *goods*. It contains some references to services to show the linkage between both. To facilitate comparability of data, the sector, sub-sector and product definition is based on a comparison of existing key references, i.e. the product scopes used for the ITA[6], the sector and sub-sector definitions in NACE (Eurostat)[7] and OECD work[8]. All are having some differences and have been elaborated over years, showing the complexity of this issue. The following OECD (2003) definition has been used as a guideline for this sector fiche. It defines electronics/ICT *goods* as:

"*either be intended to fulfil the function of information processing and communication by electronic means, including transmission and display, or use electronic processing to detect, measure and/or record physical phenomena, or to control a physical process.*"[9]

NB: Full reference and web links to the quoted publications can be found in the annex on references

[1] EC, Digital Competitiveness Report 2010, p. 14

[2] EC, Digital Competitiveness Report 2010, p.14

[3] EC, EU Industrial R&D Investment Scorebaord 2010

[4] EC, Commission Communication on Key Enabling Technologies, 2009 http://ec.europa.eu/enterprise/sectors/ict/key_technologies/index_en.htm

[5] See e.g.: EC (2010), Trade, growth and world affairs, DG TRADE; EC (2010) A Digital Agenda for Europe, DG INFSO; EC (2010) Innovation Policy, DG ENTR; EC (2009), Key enabling Technologies, DG ENTR; plus documents listed in the annexe under "references" and industrial policy documents in other countries

[6] ITA text to be found at: http://www.wto.org/english/tratop_e/inftec_e/itaintro_e.htm

[7] NACE (rev.1, 2003, chapter 30-33 (allowing longer term comparability than NACE rev.2))

[8] OECD Information Technology Outlook 2010, annex A, p. 287 referring to *Yearbook of World Electronics Data*.

[9] OECD Guide to measuring the information society 2009, p. 89

Sub-sector definition

The electronic sector can be divided into five sub-sectors:

- computer and related office equipment,
- telecommunications equipment,
- electronic components,
- electronic measuring devices, and
- consumer electronics.

The first four are also commonly referred to as *Information and Communication Technology* (ICT). *Electronics* is used in this analysis as overarching term comprising both ICT and consumer electronics. The borders between the sub-sectors and product categories are often fluid, with consumers increasingly having access to professional equipment and multifunctional devices ("product convergence"). More and more products which were originally mechanical or electrical also evolve into electronic products (e.g. measuring devices).

The related HS product codes are mainly in chapter 85 (mobiles, TV, video, GPS, semiconductors), but also in chapter 84 (computers, printers, copiers, fax) and 90 (measuring devices). Annex 4 contains the exact HS 6 Digit sector and sub-sector definition that has been used as the basis for this sector fiche and related statistics. The annex also contains more details about this work.

Services, as said, are not included in the scope and statistics of this fiche. It has to be noted, however, that statistics on the ICT sector in other publications often mix up manufacturing and services (and consumer electronics is sometimes included, sometimes not).

Specific cases

Electronic measuring and precision devices have been considered as part of the electronics sector, as they are now almost entirely electronic[10].

Electrical appliances are not covered (the so-called "white goods", mainly in HS chapter 85, such as washing machines, refrigerators, fans, heating, toasters). As a practical guideline, electrical appliances use electricity mainly for moving (motors) or heating, whereas electronics are characterised by miniaturized structures for information processing.

Electro-medical devices are not covered though they often represent a high concentration of electronic elements (e.g. x-ray tubes, medical measuring devices). This however is also the case for many other sectors which contain more and more electronic elements (e.g. automotive).

1.3. The electronics sector in the EU

Overview and key data

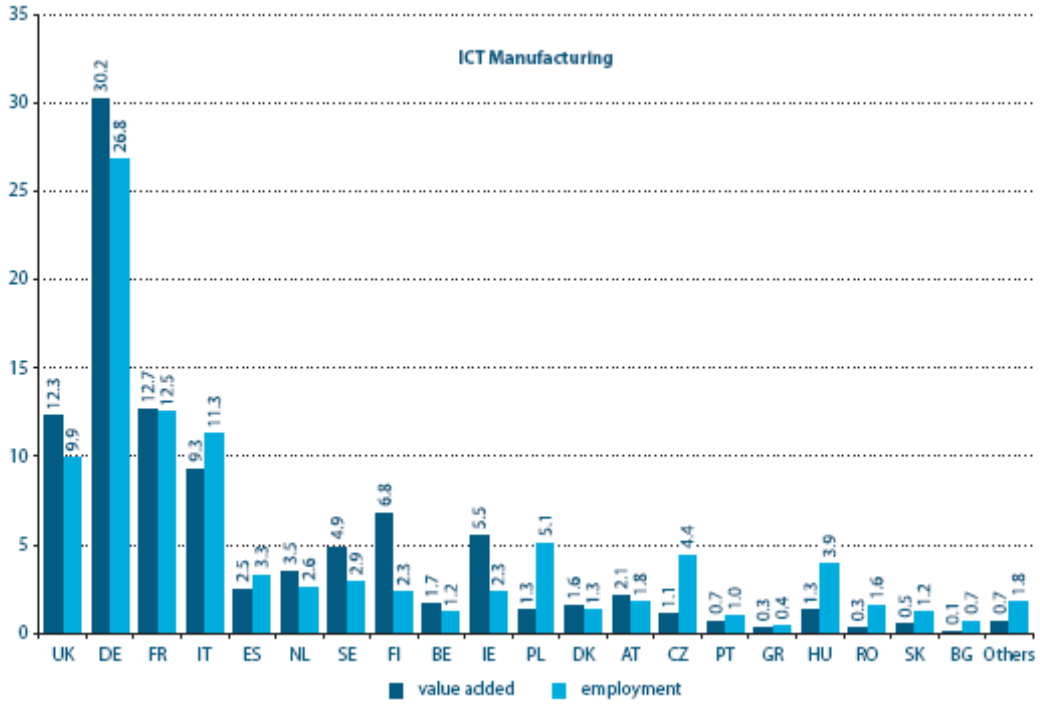
The value added by the EU's ICT industry as a whole (manufacturing *and services*) amounted to 592 bn € in 2007 and represented around 5% of total EU GDP (US: 6.4%, JP 6.8 %). The ratio goods:services is 1:4. That means 130 bn € or 1% of GDP comes from ICT

[10] Measuring devices have been excluded from the OECD definition in the meantime, but also OECD still includes them into their current statistics (see OECD Technology Outlook 2010). More about the evolution of the OECD definition in OECD "Guide to Measuring the Information Society 2009", annex 1A, p. 87 - 118

manufacturing whereas 462 bn € or 4 % comes from ICT services[11]. Still the ICT manufacturing industry represents 13% of value added by total manufacturing and thus is one of the largest industrial sectors[12].

Germany accounts for a quarter of ICT manufacturing employment (and a third of value added). Employment in France and in the UK has decreased, whereas it has significantly increased in Hungary, the Czech Republic and Poland[13]. A Commission report came to the conclusion that the Member States who have more recently become active in this sector were typically hosting lower-end activities. This is reflected by the fact that the combined share of Poland, the Czech Republic, Hungary, Romania, Slovakia and Bulgaria in EU ICT manufacturing represented 17% of EU employment in this field but only 4,6% in value added in 2007. In contrast, the Netherlands, Sweden, Finland and Ireland together represented 10% in employment but 21% in value added[14].

Country Shares (%) in EU ICT Value Added and Employment: Manufacturing, Year 2007
(Extracted from: EC, Digital Competitiveness Report 2010) [15]



Source: IPTS estimates based on Eurostat SBS.

The competitive situation

Overall, the sector has shown an important shift of global production towards in particular Asian countries over the last 20 years. The below table illustrates some of the strength and weaknesses of the electronics industry of the EU that were mentioned in replies to a survey among EU Member States. Examples are only indicative and are not weighted. Factors like education, competence centres and synergies with industrial sectors in which the EU has a

[11] EC, Digital Competitiveness Report 2010, p. 11; NB: sector scope here based on NACE (30-33 for manufacturing) only, so not fully identical
[12] NB: The global value added of companies is often split among different countries in line with their global supply chains
[13] EC, Digital Competitiveness Report 2010, p. 14
[14] EC, Digital Competitiveness Report 2010, p. 14
[15] EC, Digital Competitiveness Report 2010, figures1.2, p.13

leading position (e.g. automotives) are considered important for the further development of the electronics sector. The EU's industry needs to remain at the top of innovation and 'one step ahead' in order to face the global challenges.

Strengths & Opportunities	Weaknesses & Threats
Product quality, technical competence, skilled and educated workforce	Fierce competition from Asian manufacturers, esp. emerging economies
High level of innovation and niche leadership of SMEs in some sectors	Outsourcing of production capacities to low-cost countries in East Asia
Low costs of business operation, high export abilities and easy access to state aid in some new MS	Price dependence of components on end customers and downstream goods, dependence of imports of key parts
Good network of local and regional suppliers	Difficulty among some new MS to attract FDI
High value added parts of the global supply chain within EU	Underdeveloped infrastructure in some regions
Growing international reputation in some product areas	Funding difficulties for SMEs

Industry Associations

EU industry is organised in a global setting; there is no association gathering exclusively EU companies. All associations involved reach beyond European "nationality".

- *Digital Europe*[16] represents the ICT and consumer electronics manufacturing industry and comprises also many US, Japanese, Korean and recently also Chinese companies, demonstrating the advanced stage of globalisation in this sector.
- The *European Semiconductor Industry Association* (ESIA)[17] represents the semiconductor producing industry, and includes companies, national associations and research institutes.
- *Semiconductor Equipment and Materials International* (SEMI)[18] represents suppliers of equipment and materials used to manufacture semiconductors and other high tech products (e.g. photovoltaic) - in Europe and with its other regional branches also worldwide. SEMI companies belong mostly to industry sectors other than electronics, such as machinery or chemicals, but they are closely linked to their clients such as the semiconductor producing industry.

1.4. The electronics sub-sectors in the EU

Computer and related office equipment

Products falling into this sub-sector include: computer, printers, faxes, copying machines. No EU company is among the top 10 global firms. Among the Member States most concerned are (in alphabetical order): the Czech Republic, Hungary, Ireland and the Netherlands.

[16] http://www.digitaleurope.org ; DIGITALEUROPE's members include, according to their website, 63 leading corporations and 40 national trade associations from all EU Member States; altogether 10,000 companies with 2 million employees and €1,000 billion in revenues
[17] http://www.eeca.eu/esia/
[18] http://www.semi.org/eu/

Top 10 IT Equipment and Systems Firms

(Source: OECD, Technology Outlook 2010) [19]

	Country	Revenue 2009	(y-o-y growth)	Employment 2009	(y-o-y growth)	R&D 2009	(y-o-y growth)	Net income 2009	(y-o-y growth)	Net cash 2009	(y-o-y growth)
Hewlett-Packard	United States	114 552	(-3%)	304 000	(-5%)	2 819	(-20%)	7 660	(-8%)	- 1 353	(-73%)
TOSHIBA[1]	Japan	64 364	(-4%)	206 329	(+8%)	..		- 3 323	(-407%)	- 9 418	(-20%)
Hon Hai Precision Industry[1]	Chinese Taipei	61 810	(+19%)	616 000	(+9%)	750	(+61%)	1 747	(-26%)	1 226	(NA)
Dell	United States	52 902	(-13%)	94 300	(+23%)	617	(-7%)	1 433	(-42%)	6 928	(-2%)
NEC	Japan	35 043	(-14%)	141 833	(-1%)	1 480	(-55%)	-924	(-68%)	- 2 675	(-38%)
Apple	United States	42 905	(+14%)	34 300	(+7%)	1 333	(+20%)	8 235	(+35%)	23 464	(+6%)
Quanta Computer[1]	Chinese Taipei	25 946	(+10%)	49 793	(+46%)	232	(+43%)	641	(+14%)	1 121	(-4%)
ASUSTeK Computer	Chinese Taipei	18 907	(-10%)	113 324	(+11%)	461	(+4%)	387	(-26%)	2 093	(+76%)
Acer	Chinese Taipei	17 787	(+3%)	6 553	(-2%)	27	(+58%)	352	(-5%)	1 560	(+161%)
Compal Electronics[1]	Chinese Taipei	15 171	(+0%)	50 126	(+0%)	238	(+48%)	401	(-4%)	843	(-17%)

Note: Firms are ranked by 2008 total revenues.
1. Figures based on 2008 annual data as 2009 annual data were not available at the cut-off date.

Telecommunication

Products falling into this sub-sector include: telephone sets, mobiles, telecom network equipment, parts of internet infrastructure. In the area of telecommunication, European manufacturers maintain a leading international position in both telecom end devices (Nokia, Ericsson-Sony) and telecom networks (Alcatel-Lucent, Ericsson, Nokia-Siemens-Networks; the other two global actors being Huawei and ZTE, both Chinese headquartered). Among the Member States most concerned are: Finland, France, Germany, Hungary, Rumania and Sweden.

Top 10 Communications Equipment and Systems Firms

(Source: OECD, Technology Outlook 2010) [20]

	Country	Revenue 2009	(y-o-y growth)	Employment 2009	(y-o-y growth)	R&D 2009	(y-o-y growth)	Net income 2009	(y-o-y growth)	Net cash 2009	(y-o-y growth)
Nokia	Finland	56 287	(-24%)	123 553	(-2%)	6 867	(-10%)	1 224	(-79%)	5 101	(+47%)
Cisco Systems	United States	36 117	(-9%)	65 550	(-1%)	5 208	(-2%)	6 134	(-24%)	24 706	(+25%)
Ericsson	Sweden	26 550	(-16%)	82 493	(+5%)	4 250	(-17%)	472	(-72%)	6 009	(-18%)
Motorola	United States	22 044	(-27%)	53 000	(-17%)	3 183	(-23%)	-51	(-99%)	4 387	(+79%)
Alcatel Lucent	France	20 817	(-16%)	78 373	(+1%)	3 465	(-14%)	-720	(-91%)	1 910	(+379%)
Huawei Technologies	China	21 831	(+19%)	95 000	(+9%)	1 954	(+27%)	2 673	(+132%)	4 084	(-59%)
L-3 Communications	United States	15 615	(+5%)	66 000	(+2%)	..		901	(-4%)	- 3 096	(-15%)
Qualcomm	United States	10 416	(-7%)	16 100	(+5%)	2 440	(+7%)	1 592	(-50%)	11 069	(+73%)
Research In Motion	Canada	14 953	(+35%)	12 800	(+0%)	965	(+41%)	2 457	(+30%)	1 912	(+26%)
Nortel Networks	Canada	4 088	(-46%)	30 307	(+0%)	757	(-34%)	488	(NA)	1 128	(NA)

Note: Firms are ranked by 2008 total revenues.

Electronics components

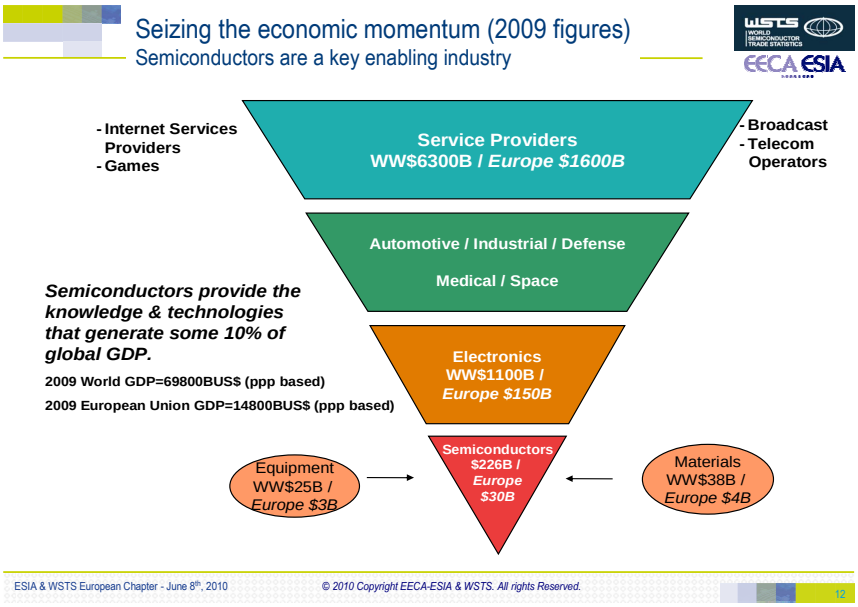
Products falling into this sub-sector include: semiconductors, printed circuits, resistors.
Electronic components such as semiconductors are a key enabling technology[21] for the electronics and many other sectors such as automotives, machinery or medical devices. Semiconductors, also referred to as micro/nano-electronics, are integrated into virtually all

[19] OECD, Technology Outlook 2010, tables 1.A2.1-4, p. 56-60
[20] OECD, Technology Outlook 2010, tables 1.A2.1-4, p. 56-60
[21] See definition in DG ENTR Communication of 30/9/2009:
http://ec.europa.eu/enterprise/sectors/ict/key_technologies/index_en.htm

domestic devices, such as cars, home appliances, smart-phones, computers, televisions, cameras.

Direct employment in microelectronics accounts for over 110 000 in Europe, plus 105 000 in equipment manufacturers split between the semiconductor and photovoltaic sectors (with calculations indicating up to 500.000 additional induced jobs). The EU's semiconductor market is valued at 38 bn € in 2010 (~13% of 298 bn € world market), but with a much wider economic effect (see graph below).

Semiconductors as a key enabling technology
(Source: ESIA & WSTS 2010)



Among the Member States most concerned are: France, Germany, Ireland, Italy, Malta, Netherlands but also Austria, Portugal and the UK. Industry leaders in global market share in 2010 are Intel/US (13%) and Samsung/Korea (9%), with EU producers ranking at 7th (ST Microelectronics /FR/IT, 3,4%), 13th (Infineon/DE, 2%) and 17th place (NXP/NL 1,3%) in 2010. However, in more specialized market segments, for instance four EU companies are among the six biggest semiconductor suppliers for the car industry. Europe has also a leading position in semiconductor products for smartcards, where many trade barriers exist, and for mobile telecommunication.

Ranking of top semiconductor companies

(Source: iSuppli Corporation[22], provided via ESIA; rankings for 2009/10, foundries excluded)

Rank 2010	Rank 2009	Company	Country of origin	Revenue (million $ USD)	2010/2009 changes	Market share
1	1	Intel Corporation	USA	40 020	+24.3%	13.2%
2	2	Samsung Electronics	South Korea	28 137	+60.8%	9.3%
3	3	Toshiba Semiconductors	Japan	13 081	+26.8%	4.3%
4	4	Texas Instruments	USA	12 966	+34.1%	4.3%
5	9	Renesas Electronics (1)	Japan	11 840	+129.8%	3.9%
6	7	Hynix	South Korea	10 577	+69.3%	3.5%
7	5	STMicroelectronics	France / Italy	10 290	+20.9%	3.4%
8	13	Micron Technology (2)	USA	8 853	+106.2%	2.9%
9	6	Qualcomm	USA	7 200	+12.3%	2.4%
10	15	Elpida Memory	Japan	6 678	+74.2%	2.3%
11	14	Broadcom	USA	6 506	+52.1%	2.1%
12	8	AMD	USA	6 355	+22.0%	2.1%
13	11	Infineon Technologies	Germany	6 226	+39.7%	2.0%
14	10	Sony	Japan	5 336	+19.4%	1.8%
15	18	Panasonic Corporation	Japan	5 128	+58.1%	1.7%
16	17	Freescale Semiconductor	USA	4 329	+27.2%	1.4%
17	19	NXP	Netherlands	4 021	+24.1%	1.3%
18	23	Marvell Technology Group	USA	3 680	+43.1%	1.2%
19	16	MediaTek	Taiwan	3 595	+1.2%	1.2%
20	20	NVIDIA	USA	3 189	+12.8%	1.0%
Top 20				198 207	40.1%	65.2%
All Other companies				105 799	20.2%	34.8%
TOTAL				304 006	32.5%	100.0%

Measuring devices

Products falling into this sub-sector include: sensors, spectrometers, instruments for chemical or physical analysis or electrical measurement. Among the most concerned Member States are: Germany, Ireland, Sweden and the UK.

Consumer electronics

Products falling into this sub-sector include: audio and video equipment, TVs, digital cameras, cable terminals and pay-TV decoders. Europe has inter alia a large production of television screens, mainly in newer Member States (Czech Republic, Hungary, Poland, Slovakia). Among the most concerned Member States are: Czech Republic, Hungary, Netherlands, Poland, Slovakia and Spain.

[22] http://www.isuppli.com/Semiconductor-Value-Chain/News/Pages/Samsung-Closes-in-on-Intel-for-Semiconductor-Market-Leadership-in-2010.aspx

Top 10 (Consumer) Electronic[23] Firms

(Source: OECD, Technology Outlook 2010) [24]

	Country	Revenue 2009 (y-o-y growth)		Employment 2009 (y-o-y growth)		R&D 2009 (y-o-y growth)		Net income 2009 (y-o-y growth)		Net cash 2009 (y-o-y growth)	
Siemens	Germany	105 272	(-7%)	402 000	(-2%)	5 356	(-3%)	3 148	(-62%)	- 7 636	(+33%)
Samsung Electronics[1]	Korea	107 103	(-3%)	161 700	(-2%)	3 480	(+0%)	7 436	(+48%)	7 927	(NA)
Hitachi[1]	Japan	92 309	(-5%)	359 314	(-4%)	4 029	(+0%)	- 5 740	(+25%)	- 17 987	(-39%)
Panasonic Corporation[1]	Japan	71 644	(-5%)	382 480	(+31%)	5 009	(+0%)	- 4 863	(-33%)	- 5 056	(NA)
Sony Corporation[1]	Japan	74 412	(-0%)	170 200	(-5%)	..		- 1 583	(-65%)	5 133	(+224%)
LG Electronics[2]	Korea	57 483	(+0%)	82 136	(-0%)	414	(+1%)	398	(-70%)	- 4 878	(+30%)
Canon	Japan	34 003	(-14%)	167 644	(+0%)	3 227	(-11%)	1 395	(-53%)	8 522	(+35%)
Philips Electronics	Netherlands	31 848	(-17%)	115 924	(-10%)	2 240	(-14%)	563	(+523%)	556	(NA)
Mitsubishi Electric[1]	Japan	34 641	(-2%)	110 191	(+11%)	1 289	(+0%)	-443	(NA)	- 3 116	(+60%)
Flextronics International	Singapore	23 753	(-23%)	160 000	(+0%)	..		-291	(+95%)	-53	(+97%)

Note: Firms are ranked by 2008 total revenues.
1. Figures estimated based on 2009 interim data as 2009 annual data were not available at the cut-off date.
2. Figures based on 2008 annual data as 2009 annual data were not available at the cut-off date.

1.5. Particularities of the electronics sector

Electronics has a number of characteristics which partly differ from other large industry sectors.

Link with software

The application of software and services through their enabling hardware platforms enhances productivity and are often the key differentiator for the competitiveness of the product and more important in revenue terms than the hardware itself. This makes it increasingly difficult to separate software and services from their enabling devices. Business strategies of electronic companies increasingly rely on the complete package of hardware, software and services. It is often much more in the area of software, services and the development of applications and content where employment is created than in the area of manufacturing.

Software may be defined as *the sets of instructions required to make computers work and communicate*[25] (sub-categories: packaged software (off the shelf) and customized software, embedded software and application software). It is an essential and high value part of nowadays electronic products, in particular in the *computer and related office equipment* and in the *telecom* sub-sectors. But also the know-how of dedicated semiconductor applications is increasingly implemented in software which is the differentiator, also in price terms, of products with similar hardware. So far, the classification of software as a good or a service has been subject to discussions taking into consideration aspects such as the way it is sold (incorporated in the product, on CD-ROM/DVD, via internet).

[23] The definition used for "electronics" in this OECD table could be wider than only consumer electronics
[24] OECD, Technology Outlook 2010, tables 1.A2.1-4, p. 56-60
[25] As used in the WTO discussions on the coverage of *computer and related services*

Link with services

The biggest sub-sector of ICT services are *computer and related services*, including for instance software implementation, data processing and database services. India and Ireland were the two leading world exporters of computer and information services in 2009[26]. Telecommunication services are particularly important in EU exports.

Even more than in other sectors, electronic goods and services are closely linked in daily business practice, again in particular in the *computer and related office equipment* and in the *telecom* sub-sectors. On the one hand, manufacturing value-added has a significant service component and many electronic goods need longer term maintenance and up-dating services, on the other hand, most ICT services need supporting physical infrastructure and goods[27]. There is an evolution from products to solutions, e.g. products (goods) are integrated parts or enablers of a wider service[28]. To put it differently, instead of selling a product with a service, there is a tendency of selling a service with a product (e.g. mobile phones). This tendency will further increase with new developments such as "cloud computing" where software is sold as an online service rather than as a packaged good. It needs also to be taken into consideration when looking at trade aspects.

The role of SME

Electronic companies are often midsize to large entities acting globally with sophisticated supply chains. In their supplies they depend on a large number of SMEs. So far, the role of manufacturing and innovative SMEs producing electronic goods in supply chains has not been analysed in depth. Hence, the below analysis is based on the synthesis of various scattered qualitative assessments.

According to the responses provided to a questionnaire, Member States recognise the importance of SMEs within the value chain albeit with differences in intensity and accents. For instance, Finland stresses its relevance for innovation. Bulgaria states that SMEs in question are the spine of its electronics sector production whereas in Hungary their current contribution is relatively low but their importance is anticipated to increase due to their flexible labour skills.

Available statistics do not allow quantifying their role within the sector but according to the ELECTRA communication[29], the electrical engineering sector consists mostly of SMEs and the relationship between larger companies and SMEs is supposed to be a highly symbiotic and fluid one also in the electronics industry. Their SME nature determines the main challenges such as access to finance, availability of skilled workers (in particular engineers), access to markets, counterfeiting or RTD/innovation and an innovation-friendly regulatory environment. Main weaknesses of innovative SMEs within the electronic sector seem to be the constrained access to private equity to finance their growth. In this regard, information asymmetry as compared to bigger companies prevents many SMEs from taking advantage of the funding opportunities available.

[26] OECD, Trade in ICT and Its Contribution to Trade and Innovation 2011, p. 29

[27] See for further descriptions: The Research Institute of the Finnish Economy, 2011, *Who captures value in global supply chains?* http://www.etla.fi/files/2592_no_1240.pdf

[28] Examples delivered by industry: leasing of telephone equipment and computers; provision of storage and security products within a wider service package

[29] COM(2009)594 final
http://ec.europa.eu/enterprise/sectors/electrical/documents/electra_comm/electra_comm_2009_0594_en.pdf

Two documents provide some indirect insight into SMEs that are also of relevance to the electronic sector. In the working document on KETs (Key Enabling Technologies)[30], the example of the photonic subsector illustrates the importance of innovative SMEs. It is the highly diversified SME driven subsector of the electronics, consisting of approximately 5000 companies in the EU, mostly SMEs, that employs 300.000 people directly. Moreover, the jobs of more than 2 millions employees in the EU manufacturing sector depend directly on photonics products, hence the leverage effect on jobs seems to be considerable. Another good example is the future oriented subsector producing nanotechnologies. One of its key strengths is the good industrial base in the EU of among others SMEs. According to the KETs working paper it is very important to nourish the economic eco-system, in particular with regard to SMEs. A weak local base of innovative SMEs can also negatively impact decisions regarding the localisation of large investments within the electronics sector.

According to a document on SMEs and ICT services[31], the growth in size of the European ICT services industry (including services relevant for the electronic goods sub-sectors) has been largely driven by innovative micro-sized start-ups, particularly within telecommunication and computer consultancy. The same could apply to the ICT sector at large.

The best performing SMEs are characterised by a high degree of collaboration and networking with suppliers, customers, competitors, and external sources of knowledge about service innovation. They use this model to position and reposition themselves in the emerging value chains. These SMEs need to compete on qualities such as service/production flexibility and customisation of services/production. Moreover, specialisation in niche markets in terms of specific technologies, sectors and processes has proven to be an optimal strategy internationally. Nevertheless, many SMEs lack the knowledge, network and management skills required to compete successfully on markets beyond their national borders. In addition, the EU still lacks the full harmonisation of e.g. after sales services.

Global supply chains

Due to well established global supply, sourcing and value chains of multinational companies in the area of electronics, intra-company trade and global sourcing plays a big role which has an impact on trade flows, regulatory needs, rules of origin, and the companies' European or global interests in general. A frequent trend is to manufacture lower and middle end assemblies and components in Asia, with subsequent higher level assembly, configuration and services performed in the local (EU) market. But it can also be the other way round, e.g. high end components such as specialised semiconductors are produced in Europe and then assembled into products in Asia.

As a consequence of the global supply chains, international standards and standard rules of origin are of particular importance for the sector *('global standards and global origin for global products')*. The supply chain is often accompanied by investments abroad. EU semiconductor industry for instance have invested mainly in the US, Singapore, Malaysia, China and India, mostly both for domestic and global market.

[30] High Level Key Enabling Technologies (KET)[30] working document "Mastering and deploying KETs: building the bridge to pass across the KETs "Valley of death" for future European innovation and competitiveness", http://ec.europa.eu/enterprise/sectors/ict/files/kets/hlg-working-document_en.pdf

[31] "Competitiveness of the EU SMEs in the ICT service industry", COM (2009) http://ec.europa.eu/enterprise/sectors/ict/files/study_report_ict_services_en.pdf

Sophisticated supply chains also put a challenge to trade statistics. Traditional trade figures give an increasingly misleading picture as they mainly look at bilateral flows between one country and all the others. However, electronic goods for instance are made up of components sourced from many different countries, based on designs and research from others, and assembled in one before being sold worldwide. Measuring where value is added at each stage gives a more precise picture of who is buying what from whom, and for how much. There are first initiatives to try to have more added-value based assessments[32].

One example of the added-value distribution in a global supply chain is provided in a recent Finnish study for a smartphone that also underlines the important share of services in the manufacturing value added.

"Who captures value in global supply chains?"
(Source: The Research Institute of the Finnish Economy[33])

The example about Nokia N95 smartphone illustrates the capturing of value in the global supply chain of the electronics sector. The phone was assembled in Finland and China. In the case when the device was assembled and sold in Europe, the value-added share of Europe (EU-27) rose to 68%. Even in the case when it was assembled in China and sold in the United States, Europe captured as much as 51% of the value added, despite of the fact that it had rather little role in supplying the physical components. The example shows that, while final assembly – commanding 2% of the value added in our case – has increasingly moved offshore, the developed countries continue to capture most of the value added generated by global supply chains.

Another possible consequence of global supply chains has become evident in the aftermath of the earthquake in Japan in March 2011. Production capacities of value chains within the EU electronics industry depend in selected areas, such as components manufacturers or car manufacturing suppliers, on the import of electronic components from countries such as Japan, Taiwan, Korea or the US. The tsunami and the earthquake in Japan have temporarily limited the production and the supply to the EU of Japanese electronic components which have great importance within many electronics value chains.

A risk that such electronic components might not be delivered in time was the main middle-term risk for many EU enterprises. So far, this risk has not materialised, probably because many companies still have supply products on stock. Nevertheless, similar cases can occur in the future.

Product convergence and rapid technological change

The multi-functionality, convergence and rapid development of a number of electronic products (e.g. a smart phone that includes GPS, TV and internet access) makes their categorisation and classification and thus their treatment in classical HS code based trade instruments more difficult. It also poses challenges to the longer term applicability and usefulness of trade agreements, as any legal process will have difficulties to follow the speed

[32] UN, Eurostat, WTO and UNCTAD conference of Febr. 2011 on "Do we have the right numbers?"; http://unstats.un.org/unsd/trade/s_geneva2011/geneva2011.htm

[33] The Research Institute of the Finnish Economy, 2011, Ali-Yrkkö Jyrki, Rouvinen Petri, Seppälä Timo, Ylä-Anttila Pekka: *Who captures value in global supply chains? Case Nokia N95 Smartphone?* http://www.etla.fi/files/2592_no_1240.pdf (forthcoming in the Journal of Industry, Competition and Trade); other examples on the Apple i-phone: http://www.adbi.org/files/2010.12.14.wp257.iphone.widens.us.trade.deficit.prc.pdf

of technological change. In the extreme case there is a danger that legal instruments are already outdated at or shortly after their entry into force.

Regulatory issues

Most electronic products in the EU fall under the system of Supplier's Declaration of Conformity[34], whereas they are subject to third party certification in most other parts of the world, with a number of resulting additional burdens for companies. International standards play an important role for the product development, for instance in the area of wireless telecommunication (e.g. GSM, 3/4 G…). As far as encrypted ICT products are concerned, international standards and practices such as the *Common Criteria Recognition Agreement* (CCRA) facilitate global trade, but they are not followed by all trade partners (e.g. China).

Environmental and safety regulations such as REACH (for chemical substances) have an impact on a number of electronic products, in particular in the semiconductor industry. They can be an element when comparing the attractiveness of investment sites.

2. TRADE IN ELECTRONICS

2.1. Global trade tendencies

Global ICT exports represented 12 per cent of world merchandise trade in 2009[35]. World trade in electronics has more than doubled since the mid 1990s (despite two crisis and continuously decreasing unit prices). The implementation of the ITA (concluded in 1996/1997 and implemented the following years), the technological development of electronics products and the public and private efforts towards innovation and a knowledge based economy have supported this growth.

Another development is the important shift of trade flows towards Asian and middle and lower income countries, which has been further accelerated by the global financial crisis. This shift is more important than in other sector, 60% of electronics trade now involves middle and lower income countries (compared to average of 50% in overall world trade)[36]. Seven of the top ten exporters are Asian economies; the other three are the US, the EU and Mexico. China has become the world's biggest electronics importer and exporter. Almost 40 % of world electronics goods exports originate in China and Hong Kong. One quarter of the total global semiconductor production is shipped to China.

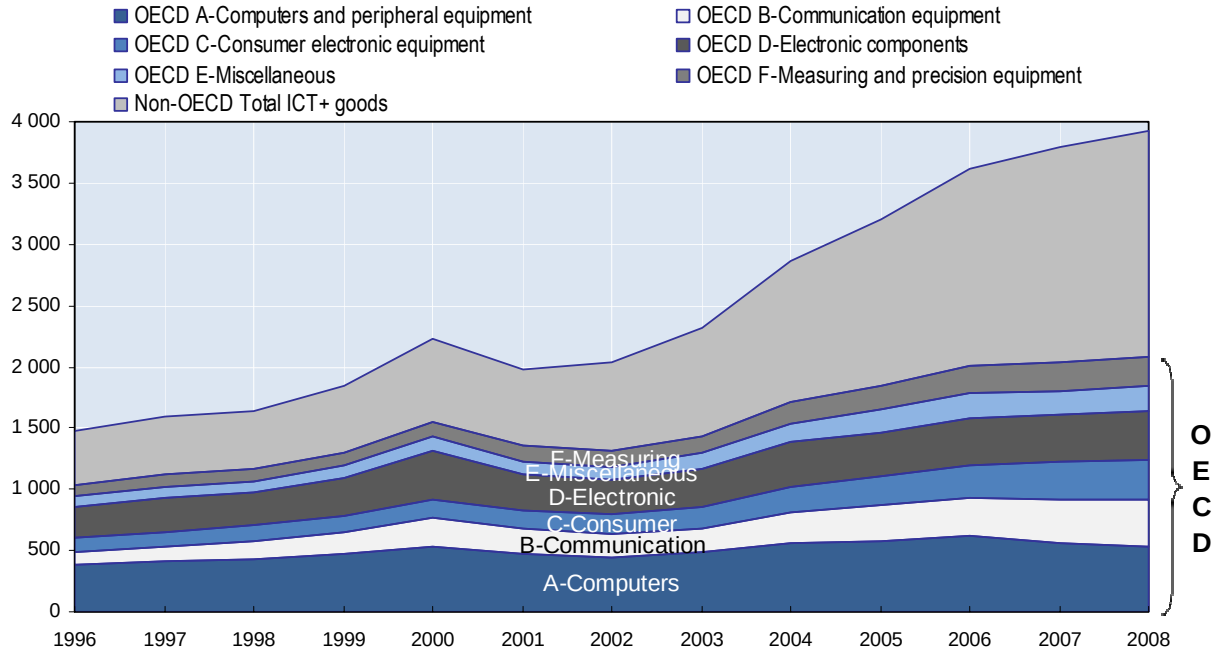
According to a recent UNCTAD report[37], reliance on ICT products is most pronounced in the case of Hong Kong, where such items represent more than 43 per cent of all merchandise exports. Other economies in which ICT goods make up 30 per cent or more of exports include China, Singapore, the Republic of Korea, Taiwan and the Philippines. Along with China and

[34] Low Voltage (LVD, Directive 2006/95/EC), Radio and telecommunication terminal equipment (RTTE, Directive 1999/95/EC), Electromagnetic Compatibility (EMC, Directive 2004/108), all being new approach and SDOC. However for electrical products other legislation could be applicable, e.g. environmental or GPSD (Directive 2001/95/EC), for more see: http://ec.europa.eu/enterprise/sectors/electrical/documents/additional-legislation/index_en.htm
[35] UNCTAD, Asia's share in ICT, Febr. 2011, http://www.unctad.org/Templates/webflyer.asp?docid=14417&intItemID=1528&lang=1
[36] OECD, Trade in ICT 2011, p.11
[37] UNCTAD, Asia's share in ICT, Febr. 2011

Hong Kong, also Czech Republic, Hungary, Slovakia and partly Poland experienced double-digit growth figures in electronics in the 1990s and 2000s[38].

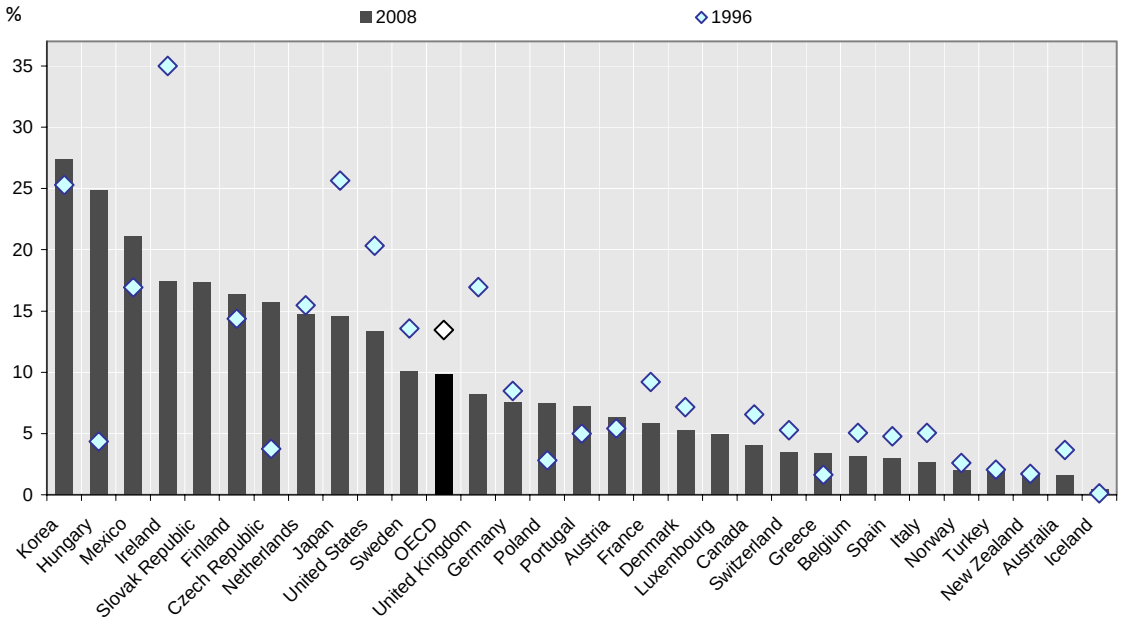
World Trade in ICT Goods 1996 – 2008 (USD Billons, Current Prices)

(Source: OECD Technology Outlook 2010) [39]



Share of ICT Goods in Total Merchandise Exports, 1996 and 2008

(Source: OECD, Technology Outlook 2010) [40]

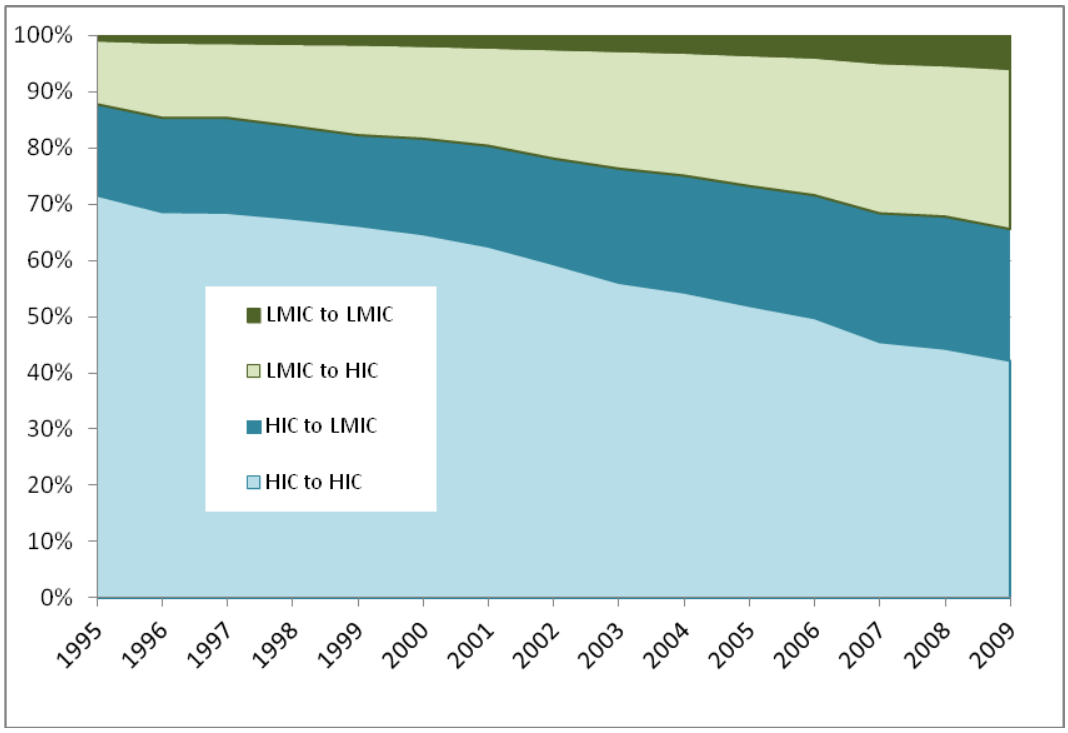


[38] OECD, Trade in ICT 2011, p. 13
[39] OECD Technology outlook 2010, figure 2.2, p. 68
[40] OECD Technology outlook 2010, figure 2.24, p. 90

As regards the importance of sub-sectors on a global scale, the share of computer and related office equipment has decreased while the share of electronics components, telecommunication and consumer electronics has increased. Electronic components represent 30% of global ICT trade and are the most heavily traded sub-sector. The share is even much higher (~50 %) for exports from high income countries to low income countries whereas the other way round exports of finished products from low and middle income has significantly increased[41], reflecting the labour division and global supply chains.

Exports in ICT Goods, by Income Group Pair, % Share

(Extracted from: OECD, Trade in ICT 2011) [42]



Source: UN Comtrade; LMIC = Low and middle Income Countries; HIC = High Income Countries

2.2. Trade of the EU

Overall the EU encounters a large trade deficit in electronics (105 bn € in total in 2010), in all sub-sectors except for measuring devices:

- EU electronic exports in 2010: 124 billion €
- EU electronic imports in 2010: 229 billion €
- EU electronic trade deficit in 2010: 105 billion €.

There has been an increase in imports and a decrease in exports leading to a 27 % rise in the trade deficit from 2007 to 2010.

However, the following table[43] shows significant variations at sub-sector level (using 'ante' (2007) and 'post' (2010) financial crisis figures). The EU's position remains relatively strong

[41] OECD, Trade in ICT 2011, p. 20
[42] OECD, Trade in ICT 2011, figure 1b, p.12

on telecommunication, components and in particular measuring devices, and relatively weak on computer and office equipment and consumer electronics.

Extra-EU27 Trade in Electronics (millions of euro)

	Imports				Exports				Balance		
	2007	2010		Growth 2010 / 2007	2007	2010		Growth 2010 / 2007	2007	2010	Absolute Variation 2010 / 2007
	Value	Value	Share in Total		Value	Value	Share in Total		Value	Value	
Total Electronics	**209 571**	**229 201**	**100,0%**	**9,4%**	**127 142**	**124 354**	**100,0%**	**-2,2%**	**-82 429**	**-104 847**	**-22 418**
Electronics non-ITA	70 005	68 197	29,8%	-2,6%	49 420	54 963	44,2%	11,2%	-20 586	-13 234	7 352
Electronics ITA	139 566	161 003	70,2%	15,4%	77 723	69 391	55,8%	-10,7%	-61 843	-91 613	-29 770
Consumer electronics	**28 164**	**23 060**	**10,1%**	**-18,1%**	**10 501**	**10 595**	**8,5%**	**0,9%**	**-17 663**	**-12 465**	**5 198**
Consumer electronics non-ITA	23 623	19 502	8,5%	-17,4%	6 554	6 752	5,4%	3,0%	-17 069	-12 750	4 320
Consumer electronics ITA	4 541	3 559	1,6%	-21,6%	3 947	3 843	3,1%	-2,6%	-594	285	879
Components	**59 612**	**80 454**	**35,1%**	**35,0%**	**51 129**	**52 037**	**41,8%**	**1,8%**	**-8 483**	**-28 417**	**-19 933**
Components non-ITA	29 815	32 023	14,0%	7,4%	29 664	34 933	28,1%	17,8%	-151	2 909	3 061
Components ITA	29 797	48 431	21,1%	62,5%	21 465	17 104	13,8%	-20,3%	-8 332	-31 326	-22 994
Measuring	**7 747**	**8 166**	**3,6%**	**5,4%**	**10 359**	**11 992**	**9,6%**	**15,8%**	**2 613**	**3 826**	**1 213**
Measuring non-ITA	3 376	3 417	1,5%	1,2%	4 067	4 843	3,9%	19,1%	691	1 426	735
Measuring ITA	4 371	4 749	2,1%	8,6%	6 292	7 148	5,7%	13,6%	1 921	2 400	478
Office	**74 600**	**76 356**	**33,3%**	**2,4%**	**26 458**	**23 410**	**18,8%**	**-11,5%**	**-48 142**	**-52 947**	**-4 805**
Office non-ITA	2 702	2 870	1,3%	6,2%	592	705	0,6%	19,0%	-2 109	-2 166	-56
Office ITA	71 899	73 486	32,1%	2,2%	25 866	22 705	18,3%	-12,2%	-46 033	-50 781	-4 749
Telecom	**39 447**	**41 165**	**18,0%**	**4,4%**	**28 695**	**26 320**	**21,2%**	**-8,3%**	**-10 753**	**-14 844**	**-4 092**
Telecom non-ITA	10 489	10 385	4,5%	-1,0%	8 543	7 731	6,2%	-9,5%	-1 947	-2 655	-708
Telecom ITA	28 958	30 779	13,4%	6,3%	20 152	18 590	14,9%	-7,8%	-8 806	-12 190	-3 384

Source: DG Trade, EC, based on Eurostat (Comext, Statistical regime 4)

Computer and related office equipment is the second biggest sub-sector in trade terms where imports are about three times higher than exports (3:1). Almost half of the EU's trade deficit in electronics stems from this sub-sector. *Consumer electronics* account for less than half of the trade volume of computers with an import/export ratio of 2:1.

The sub-sector with the biggest trade is *electronic components* with an imports/export ratio of about 1,5:1. *Telecommunication equipment* has a similar ratio and the third largest trade volume. The EU only has a positive trade balance for *measuring devices*, but trade flows are small compared to other sub-sectors.

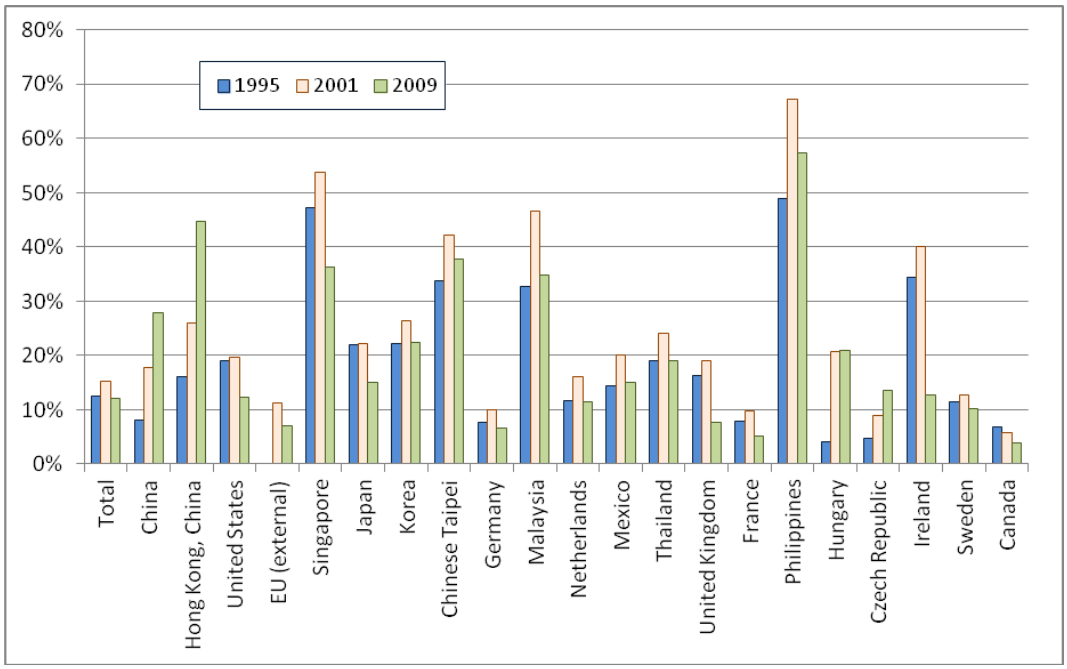
As far as the difference between *ITA and non-ITA electronic products* is concerned, the table shows that about 70% of imports, 55% of exports and 90% of the EU trade deficit fall under the scope of the ITA. It is in the part already covered by the ITA that the trade deficit has grown significantly (~50%) between 2007 to 2010, whereas is has decreased for non-ITA products.

At the level of *EU Member States* the statistics in Annex 2 (extra *and intra* EU), show that all MS have a trade deficit in electronics, except for (in decreasing order) Hungary, Ireland, the Netherlands, Luxembourg, Slovakia and Malta which have a trade surplus. Electronics represent a very important share of total sales for some EU Member States. A large part of it (~70%) are sales to other EU Member States (intra EU), and only about 30% are exports to third countries. For instance, ITA products represent 20% of Hungarian, ~13 % of Irish and Czech and ~10% of Dutch and Swedish total sales. Non-ITA product represent 16 % of Slovak, 10 % of Hungarian and 5,5 % of Polish total sales (in 2009)[44].

[43] Further explanation of the table: "Electronics non ITA" = not covered by ITA, "Electronics ITA" = covered by ITA, "CE" = consumer electronics, "Components" = electronic components, "Measuring" = electronic measuring devices, "Office" = computer and related office equipment, "Telecom" = telecommunication equipment

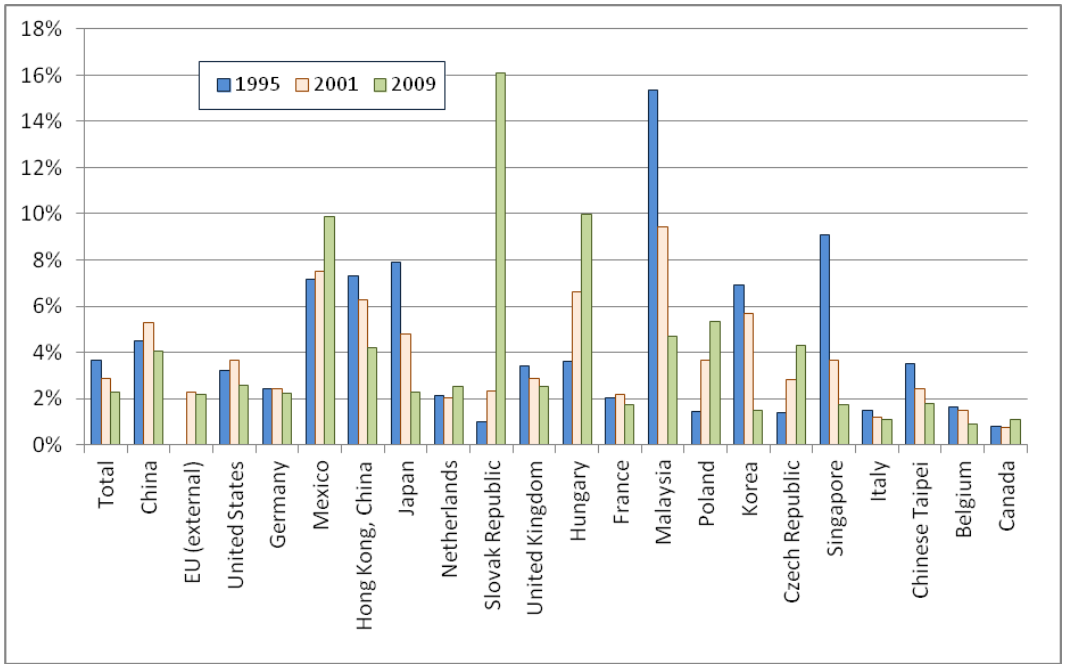
[44] OECD, Trade in ICT 2011, p. 13, 16-17, using a slightly different definition of non-ITA products

Major Exporters, ITA Goods
% Share in Total Exports in Each Country
(Extracted from: OECD, Trade in ICT 2011)[45]



Note: Due to missing values in the database, the figure in 1995 for the Philippines is replaced by the figure in 1996 and for Chinese Taipei in 1997. *Source*: UN Comtrade

Major Exporters, non-ITA ICT Goods
% Share in Total Exports in Each Country
(Extracted from: OECD, Trade in ICT 2011)[46]



Note: Due to missing values in the database, the figure in 1995 for Chinese Taipei is replaced by the figure in 1997. The figure for Belgium in 1995 is for Belgium-Luxembourg. *Source*: UN Comtrade

[45] OECD, Trade in ICT 2011, figure 3b, p.16,
[46] OECD, Trade in ICT 2011, figure 4b, p.17, using a slightly different definition of non-ITA products

2.3. Key export markets and key competitors

This section aims at identifying, for each sub-sector, the main EU export markets and the key competitors on the global market, based on a statistical analysis of trade flows *(cf. statistics in annex 2).* The data stems partly from 2010 (EU export markets) and partly from an average of 2007-2009 (key competitors) so that one year particularities or the financial crisis could impact on how representative the findings are.

The EU's key export markets for electronics as a whole are, in order of priority, the US, China, Russia, Switzerland and Turkey. However, in line with the EU's different positioning, there are important differences in the various sub-sectors (see below). East and South-East Asia for instance is an important export market for high tech EU electronic components (for integration into end products assembly).

Key competitors for electronics as a whole are, again in order of priority, China, the US, Korea, Hong Kong, Japan and Singapore. Clearly East Asia is a dominant source for many electronics imports into the EU, with the US being strong in the computer and office equipment section.

Computer and office equipment

Key EU export markets are the US, Russia, Switzerland and Norway.
Key competitors in this sub-sector are China, the US, Malaysia, Singapore and Hong Kong.
Among EU Member States, only (in decreasing order) Ireland, the Netherlands, the Czech Republic and Hungary have a positive overall[47] trade balance.

Telecommunication

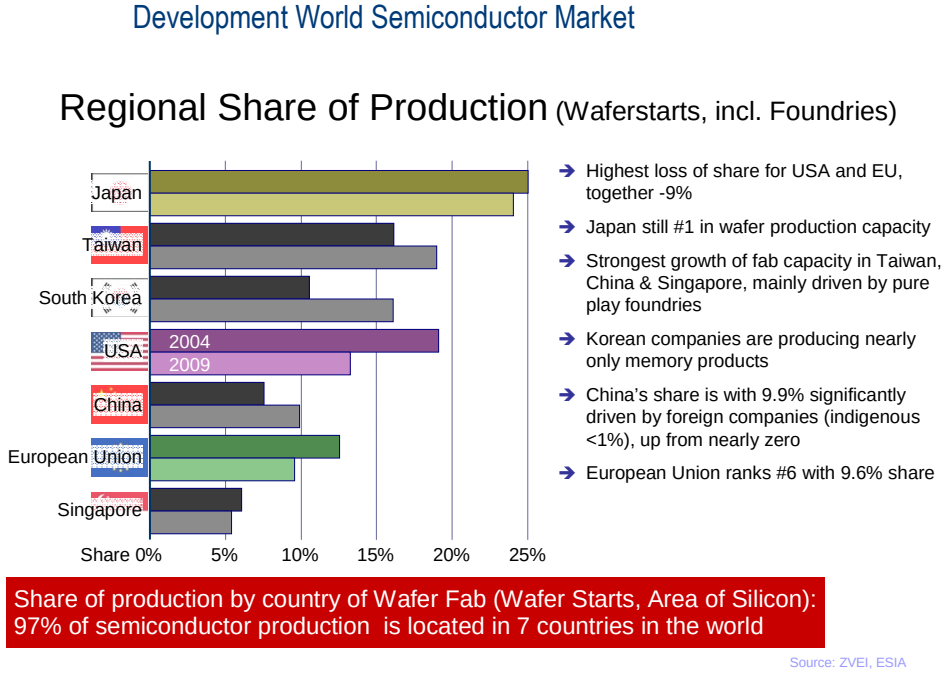
In the area of telecommunication and despite the overall EU trade deficit also in this sub-sector, European manufacturers maintain a leading international position in both telecom networks as well as telecom end devices (though they obviously produce worldwide). Key EU export markets[48] are the US, Russia, the United Arab Emirates, Switzerland, Hong Kong, Turkey and China. Key competitors in this sub-sector are China, Korea, Hong Kong, the US and Mexico. Main competitors for EU sellers of telecom *networks* come from China, main competitors for *hand held devices* from Korea, US and Japan. Among EU Member States, only (in decreasing order) Hungary, Sweden, Luxembourg, Finland, the Netherlands, the Czech Republic, Estonia, Romania and Portugal have a positive overall[49] trade balance.

Electronics components

Key EU export markets are China, the US, Malaysia, Russia, and Switzerland. EU companies export often to East Asian markets for assembly into end products which are then re-imported to the EU or further exported globally. Key competitors in this sub-sector are China, Japan, Korea, the US, Singapore, Hong Kong and Taiwan. Among EU Member States, only (in decreasing order) Ireland, Austria, the Netherlands, Malta, Cyprus and Luxembourg have a positive overall[50] trade balance.

Key competitors as regards *semiconductors* can be seen in the following graphic. Other countries are trying to build up their semiconductor industry, e.g. India, Israel, United Arab Emirates and Russia.

[47] See table in the annex, part 1, that includes extra *and intra* EU trade
[48] Given the huge value of e.g. telecom network contracts, results might vary from one year to another
[49] See table in the annex, part 1, that includes extra *and intra* EU trade
[50] See table in the annex, part 1, that includes extra *and intra* EU trade



Measuring devices

Electronic measuring devices follow the same path as electronic components. Key EU export markets are the US, China, Japan, Switzerland and Russia. Key competitors in this sub-sector are the US, Japan, China, Switzerland and Singapore. Overall the EU has a positive trade balance, and many Member States do, among them are (in decreasing order) Germany, the UK, Sweden and Ireland. Germany alone accounts for over 90% of the EU's trade surplus.

Consumer electronics

Key EU export markets are Switzerland, the US, Norway, Russia, Turkey and China. Key competitors in this sub-sector are China, Mexico, Hong Kong, Japan and the US. The EU's own production, e.g. of televisions of mainly Asian headquartered companies in Europe, serves predominantly the EU market, with some exports to neighboring countries (Russia, Ukraine, Turkey). Among EU Member States, only (in decreasing order) Poland, Slovakia, Hungary and the Czech Republic have a positive trade balance[51]. As said (related to non-ITA products), for these Member States consumer electronics represent an important share in their overall[52] sales.

2.4. Key trade issues

The European electronics industry faces numerous trade problems. In addition to tariffs, a large range of issues have emerged in relation to various technical barriers to trade (TBT), intellectual property right protection, access to raw materials, subsidies, market access for services. Countries often mentioned by industry are China, Russia, Brazil and Argentina but also India and Turkey. China is singled out by far most frequently. One observes an increasing use of trade measures as part of general domestic policy geared towards the development of a high tech sector.

[51] See table in the annex, part 1, that includes extra *and intra* EU trade
[52] intra and extra EU

Tariffs

A large proportion of EU trade in electronics (about 75%)[53] is covered by the Information Technology Agreement (ITA)[54] of 1997 and thus not subject to any customs duties in countries that are, like the EU, member of the agreement.

However, tariff barriers still play a role for products not covered by ITA[55] or in non-ITA countries, with which in addition no FTA exist (many Latin American countries, Russia). For instance Brazil and Argentina apply high duty rates (partly accompanied by high taxes). Non-ITA participants represent 3% of world exports and 7% of world imports in ITA goods, and 8-9 % of world trade in non-ITA ICT goods.

Trade in ICT Goods by Non-ITA Participants

(Extracted from: OECD, Trade in ICT 2011) [56]

(b) Trade share by non-ITA participants

	ITA goods		Non-ITA ICT goods	
	2006	**2009**	**2006**	**2009**
Exports	2.7%	2.9%	8.7%	9.4%
Imports	6.8%	7.3%	8.3%	8.6%

Source: UN Comtrade in the WITS

In the area of consumer electronics also the EU maintains a number of tariff peaks (in particular for audio-visual products, e.g. 14 % for colour TVs) which are usually subject to longer transition periods in Free Trade Agreements (e.g. Korea). Industry underlines the impact that even lower tariffs can have as the profit margins in the area of consumer electronics are often very small[57]. Generally EU industry very much supports zero tariffs, with however some sensitivities in the above mentioned consumer electronics sub-sector.

Technical barriers to trade (TBT)

TBT related issues are nowadays the key concern for electronic companies such as burdensome certification and approval procedures, different standards, IT encryption requirements, testing in the country concerned leading to double testing, national labeling or pre-shipment verification. In the EU, electronic products fall mainly under Self-Declaration of Conformity whereas they are subject to third party certification in many non-EU countries. Important problems are linked to IT encryption in China[58], but presently also in India (security technologies like chips and telecommunication) and Russia. In a different field, Brazil, Costa Rica and Mexico have testing requirements for mobile phones that force importers to repeat tests on models already completed in Europe.

[53] The ITA's underlying intention was to cover information technology products for professional use
[54] http://www.wto.org/english/tratop_e/inftec_e/itaintro_e.htm
[55] Mainly consumer electronic goods, newer IT product categories that did not exist 15 years ago at the time of the ITA negotiations, and some other electronics goods that were not covered by ITA (e.g. some measuring devices)
[56] OECD, Trade in ICT 2011, table 2b, p.15
[57] e.g. discussion on prolongation of duty suspension for 5% import duty on LCD modules
[58] See public market access fiche:
http://madb.europa.eu/madb_barriers/barriers_details.htm?barrier_id=085196&version=9

Rules of Origin

The electronics sector is a very globalised sector with complex cross-border supply chains. Final destinations are often unknown at the moment of production. These two realities make it particularly relevant that the EU's wide network of FTAs have an as simple and identical set of requirements as possible regarding the origin of products since too complex and divergent sets of rules of origin in various FTAs are difficult to manage. Sophisticated supply chains with up to several hundred production steps also make it more complicated to apply value-added criteria. This is why for instance the semiconductor industry strongly favours sector specific rules of origin based on the manufacturing process - that already partly exist in the EU (e.g. integrated circuits) - also at the global level[59].

Intellectual property rights

Protection of intellectual property rights (IPRs, such as patents, trademarks) remains a challenge in many countries, above all in China where many counterfeit electronic products originate, but also for instance in Latin America where IPR and in particular trademarks protection should be more efficiently implemented. IPR protection is of particular importance for electronics as it represents much of the product value and, if revealed, can quite easily lead to copying (e.g. source code of smart cards). In addition to the economic damage for the companies concerned, counterfeit products also present risks for safety and health. A particular problem for ICT products is that they seem to raise particular security concerns in a number of countries (e.g. China, India, Russia) which lead to disclosure requirements which would put a comprehensive IPR protection at risk.

Incentives given to local production, investment schemes, subsidies

Global competition is distorted in a number of subsectors of the electronic sector via a variety of measures aimed at stimulating the domestic production or supporting domestic companies. This includes investment incentives, subsidies for domestic producers, technology requirements, advantages in public procurement for domestically developed products (e.g. Chinese indigenous innovation programme), sometimes in combination with the above mentioned discrimination in standards and certification.

The electronics sector is often in the focus given its above described role for innovation and up-grading of economic activities to the higher end[60]. China for instance considers information technology as a strategic industry in its 5-year-plan and promotes "national champions". But also India, Brazil[61] and Argentina promote local content (for instance for telecom equipment).

In the area of semiconductors, such investment schemes are particularly distortive for EU competitors due to huge investment costs and high fluctuation in product and conjuncture cycles. They play a major role for decisions on new investment locations.

Raw materials supply

Raw materials are a key element for a number of electronic products. In particular the so-called high-tech metals such as cobalt, platinum, titanium and a number of rare earths

[59] Request of the World Semiconductor Council (WSC): *"in the view of the characteristics of semiconductor products rules of origin should be defined by manufacturing processes (diffusion or assembly) and not defined on a value added (VA) or Change of tariff heading (CTH) basis."*

[60] See examples of industrial policies in the study "*Cross-sectoral analysis of the impact of international industrial policy on Key Enabling Technologies*", http://ec.europa.eu/enterprise/sectors/ict/key_technologies/index_en.htm

[61] E.g. "Brazilian Buy Act" of 2010 favouring Brazilian manufacturers and Brazilian technologies

elements are important. The electronics industry competitiveness depends inter alia on both the availability and on the fair, undistorted pricing of raw materials. Trade-distortive measures by third countries, such as export quotas or export taxes, can thus have a serious impact - all the more when the raw materials suppliers have a monopolistic position (e.g. such as China on rare earths, representing 97% of global production) and when substitutes do not yet exist. The EU's electronics industry is often indirectly concerned as it does not directly import raw materials from third countries, but rather components already containing the raw materials, often from East and South East Asian countries (e.g. China, Taiwan, Malaysia, Singapore).

Dual-use export control

Industry complains about a too slow process in the EU to implement changes to dual-use export control lists and about the complexity of intra-EU controls. Industry claims that this represents a competitive disadvantage especially for products for commercial use since competitors in other countries are able to export products earlier.

Services

As regards services, telecommunication services are among the most exported services outside of the EU. European telecommunication operators provide all types of telecommunication services worldwide (e.g. satellite services, virtual private networks, mobile and fixed telephony, "triple play" services). However, services providers have no or no equal access to a number of third country markets. For instance telecom operators are widely excluded from the Chinese markets. Regulatory obstacles further hinder market access. Among the countries where industry encounters difficulties are China, ASEAN, India, Brazil and Argentina.

Industry also complains about the lack of a fully integrated internal market in the telecom and other service sectors. Industry claims that this reduces the economy of scale on their home market, which has an important impact on their competitiveness on the global market, and from which other global competitors (and many EU companies in other e.g. goods sectors) benefit.

3. TRADE POLICY RESPONSE

The relative importance of the various trade issues affecting the electronics sector depends on the countries and the sub-sectors considered. Tackling such a diverse range of barriers implies a need to resort to all available trade tools, both in a bilateral and multilateral context, including dialogues, negotiations and enforcement procedures. The section below aims at providing a list of the most relevant trade tools to address the issues identified.

3.1. *Multilateral* trade negotiations

The WTO context is relevant for tariff and non-tariff barriers.

A regards the *Information Technology Agreement* (ITA) of 1997 the EU has proposed a review of the ITA[62] with the aim to:
– "eliminate all and prevent the creation of new non-tariff barriers *(NTBs)* affecting these products;
– review *(widen)* the product coverage;
– establishing effective mechanisms to keep the agreement up to date and to ensure that in

[62] http://trade.ec.europa.eu/doclib/docs/2008/september/tradoc_140592.pdf

future it takes into account technological development and convergence;
– include major producers of IT products still outside the ITA".
A recent study[63] requested by the Commission has examined the economic benefits of a review and highlighted the importance of eliminating NTBs.

The ITA review discussions have been delayed linked to the WTO dispute between the EU on the one hand and the US, Japan and Taiwan on the other hand concerning the classification of three product categories (monitors, multifunctional printers and set-top boxes). The panel report was adopted on 21 September 2010 and the EU did not appeal (implementation period till 30 June 2011). This means that the ITA review could now be re-launched, taking due account, however, of the electronics related developments in the Doha negotiations.

In the Doha framework a *sectoral on electronics and electrical appliances* (aiming at full liberalization) has been proposed by the US, Hong Kong, Japan, Singapore, South Korea and Thailand and is presently part of the overall sectoral negotiations. It would lead to a tariff reduction or full elimination for products covered. The product coverage of the sectoral proposal is much larger than the one of the ITA revision and also includes electrical appliances (which represent the majority of product codes proposed for the sectoral).

Even without an electronics sectoral, the conclusion of the Doha negotiations would likely have an important impact on the electronics sector as a result of the proposed standard tariff reduction (Swiss formula). It would lead to a reduction of the EU's current tariff peaks on some consumer electronics products, but obviously also to reduced tariffs in EU export markets.

Negotiations are also on-going regarding a Doha sectoral on electronics in the area of technical barriers to trade (TBT).

Furthermore, ICT related services are discussed in the Doha negotiations. The EU's aim is the full liberalisation for both telecommunication and computer services. Furthermore it promotes regulatory principles such as independence of regulators or objective and transparent licensing processes, with a view to establish a global level playing field also in this area. These principles are also promoted on a bilateral basis and in cooperation with others, as the EU-US "Trade principles for ICT services" of April 2011 show[64].

3.2. *Bilateral* trade negotiations

Both tariffs and non-tariff barriers can be tackled trough bilateral negotiations and in particular Free Trade Agreements (FTAs). The latter are an important tool for opening new markets and provide a regulatory framework with legally binding commitments that are enforceable through an effective dispute settlement mechanism. The EU has FTAs in place with a wide range of countries, has recently concluded one with Korea and is currently conducting negotiations with Canada, India, Malaysia, Mercosur, Singapore and Ukraine. The EU is also engaged in negotiations of a non-preferential nature notably for example with Russia. Of particular relevance for the electronics sector are the following FTAs:

- Korea is a key competitor in most electronic sub-sectors, in particular in telecommunication, electronic components and consumer electronics. The recently concluded FTA with Korea enters into force on 1 July 2011. It contains a staged entry into

[63] http://ec.europa.eu/trade/analysis/chief-economist/ (October 2010)
[64] http://ec.europa.eu/information_society/activities/internationalrel/docs/eu-us-tradeprinciples.pdf

force of the tariff liberalisation, with sensitive consumer electronics benefitting from the longest transition period. It also contains specific TBT provisions for the electronic sector that provides for Korea's acceptance of Self-Declarations of Conformity according to an agreed time schedule, and it contains a faster dispute settlement mechanism particularly important for NTBs.

- Negotiations with Mercosur will be important for tariff reductions as these countries are not members of the ITA and apply often high tariffs for electronic products. Mercosur is an important destination of EU electronics exports. So tariff reduction, though of different scope, could be achieved either via the ITA review (if the Mercosur countries become members of the ITA) or via an FTA (as is already the case with non ITA member Mexico).

Other partners with whom the EU is presently negotiating FTAs are already ITA members[65] so that a large part of the electronics trade is already duty free.

FTAs also contain rules to determine the goods that benefit from the preferential treatment. The EU has recently completed the reform of the Rules of Origin applicable to GSP[66] beneficiary countries, to make them simpler to use and easier to fulfil. These rules are due to be used as a template in the current and future FTA negotiations, even if some adaptations may be needed, depending of the level of development of the FTA partners and/or of the particular requests of the EU industry or of the FTA partners. It will allow having Rules of Origin as similar as possible.

The new model will be particularly helpful for Chapters 84, 85 and 90 where all electronic products are classified. In these chapters the drafting of the rules has been considerably simplified and the thresholds of foreign content authorized have been significantly increased (from 40% to 50 or 70%). Also, in most of the cases, an alternative to the value added criteria has been provided (change of tariff heading, except for monolithic integrated circuits).

3.3. Market Access Strategy

The Market Access Strategy (MAS)[67] is one of the main tools for addressing specific market access barriers and one of the main components of the enforcement and implementation agenda. The Commission, Member States and businesses have identified the main barriers encountered by European industry on their most important export markets: this is where the action of the MAS is being focused. Sectoral and horizontal barriers that pertain to the electronics and ICT sector are among those priorities and new market access cases can be flagged in the Market Access Advisory Committee, where the Commission, the industry and the Member States meet on a monthly basis.

In the framework of the MAS, several sectoral working groups have been set up. A specific *Market Access Working Group on ICT and Electronics* follows trade problems in electronics. Its main focus are the important IT encryption problems in China, in addition to market access barriers in other third countries notably India (telecom regulation with source code disclosure and liability issues). The activities of the Working Group are complemented by a Commission internal *Case-Handling-Team* that was set up in December 2010 and that coordinates

[65] See list of ITA members: http://www.wto.org/english/tratop_e/inftec_e/itscheds_e.htm
[66] General System of Preferences
[67] EC (2010), Trade, growth and world affairs:
http://trade.ec.europa.eu/doclib/docs/2010/november/tradoc_146955.pdf

Commission activities[68], prepares the strategy and actions to follow, and closely consults with Member States and other trade partners.

The Market Access Database provides a free online website[69] with useful export market information such as product specific applied tariffs, import formalities, trade statistics and information on main trade barriers in key export markets. This is of particular relevance for globally acting companies such as in the electronics sector, and all the more for SMEs.

3.4. Bilateral dialogues

Non-tariff barriers are further discussed in the framework of the various regular dialogues established between Commission services and government authorities of third countries and by other ad-hoc structures. Of particular relevance for this sector are the dialogues with China (High Level Economic Dialogue, Joint Committee, Economic and Trade Working Group…).

Examples of issues that are raised in the area of electronics include problems like indigenous innovation and IT encryption in China or telecom security requirements in India. They have been raised in various fora up to highest levels. Discussions with Japan in the frame of the High Level Group provide a good opportunity to address NTB on the Japanese market.

3.5. Plurilateral dialogues

A specific sectoral feature for semiconductors is the existence of a plurilateral forum that represents over 90 % of worldwide semiconductor production, the *Government/ Authorities Meeting on Semiconductors* (GAMS)[70]. It comprises the EU, China, Japan, Korea, Taiwan and the US and addresses, in reply to proposals from global industry grouped in the World Semiconductor Council[71], all sector related trade, regulatory, IPR, counterfeiting, environmental and other aspects.

Present work focuses on the feasibility of a definition for a specific semiconductor product (Multi-Component Integrated Circuits - MCO[72]) which would be the precondition for a possible duty free treatment. An earlier trade agreement has been concluded among GAMS members in 1996 that concerned Multi-Chip Integrated Circuits (MCP). The Commission also aims at using this framework to encourage discipline on state aid.

3.6. WTO institutional structure and rules

NTBs in the field of electronics are regularly raised in the WTO's Technical Barriers to Trade (TBT) Committee (e.g. IT encryption China and India). Subsidies are raised in the WTO Subsidies and Countervailing Measures (SCM) Committee.

Given the existence of detailed rules on the granting of subsidies in the WTO, they can also be challenged in a WTO dispute settlement procedure if the WTO *Agreement on Subsidies and Countervailing Measures*[73] is violated by another WTO member state. Another mean to

[68] Of the three Directorates General involved, Trade, Enterprise and Information Society
[69] http://madb.europa.eu/
[70] Info: http://ec.europa.eu/trade/creating-opportunities/economic-sectors/industrial-goods/electronics/
[71] http://www.semiconductorcouncil.org/
[72] MCOs are newer semiconductor products that combine integrated circuits with other miniaturized components and are important products for the EU semiconductor industry and particularly relevant for the automotive, telecom and smartcard industry
[73] http://www.wto.org/english/docs_e/legal_e/24-scm_01_e.htm

address subsidies and unfair trade practices are the EU's countervailing duties and the EU's anti-dumping procedures[74] which are also governed by very specific WTO provisions.

3.7. Intellectual property rights (IPR)

Many concerns with regard to IPR protection and enforcement concern China. The Commission runs a regular IPR task force with China, a China IPR SME Helpdesk[75], has agreed an Action Plan with China to strengthen customs cooperation on IPR protection, holds workshops with industry on forced technology transfer, and pursues problems via its above mentioned activities on IT encryption (against source code disclosure requirements).
More globally, the Commission has pushed for the *Anti-Counterfeiting Trade Agreement* (ACTA).
In the context of the "Governments/Authorities Meeting on Semiconductors" (GAMS, see above), the Commission has organised a first ever plurilateral anti-counterfeiting workshop on semiconductors[76] to increase cooperation and information exchange between customs authorities. The workshop is now being followed up by the rotating GAMS Chair.

3.8. The EU's raw materials initiative

The key objectives of the EU's Raw Materials Initiative are to secure a sustainable supply of raw materials from both domestic and global markets, while improving EU raw materials efficiency and encouraging recycling. This initiative was first adopted at the end of 2008 and its high political priority was confirmed in a new Communication in February 2011.

Considering the import dependence of the EU on a number of raw materials, trade aspects in this field are very important for the EU. The trade strategy for raw materials includes three pillars: (i) defining the rules of the game by integrating relevant trade disciplines in ongoing negotiations; 2) tackling barriers distorting raw materials markets, including if necessary through dispute settlement; and 3) outreach to promote a global response on raw materials.

For the electronics sector, the availability (to the first-rank manufacturers) of rare earths from China would be of particular relevance.

In 2009 the EU, jointly with the USA and Mexico, requested the establishment of a WTO panel regarding Chinese export restrictions on a number of key raw materials which has recently issued its (confidential) interim report. Rare earths elements are not included at this stage, but the Commission does not exclude further legal action if ongoing dialogue with China on the issue does not lead to concrete results.

3.9. Dual-use export control

The Commission recognizes the problems related to the complexity and the implementation process of changes to dual-use export control lists. These issues are being addressed in the framework of the Green Paper on dual-use export controls of 30 June 2011[77] and of a proposal to introduce an accelerated procedure to update the EU control list.

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[74] Over the period 1996 to 2010, the Commission initiated altogether about 50 anti-dumping, anti-subsidy (CVD) and safeguard investigation cases in the electronics sector (so about 11 % of the total of 450 cases over that period concerned electronics). Examples of CVD cases on electronic products: DRAM (semiconductor) case against Korea, WWAN modem case against China (prior closure)
[75] http://www.china-iprhelpdesk.eu/
[76] Joint report: http://trade.ec.europa.eu/doclib/docs/2010/january/tradoc_145674.pdf
[77] Followed by a public consultation with deadline 31 October 2011, see: http://ec.europa.eu/trade/creating-opportunities/trade-topics/dual-use/

4. CONCLUSIONS AND RECOMMENDATIONS

- The EU is strongly **under-represented in the *computer*** *and related office equipment* sub-sector where the largest part of its trade deficit stems from.

- In a nutshell, the **key problems for the electronics sector** could be summarized as follows: a variety of trade and trade-related issues in China, tariff barriers in Brazil, Argentina and Russia, TBT problems worldwide, subsidies particularly in Asia, and market access related to services and to the convergence of goods and services.

- On the basis of the existing situation mainly defined by the ITA and existing FTAs, three main areas remain to be addressed in the relevant fora via different trade policy means:
  - **widening of the scope of products** that benefit from zero duty treatment and adaptation to new technological developments;
  - **geographical widening** of duty concessions (to non-ITA/FTA partners), and
  - reducing **Non-Tariff Barriers** (NTBs).

- In order to keep the trade policy in line with technological development and actual business practices, continued efforts will be needed to address and keep pace with **technological convergence and rapid technological change** also in related trade policy instruments.

- For the same reasons, the increasing **interaction between goods, software and services** needs to be taken into consideration in trade policy instruments. Given their linkage in business practice, to mainly focus on providing free market access for the enabling device or equipment (the electronic *good*) might not always provide the envisaged result. The market access provided by ITA in the late 1990s for ICT goods might in the future be hampered for such 'combined solutions' if not accompanied with equivalent market access for software and services.

- With regard to the technological evolution and convergence related to **ICT services**, market access should not be conditioned by the use of specific technologies (that could quickly become outdated). Instead a technology neutral and future proof classification is needed.

- Electronic SMEs have an important role in the value chain and form an integrated part of the industry's ecosystem and its innovation capacity. **Close cooperation and networks between SMEs and global actors**, in manufacturing, services and applications, is therefore important for the EU's competitiveness also in this sector.

- Available statistics do not allow analysing value-added based trade information. This makes it difficult to understand real trade flows and benefits within the sophisticated global supply chain of the electronics industry. The same applies to understanding the role of SMEs or the interaction between ICT services and goods. The elaboration of more **value-added statistical tools** would be useful in some areas.

- In order to preserve the EU's strength in some electronic areas, it is important to ensure a **global level playing field**, where innovation and competitiveness determines success, not subsidisation or non-tariff measures.

- Sufficient and non-discriminatory supply with **raw materials** and on raw materials based components need to be ensured (in the framework of the EU's raw material strategy). Also the potential risks represented by single/limited sourcing and the impact of natural disasters (e.g. Japanese earthquake) need to be considered.

- In the overall framework of the EU's market access strategy, a **close coordination between Commission and Member States** efforts on the one hand **and different policy areas** (e.g. trade, external relations, enterprise, information society, research) on the other hand should help further increasing the EU's weight in addressing trade problems in the electronic sector with other countries (e.g. IT encryption in China).

ELECTRONIC SECTOR FICHE – ANNEXES

1. TRADE IN ELECTRONICS: MEMBER STATE LEVEL

The following statistics show trade flows at the level of all 27 Members States. They indicate first extra EU trade of Member States, i.e. products that are exported outside the EU. They then indicate the total trade of Members States, i.e. external *and internal* EU trade, as well as the share that external trade represents in total trade. Given the above mentioned diverse supply chains with exports and re-imports at global level but even more so within the integrated European market, the statistics have to be read with some caution. They give indications on the overall trade balance of each MS for total electronics, then differentiated for ITA electronics and non-ITA electronics, and finally statistics for all five sub-sectors, i.e. altogether eight tables:

1. Total electronics
2. Electronics ITA (= covered by ITA)
3. Electronics non ITA (= not covered by ITA)
4. CE (= consumer electronics
5. Components (= electronic components)
6. Measuring (= electronics measuring devices)
7. Office (= computer and related office equipment)
8. Telecom (= telecommunication equipment)

Total electronics

EU27 & Member States Trade in Total Electronics (millions of euro, 2010)

	Imports			Exports			Balance	
	Extra EU	Total *	Share of Extra EU	Extra EU	Total *	Share of Extra EU	Extra EU	Total *
EU27	**229 200,9**	**481 416,3**	**47,6%**	**124 354,1**	**390 172,0**	**31,9%**	**-104 846,8**	**-91 244,3**
Austria	3 375,6	11 944,8	28,3%	3 032,6	11 077,2	27,4%	-343,0	-867,5
Belgium	5 210,8	15 672,5	33,2%	2 309,7	11 524,6	20,0%	-2 901,1	-4 148,0
Bulgaria	317,4	1 514,8	21,0%	237,6	752,3	31,6%	-79,8	-762,5
Cyprus	84,6	412,0	20,5%	7,3	112,6	6,5%	-77,4	-299,3
Czech Republic	9 287,0	21 890,5	42,4%	3 133,4	21 103,4	14,8%	-6 153,5	-787,2
Denmark	1 479,8	6 985,3	21,2%	1 859,7	4 850,8	38,3%	380,0	-2 134,5
Estonia	240,7	1 241,5	19,4%	154,4	1 045,4	14,8%	-86,3	-196,1
Finland	1 806,5	5 634,2	32,1%	2 611,1	5 211,7	50,1%	804,6	-422,6
Germany	53 792,1	102 835,7	52,3%	37 327,4	94 806,0	39,4%	-16 464,7	-8 029,7
France	13 757,4	43 806,3	31,4%	13 537,3	28 463,1	47,6%	-220,1	-15 343,3
Greece	605,6	2 947,0	20,6%	179,7	518,9	34,6%	-426,0	-2 428,1
Hungary	**10 105,3**	**17 004,5**	**59,4%**	**6 505,2**	**20 784,7**	**31,3%**	**-3 600,1**	**3 780,2**
Ireland	**2 529,0**	**5 572,6**	**45,4%**	**4 265,9**	**8 732,6**	**48,8%**	**1 736,9**	**3 160,0**
Italy	11 764,8	34 445,4	34,2%	6 446,9	14 473,0	44,5%	-5 317,9	-19 972,5
Latvia	133,9	681,8	19,6%	137,4	486,2	28,3%	3,5	-195,6
Lithuania	182,6	937,3	19,5%	243,1	616,8	39,4%	60,5	-320,5
Luxembourg	**2 052,6**	**3 022,6**	**67,9%**	**878,5**	**4 306,2**	**20,4%**	**-1 174,1**	**1 283,6**
Malta	**261,4**	**643,5**	**40,6%**	**621,1**	**869,7**	**71,4%**	**359,7**	**226,2**
Netherlands	**58 247,3**	**76 299,7**	**76,3%**	**13 449,5**	**79 598,7**	**16,9%**	**-44 797,8**	**3 299,0**
Poland	6 531,4	17 159,9	38,1%	1 865,4	13 618,4	13,7%	-4 665,9	-3 541,5
Portugal	741,0	4 404,1	16,8%	791,5	2 368,5	33,4%	50,5	-2 035,6
Romania	2 098,8	6 282,1	33,4%	1 015,4	4 380,2	23,2%	-1 083,5	-1 901,9
Slovakia	**4 413,1**	**9 877,4**	**44,7%**	**1 320,8**	**10 701,5**	**12,3%**	**-3 092,3**	**824,0**
Slovenia	654,7	1 799,7	36,4%	265,4	1 264,9	21,0%	-389,3	-534,8
Spain	5 916,8	19 925,6	29,7%	1 793,2	6 676,9	26,9%	-4 123,5	-13 248,6
Sweden	5 547,0	15 965,9	34,7%	9 622,6	15 307,3	62,9%	4 075,6	-658,6
Utd. Kingdom	28 063,7	52 509,5	53,4%	10 742,1	26 520,5	40,5%	-17 321,5	-25 989,0

* Total trade including Extra and Intra EU trade
Source: DG Trade, EC, based on Eurostat (Comext, Statistical regime 4)

Electronics ITA (= total of electronics that is covered by the ITA)

EU27 & Member States Trade in Electronics ITA (millions of euro, 2010)

	Imports			Exports			Balance	
	Extra EU	Total *	Share of Extra EU	Extra EU	Total *	Share of Extra EU	Extra EU	Total *
EU27	**161 003,4**	**315 516,4**	**51,0%**	**69 390,7**	**232 244,3**	**29,9%**	**-91 612,7**	**-83 272,1**
Austria	2 389,6	7 656,0	31,2%	1 615,0	6 589,9	24,5%	-774,7	-1 066,1
Belgium	3 489,4	9 775,4	35,7%	1 154,2	6 523,0	17,7%	-2 335,2	-3 252,3
Bulgaria	200,6	859,0	23,4%	127,7	309,3	41,3%	-72,9	-549,6
Cyprus	55,5	256,0	21,7%	4,2	105,9	3,9%	-51,3	-150,1
Czech Republic	6 491,9	14 933,8	43,5%	2 220,6	13 544,0	16,4%	-4 271,3	-1 389,8
Denmark	885,8	4 363,3	20,3%	880,4	2 294,0	38,4%	-5,4	-2 069,3
Estonia	113,3	560,9	20,2%	48,5	478,3	10,1%	-64,9	-82,6
Finland	**662,3**	**2 969,8**	**22,3%**	**1 342,5**	**2 980,0**	**45,1%**	**680,3**	**10,2**
Germany	38 498,5	68 850,3	55,9%	18 436,0	53 448,7	34,5%	-20 062,5	-15 401,6
France	9 011,9	27 903,9	32,3%	6 810,4	15 318,3	44,5%	-2 201,5	-12 585,6
Greece	391,1	1 890,7	20,7%	97,8	299,2	32,7%	-293,3	-1 591,5
Hungary	**4 053,1**	**7 738,7**	**52,4%**	**5 029,2**	**11 825,8**	**42,5%**	**976,2**	**4 087,1**
Ireland	**2 103,4**	**4 419,1**	**47,6%**	**3 860,6**	**7 421,2**	**52,0%**	**1 757,1**	**3 002,1**
Italy	8 973,7	23 382,3	38,4%	2 388,4	6 042,7	39,5%	-6 585,3	-17 339,6
Latvia	98,3	321,7	30,6%	70,3	195,9	35,9%	-28,0	-125,8
Lithuania	77,7	473,9	16,4%	98,3	225,2	43,7%	20,6	-248,7
Luxembourg	**1 969,6**	**2 643,3**	**74,5%**	**822,9**	**4 080,6**	**20,2%**	**-1 146,7**	**1 437,3**
Malta	**237,8**	**573,9**	**41,4%**	**529,1**	**724,6**	**73,0%**	**291,3**	**150,7**
Netherlands	**47 394,1**	**58 977,7**	**80,4%**	**9 546,6**	**61 404,3**	**15,5%**	**-37 847,5**	**2 426,6**
Poland	3 289,9	8 834,6	37,2%	579,4	4 344,0	13,3%	-2 710,6	-4 490,7
Portugal	488,1	2 507,4	19,5%	232,7	545,9	42,6%	-255,5	-1 961,5
Romania	1 354,1	3 319,4	40,8%	827,6	2 357,3	35,1%	-526,5	-962,2
Slovakia	756,4	2 889,2	26,2%	194,0	1 970,6	9,8%	-562,3	-918,6
Slovenia	282,2	932,7	30,3%	130,5	564,1	23,1%	-151,7	-368,6
Spain	3 825,3	11 834,2	32,3%	532,1	2 831,5	18,8%	-3 293,2	-9 002,7
Sweden	3 974,1	10 302,2	38,6%	5 365,1	8 559,2	62,7%	1 391,0	-1 743,0
Utd. Kingdom	19 935,5	36 346,8	54,8%	6 446,5	17 260,6	37,3%	-13 489,0	-19 086,2

* Total trade including Extra and Intra EU trade
Source: DG Trade, EC, based on Eurostat (Comext, Statistical regime 4)

Electronics non-ITA (= total of electronics that is not covered by the ITA)

EU27 & Member States Trade in Electronics non-ITA (millions of euro, 2010)

	Imports			Exports			Balance	
	Extra EU	Total *	Share of Extra EU	Extra EU	Total *	Share of Extra EU	Extra EU	Total *
EU27	**68 197,5**	**165 900,0**	**41,1%**	**54 963,4**	**157 927,7**	**34,8%**	**-13 234,1**	**-7 972,2**
Austria	**986,0**	**4 288,7**	**23,0%**	**1 417,6**	**4 487,3**	**31,6%**	**431,6**	**198,6**
Belgium	1 721,5	5 897,2	29,2%	1 155,5	5 001,5	23,1%	-566,0	-895,6
Bulgaria	116,8	655,9	17,8%	109,8	443,0	24,8%	-7,0	-212,9
Cyprus	29,1	155,9	18,7%	3,1	6,7	46,7%	-26,0	-149,2
Czech Republic	**2 795,1**	**6 956,7**	**40,2%**	**912,9**	**7 559,4**	**12,1%**	**-1 882,3**	**602,6**
Denmark	594,0	2 622,0	22,7%	979,3	2 556,9	38,3%	385,3	-65,2
Estonia	127,3	680,6	18,7%	105,9	567,1	18,7%	-21,5	-113,5
Finland	1 144,2	2 664,5	42,9%	1 268,5	2 231,7	56,8%	124,3	-432,8
Germany	**15 293,6**	**33 985,3**	**45,0%**	**18 891,4**	**41 357,2**	**45,7%**	**3 597,8**	**7 371,9**
France	4 745,5	15 902,4	29,8%	6 726,8	13 144,7	51,2%	1 981,3	-2 757,6
Greece	214,5	1 056,3	20,3%	81,9	219,7	37,3%	-132,6	-836,5
Hungary	6 052,3	9 265,7	65,3%	1 476,0	8 958,8	16,5%	-4 576,3	-306,9
Ireland	**425,5**	**1 153,5**	**36,9%**	**405,3**	**1 311,4**	**30,9%**	**-20,2**	**157,8**
Italy	2 791,1	11 063,2	25,2%	4 058,5	8 430,3	48,1%	1 267,4	-2 632,9
Latvia	35,6	360,1	9,9%	67,1	290,2	23,1%	31,5	-69,8
Lithuania	104,9	463,4	22,6%	144,8	391,7	37,0%	39,9	-71,7
Luxembourg	83,0	379,3	21,9%	55,6	225,6	24,6%	-27,4	-153,7
Malta	**23,6**	**69,6**	**33,9%**	**92,0**	**145,2**	**63,4%**	**68,4**	**75,6**
Netherlands	**10 853,2**	**17 322,1**	**62,7%**	**3 902,9**	**18 194,5**	**21,5%**	**-6 950,3**	**872,4**
Poland	**3 241,5**	**8 325,3**	**38,9%**	**1 286,1**	**9 274,4**	**13,9%**	**-1 955,4**	**949,1**
Portugal	252,9	1 896,7	13,3%	558,8	1 822,6	30,7%	305,9	-74,1
Romania	744,7	2 962,7	25,1%	187,8	2 022,9	9,3%	-556,9	-939,8
Slovakia	**3 656,7**	**6 988,3**	**52,3%**	**1 126,7**	**8 730,9**	**12,9%**	**-2 530,0**	**1 742,7**
Slovenia	372,5	866,9	43,0%	134,9	700,7	19,2%	-237,6	-166,2
Spain	2 091,4	8 091,4	25,8%	1 261,1	3 845,4	32,8%	-830,3	-4 246,0
Sweden	**1 572,9**	**5 663,7**	**27,8%**	**4 257,5**	**6 748,1**	**63,1%**	**2 684,6**	**1 084,4**
Utd. Kingdom	8 128,1	16 162,7	50,3%	4 295,6	9 259,9	46,4%	-3 832,5	-6 902,7

* Total trade including Extra and Intra EU trade
Source: DG Trade, EC, based on Eurostat (Comext, Statistical regime 4)

Consumer electronics

EU27 & Member States Trade in Consumer electronics (millions of euro, 2010)

	Imports			Exports			Balance	
	Extra EU	Total *	Share of Extra EU	Extra EU	Total *	Share of Extra EU	Extra EU	Total *
EU27	**23 060,4**	**71 753,1**	**32,1%**	**10 595,3**	**61 040,6**	**17,4%**	**-12 465,0**	**-10 712,5**
Austria	222,9	1 971,0	11,3%	248,6	1 772,1	14,0%	25,6	-198,9
Belgium	769,4	2 826,1	27,2%	293,7	2 188,4	13,4%	-475,7	-637,7
Bulgaria	35,5	287,9	12,3%	16,8	134,0	12,5%	-18,7	-154,0
Cyprus	6,7	69,5	9,7%	0,8	2,9	28,2%	-5,9	-66,6
Czech Republic	**552,0**	**1 833,8**	**30,1%**	**218,9**	**4 314,5**	**5,1%**	**-333,1**	**2 480,7**
Denmark	175,8	1 383,3	12,7%	242,9	774,3	31,4%	67,1	-608,9
Estonia	9,7	93,4	10,4%	8,1	37,4	21,8%	-1,6	-56,0
Finland	186,7	908,9	20,5%	154,3	237,8	64,9%	-32,4	-671,1
Germany	4 036,6	13 777,9	29,3%	2 976,5	9 736,1	30,6%	-1 060,1	-4 041,8
France	1 797,2	7 931,4	22,7%	915,6	2 580,3	35,5%	-881,6	-5 351,1
Greece	114,3	609,4	18,8%	10,2	87,7	11,6%	-104,1	-521,7
Hungary	**1 012,1**	**1 944,1**	**52,1%**	**559,1**	**5 388,0**	**10,4%**	**-453,0**	**3 443,9**
Ireland	**122,6**	**640,3**	**19,2%**	**235,1**	**1 019,1**	**23,1%**	**112,5**	**378,8**
Italy	1 122,1	5 028,6	22,3%	239,0	781,9	30,6%	-883,1	-4 246,7
Latvia	16,7	214,1	7,8%	17,6	192,8	9,1%	0,9	-21,3
Lithuania	**22,3**	**227,3**	**9,8%**	**68,7**	**237,1**	**29,0%**	**46,4**	**9,9**
Luxembourg	15,6	209,9	7,4%	12,2	84,5	14,5%	-3,4	-125,5
Malta	7,2	24,2	30,0%	7,1	17,7	40,3%	-0,1	-6,5
Netherlands	**5 640,3**	**9 391,4**	**60,1%**	**1 177,7**	**9 745,6**	**12,1%**	**-4 462,5**	**354,2**
Poland	**229,0**	**1 956,8**	**11,7%**	**437,0**	**6 021,5**	**7,3%**	**208,0**	**4 064,7**
Portugal	**114,7**	**859,9**	**13,3%**	**128,3**	**955,3**	**13,4%**	**13,6**	**95,4**
Romania	216,6	639,7	33,9%	41,5	578,7	7,2%	-175,1	-61,0
Slovakia	**624,6**	**1 993,9**	**31,3%**	**504,3**	**6 882,9**	**7,3%**	**-120,3**	**4 889,1**
Slovenia	43,9	253,8	17,3%	16,9	96,2	17,5%	-27,1	-157,6
Spain	998,7	4 227,3	23,6%	200,4	1 340,4	15,0%	-798,3	-2 886,9
Sweden	681,4	2 690,2	25,3%	967,4	2 084,4	46,4%	286,0	-605,7
Utd. Kingdom	4 285,6	9 759,2	43,9%	896,6	3 749,1	23,9%	-3 389,0	-6 010,1

* Total trade including Extra and Intra EU trade
Source: DG Trade, EC, based on Eurostat (Comext, Statistical regime 4)

Electronics components

EU27 & Member States Trade in Components (millions of euro, 2010)

	Imports			Exports			Balance	
	Extra EU	Total *	Share of Extra EU	Extra EU	Total *	Share of Extra EU	Extra EU	Total *
EU27	**80 453,7**	**161 850,0**	**49,7%**	**52 036,9**	**137 027,0**	**38,0%**	**-28 416,7**	**-24 823,1**
Austria	**1 461,5**	**4 409,8**	**33,1%**	**2 031,8**	**5 854,0**	**34,7%**	**570,3**	**1 444,3**
Belgium	1 682,2	5 129,4	32,8%	990,2	3 881,4	25,5%	-692,0	-1 248,0
Bulgaria	173,9	557,8	31,2%	141,8	432,0	32,8%	-32,1	-125,8
Cyprus	23,3	131,2	17,8%	3,6	95,3	3,8%	-19,7	-35,8
Czech Republic	4 163,5	9 679,3	43,0%	1 050,5	5 577,0	18,8%	-3 113,0	-4 102,3
Denmark	**447,2**	**1 640,0**	**27,3%**	**618,3**	**1 699,5**	**36,4%**	**171,0**	**59,5**
Estonia	98,8	568,7	17,4%	74,4	338,2	22,0%	-24,4	-230,5
Finland	**438,0**	**1 429,1**	**30,6%**	**1 018,1**	**1 717,4**	**59,3%**	**580,2**	**288,3**
Germany	**25 102,1**	**42 831,3**	**58,6%**	**20 149,6**	**46 889,4**	**43,0%**	**-4 952,5**	**4 058,2**
France	**5 970,3**	**13 904,8**	**42,9%**	**7 832,3**	**15 819,4**	**49,5%**	**1 861,9**	**1 914,6**
Greece	166,9	764,0	21,8%	60,6	163,3	37,1%	-106,3	-600,8
Hungary	4 585,1	9 059,1	50,6%	1 061,1	4 372,0	24,3%	-3 524,1	-4 687,1
Ireland	**794,1**	**1 382,7**	**57,4%**	**1 590,4**	**2 264,7**	**70,2%**	**796,3**	**882,0**
Italy	6 828,2	16 102,3	42,4%	3 805,3	8 450,8	45,0%	-3 022,9	-7 651,5
Latvia	37,2	164,5	22,6%	53,1	104,2	50,9%	15,9	-60,2
Lithuania	91,6	255,7	35,8%	71,8	152,2	47,1%	-19,9	-103,5
Luxembourg	**94,3**	**364,8**	**25,8%**	**87,0**	**382,6**	**22,7%**	**-7,3**	**17,8**
Malta	**229,5**	**539,9**	**42,5%**	**607,9**	**839,0**	**72,5%**	**378,5**	**299,2**
Netherlands	**10 142,5**	**13 521,4**	**75,0%**	**2 476,3**	**14 216,3**	**17,4%**	**-7 666,2**	**694,9**
Poland	3 582,7	8 527,9	42,0%	918,4	3 658,3	25,1%	-2 664,3	-4 869,6
Portugal	210,9	1 389,8	15,2%	460,3	1 013,0	45,4%	249,4	-376,8
Romania	421,5	2 636,3	16,0%	124,4	1 259,4	9,9%	-297,1	-1 376,8
Slovakia	3 363,3	6 125,5	54,9%	594,5	2 212,6	26,9%	-2 768,8	-3 912,9
Slovenia	494,9	868,3	57,0%	137,6	823,4	16,7%	-357,4	-44,9
Spain	2 199,9	5 746,0	38,3%	1 050,8	3 772,4	27,9%	-1 149,1	-1 973,6
Sweden	2 682,5	5 384,8	49,8%	1 793,1	3 442,3	52,1%	-889,3	-1 942,5
Utd. Kingdom	4 967,6	8 735,8	56,9%	3 233,8	7 596,7	42,6%	-1 733,8	-1 139,1

* Total trade including Extra and Intra EU trade
Source: DG Trade, EC, based on Eurostat (Comext, Statistical regime 4)

Electronic measuring devices

EU27 & Member States Trade in Measuring (millions of euro, 2010)

	Imports			Exports			Balance	
	Extra EU	Total *	Share of Extra EU	Extra EU	Total *	Share of Extra EU	Extra EU	Total *
EU27	**8 165,7**	**17 574,3**	**46,5%**	**11 991,8**	**22 229,6**	**53,9%**	**3 826,1**	**4 655,3**
Austria	**134,2**	**573,8**	**23,4%**	**307,0**	**599,1**	**51,2%**	**172,8**	**25,3**
Belgium	429,9	873,4	49,2%	236,2	757,1	31,2%	-193,8	-116,3
Bulgaria	11,4	49,6	22,9%	10,3	31,1	33,2%	-1,0	-18,5
Cyprus	5,0	14,4	34,6%	0,3	0,9	36,6%	-4,7	-13,5
Czech Republic	71,3	373,8	19,1%	56,5	291,1	19,4%	-14,7	-82,7
Denmark	**102,5**	**347,8**	**29,5%**	**295,0**	**668,6**	**44,1%**	**192,5**	**320,8**
Estonia	7,9	37,9	20,8%	14,1	36,2	38,9%	6,2	-1,7
Finland	**61,6**	**234,3**	**26,3%**	**179,8**	**276,8**	**65,0%**	**118,2**	**42,4**
Germany	**3 122,1**	**4 698,9**	**66,4%**	**5 504,9**	**9 124,4**	**60,3%**	**2 382,8**	**4 425,5**
France	675,9	2 049,8	33,0%	1 038,5	1 971,4	52,7%	362,6	-78,4
Greece	20,4	167,1	12,2%	3,8	21,8	17,3%	-16,7	-145,3
Hungary	**50,3**	**167,9**	**30,0%**	**91,7**	**213,6**	**42,9%**	**41,3**	**45,7**
Ireland	**122,0**	**231,8**	**52,6%**	**307,8**	**497,1**	**61,9%**	**185,8**	**265,4**
Italy	429,8	1 363,3	31,5%	478,7	992,9	48,2%	49,0	-370,4
Latvia	3,1	20,1	15,4%	10,1	13,3	76,0%	7,0	-6,8
Lithuania	**7,6**	**43,0**	**17,6%**	**31,0**	**47,8**	**64,8%**	**23,4**	**4,8**
Luxembourg	**4,2**	**28,8**	**14,5%**	**7,1**	**43,5**	**16,3%**	**2,9**	**14,7**
Malta	14,7	20,5	71,5%	1,6	3,7	42,1%	-13,1	-16,8
Netherlands	**1 119,9**	**1 698,4**	**65,9%**	**700,1**	**2 001,0**	**35,0%**	**-419,8**	**302,5**
Poland	112,6	469,5	24,0%	60,1	249,4	24,1%	-52,5	-220,1
Portugal	20,7	175,3	11,8%	25,2	35,3	71,4%	4,5	-140,0
Romania	45,9	191,8	23,9%	10,4	93,5	11,1%	-35,5	-98,3
Slovakia	23,2	123,6	18,8%	5,0	25,3	19,6%	-18,3	-98,3
Slovenia	11,9	68,3	17,3%	18,7	41,3	45,3%	6,8	-27,1
Spain	207,8	816,6	25,4%	109,3	246,8	44,3%	-98,6	-569,8
Sweden	**235,5**	**616,6**	**38,2%**	**598,0**	**916,0**	**65,3%**	**362,5**	**299,4**
Utd. Kingdom	**1 114,4**	**2 117,7**	**52,6%**	**1 890,8**	**3 030,5**	**62,4%**	**776,4**	**912,8**

* Total trade including Extra and Intra EU trade
Source: DG Trade, EC, based on Eurostat (Comext, Statistical regime 4)

Computer and related office equipment

EU27 & Member States Trade in Office (millions of euro, 2010)

	Imports			Exports			Balance	
	Extra EU	Total *	Share of Extra EU	Extra EU	Total *	Share of Extra EU	Extra EU	Total *
EU27	**76 356,5**	**148 504,6**	**51,4%**	**23 409,6**	**99 862,1**	**23,4%**	**-52 946,8**	**-48 642,5**
Austria	622,6	2 916,2	21,3%	274,7	1 489,1	18,4%	-347,9	-1 427,1
Belgium	1 446,9	4 660,4	31,0%	610,8	3 671,6	16,6%	-836,0	-988,8
Bulgaria	48,0	289,9	16,6%	50,7	85,0	59,6%	2,7	-205,0
Cyprus	22,1	114,1	19,4%	1,0	6,0	16,6%	-21,1	-108,1
Czech Republic	**3 781,3**	**8 282,8**	**45,7%**	**1 463,2**	**8 935,7**	**16,4%**	**-2 318,2**	**652,9**
Denmark	483,5	2 380,3	20,3%	480,2	1 151,3	41,7%	-3,3	-1 229,0
Estonia	12,7	112,8	11,3%	6,2	25,2	24,5%	-6,5	-87,7
Finland	121,7	1 340,5	9,1%	233,4	364,1	64,1%	111,7	-976,3
Germany	16 906,2	30 367,8	55,7%	5 095,6	20 065,5	25,4%	-11 810,6	-10 302,4
France	2 372,9	11 933,5	19,9%	1 591,0	4 222,1	37,7%	-781,9	-7 711,4
Greece	119,1	713,4	16,7%	9,6	63,3	15,2%	-109,5	-650,1
Hungary	**1 067,8**	**1 977,6**	**54,0%**	**1 102,0**	**2 291,6**	**48,1%**	**34,2**	**314,0**
Ireland	**1 303,3**	**2 690,7**	**48,4%**	**1 909,9**	**4 449,4**	**42,9%**	**606,7**	**1 758,7**
Italy	1 880,8	6 973,7	27,0%	556,2	1 641,0	33,9%	-1 324,6	-5 332,7
Latvia	25,7	139,3	18,5%	32,7	107,1	30,6%	7,0	-32,1
Lithuania	43,9	215,5	20,4%	45,1	110,0	41,0%	1,2	-105,4
Luxembourg	**866,8**	**1 135,4**	**76,3%**	**80,5**	**1 163,4**	**6,9%**	**-786,3**	**28,1**
Malta	5,4	38,2	14,1%	2,5	7,1	35,5%	-2,9	-31,1
Netherlands	**28 616,1**	**35 822,3**	**79,9%**	**6 494,1**	**36 759,2**	**17,7%**	**-22 122,0**	**936,9**
Poland	2 049,2	4 202,1	48,8%	296,1	2 989,1	9,9%	-1 753,1	-1 213,1
Portugal	130,0	1 143,7	11,4%	72,0	178,6	40,3%	-57,9	-965,1
Romania	118,3	739,1	16,0%	35,6	315,7	11,3%	-82,8	-423,3
Slovakia	350,0	917,2	38,2%	75,4	727,9	10,4%	-274,5	-189,3
Slovenia	67,5	391,7	17,2%	29,8	183,1	16,3%	-37,7	-208,6
Spain	1 278,6	5 092,9	25,1%	170,3	844,8	20,2%	-1 108,3	-4 248,1
Sweden	694,3	3 868,5	17,9%	645,0	1 530,2	42,2%	-49,3	-2 338,3
Utd. Kingdom	11 921,6	20 045,3	59,5%	2 046,0	6 485,1	31,5%	-9 875,7	-13 560,2

* Total trade including Extra and Intra EU trade
Source: DG Trade, EC, based on Eurostat (Comext, Statistical regime 4)

Telecommunication equipment

EU27 & Member States Trade in Telecom (millions of euro, 2010)

	Imports			Exports			Balance	
	Extra EU	Total *	Share of Extra EU	Extra EU	Total *	Share of Extra EU	Extra EU	Total *
EU27	**41 164,8**	**81 734,3**	**50,4%**	**26 320,4**	**70 012,7**	**37,6%**	**-14 844,4**	**-11 721,6**
Austria	934,4	2 074,0	45,1%	170,5	1 362,9	12,5%	-763,9	-711,2
Belgium	882,4	2 183,3	40,4%	178,8	1 026,1	17,4%	-703,6	-1 157,2
Bulgaria	48,6	329,5	14,8%	17,9	70,3	25,5%	-30,7	-259,2
Cyprus	27,5	82,8	33,2%	1,6	7,5	20,9%	-25,9	-75,3
Czech Republic	**718,8**	**1 720,8**	**41,8%**	**344,3**	**1 985,0**	**17,3%**	**-374,5**	**264,2**
Denmark	270,7	1 234,0	21,9%	223,4	557,1	40,1%	-47,3	-676,9
Estonia	**111,6**	**428,6**	**26,0%**	**51,5**	**608,4**	**8,5%**	**-60,1**	**179,8**
Finland	**998,5**	**1 721,4**	**58,0%**	**1 025,5**	**2 615,6**	**39,2%**	**27,0**	**894,2**
Germany	4 625,1	11 159,7	41,4%	3 600,7	8 990,6	40,0%	-1 024,3	-2 169,1
France	2 941,1	7 986,8	36,8%	2 159,9	3 869,8	55,8%	-781,2	-4 117,0
Greece	184,8	693,0	26,7%	95,4	182,8	52,2%	-89,4	-510,2
Hungary	**3 390,0**	**3 855,8**	**87,9%**	**3 691,4**	**8 519,4**	**43,3%**	**301,4**	**4 663,7**
Ireland	187,0	627,2	29,8%	222,6	502,2	44,3%	35,6	-125,0
Italy	1 503,9	4 977,6	30,2%	1 367,6	2 606,4	52,5%	-136,3	-2 371,2
Latvia	51,2	143,8	35,6%	23,9	68,7	34,8%	-27,3	-75,1
Lithuania	17,2	195,8	8,8%	26,6	69,6	38,2%	9,4	-126,2
Luxembourg	**1 071,7**	**1 283,8**	**83,5%**	**691,8**	**2 632,2**	**26,3%**	**-380,0**	**1 348,4**
Malta	4,6	20,8	22,1%	2,0	2,3	86,7%	-2,6	-18,5
Netherlands	**12 728,5**	**15 866,2**	**80,2%**	**2 601,3**	**16 876,6**	**15,4%**	**-10 127,1**	**1 010,5**
Poland	558,0	2 003,6	27,8%	153,9	700,1	22,0%	-404,1	-1 303,4
Portugal	264,9	835,5	31,7%	105,7	186,4	56,7%	-159,1	-649,1
Romania	**1 296,5**	**2 075,3**	**62,5%**	**803,5**	**2 132,9**	**37,7%**	**-493,0**	**57,6**
Slovakia	**52,0**	**717,2**	**7,2%**	**141,6**	**852,7**	**16,6%**	**89,6**	**135,5**
Slovenia	36,5	217,6	16,8%	62,5	121,0	51,7%	26,0	-96,6
Spain	1 231,8	4 042,8	30,5%	262,5	472,6	55,5%	-969,3	-3 570,2
Sweden	**1 253,2**	**3 405,8**	**36,8%**	**5 619,0**	**7 334,3**	**76,6%**	**4 365,7**	**3 928,5**
Utd. Kingdom	5 774,4	11 851,5	48,7%	2 675,0	5 659,1	47,3%	-3 099,4	-6 192,4

* Total trade including Extra and Intra EU trade
Source: DG Trade, EC, based on Eurostat (Comext, Statistical regime 4)

2. TRADE IN ELECTRONICS: GLOBAL VIEW AND EU-CENTERED VIEW

These statistics aim at complementing section 2.3 on key export markets and key competitors.

For each sub-sector, the **first** table provides an outlook of **global markets**, listing the main global exporters and importers for the considered products plus the trade balance of main actors (respectively the 10 countries with the biggest trade surplus and with the biggest trade deficit in the world). The **second** table gives an **EU-centred view** of the market, by listing the EU's main trade partners (export and imports) and showing with which trading partners we have the biggest trade surplus or trade deficit.

In addition, the first three paragraphs provide the same information for the total of electronic products, and then distinguish out of this total whether products are covered by the Information Technology Agreement (ITA) or not.

Despite some statistical imprecision and the above described problem (chapter 1.5) of meaningful trade statistics in areas with sophisticated global supply chains, the tables provide useful information in term of **relative position on world markets** and **order of magnitude of trade flows**. It is also important to note that some countries, while being important potential markets, might not appear in trade statistics because the presence of barriers might prevent trade. Thus the following table reveals only a part of the information and does not replace a qualitative analysis based on economic operators' perceptions of new market opportunities. It has also to be noted that the data stems partly from 2010 (EU centred) and partly from an average of 2007-2009 (global markets) so that one year particularities or the financial crisis could impact on how representative the findings are.

Total electronics

Total Electronics - World* trade (Average 2007-2009)

	Top global importers			Top global exporters			Top Surplus Balance		Top Deficit Balance	
Rank	Country	Value (millions of euro)	% of World* imports	Country	Value (millions of euro)	% of world* exports	Country	Value (millions of euro)	Country	Value (millions of euro)
	WORLD*	1 136 387	100,0%	WORLD*	1 025 359	100,0%				
1	CHINA	228 564	20,1%	CHINA	302 350	29,5%	CHINA	73 785	**EU27**	**-84 558**
2	**EU27**	**185 370**	**16,3%**	USA	102 615	10,0%	KOREA REP	40 285	USA	-71 814
3	USA	174 429	15,3%	**EU27**	**100 811**	**9,8%**	TAIWAN	29 165	HONG KONG	-43 140
4	HONG KONG	125 041	11,0%	KOREA REP	83 459	8,1%	JAPAN	27 072	CANADA	-15 193
5	JAPAN	48 867	4,3%	HONG KONG	81 901	8,0%	SINGAPORE	19 916	RUSSIA	-11 408
6	SINGAPORE	47 405	4,2%	JAPAN	75 938	7,4%	MALAYSIA	7 985	BRAZIL	-9 350
7	KOREA REP	43 174	3,8%	SINGAPORE	67 322	6,6%	THAILAND	4 861	AUSTRALIA	-8 476
8	MEXICO	40 557	3,6%	TAIWAN	49 486	4,8%	ISRAEL	696	INDIA	-7 325
9	MALAYSIA	28 575	2,5%	MALAYSIA	36 560	3,6%	ST KITTS-NEV	5	TURKEY	-5 133
10	CANADA	28 186	2,5%	MEXICO	36 368	3,5%			SOUTH AFRICA	-4 378

* World excluding Intra EU trade
Source: DG Trade, EC, based on Comtrade

Total Electronics - EU trade (2010)

	Top EU import origin			Top EU export destinations			Top EU Surplus Balance		Top EU Deficit Balance	
Rank	Origin	Value (millions of euro)	Share in EU imports	Destination	Value (millions of euro)	Share in EU exports	Partner	Value (millions of euro)	Partner	Value (millions of euro)
	Extra EU	**229 201**	**100,0%**	**Extra EU**	**124 354**	**100,0%**			**Extra EU**	**-104 847**
1	China	104 756	45,7%	USA	17 591	14,1%	Russia	9 205	China	-92 653
2	USA	18 787	8,2%	China	12 103	9,7%	U.A.Emirates	4 492	Japan	-14 803
3	Japan	17 536	7,7%	Russia	9 362	7,5%	Turkey	3 899	South Korea	-12 424
4	South Korea	15 091	6,6%	Switzerland	8 808	7,1%	Switzerland	3 698	Taiwan	-11 236
5	Taiwan	12 806	5,6%	Turkey	5 804	4,7%	Norway	3 491	Malaysia	-8 939
6	Malaysia	12 660	5,5%	Hong Kong	4 727	3,8%	South Africa	2 687	Thailand	-4 360
7	Singapore	6 433	2,8%	U.A.Emirates	4 707	3,8%	Saudi Arabia	2 161	Costa Rica	-3 949
8	Thailand	5 550	2,4%	Norway	4 561	3,7%	Brazil	1 786	Singapore	-2 716
9	Switzerland	5 110	2,2%	Malaysia	3 720	3,0%	Australia	1 548	Philippines	-2 339
10	Hong Kong	4 852	2,1%	Singapore	3 717	3,0%	Ukraine	1 333	Mexico	-1 641

Source: DG Trade, EC, based on Eurostat (Comext, Statistical regime 4)

Electronics ITA (= total of electronics that is covered by the ITA)

Electronics ITA - World* trade (Average 2007-2009)

Rank	Top global importers			Top global exporters			Top Surplus Balance		Top Deficit Balance	
	Country	Value (millions of euro)	% of World* imports	Country	Value (millions of euro)	% of world* exports	Country	Value (millions of euro)	Country	Value (millions of euro)
	WORLD*	759 648	100,0%	WORLD*	664 791	100,0%				
1	CHINA	156 165	20,6%	CHINA	198 056	29,8%	CHINA	41 891	**EU27**	**-63 377**
2	**EU27**	**121 689**	**16,0%**	USA	72 045	10,8%	SINGAPORE	18 778	USA	-41 275
3	USA	113 320	14,9%	**EU27**	**58 312**	**8,8%**	TAIWAN	17 816	HONG KONG	-35 270
4	HONG KONG	87 298	11,5%	SINGAPORE	57 907	8,7%	KOREA REP	16 848	CANADA	-9 016
5	SINGAPORE	39 129	5,2%	HONG KONG	52 028	7,8%	JAPAN	13 191	RUSSIA	-6 533
6	KOREA REP	32 409	4,3%	KOREA REP	49 256	7,4%	MALAYSIA	5 778	AUSTRALIA	-5 506
7	JAPAN	30 977	4,1%	JAPAN	44 168	6,6%	THAILAND	3 493	BRAZIL	-4 797
8	MALAYSIA	23 070	3,0%	TAIWAN	32 940	5,0%	ISRAEL	222	INDIA	-4 636
9	MEXICO	19 061	2,5%	MALAYSIA	28 848	4,3%			TURKEY	-4 439
10	CANADA	16 960	2,2%	THAILAND	19 146	2,9%			SWITZERLAND	-3 236

* World excluding Intra EU trade
Source: DG Trade, EC, based on Comtrade

Electronics ITA - EU Trade (2010)

Rank	Top EU import origin			Top EU export destinations			Top EU Surplus Balance		Top EU Deficit Balance	
	Origin	Value (millions of euro)	Share in EU imports	Destination	Value (millions of euro)	Share in EU exports	Partner	Value (millions of euro)	Partner	Value (millions of euro)
	Extra EU	**161 003**	**100,0%**	**Extra EU**	**69 391**	**100,0%**			**Extra EU**	**-91 613**
1	China	76 185	47,3%	USA	9 732	14,0%	Russia	5 536	China	-71 143
2	USA	13 139	8,2%	Russia	5 599	8,1%	U.A.Emirates	3 077	Japan	-9 295
3	Malaysia	11 109	6,9%	Switzerland	5 450	7,9%	Switzerland	2 983	Taiwan	-8 565
4	Japan	10 876	6,8%	China	5 042	7,3%	Turkey	2 832	Malaysia	-7 878
5	Taiwan	9 636	6,0%	Hong Kong	3 497	5,0%	Norway	2 054	South Korea	-7 280
6	South Korea	8 683	5,4%	Malaysia	3 231	4,7%	South Africa	1 786	Costa Rica	-3 960
7	Singapore	6 013	3,7%	U.A.Emirates	3 231	4,7%	Saudi Arabia	1 076	USA	-3 407
8	Costa Rica	4 083	2,5%	Turkey	2 944	4,2%	Ukraine	890	Singapore	-3 364
9	Thailand	3 558	2,2%	Norway	2 758	4,0%	Brazil	689	Thailand	-2 737
10	Hong Kong	3 443	2,1%	Singapore	2 649	3,8%	Australia	659	Philippines	-1 923

Source: DG Trade, EC, based on Eurostat (Comext, Statistical regime 4)

Electronics non-ITA (= total of electronics that it <u>not</u> covered by the ITA)

Electronics non-ITA - World* trade (Average 2007-2009)

Rank	Top global importers			Top global exporters			Top Surplus Balance		Top Deficit Balance	
	Country	Value (millions of euro)	% of World* imports	Country	Value (millions of euro)	% of world* exports	Country	Value (millions of euro)	Country	Value (millions of euro)
	WORLD*	376 738	100,0%	WORLD*	360 568	100,0%				
1	CHINA	72 400	19,2%	CHINA	104 294	28,9%	CHINA	31 894	USA	-30 539
2	**EU27**	**63 681**	**16,9%**	**EU27**	**42 500**	**11,8%**	KOREA REP	23 438	**EU27**	**-21 181**
3	USA	61 109	16,2%	KOREA REP	34 203	9,5%	JAPAN	13 880	HONG KONG	-7 870
4	HONG KONG	37 743	10,0%	JAPAN	31 770	8,8%	TAIWAN	11 349	CANADA	-6 177
5	MEXICO	21 496	5,7%	USA	30 570	8,5%	MALAYSIA	2 207	RUSSIA	-4 875
6	JAPAN	17 890	4,7%	HONG KONG	29 873	8,3%	THAILAND	1 368	BRAZIL	-4 553
7	CANADA	11 226	3,0%	MEXICO	20 147	5,6%	SINGAPORE	1 138	AUSTRALIA	-2 970
8	KOREA REP	10 765	2,9%	TAIWAN	16 545	4,6%	PHILIPPINES	897	INDIA	-2 689
9	SINGAPORE	8 276	2,2%	SINGAPORE	9 415	2,6%	ISRAEL	474	NORWAY	-1 364
10	RUSSIA	5 821	1,5%	MALAYSIA	7 712	2,1%	SWITZERLAND	452	MEXICO	-1 349

* World excluding Intra EU trade
Source: DG Trade, EC, based on Comtrade

Electronics non-ITA - EU trade (2010)

Rank	Top EU import origin			Top EU export destinations			Top EU Surplus Balance		Top EU Deficit Balance	
	Origin	Value (millions of euro)	Share in EU imports	Destination	Value (millions of euro)	Share in EU exports	Partner	Value (millions of euro)	Partner	Value (millions of euro)
	Extra EU	**68 197**	**100,0%**	**Extra EU**	**54 963**	**100,0%**			**Extra EU**	**-13 234**
1	China	28 572	41,9%	USA	7 859	14,3%	Russia	3 669	China	-21 510
2	Japan	6 660	9,8%	China	7 062	12,8%	USA	2 210	Japan	-5 507
3	South Korea	6 408	9,4%	Russia	3 762	6,8%	Norway	1 437	South Korea	-5 144
4	USA	5 649	8,3%	Switzerland	3 358	6,1%	U.A.Emirates	1 415	Taiwan	-2 671
5	Taiwan	3 170	4,6%	Turkey	2 860	5,2%	India	1 133	Thailand	-1 623
6	Switzerland	2 643	3,9%	India	1 887	3,4%	Brazil	1 097	Malaysia	-1 062
7	Thailand	1 992	2,9%	Norway	1 803	3,3%	Saudi Arabia	1 085	Indonesia	-808
8	Turkey	1 793	2,6%	U.A.Emirates	1 475	2,7%	Turkey	1 066	Philippines	-416
9	Malaysia	1 551	2,3%	South Korea	1 264	2,3%	South Africa	900	Vietnam	-234
10	Hong Kong	1 408	2,1%	Brazil	1 258	2,3%	Australia	889	Hong Kong	-178

Source: DG Trade, EC, based on Eurostat (Comext, Statistical regime 4)

Consumer electronics

Consumer electronics - World* trade (Average 2007-2009)

Rank	Top global importers			Top global exporters			Top Surplus Balance		Top Deficit Balance	
	Country	Value (millions of euro)	% of World* imports	Country	Value (millions of euro)	% of world* exports	Country	Value (millions of euro)	Country	Value (millions of euro)
	WORLD*	116 610	100,0%	WORLD*	108 382	100,0%				
1	USA	28 739	24,6%	CHINA	43 036	39,7%	CHINA	33 443	USA	-21 604
2	**EU27**	**25 130**	**21,6%**	MEXICO	11 429	10,5%	MEXICO	8 686	**EU27**	**-17 117**
3	HONG KONG	12 875	11,0%	HONG KONG	10 154	9,4%	JAPAN	2 677	CANADA	-4 939
4	CHINA	9 592	8,2%	JAPAN	8 620	8,0%	MALAYSIA	2 304	HONG KONG	-2 721
5	JAPAN	5 943	5,1%	**EU27**	**8 013**	**7,4%**	SINGAPORE	1 290	RUSSIA	-1 991
6	CANADA	5 893	5,1%	USA	7 135	6,6%	THAILAND	924	AUSTRALIA	-1 509
7	KOREA REP	3 108	2,7%	KOREA REP	3 574	3,3%	TAIWAN	891	SWITZERLAND	-1 321
8	MEXICO	2 743	2,4%	SINGAPORE	3 518	3,2%	INDONESIA	530	NORWAY	-776
9	SINGAPORE	2 228	1,9%	MALAYSIA	3 058	2,8%	KOREA REP	466	BRAZIL	-713
10	RUSSIA	2 103	1,8%	THAILAND	2 862	2,6%	TURKEY	107	COLOMBIA	-576

* World excluding Intra EU trade
Source: DG Trade, EC, based on Comtrade

Consumer electronics - EU trade (2010)

Rank	Top EU import origin			Top EU export destinations			Top EU Surplus Balance		Top EU Deficit Balance	
	Origin	Value (millions of euro)	Share in EU imports	Destination	Value (millions of euro)	Share in EU exports	Partner	Value (millions of euro)	Partner	Value (millions of euro)
	Extra EU	**23 060**	**100,0%**	**Extra EU**	**10 595**	**100,0%**			**Extra EU**	**-12 465**
1	China	11 079	48,0%	Switzerland	1 332	12,6%	Switzerland	1 074	China	-10 479
2	Japan	3 170	13,7%	USA	1 139	10,8%	Norway	961	Japan	-2 953
3	Turkey	1 289	5,6%	Norway	1 078	10,2%	Russia	900	Taiwan	-1 042
4	Taiwan	1 111	4,8%	Russia	906	8,5%	South Africa	288	Thailand	-677
5	USA	1 107	4,8%	Turkey	852	8,0%	U.A.Emirates	244	Indonesia	-661
6	Thailand	723	3,1%	China	600	5,7%	Saudi Arabia	182	Malaysia	-551
7	Indonesia	689	3,0%	Hong Kong	355	3,4%	Croatia	139	South Korea	-439
8	Hong Kong	613	2,7%	South Africa	298	2,8%	Australia	129	Turkey	-437
9	Malaysia	607	2,6%	Ukraine	275	2,6%	Israel	125	Hong Kong	-258
10	South Korea	597	2,6%	U.A.Emirates	261	2,5%	India	99	Tunisia	-221

Source: DG Trade, EC, based on Eurostat (Comext, Statistical regime 4)

Electronic Components

Components - World* trade (Average 2007-2009)

Rank	Top global importers			Top global exporters			Top Surplus Balance		Top Deficit Balance	
	Country	Value (millions of euro)	% of World* imports	Country	Value (millions of euro)	% of world* exports	Country	Value (millions of euro)	Country	Value (millions of euro)
	WORLD*	536 022	100,0%	WORLD*	432 692	100,0%				
1	CHINA	169 039	31,5%	CHINA	78 132	18,1%	JAPAN	26 218	CHINA	-90 907
2	HONG KONG	69 563	13,0%	JAPAN	47 374	10,9%	TAIWAN	19 282	HONG KONG	-27 905
3	**EU27**	**55 744**	**10,4%**	KOREA REP	46 284	10,7%	KOREA REP	18 550	MEXICO	-15 286
4	USA	37 247	6,9%	USA	43 056	10,0%	SINGAPORE	12 441	**EU27**	**-13 673**
5	SINGAPORE	29 869	5,6%	SINGAPORE	42 310	9,8%	USA	5 809	BRAZIL	-4 966
6	KOREA REP	27 733	5,2%	**EU27**	**42 072**	**9,7%**	SWITZERLAND	1 411	MALAYSIA	-4 466
7	MEXICO	23 765	4,4%	HONG KONG	41 658	9,6%	ISRAEL	618	PHILIPPINES	-3 877
8	JAPAN	21 156	3,9%	TAIWAN	32 465	7,5%	CROATIA	151	CANADA	-3 108
9	MALAYSIA	18 723	3,5%	MALAYSIA	14 257	3,3%	UKRAIN	56	RUSSIA	-2 880
10	TAIWAN	13 183	2,5%	THAILAND	9 498	2,2%	EL SALVADOR	16	THAILAND	-2 300

* World excluding Intra EU trade
Source: DG Trade, EC, based on Comtrade

Components - EU trade (2010)

Rank	Top EU import origin			Top EU export destinations			Top EU Surplus Balance		Top EU Deficit Balance	
	Origin	Value (millions of euro)	Share in EU imports	Destination	Value (millions of euro)	Share in EU exports	Partner	Value (millions of euro)	Partner	Value (millions of euro)
	Extra EU	**80 454**	**100,0%**	**Extra EU**	**52 037**	**100,0%**			**Extra EU**	**-28 417**
1	China	28 921	35,9%	China	7 805	15,0%	Russia	2 798	China	-21 115
2	South Korea	9 924	12,3%	USA	6 840	13,1%	Turkey	1 421	South Korea	-8 481
3	Japan	7 207	9,0%	Malaysia	2 902	5,6%	U.A.Emirates	1 133	Japan	-6 330
4	Taiwan	6 617	8,2%	Russia	2 889	5,6%	Brazil	1 061	Taiwan	-5 607
5	USA	6 566	8,2%	Switzerland	2 702	5,2%	Hong Kong	942	Philippines	-1 666
6	Malaysia	4 423	5,5%	Hong Kong	2 131	4,1%	Saudi Arabia	709	Malaysia	-1 521
7	Singapore	2 692	3,3%	Singapore	2 007	3,9%	Australia	642	Thailand	-1 004
8	Switzerland	2 655	3,3%	Turkey	1 943	3,7%	South Africa	551	Singapore	-686
9	Philippines	2 355	2,9%	South Korea	1 444	2,8%	Norway	542	Indonesia	-206
10	Thailand	1 670	2,1%	India	1 323	2,5%	Morocco	524	Croatia	-133

Source: DG Trade, EC, based on Eurostat (Comext, Statistical regime 4)

Electronic measuring devices

Measuring - World* trade (Average 2007-2009)

Rank	Top global importers			Top global exporters			Top Surplus Balance		Top Deficit Balance	
	Country	Value (millions of euro)	% of World* imports	Country	Value (millions of euro)	% of world* exports	Country	Value (millions of euro)	Country	Value (millions of euro)
	WORLD*	37 881	100,0%	WORLD*	35 865	100,0%				
1	**EU27**	**7 214**	**19,0%**	USA	10 529	29,4%	USA	3 787	CHINA	-2 256
2	USA	6 743	17,8%	**EU27**	**8 908**	**24,8%**	JAPAN	2 263	TAIWAN	-1 246
3	CHINA	4 430	11,7%	JAPAN	4 157	11,6%	**EU27**	**1 694**	KOREA REP	-1 128
4	TAIWAN	1 969	5,2%	CHINA	2 175	6,1%	SWITZERLAND	899	INDIA	-629
5	JAPAN	1 894	5,0%	SWITZERLAND	1 592	4,4%	MALAYSIA	228	BRAZIL	-543
6	KOREA REP	1 774	4,7%	SINGAPORE	1 430	4,0%	DOMINICAN RP	35	RUSSIA	-448
7	SINGAPORE	1 540	4,1%	MALAYSIA	1 121	3,1%	NORWAY	21	CANADA	-425
8	CANADA	1 491	3,9%	CANADA	1 066	3,0%	ISRAEL	13	TURKEY	-376
9	HONG KONG	1 294	3,4%	HONG KONG	996	2,8%	ZIMBABWE	2	AUSTRALIA	-351
10	MEXICO	936	2,5%	MEXICO	792	2,2%			HONG KONG	-298

* World excluding Intra EU trade
Source: DG Trade, EC, based on Comtrade

Measuring - EU trade (2010)

Rank	Top EU import origin			Top EU export destinations			Top EU Surplus Balance		Top EU Deficit Balance	
	Origin	Value (millions of euro)	Share in EU imports	Destination	Value (millions of euro)	Share in EU exports	Partner	Value (millions of euro)	Partner	Value (millions of euro)
	Extra EU	**8 166**	**100,0%**	**Extra EU**	**11 992**	**100,0%**	**Extra EU**	**3 826**		
1	USA	3 223	39,5%	USA	2 876	24,0%	Russia	574	Japan	-634
2	Japan	1 269	15,5%	China	1 425	11,9%	China	564	Switzerland	-370
3	Switzerland	965	11,8%	Japan	635	5,3%	India	399	USA	-348
4	China	861	10,5%	Switzerland	595	5,0%	South Korea	384	Malaysia	-139
5	Malaysia	286	3,5%	Russia	593	4,9%	Turkey	329	Israel	-94
6	Singapore	221	2,7%	South Korea	492	4,1%	Hong Kong	259	Mexico	-31
7	Canada	196	2,4%	India	446	3,7%	Brazil	252	Liechtenstein	-12
8	Israel	194	2,4%	Singapore	377	3,1%	Saudi Arabia	217	Dominican R.	-11
9	Mexico	160	2,0%	Turkey	340	2,8%	U.A.Emirates	211	Canada	-9
10	South Korea	108	1,3%	Hong Kong	325	2,7%	South Africa	174	N.det.Extra	-2

Source: DG Trade, EC, based on Eurostat (Comext, Statistical regime 4)

Computer and related office equipment

Office - World* trade (Average 2007-2009)

Rank	Top global importers			Top global exporters			Top Surplus Balance		Top Deficit Balance	
	Country	Value (millions of euro)	% of World* imports	Country	Value (millions of euro)	% of world* exports	Country	Value (millions of euro)	Country	Value (millions of euro)
	WORLD*	300 397	100,0%	WORLD*	289 713	100,0%				
1	USA	68 660	22,9%	CHINA	117 451	40,5%	CHINA	85 781	**EU27**	**-46 289**
2	**EU27**	**67 544**	**22,5%**	USA	29 934	10,3%	MALAYSIA	9 743	USA	-38 726
3	CHINA	31 671	10,5%	**EU27**	**21 255**	**7,3%**	TAIWAN	8 426	HONG KONG	-6 949
4	HONG KONG	23 781	7,9%	MALAYSIA	17 406	6,0%	THAILAND	6 769	CANADA	-5 880
5	JAPAN	14 764	4,9%	HONG KONG	16 832	5,8%	SINGAPORE	6 585	AUSTRALIA	-4 140
6	SINGAPORE	9 902	3,3%	SINGAPORE	16 487	5,7%	KOREA REP	3 903	RUSSIA	-3 415
7	CANADA	8 525	2,8%	TAIWAN	12 329	4,3%	PHILIPPINES	3 299	JAPAN	-3 062
8	MEXICO	7 899	2,6%	THAILAND	11 831	4,1%	COSTA RICA	424	INDIA	-2 722
9	MALAYSIA	7 663	2,6%	JAPAN	11 702	4,0%	VIETNAM	11	TURKEY	-2 676
10	KOREA REP	7 010	2,3%	KOREA REP	10 913	3,8%			SWITZERLAND	-2 549

* World excluding Intra EU trade
Source: DG Trade, EC, based on Comtrade

Office - EU trade (2010)

Rank	Top EU import origin			Top EU export destinations			Top EU Surplus Balance		Top EU Deficit Balance	
	Origin	Value (millions of euro)	Share in EU imports	Destination	Value (millions of euro)	Share in EU exports	Partner	Value (millions of euro)	Partner	Value (millions of euro)
	Extra EU	**76 356**	**100,0%**	**Extra EU**	**23 410**	**100,0%**			**Extra EU**	**-52 947**
1	China	42 383	55,5%	USA	3 124	13,3%	Russia	2 675	China	-41 356
2	Japan	5 167	6,8%	Russia	2 692	11,5%	Switzerland	1 705	Malaysia	-4 794
3	Malaysia	5 134	6,7%	Switzerland	2 618	11,2%	Norway	1 442	Japan	-4 629
4	USA	4 810	6,3%	Norway	1 538	6,6%	Turkey	1 191	Costa Rica	-4 002
5	Costa Rica	4 034	5,3%	Turkey	1 237	5,3%	U.A.Emirates	1 140	Singapore	-2 689
6	Singapore	3 202	4,2%	U.A.Emirates	1 181	5,0%	South Africa	1 015	Taiwan	-2 448
7	Taiwan	2 607	3,4%	South Africa	1 061	4,5%	Saudi Arabia	411	Thailand	-2 224
8	Thailand	2 411	3,2%	China	1 027	4,4%	Israel	322	USA	-1 687
9	South Korea	1 519	2,0%	Israel	663	2,8%	Ukraine	281	South Korea	-1 201
10	Hong Kong	1 015	1,3%	Japan	538	2,3%	Morocco	270	Hong Kong	-535

Source: DG Trade, EC, based on Eurostat (Comext, Statistical regime 4)

Telecommunication equipment

Telecom - World* trade (Average 2007-2009)

Rank	Top global importers			Top global exporters			Top Surplus Balance		Top Deficit Balance	
	Country	Value (millions of euro)	% of World* imports	Country	Value (millions of euro)	% of world* exports	Country	Value (millions of euro)	Country	Value (millions of euro)
	WORLD*	145 477	100,0%	WORLD*	158 707	100,0%				
1	USA	33 041	22,7%	CHINA	61 556	38,8%	CHINA	47 724	USA	-21 080
2	**EU27**	**29 737**	**20,4%**	KOREA REP	22 042	13,9%	KOREA REP	18 494	**EU27**	**-9 174**
3	HONG KONG	17 528	12,0%	**EU27**	**20 564**	**13,0%**	MEXICO	2 977	HONG KONG	-5 268
4	CHINA	13 832	9,5%	HONG KONG	12 261	7,7%	TAIWAN	1 812	RUSSIA	-2 675
5	MEXICO	5 215	3,6%	USA	11 961	7,5%	ISRAEL	704	INDIA	-1 349
6	JAPAN	5 110	3,5%	MEXICO	8 191	5,2%	MALAYSIA	175	SWITZERLAND	-1 224
7	CANADA	4 932	3,4%	CANADA	4 092	2,6%	PHILIPPINES	92	TURKEY	-1 167
8	SINGAPORE	3 867	2,7%	JAPAN	4 085	2,6%	INDONESIA	18	SAUD.ARABIA	-1 135
9	KOREA REP	3 549	2,4%	SINGAPORE	3 577	2,3%	UKRAIN	12	SOUTH AFRICA	-1 131
10	RUSSIA	2 960	2,0%	TAIWAN	2 414	1,5%	MOROCCO	3	AUSTRALIA	-1 057

* World excluding Intra EU trade
Source: DG Trade, EC, based on Comtrade

Telecom - EU trade (2010)

Rank	Top EU import origin			Top EU export destinations			Top EU Surplus Balance		Top EU Deficit Balance	
	Origin	Value (millions of euro)	Share in EU imports	Destination	Value (millions of euro)	Share in EU exports	Partner	Value (millions of euro)	Partner	Value (millions of euro)
	Extra EU	**41 165**	**100,0%**	**Extra EU**	**26 320**	**100,0%**			**Extra EU**	**-14 844**
1	China	21 513	52,3%	USA	3 612	13,7%	Russia	2 257	China	-20 266
2	USA	3 081	7,5%	Russia	2 283	8,7%	U.A.Emirates	1 764	South Korea	-2 687
3	South Korea	2 943	7,1%	U.A.Emirates	1 840	7,0%	Turkey	1 395	Taiwan	-2 234
4	Taiwan	2 368	5,8%	Switzerland	1 561	5,9%	Switzerland	1 242	Malaysia	-1 934
5	Malaysia	2 209	5,4%	Hong Kong	1 434	5,4%	South Africa	658	Mexico	-1 363
6	Hong Kong	1 967	4,8%	Turkey	1 432	5,4%	Saudi Arabia	643	Hong Kong	-533
7	Mexico	1 667	4,0%	China	1 246	4,7%	USA	531	Thailand	-502
8	India	739	1,8%	India	1 051	4,0%	Ukraine	466	Japan	-257
9	Japan	722	1,8%	Norway	737	2,8%	Australia	447	Vietnam	-204
10	Thailand	700	1,7%	South Africa	721	2,7%	Singapore	433	Tunisia	-181

Source: DG Trade, EC, based on Eurostat (Comext, Statistical regime 4)

3. ELECTRONICS SECTOR AND SUB-SECTORS DEFINITION AT HS6 LEVEL

The purpose of this section is to list the relevant custom codes for the electronics sector and sub-sectors at a more detailed level. See the general explanation of the criteria used for defining the product scope, sector and sub-sector in chapter 1.

The basic principle was to use the ITA list plus additions from NACE and OECD lists.

The result has then been cross-checked with experts, focusing on cases which were more questionable. For a number of products different classifications are possible. This is all the more the case as classification at HS 6 levels (Harmonised System at 6 digit level) implies that there are different HS8 sub-categories which might fall into different sectors. This also means that the resulting statistics might partly cover other than electronic products. However, in order to ensure comparability the internationally agreed HS 6 level had to be used. The same considerations apply to the definition of sub-sectors. It goes without saying that the usual problem of changing lists, conversion tables[78] etc. further complicates the task (HS 1996, 2003, 2007; NACE 2003, 2007; changing OECD definitions…). The OECD, for instance, has been working on the ICT sector and product definition for the last 15 years, leading to several changes and revisions[79].

The ITA's underlying intention was to cover information technology products for professional use. The product scope used for this fiche covers almost all products of the ITA list attachment A, section 1, plus the relevant codes for products covered in list B. It does among others not cover machinery and chemical products for the semiconductor industry (supporting IT products production but not being electronic products themselves).

To this have been added:

- consumer electronic goods,
- newer ICT product categories that did not exist 15 years ago at the time of the ITA negotiations,
- other electronic goods that were not covered by ITA (e.g. some measuring devices).

The **first** table contains all electronic products in the **order of HS codes**.

The **second** table is **sorted according to sub-sectors** (and then according to HS codes).

Both tables cover the same products, only sorted differently.

[78] See overview of conversion system:
http://forum.europa.eu.int/irc/dsis/nacecpacon/info/data/en/2007%20introduction.htm

[79] More about the history and evolvement of the OECD definition in OECD "Guide to Measuring the Information Society 2009", annex 1A, p. 87 – 118, see overview on p. 88

Electronics sector definition: sorted according to HS 6 digit codes

HS6 Codes	HS6 Description	Industry sector	Sub-sector
844331	machines which perform two or more of the functions of printing, copying or facsimile transmission, capable of connecting to an automatic data processing machine or to a network	Electronics	Office
844332	machines which only perform one of the functions of printing, copying or facsimile transmission, capable of connecting to an automatic data processing machine or to a network	Electronics ITA	Office
844339	machines which only perform one of the functions of printing, copying or facsimile transmission (excl. those capable of connecting to an automatic data processing machine or to a network)	Electronics	Office
844399	parts and accessories of printers, copying machines and facsimile machines, n.e.s. (excl. of printing machinery used for printing by means of plates, cylinders and other printing components of heading 8442)	Electronics ITA	Office
847010	electronic calculators capable of operation without an external source of electric power and pocket-size 'dimensions <= 170 mm x 100 mm x 45 mm' data recording, reproducing and displaying machines with calculating functions	Electronics ITA	Office
847021	electronic calculating machines incorporating a printing device, with mains connection (excl. data processing machines of heading 8471)	Electronics ITA	Office
847029	electronic calculating machines not incorporating a printing device, with mains connection (excl. data processing machines of heading 8471)	Electronics ITA	Office
847050	cash registers incorporating a calculating device	Electronics ITA	Office
847130	data-processing machines, automatic, digital, portable, weighing <= 10 kg, consisting of at least a central processing unit, a keyboard and a display (excl. peripheral units)	Electronics ITA	Office
847141	data-processing machines, automatic, digital, comprising in the same housing at least a central processing unit, plus one input unit and one output unit, whether or not combined (excl. portable weighing <= 10 kg and excl. those presented…	Electronics ITA	Office
847149	data-processing machines, automatic, digital, presented in the form of systems 'comprising at least a central processing unit, one input unit and one output unit' (excl. portable weighing <= 10 kg and excl. peripheral units)	Electronics ITA	Office
847150	processing units for automatic data processing machines, digital, whether or not containing in the same housing one or two of the following types of unit: storage units, input units, output units (excl. those of heading 8471,41 or 8471,49…	Electronics ITA	Office
847160	input or output units for digital automatic data-processing machines, whether or not containing storage units in the same housing	Electronics ITA	Office
847170	storage units for digital automatic data-processing machines	Electronics ITA	Office
847180	units for digital automatic data processing machines (excl. processing units, input or output units and storage units)	Electronics ITA	Office
847190	magnetic or optical readers, machines for transcribing data onto data media in coded form and machines for processing such data, n.e.s.	Electronics ITA	Office
847321	parts and accessories of electronic calculating machines of subheading 8470.10, 8470.21 or 8470.29, n.e.s.	Electronics ITA	Office
847329	parts and accessories of non-electronic calculators for accounting machines, cash registers or other machines, incorporating a calculating device, of heading 8470, n.e.s.	Electronics ITA	Office
847330	parts and accessories of automatic data-processing machines or for other machines of heading 8471, n.e.s.	Electronics ITA	Office
847350	parts and accessories equally suitable for use with two or more typewriters, word-processing machines, calculating machines, automatic data-processing machines or other machines, equipment or devices of heading 8469 to 8472, n.e.s.	Electronics ITA	Office
850410	ballasts for discharge lamps or tubes	Electronics	Components
850421	liquid dielectric transformers, having a power handling capacity <= 650 kva	Electronics	Components
850422	liquid dielectric transformers, having a power handling capacity > 650 kva but <= 10.000 kva	Electronics	Components
850423	liquid dielectric transformers, having a power handling capacity > 10.000 kva	Electronics	Components
850431	transformers having a power handling capacity <= 1 kva (excl. liquid dielectric transformers)	Electronics	Components
850432	transformers, having a power handling capacity > 1 kva but <= 16 kva (excl. liquid dielectric transformers)	Electronics	Components
850433	transformers having a power handling capacity > 16 kva but <= 500 kva (excl. liquid dielectric transformers)	Electronics	Components
850434	transformers having a power handling capacity > 500 kva (excl. liquid dielectric transformers)	Electronics	Components
850440	static converters	Electronics	Components
850450	inductors (excl. inductors for discharge lamps or tubes)	Electronics	Components
850490	parts of electrical transformers and inductors, n.e.s.	Electronics	Components
851711	line telephone sets with cordless handsets	Electronics ITA	Telecom
851712	telephones for cellular networks "mobile telephones" or for other wireless networks	Electronics ITA	Telecom
851718	telephone sets (excl. line telephone sets with cordless handsets and telephones for cellular networks or for other wireless networks)	Electronics ITA	Telecom
851761	base stations for the transmission or reception of voice, images or other data, for wireless networks	Electronics ITA	Telecom
851762	machines for the reception, conversion and transmission or regeneration of voice, images or other data, incl. switching and routing apparatus (excl. base stations, telephone sets, telephones for cellular networks or for other wireless networks)	Electronics ITA	Telecom
851769	apparatus for the transmission or reception of voice, images or other data, incl. apparatus for communication in a wired or wireless network [such as a local or wide area network] (excl. telephone sets, telephones for cellular networks or…	Electronics ITA	Telecom
851770	parts of telephone sets, telephones for cellular networks or for other wireless networks and of other apparatus for the transmission or reception of voice, images or other data, n.e.s.	Electronics	Telecom
851810	microphones and stands therefor (excl. cordless microphones with built-in transmitter)	Electronics	Consumer electronics
851821	single loudspeakers, mounted in their enclosures	Electronics	Consumer electronics

851822	multiple loudspeakers, mounted in the same enclosure	Electronics	Consumer electronics
851829	loudspeakers, without enclosure	Electronics	Consumer electronics
851830	headphones and earphones, whether or not combined with microphone, and sets consisting of a microphone and one or more loudspeakers (excl. telephone sets, hearing aids and helmets with built-in headphones, whether or not incorporating a microphone)	Electronics	Consumer electronics
851840	audio-frequency electric amplifiers	Electronics	Consumer electronics
851850	electric sound amplifier sets	Electronics	Consumer electronics
851890	parts of microphones, loudspeakers, headphones and earphones, earphones, audio-frequency electric amplifiers or electric sound amplifier sets, n.e.s.	Electronics	Components
851920	sound recording or sound reproducing apparatus, operated by coins, banknotes, bank cards, tokens or by other means of payment [juke boxes]	Electronics	Consumer electronics
851930	turntables "record-decks"	Electronics	Consumer electronics
851950	telephone answering machines	Electronics ITA	Consumer electronics
851981	sound recording or sound reproducing apparatus, using magnetic, optical or semiconductor media (excl. those operated by coins, banknotes, bank cards, tokens or by other means of payment, turntables and telephone answering machines)	Electronics	Consumer electronics
851989	sound recording or sound reproducing apparatus (excl. using magnetic, optical or semiconductor media, those operated by coins, banknotes, bank cards, tokens or by other means of payment, turntables and telephone answering machines)	Electronics	Consumer electronics
852110	magnetic tape-type video recording or reproducing apparatus, whether or not incorporating a video tuner (excl. video camera recorders)	Electronics	Consumer electronics
852190	video recording or reproducing apparatus, whether or not incorporating a video tuner (excl. magnetic tape-type and video camera recorders)	Electronics	Consumer electronics
852210	pick-up cartridges	Electronics	Consumer electronics
852290	parts and accessories suitable for use solely or principally with sound reproducing and recording apparatus and with video equipment for recording and reproducing pictures and sound (excl. pick-up devices for grooved recording media)	Electronics	Consumer electronics
852329	magnetic media for the recording of sound or of other phenomena (excl. cards incorporating a magnetic stripe and goods of chapter 37)	Electronics ITA	Consumer electronics
852340	optical media for the recording of sound or of other phenomena (excl. goods of chapter 37)	Electronics ITA	Consumer electronics
852351	solid-state, non-volatile data storage devices for recording data from an external source [flash memory cards or flash electronic storage cards] (excl. goods of chapter 37)	Electronics ITA	Consumer electronics
852352	cards incorporating one or more electronic integrated circuits "smart cards"	Electronics ITA	Consumer electronics
852359	semiconductor media, unrecorded, for the recording of sound or of other phenomena (excl. solid-state non-volatile data storage devices, smart cards and goods of chapter 37)	Electronics ITA	Consumer electronics
852550	transmission apparatus for radio-broadcasting or television, not incorporating reception apparatus	Electronics	Telecom
852560	transmission apparatus for radio-broadcasting or television, incorporating reception apparatus	Electronics ITA	Telecom
852580	television cameras, digital cameras and video camera recorders	Electronics	Consumer electronics
852610	radar apparatus	Electronics	Telecom
852691	radio navigational aid apparatus	Electronics	Telecom
852692	radio remote control apparatus	Electronics	Telecom
852712	pocket-size radiocassette players [dimensions <= 170 mm x 100 mm x 45 mm], with built-in amplifier, without built-in loudspeakers, capable of operating without an external source of electric power	Electronics	Consumer electronics
852713	radio-broadcast receivers capable of operating without an external source of power, incl. apparatus capable of also receiving radio-telephony or radio-telegraphy, combined with sound recording or…	Electronics	Consumer electronics
852719	radio-broadcast receivers capable of operating without an external source of power, incl. apparatus capable of also receiving radio-telephony or radio-telegraphy, not combined with sound reproducing apparatus	Electronics	Consumer electronics
852721	radio-broadcast receivers not capable of operating without an external source of power, of a kind used in motor vehicles, incl. apparatus capable of also receiving radio-telephony or radio-telegraphy, combined with sound recording or reproducing apparatus	Electronics	Consumer electronics
852729	radio-broadcast receivers not capable of operating without an external source of power, of a kind used in motor vehicles, incl. apparatus capable of also receiving radio-telephony or radio-telegraphy, not combined with sound recording …	Electronics	Consumer electronics
852791	radio-broadcast receivers, for mains operation only, combined with sound recording or reproducing apparatus (excl. those of a kind used in motor vehicles)	Electronics	Consumer electronics
852792	radio-broadcast receivers, for mains operation only, not combined with sound recording or reproducing apparatus but combined with a clock (excl. those of a kind used in motor vehicles)	Electronics	Consumer electronics
852799	radio-broadcast receivers, for mains operation only, not combined with sound recording or reproducing apparatus and not combined with a clock (excl. those of a kind used in motor vehicles)	Electronics	Consumer electronics
852841	cathode-ray tube monitors of a kind solely or principally used in an automatic data-processing machine of heading 8471	Electronics ITA	Office
852849	cathode-ray tube monitors, not incorporating television reception apparatus (excl. of a kind solely or principally used in an automatic data-processing machine of heading 8471)	Electronics	Consumer electronics
852851	monitors of a kind solely or principally used in an automatic data-processing machine of heading 8471 (excl. with cathode ray tube)	Electronics ITA	Office
852859	monitors, not incorporating television reception apparatus (excl. with cathode ray tube and those of a kind solely or principally used in an automatic data-processing machine of heading 8471)	Electronics	Consumer electronics
852861	projectors of a kind solely or principally used in an automatic data-processing machine of heading 8471	Electronics ITA	Office
852869	projectors, not incorporating television reception apparatus (excl. of a kind solely or principally used in an automatic data-processing machine of heading 8471)	Electronics	Consumer electronics
852871	reception apparatus for television, whether or not incorporating radio-broadcast receivers or sound or video recording or reproducing apparatus, not designed to incorporate a video display or screen	Electronics	Consumer electronics
852872	reception apparatus for television, colour, whether or not incorporating radio-broadcast receivers or sound or video recording or reproducing apparatus, designed to incorporate a video display or screen	Electronics	Consumer electronics
852873	reception apparatus for television, black and white or other monochrome, whether or not incorporating radio-broadcast receivers or sound or video recording or reproducing apparatus, designed to incorporate a video display or screen	Electronics	Consumer electronics

852910	aerials and aerial reflectors of all kinds; parts suitable for use therewith, n.e.s.	Electronics	Components
852990	parts suitable for use solely or principally with transmission and reception apparatus for radio-telephony, radio-telegraphy, radio-broadcasting, television, television cameras, still image video cameras and other video camera recorders…	Electronics	Components
853110	burglar or fire alarms and similar apparatus	Electronics	Measuring
853120	indicator panels with liquid crystal devices "lcd" or light emitting diodes "led" (excl. those for cycles, motor vehicles and traffic signalling)	Electronics ITA	Office
853190	parts of electric sound or visual signalling apparatus, n.e.s.	Electronics	Measuring
853210	fixed capacitors designed for use in 50/60 hz circuits and having a reactive power-handling capacity of >= 0,5 kvar 'power capacitors'	Electronics ITA	Components
853221	fixed electrical capacitors, tantalum (excl. power capacitors)	Electronics ITA	Components
853222	fixed electrical capacitors, aluminium electrolytic (excl. power capacitors)	Electronics ITA	Components
853223	fixed electrical capacitors, ceramic dielectric, single layer (excl. power capacitors)	Electronics ITA	Components
853224	fixed electrical capacitors, ceramic dielectric, multilayer (excl. power capacitors)	Electronics ITA	Components
853225	fixed electrical capacitors, dielectric of paper or plastics (excl. power capacitors)	Electronics ITA	Components
853229	fixed electrical capacitors (excl. tantalum, aluminium electrolytic, ceramic, paper, plastic and power capacitors)	Electronics ITA	Components
853230	variable or adjustable 'pre-set' electrical capacitors	Electronics ITA	Components
853290	parts of electrical 'preset' capacitors, fixed, variable or adjustable, n.e.s.	Electronics ITA	Components
853310	fixed carbon resistors, composition or film types (excl. heating resistors)	Electronics ITA	Components
853321	fixed electrical resistors for a power handling capacity <= 20 w (excl. heating resistors)	Electronics ITA	Components
853329	fixed electrical resistors for a power handling capacity > 20 w (excl. heating resistors)	Electronics ITA	Components
853331	wirewound variable electrical resistors, incl. rheostats and potentiometers, for a power handling capacity <= 20 w (excl. heating resistors)	Electronics ITA	Components
853339	wirewound variable electrical resistors, incl. rheostats and potentiometers, for a power handling capacity > 20 w (excl. heating resistors)	Electronics ITA	Components
853340	electrical variable resistors, incl. rheostats and potentiometers (excl. wirewound variable resistors and heating resistors)	Electronics ITA	Components
853390	parts of electrical resistors, incl. rheostats and potentiometers, n.e.s.	Electronics ITA	Components
853400	printed circuits	Electronics ITA	Components
853510	fuses for a voltage > 1.000 v	Electronics	Components
853521	automatic circuit breakers for a voltage > 1.000 v but < 72,5 kv	Electronics	Components
853529	automatic circuit breakers for a voltage >= 72,5 kv	Electronics	Components
853530	isolating switches and make-and-break switches, for a voltage > 1.000 v	Electronics	Components
853540	lightning arresterrs, voltage limiters and surge suppressors, for a voltage > 1.000 v	Electronics	Components
853590	electrical apparatus for switching or protecting electrical circuits, or for making connections to or in electrical circuits, for a voltage > 1.000 v (excl. fuses, automatic circuit breakers, isolating switches, make-and-break switches, lightning…	Electronics	Components
853610	fuses for a voltage <= 1.000 v	Electronics	Components
853620	automatic circuit breakers for a voltage <= 1.000 v	Electronics	Components
853630	apparatus for protecting electrical circuits for a voltage <= 1.000 v (excl. fuses and automatic circuit breakers)	Electronics	Components
853641	relays for a voltage <= 60 v	Electronics	Components
853649	relays for a voltage > 60 v but <= 1.000 v	Electronics	Components
853650	switches for a voltage <= 1.000 v (excl. relays and automatic circuit breakers)	Electronics	Components
853661	lamp holders for a voltage <= 1.000 v	Electronics	Components
853669	plugs and sockets for a voltage <= 1.000 v (excl. lamp holders)	Electronics	Components
853670	connectors for optical fibres, optical fibre bundles or cables	Electronics	Components
853690	electrical apparatus for switching electrical circuits, or for making connections to or in electrical circuits, for a voltage <= 1.000 v (excl. fuses, automatic circuit breakers and other apparatus for protecting electrical circuits, relays and other…	Electronics	Components
853710	boards, cabinets and similar combinations of apparatus for electric control or the distribution of electricity, for a voltage <= 1.000 v	Electronics	Components
853720	boards, cabinets and similar combinations of apparatus for electric control or the distribution of electricity, for a voltage > 1.000 v	Electronics	Components
853810	boards, panels, consoles, desks, cabinets and other bases for the goods of heading 8537, not equipped with their apparatus	Electronics	Components
853890	parts suitable for use solely or principally with the apparatus of heading 8535, 8536 or 8537, n.e.s. (excl. boards, panels, consoles, desks, cabinets and other bases for the goods of heading 8537, not equipped with their apparatus)	Electronics	Components
854011	cathode ray television picture tubes, incl. video monitor cathode ray tubes, colour	Electronics	Components
854012	cathode-ray television picture tubes, incl. video monitor cathode-ray tubes, black and white or other monochrome, with a screen width-to-height ratio of < 1,5 and a diagonal measurement of the screen > 72 cm	Electronics	Components
854020	television camera tubes; image converters and intensifiers; other photo cathode tubes (excl. cathode ray television picture tubes incl. video monitor cathode ray tubes)	Electronics	Components
854040	data/graphic display tubes, colour, with a phosphor dot screen pitch of < 0,4 mm (excl. photo-cathode tubes and cathode-ray tubes)	Electronics	Components
854050	data/graphic display tubes, black and white or other monochrome (excl. photo-cathode tubes and cathode-ray tubes)	Electronics	Components

854060	cathode-ray tubes (excl. television and video-monitor cathode-ray tubes, television camera tubes, image converters or intensifiers, other photo-cathode tubes, black and white or other monochrome data/graphic display tubes and colour…	Electronics	Components
854071	magnetrons	Electronics	Components
854072	klystrons	Electronics	Components
854079	microwave tubes, e.g. travelling wave tubes and carcinotrons (excl. magnetrons, klystrons and grid-controlled tubes)	Electronics	Components
854081	receiver or amplifier valves and tubes (excl. microwave tubes, photo-cathode tubes and cathode-ray tubes)	Electronics	Components
854089	electronic valves and tubes (excl. receiver or amplifier valves and tubes, microwave tubes, photo-cathode tubes, cathode-ray tubes, black and white or other monochrome data/graphic display tubes and colour data/graphic display tubes…	Electronics	Components
854091	parts of cathode-ray tubes, n.e.s.	Electronics	Components
854099	parts of thermionic, cold cathode or photocathode valves and tubes, n.e.s. (excl. parts of cathode-ray tubes)	Electronics	Components
854110	diodes (excl. photosensitive or light emitting diodes)	Electronics ITA	Components
854121	transistors with a dissipation rate < 1 w (excl. photosensitive transistors)	Electronics ITA	Components
854129	transistors with a dissipation rate >= 1 w (excl. photosensitive transistors)	Electronics ITA	Components
854130	thyristors, diacs and triacs (excl. photosensitive semiconductor devices)	Electronics ITA	Components
854140	photosensitive semiconductor devices, incl. photovoltaic cells whether or not assembled in modules or made up into panels; light emitting diodes (excl. photovoltaic generators)	Electronics ITA	Components
854150	semiconductor devices, n.e.s.	Electronics ITA	Components
854160	mounted piezo-electric crystals	Electronics ITA	Components
854190	parts of diodes, transistors and similar semiconductor devices; photosensitive semiconductor devices, light emitting diodes and mounted piezo-electric crystals, n.e.s.	Electronics ITA	Components
854231	electronic integrated circuits as processors and controllers, whether or not combined with memories, converters, logic circuits, amplifiers, clock and timing circuits, or other circuits	Electronics ITA	Components
854232	electronic integrated circuits as memories	Electronics ITA	Components
854233	electronic integrated circuits as amplifiers	Electronics ITA	Components
854239	electronic integrated circuits (excl. such as processors, controllers, memories and amplifiers)	Electronics ITA	Components
854290	parts of electronic integrated circuits and microassemblies, n.e.s.	Electronics ITA	Components
854320	signal generators, electrical	Electronics	Measuring
901380	liquid crystal devices, n.e.s. and other optical appliances and instruments not elsewhere specified in chapter 90	Electronics	Components
901390	parts and accessories for liquid crystal devices "lcd", lasers and other appliances and instruments not elsewhere specified in chapter 90, n.e.s.	Electronics	Components
902610	instruments and apparatus for measuring or checking the flow or level of liquids (excl. meters and regulators)	Electronics ITA	Measuring
902620	instruments and apparatus for measuring or checking pressure of liquids or gases (excl. regulators)	Electronics ITA	Measuring
902680	instruments or apparatus for measuring or checking variables of liquids or gases, n.e.s.	Electronics ITA	Measuring
902690	parts and accessories for instruments and apparatus for measuring or checking the flow, level, pressure or other variables of liquids or gases, n.e.s.	Electronics ITA	Measuring
902710	gas or smoke analysis apparatus	Electronics	Measuring
902720	chromatographs and electrophoresis instruments	Electronics ITA	Measuring
902730	spectrometers, spectrophotometers and spectrographs using optical radiations, such as uv, visible, ir	Electronics ITA	Measuring
902750	instruments and apparatus for physical or chemical analysis, using uv, visible or ir optical radiations (excl. spectrometers, spectrophotometers, spectrographs, and gas or smoke analysis apparatus)	Electronics ITA	Measuring
902780	instruments and apparatus for physical or chemical analysis, or for measuring or checking viscosity, porosity, expansion, surface tension or the like, or for measuring or checking quantities of heat, sound or light, n.e.s.	Electronics ITA	Measuring
902790	microtomes; parts and accessories of instruments and apparatus for physical or chemical analysis, instruments and apparatus for measuring or checking viscosity, porosity, expansion, surface tension or the like, instruments and apparatus…	Electronics	Measuring
903010	instruments and apparatus for measuring or detecting ionising radiations	Electronics	Measuring
903020	cathode-ray oscilloscopes and cathode-ray oscillographs	Electronics	Measuring
903031	multimeters for voltage, current, resistance or electrical power (excl. recording device)	Electronics	Measuring
903032	multimeters with recording device	Electronics	Measuring
903033	instruments and apparatus for measuring or checking voltage, current, resistance or electrical power, without recording device (excl. multimeters, and oscilloscopes and oscillographs)	Electronics	Measuring
903039	instruments and apparatus for measuring or checking voltage, current, resistance or electrical power (excl. recording device, multimeters, and cathode ray oscilloscopes and oscillographs)	Electronics	Measuring
903040	instruments and apparatus for measuring or checking electrical quantities, specifically for telecommunications, e.g. cross-talk meters, gain measuring instruments, distortion factor meters, psophometers	Electronics ITA	Measuring
903082	instruments and apparatus for measuring or checking semiconductor wafers or devices	Electronics ITA	Measuring
903084	instruments and appliances for measuring or checking electrical quantities, with recording device (excl. appliances specially designed for telecommunications, multimeters, oscilloscopes and oscillographs, and apparatus for measuring…	Electronics	Measuring
903089	instruments and apparatus for measuring or checking electrical quantities, n.e.s. (excl. recording device)	Electronics	Measuring
903090	parts and accessories for instruments and apparatus for measuring or checking electrical quantities or for detecting ionising radiations, n.e.s.	Electronics	Measuring

Electronics sector definition: sorted according to sub-sectors

Sub-sector	HS6 Codes	HS6 Description	Industry sector
Consumer electronics			
Consumer electronics	**851810**	microphones and stands therefor (excl. cordless microphones with built-in transmitter)	Electronics
Consumer electronics	**851821**	single loudspeakers, mounted in their enclosures	Electronics
Consumer electronics	**851822**	multiple loudspeakers, mounted in the same enclosure	Electronics
Consumer electronics	**851829**	loudspeakers, without enclosure	Electronics
Consumer electronics	**851830**	headphones and earphones, whether or not combined with microphone, and sets consisting of a microphone and one or more loudspeakers (excl. telephone sets, hearing aids and helmets with built-in headphones, whether or not incorporating a microphone)	Electronics
Consumer electronics	**851840**	audio-frequency electric amplifiers	Electronics
Consumer electronics	**851850**	electric sound amplifier sets	Electronics
Consumer electronics	**851920**	sound recording or sound reproducing apparatus, operated by coins, banknotes, bank cards, tokens or by other means of payment [juke boxes]	Electronics
Consumer electronics	**851930**	turntables "record-decks"	Electronics
Consumer electronics	**851950**	telephone answering machines	Electronics ITA
Consumer electronics	**851981**	sound recording or sound reproducing apparatus, using magnetic, optical or semiconductor media (excl. those operated by coins, banknotes, bank cards, tokens or by other means of payment, turntables and telephone answering machines)	Electronics
Consumer electronics	**851989**	sound recording or sound reproducing apparatus (excl. using magnetic, optical or semiconductor media, those operated by coins, banknotes, bank cards, tokens or by other means of payment, turntables and telephone answering machines)	Electronics
Consumer electronics	**852110**	magnetic tape-type video recording or reproducing apparatus, whether or not incorporating a video tuner (excl. video camera recorders)	Electronics
Consumer electronics	**852190**	video recording or reproducing apparatus, whether or not incorporating a video tuner (excl. magnetic tape-type and video camera recorders)	Electronics
Consumer electronics	**852210**	pick-up cartridges	Electronics
Consumer electronics	**852290**	parts and accessories suitable for use solely or principally with sound reproducing and recording apparatus and with video equipment for recording and reproducing pictures and sound (excl. pick-up devices for grooved recording media)	Electronics
Consumer electronics	**852329**	magnetic media for the recording of sound or of other phenomena (excl. cards incorporating a magnetic stripe and goods of chapter 37)	Electronics ITA
Consumer electronics	**852340**	optical media for the recording of sound or of other phenomena (excl. goods of chapter 37)	Electronics ITA
Consumer electronics	**852351**	solid-state, non-volatile data storage devices for recording data from an external source [flash memory cards or flash electronic storage cards] (excl. goods of chapter 37)	Electronics ITA
Consumer electronics	**852352**	cards incorporating one or more electronic integrated circuits "smart cards"	Electronics ITA
Consumer electronics	**852359**	semiconductor media, unrecorded, for the recording of sound or of other phenomena (excl. solid-state non-volatile data storage devices, smart cards and goods of chapter 37)	Electronics ITA
Consumer electronics	**852580**	television cameras, digital cameras and video camera recorders	Electronics
Consumer electronics	**852712**	pocket-size radiocassette players [dimensions <= 170 mm x 100 mm x 45 mm], with built-in amplifier, without built-in loudspeakers, capable of operating without an external source of electric power	Electronics
Consumer electronics	**852713**	radio-broadcast receivers capable of operating without an external source of power, incl. apparatus capable of also receiving radio-telephony or radio-telegraphy, combined with sound recording or…	Electronics
Consumer electronics	**852719**	radio-broadcast receivers capable of operating without an external source of power, incl. apparatus capable of also receiving radio-telephony or radio-telegraphy, not combined with sound reproducing apparatus	Electronics
Consumer electronics	**852721**	radio-broadcast receivers not capable of operating without an external source of power, of a kind used in motor vehicles, incl. apparatus capable of also receiving radio-telephony or radio-telegraphy, combined with sound recording or reproducing apparatus	Electronics
Consumer electronics	**852729**	radio-broadcast receivers not capable of operating without an external source of power, of a kind used in motor vehicles, incl. apparatus capable of also receiving radio-telephony or radio-telegraphy, not combined with sound recording …	Electronics
Consumer electronics	**852791**	radio-broadcast receivers, for mains operation only, combined with sound recording or reproducing apparatus (excl. those of a kind used in motor vehicles)	Electronics
Consumer electronics	**852792**	radio-broadcast receivers, for mains operation only, not combined with sound recording or reproducing apparatus but combined with a clock (excl. those of a kind used in motor vehicles)	Electronics
Consumer electronics	**852799**	radio-broadcast receivers, for mains operation only, not combined with sound recording or reproducing apparatus and not combined with a clock (excl. those of a kind used in motor vehicles)	Electronics
Consumer electronics	**852849**	cathode-ray tube monitors, not incorporating television reception apparatus (excl. of a kind solely or principally used in an automatic data-processing machine of heading 8471)	Electronics
Consumer electronics	**852859**	monitors, not incorporating television reception apparatus (excl. with cathode ray tube and those of a kind solely or principally used in an automatic data-processing machine of heading 8471)	Electronics
Consumer electronics	**852869**	projectors, not incorporating television reception apparatus (excl. of a kind solely or principally used in an automatic data-processing machine of heading 8471)	Electronics
Consumer electronics	**852871**	reception apparatus for television, whether or not incorporating radio-broadcast receivers or sound or video recording or reproducing apparatus, not designed to incorporate a video display or screen	Electronics
Consumer electronics	**852872**	reception apparatus for television, colour, whether or not incorporating radio-broadcast receivers or sound or video recording or reproducing apparatus, designed to incorporate a video display or screen	Electronics
Consumer electronics	**852873**	reception apparatus for television, black and white or other monochrome, whether or not incorporating radio-broadcast receivers or sound or video recording or reproducing apparatus, designed to incorporate a video display or screen	Electronics

Components			
Components	850410	ballasts for discharge lamps or tubes	Electronics
Components	850421	liquid dielectric transformers, having a power handling capacity <= 650 kva	Electronics
Components	850422	liquid dielectric transformers, having a power handling capacity > 650 kva but <= 10.000 kva	Electronics
Components	850423	liquid dielectric transformers, having a power handling capacity > 10.000 kva	Electronics
Components	850431	transformers having a power handling capacity <= 1 kva (excl. liquid dielectric transformers)	Electronics
Components	850432	transformers, having a power handling capacity > 1 kva but <= 16 kva (excl. liquid dielectric transformers)	Electronics
Components	850433	transformers having a power handling capacity > 16 kva but <= 500 kva (excl. liquid dielectric transformers)	Electronics
Components	850434	transformers having a power handling capacity > 500 kva (excl. liquid dielectric transformers)	Electronics
Components	850440	static converters	Electronics
Components	850450	inductors (excl. inductors for discharge lamps or tubes)	Electronics
Components	850490	parts of electrical transformers and inductors, n.e.s.	Electronics
Components	851890	parts of microphones, loudspeakers, headphones and earphones, earphones, audio-frequency electric amplifiers or electric sound amplifier sets, n.e.s.	Electronics
Components	852910	aerials and aerial reflectors of all kinds; parts suitable for use therewith, n.e.s.	Electronics
Components	852990	parts suitable for use solely or principally with transmission and reception apparatus for radio-telephony, radio-telegraphy, radio-broadcasting, television, television cameras, still image video cameras and other video camera recorders…	Electronics
Components	853210	fixed capacitors designed for use in 50/60 hz circuits and having a reactive power-handling capacity of >= 0,5 kvar 'power capacitors'	Electronics ITA
Components	853221	fixed electrical capacitors, tantalum (excl. power capacitors)	Electronics ITA
Components	853222	fixed electrical capacitors, aluminium electrolytic (excl. power capacitors)	Electronics ITA
Components	853223	fixed electrical capacitors, ceramic dielectric, single layer (excl. power capacitors)	Electronics ITA
Components	853224	fixed electrical capacitors, ceramic dielectric, multilayer (excl. power capacitors)	Electronics ITA
Components	853225	fixed electrical capacitors, dielectric of paper or plastics (excl. power capacitors)	Electronics ITA
Components	853229	fixed electrical capacitors (excl. tantalum, aluminium electrolytic, ceramic, paper, plastic and power capacitors)	Electronics ITA
Components	853230	variable or adjustable 'pre-set' electrical capacitors	Electronics ITA
Components	853290	parts of electrical 'preset' capacitors, fixed, variable or adjustable, n.e.s.	Electronics ITA
Components	853310	fixed carbon resistors, composition or film types (excl. heating resistors)	Electronics ITA
Components	853321	fixed electrical resistors for a power handling capacity <= 20 w (excl. heating resistors)	Electronics ITA
Components	853329	fixed electrical resistors for a power handling capacity > 20 w (excl. heating resistors)	Electronics ITA
Components	853331	wirewound variable electrical resistors, incl. rheostats and potentiometers, for a power handling capacity <= 20 w (excl. heating resistors)	Electronics ITA
Components	853339	wirewound variable electrical resistors, incl. rheostats and potentiometers, for a power handling capacity > 20 w (excl. heating resistors)	Electronics ITA
Components	853340	electrical variable resistors, incl. rheostats and potentiometers (excl. wirewound variable resistors and heating resistors)	Electronics ITA
Components	853390	parts of electrical resistors, incl. rheostats and potentiometers, n.e.s.	Electronics ITA
Components	853400	printed circuits	Electronics ITA
Components	853510	fuses for a voltage > 1.000 v	Electronics
Components	853521	automatic circuit breakers for a voltage > 1.000 v but < 72,5 kv	Electronics
Components	853529	automatic circuit breakers for a voltage >= 72,5 kv	Electronics
Components	853530	isolating switches and make-and-break switches, for a voltage > 1.000 v	Electronics
Components	853540	lightning arresterrs, voltage limiters and surge suppressors, for a voltage > 1.000 v	Electronics
Components	853590	electrical apparatus for switching or protecting electrical circuits, or for making connections to or in electrical circuits, for a voltage > 1.000 v (excl. fuses, automatic circuit breakers, isolating switches, make-and-break switches, lightning…	Electronics
Components	853610	fuses for a voltage <= 1.000 v	Electronics
Components	853620	automatic circuit breakers for a voltage <= 1.000 v	Electronics
Components	853630	apparatus for protecting electrical circuits for a voltage <= 1.000 v (excl. fuses and automatic circuit breakers)	Electronics
Components	853641	relays for a voltage <= 60 v	Electronics
Components	853649	relays for a voltage > 60 v but <= 1.000 v	Electronics
Components	853650	switches for a voltage <= 1.000 v (excl. relays and automatic circuit breakers)	Electronics
Components	853661	lamp holders for a voltage <= 1.000 v	Electronics
Components	853669	plugs and sockets for a voltage <= 1.000 v (excl. lamp holders)	Electronics
Components	853670	connectors for optical fibres, optical fibre bundles or cables	Electronics
Components	853690	electrical apparatus for switching electrical circuits, or for making connections to or in electrical circuits, for a voltage <= 1.000 v (excl. fuses, automatic circuit breakers and other apparatus for protecting electrical circuits, relays and other…	Electronics

Components	**853710**	boards, cabinets and similar combinations of apparatus for electric control or the distribution of electricity, for a voltage <= 1.000 v	Electronics
Components	**853720**	boards, cabinets and similar combinations of apparatus for electric control or the distribution of electricity, for a voltage > 1.000 v	Electronics
Components	**853810**	boards, panels, consoles, desks, cabinets and other bases for the goods of heading 8537, not equipped with their apparatus	Electronics
Components	**853890**	parts suitable for use solely or principally with the apparatus of heading 8535, 8536 or 8537, n.e.s. (excl. boards, panels, consoles, desks, cabinets and other bases for the goods of heading 8537, not equipped with their apparatus)	Electronics
Components	**854011**	cathode ray television picture tubes, incl. video monitor cathode ray tubes, colour	Electronics
Components	**854012**	cathode-ray television picture tubes, incl. video monitor cathode-ray tubes, black and white or other monochrome, with a screen width-to-height ratio of < 1,5 and a diagonal measurement of the screen > 72 cm	Electronics
Components	**854020**	television camera tubes; image converters and intensifiers; other photo cathode tubes (excl. cathode ray television picture tubes incl. video monitor cathode ray tubes)	Electronics
Components	**854040**	data/graphic display tubes, colour, with a phosphor dot screen pitch of < 0,4 mm (excl. photo-cathode tubes and cathode-ray tubes)	Electronics
Components	**854050**	data/graphic display tubes, black and white or other monochrome (excl. photo-cathode tubes and cathode-ray tubes)	Electronics
Components	**854060**	cathode-ray tubes (excl. television and video-monitor cathode-ray tubes, television camera tubes, image converters or intensifiers, other photo-cathode tubes, black and white or other monochrome data/graphic display tubes and colour…	Electronics
Components	**854071**	magnetrons	Electronics
Components	**854072**	klystrons	Electronics
Components	**854079**	microwave tubes, e.g. travelling wave tubes and carcinotrons (excl. magnetrons, klystrons and grid-controlled tubes)	Electronics
Components	**854081**	receiver or amplifier valves and tubes (excl. microwave tubes, photo-cathode tubes and cathode-ray tubes)	Electronics
Components	**854089**	electronic valves and tubes (excl. receiver or amplifier valves and tubes, microwave tubes, photo-cathode tubes, cathode-ray tubes, black and white or other monochrome data/graphic display tubes and colour data/graphic display tubes…	Electronics
Components	**854091**	parts of cathode-ray tubes, n.e.s.	Electronics
Components	**854099**	parts of thermionic, cold cathode or photocathode valves and tubes, n.e.s. (excl. parts of cathode-ray tubes)	Electronics
Components	**854110**	diodes (excl. photosensitive or light emitting diodes)	Electronics ITA
Components	**854121**	transistors with a dissipation rate < 1 w (excl. photosensitive transistors)	Electronics ITA
Components	**854129**	transistors with a dissipation rate >= 1 w (excl. photosensitive transistors)	Electronics ITA
Components	**854130**	thyristors, diacs and triacs (excl. photosensitive semiconductor devices)	Electronics ITA
Components	**854140**	photosensitive semiconductor devices, incl. photovoltaic cells whether or not assembled in modules or made up into panels; light emitting diodes (excl. photovoltaic generators)	Electronics ITA
Components	**854150**	semiconductor devices, n.e.s.	Electronics ITA
Components	**854160**	mounted piezo-electric crystals	Electronics ITA
Components	**854190**	parts of diodes, transistors and similar semiconductor devices; photosensitive semiconductor devices, light emitting diodes and mounted piezo-electric crystals, n.e.s.	Electronics ITA
Components	**854231**	electronic integrated circuits as processors and controllers, whether or not combined with memories, converters, logic circuits, amplifiers, clock and timing circuits, or other circuits	Electronics ITA
Components	**854232**	electronic integrated circuits as memories	Electronics ITA
Components	**854233**	electronic integrated circuits as amplifiers	Electronics ITA
Components	**854239**	electronic integrated circuits (excl. such as processors, controllers, memories and amplifiers)	Electronics ITA
Components	**854290**	parts of electronic integrated circuits and microassemblies, n.e.s.	Electronics ITA
Components	**901380**	liquid crystal devices, n.e.s. and other optical appliances and instruments not elsewhere specified in chapter 90	Electronics
Components	**901390**	parts and accessories for liquid crystal devices "lcd", lasers and other appliances and instruments not elsewhere specified in chapter 90, n.e.s.	Electronics
Measuring			
Measuring	**853110**	burglar or fire alarms and similar apparatus	Electronics
Measuring	**853190**	parts of electric sound or visual signalling apparatus, n.e.s.	Electronics
Measuring	**854320**	signal generators, electrical	Electronics
Measuring	**902610**	instruments and apparatus for measuring or checking the flow or level of liquids (excl. meters and regulators)	Electronics ITA
Measuring	**902620**	instruments and apparatus for measuring or checking pressure of liquids or gases (excl. regulators)	Electronics ITA
Measuring	**902680**	instruments or apparatus for measuring or checking variables of liquids or gases, n.e.s.	Electronics ITA
Measuring	**902690**	parts and accessories for instruments and apparatus for measuring or checking the flow, level, pressure or other variables of liquids or gases, n.e.s.	Electronics ITA
Measuring	**902710**	gas or smoke analysis apparatus	Electronics
Measuring	**902720**	chromatographs and electrophoresis instruments	Electronics ITA
Measuring	**902730**	spectrometers, spectrophotometers and spectrographs using optical radiations, such as uv, visible, ir	Electronics ITA
Measuring	**902750**	instruments and apparatus for physical or chemical analysis, using uv, visible or ir optical radiations (excl. spectrometers, spectrophotometers, spectrographs, and gas or smoke analysis apparatus)	Electronics ITA
Measuring	**902780**	instruments and apparatus for physical or chemical analysis, or for measuring or checking viscosity, porosity, expansion, surface tension or the like, or for measuring or checking quantities of heat, sound or light, n.e.s.	Electronics ITA
Measuring	**902790**	microtomes; parts and accessories of instruments and apparatus for physical or chemical analysis, instruments and apparatus for measuring or checking viscosity, porosity, expansion, surface tension or the like, instruments and apparatus…	Electronics

Measuring	903010	instruments and apparatus for measuring or detecting ionising radiations	Electronics
Measuring	903020	cathode-ray oscilloscopes and cathode-ray oscillographs	Electronics
Measuring	903031	multimeters for voltage, current, resistance or electrical power (excl. recording device)	Electronics
Measuring	903032	multimeters with recording device	Electronics
Measuring	903033	instruments and apparatus for measuring or checking voltage, current, resistance or electrical power, without recording device (excl. multimeters, and oscilloscopes and oscillographs)	Electronics
Measuring	903039	instruments and apparatus for measuring or checking voltage, current, resistance or electrical power (excl. recording device, multimeters, and cathode ray oscilloscopes and oscillographs)	Electronics
Measuring	903040	instruments and apparatus for measuring or checking electrical quantities, specifically for telecommunications, e.g. cross-talk meters, gain measuring instruments, distortion factor meters, psophometers	Electronics ITA
Measuring	903082	instruments and apparatus for measuring or checking semiconductor wafers or devices	Electronics ITA
Measuring	903084	instruments and appliances for measuring or checking electrical quantities, with recording device (excl. appliances specially designed for telecommunications, multimeters, oscilloscopes and oscillographs, and apparatus for measuring…	Electronics
Measuring	903089	instruments and apparatus for measuring or checking electrical quantities, n.e.s. (excl. recording device)	Electronics
Measuring	903090	parts and accessories for instruments and apparatus for measuring or checking electrical quantities or for detecting ionising radiations, n.e.s.	Electronics
Office			
Office	844331	machines which perform two or more of the functions of printing, copying or facsimile transmission, capable of connecting to an automatic data processing machine or to a network	Electronics
Office	844332	machines which only perform one of the functions of printing, copying or facsimile transmission, capable of connecting to an automatic data processing machine or to a network	Electronics ITA
Office	844339	machines which only perform one of the functions of printing, copying or facsimile transmission (excl. those capable of connecting to an automatic data processing machine or to a network)	Electronics
Office	844399	parts and accessories of printers, copying machines and facsimile machines, n.e.s. (excl. of printing machinery used for printing by means of plates, cylinders and other printing components of heading 8442)	Electronics ITA
Office	847010	electronic calculators capable of operation without an external source of electric power and pocket-size 'dimensions <= 170 mm x 100 mm x 45 mm' data recording, reproducing and displaying machines with calculating functions	Electronics ITA
Office	847021	electronic calculating machines incorporating a printing device, with mains connection (excl. data processing machines of heading 8471)	Electronics ITA
Office	847029	electronic calculating machines not incorporating a printing device, with mains connection (excl. data processing machines of heading 8471)	Electronics ITA
Office	847050	cash registers incorporating a calculating device	Electronics ITA
Office	847130	data-processing machines, automatic, digital, portable, weighing <= 10 kg, consisting of at least a central processing unit, a keyboard and a display (excl. peripheral units)	Electronics ITA
Office	847141	data-processing machines, automatic, digital, comprising in the same housing at least a central processing unit, plus one input unit and one output unit, whether or not combined (excl. portable weighing <= 10 kg and excl. those presented…	Electronics ITA
Office	847149	data-processing machines, automatic, digital, presented in the form of systems 'comprising at least a central processing unit, one input unit and one output unit' (excl. portable weighing <= 10 kg and excl. peripheral units)	Electronics ITA
Office	847150	processing units for automatic data processing machines, digital, whether or not containing in the same housing one or two of the following types of unit: storage units, input units, output units (excl. those of heading 8471,41 or 8471,49…	Electronics ITA
Office	847160	input or output units for digital automatic data-processing machines, whether or not containing storage units in the same housing	Electronics ITA
Office	847170	storage units for digital automatic data-processing machines	Electronics ITA
Office	847180	units for digital automatic data processing machines (excl. processing units, input or output units and storage units)	Electronics ITA
Office	847190	magnetic or optical readers, machines for transcribing data onto data media in coded form and machines for processing such data, n.e.s.	Electronics ITA
Office	847321	parts and accessories of electronic calculating machines of subheading 8470.10, 8470.21 or 8470.29, n.e.s.	Electronics ITA
Office	847329	parts and accessories of non-electronic calculators for accounting machines, cash registers or other machines, incorporating a calculating device, of heading 8470, n.e.s.	Electronics ITA
Office	847330	parts and accessories of automatic data-processing machines or for other machines of heading 8471, n.e.s.	Electronics ITA
Office	847350	parts and accessories equally suitable for use with two or more typewriters, word-processing machines, calculating machines, automatic data-processing machines or other machines, equipment or devices of heading 8469 to 8472, n.e.s.	Electronics ITA
Office	852841	cathode-ray tube monitors of a kind solely or principally used in an automatic data-processing machine of heading 8471	Electronics ITA
Office	852851	monitors of a kind solely or principally used in an automatic data-processing machine of heading 8471 (excl. with cathode ray tube)	Electronics ITA
Office	852861	projectors of a kind solely or principally used in an automatic data-processing machine of heading 8471	Electronics ITA
Office	853120	indicator panels with liquid crystal devices "lcd" or light emitting diodes "led" (excl. those for cycles, motor vehicles and traffic signalling)	Electronics ITA
Telecom			
Telecom	851711	line telephone sets with cordless handsets	Electronics ITA
Telecom	851712	telephones for cellular networks "mobile telephones" or for other wireless networks	Electronics ITA
Telecom	851718	telephone sets (excl. line telephone sets with cordless handsets and telephones for cellular networks or for other wireless networks)	Electronics ITA
Telecom	851761	base stations for the transmission or reception of voice, images or other data, for wireless networks	Electronics ITA
Telecom	851762	machines for the reception, conversion and transmission or regeneration of voice, images or other data, incl. switching and routing apparatus (excl. base stations, telephone sets, telephones for cellular networks or for other wireless networks)	Electronics ITA
Telecom	851769	apparatus for the transmission or reception of voice, images or other data, incl. apparatus for communication in a wired or wireless network [such as a local or wide area network] (excl. telephone sets, telephones for cellular networks or…	Electronics ITA
Telecom	851770	parts of telephone sets, telephones for cellular networks or for other wireless networks and of other	Electronics

		apparatus for the transmission or reception of voice, images or other data, n.e.s.	
Telecom	**852550**	transmission apparatus for radio-broadcasting or television, not incorporating reception apparatus	Electronics
Telecom	**852560**	transmission apparatus for radio-broadcasting or television, incorporating reception apparatus	Electronics ITA
Telecom	**852610**	radar apparatus	Electronics
Telecom	**852691**	radio navigational aid apparatus	Electronics
Telecom	**852692**	radio remote control apparatus	Electronics

4. ANNEX: INDUSTRY OVERVIEW OF NON-TARIFF BARRIERS (NTBS)

The below is *Digital Europe*'s position paper on Non-Tariff Barriers (NTBs) that should be addressed in Free Trade Agreements. The paper is attached as an annex to the sector fiche as it gives a good and more detailed illustration of the kind of barriers that industry claims to encounter in their daily business practice. **The views expressed in the position paper are solely those of Digital Europe and do not in any way engage the Commission services.**

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23 September 2010

DIGITALEUROPE'S POSITION ON NON-TARIFF BARRIERS IN FREE TRADE AGREEMENTS

INTRODUCTION

The future growth of a country or region's digital economy will be a key to its overall economic success; it can enhance the chances for growth and prosperity, providing the foundation on which to build new, innovative products, services and business models and increasing productivity and competitiveness in all sectors of the economy.

As the "digital economy" is playing an expanding role in international trade, Free Trade Agreements should include a strong emphasis on digital economy issues. With the convergence of computing and communications in the product space, and ICT solutions increasingly delivered via networks as a service, FTAs would need to ensure access to advanced information and communications technologies, services, software and electronic commerce. Since these elements are essential building blocks for a successful digital economy, the omission of, or lack of liberalization in, any one of these issues could undermine the effectiveness of a trade agreement to enable the digital economy. As import tariffs are reduced or eliminated, this lack of liberalization – meaning the retention of onerous regulatory requirements that act as non-tariff barriers – is increasingly seen to be impeding trade in digital goods and services, with obvious knock-on effects for economic development in the countries where there is heavy regulation.

NTB CHECKLIST

While tariffs are easily visible, many non-tariff barriers can be unclear [difficult to detect?] and especially prejudicial to new market entrants. Consequently, effective market access improvements depend on the reduction and/or elimination of both types of barriers. NTBs can take many forms and can change quickly, depriving companies of effective access to other markets. DIGITALEUROPE is concerned that regulatory barriers have become one of the main obstacles to the free flow of our products, notwithstanding the obligations contained in the WTO Agreement on Technical Barriers to Trade (TBT Agreement).

Many NTBs are difficult to address within the TBT Agreement since they are nondiscriminatory. There is no mechanism below the level of the formal WTO dispute settlement procedure to deal with the lack of implementation and barriers. Therefore the implementation of a TBT-specific mechanism that can quickly and efficiently resolve technical questions is highly recommended. Finally, without a resolution on how to define the term "international standards", parts of the Agreement cannot be applied efficiently. Trade agreements should therefore aim at a more precise definition of the term "international standard", in light of the overall purpose of the TBT agreement – which is to facilitate trade.

The benefits sought by Trade Agreements are in such areas as economic growth, increased competition, better qualities, lower prices etc. To accomplish such benefits companies from the countries involved in the Agreement should be able to enter each other's market as freely as possible. Ideally the sale of goods or the provision of services by a company from one country should be treated as if that company was indigenous to the other [importing?] country; that is, if the conditions of the Agreement are met. General language to that end in the Agreement plus a "quick fix" mechanism for solving problems should eliminate the need for more detailed articles in the Agreement.

Major areas where Members of DIGITALEUROPE have encountered Non-Tariff Barriers are as follows:

- **Value added Services**

  Value-added services (VAS) are a telecommunications industry term for non-core services or, in short, all services beyond standard voice calls and fax transmissions but, it can be used in any service industry. Regulatory Requirements to VAS can easily form an effective NTB.

  Free Trade Agreements should address restrictions with regard to VAS

- **Foreign Direct Investments (FDI)**

  Foreign Direct Investments occur in many forms and shapes. The success or failure of foreign direct investment depends in great part on the Government economic and financial policies but not exclusively. Every economy is different and the approach must be according to each economy.

  FDIs can be an effective NTB if their objective is to keep investors out of the country or limit their presence. In Trade Agreements it is important to ensure that FDI policies are understood and confined to objectives that have been agreed.

- **Rules of Origin**

  Rules of origin are an essential part of Free Trade agreements as these rules determine what products can benefit from particular tariff concessions or preferences.

  Such rules should be simple and provide for sufficient certainty for companies. A change of tariff heading from component level to end-product, or alternatively a specified percentage of value-add, should be the basis. Complexities in these rules could easily lead to an effective NTB. Ideally Origin rules should not differ from one Agreement to another. Every difference can lead to one and the same product having different origins depending on the country it is shipped to. Not only is this difficult to manage, it also creates complexities in the supply chain where labelling and marking often need to take place prior to knowing the final destination.

- **Quality**

  An objective description of “quality” is hard if not impossible as it is a subjective phenomenon. It relates to such things as what the product is supposed to do, what price is paid for it, what the perception of the user is, etc.

  It is important however that whatever quality standards are described, they conform as much as possible to international standards and they do not discriminate between domestically produced products and imports. For instance “quality inspections” should not be required for imported products if similar inspections are not required for domestically produced similar products. If they are they should be applied equally (fees, certificates, regularity, etc.).

- **General or product-specific quotas**

  A quota is a type of protectionist trade restriction that sets a physical limit on the quantity of a good that can be imported into a country in a given period of time. Quotas, like other trade restrictions, can be used to benefit the producers of a good in a domestic economy, but often impose a cost on consumers of the good in that economy.

  Quotas should not be allowed in Trade Agreements. If they are deemed necessary, the reasoning should be clear and they should be very specifically described and should also be time-bound.

- **Import bans**

  Ban of products or services for unclear or non-transparent reasons.

  A ban on import might be for good reasons, but those reasons should be clear and transparent and companies should have opportunities to minimize the impact, or challenge the reasoning for, the ban. A Free Trade Agreement should ensure that appropriate conditions need to be met before a ban can be introduced

- **Packaging, labeling and marking**

  Often products need to labelled or marked or need to have specific packaging.

  In this area there can be many variations in requirements. It is important that domestic and imported products are treated equally in order not to create an NTB.

- **Technical Regulations, standards and conformity assessments**

  Technical regulations, standards and conformity assessments can be important, but they vary from country to country. Having too many different standards makes life difficult for producers and exporters. If the standards are set arbitrarily, they could be used as an excuse for protectionism. Standards can become obstacles to trade.

  The WTO Technical Barriers to Trade Agreement (TBT) tries to ensure that regulations, standards, testing and certification procedures do not create unnecessary obstacles.

Trade agreements should therefore provide for clear language that the WTO TBT Agreement is fully implemented and adhered to and that any remaining requirements should be mutually agreed and re-olved in ways that ensure the least disruption of trade.

(Self-) “Declarations of Conformity" should be considered as acceptable for conformity assessments for electronics in importing countries. The declarations must of course mention against which standard the product has been tested. English should be a commonly accepted language.

- **Inspection and testing**

It is important that products that are brought to market are safe and that they conform to internationally accepted standards. Regulatory requirements that purportedly aim to meet those objectives can easily take the form of an NTB if they are overly complex and costly.

Free Trade agreements must provide for adequate language so that any inspection and or testing that is deemed necessary takes place only once.

- **Complex regulatory environment and transition periods**

In the complexity of the regularity environments there are many possibilities for requirements to function as an NTB.

It is important that the regulatory environment is transparent and not overly complex. This can best be achieved by adherence to international standards that are understood by all. If no international standards exist, the national regulations should be brought in line as far as possible. Of course, sufficient time should be allowed for transition.

- **Employment law and Immigration procedures**

There sometimes are cumbersome and complex immigration procedures even for temporary assignments, and varying application of visas, work permits and fees.

Free Trade Agreement should clearly provide for the possibility for employees of companies in the contracting parties to work in each other’s country.

- **Import licenses**

Import licenses are issued by a national government authorizing the importation of certain goods into its territory. Import licenses are considered to be non-tariff barriers to trade when used as a way to discriminate against another country's goods in order to protect a domestic industry from foreign competition.

Trade agreements should not allow for import licenses requirements.

- **Export subsidies**

Generally subsidies that benefit one party over the other should be avoided.

Free Trade Agreements must avoid the use of subsidies.

- **Fixation of a minimum import price**

  Sometimes Governments may find reasons to fix a minimum import price for certain products or product categories.

  As price fixing jeopardizes trade liberalization it should be excluded in Free Trade Agreements

- **Government procurement laws**

  Sometimes Governments have laws that benefit domestic companies over their foreign counterparts. Such laws are clear NTB's.

  A free Trade agreement must provide for transparency and non-discrimination in national procurement practices

- **"Buy national" policy**

  To promote the goods and services of domestic companies, Governments sometimes install "buy national" policies. These policies are clear NTB's.

  A Free Trade Agreement should ensure that products and services of companies in the participating countries are treated equally.

- **Currency fixation**

  By fixing the exchange rate of the local currency, Governments can influence the level of import and export and thus provide for an effective NTB

  A free Trade Agreement should provide for clear language in this regard and should avoid artificial influencing by currency fixation.

- **Intellectual property laws (patents, copyrights)**

  Countries should fully implement the WTO agreement on Trade Related aspects of Intellectual Property Rights (TRIPs)

  Free Trade Agreement should include specific language with regard to enforcement so that right holders are properly protected.

ABOUT DIGITALEUROPE

DIGITALEUROPE is the pre-eminent advocacy group of the European digital economy acting on behalf of the information technology, consumer electronics and telecommunications sectors. We are dedicated to improving the business environment, and to promoting industry's contribution to economic growth and social progress in the European Union.

DIGITALEUROPE ensures industry participation in the development and implementation of EU policies. DIGITALEUROPE's members include 63 leading corporations and 40 national trade associations from all the Member States of EU; altogether 10,000 companies with 2 million employees and €1,000 billion in revenues. You can learn more about our activities via http://www.digitaleurope.org

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NATIONAL TRADE ASSOCIATIONS:

Austria: FEEI; **Belgium:** AGORIA; **Bulgaria:** BAIT; **Cyprus:** CITEA; **Czech Republic:** ASE, SPIS; **Denmark:** DI ITEK, IT-BRANCHEN; **Estonia:** ITL; **Finland:** FFTI; **France:** ALLIANCE TICS, SIMAVELEC; **Germany:** BITKOM, ZVEI; **Greece:** SEPE; **Hungary:** IVSZ; **Ireland:** ICT IRELAND; **Italy:** ANITEC; **Lithuania**: INFOBALT; **Netherlands:** ICT OFFICE, FIAR; **Poland:** KIGEIT, PIIT; **Portugal:** AGEFE, APDC; **Romania:** APDETIC; **Slovakia:** ITAS; **Slovenia:** GZS; **Spain:** AETIC, ASIMELEC; **Sweden:** IT&TELEKOMFÖRETAGEN; **United Kingdom:** INTELLECT; **Belarus:** INFOPARK; **Norway:** ABELIA, IKT NORGE; **Switzerland:** SWICO; **Turkey:** ECID, TESID, TÜBISAD; **Ukraine:** IT UKRAINE

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