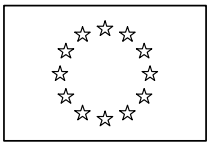

COMMISSION OF THE EUROPEAN COMMUNITIES

Brussels, 5.10.2005
SEC(2005) 1216

COMMISSION STAFF WORKING DOCUMENT

European Industry: A Sectoral Overview

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European Industry: A Sectoral Overview

The Commission Communication "Implementing the Community Lisbon Programme: A Policy Framework to Strengthening the Policy Framework for EU Manufacturing: - towards a more integrated approach for Industrial Policy" (COM 474) from 5 October 2005 is based on a systematic identification of sectoral opportunities and challenges. It aims at deepening and supplementing the framework for industrial policy by focussing on its practical application to individual sectors. To this end, the Commission has carried out a thorough screening for 27 separate sectors of manufacturing industry and construction over the last months.[1] As indicated in the Communication, this screening has resulted in a systematic analysis of each individual sector in both a quantitative and qualitative fashion.

This Staff Working Paper contains a short description of the findings for these sectors and thereby accompanies and complements the above cited Industrial Policy Communication. Stakeholders such as industry associations and trade unions have been involved in this process. However, the Commission is prepared to discuss these issues further should it be appropriate. The Staff Working Paper aims at giving a clear picture of the current situation of these industrial sectors and their respective key challenges. Its structure (knowledge, competition, regulation, environment, external competitiveness and employment/regional dimension) broadly follows the main dimensions that have already been set out in previous Communications.[2] While these policy dimensions are not exhaustive, they are particularly relevant to productivity growth and international competitiveness of individual sectors.

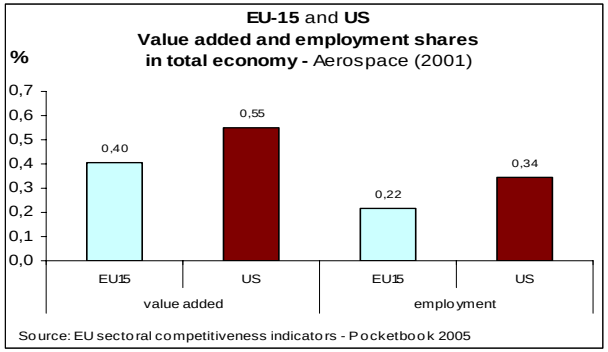
The statistics used in the Communication are based on the data from a limited number of sources to ensure a maximum degree of comparability between sectors. In particular, whilst Eurostat data has been used where available for the EU25, this data has been supplemented by the EU15 data of Van Ark and O'Mahony (2003) for the assessment of longer-term trends.

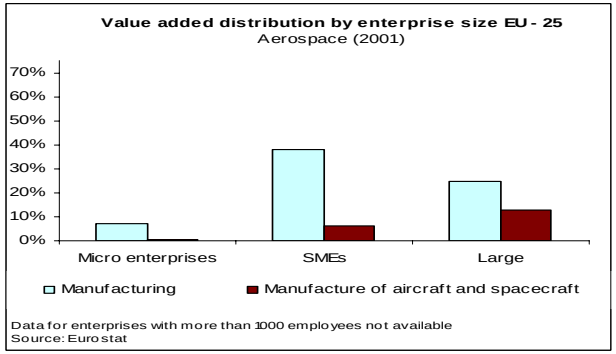
[1] The challenges facing the business related services sectors are described in the "Communication on the Competitiveness of Business Related Services and their Contribution to the Performance of European Enterprises", COM(2003)747, which also announced an Action Plan on Business Related Services.

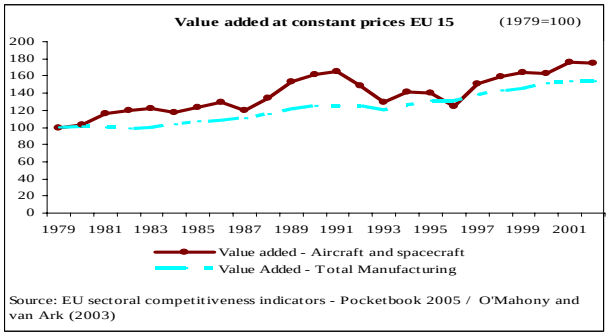
[2] "Industrial Policy in an Enlarged Europe" COM(2002) 714 final and "Fostering Industrial Change: an Industrial Policy for an Enlarged Europe" COM(2004) 274 final.

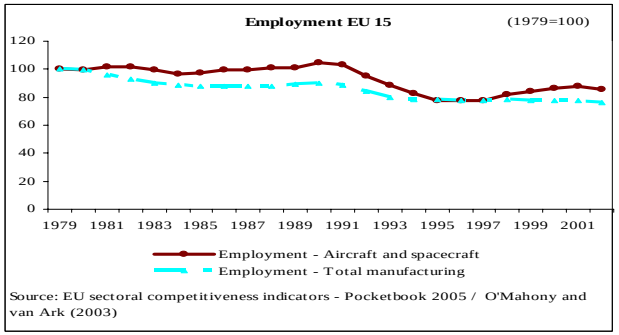
Table of Sectors

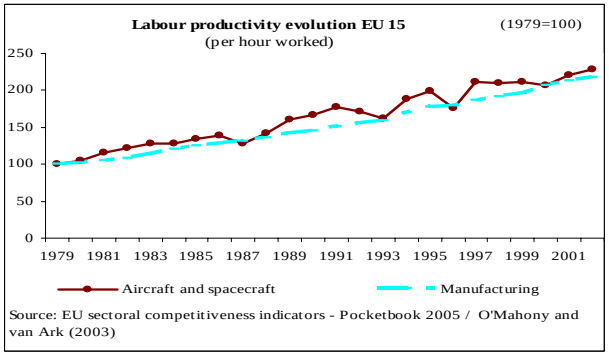
AEROSPACE

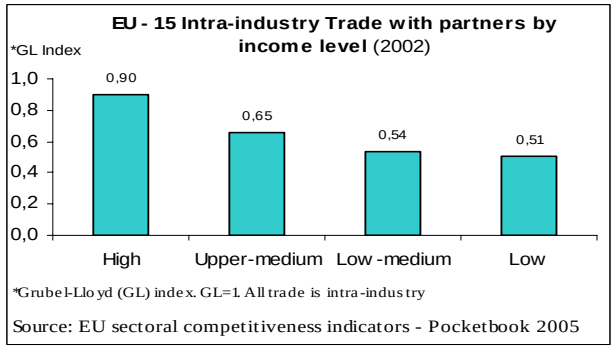

EU-15 and US
Value added and employment shares
in total economy - Aerospace (2001)
%
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0,0
0,40
0,55
0,22
0,34
EU15
US
EU15
US
value added
employment
Source: EU sectoral competitiveness indicators - Pocketbook 2005

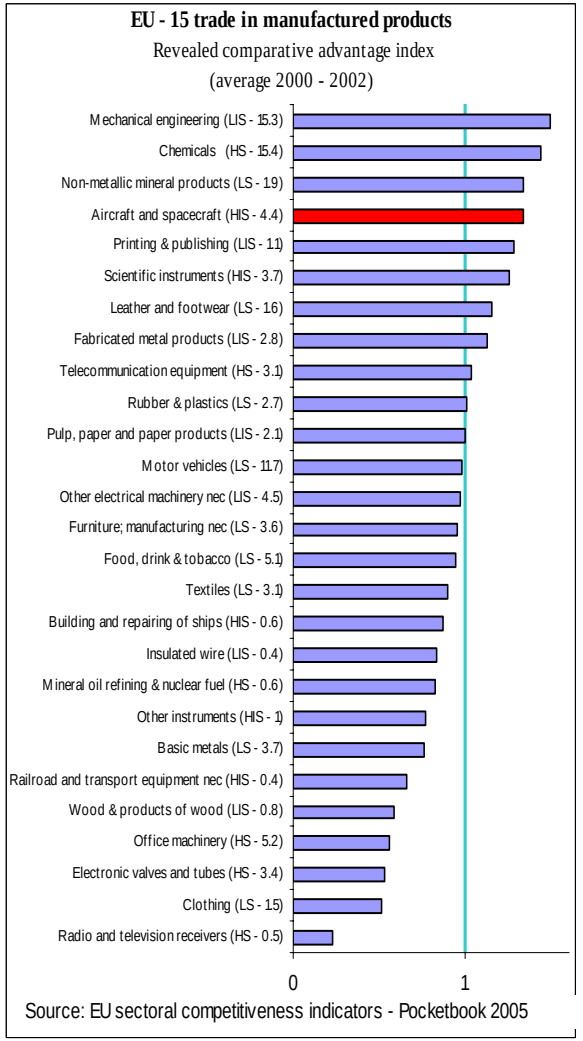

Value added distribution by enterprise size EU - 25
Aerospace (2001)
70%
60%
50%
40%
30%
20%
10%
0%
Micro enterprises
SMEs
Large
Manufacturing
Manufacture of aircraft and spacecraft
Data for enterprises with more than 1000 employees not available
Source: Eurostat


Value added at constant prices EU 15
(1979=100)
200
180
160
140
120
100
80
60
40
20
0
1979 1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001
Value added - Aircraft and spacecraft
Value Added - Total Manufacturing
Source: EU sectoral competitiveness indicators - Pocketbook 2005 / O'Mahony and van Ark (2003)


Employment EU 15
(1979=100)
120
100
80
60
40
20
0
1979 1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001
Employment - Aircraft and spacecraft
Employment - Total manufacturing
Source: EU sectoral competitiveness indicators - Pocketbook 2005 / O'Mahony and van Ark (2003)


Labour productivity evolution EU 15
(1979=100)
(per hour worked)
250
200
150
100
50
0
1979 1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001
Aircraft and spacecraft
Manufacturing
Source: EU sectoral competitiveness indicators - Pocketbook 2005 / O'Mahony and van Ark (2003)


EU - 15 Intra-industry Trade with partners by income level (2002)
*GL Index
1,0
0,8
0,6
0,4
0,2
0,0
0,90
0,65
0,54
0,51
High
Upper-medium
Low -medium
Low
*Grubel-Lloyd (GL) index. GL=1 All trade is intra-industry
Source: EU sectoral competitiveness indicators - Pocketbook 2005


EU - 15 trade in manufactured products
Revealed comparative advantage index
(average 2000 - 2002)
Mechanical engineering (LIS - 15.3)
Chemicals (HS - 15.4)
Non-metallic mineral products (LS - 1.9)
Aircraft and spacecraft (HIS - 4.4)
Printing & publishing (LIS - 1.1)
Scientific instruments (HIS - 3.7)
Leather and footwear (LS - 1.6)
Fabricated metal products (LS - 2.8)
Telecommunication equipment (HS - 3.1)
Rubber & plastics (LS - 2.7)
Pulp, paper and paper products (LIS - 2.1)
Motor vehicles (LS - 11.7)
Other electrical machinery nec (LIS - 4.5)
Furniture; manufacturing nec (LS - 3.6)
Food, drink & tobacco (LS - 5.1)
Textiles (LS - 3.1)
Building and repairing of ships (HIS - 0.6)
Insulated wire (LIS - 0.4)
Mineral oil refining & nuclear fuel (HS - 0.6)
Other instruments (HIS - 1)
Basic metals (LS - 3.7)
Railroad and transport equipment nec (HIS - 0.4)
Wood & products of wood (LIS - 0.8)
Office machinery (HS - 5.2)
Electronic valves and tubes (HS - 3.4)
Clothing (LS - 1.5)
Radio and television receivers (HS - 0.5)
0
1
Source: EU sectoral competitiveness indicators - Pocketbook 2005

AEROSPACE
COMPETITIVENESS ASSESSMENT

The European aerospace industry is a high-tech industry which develops and manufactures a broad range of products: civil and military aircraft, aero-engines, helicopters, launchers and satellites, unmanned aerial vehicles (UAVs), missiles as well as systems and equipment. In 2003 the European aerospace industry employed more than 415 000 directly and had a turnover of € 74 billion. It invested about 14.5% of its turnover in research and development. Exporting more than half its output, the industry provided a positive trade balance of € 29 billion for the EU as a whole.

The success of the industry depends on twin pillars, civil (64%) and defence (36%). They are both complementary and mutually dependent. Operating in civil and defence markets allows companies to share know-how, skills and products, and benefit from the economies of a broad product range. Both areas rely on the application of advanced technologies while serving private and public customers with different needs.

The global aerospace sector was formerly dominated by US companies which traditionally accounted for two thirds of the industry's global turnover. Largely due to the success of Airbus, this picture has changed in the recent years in favour of the European aerospace industry which accounted for 39.5% of global sales in 2003 (USA: 44%).

KNOWLEDGE	A stable, long-term policy framework is essential, especially for research and development. Aerospace is an industry which must, by the nature of its business, look far into the future: a new generation of aircraft or spacecraft can take a decade or more from conception to realisation, with an in-service life of many decades and many upgrades thereafter; research into a new composite may mean a generation of work before it is ready for practical application. Thus a long-term policy framework is essential if the aerospace industry is to provide the capabilities which are required to match Europe's goals and allow the European aerospace industry to compete on a level international playing field. In 2001, the Technology Platform ACARE (Advisory Council for Aeronautics Research in Europe) was established and presented Strategic Research Agendas (SRA) for the sector in 2002 and 2005.
COMPETITION	The aerospace industry continues its consolidation process which has resulted in significant industrial restructuring across European borders. Development and production of airliners, military aircraft, helicopters, missiles, satellites aeroengines, systems and equipment are now largely in the hands of major enterprises operating on European level. At the same time, relations between governments and aerospace companies have changed and led to a situation where formerly state-owned companies are now wholly or partly in the private sector, quoted on stock markets and committed to providing value for their private stakeholders.

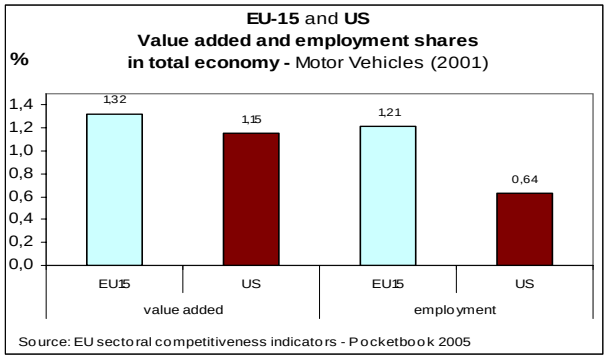
REGULATION	Given its obvious security and safety requirements, the aerospace industry faces very detailed certification procedures to meet airworthiness standards for aircraft and components. Prior to the establishment of EASA in December 2004, certification activities were coordinated through the intergovernmental Joint Aviation Authorities (JAA) system. In contrast to the JAA system, EASA can act as a single entity and take binding decisions. Given the importance of this issue for Europe's major aerospace companies, industry has been closely involved in setting up the new EASA structures. Currently EASA is responsible for certifying new aircraft and equipment (such as the A380 and its engines) and for certifying certain aircraft maintenance organisations. It is foreseen that EASA will assume additional responsibilities in other air transport related areas in the future (regarding air operations, flight crew licensing or airport operations). The ultimate objective is to build up an EASA which is responsible for all safety issues in air transport. In a longer perspective, EASA could become a European counterweight to the powerful US Federal Aviation Agency (FAA). So far, the FAA dominates aviation safety related discussions world-wide. Experience has also shown that FAA action has supported US companies in their competition with European manufacturers in selling aircraft (and equipment) in third countries.
ENVIRONMENT	The aerospace industry is affected by other policy initiatives and EU regulations, for example the implementation of REACH (industry could face significant adaptation costs and time-to-market problems in case substances used for specific purposes in this industry are suddenly withdrawn for economic reasons), legislation on chemicals, environmental legislation or general initiatives in the area of transport. Legislation addressing airlines can also have a major impact on the aircraft manufacturers (e.g. proposals on air ticket duty, kerosene taxation or emissions trading). Active participation of the European Community in international organisations such as ICAO (International Civil Aviation Organisation) is key to guaranteeing the worldwide application of common standards for noise and gaseous emissions as well as ensuring an efficient match between the European regulatory system and global requirements.
EXTERNAL COMPETITIVENESS	The aerospace industry is characterised by specific industrial structures which result from the scale of the financial and technological challenges: e.g. the market for large civil aircraft is dominated by two global players and that for large aero-engines by essentially three global players. Similarly there are only a handful of missile, helicopter and launcher producers in the world. However, unlike the civil side, the market for defence goods is strictly partitioned since State bodies are the only buyers. As regards international competition, US companies operate in the world's single largest home market and benefit from a highly supportive operating framework which is designed to underpin a declared policy aim to maintain US supremacy in aerospace. The direct linkages between defence and civil uses, and the heavy investments in defence to fund research and innovation bring clear advantages to the US industry in terms of beneficial spin-off effects in non-defence aerospace applications. This situation poses a constant challenge to European industry which affects its competitive position.[3] In addition, in the large civil aircraft sector, while Airbus has to fully repay the launch support it has received in the form of loans from several Member States in line with international agreements, Boeing has benefited since 1992, from very large research and

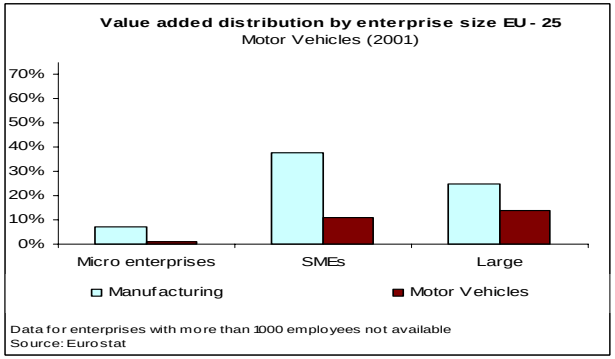
[3] COM(2003)600final 13.10.2003 "A coherent framework for aerospace – a response to the STAR 21 report"

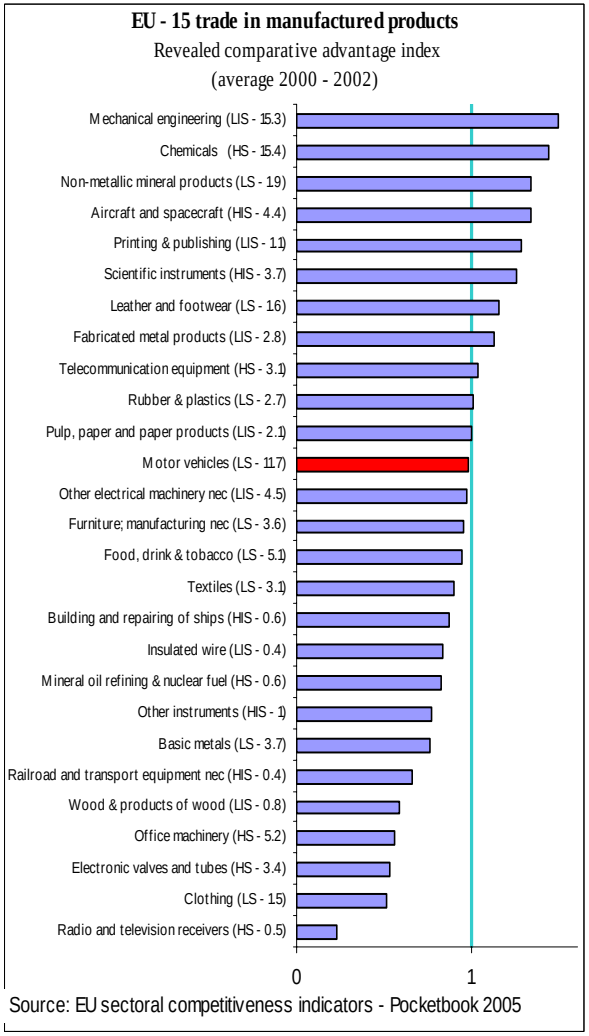
	development grants, Washington State will provide the company with substantive tax incentives and subsidies for physical improvements of its plants and infrastructure and the company also receives tax benefits which have been ruled illegal by the WTO and which the US has failed to abrogate. Since for most markets, US and European companies will continue to supply the needs of customers worldwide, strong European aerospace capabilities are indispensable to maintaining competition for a wide range of civil and defence products. Hence, as soon as the US referred its allegations concerning EU support to the World Trade Organisation (WTO), the EU also asked the WTO to declare the US subsidies to Boeing illegal. Less than 10% of sector turnover is related to space (about € 5 billion, 30 000 employees). The turnover of the sector has declined markedly since 1997 due to a decline in demand for commercial telecommunication satellites. The satellite business now mainly depends on institutional markets which are much weaker in Europe than in the US to the competitive disadvantage of Europe's space industry. After significant consolidation, four industrial groups now account for over two-thirds of Europe's space turnover. The current lack of effective mechanisms to promote European standards handicaps the competitiveness of the European aerospace industry. Such involvement is vital for programmes like Galileo and the development of air traffic management technologies. There is no comparable requirement for regulation in the satellite or launcher field, although there are actions underway to derive mutually respected standards.
EMPLOYMENT AND REGIONAL DIMENSION	Of the 415.000 employees in the EU aerospace industry, 89% are employed in aircraft related activities, 7% work in space programmes and 4% in missile programmes. The relative importance of the aerospace industry compared to overall EU employment varies within the EU. The group of countries with an above-average share in overall employment comprises France and the UK but also Luxembourg and Sweden. Given the global nature of the business, suppliers face stiff competition from around the world as transport costs are relatively unimportant compared to technical and financial capability (to contribute towards programme development costs). Europe must ensure that it maintains and builds on its advantages of knowledge, skills, critical mass, RTD support, etc. to keep activity in Europe. Safeguarding and further developing a strong European skills base will be a key factor in maintaining global competitiveness. The overall performance of education and training systems must therefore be improved, within a lifelong learning perspective. Signs that highly qualified personnel are proving increasingly difficult to recruit raises particular concerns. The European Aerospace Industry is characterised by a small number of very large firms, a large number of medium sized companies, and a very large number of small enterprises. As the main customer group for SMEs is the European Aerospace industry itself, the emergence of regional aerospace industry clusters around very large enterprises, often including research facilities, can be observed.

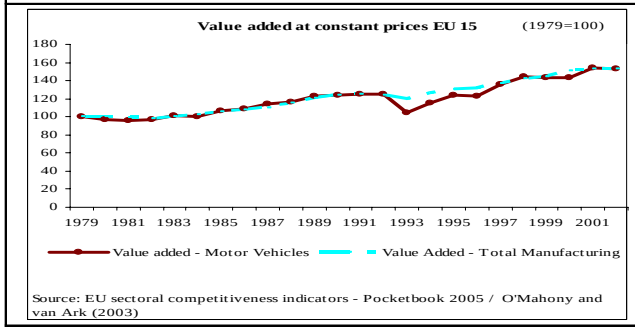
* Nace 29.6

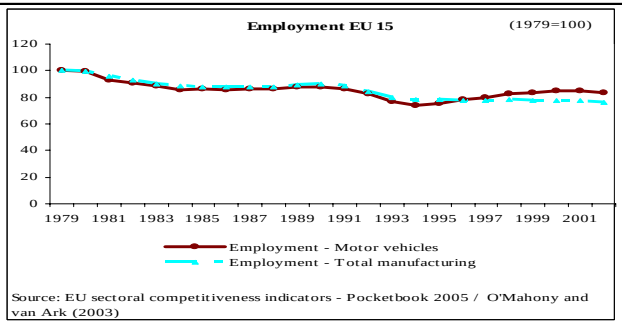
AUTOMOTIVE INDUSTRY

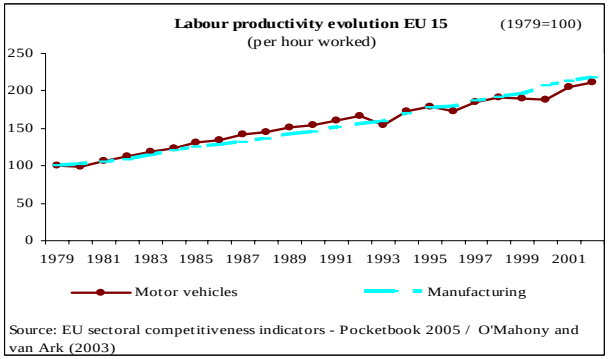


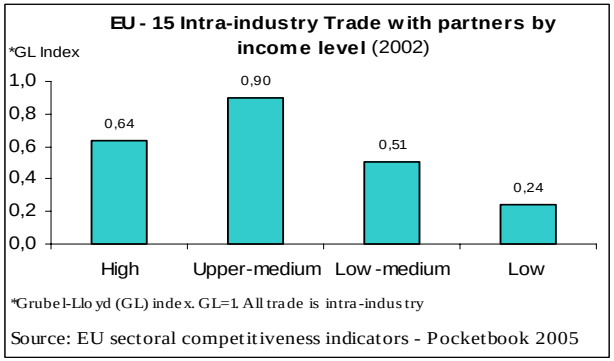












AUTOMOTIVE INDUSTRY
COMPETITIVENESS ASSESSMENT

The automotive industry is one of Europe's key sectors contributing 3% of GDP, 7% of total manufacturing value added (€ 114 billion, EU15) and 6% of total manufacturing employment (over 2 million, EU25). The industry also provides indirect employment to 10-11 million people. In terms of labour productivity, the EU15 is behind the US and Japan, with data indicating that labour costs approaching US levels and remaining higher than in Japan and Korea

***Slow growth in the home market**: The existence of a large home market is a major competitive advantage for European manufacturers. However, the growth of European automotive markets has been flat in recent years and the continued growth of overseas markets is likely to diminish the relative demand advantages derived from the large home market.*

KNOWLEDGE	Due to the role played by motor vehicles in air pollution and CO2 emissions, manufacturers are developing technologies to reduce pollutant emissions and CO2 emissions and increase fuel efficiency. European automotive firms are also leading in some transitional drive-train and fuel technologies which can become profitable before the fuel cell technology is ripe for the mass market. While Europe is currently stronger than other world regions in its attempts to reduce CO_2 emissions from road transport, emerging markets such as China have introduced fuel economy standards also in view of oil dependence, highlighting the importance of fuel efficiency as a future driver for global vehicle markets. On the other hand, European pollutant emission standards are less stringent than those of the US and Japan (most Asian countries have adopted European standards in their home markets). While alternative methods for reducing CO2 emissions should be looked into within the context of an integrated approach (e.g. combining alternative fuels with vehicle technology), achieving emissions targets proposed by the EU will add to the cost of production of motor vehicles. The threat of missing groundbreaking innovations is still on the agenda as the industry's international competitors have also stepped up their innovative efforts (with regard to hybrid cars and hydrogen technology). It is expected that major technological breakthroughs could permanently alter the processes employed by the industry and it is important that European companies are not only the leaders in innovation but are also able to rationalise the use of their R&D resources. In should be noted that automotive industry already accounts for over 20% of manufacturing R&D in Europe (over 20 bn Euro). However, given that research into "future" technologies, such as hydrogen, is unlikely to bring the industry significant competitive advantages in the short-term, joint research projects between the industry and the EU should continue to be encouraged. In addition, products are becoming increasingly complex from a technological point of view. In order to remain competitive, the industry needs to produce advanced, high tech products and must rely on a high skilled labour workforce. The ERTRAC Technology Platform was initiated two years ago in order to have a European level research policy. A Strategic Research Agenda was published in December 2004 with a vision for research in the next 20 years. The main priorities are related to: safety and security; environment, energy and resources; the mobility of people and goods, design and production systems.
COMPETITION	The consolidation, which has occurred in the global automotive industry over the past few decades is expected to continue. Since 1990, the Commission has approved 133 mergers, out of which 3 with remedies, and has prohibited one. One of the drivers of

	such consolidation may be linked to potential overcapacity and the consequent stimulation of price competition where EU producers are not well positioned to compete. This may induce additional pressures for the restructuring or consolidation of the industry, e.g. via mergers.).
REGULATION	The automotive industry is highly regulated (over 90 directives relating to the construction and functioning of motor vehicles), particularly in the fields of safety and environment, and the stringency of such regulation can become a driver for technological change in the sector although it also adds to the cost of production. The current approach seems to be supported (i.e., detailed technical rules which are commonly applied throughout the Community through the EC type-approval system), as it creates a level-playing field for manufacturers and it guarantees the good functioning of the internal market through homogeneous application by Member States. The EC "whole vehicle type approval" system applies to passenger cars and motorcycles on a mandatory basis while a proposal to extend the EC whole vehicle type approval system to commercial vehicles is currently being discussed. Above all, the real functioning of internal market is an issue and the lack of harmonisation in the area of vehicle taxation, which distorts the market and increases costs has been repeatedly criticised. In parallel to the efforts to achieve technical harmonisation within the Internal Market, the Community has strongly supported the international harmonisation efforts conducted in the framework of the UN-Economic Commission for Europe (UN/ECE), as a means to reduce industry's development costs and increase economies of scale.
ENVIRONMENT	The industry is highly regulated with respect to the environment. The stringency of such regulation can have the positive impact of becoming a significant driver for technological change (e.g. Euro I-V). The harmonisation of legislation seems to be preferred rather than mutual recognition as it provides the industry with certainty and predictability regarding their ability to market the same product. In a longer time perspective, the biggest environmental challenge for the industry is the reduction of CO2 emissions. European automotive firms are investing in hydrogen/ fuel cell R&D as well as in some transitional drive-train and fuel technologies. However, competitors (mostly Japanese), have stepped up their innovative efforts while the protection of intellectual property rights remains an issue in China. Major technological breakthroughs could permanently alter the processes employed by industry and it is important that European companies are not only the leaders in innovation but are also able to rationalize the use of their R&D capability. In addition other means for reducing C02 emissions should be part of an integrated approach to reducing CO_2 emissions from the road transport sector as it is unlikely that the full cost of it can be borne by the automotive industry alone without compromising its competitiveness. However, some improvement of the fuel efficiency of cars themselves should be achieved in view of the potential rising worldwide demand for fuel efficient vehicles in view of climate change and high oil prices. An ambitious EU policy in this field will help to maintain the technology lead of the EU automotive industry and thus support its competitiveness. As regards REACH, the proposed new chemicals regulation: as a downstream user, this industry could face significant adaptation costs and time-to-market problems in case substances used for specific purposes in this industry are (suddenly) withdrawn for

	economic reasons.
EXTERNAL COMPETITIVENESS	In terms of market share, production volumes, value added, employment levels and net trade position, the industry has maintained its global competitiveness in recent years. Traditionally, the industry has enjoyed a trade surplus –the latest at € 35 billion, with € 66 billion export value. The main competitors are Japan ,the USA, and South Korea and Chinese producers are currently entering the global market. On average, European manufacturers are doing better than their U.S. competitors but face tough competition from Japan, where the efficiency of producers (particularly Toyota) has been higher. European competitiveness as a production location is being threatened by other areas, which are catching up vis-à-vis educated labour and have fewer restrictions on its flexible use. With the current slump in most established markets, there has been a rapid capacity build-up in emerging Asian and Eastern European markets, which may induce world over-capacity and stimulate price competition. EU producers are not very well equipped for price competition, which may promote a further consolidation of the industry. As a major player in international markets, Europe has established stable channels that constitute a competitive advantage and should be among the prime beneficiaries from the opening of new markets and the strengthening of existing relationships, notably with the large emerging countries. However, European car manufacturers have only relatively recently started to address the challenge of mass motorization in low income, emerging economies. In addition, European manufacturers are reporting a series of problems with the Chinese market ranging from discrimination in favour of local producers to the imposition of regulation without prior consultation and have urged the Commission to take steps to remedy the existing state of affairs.
EMPLOYMENT AND GEOGRAPHICAL DIMENSION	Employment in the automotive industry as a percentage of total industry employment grew at an average annual growth rate of 1.9% between 1995 and 2003 at the EU-15 level. In 2003, the share of the employment in the automotive industry in relation to total industry employment amounted to around 4.9% at the EU-15 level. However, currently a number of car manufacturers have announced job cutting programmes In 2003, most the employed workers in the EU-15 automotive industry were located in Germany (more than 40% of EU-15 employed workers in that industry), and to a lesser extent in France (16%), the UK (13%), Spain (11%) and Italy (7%). Labour market inflexibility remains an issue. In this context, the new Member States offer location advantages based on their affordable, qualified labour and tax policy, which combined with the EU regulatory framework context has led to a high level of automotive-related investment into the region. In 2003, around a half of the employed workers in the automotive industry at the EU-15 level were medium-skilled workers. The high-skilled workers represented about 20% of the employed workforce.

* Nace 34

BIOTECHNOLOGY
COMPETITIVENESS ASSESSMENT

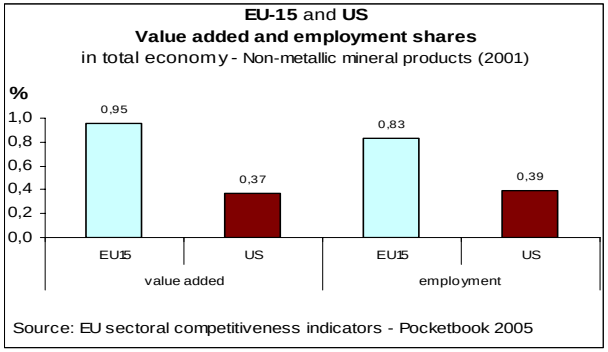
The biotech industry employs 94.200 people, generates €19 billion in revenue and spends about €6 billion in R&D. Leading European countries in biotechnology in terms of number of companies are e.g. the UK, Germany, France, Netherlands, Sweden and Denmark. The number of firms doubled during the mid-90s; in contrast, recent years have been characterized by consolidation rather than growth of European biotechnology (employment fell by 4% in 2001-2003). Healthcare biotechnology accounts for the largest number of biotech companies in Europe – as in the US. Biotech medicines are estimated to account for approximately 20% of all marketed medicines, and represent 50% of all medicines in the pipeline. Therefore, the biopharma sector is set to benefit from the renewed pharma regulatory framework, the improved functioning of the European Medicines Agency (EMEA), and specific measures in favour of SMEs. The prevalent obstacle faced nowadays by European biotech firms is a financing gap, occurring mostly in the companies' consolidation phase rather than in their start-up phase. The lack of a developed European venture-capital market is likely to hinder the future development of European biotech industry, as companies may move abroad where risk-oriented financing is easier to obtain. In addition, the EU biotech sector lacks late stage debt financing. In the area of agricultural biotechnology, some delays in setting up and implementing a coherent regulatory framework and a sceptical public attitude have led to decreasing public and private investments into agro-biotechnology research and a delocalisation of private R&D to countries outside Europe. The emergence of new competitors, particularly in the Asia-Pacific and South American regions, will put European competitiveness under even more pressure in the future. Biotechnology in industrial processing could become a key component in increasing Europe's competitiveness, by reducing the environmental impact, reducing production costs, and creating new innovative products. However, the uptake of "white" biotech methods should be supported by a clear political strategy, favourable economic and regulatory conditions, and a stimulation of key technological capabilities.

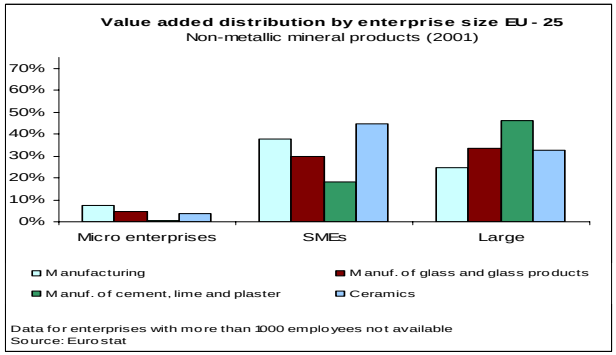
KNOWLEDGE	In comparison with the US, Europe is characterised by a lack of critical mass, not only at the company but also at the cluster level. Therefore, integration between bio-clusters so as to give birth to mega-clusters accompanied by an increased inter-regional cooperation between bio-clusters (at the moment EU/US cooperation seems to be higher than intra-European co-operation) is desirable. Making sure that sufficient technology transfer from academia to the industry takes place both within and between different European clusters is also a key to increased competitiveness since the spill-over effects, particularly visible in innovative clusters are of utmost importance in knowledge and production networks. Companies in such clusters, mostly SMEs, are already becoming the dynamic part of Europe's industrial landscape and a source of innovative ideas (e.g. in biotechnology in the Munich region and the so-called MEDICON Valley between Sweden and Denmark). It is expected that biotech companies will benefit from several of the established Technology Platforms, in particular the Innovative Medicines, Plant Biotechnology and White Biotechnology plaftforms. In the area of industrial biotechnology and the chemical industry, Europe has a strong knowledge-base with many established companies active in this area. The knowledge-base has been strengthened e.g. by recent acquisitions of US-based companies by European companies (e.g. Danisco – Genencor). Several established European companies are active in the area (e.g. DSM, BASF, Novozymes, Danisco) and are joined by SMEs. A noteworthy development in this regard is the Sustainable Chemistry technology platform.
COMPETITION	2003 and 2004 were characterised by consolidation rather than growth for European biotechnology, with no change in the number

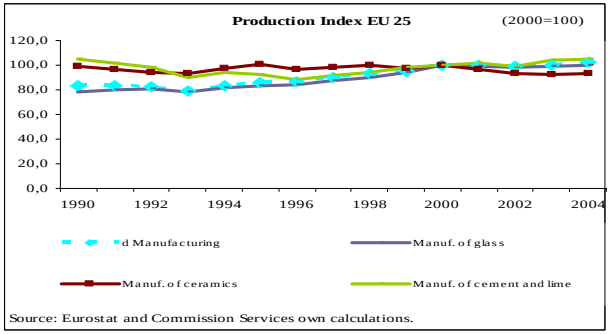
	of active companies in Europe and in the USA. An increase in the number of mergers and acquisitions of the sector in the EU was noted, with the same trend observed world-wide. Access to finance and the underdevelopment of the European venture capital market are considered a problem for further development of the sector. The financing gap is the biggest during the companies' consolidation phase, usually occurring 3-8 years after start-up. Increased clustering and further efforts to facilitate technology transfer are needed to strengthen the biotech industry in general.
REGULATION	The main challenges are to further develop and implement timely a science-based regulatory framework which would accompany biotech applications without creating unnecessary burdens on industry, in particular on SMEs. An evaluation of the broadening of the scope of existing legislation should take into account the potential economic consequences across multiple industrial sectors . Transposition and application in MS of existing legislation, e.g. the new GMO legislation, should be closely supervised. As for intellectual property, the full implementation of the Directive 98/44/EC (on biotech patents) together with the introduction of the Community Patent are still outstanding. A strict regulatory framework on Genetically Modified Organisms (GMOs) exists at the European level. The EU started legislating on GMOs in the early 1990s. The main legal acts are Directive 2001/18/EC of the European Parliament and of the Council of 12 March 2001 on the deliberate release into the environment of genetically modified organisms, Regulation (EC) No 1829/2003 of the European Parliament and of the Council of 22 September on genetically modified food and feed and Regulation (EC) No 1830/2003 of the European Parliament and of the Council of 22 September 2003 concerning the traceability and labelling of genetically modified organisms and the traceability of food and feed products produced from genetically modified organisms.
ENVIRONMENT	Industrial biotechnology offers new ways to improve the environmental performance of industrial processes in various sectors. There are many examples of products already on the market, such as fibrous polymers for household applications (e.g. carpeting), biodegradable plastics made from corn, lubricants, cooling fluids, pulp and paper, food processing, mining, and manufacture of some antibiotics, vaccines, and vitamins. European companies are world leaders in the use of enzymes in the manufacture of chemicals, such as eco-efficient enzymes in the production of washing powder which reduce the consumption of water, raw materials and energy. Other examples include transgenic plants that can enhance the ecological sustainability in agriculture and forestry, and plant-based renewable resources to improve sustainability of industrial processes and transportation, such as biomass and biofuel. To make the most of these technologies in the future, the EU needs to give its full support. The importance of stimulating eco-innovation was emphasized in the recent report from the High Level Group headed by Wim Kok. The Commission recognises Europe's potential to make industrial biotechnology an important eco-industry and has supported the launch of the **"**Industrial Biotechnology Platform**".** Genetically Modified Organisms (GMOs) can provide benefits to agriculture and to the environment. While the EU's stringent legislation on GMOs provides for a thorough analysis of the potential effects on health and environment, there have been some delays in setting up and implementing a coherent regulatory framework. In addition, a sceptical public attitude has reduced the possibilities to import or grow GMOs in the EU. This in turn has led to decreasing public and private investments into agrobiotechnology research and a delocalisation of private R&D to countries outside Europe
EXTERNAL COMPETITIVENESS	Europe entered the field of biotech later than the US. Since a long time is necessary to develop biotech products, trade does not

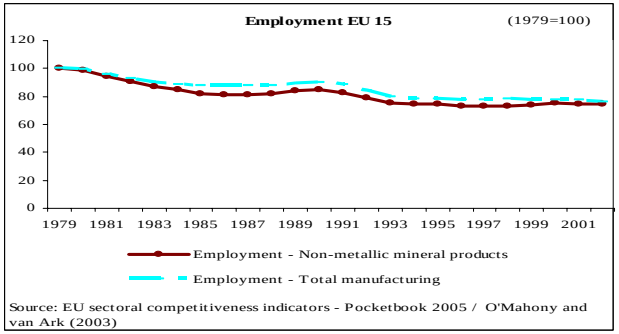
	seem to be a good indicator to measure the competitiveness of the European biotech industry. The status of the sector can be assessed by the number of companies and people employed, equity finance raised, revenue generated and in particular R&D expenditures and products in the pipeline. Young companies' revenues tend to be small. Hence R&D expenditures may serve as an indicator for future prospects. Most European biotech companies are micro or small, research-intensive firms, smaller than their US counterparts, partly due to the significantly greater availability of risk capital and debt provision in the US. At the aggregate level, the US biotech industry consists of roughly the same number of companies as the European industry, but employs two and half times more people and spends more than double on R&D than their European counterparts. In the US, biotechnology is characterised by a high degree of concentration of firms in a restricted number of regions. A similar process of clustering took place across Europe. Yet, the majority of European biotechnology clusters do not seem big enough to compete effectively with those in the US. The integration of smaller bio-clusters into bigger ones and increased cooperation between bio-clusters, as well as technology transfers from academia to industry both within and between different European clusters are needed. In certain fields of health biotech (pharmaceuticals, etc) and industrial biotech including the chemical industry, Europe has a competitive edge due to its strong knowledge base. Given the emergence of new competitors, particularly in the Asia-Pacific region, there are justified concerns as to the long-term competitiveness of the European biotech industry, although currently Asian competitors are still less mature than their European counterparts.

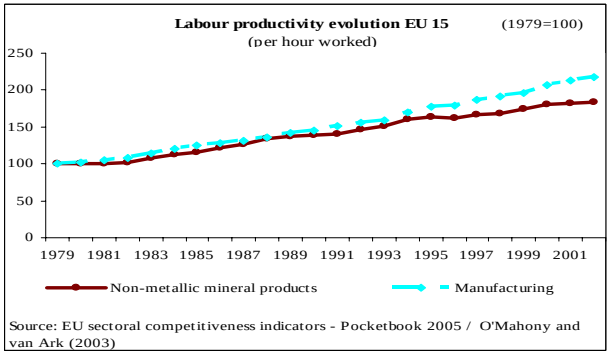
CEMENT AND LIME INDUSTRY

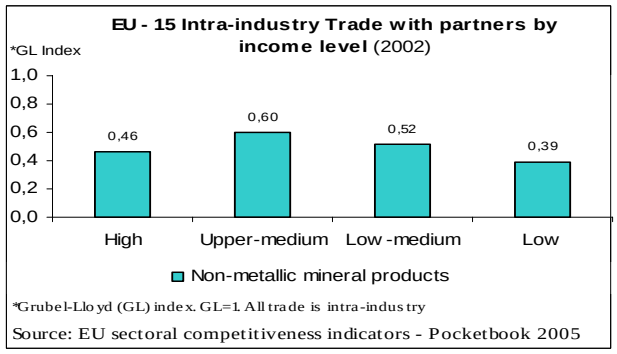


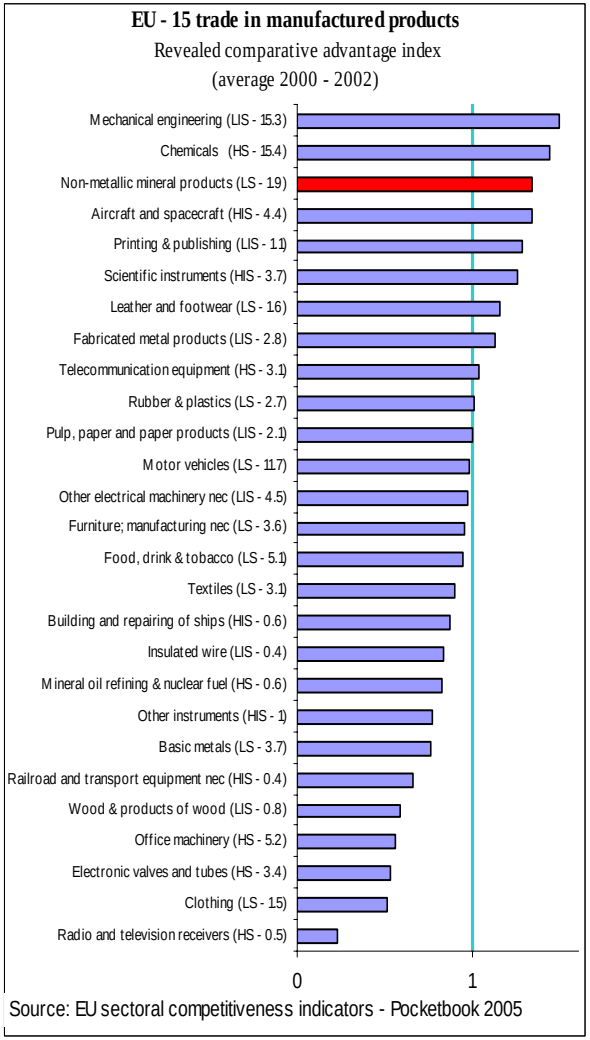












CEMENT AND LIME INDUSTRY
COMPETITIVENESS ASSESSMENT

Output has been climbing steadily in recent years, 9.4% from 1998 to 2004. Total turnover in the European cement industry has more than doubled since 1990, to € 14 bn. The lime industry is much smaller, turnover is € 2 bn. Combined, they contribute 0.57% of value added and 0.25% of employment in total manufacturing. Demand for cement is cyclical, depending entirely on construction and civil engineering. The cement and lime industries are energy intensive, with energy accounting for 30-40% of total costs in cement production, up to 50% for lime, and are very vulnerable to energy price increases. Kilns that produce clinker, one of the constituent materials of cement represent a very high, long-lasting investment, which makes it difficult to respond to short-term fluctuations in demand, or comply with new legislation affecting energy or emissions. The production process is mature and further technical improvement is expected for the additives rather than the clinker. New developments are likely to come from the nanotechnology front. The cement production process provides solutions for some wastes, but the industry has an environmental image problem.

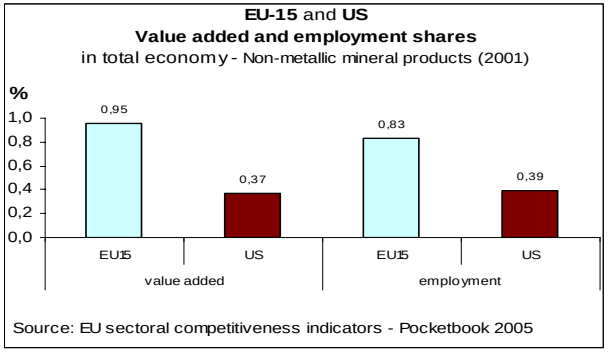
KNOWLEDGE	Technology in both sectors (Cement and Lime) is at a mature stage. Further developments are likely to be in the field of environment (emissions abatement and substitution of fossil fuels by wastes). The cement industry is using selected and treated wastes as alternative fuels and raw materials in many installations and this is likely to progress further. Some companies in the lime sector are experimenting with the use of waste, but their use is limited for reasons of quality requirements. Since the production process in these 2 industries is at a mature stage, no further revolutionary technical developments are likely. However, R & D research in the lime sector is leading to the introduction of new products and lime treatments. More work and standardisation is needed for the use of natural minerals as additives (up to 80% in some cases) to the clinker for the production of cement. Nanotechnology is expected to open new roads in cement production and use.
COMPETITION	Both cement and lime industries are concentrated, with four biggest companies in cement and in lime respectively holding about half of the EU market share. Consolidation is high in case of cement, with many companies being multinationals. This is less the case for lime, where two biggest producers are multinationals but there is still a large number of SMEs, and further consolidation is anticipated in several Member States. All companies are vertically integrated upstream as they quarry most of their own raw material and process it up to the final product as well as downstream into readymix concrete. Capacity utilisation in the cement industry in 2003 was estimated at 84% in EU-15, and slightly lower in EU-25. There is thought to be no over-capacity in either industry. The numbers of firms in the cement industry does not fluctuate a lot, but is gradually going down in line with mergers and take-overs. The number of firms in the lime industry is thought to be stable. Since 1990, the Commission has approved 8 mergers, none subject to remedies. The Commission found one cartel case where it imposed fines in 1994. The principal barriers to entry are high capital intensity and regulation. Laying down a cement plant costs the equivalent of about three years' turnover, and although there is no information for lime, the cost is unlikely to be much different.

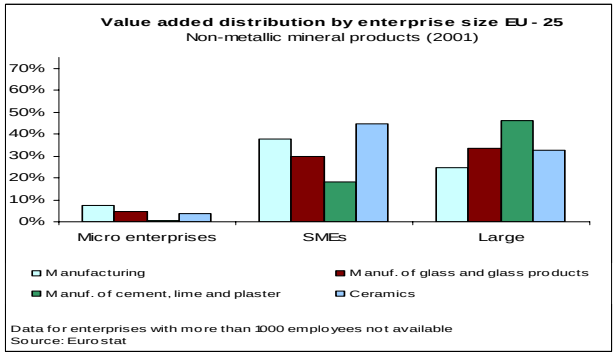
REGULATION	The cement and lime industries consider that current legislation which will have the biggest impact on them will be the emissions trading scheme and REACH.
ENVIRONMENT	Because the cement and lime sectors are energy intensive, and because CO2 results from the mineralogical transformation process used for their production as well as from the use of energy, the two sectors have every incentive to reduce energy consumption, and environmental concerns are of paramount importance. Their main concern is the emissions trading scheme and its impact on the industry's costs. Besides CO2 emissions the cement industry's main emissions to air are NOX, SO2, and dust. Dust abatement has been widely applied for many years and SO2 is a plant-specific issue, but the abatement of NOX is a relatively new issue for the industry. Some plants have installed general primary measures to improve clinker quality, thus reducing energy consumption and emissions to air.(information from the BAT reference document – BREF). The same emissions are the main ones for the lime industry, along with CO, and similar primary measures are taken to improve product quality. With regard to waste, the cement industry is doing all possible to make optimal use of wastes from other industries as alternative fuels and materials, but this is not possible to the same extent in the lime industry. In the cement sector, practically zero wastes are produced as kiln dust removed from the stack is mostly recycled. In the lime sector, it is mainly in the form of unburnt or overburnt products. In modern lime kilns, very little product out of specification is produced, but when this occurs, it consists of dust collected from the exhaust gases. Small quantities of partly calcined material can be produced when the kiln is started up from cold. These are recycled back to the kiln wherever possible, recovered in various other applications, or otherwise sent to landfill. Soil is an important issue for both sectors, since soil has to be removed as a primary step in the quarrying of limestone, but is usually saved for use in quarry restitution. Access to raw materials and the complex permitting for planning and extraction are important issues for both sectors.. Hexavalent chromium is another issue in the cement industry, and EU legislation imposes restrictions on the use of cements containing more than 0.0002% of soluble Cr VI of the total dry weight of the cement. BREF, prepared in the framework of the IPPC Directive, was adopted by the Commission in December 2001, has to be taken into consideration when determining permit conditions based on BAT. Given the cement and lime manufacturing technology is at a mature stage it is expected to face competition from cement and lime producers in countries on the periphery of the EU which are not subject to the emissions trading scheme.
EXTERNAL COMPETITIVENESS	Cement is a heavy product with a relatively low selling price so transport costs are determinant for trade. In the present EU25, 4% of production is exported, whilst imports supply 8% of consumption. The biggest importer of European cement is traditionally the USA due to its unstable demand. Lime is also a low priced bulk product, and so traded over long distances is scarce except for speciality products. Trade is substituted by FDI: European cement firms own over 60% of all production in the USA and have a significant production in south-east Asia. The situation is similar in the lime industry. The EU has become less attractive for domestic investment in the cement and lime industries with the introduction of the emissions trading scheme and the possible introduction of REACH in its present form.

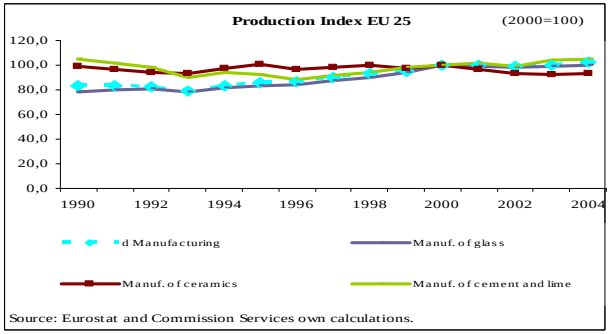
EMPLOYMENT AND GEOGRAPHICAL DIMENSION	Cement is produced in all Member States except Cyprus, Malta, and Slovakia, and lime in all except Cyprus, Luxembourg, Malta, and the Netherlands.

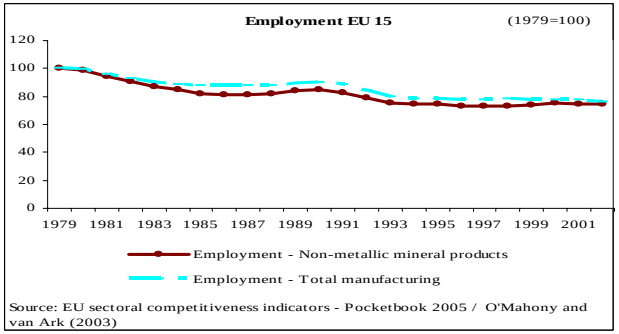
* Nace 26.5

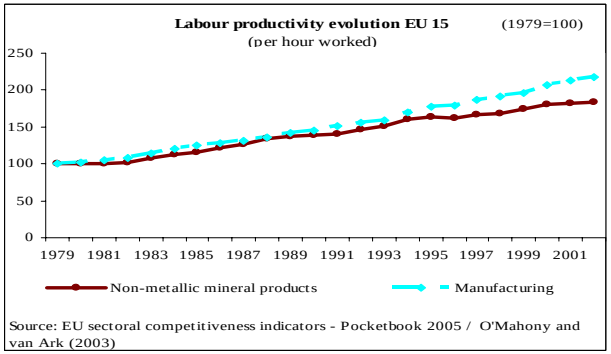
CERAMICS

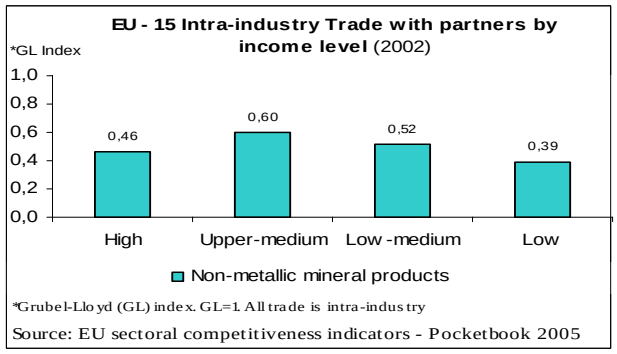

EU-15 and US
Value added and employment shares
in total economy - Non-metallic mineral products (2001)
%
1,0
0,8
0,6
0,4
0,2
0,0
0,95
0,37
0,83
0,39
EU15
US
EU15
US
value added
employment
Source: EU sectoral competitiveness indicators - Pocketbook 2005

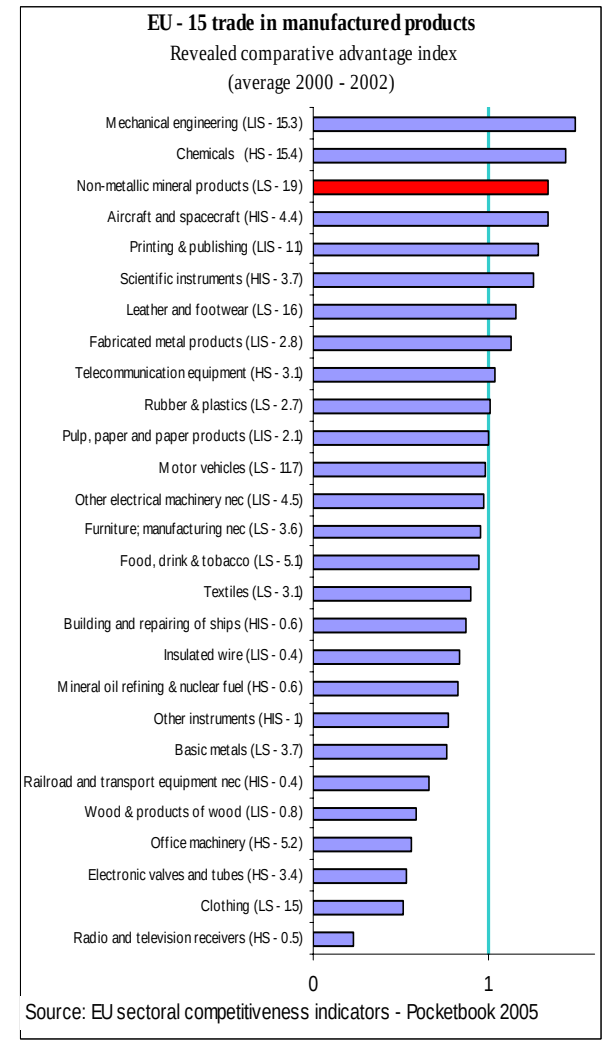

Value added distribution by enterprise size EU - 25
Non-metallic mineral products (2001)
70%
60%
50%
40%
30%
20%
10%
0%
Micro enterprises
SMEs
Large
Manufacturing
Manuf. of glass and glass products
Manuf. of cement, lime and plaster
Ceramics
Data for enterprises with more than 1000 employees not available
Source: Eurostat


Production Index EU 25
(2000=100)
120,0
100,0
80,0
60,0
40,0
20,0
0,0
1990
1992
1994
1996
1998
2000
2002
2004
d Manufacturing
Manuf. of glass
Manuf. of ceramics
Manuf. of cement and lime
Source: Eurostat and Commission Services own calculations.


Employment EU 15
(1979=100)
120
100
80
60
40
20
0
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
Employment - Non-metallic mineral products
Employment - Total manufacturing
Source: EU sectoral competitiveness indicators - Pocketbook 2005 / O'Mahony and van Ark (2003)


Labour productivity evolution EU 15
(1979=100)
(per hour worked)
250
200
150
100
50
0
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
Non-metallic mineral products
Manufacturing
Source: EU sectoral competitiveness indicators - Pocketbook 2005 / O'Mahony and van Ark (2003)


EU - 15 Intra-industry Trade with partners by income level (2002)
*GL Index
1,0
0,8
0,6
0,4
0,2
0,0
0,46
0,60
0,52
0,39
High
Upper-medium
Low-medium
Low
Non-metallic mineral products
*Grubel-Lloyd (GL) index. GL=1 All trade is intra-industry
Source: EU sectoral competitiveness indicators - Pocketbook 2005


EU - 15 trade in manufactured products
Revealed comparative advantage index
(average 2000 - 2002)
Mechanical engineering (LIS - 15.3)
Chemicals (HS - 15.4)
Non-metallic mineral products (LS - 1.9)
Aircraft and spacecraft (HIS - 4.4)
Printing & publishing (LIS - 1.1)
Scientific instruments (HIS - 3.7)
Leather and footwear (LS - 1.6)
Fabricated metal products (LIS - 2.8)
Telecommunication equipment (HS - 3.1)
Rubber & plastics (LS - 2.7)
Pulp, paper and paper products (LIS - 2.1)
Motor vehicles (LS - 11.7)
Other electrical machinery nec (LIS - 4.5)
Furniture; manufacturing nec (LS - 3.6)
Food, drink & tobacco (LS - 5.1)
Textiles (LS - 3.1)
Building and repairing of ships (HIS - 0.6)
Insulated wire (LIS - 0.4)
Mineral oil refining & nuclear fuel (HS - 0.6)
Other instruments (HIS - 1)
Basic metals (LS - 3.7)
Railroad and transport equipment nec (HIS - 0.4)
Wood & products of wood (LIS - 0.8)
Office machinery (HS - 5.2)
Electronic valves and tubes (HS - 3.4)
Clothing (LS - 1.5)
Radio and television receivers (HS - 0.5)
0
1
Source: EU sectoral competitiveness indicators - Pocketbook 2005

CERAMICS
COMPETITIVENESS ASSESSMENT

Output in EU15 has grown steadily over recent years (10% in 1995-2003), amounting to 0.73% of total manufacturing output, and representing 0.96% of total manufacturing value added. Employment in EU15 has fallen steadily (20% in 1995-2003) to 222,000, amounting to 1.19% of total manufacturing employment. There are over 2000 companies in the EU, the biggest majority of which are SMEs.

Energy represents over 20% of total costs in some sub-sectors, which highlights the importance of electricity and gas liberalization to have a reliable supply of energy at affordable prices. The industry is also capital-intensive; kilns represent a very high, long-lasting investment, which makes it difficult to respond to short-term fluctuations in demand, or comply with new legislation affecting energy or emissions.

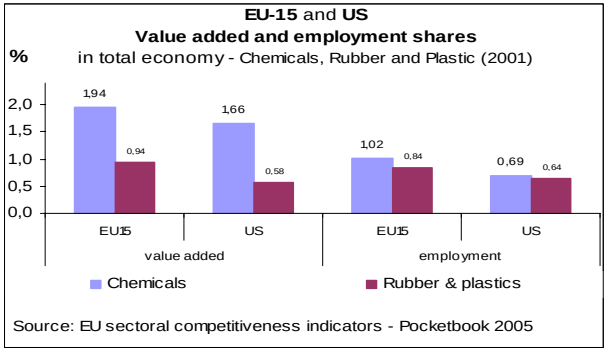
KNOWLEDGE	Ceramics manufacturing technology is at a mature stage, where production is highly automated in most sectors. Nevertheless, investment in R&D and innovation are still important for the long-term survival of the industry. With regard to the important field of technical ceramics, the last decades have seen the development of the wide potential of functional ceramics, based on a variety of physical and chemical properties. The R&D activities across this broad sector of materials science continue to be very significant, contributing to several high technology applications which include the electrical, mechanical, thermal, energy storage, chemical and nuclear industries.
COMPETITION	The sector is mostly composed of SMEs. Vertical integration is normal in the coarse ceramics sector: producers of bricks & roof tiles and some refractory product producers usually have their own quarries from which they mine their own clays. Fine ceramics producers usually get their clays from dedicated clay producers, but some are vertically integrated in that they have their own retail outlets. Sanitary ware appears to be consolidated, and that process is on-going in the tableware sector. The Commission has approved 15 mergers, and has imposed remedies in one case only. The number of firms does not fluctuate a lot overall, but there have been some closures in recent years, especially in the tableware sector. Much of this stems from competition from very low-priced imports, mainly from China, often counterfeit from European designs. Barriers to entry comprise costs of laying down plant and regulation (REACH and emissions trading system of particular concern to industry though the further work on REACH Impact Assessment found no evidence of such concerns for certain sectors). There do not appear to be barriers to exit: there are examples of companies transferring their production to new Member States (prior to enlargement) or south east Asia. There have been complaints on state aid in the past, mainly in the tableware sector in Spain.
REGULATION	The horizontal legislation is of environmental nature (e.g. IPPC directive) and related to health and safety (minimum requirements). All legislation is of EU origin. Specific issue: one of its raw materials is silica and there is a proposal that it should be classified as carcinogenic. Having an

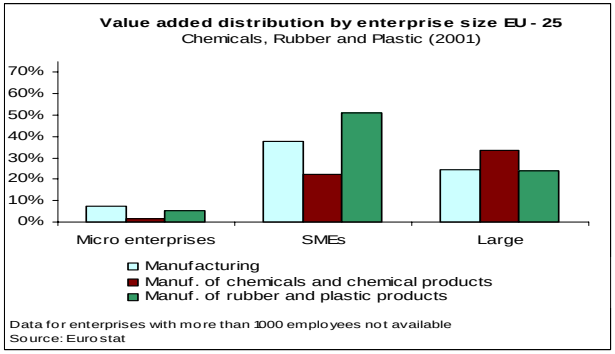
	agreement between the social partners on silica would obviate the need for binding legislation at EU level. Therefore, the Commission has been requested to facilitate negotiations for the conclusion of a social dialogue agreement on workers' health protection through the good handling and use of crystalline silica and products containing it.
ENVIRONMENT	The industry should be compliant with the following environmental legislation: Directive 94/42/EC on packaging and packaging waste, Directive 96/61/EC on integrated pollution prevention and control (IPPC), Directive 2003/87 establishing a scheme for greenhouse gas emission allowance trading within the Community, Proposal for a regulation concerning the Registration, Evaluation, Authorisation, and restriction of Chemicals (REACH – as a downstream user, which means that the requirements are lighter than for a producer of chemicals). The issues related to environment are: i) particulate matter or dust can arise from the handling or processing of raw materials or finishing. Gaseous emissions arise during the firing or spray drying of ceramics and may be derived from the raw materials and/or the fuels used. Among these emissions are carbon oxides, nitrogen oxides, sulphur oxides, inorganic fluorine and chlorine compounds, as well as organic compounds. Heavy metals can also be emitted due to the use of substances used in decoration or to the use of heavy oil as fuel, ii) some of the waste arising from the production process can be recycled back to the kiln, and that which can not be recycled internally is sent for external recycling (e.g. road construction) or disposal (e.g. landfill). Some producers are beginning to bring in waste for recycling, but this is by no means common, as in, for example, the glass industry, and there is no standardised collection system, iii) waste water coming from the production process mainly contains mineral components (insoluble particulate matter). Depending on the production process, it can also contain other inorganic materials, small quantities of numerous organic materials as well as heavy metals, iv) the principal issue for ceramics is lead and cadmium used in decoration in the table- and ornamental ware sector. This is regulated by Commission Directive 2005/31/EC which introduces a requirement for a written declaration by the producer or importer that the goods placed on the market comply with the lead and cadmium release limits. In the industry's opinion, the two items of legislation which will have the biggest impact on it will be the emissions trading scheme and REACH, the latter because, as a downstream user of a vast range of small quantities of chemicals, it fears that many of these will disappear from the market rather than being registered etc… . Given that ceramic production technology is at a mature stage, the emissions trading scheme will have an impact through higher energy prices. REACH may entail administrative burden, which may be particularly difficult for SMEs, but will also facilitate the implementation of workers' safety legislation and risk management..
EXTERNAL COMPETITIVENESS	Bricks, roof tiles and vitreous clay pipes, with high weight and low price, have local or regional markets, whereas tableware and wall & floor tiles are traded over long distance –over 25% output is exported outside the EU. The USA is prominently the biggest export market, followed by Switzerland, Russia, and Japan. The most important source of imports is China by far, (20% of total imports), followed by the USA and Thailand. Trade issues concern **counterfeit imports** and **access to third markets**. There are still peak tariffs in third countries where EU ceramics manufacturers see potential for their products. In addition, there are many countries where the EU ceramics industry has difficulties in selling because of other types of barriers, mainly in the form of compulsory testing, conformity assessment, and certification schemes. These include Turkey, Egypt, Saudi Arabia, Russia, Ukraine,… Other barriers include special labelling requirements, or the obligation to clear customs in a specific port, which may be far from the main market. Industry has expressed concerns that the EU is becoming less attractive for investment because of the regulatory framework, especially the emissions trading scheme and REACH. EU competitors do not need to meet European standards of quality, energy

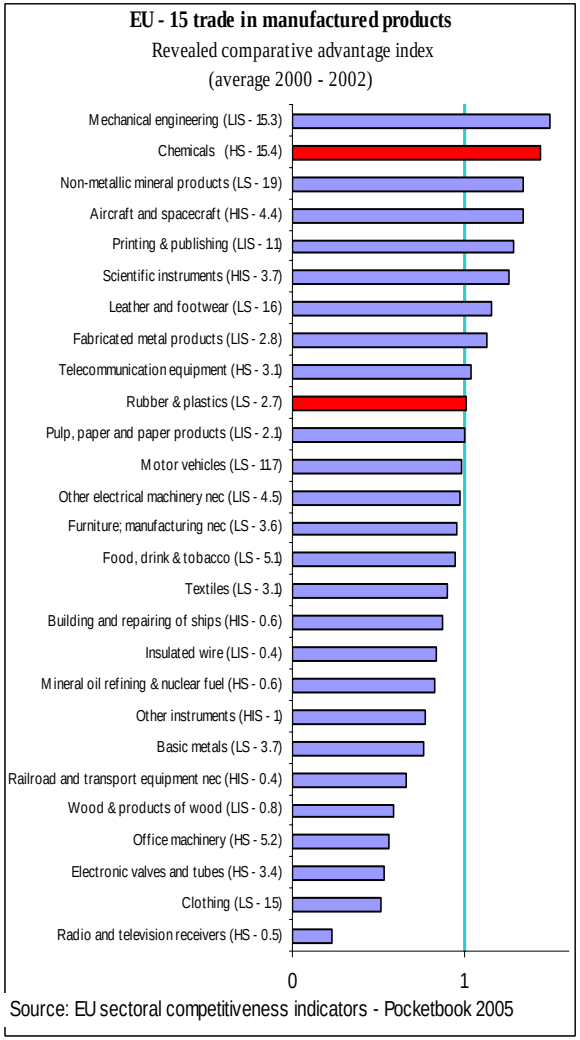
	use, environmental control, or working conditions. Another concern to industry is the supply of raw materials, and particularly their high cost. As far as high costs resulting from anti-dumping duties are concerned, the Community interest test regularly carried out in anti-dumping investigations ensures that they do not impact on the industry's competitiveness. Further concentrations of raw materials suppliers should be monitored closely, as more and more raw materials imported into the EU.
EMPLOYMENT AND GEOGRAPHICAL DIMENSION	EU workforce is well trained and experienced with a high degree of craftsmanship, though insufficient flexibility to deal with factors such as seasonal peaks seems to be an important issue.

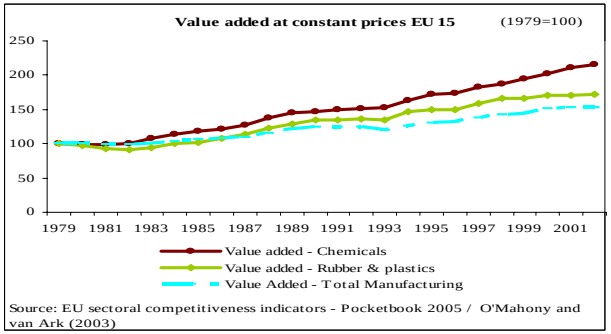
* Nace 26.2, 26.3 and 26.4

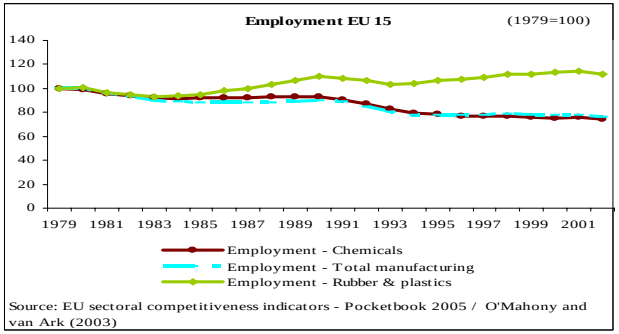
CHEMICAL, RUBBER AND PLASTIC

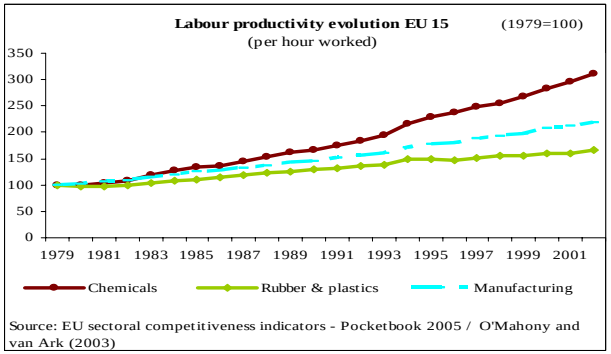


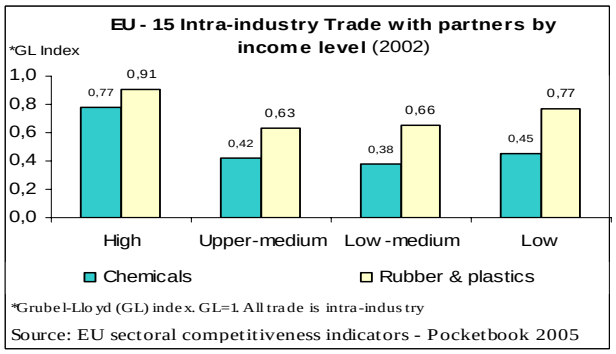












CHEMICAL, RUBBER AND PLASTIC COMPETITIVENESS ASSESSMENT

The European chemical industry covers a wide field of processing and manufacturing activities. It is a complex industry consisting of four main sub-sectors: Petrochemicals, Polymers,, Specialty and Fine Chemicals and Consumer Chemicals. With €360 billion turnover the EU is the lead chemicals producing area of the world (28% of world production). The chemical industry is a high-tech industry enabling virtually all sectors of the economy and therefore affects directly the competitiveness of its downstream users industries. Chemistry underpins numerous innovations in information technology, aerospace, medicine, hygiene, nutrition, mobility, housing, energy saving, clothing and many other areas. It is also closely linked to new developments such as bio- and nanotechnology. The chemicals sector directly employs 1,3 million people and twice that number indirectly. It comprises about 27 000 enterprises, 96% of which are SMEs generating 30% of sales and 37% of employment. The EU rubber industry is made up of about 4000 companies and employs 350 000 people. The plastic industry, on its side, entails about 30 000 enterprises employing some 1,5 million people. In total the chemical, rubber and plastics industries represents about 60 000 enterprises and a workforce of around 3 million. The EU chemicals industry is one of the largest manufacturing sectors in the EU. It accounts for 12% of gross value added in EU manufacturing and value added per employee is nearly twice as high as the manufacturing average. The chemical industry contribution to the GDP in EU15 amounts to 2.4%. The ***key factors influencing the competitiveness of the EU chemical industry*** *are* ***innovation and R&D, international trade, regulation, and energy****. From a policy making point of view it is therefore crucial to create an environment (legal, societal, etc.) where innovation is stimulated. Feedstock costs (mostly oil) and energy costs are also major drivers for the chemical industry especially the Petrochemicals sub-sector. As the rubber industry is relatively labour intensive for this sector labour costs are important as well.*

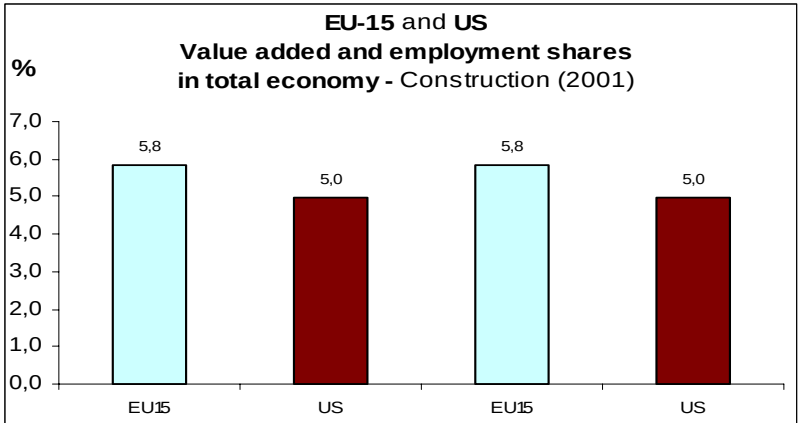
KNOWLEDGE	R&D spending is lower compared to the level of the main EU competitors (In 2003, R&D expenditure as a percentage of sales amounted to 1,9 % in the EU while it reached 2,4 % in the US and 2,7 % in Japan). Most plausible ways for the EU chemicals industry to maintain its competitiveness revolve around discovering, adopting and commercializing new technology. As a result, innovation in the chemical industry is a key driver for future European competitiveness, with a big impact on innovation activities in other manufacturing industries. Investment in chemicals is not particularly favourable in Europe because of 1) lower returns for many structural reasons endemic in Europe such as the complexity of protection of Intellectual Property and higher production costs , 2) the public/private partnerships for R&D are not yet fully developed, 3) immature venture capital markets, and 4) Europe is facing a sharp decline in students graduating in this area. Collaboration and the formation of strategic alliances become increasingly important. The need to increase production and capture new markets and at the same time to reduce emissions and improve worker safety, require major chemical innovations driven by competitive EU chemical and associated industries. There is a need to boost European research, development and innovation in chemical technologies if the economic contribution of the industry in Europe is to be sustained. The setting up of a Technology Platform for Sustainable Chemistry is therefore a positive development.
COMPETITION	Given that the sector produces such a lot of different products, competition analysis is difficult. Consolidation and restructuring in the chemical industry are ongoing processes which will continue in the future. The sub-sector **Petrochemicals** is highly vertically and horizontally integrated, where economies of scale and scope are important. There is further consolidation to be expected as the average size of plant within Europe is small in comparison with the new plants that are built outside the EU. Also in the sub-sector **Fine and Specialty** chemicals, which is predominantly composed by specialised niche companies, consolidation is on-going. In

	this segment further restructuring is, among other things, driven by the overall business environment and by the degree of access to capital for SME. The investment of private equity capital in the chemical industry is another factor influencing the chemicals landscape: selling off of units, merging of businesses, restructuring companies, etc. with a view to creating high return on investment. Whereas in some cases, consolidation will improve the competitiveness of the chemical industry, in other cases this development may harm longer term competitiveness. Buyer power amongst clients from for instance automotive or retail sectors is important too. In general, for some frequently traded products (some petrochemicals and plastics) prices are transparent. Vertical integration is important in the industry, though some major players decided to exit commodities and focus on specialty chemicals. Since 1990, the Commission has prohibited two mergers, and has approved 51 mergers subject to remedies. The structure of the industry lends itself to considerable risks as regards anti trust problems, a situation which requires constant vigilance. . Since 1999, the Commission has found 16 cases of violations of anti-trust rules, and has imposed fines in 15 of them.
REGULATION	The main regulatory challenge of the chemicals sector is the successful design of a workable and cost-effective REACH system (Registration, Evaluation and Authorization of Chemical substances) which will enhance the effectiveness of other regulations in force in this sector (such as Worker Protection directive) and which will ensure a homogeneous regulatory regime in the Internal Market, the international competitiveness and innovative capacity of the sector, notably of its SMEs, while achieving a marked improvement as regards environment, health and safety standards. Other regulatory issues that have a bearing on the chemicals, rubber and plastics industries are occupational and workplace regulations and most parts of other existing environmental and health regulations , notablythe legislation on pesticides, biocides, waste, water, climate change and air pollution. Energy liberalization in Europe for gas and electricity has been a legislative and business issue for more than a decade but it has not, at this stage, met its objection to deliver energy at competitive prices. .Many EU regions lack truly liberalised markets and true competition. In existing oligopolies, industrial consumers can not freely choose suppliers or negotiate on a fair basis with suppliers.
ENVIRONMENT	From its very nature environmental issues play a crucial role in the chemical industry and therefore there are a substantial number of regulatory measures in the environmental area. As a result, environmental expenditures in the EU chemicals, rubber and plastics industries amount to 3.5% of value added and account for 23% of total EU environmental protection expenditure in all industries. There is a clear indication that the chemical industry managed to reduce emissions to all environmental compartments and to decouple its growth to a large extent from the growth of emissions e.g. emissions from chlorine production, emissions of volatile organic compounds. The EU industry has achieved in the past 15 years a remarkable progress in energy efficiency. By 2002, production in the EU 15 chemical industry had risen by 38% since 1990, while total energy consumption has increased by only 2.5% and CO2 emissions have fallen by 8%. Hence CO2 emissions per unit of energy consumption have been dramatically reduced and CO2 emissions per unit of production have even decreased almost 44% since 1990. Since the chemical industry is mainly a facilitating basic industry which provides inputs (plastics, lubricants, paints, etc.) to other industry, this industry needs a life cycle approach which does not only look at the production of the chemical itself, but as well at emissions in the use and in the waste phase. The voluntary Responsible Care programme is an important initiative of the chemical industry to further improve the

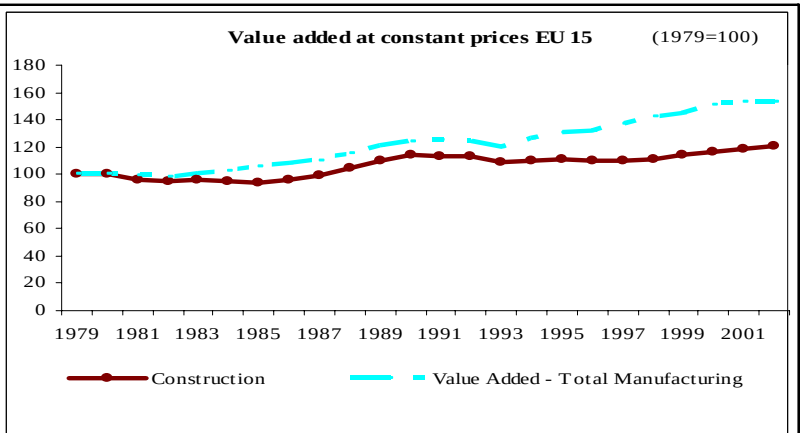
	downstream environmental impact of their products.
EXTERNAL COMPETITIVENESS	In 2004, EU exports amounted to €102 billion versus €67 billion in imports. The rise in imports has been outstripped by the EU's export performance, such that since 1998 the external trade surplus for chemicals continues to increase despite the recent appreciation of the Euro. The European production base is however eroding, with investments flowing to other parts of the world where growth is higher (Asia, especially China) or with cheap feedstock (Middle East). According to a major study of CEFIC published in 2004, the share of the EU chemicals industry in the world chemical production could fall from the current 28 % to 23 % or 16 % respectively by 2015, depending on best or worst case scenario. During the last 3 decades new countries have emerged as important producers of chemicals. Two regions should be especially highlighted in this respect: Asia (China, India, Taiwan, South Korea, Thailand, etc.) became an important producer of the whole range of chemicals while the development of the Middle East was more focused on the Petrochemicals sub-sector. From an external competitiveness point of view the challenges facing the industry are: slow demand growth in Europe, high demand growth in Asia, delocalisation of customer industries, higher production costs and a highly regulated environment. This situation makes Europe less attractive for investments, resulting in less R&D spending and erosion of the global production share. The EU chemicals, rubber and plastics industries encounter market access problems, tariffs but also more and more non-tariff barriers, in some important export countries. The Petrochemical and fertilizers industries are seriously affected by double-pricing policies regarding raw materials of certain third countries.
EMPLOYMENT AND REGIONAL DIMENSION	Germany is the largest chemicals producer in Europe, followed by France, Italy and the UK. Together, those four countries produce 61% of EU25 chemicals output. Adding Belgium, Spain, the Netherlands and Ireland raises the share to 88%. In almost all of these countries the chemicals industry has lost jobs the last decade (1994-2004), sometimes dramatically like in Germany (-22 %) and UK (- 14 %). In the 10 new member states the chemical industry is still rather small in comparison to the old member states although for instance Poland represents 1.8% of total EU 25 chemical sales which is more than Austria, Finland and Portugal.

* Nace 24 (24.1, 24.2, 24.3, 24.5, 24.6, 24.7) and 25

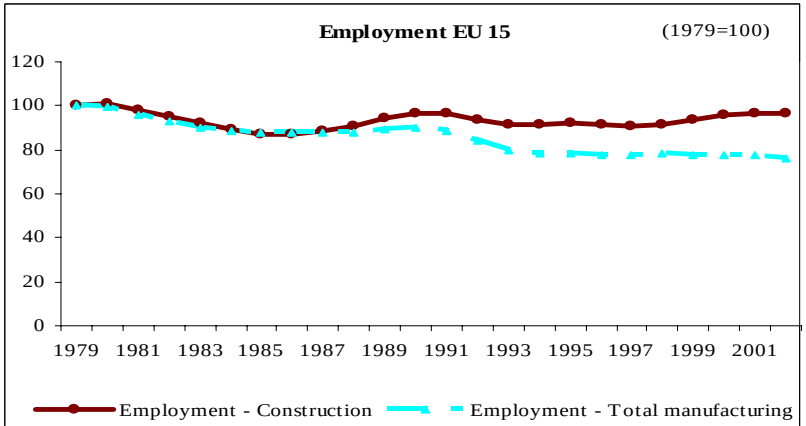
CONSTRUCTION



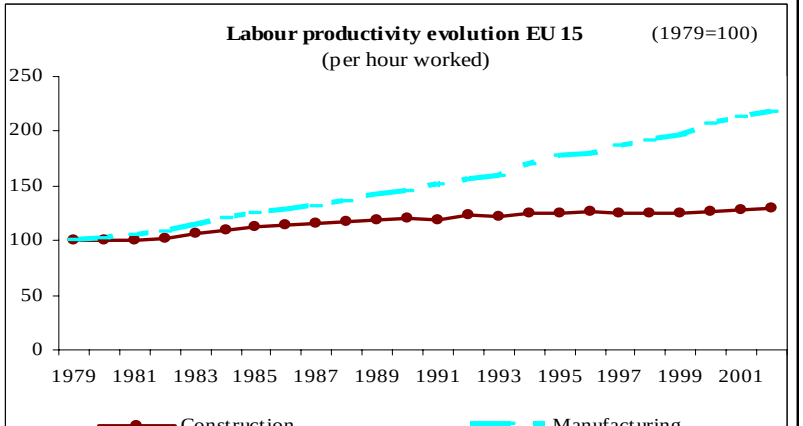
Source: EU sectoral competitiveness indicators - Pocketbook 2005



Source: EU sectoral competitiveness indicators - Pocketbook 2005 / O'Mahony and van Ark (2003)



Source: EU sectoral competitiveness indicators - Pocketbook 2005 / O'Mahony and van Ark (2003)



Source: EU sectoral competitiveness indicators - Pocketbook 2005 / O'Mahony and van Ark (2003)

CONSTRUCTION
COMPETITIVENESS ASSESSMENT

Construction is the biggest sectoral employer and a major contributor to GDP and Gross Capital Formation in Europe. Public regulations and public investment influence the sector a lot in terms of cyclical stabilisation of macro-economic trends. In a number of countries, recent economic recovery has positively influenced the construction activity, mainly for the new housing sector, with the exception of civil engineering. There are however significant national and regional differences in trends.

Compared to nearly all other sectors, the seasonality of the work and the labour intensity have a much greater influence on the performance of construction. The value-added per person employed is in construction significantly lower than in most other activities, mostly due to the limited potential for increased automation and capital intensity of production. The investment per worker is less than half of the level of the industry in most of the countries. The only sub-sector with higher productivity is the renting of equipment with significantly lower employment than the rest of the sector.

On international level, Europe is a net exporter of construction services, largely before US and Japan,

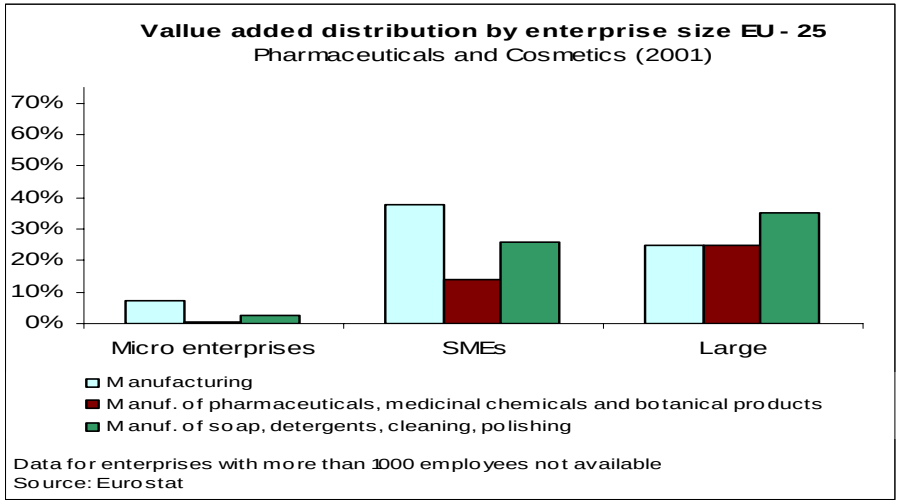
KNOWLEDGE	The level of investment in R&D is rather low. One of the challenges is to bring participation and exploitation of R&D to small and medium-sized companies. ICT could benefit the construction sectors in many ways, for instance by embedding ICT in 'smart' materials/construction products and by offering new ways of interaction and coordination in trade, construction process and monitoring of materials. R&D and innovation in intelligent materials, constructions and buildings will offer a potential competitive advantage for construction enterprises. Since 2004, there is a European Construction Technology Platform. The European Construction Technology Platform (ECTP) mobilises the whole construction sector, e.g. contractors, authorities, architects and other designers, purchasing bodies, and the full range of suppliers, clients and users. In its vision report, ECTP has identified 3 strategic research themes for the development of the construction sector: (1) materials and technology: integration of developments in the fields of bio-, nano- and information technology; (2) industry transformation: involves bridging the gap in communication between the technical and human side of things in order to discover new business opportunities; (3) service: include the pursuit of health, safety and sustainability by meeting human needs and improving accessibility, quality of life and work.
COMPETITION	The sector is composed of many micro enterprises and few large companies, the latter being in a number of cases parts of mixed activity corporates providing services including financing of construction activities or active in fields such as energy, transport, telecommunication and media. Since 1990, the Commission has approved 48 mergers, and has fined one cartel. Consolidation is expected among the large companies, which will lead to the emergence of few large firms dealing with project management that will outsource building work to subcontractors (small or micro enterprises). The demand for construction is influenced, i.e. by country-specific support measures for home-owners (e.g. subsidies credit, tax incentives).

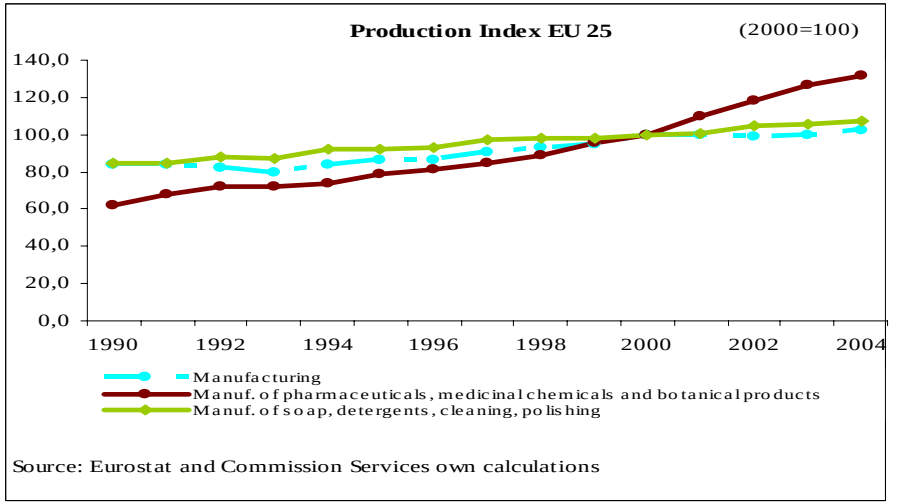
REGULATION	In addition to Council Directive 89/106/EEC (Construction Product Directive – CPD), a great deal of Community legislation in other policy fields has also a bearing on the competitiveness of the construction sector, i.e. technical harmonisation, public procurement, rules on health and safety, the recognition of qualifications, VAT, the protection of the environment and the consumers. The highest number of relevant EU legislation concerns Environment and Social Coherence. The sector is highly regulated at national level, including with respect to environment and labour safety requirements, and to the construction materials in use. Builders, design services and construction contractors have to observe building regulations. Their formulation, legislation and enforcement (control of application and building inspection) are Member State competence, with power given to regional and local authorities according to the individual constitutional and administrative system. Furthermore, the construction sector is mostly affected by national legislation concerning safety at work, social security, VAT and liability regimes. At local and regional levels, urban and spatial planning have an impact on business expansion.
ENVIRONMENT	Directly or indirectly through the works in which they result, construction activities very significantly impact on the environment. The most important aspects are the loss or deterioration of open landscape and habitats, qualitative and quantitative change of micro-climate, ground and surface water, as well as vegetation through the built environment, emissions and energy consumption from the use of works, and construction waste in particular from demolition as well as pollution and disturbance caused by the execution of works.. Furthermore, the release of unhealthy or environmentally unfriendly substances from construction products needs to be controlled. Besides wise land use planning and management, and good design, environmentally respectful and sustainable construction requires environmentally friendly materials, energy- and waste-saving developments, etc. Solutions for environmental sustainable developments are often based on combinations of good planning, design of works and use of materials. The protection of human health and the environment is mentioned in many national building codes, but there are many views about which substances should be considered as dangerous in construction products. Moreover, a clear definition of construction waste facilitating an analysis of the socio-economic issues related to this waste stream is missing. Sustainability criteria trend nowadays to embrace a wide range of aspects like the whole life cycle of a building, re-using existing built assets, designing for minimum waste and energy use throughout the life cycle, avoiding pollution, adding to bio-diversity, conserving water resources, respecting people and communities. There are some voluntary schemes on Life Cycle Assessment and Environmental Product Declarations in place on a national level. However, there is still no systematic approach to assess the overall environmental performance of construction assets.
EXTERNAL COMPETITIVENESS	The globalisation of construction activities is especially important for large civil engineering companies exporting management and planning concepts and accordingly, managerial and engineering skills. The manual labour is generally performed by local workforce. However, highly specialised construction functions and materials requiring the use of specific equipment and processes will also be more and more exported. Overall, EU contractors have good to excellent managerial and technical competences to execute complex international projects. The main difficulties in competition are due the lack of openness and transparency of the market and of the procurement rules, in particular in developing countries. It is often difficult to set up joint ventures with local partners due to the constraints put on the capital shares and the employment of local staff.

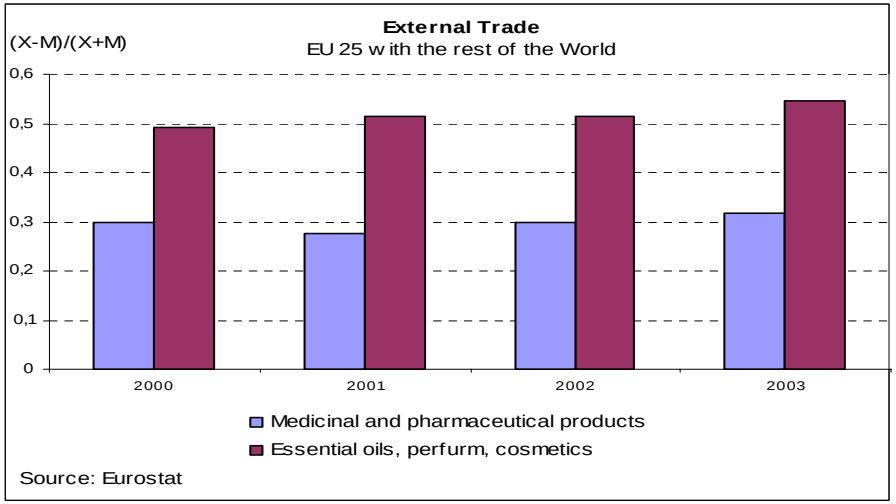
EMPLOYMENT AND GEOGRAPHICAL DIMENSION	Employment in the construction as a percentage of total industry employment grew at an average annual rate of 1.4% between 1995 and 2003 at the EU-15 level. In 2003, the share of the employment in the construction industry in relation to total industry employment amounted to around 28.8% at the EU-15 level. In 2003, most the employed workers in the EU-15 construction industry were located in Germany (20% of EU-15 employed workers in that industry), the UK (16%), Spain (16%), Italy (14%), and in France (12%). In 2003, the majority of employed workers in the construction industry were medium-skilled workers (around 45%) and low-skilled workers (around 41%) at the EU-15 level. As in many other sectors, the qualification of personnel is an important factor for productivity of the construction sector, here especially at management level,. There is a need for developments in education and training (e.g. lifelong learning), in particular to uptake new method of working and management as well as technological innovation. Initiatives should cope with time flexibility and with the mobile and dispersed nature of construction sites (distance learning). Self-employed represent a high share of the workforce in the construction industry, and their remuneration and employment conditions are rather precarious. Construction is often mentioned as a typical case study of undeclared activities. Furthermore, the risk of accidents in construction is considerably higher than the EU average for all sectors.

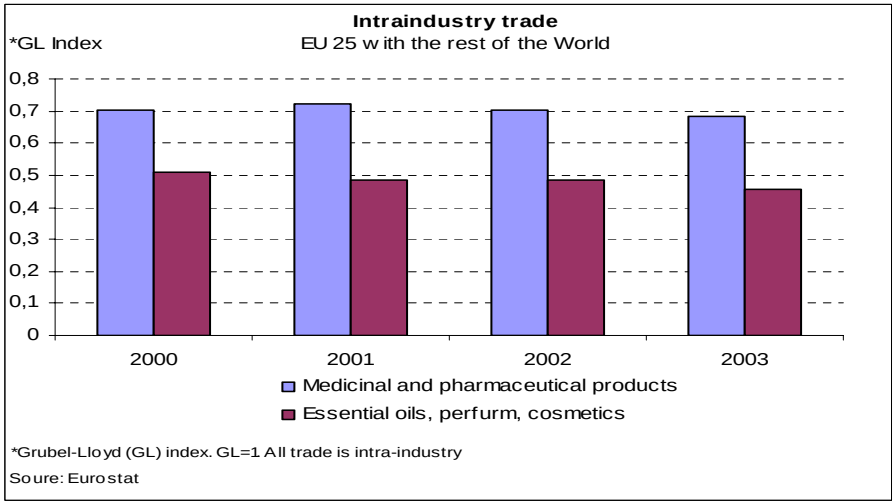
* Nace 45.1, 45.2, 45.3, 45.4 and 45.5

COSMETICS


Vallue added distribution by enterprise size EU - 25
Pharmaceuticals and Cosmetics (2001)
70%
60%
50%
40%
30%
20%
10%
0%
Micro enterprises
SMEs
Large
Manufacturing
Manuf. of pharmaceuticals, medicinal chemicals and botanical products
Manuf. of soap, detergents, cleaning, polishing
Data for enterprises with more than 1000 employees not available
Source: Eurostat


Production Index EU 25
(2000=100)
140,0
120,0
100,0
80,0
60,0
40,0
20,0
0,0
1990
1992
1994
1996
1998
2000
2002
2004
Manufacturing
Manuf. of pharmaceuticals, medicinal chemicals and botanical products
Manuf. of soap, detergents, cleaning, polishing
Source: Eurostat and Commission Services own calculations


External Trade
(X-M)/(X+M)
EU 25 with the rest of the World
0,6
0,5
0,4
0,3
0,2
0,1
0
2000
2001
2002
2003
Medicinal and pharmaceutical products
Essential oils, perfurm, cosmetics
Source: Eurostat


Intraindustry trade
*GL Index
EU 25 with the rest of the World
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
2000
2001
2002
2003
Medicinal and pharmaceutical products
Essential oils, perfurm, cosmetics
*Grubel-Lloyd (GL) index. GL=1 All trade is intra-industry
Soure: Eurostat

COSMETICS
COMPETITIVENESS ASSESSMENT

The European cosmetics industry is an example of an internationally competitive industry which has established itself as a market leader. With 35 billion €, the European cosmetics industry has an ex-factory output which is twice that of Japanese companies and one third higher than U.S. companies. Direct employment in the industry is greater than 150,000 -plus 350,000 indirect jobs. The cosmetics industry is a dynamic industry, characterised by innovation and a high rate of product development. Several thousand new or improved products are placed on the market each year.

KNOWLEDGE	Technological challenges and innovations in cosmetics concern the development of new ingredients and product compositions and new delivery mechanisms. This includes for example having foams in gel form and cosmetic wipes, liposome technology to deliver vitamins E and C in anti-ageing creams into the upper layers of the epidermis and nanoparticles used as physical UV-filters. Moreover, industry has to meet the challenge to develop alternative testing methods by the year 2009/2013.
COMPETITION	The sector consists of both a limited number of major companies, and a large number of SMEs. It remains to be seen whether their position will come under pressure from competitors from other sectors, having expertise in life sciences like pharmaceuticals, biotech and medical devices, which try to enter the market. It is unclear whether the SMEs in the sector will be reduced to niche players in the future, or whether they will be able to expend into new markets. Since 1990, the Commission has approved 13 mergers.
REGULATION	The main regulatory framework for cosmetic products is the Cosmetics Directive. The Cosmetics Directive is regularly amended in order to update the list of prohibited, restricted or permitted ingredients as listed in the annexes to the Cosmetics Directive. The regulatory approach of the Cosmetics Directive is "in-between" highly regulated sectors with pre-market approval and sectoral new-approach regulation which sets out essential requirements for products. The Cosmetics Directive ensures the free movement of cosmetic products by providing the same regulatory framework throughout the Community. It also guarantees the safety of cosmetic products placed on the EU market. The question emerges of whether and how new, more potent cosmetics can be accommodated with this existing regulatory framework. Regulators can support the industry by providing a modern, innovation-friendly regulatory framework and by ensuring a continued international regulatory cooperation
ENVIRONMENT	Innovation is essential to improve the environmental impact of products. The 7th Amendment to the Cosmetics Directive introduced a ban on animal testing of finished cosmetic products from 11 September 2004 and a ban on animal testing of ingredients not later than 11 March 2009 within the EU. It also introduced a ban on the marketing of cosmetic products tested on animals and products containing ingredients tested on animals, within the EU or elsewhere, not later than 11 March 2009/2013. It is important to note, however, that the Cosmetics Directive does not address environmental risks. Therefore, REACH is regarded as environmental legislation having an impact on the cosmetics sector in terms of further innovation requirements to meet the environmental requirements.

EXTERNAL COMPETITIVENESS	The external challenge in terms of regulation lies in promoting the European regulatory model abroad, in particular in the emerging markets of China, Russia and South America. The EU is a world leader, with a high innovation-rate and a very considerable export surplus. Significant differences between regulation in the EU and other markets create barriers to the development of new 'global products' and increase the costs of product innovation. The main challenge lies in maintaining the high degree of competitiveness of the cosmetics industry in Europe. Openness of external markets also needs to be pursued: e.g. an EU Trade Barriers Regulation procedure is still ongoing in Korea.
EMPLOYMENT AND GEOGRAPHICAL DIMENSION	The sector is an important employer in Europe, creating 150,000 jobs directly and another 350,000 indirectly in retail, distribution and transport.

* Nace 24.5

DEFENCE INDUSTRIES
COMPETITIVENESS ASSESSMENT

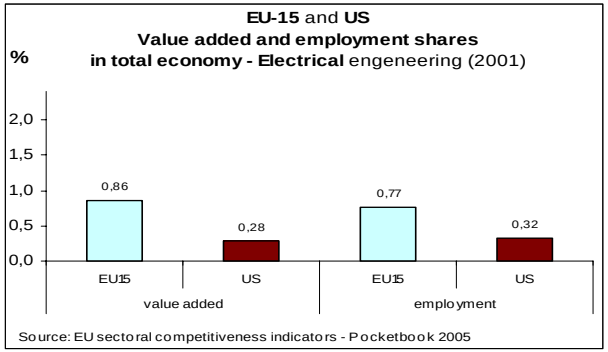
The EU defence industry turnover can be estimated at about € 70 bn, with employment of about 770 000. This represents roughly half of the US defence industry, both in turnover and employment. Most of the companies concerned are involved in both military and civil activities. In essence the European Defence Industry consists of the defence part of the activities of companies involved in aeronautics, space, electronics, shipbuilding, engines, trucks, etc. An analysis of the 28 European companies belonging to the World Defence Industry Top 100 shows that only 13 of them make more than 50% of their turnover in the defence sector. Budgetary restrictions have pushed those companies to diversify. But the evolution of the security threat also drives a technological evolution towards defence products in the range of information technologies, biotechnology, nano-technology, etc. with numerous civil applications.

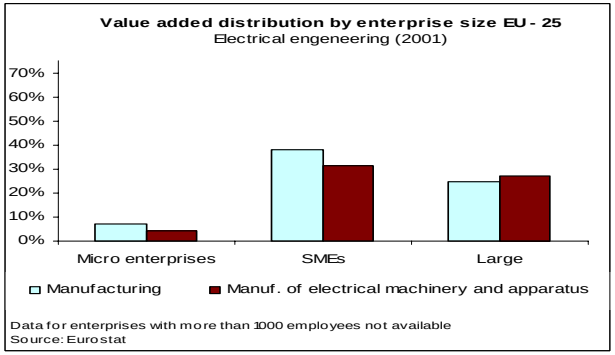
The persistent demand fragmentation at national level has led to a very fragmented defence industrial landscape having to answer to different national requirements. The fact that defence companies have usually a unique national customer has put a curb on the competitiveness of those companies. The absence of a functioning market constitutes a major obstacle to the consolidation, competitiveness and sustainability of defence-related industries within the EU.

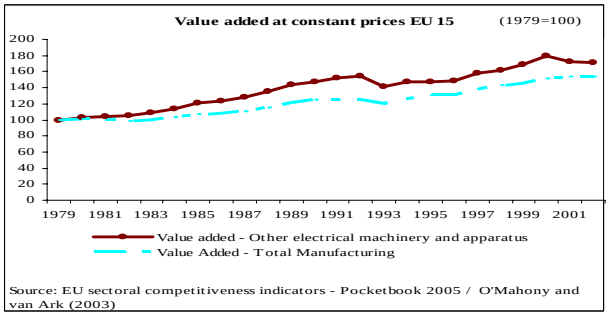
KNOWLEDGE	For many years, defence investment in Europe has been significantly smaller than in the US in procurement but the gap is even greater - and growing - in research and development. Major efforts to improve Research and Development in that sector through a reduction of the fragmentation and the duplications and also through a better exploitation of the synergies between defence and civil technologies are necessary. The technological evolution towards more and more complex technologies generates considerable increases in product developments.
COMPETITION	A consolidation and restructuring process has started in Europe, following years of consolidation and restructuring in the United States, where the number of prime defence contractors has now been reduced to four. In 1999, two mergers created the largest defence companies within Europe, which both now rank in the top 5 worldwide: EADS and BAe Systems. Below the level of the major holding companies, a movement towards joint ventures, alliances and other forms of collaboration can be observed in several business segments (e.g. Matra BAe Dynamics for missiles, Thomson Marconi for sonars, Alvis-Hägglungs for armoured vehicles). However, the remaining number of European defence companies is still much greater, in a much smaller combined market, than in the US.
REGULATION	The currently fragmented legal and regulatory framework – also deriving from the extensive use by member-States of Art.296 of the EU Treaty- places limits on the adjustment capabilities of companies or pushes them towards strategies and alliances which can put the Union in a disadvantageous position. A failure to safeguard a competitive defence industrial base, and the consequent loss of autonomous design and innovation capabilities, would limit available choice and would lead to higher procurement costs in the long run. The creation of a European defence equipment market is necessary to help consolidate both the demand and supply sides of the market in Europe, to provide a right environment for the European Industrial and Technological Defence Base and to put Europe's

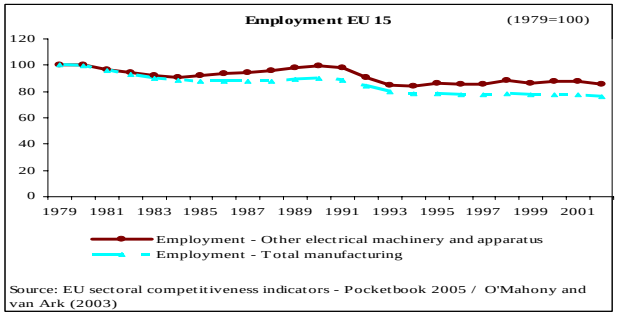
	industries in a better position on the international market. Measures towards a European Defence Equipment market include procurement rules, easier intra-EU transfers, adapted competition rules, standardisation etc. Standardisation would also help considerably competitiveness progress since the national defence markets are usually too small to reach a critical mass, especially in high tech areas. Standardisation would allow companies to invest with a broader perspective and to compete on a more equal basis with their American counterparts. The Commission is working with the European Committee for Standardisation (CEN) to draw up a European defence standardisation handbook cataloguing standards commonly used for defence.
ENVIRONMENT	Environmental legislation does not create particular problems for the defence sector. As regards REACH, the proposed new chemicals legislation, this industry could face adaptation costs and time-to-market problems in case substances for specific purposes are (suddenly) withdrawn for economic reasons.
EXTERNAL COMPETITIVENESS	According to available figures, the US are by far the biggest weapons exporter ($13 648 million in 2003 vs. $4 700m UK, $1 200m France, $1 200m Germany, $100m Italy, $100m Belgium (source IISS Military Balance 2004)). Russia ($3 400 million), Ukraine and China maintain important market shares on more simple products. Taken together, EU Member States spend less than half the US does on defence. The total annual US budget comes to $ 400 billion, or 43% of World Defence Spending (SIPRI) compared to a cumulative budget of some € 160 billion for EU Member States together. For many years, defence investment in Europe has been significantly smaller than in the US in procurement but the gap is even greater - and growing - in research and development. In 2001 more than three-quarters of the OECD total military research budget was accounted for by the US, that is more than four times the EU defence research budgets (source: OECD, STI Scoreboard 2003). This has of course impaired to some extent the technological developments in Europe and been detrimental to an important factor of the competitiveness of the industry. There is no doubt that the difference in level between the European and American defence budgets will remain considerable. Some restructuring of the European defence industry and the setting-up of an efficient European defence market can bring more cost efficiency. But major efforts to improve research and development in that sector through a reduction of the fragmentation and the duplications and also through a better exploitation of the synergies between defence and civil technologies are necessary, for the sake of competitiveness. It is worth noting that most available data are either uncertain or heterogeneous from a Member State to another one. Better knowledge and comparability would constitute a real help for the definition of appropriate policies.
EMPLOYMENT AND REGIONAL DIMENSION	Restructuring and consolidation are foreseeable in several sectors (land force equipment and naval in particular) which could have consequences on employment and, in some cases, on regions – when defence industries represent a substantial part of the industrial activities of a given region.

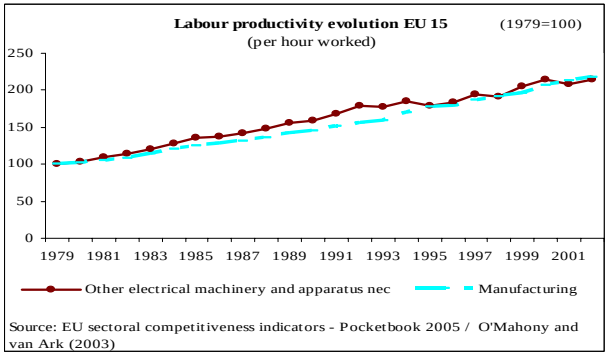
ELECTRICAL ENGINEERING

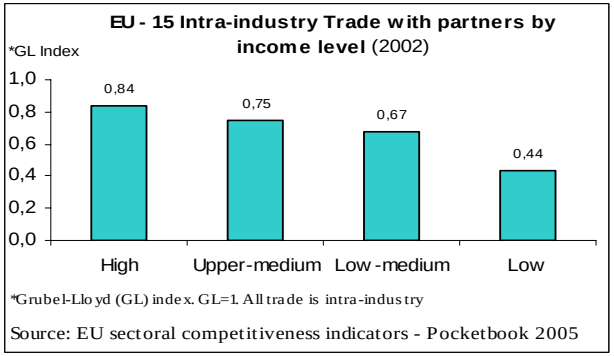


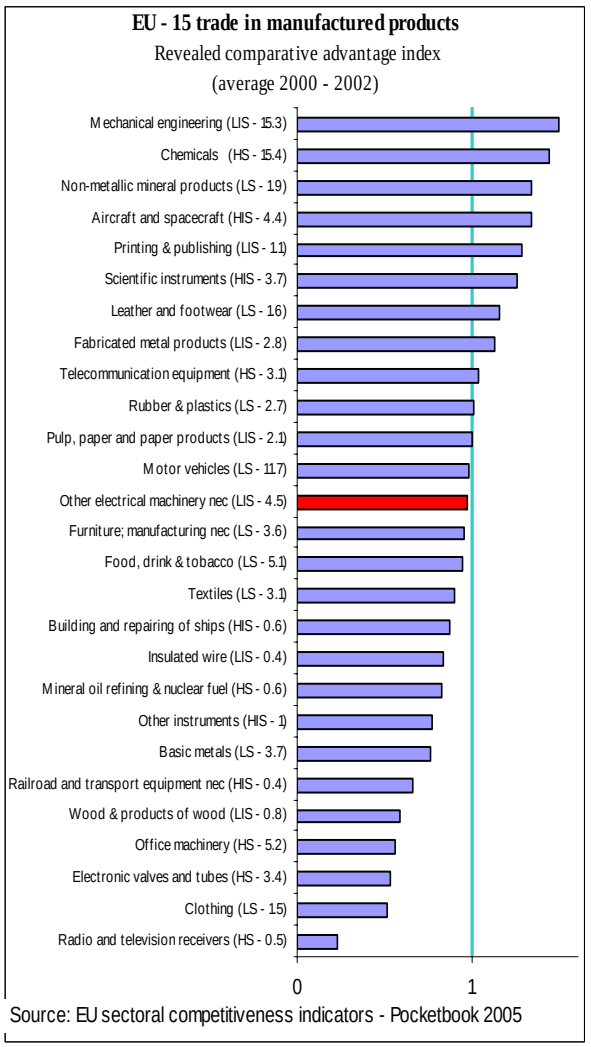












ELECTRICAL ENGINEERING
COMPETITIVENESS ASSESSMENT

Electrical Engineering accounts for 3% of the production, value-added and employment of the Manufacturing Industry of the EU. 8,015 electrical engineering enterprises with 20 or more employees produced in 2003 €168.306 million worth of electrical apparatus and equipment, directly employing 1,094 million people. (data for EU15). As a major supplier to other sectors, Electrical Engineering is very cycle sensitive. As a result, when there are recessions in the EU economy as a whole, there are depressions in Electrical Engineering (such as the 1992-93 recession which caused a major crisis in the sector). As a knowledge-based sector, Electrical Engineering has the long-term negative effect that companies shed during recessions a significant portion of their engineers and other skilled technicians, which they have great difficulties in recovering afterwards. Measures to smoothen structural change over time are therefore very important for this sector. Due mostly to the effects of the 1992-93 depression, the average annual growth rate in nominal terms of EU Electrical Engineering for the period 1995-2003 has been a modest 3%.

The EU electrical engineering market is the world's largest one (€160 bn) followed by the USA and Japan (€100 bn and €91 bn respectively). Only two Electrotechnical Sub-sectors offer expansion opportunities in the long term: Electric motors, generators and transformers and Other electrical equipment. In 1998-2003 the former grew by 39% in current terms and the latter by 37%. At the other end Accumulators and batteries (-6%), Lighting equipment and lamps (-5%) and Wire and cables (-3%) have performed worst during that period. Within the first one, the EU has done best in large generators and transformers and electric motors for special purposes, while the European position in small, standard motors is being eroded. In 2003 the overall output of the Electric motors, generators and transformers sub-sector slipped down by one percentage point. In accumulators and batteries and in lighting equipment there is a progressive delocalisation of Western European production to Eastern Europe and Asia. These two are mature technology, relatively labour intensive sub-sectors.

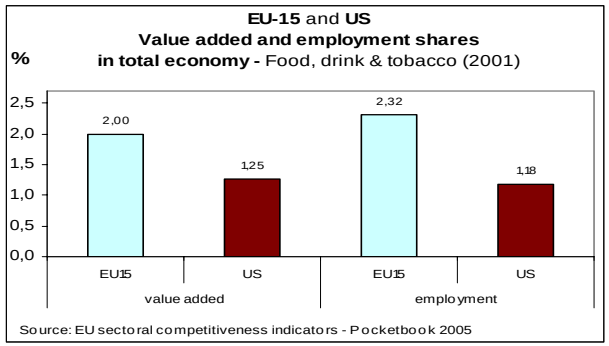
KNOWLEDGE	The delays in the adoption of the Community Patent may cause a significant competitive handicap to EU manufactures, particularly in view of the fact that many electrical engineering products rely on mature technologies. Nevertheless, continuous R&D and innovation efforts are key to guarantee the long-term competitiveness of Europe's electrical engineering industries. Counterfeiting of EU electrical brands is a serious and growing problem for European manufacturers. Over 5% of equipment sold as made in the EU is fake. Counterfeits affect not only the country where they are produced but the EU and third country markets as well. In this respect renewed attention must be paid to the effective enforcement of IPR legislation already nominally adopted by certain third countries like China.
COMPETITION	The structure of the industry is characterised by a two-tier system: a few large corporations producing a wide range of electrical equipment, and many small companies specialised in niche markets. For SMEs, access to finance is a particular problem. Restructuring of the sector is not correlated with consolidation and bigger company size. In fact, the average payroll of the EU Electrical engineering company has decreased during the 1995-2003 period from 154 to 136 employees. Out of about 236 merger cases in the sector notified to the Commission since 1990, eleven have been approved subject to remedies and two have been prohibited. There have been two anti-trust cases where the Commission imposed fines for agreements restricting competition.
REGULATION	The EU is the most open market for electrical equipment and appliances among large trade blocs and industrial countries. The piece of European Law that most directly concerns electrical equipment under low voltage is the **Low Voltage Directive**. The absence of third-party intervention in the conformity assessment procedures laid down by this Directive greatly reduces the burden

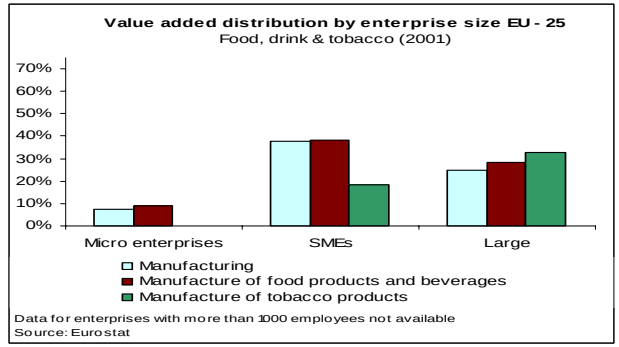
	on the manufacturer. This is a model of business friendly legislation for other trade blocs. The Low Voltage Directive has substantially contributed to the Single EU Market for electrical and electronic products since 1973. Most electrical equipment is also subjected to the Directive on Electromagnetic compatibility (**EMC Directive**). This Directive establishes essential requirements to prevent electrical and electronic equipment from generating or being affected by electromagnetic disturbances. It is also based on manufacturer self-declaration of conformity and is very appreciated by industry. Although recognising the need for and benefits of harmonisation, industry believes that the cumulative effect of legislation originating from various policy areas and levels can pose problems, particularly for SMEs. There seems to be a need to improve the market surveillance systems in the EU. In the absence of a well-functioning market surveillance system, there is a risk that EU manufacturers might be subject to unfair competition in particular from non-compliant imported products, thereby impacting on the competitive situation of European companies.
ENVIRONMENT	Electrical equipment manufacturers are affected by Community environmental legislation affecting products either directly, such as the Directive on energy using products (EuP) and the twin Directives on management of waste from electrical and electronic equipment (WEEE) and on use of certain hazardous substances in this equipment (RoHS), or indirectly (waste framework Directive, waste shipments' regulation). Electrical products are also concerned by energy labelling requirements and voluntary Community schemes such as the Ecolabel. Production sites are affected by legislation on installations such as Integrated Prevention and Pollution Control (IPPC) and voluntary schemes like EMAS. This industry is an important user of chemicals. As such, it could face significant adaptation costs and time-to-market problems in case substances used for specific purposes are (suddenly) withdrawn for economic reasons. Besides, the sector will be directly affected by the Directive for establishing a framework for setting eco-design requirements for energy-using products (EuP). The EuP Directive is a coherent framework for addressing in a harmonised and integrated way all the environmental aspects of energy-using products. This Directive is expected to promote product quality and thus strengthen the competitiveness of the sector's enterprises. Regulatory eco-design requirements will be set by the subsequent implementing measures, to be adopted by the Commission.
EXTERNAL COMPETITIVENESS	EU Electrical Engineering is significantly oriented toward export: €43.323 million exports outside the EU in 2003 gives this sector a 26% share in exports. The sector contributes to a trade surplus of €2.625 million to the EU economy. The EU is the largest producer of electrical equipment in the world, clearly surpassing Japan (€102 Bn in 2003) and far ahead of the US (€84 Bn). However, EU Electrical Engineering has a productivity handicap vis-à-vis its main competitors. The productivity of the average EU electrical worker is much lower than that of his Japanese colleague and the long-term trend in the growth of his productivity is slower than those of his Japanese and American colleagues, thus further widening the gap between the US and the EU. The Japanese electrical worker generated in 2003 €207.000, the US worker €161.000 and the EU worker €154.000.

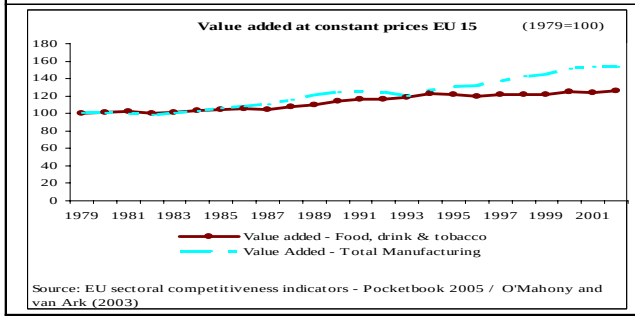
GEOGRAPHICAL DIMENSION, EMPLOYMENT, RESTRUCTURING	EU is the largest producer of electrical equipment in the world and successfully present on all significant export markets except Japan. Many electrical engineering products rely on mature technologies where the rate of structural change is relatively slow. From 1995 to 2001 the sector grew in number of enterprises, whereas employment remained relatively flat. As from 2001 however, it has registered a slight reduction in both employees and enterprises. This trend of slow decline is expected to continue but does not indicate that the sector is facing an acute crisis, rather that productivity is increasing. There is no need for significant restructuring. In 2003, most of the employed workers (figures for EU-15 only) were located in Germany (more than 40%), Italy (17%), the UK (17%), France (12%) and Spain (7%). Around half of the employed workers were medium-skilled. High-skilled workers accounted for about 23%.

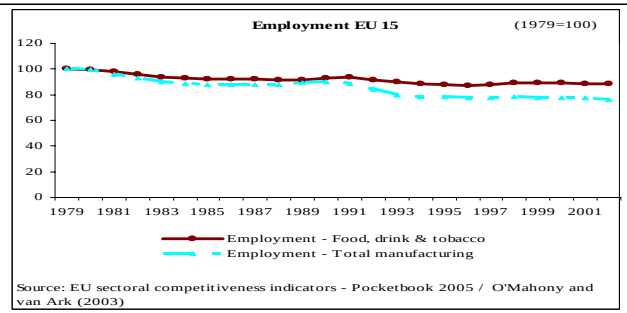
* Nace 31

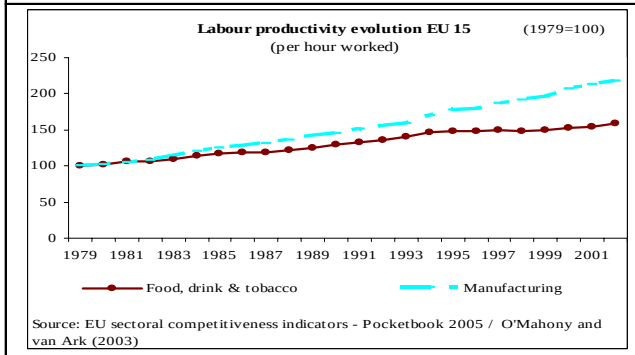
FOOD INDUSTRIES

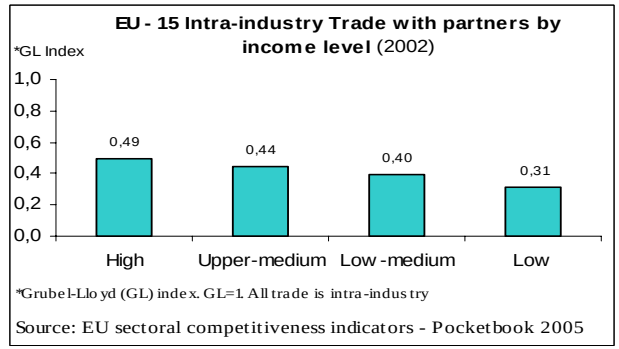


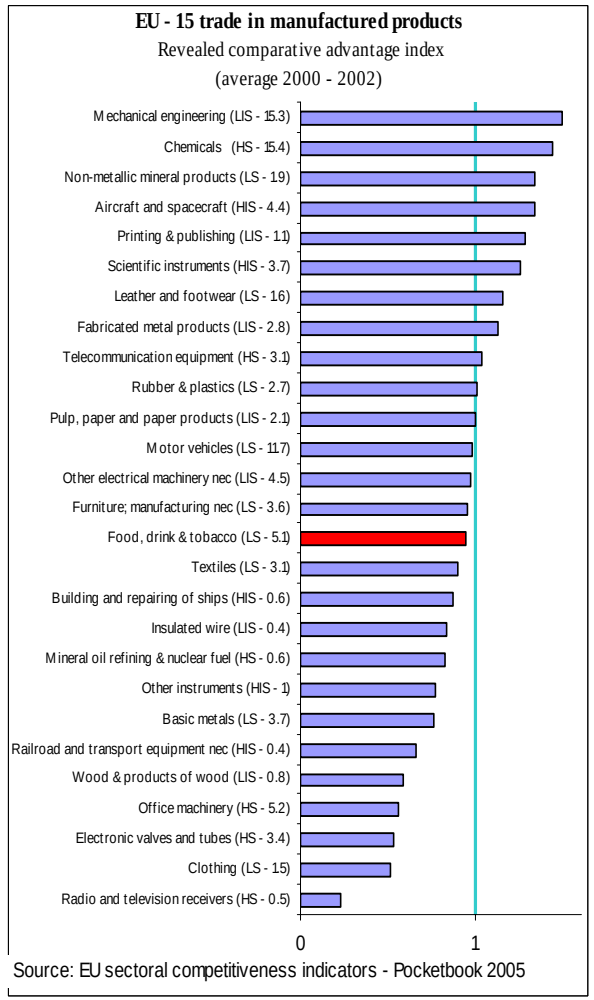












FOOD INDUSTRIES
COMPETITIVENESS ASSESSMENT

The food industry ranks first in the EU 15, with 13.6% of total manufacturing turnover (€ 725 bn production, € 784 bn. for EU 25), over 13% of employment (over 4 million workers), and 11% value added. The industry has had a relatively limited but stable growth in production (1.8%) and value added (1.1%) over the last 10 years, and negative employment growth rates, yielding positive productivity growth rates. Germany, France, Italy, Spain and the UK account for over 70% of turnover of the EU-25, whereas the new Member States account for only 7.5%. The investment rate is relatively low, and labour costs are high. The EU Food Industry sector is extremely fragmented and dominated by a very large number of SMEs that are less permeable to innovation than big (multinational) companies.

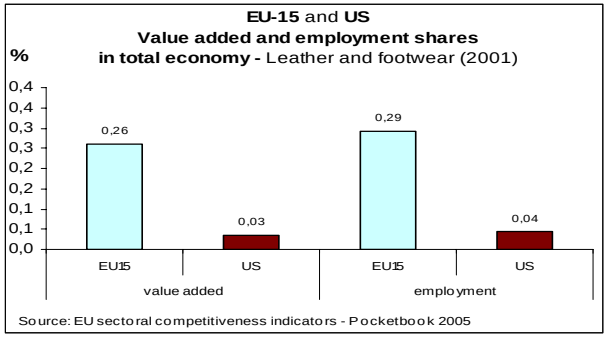
Positive but low labour productivity growth (0.8% over 1995-2001, compared to 2.7% in 1990-1995) reflects the difficulty to disseminate ICT in SMEs (19% of companies are using on-line procurement; business to consumer e-commerce is very limited), and limited innovation for the creation of new products and production processes – particularly biotechnology (EU is lagging behind the USA with 30% less biotechnology patent applications in all domains). The EU has engaged to phase out export refunds for Processed Agriculture Products.

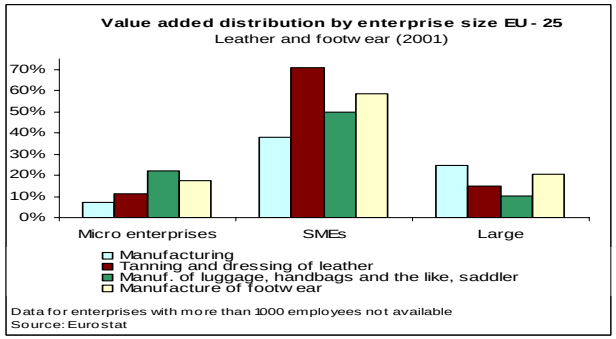
KNOWLEDGE	The food manufacturing industry in EU is characterised by low ICT intensity and weaker R&D investment and innovation compared to main competitors. Innovation for the creation of new products and new production processes is limited, particularly for biotechnology (EU is lagging behind the USA with 30% less biotechnology patent applications, including the Food sector). Initiatives are being taken with the development of the European Technology Platform on Food for Life that aims at research in nutritional sciences and food technologies in order to deliver novel, innovative food products for national, regional and global markets.
COMPETITION	A certain degree of economies of scale is noticed, with the total number of firms reduced by 5.5% between 1999 and 2002, mostly due to raising mergers and acquisitions activity. Since 1990, the Commission has approved 152 mergers, out of which 17 have been subject to remedies and has found 7 cases of an abuse of restrictive agreement practices where fines have been imposed.
REGULATION	The Food industry is a regulated industrial sector in the EU, like automobiles and chemicals. EU food legislation has developed over many years both to address food safety concerns and to create a single market. The programme of updating, reviewing and simplifying food legislation following the White Paper on Food Safety has provided a modern, up-to-date and flexible framework to ensure food safety, while ensuring the single market and thus offering a clear framework within which the food industry can develop. It has become one of the most regulated industrial sectors, but this harmonisation process has been a key economic factor in the development of the agro-food sector in Europe. For some domains (e.g. GMO's, labelling) the legislation may be seen as a considerable regulatory burden, which might hamper innovation, particularly in an industry dominated by SMEs but this needs to be put into context of ensuring that the legitimate health and safety concerns are taken into account.
ENVIRONMENT	Food industry is covered by the following legislative measures: - Integrated Pollution Prevention and Control Directive (the BREF for the food and drink sector has been finalised) - Packaging and packaging waste Directive

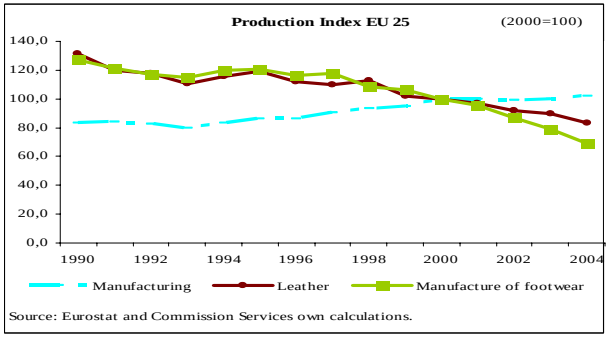
	- Waste Framework Directive
EXTERNAL COMPETITIVENESS	Trade of processed food products is situated to just around 6 % of trade in manufacturing, though the balance is positive. The EU15 is the second world exporter after the US and the world's largest importer of food products, with a share of 12.6% of total world trade. Contrary to the situation in the EU, other food production markets face considerable expansion, particularly in Latin America and Asia. The trade balance with these countries has worsened significantly, having as a result a decline (3,8%) in EU exports for the first time in a decade. The recent fall in import prices (2.9%) and the rise in production prices (1.5%) boosted the rise in imports, also triggered by the appreciation of the Euro. Imports represent less than 7.5% of the Euro zone's consumption. The main destination of EU products is by far the USA, followed by Japan, Switzerland, and Russia. The main sources of EU imports are Brazil, Argentina, and the USA. Sugar prices within the Community are approximately three times the international prices; while European skimmed milk prices are in line with world prices, butter prices are 35%higher than the current international prices; European cereal prices are nowadays comparable to international prices. The recent reforms of the CAP that are gradually replacing price support with direct payments to farmers are leading to drops in the market prices in the reformed sectors.
EMPLOYMENT AND GEOGRAPHICAL DIMENSION	Food industry is the 1st industrial employer with an estimated 4.1 million employees, of which 61.3% are employed in SMEs (undertakings of less than 250 persons) that represent more than 99 % of the total number of undertakings (CIAA data). Germany, France and the UK are its three most important contributors accounting for more than 80% of turnover whereas the ten new Member States account for only 7.5%. In the absence of a reform of the CMO (Common Market Organisation) in the sugar sector, the EU will witness a severe and generalised decline in sugar production. Under the Commission's June proposal, sugar prices will fall by 39% and sugar will be produced in the most competitive regions of the EU. In the least competitive regions, where sugar production will cease, both the sugar beet growing and sugar processing industries, will benefit from the proposed restructuring scheme, which will help them to seek more profitable alternative economic activities.

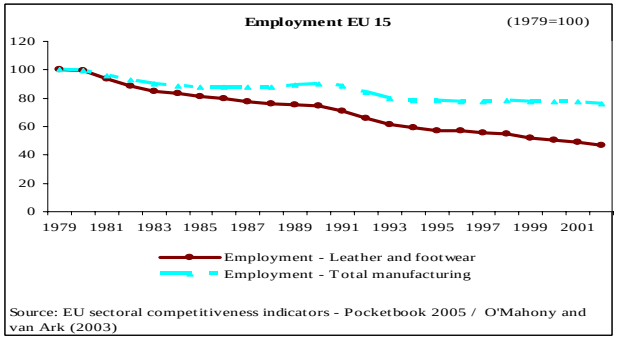
* Nace 15, 16

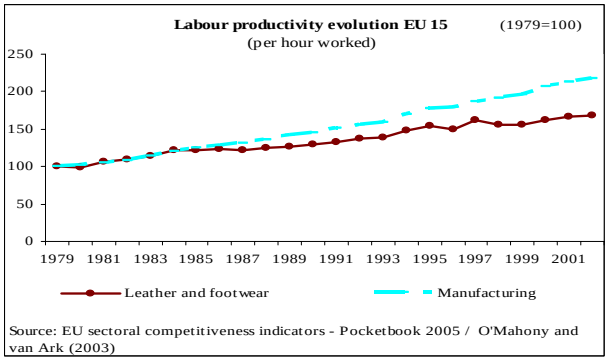
FOOTWEAR

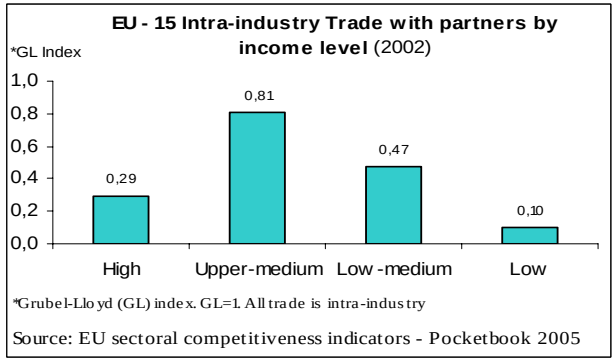

EU-15 and US
Value added and employment shares
in total economy - Leather and footwear (2001)
%
0,4
0,4
0,3
0,3
0,2
0,2
0,1
0,1
0,0
0,26
0,03
0,29
0,04
EU15
US
EU15
US
value added
employment
Source: EU sectoral competitiveness indicators - Pocketbook 2005

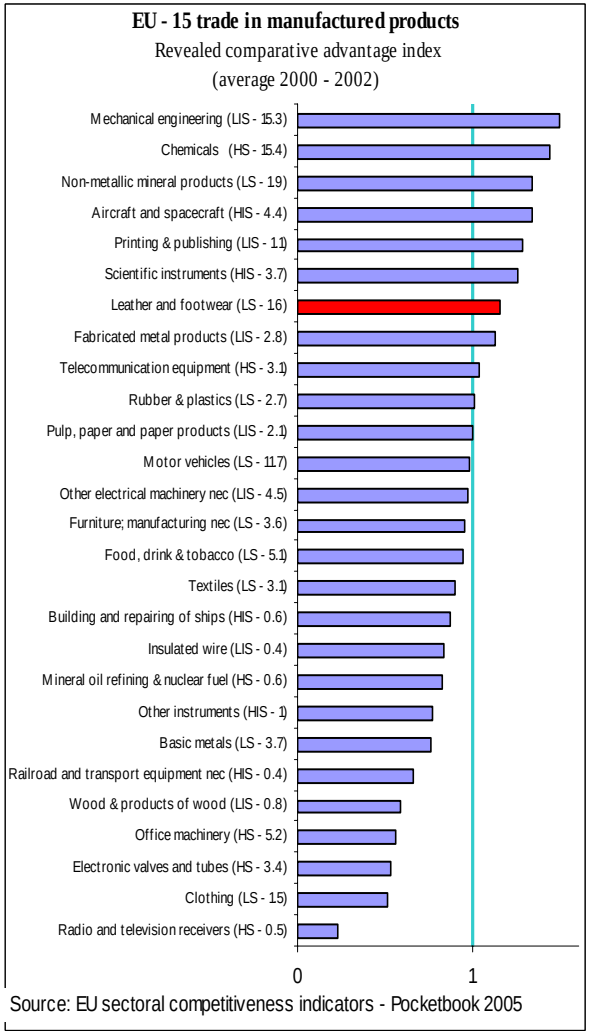

Value added distribution by enterprise size EU - 25
Leather and footwear (2001)
70%
60%
50%
40%
30%
20%
10%
0%
Micro enterprises
SMEs
Large
Manufacturing
Tanning and dressing of leather
Manuf. of luggage, handbags and the like, saddler
Manufacture of footwear
Data for enterprises with more than 1000 employees not available
Source: Eurostat


Production Index EU 25
(2000=100)
140,0
120,0
100,0
80,0
60,0
40,0
20,0
0,0
1990
1992
1994
1996
1998
2000
2002
2004
Manufacturing
Leather
Manufacture of footwear
Source: Eurostat and Commission Services own calculations.


Employment EU 15
(1979=100)
120
100
80
60
40
20
0
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
Employment - Leather and footwear
Employment - Total manufacturing
Source: EU sectoral competitiveness indicators - Pocketbook 2005 / O'Mahony and van Ark (2003)


Labour productivity evolution EU 15
(1979=100)
(per hour worked)
250
200
150
100
50
0
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
Leather and footwear
Manufacturing
Source: EU sectoral competitiveness indicators - Pocketbook 2005 / O'Mahony and van Ark (2003)


EU - 15 Intra-industry Trade with partners by income level (2002)
*GL Index
1,0
0,8
0,6
0,4
0,2
0,0
0,29
0,81
0,47
0,10
High
Upper-medium
Low -medium
Low
*Grubel-Lloyd (GL) index. GL=1. All trade is intra-industry
Source: EU sectoral competitiveness indicators - Pocketbook 2005


EU - 15 trade in manufactured products
Revealed comparative advantage index
(average 2000 - 2002)
Mechanical engineering (LIS - 15.3)
Chemicals (HS - 15.4)
Non-metallic mineral products (LS - 1.9)
Aircraft and spacecraft (HIS - 4.4)
Printing & publishing (LIS - 1.1)
Scientific instruments (HIS - 3.7)
Leather and footwear (LS - 1.6)
Fabricated metal products (LIS - 2.8)
Telecommunication equipment (HS - 3.1)
Rubber & plastics (LS - 2.7)
Pulp, paper and paper products (LIS - 2.1)
Motor vehicles (LS - 11.7)
Other electrical machinery nec (LIS - 4.5)
Furniture; manufacturing nec (LS - 3.6)
Food, drink & tobacco (LS - 5.1)
Textiles (LS - 3.1)
Building and repairing of ships (HIS - 0.6)
Insulated wire (LIS - 0.4)
Mineral oil refining & nuclear fuel (HS - 0.6)
Other instruments (HIS - 1)
Basic metals (LS - 3.7)
Railroad and transport equipment nec (HIS - 0.4)
Wood & products of wood (LIS - 0.8)
Office machinery (HS - 5.2)
Electronic valves and tubes (HS - 3.4)
Clothing (LS - 1.5)
Radio and television receivers (HS - 0.5)
0
1
Source: EU sectoral competitiveness indicators - Pocketbook 2005

FOOTWEAR
COMPETITIVENESS ASSESSMENT

The sector includes more than 27,000 enterprises, generating € 26.7 bn in turnover and € 7.2 bn in value added (0.5% of total EU manufacturing), and directly employing 361,000 people (over 1%). Since 1995 EU production has fallen by 36% and value added has fallen 2.2% annually. Production and employment have decreased twice as much, resulting in disappointing productivity gains making competition with low labour costs difficult. The average productivity is 40% below that of manufacturing as a whole and varies strongly among Member States, being below average in all new Member States. The competitive advantages of the EU production lie in the high quality of production in technical, aesthetic and fashion-related terms, and the development of highly demanded brands with a strong image. In addition, there is a need to enhance the capacity to produce high value added products through decisive technological breakthroughs in production and marketing processes.

***Manufacturing is concentrated** in Italy, Spain and Portugal, and characterized by networks of micro and small enterprises, adaptable to market changes but vulnerable to external shocks. **Employment is concentrated in the smallest enterprises**, while big companies of more than 500 employees employ less than 15% of the workforce in the sector. This contrasts with the manufacturing sector in general, where the biggest companies employ 33% of the workforce. It is interesting to note that the enterprises with less than 20 employees have the second highest productivity level. The highest productivity is registered in the group of companies having between 500 and 1000 employees, while the big companies of more than 1000 employees have the lowest level of productivity. The preponderance of micro enterprises and SMEs in the footwear sector represents a strength in the sense that companies of this size are usually more flexible and adaptable to change in the nature of market demand. On the other hand, the high number of SMEs in the sector is also an indicator of vulnerability as these companies have in general a narrower capital base and are therefore less able to sustain external shocks and economic downturns.*

Retail, distribution, marketing and branding are increasingly controlled by large multinational companies with the capacity to source massively on the global market.

The significant productivity gap between new and old Member States is a subject of concern, especially in view of the fact that the footwear sector represents a relatively higher weight in the manufacturing production and employment in several of the new Member States. This issue will become even more important with the next wave of enlargement in 2007 as Romania and Bulgaria are countries where footwear plays a very significant role in the economy and where the productivity gap with the EU is important.

***Increased market access** in general and especially to emerging economies where middle classes are growing, representing a quality-conscious market where the EU has the highest competitive advantage, is of strategic importance to the sector.*

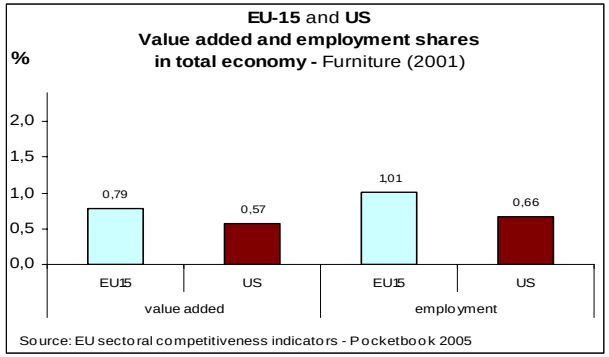
KNOWLEDGE	The main technological challenge for the footwear industry is to focus on **higher value-added and eco-efficient and sustainable products, processes, materials and organisations**. A significant effort regarding research and skills is required to achieve these objectives in terms of business models, new materials, enhanced manufacturing processes, etc. Initiatives at EU level such as the CEC-made-shoe (custom, environment, comfort) integrated project under the 6th RTD Framework Programme are already underway covering many of these challenges. Of particular interest to the sector is the proposal for **origin marking legislation**. The sector is in favour of compulsory marking of origin for imports.

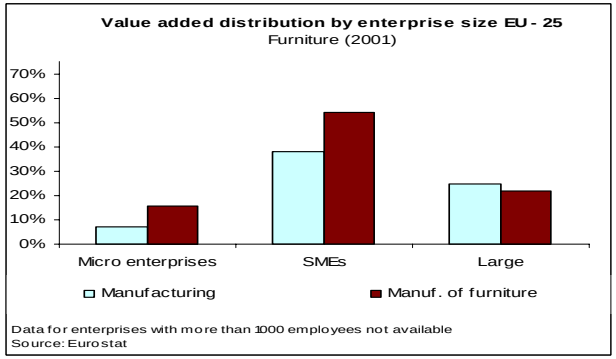
COMPETITION	The sector is characterized by a high level of competition among micro companies and SMEs with low level of concentration (since 1990, only one merger has been subject to Commission scrutiny). It has globally low levels of vertical integration. The issue of consolidation does not appear to be on the agenda for the sector. On the contrary, under the pressure of international competition, large companies tend to disappear while small and flexible production units organized in clusters are more able to maintain their competitive position. The number of enterprises in the sector has been gradually decreasing by more than -20% over the last 10 years. The sector has therefore not been concerned by the merger and anti trust legislations. There is however a growing concentration in the distribution of footwear products. There is no sector-specific state aid legislation. In view of the size of the enterprises concerned and their low level of absorption of state aid, the sector has not been directly concerned by the EU state aid policy.
REGULATION	There is one sector-specific directive for the footwear sector: **Directive 94/11/EC** on the approximation of the laws, regulations and administrative provisions of the Member States relating to labelling of the materials used in the main components of footwear for sale to the consumer. The EU footwear industry has problems with **protection of design and brands**. The implementation of the relevant legislation throughout the EU but also the enforcement of international agreements by EU trade partners needs to be improved. Furthermore, there is a need to raise the awareness of right-holders, in particular SMEs, on the existing possibilities to protect their rights, both in the EU and in third countries.
ENVIRONMENT	Footwear manufacture per se cannot be considered as having a heavy impact on the environment. Most of the problems are associated with the upstream industries (leather and plastics). REACH, the proposed new chemicals regulation, would bring downstream user obligations. The issue of the **management of waste** (i.e. disposal of the shoe when it is no longer used) is probably the problem that deserves the most direct attention as regards the environmental challenges of this industry. An **eco-label** was established for footwear in 1999. It applies to all categories of shoes, including sports shoes, occupational shoes, children's, men's and women's' town shoes, specialist shoes for cold, casual, fashion and indoor. So far, nine footwear manufacturers in four countries (France, Spain, Italy and Denmark) have been awarded the eco-label.
EXTERNAL COMPETITIVENESS	China is the world market leader with 63% of world exports; the EU follows with 13%. The trade deficit has more than doubled in 5 years to € 5 bn. Import penetration is only 30% in value, but 70% in volume; in contrast, more that 20% of EU production is exported. Both figures are significantly higher than for manufacturing as a whole. The main suppliers to the EU market are China (25% in 2003) and Vietnam (20%). OECD countries account for more than 50% of the EU export markets (30% the US alone), with Russia showing a strong growth potential. Romania is a major trade partner both ways, receiving mostly exports of parts that are transformed and subsequently re-imported The EU market is one of the most open in the world with relatively low tariffs, whereas EU products face significant tariff peaks and non-tariff barriers. The EU favours a reciprocal dismantling of tariffs in the Doha Round; the agreement with Mercosur is also important in this context.

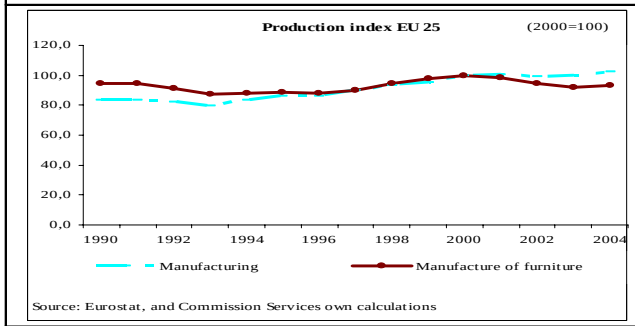
	Increased **market access** to emerging economies where middle classes are growing is of strategic importance as these represent a quality-conscious market where the EU has the highest competitive advantage. As mentioned above, **counterfeiting and piracy** are problems for the European footwear industry. In this context, it should be mentioned that last November, the Commission adopted an Action Plan for the enforcement of IPR in 3rd countries. The action plan focuses on implementation and enforcement of existing IPR laws and proposes to identify priority countries where enforcement actions should be concentrated. **Increased attention to Corporate Social Responsibility (CSR)** in the sector can contribute to establishing a level playing field in international trade and to promoting sustainable business relationships in the sector.
EMPLOYMENT AND GEOGRAPHICAL DIMENSION	Manufacturing is concentrated in Italy, Spain and Portugal, and characterized by networks of micro and small enterprises, adaptable to market changes but vulnerable to external shocks. In Italy, which is by far the biggest footwear producer in the EU, 60% of value added is produced by enterprises of less than 20 people. The Italian footwear industry, which is characterized by a network of small and micro enterprises with a high level of subcontracting, has no enterprises above 100 persons. This industrial model seems to be the most adapted to the comparative advantages of the EU industry. Spain and Portugal have a very similar production structure (although Portugal still has 20% of its production manufactured in companies with more than 500 employees). Set up in 1998, the European social dialogue enables the social partners across Europe to address the following challenges: managing change in a context of rapid transformation and developing a code of conduct of fundamental rights.

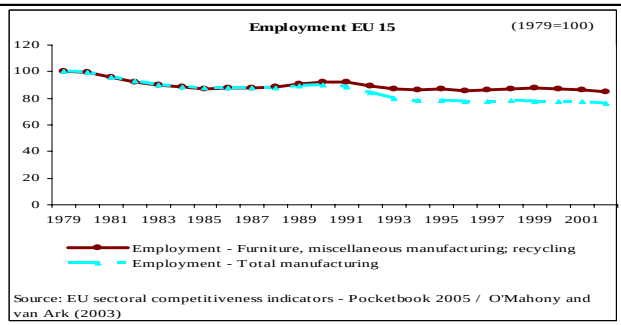
* Nace 19.3

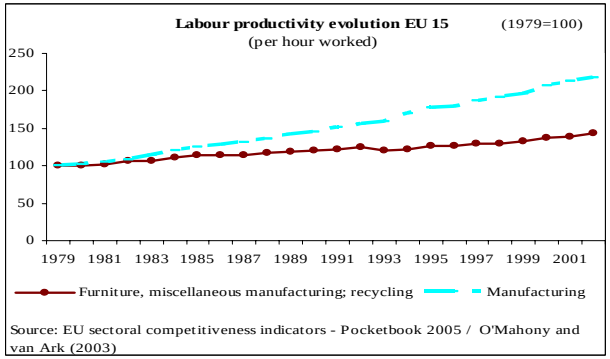
FURNITURE

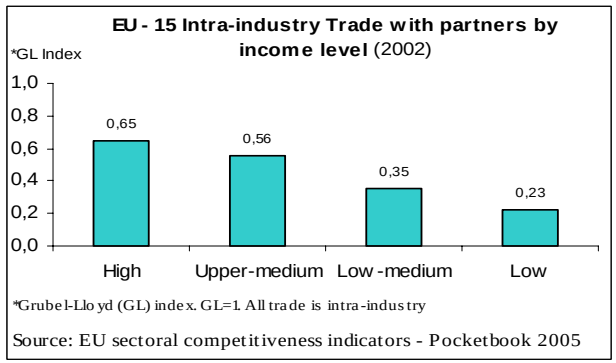

EU-15 and US
Value added and employment shares
in total economy - Furniture (2001)
%
2,0
1,5
1,0
0,5
0,0
0,79
0,57
1,01
0,66
EU15
US
EU15
US
value added
employment
Source: EU sectoral competitiveness indicators - Pocketbook 2005

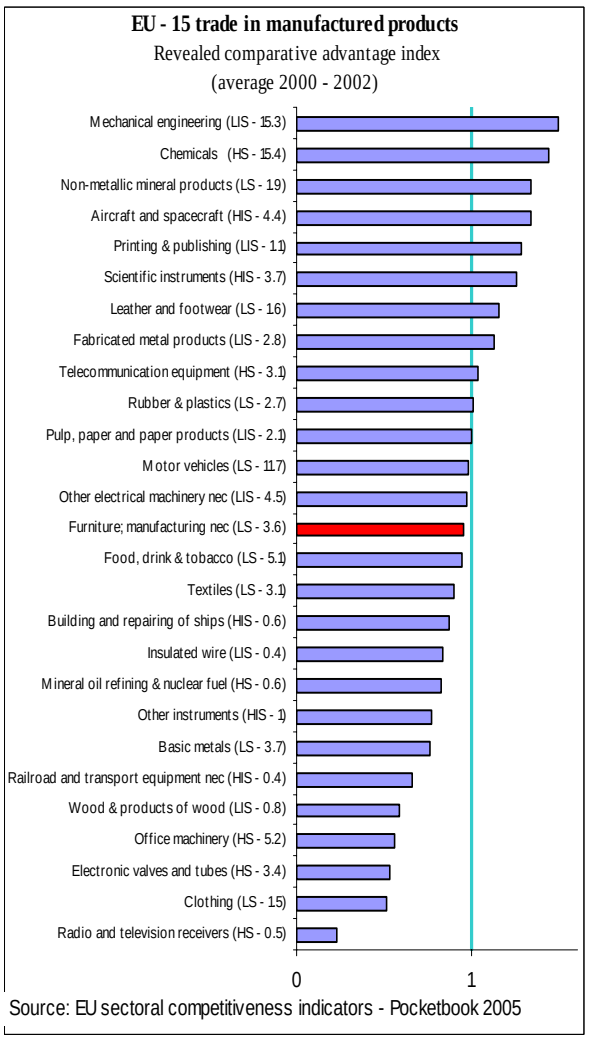

Value added distribution by enterprise size EU - 25
Furniture (2001)
70%
60%
50%
40%
30%
20%
10%
0%
Micro enterprises
SMEs
Large
Manufacturing
Manuf. of furniture
Data for enterprises with more than 1000 employees not available
Source: Eurostat


Production index EU 25
(2000=100)
120,0
100,0
80,0
60,0
40,0
20,0
0,0
1990
1992
1994
1996
1998
2000
2002
2004
Manufacturing
Manufacture of furniture
Source: Eurostat, and Commission Services own calculations


Employment EU 15
(1979=100)
120
100
80
60
40
20
0
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
Employment - Furniture, miscellaneous manufacturing; recycling
Employment - Total manufacturing
Source: EU sectoral competitiveness indicators - Pocketbook 2005 / O'Mahony and van Ark (2003)


Labour productivity evolution EU 15
(1979=100)
(per hour worked)
250
200
150
100
50
0
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
Furniture, miscellaneous manufacturing; recycling
Manufacturing
Source: EU sectoral competitiveness indicators - Pocketbook 2005 / O'Mahony and van Ark (2003)


EU - 15 Intra-industry Trade with partners by income level (2002)
*GL Index
1,0
0,8
0,6
0,4
0,2
0,0
0,65
0,56
0,35
0,23
High
Upper-medium
Low -medium
Low
*Grubel-Lloyd (GL) index. GL=1. All trade is intra-industry
Source: EU sectoral competitiveness indicators - Pocketbook 2005


EU - 15 trade in manufactured products
Revealed comparative advantage index
(average 2000 - 2002)
Mechanical engineering (LIS - 15.3)
Chemicals (HS - 15.4)
Non-metallic mineral products (LS - 1.9)
Aircraft and spacecraft (HIS - 4.4)
Printing & publishing (LIS - 1.1)
Scientific instruments (HIS - 3.7)
Leather and footwear (LS - 1.6)
Fabricated metal products (LIS - 2.8)
Telecommunication equipment (HS - 3.1)
Rubber & plastics (LS - 2.7)
Pulp, paper and paper products (LIS - 2.1)
Motor vehicles (LS - 11.7)
Other electrical machinery nec (LIS - 4.5)
Furniture; manufacturing nec (LS - 3.6)
Food, drink & tobacco (LS - 5.1)
Textiles (LS - 3.1)
Building and repairing of ships (HIS - 0.6)
Insulated wire (LIS - 0.4)
Mineral oil refining & nuclear fuel (HS - 0.6)
Other instruments (HIS - 1)
Basic metals (LS - 3.7)
Railroad and transport equipment nec (HIS - 0.4)
Wood & products of wood (LIS - 0.8)
Office machinery (HS - 5.2)
Electronic valves and tubes (HS - 3.4)
Clothing (LS - 15)
Radio and television receivers (HS - 0.5)
0
1
Source: EU sectoral competitiveness indicators - Pocketbook 2005

FURNITURE
COMPETITIVENESS ASSESSMENT

The sector includes around 138,000 companies, generating a turnover of €116 billion and employing 1.3 million people (EU-25, 2002). Production has been decreasing since 2001, more in real than in nominal terms. This has resulted in a drop in employment. Labour costs rose in five (Italy, Spain, France, UK, Poland) of the six biggest producers between 1995 and 2002, and decreased in Germany, although German labour costs are still the highest in the EU. In Poland, labour costs more than tripled while employment remained stable, which may have implications for the Polish furniture industry.

The strong quality competitiveness of the EU furniture sector is the main explanation for the relatively high level of exports maintained despite the very significant disadvantage in labour costs relative to the main competitors. Factors of quality competitiveness relate to the superior technical quality of the products and their aesthetics, and the capacity to build a strong image thanks to a combination of tradition, promotion and marketing.

The EU furniture industry is a major player on the global market accounting for close to 35 % of world exports. This position however has been declining recently under the pressure from low labour cost competitors, in particular from Asia. Trade in furniture products has traditionally recorded a surplus. However, the situation has changed dramatically and the figures available for 2004 show a situation close to balance.

EU furniture producers are constantly upgrading their products. However, lower production cost countries are constantly improving their quality and expanding their product range. The EU furniture producers are therefore faced with similar challenges as other industrial sectors where major factors of competitiveness consist of ***research and innovation, skills and quality, design and value-added, knowledge and know-how****, together with* ***better access to third country markets****.*

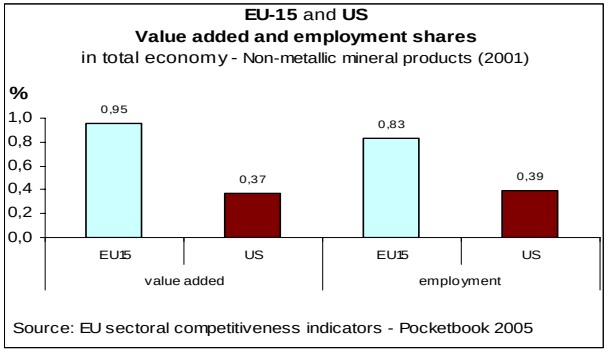
KNOWLEDGE	Production of furniture is a labour intensive activity and the possibilities to introduce automation into manufacturing are limited or already exploited. The EU furniture industry has developed a strategy focusing on improving co-operation with the new Member States and candidate countries' producers in order to take advantage of the mix of competitiveness factors offered by the different regions of the EU. In addition, EU furniture producers are upgrading their products. Major competitiveness factors are thus research and innovation, skills and quality, design and value-added, knowledge and know-how. The European Technology Platform for the Forest-based Industries represents a mobilisation of the entire sector. Some furniture industries are involved at national level. Research activities at EU level covering both the wood and non-wood based sub-sectors of the furniture industry could improve the sustainability and competitiveness in terms of business models, new materials, and enhanced manufacturing processes, etc. Of particular interest to the industry is the proposal for **origin marking** legislation for imports. The sector is in favour of compulsory marking of origin for imports.

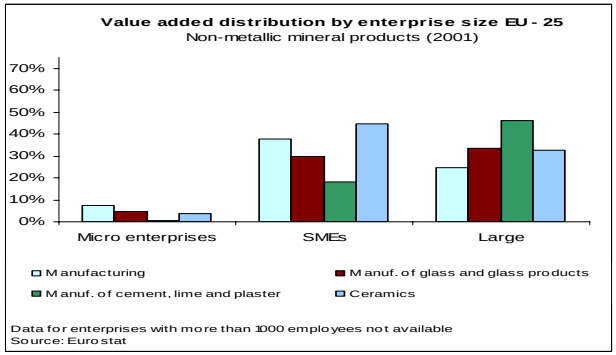
COMPETITION	The sector is mainly composed of SMEs, usually specialised in manufacturing of one type of furniture only (since 1990, only one merger case has been subject to Commission scrutiny). The upstream market is highly concentrated, and an important share of clients exercises significant buyer power. The sector falls under horizontal state aid rules and does not have sector-specific state aid legislation.
REGULATION	The industry has suggested EU legislation that would harmonise different labelling systems for furniture in force in some Member States. The EU furniture industry has problems with **protection of design and brands**. The implementation of the relevant legislation throughout the EU but also the enforcement of international agreements by EU trade partners needs to be improved. Furthermore, there is a need to raise the awareness of right-holders, in particular SMEs, on the existing possibilities to protect their rights, both in the EU and in third countries. Special attention needs to be paid to the implementation of the *acquis communautaire* in the new Member States and candidate countries.
ENVIRONMENT	The main environmental directives which directly affect the furniture industry are industrial emissions - Integrated Product Policy (IPPC), Volatile Organic Compounds (VOC) - and waste (e.g. hazardous wastes such as varnishes). Organic solvents are used in a large number of industrial processes and, due to their volatility, are emitted either directly or indirectly into the air in many of these processes. A number of organic compounds are directly harmful to health. The legislation concerned is Directive 1999/13/EC on the limitation of emissions of Volatile Organic Compounds (VOC) due to the use of organic solvents in certain activities and installations. The minimum emission limit values set in the Directive were determined for each industry sector. The values can differ from one production process to another or depend on the installation capacity. A 'best practice guide' has been developed by the European industry association to help business to comply with this legislation. Currently, an EU eco-label for furniture is under discussion. Moreover, the furniture industry is a downstream user of chemicals and as such has obligations under REACH, the proposed new chemicals regulation. This industry has expressed concerns that it could face significant adaptation costs and time-to-market problems in case substances used for specific purposes are (suddenly) withdrawn for economic reasons. There is also a risk that workability problems with the “substances in article” requirements would give non-EU companies a competitive advantage. However, REACH could also bring business benefits and innovation through the increase in knowledge on chemicals.

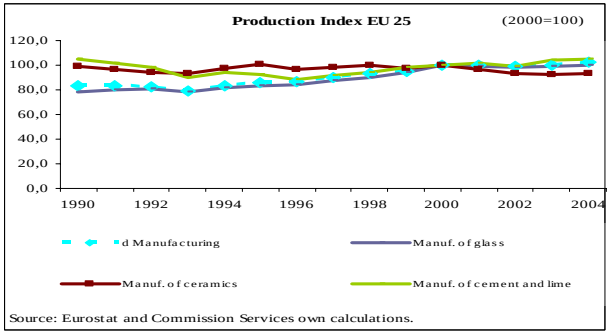
EXTERNAL COMPETITIVENESS	The EU furniture industry is a major player on the global market accounting for close to 35 % of world exports. Recently, this position has declined under the pressure from low labour cost competitors, in particular from Asia. Trade in furniture products has traditionally recorded a surplus. However, the balance has deteriorated dramatically from a surplus of almost €3 billion in 2000 to close to balance in 2004. The biggest EU supplier is China (28.9%), followed by far by Indonesia and Romania; this comes from an impressive performance of Chinese exports: in 2000 China's share was less than 15 %. In contrast, the main markets for EU exports are developed countries, prominently the USA (25.6%) and Switzerland. Resulting from previous WTO agreements, EU tariffs are already fixed at zero while some developing countries that are important producers of furniture have kept their tariffs at high levels, e.g. India, Brazil or Indonesia. The trade balance with these countries is increasingly negative. At the same time, an increasing part of the population in these countries can now afford EU products. **Market access** improvements are expected mainly in the WTO context. The Doha Development Round is the framework where global tariff reductions should be agreed upon. Russia's accession to the WTO should also improve access to an important market. Market access improvements are also expected from the Mercosur negotiations. As already mentioned earlier, **counterfeiting and piracy** are problems for the industry. In this context, it should be mentioned that last November, the Commission adopted an Action Plan for the enforcement of IPR in 3rd countries. The action plan focuses on implementation and enforcement of existing IPR laws and proposes to identify priority countries where enforcement actions should be concentrated. **Increased attention to Corporate Social Responsibility (CSR)** in the sector could contribute to establishing a level playing field in international trade and to promoting sustainable business relationships in the sector.
EMPLOYMENT AND GEOGRAPHICAL DIMENSION	The decrease in production has also resulted in a **drop in employment**. The industry reports that in 2001-2003, it lost in total 35,000-40,000 jobs and in 2004, around 20,000. Official figures available for some Member States of the furniture sector show also drops varying from 1.8 % in Spain to 15.4 % in Germany for the same period of time. A European social dialogue was set up in this sector in 2001. The social dialogue enables the social partners across Europe to address common challenges on vocational training and qualifications and development of European quality standards for the sector.

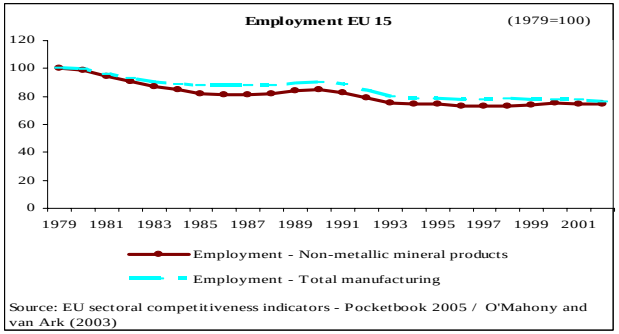
* Nace 36.1

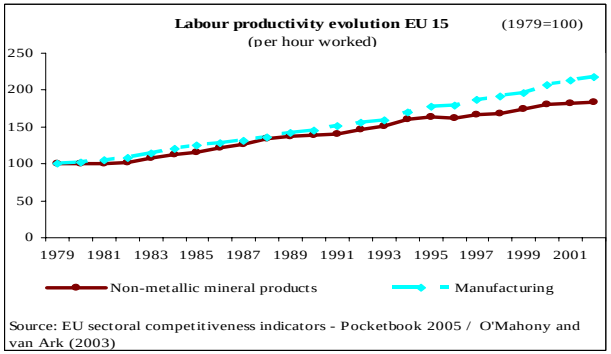
GLASS

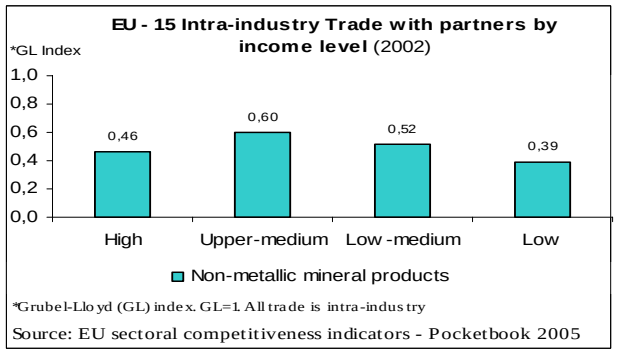

EU-15 and US
Value added and employment shares
in total economy - Non-metallic mineral products (2001)
%
1,0
0,8
0,6
0,4
0,2
0,0
0,95
0,37
0,83
0,39
EU15
US
EU15
US
value added
employment
Source: EU sectoral competitiveness indicators - Pocketbook 2005

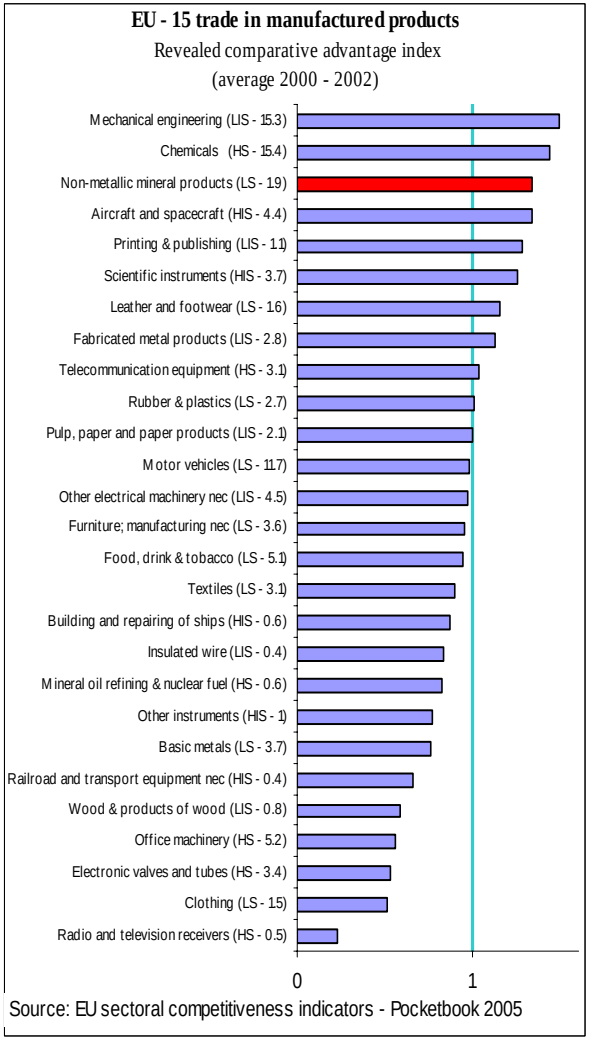

Value added distribution by enterprise size EU - 25
Non-metallic mineral products (2001)
70%
60%
50%
40%
30%
20%
10%
0%
Micro enterprises
SMEs
Large
Manufacturing
Manuf. of glass and glass products
Manuf. of cement, lime and plaster
Ceramics
Data for enterprises with more than 1000 employees not available
Source: Eurostat


Production Index EU 25
(2000=100)
120,0
100,0
80,0
60,0
40,0
20,0
0,0
1990
1992
1994
1996
1998
2000
2002
2004
d Manufacturing
Manuf. of glass
Manuf. of ceramics
Manuf. of cement and lime
Source: Eurostat and Commission Services own calculations.


Employment EU 15
(1979=100)
120
100
80
60
40
20
0
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
Employment - Non-metallic mineral products
Employment - Total manufacturing
Source: EU sectoral competitiveness indicators - Pocketbook 2005 / O'Mahony and van Ark (2003)


Labour productivity evolution EU 15
(1979=100)
(per hour worked)
250
200
150
100
50
0
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
Non-metallic mineral products
Manufacturing
Source: EU sectoral competitiveness indicators - Pocketbook 2005 / O'Mahony and van Ark (2003)


EU - 15 Intra-industry Trade with partners by income level (2002)
*GL Index
1,0
0,8
0,6
0,4
0,2
0,0
0,46
0,60
0,52
0,39
High
Upper-medium
Low -medium
Low
Non-metallic mineral products
*Grubel-Lloyd (GL) index. GL=1 All trade is intra-industry
Source: EU sectoral competitiveness indicators - Pocketbook 2005


EU - 15 trade in manufactured products
Revealed comparative advantage index
(average 2000 - 2002)
Mechanical engineering (LIS - 15.3)
Chemicals (HS - 15.4)
Non-metallic mineral products (LS - 1.9)
Aircraft and spacecraft (HIS - 4.4)
Printing & publishing (LIS - 1.1)
Scientific instruments (HIS - 3.7)
Leather and footwear (LS - 1.6)
Fabricated metal products (LIS - 2.8)
Telecommunication equipment (HS - 3.1)
Rubber & plastics (LS - 2.7)
Pulp, paper and paper products (LIS - 2.1)
Motor vehicles (LS - 11.7)
Other electrical machinery nec (LIS - 4.5)
Furniture; manufacturing nec (LS - 3.6)
Food, drink & tobacco (LS - 5.1)
Textiles (LS - 3.1)
Building and repairing of ships (HIS - 0.6)
Insulated wire (LIS - 0.4)
Mineral oil refining & nuclear fuel (HS - 0.6)
Other instruments (HIS - 1)
Basic metals (LS - 3.7)
Railroad and transport equipment nec (HIS - 0.4)
Wood & products of wood (LIS - 0.8)
Office machinery (HS - 5.2)
Electronic valves and tubes (HS - 3.4)
Clothing (LS - 1.5)
Radio and television receivers (HS - 0.5)
0
1
Source: EU sectoral competitiveness indicators - Pocketbook 2005

GLASS
COMPETITIVENESS ASSESSMENT

In 2001, the total value of output from the EU glass industry (EUR 15) amounted to 0.79% of the value of total manufacturing, and the total value added amounted to 1.09% of the total value added of total manufacturing. The industry lost half its workforce between 1980 and 2003. Productivity in 2003 was 80% higher than in 1991, and this upwards trend is expected to continue. In 2001, numbers employed in the EU glass industry amounted to 1.15% of total numbers employed in total manufacturing.

KNOWLEDGE	Glass manufacturing technology is at a mature stage, where production is highly automated in most sectors. Some product innovation in recent years happened in the glass industry: in advanced technology double glazing making possible the reduction of energy consumption and CO2 emissions, the invention of self-cleaning glass and various applications in the automotive sector. The special glass industry is working on becoming a solutions provider by complementing special glass products with other materials like plastics or ceramics, and innovative products in the container sector include lightweight glass.
COMPETITION	The four biggest glass producers in the EU are the four big flat glass groups, which have between them over 80% of the EU flat glass market (flat glass represents some 27% of output of all glass products in the EU). Market shares have been relatively stable. The sector is more or less consolidated. The Commission has never prohibited any mergers and has approved only four mergers with remedies. Buyer power is important chiefly in the flat glass sector (automotive clients). Capacity utilisation in the flat glass industry is running at about 85%. Currently, there is significant over-capacity for the production of laminated and toughened glass for building and automotive applications within EUR 25 compared with domestic demand. There is some over-capacity in the reinforcing glass fibres sector, coming mainly as a result of competition from third country imports, and in the textile segment from the relocation of production capacity to outside the EU. . There is likely to be over-capacity in the special glass sector producing glass for screens and cathode ray tubes for TVs and computer monitors, as consumers switch more and more to flat screens, which has resulted in the closure of several plants. Nevertheless, there is still overcapacity in the sector. In the crystal sector, capacity utilisation is running at about 50% of potential output, and numbers employed have halved in the last five years. Much of this is because of competition from low-priced imports, mainly from China, and often counterfeit from European designs. The number of firms in the sector does not fluctuate a lot. There have been some closures of domestic glass production facilities in recent years, mainly as a result of pressure from cheap imports. Barriers to entry include high capital intensity and regulation .
REGULATION	The horizontal legislation is of environmental nature (e.g. IPPC directive) and related to health and safety (minimum requirements). All legislation is of EU origin. A list of harmonised European standards has just been published in the OJ and will come into effect on 1 September 2005.

ENVIRONMENT	The following environmental legislation affect the glass industry: Directive 94/62/EC on packaging and packaging waste, Directive 96/61/EC on integrated pollution prevention and control (IPPC), Directive 2002/95/EC on the restriction of –certain hazardous substances in electrical and electronic equipment, Directive 2000/53/EC on end-of-life vehicles. Directive 2003/87/establishing a scheme for greenhouse gas emission allowance trading within the Community, Proposal for a regulation concerning the Registration, Evaluation, Authorisation, and restriction of Chemicals (REACH) and establishing a European chemicals agency. The issues related to environment are: i) process waste is usually recycled back to the furnace, but there is a limit on the amount that can be recycled in sectors such as flat glass for quality reasons. In the special glass sector, where the biggest product sector has traditionally been glass for TV screens and computer monitors and for cathode ray tubes, recycling is more difficult. The issue of waste for the fibre sector is that when fibre becomes waste, it is in the form of composite material from which it can not be separated and which currently can not be recycled. Along with other composite materials manufacturers, the fibre industry is exploring ways of recycling, but the economic costs are prohibitive at this stage. The special glass industry is making good progress on recycling cathode ray tubes, but recycling screens is much more difficult, due to their complexity and the impossibility of removing certain constituents, ii) the main issue on recycling concerns the container glass industry, which is covered by Directive 94/62/EEC on packaging and packaging waste. Industry has no difficulty in meeting recycling targets, but they would have difficulty in meeting the maximum lead contents of 100 ppm. iii) emissions to air from the glass production process are in the form of particulates, oxides of sulphur and oxides of nitrogen. Emissions are fairly homogeneous in the melting phase of all branches of the glass industry, but tend to vary widely as far as downstream processing is concerned. These arise from processes such as application of coatings, or from secondary processing operations such as cutting or polishing. Such emissions are covered by Directive 96/61/EC on integrated pollution prevention and control (IPPC), and in the best available techniques reference document (BREF) adopted by the Commission in December 2001. Industry is of the opinion that the emissions trading scheme and REACH will have the biggest impact on it, the first through higher energy pricing and the second may entail an administrative burden, since, as a downstream user of vast range of small quantities of chemicals, it fears that many of these will disappear from the market rather than being registered, etc.. Glass manufacturing technology is at a mature stage, and further savings in energy consumption are likely to be limited. Certain sectors could increase their use of cullet (treated glass scrap), but this is not always possible for technical reasons. On the other hand demand in the flat glass and insulating glass sectors can be expected to grow once EU provisions on the energy performance of buildings starts to have an effect. Besides, the principal issue for the glass industry is lead, dealt with by various pieces of legislation like Directive 69/493/EC on the harmonisation of the laws of the Member States relating to crystal glass, which defines categories of crystal according to lead content, Directive 94/62/EC on packaging and packaging wastes, which imposes limits on lead content of glass packaging, Directive 2002/95/EC on the restriction of the use of certain hazardous substances in waste electronic and electrical equipment.
EXTERNAL COMPETITIVENESS	About 80% of output is traded with other Member States. The figure for extra-EU trade is much lower, and EU exports were double the tonnage of imports into the EU in 2003. The main destination for EU exports are the USA, Switzerland, and Russia, whilst most imports come from Turkey, especially flat glass, and China, especially tableware. In fact, given ever increasing imports of low-priced glass tableware from countries such as China, production of ordinary glass tableware has disappeared all together in many Member States. Much of this has to do with manpower costs.

	There are many countries which the EU glass industry sees as having trading potential where there are high tariff barriers. These include India, Argentina, and most countries in south east Asia. Import tariffs on tableware in the USA are still amongst the highest in the world, despite its position as the EU's number one destination for this product. In addition, there are a number of non-tariff barriers, such as the introduction of compulsory testing and certification schemes is beginning to be seen in countries like Turkey, and the bans of imports of certain products into countries such as Syria where there is a strong domestic production. Other non-tariff barriers have been reported in several other countries. In international and bi-lateral negotiations, an important issue for the Commission is to push for the elimination of peak tariffs in third countries, where the EU ceramics and glass manufacturers see potential for their products. The removal of non-tariff barriers in third countries is an important issue.
EMPLOYMENT AND GEOGRAPHICAL DIMENSION	There is employment in the glass industry throughout the EU (25) but a third of all jobs are concentrated in Germany.

* Nace 26.1

ICT INDUSTRIES*

ICT industries. Shares of GDP and total economy 2001 in percent.
ICT manufacturing and services: share of total manufacturing value added and employment and total market services value added and employment respectively

	Employment share in total manufacturing			VA share in total manufacturing		
	1990	1995	2002	1990	1995	2002
EU15	6.4	6.1	6.2	6.4	6.1	6.1
	Employment share in total market services			**VA share in total market services**		
EU15	5.3	5.2	6.0	6.6	6.9	8.5

Source: Groningen Growth and Development Centre and Commission Services own calculations

Growth rates of value added (1995 prices), employment and labour productivity in ICT manufacturing and ICT services (average annual percent).

ICT manufacturing	Value added growth rates			Employment growth rates			Labour productivity growth rates		
	1979-90	1990-95	1995-2002	1979-90	1990-95	1995-2002	1979-90	1990-95	1995-2002
EU15	11.1	7.7	16.5	-0.3	-3.8	0.0	11.9	12.9	16.9
USA	14.7	10.8	20.6	0.6	-3.2	-2.1	13.9	17.4	23.5

ICT services	Value added growth rates			Employment growth rates			Labour productivity growth rates		
	1979-90	1990-95	1995-2002	1979-90	1990-95	1995-2002	1979-90	1990-95	1995-2002
EU15	5.7	4.3	9.5	1.9	0.4	4.0	4.3	4.6	5.9
USA	4.4	5.5	7.0	2.4	1.5	4.3	1.6	3.1	2.6

Source: Groningen Growth and Development Centre and Commission Services own calculations

World market shares, revealed comparative advantages indices and Intra-Industry Trade indices for ICT manufacturing 2003†.

	RCA 2003	Market shares 2003	Intra-Industry Trade Index 2003
EU25	0.52	12%	0.78
USA	0.94	14%	0.79
Singapore	2.48	8%	0.84
Korea	1.55	7%	0.70
Hong Kong	1.53	8%	0.97
Japan	0.99	11%	0.74
China	1.32	13%	0.93

Source: United Nations (2005). Comtrade and Commission Services own calculations. * Nace 30, 31.3, 32, 33.2, 33.3, 64.2, 72.

† - only extra EU trade

ICT INDUSTRIES
COMPETITIVENESS ASSESSMENT

The ICT industries comprise ICT manufacturing and ICT services sectors. In 2001, the EU25 share of ICT value-added in total value-added amounted to 5.3%, and the EU25 ICT share of total employment was 3.4%. (figures from Eurostat).

In 2001, the ICT manufacturing sector contributed 6.8% of total EU25 manufacturing output, 5.9% of value-added, and 5.3% of employment (figures from Eurostat). Since 1990, productivity and value-added have grown strongly in the EU as a whole (though less than in the US), while the shares of manufacturing value-added with respect to total GDP and employment have been stable or slightly decreasing for the EU15 as a whole, with notable exceptions (Finland, Ireland). All shares have been increasing in the Visegrad (Poland, Hungary, Czech Republic and Slovak Republic) new Member States. Manufacturing labour costs in ICT have grown in the EU15 since 1995 at half the pace of the US, while unit labour costs have fallen very strongly in both.

Turning to ICT services, their share in total market services employment (7.1% in 2002 for EU15) and in value-added (10.5% in 2002 for EU15), has been growing since 1990 in the EU15 and Visegrad (figures from GGDC). High value-added growth in services with slower productivity growth (though higher than in the US) has allowed a sustained increase in employment. Labour costs in general and by unit have been decreasing in the EU15 while rising in the US. In high-tech industries, quality has a high impact on competitiveness.

A prime driver of growth in the ICT manufacturing sector has been an increasing demand for ICT services (stimulated by both private consumption and public sector planning) and a diversified supply of such services themselves. The development of a strong ICT-producing sector (encompassing both manufacturing and services) contributes to the wider adoption and efficient usage of ICTs by other sectors in the EU, thus increasing productivity growth in the overall economy. And vice-versa, policies that aim at a wider and more efficient uptake of ICTs have a clear indirect impact on the competitiveness of the ICT sector. Factors that increase the quality of products in the ICT sector are an abundance of highly skilled labour, significant and long-term investment in R&D and innovation, more sophisticated material inputs and superior organization at the plant or firm level.

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KNOWLEDGE	ICT-producing manufacturing and ICT-producing services can be characterised as both enabling technologies and high-tech products that are, to a large extent, consumed as inputs by all sectors. For ICT-producing services, figures from Germany show that more than 60% are re-injected into their production process,

	illustrating the critical role of these services in contributing to the productive activity of the rest of the economy. Furthermore, 14% of their output contributes to capital formation, an additional channel of contribution. (*figures derived from Eurostat input-output tables and presented in "EU sectoral competitiveness indicators", European Commission (DG Enterprise & Industry), 2005*). Examples of ICT's contribution to growth and productivity are nanoelectronics and embedded systems. Nanoelectronics is an enabling technology for the whole sector, while embedded systems underpin the emergence of new markets and applications. Important recent initiatives include the i2010 initiative on a European Information Society for growth and employment, the ICT-related strands within the proposed Seventh Framework and Competitiveness & Innovation programmes, and the five ICT-related technology platforms currently under development: ENIAC (European Nanoelectronics Initiative Advisory Council); eMobility (Mobile and Wireless Communications); ARTEMIS (Embedded Systems), NEM (Networked Electronic Media) and NESSI (Networked European Software & Services Initiative). The international sourcing of ICT services is a recent phenomenon resulting from developments in IT systems and broadband communications and the liberalisation of trade in services, with India as the main host country. A major element in FDI relates to the availability of a favourable infrastructure and fiscal environment and a highly and appropriately e-skilled labour. In this respect, developing the EU's strengths would include the development of world-class R&D centres of excellence based on comparative advantages and close partnerships between academia and industry, and incentives to attract and retain top researchers and highly skilled labour. The challenges are to better monitor the demand and supply of e-skills and to remove gaps, shortages and mismatches, as recommended by the European e-Skills Forum. In order to keep ICT production in the EU, services need to be more knowledge-intensive, requiring highly focused R&D and skilled labour, venture capital should be encouraged, and manufacturing should concentrate on R&D-intensive products, with high quality and value added.
COMPETITION	There is a high level of concentration in the sectors covering the manufacture of office machinery, computers, microchips, radios, televisions and communications equipment and significant barriers to entry in some areas The computer and related activities sector is composed mostly of SMEs, with low entry barriers. The telecommunications sector is evolving away from monopoly and towards competitive market structures. Since 1990, the ICT industries have experienced a large number of mergers, with the Commission investigating 393 cases, of which 21 have been cleared subject to remedies, and 3 have been prohibited. Consolidation and restructuring of the sector is underway and many mergers and acquisitions are to be expected in the future. Regarding anti-trust, Microsoft was found guilty of anti-trust practices and fined.
REGULATION	Directive 1999/5/EC of the European Parliament and of the Council of 9.3.1999 on radio equipment and telecommunications

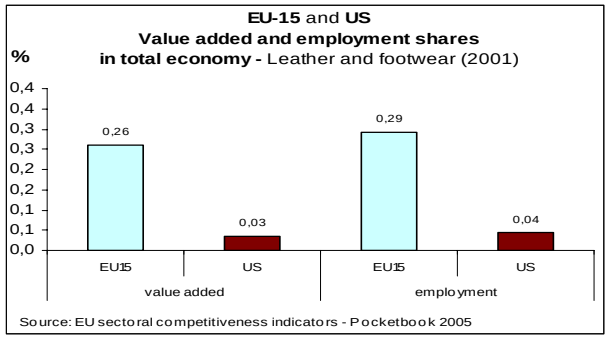
	terminal equipment and the mutual recognition of their conformity. Directive 2004/108/EC of the European Parliament and of the Council of 15.12.2004, on the approximation of the laws of the Member States relating to electromagnetic compatibility. Council Directive 73/23/EEC of 19.2.1973 on the harmonization of the laws of Member States relating to electrical equipment designed for use within certain voltage limits, as amended by Council Directive 93/68/EEC of 22.7.1993. Current ICT standardisation policy, based on Directive 98/34 EC, does not respond to today's societal and market needs and requires a review. Directive 2001/29/EC of the European Parliament and the Council of 22.5.2001 on the harmonisation of certain aspects of copyright and related rights in the information society. Directive 2000/31/EC of the European Parliament and of the Council of 8.06.2000 on certain legal aspects of information society services, in particular electronic commerce, in the Internal Market. Directive 1999/93/EEC of the European Parliament and of the Council of 13.09.1999 on a Community framework for electronic signatures Council Directive 1991/250/EEC of 14.05.1991 on the legal protection of computer programs Directive 1996/9/EEC of the European Parliament and of the Council of 11.03.1996 on the legal protection of databases *Regulatory framework for the telecommunications sector* Directive 2002/21/EC of the European Parliament and of the Council of 7.03.2002 on a common regulatory framework for electronic communications and services. Directive 2002/19/EC of the European Parliament and of the Council of 7.03.2002 on access to, and interconnection of, electronic communications networks and associated facilities. Directive 2002/20/EC of the European Parliament and of the Council of 7.03.2002 on the authorisation of electronic communications networks and services Directive 2002/22/EC of the European Parliament and of the Council of 7.03.2002 on universal service and users' rights relating to electronic communications networks and services.

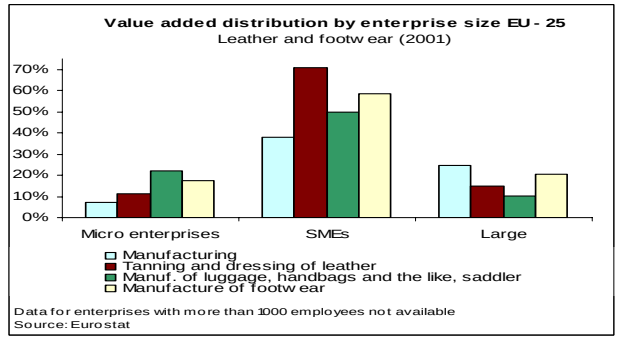
	Directive 2002/58/EC of the European Parliament and of the Council of 12.07.2002 concerning the processing of personal data and the protection of privacy in the electronic communications sector. Decision 676/2002/EC of the European Parliament and of the Council of 7.03.2002 on a regulatory framework for radio spectrum policy in the European Community Commission Directive 2002/77/EC of 16.09.2002 on competition in the markets for electronic communications networks and services *Starting late this year and continuing into 2006, the Commission services are undertaking a review of this regulatory framework.* Council Directive 89/552/EEC of 3.10.1989 on the coordination of certain provisions laid down by law, regulation or administrative action in Member States concerning the pursuit of television broadcasting activities, as amended by Directive 97/36/EC of the European Parliament and of the Council of 30.06.1997 ("Television Without Frontiers" Directive). *Current EU rules are limited to traditional broadcasting and the Commission intends to propose a modernisation of the EU rules on audiovisual content services by the end of 2005*.
ENVIRONMENT	WASTE Directive 2002/95/EC of the European Parliament and of the Council of 27.1.2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS). Directive 2002/96/EC and relevant Commission Decision: MSs are required to calculate and report on collection, recovery, re-use and recycling targets on waste from electrical and electronic equipment (WEEE). Figures would be recorded by product category. Prevention and recycling policy – tackle the issue of life-cycle thinking as a basis for setting waste policy targets – planned Communication on a Thematic Strategy for the Prevention and Recycling of Waste Amendment of Waste Framework Directive (Directive 75/442/EC – which waste treatment operations can be classed as recovery, changing recovery/disposal definitions, classifies when waste becomes waste. ENERGY EFFICIENCY Energy-Using Product Directive – framework for setting of eco-design requirements for Energy Using Products with criteria such as the product's entire life cycle and environmental impact.
EXTERNAL COMPETITIVENESS	

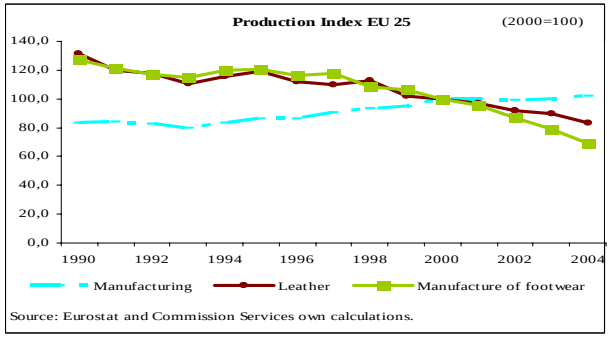
	The market share for all EU25 countries in world trade in ICT (extra-EU trade only) was 12% for ICT manufacturing in 2003, still comparable to the top players: the USA (14%), China (13%) and Japan (11%) *(United Nations figures: sum of EU25 extra-EU exports divided by all countries' exports)*. Vertical specialisation in different stages of production has led to rapidly growing trade in intermediate inputs. In the office, accounting and computing machinery industry, imported inputs constitute 70% of the final product *(Commission services' calculations based on data from the UN Comtrade database)*. Large parts of the production process, parts and components have become standardised and, being labour-intensive, have moved to low-cost countries in Asia *(from OECD Information Technology Outlook 2004)*. Manufacturing of office, accounting and computing machinery has experienced production relocation the most (to the new Members States as well as Asia), whereas manufacturing of telecommunications equipment and micro-processors has largely remained in EU due to higher labour productivity. For ICT services, the average market share of OECD exports was 4.3% in 2002 for 18 Member States (Austria, Belgium, Czech Republic, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, Netherlands, Poland, Portugal, Slovakia, Spain, Sweden, UK) *(from OECD Information Technology Outlook 2004)*. A key challenge is ensuring a global regulatory environment and enforcement regime compatible with the fostering of EU competitiveness. Of particular concern is ensuring the effective protection of IPR. In addition, access to markets continues to be a priority issue for several sub-sectors, especially regarding the internationalisation of SMEs' activities.
EMPLOYMENT AND GEOGRAPHICAL DIMENSION	The German ICT sector is the largest in the EU. The German ICT manufacturing industry accounts for a fifth in terms of value added, employment and production. Together with France and UK, Germany account for about 60 percent of value added and turnover and for half of the EU25 employment in ICT manufacturing and services. At the country level, the ICT sector is most important in Finland and Ireland, where the ICT share of total employment amounts to 5.9% and 7.7% respectively. The ICT sector also has the highest shares of GDP in these countries, 10.2% and 11.3% respectively (GGDC figures, 2002).

* Nace 30, 31.3, 32, 33.2, 33.3, 64.2, 72.

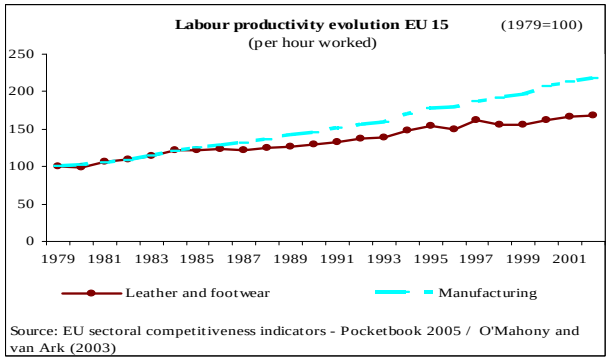
LEATHER

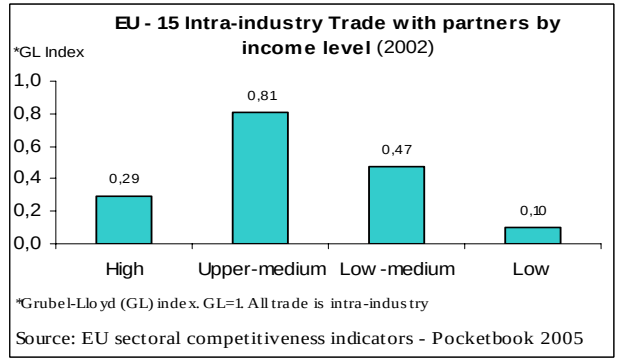

EU-15 and US
Value added and employment shares
in total economy - Leather and footwear (2001)
%
0,4
0,4
0,3
0,3
0,2
0,2
0,1
0,1
0,0
0,26
0,03
0,29
0,04
EU15
US
EU15
US
value added
employment
Source: EU sectoral competitiveness indicators - Pocketbook 2005

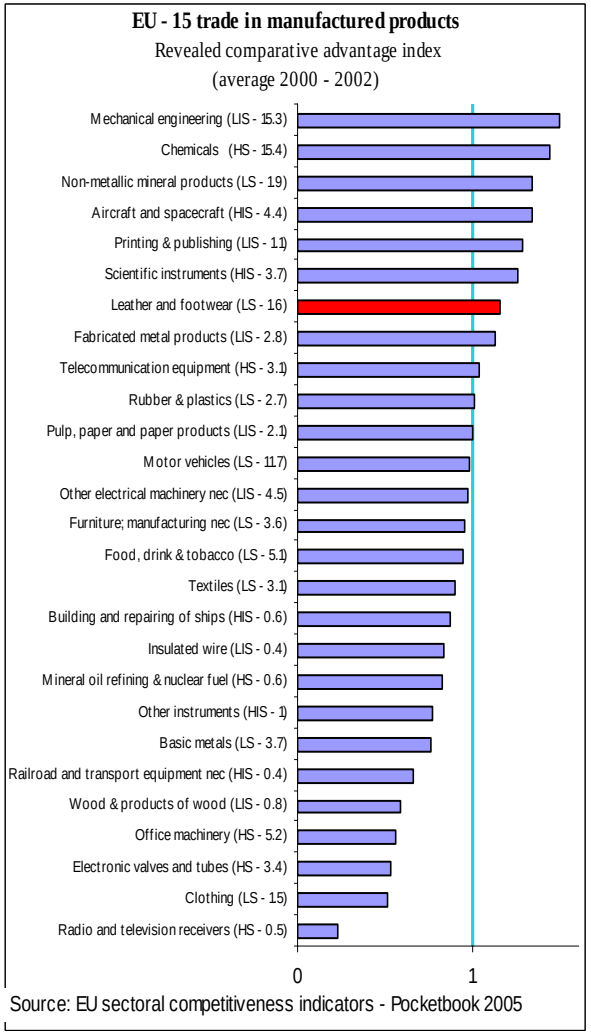

Value added distribution by enterprise size EU - 25
Leather and footwear (2001)
70%
60%
50%
40%
30%
20%
10%
0%
Micro enterprises
SMEs
Large
Manufacturing
Tanning and dressing of leather
Manuf. of luggage, handbags and the like, saddler
Manufacture of footwear
Data for enterprises with more than 1000 employees not available
Source: Eurostat


Production Index EU 25
(2000=100)
140,0
120,0
100,0
80,0
60,0
40,0
20,0
0,0
1990
1992
1994
1996
1998
2000
2002
2004
Manufacturing
Leather
Manufacture of footwear
Source: Eurostat and Commission Services own calculations.


Employment EU 15
(1979=100)
120
100
80
60
40
20
0
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
Employment - Leather and footwear
Employment - Total manufacturing
Source: EU sectoral competitiveness indicators - Pocketbook 2005 / O'Mahony and van Ark (2003)


Labour productivity evolution EU 15
(1979=100)
(per hour worked)
250
200
150
100
50
0
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
Leather and footwear
Manufacturing
Source: EU sectoral competitiveness indicators - Pocketbook 2005 / O'Mahony and van Ark (2003)


EU - 15 Intra-industry Trade with partners by income level (2002)
*GL Index
1,0
0,8
0,6
0,4
0,2
0,0
0,29
0,81
0,47
0,10
High
Upper-medium
Low -medium
Low
*Grubel-Lloyd (GL) index. GL=1 All trade is intra-industry
Source: EU sectoral competitiveness indicators - Pocketbook 2005


EU - 15 trade in manufactured products
Revealed comparative advantage index
(average 2000 - 2002)
Mechanical engineering (LIS - 15.3)
Chemicals (HS - 15.4)
Non-metallic mineral products (LS - 1.9)
Aircraft and spacecraft (HIS - 4.4)
Printing & publishing (LIS - 1.1)
Scientific instruments (HIS - 3.7)
Leather and footwear (LS - 1.6)
Fabricated metal products (LIS - 2.8)
Telecommunication equipment (HS - 3.1)
Rubber & plastics (LS - 2.7)
Pulp, paper and paper products (LIS - 2.1)
Motor vehicles (LS - 11.7)
Other electrical machinery nec (LIS - 4.5)
Furniture; manufacturing nec (LS - 3.6)
Food, drink & tobacco (LS - 5.1)
Textiles (LS - 3.1)
Building and repairing of ships (HIS - 0.6)
Insulated wire (LIS - 0.4)
Mineral oil refining & nuclear fuel (HS - 0.6)
Other instruments (HIS - 1)
Basic metals (LS - 3.7)
Railroad and transport equipment nec (HIS - 0.4)
Wood & products of wood (LIS - 0.8)
Office machinery (HS - 5.2)
Electronic valves and tubes (HS - 3.4)
Clothing (LS - 1.5)
Radio and television receivers (HS - 0.5)
0
1
Source: EU sectoral competitiveness indicators - Pocketbook 2005

LEATHER
COMPETITIVENESS ASSESSMENT

In 2002, the leather tanning sector comprised 4054 enterprises in the EU-25 and generated a turnover of €11,580 billion. These enterprises employed around 61,900 people. In 2002, the leather goods sector comprised 15,599 enterprises in the EU-25 and generated a turnover of €8,367 billion. These enterprises employed around 103,100 people. The leather and leather goods sector represents 0.91% of total manufacturing in production, 0.88% in value added and 1.67% in employment (2001, EU25). In the last years, the number of enterprises and jobs in the sector has decreased; turnover in the leather industry has also fallen though less so. In the leather value chain, the value of exports is increasing, demonstrating a move to higher value-added market niches. The volume of exports however is decreasing rapidly and the sector's potential is often hampered by difficult access to important markets. Within the EU, the weight of several new Member States in the leather and leather goods employment is much higher than in turnover or value added, which is a clear indication of their very high labour intensity.

Hides and skins account for 50-70 % of the production cost of finished leather, so the leather tanning industry is highly dependent on availability and price of raw materials. EU industry considers the quality of EU raw materials as the best for certain specific products. Since access to European raw materials has become more difficult (slaughter rate and beef production have dropped in recent years), access to raw materials outside Europe is crucial.

EU tanners and leather goods producers are adjusting their production towards higher quality output and products of high fashion content. However, lower production cost countries are constantly improving their quality and expanding their product range. The EU leather producers are therefore faced with similar challenges as other industrial sectors where major factors of competitiveness consist of ***research and innovation, skills and quality, design and value-added, knowledge and know-how,*** *together with* ***better access to third country markets.***

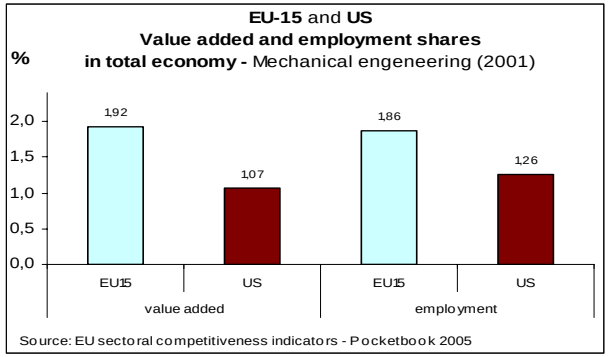
KNOWLEDGE	The main technological challenge for the leather industry is to **focus on higher value-added and eco-efficient and sustainable products, processes, materials and organisations**. A significant effort regarding research and skills is required to achieve these objectives in terms of business models, new materials, enhanced manufacturing processes, etc. Both the leather and leather goods sector would benefit from in-service and vocational **training** programmes that encompass all levels of employees and management. Major competitiveness factors are research and innovation, skills and quality, design and value-added, knowledge and know-how. Of particular interest to the sector is the proposal for **origin marking legislation**. The sector is in favour of compulsory marking of origin for imports.
COMPETITION	The sector is composed of SMEs, highly diversified in terms of products and fragmented in terms of companies (since 1990, only two mergers have been subject to Commission scrutiny). The sector falls under horizontal state aid rules and does not have sector-specific state aid legislation.
REGULATION	There are no sector specific directives for the leather sector but several horizontal directives have impact on the industry (especially environmental legislation as concerns the *leather tanning* sector). EU legislation to harmonise different labelling systems for *leather goods* that are in force in some Member States is being requested by the industry and trade unions. In this context, the Commission services have asked the trade associations to provide examples of different national labelling legislations and problems caused by them.

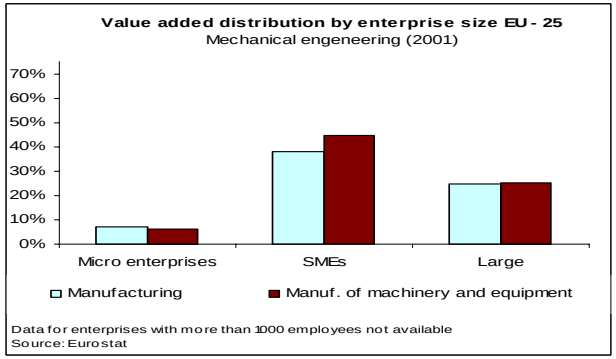
ENVIRONMENT	The impact of environmental regulation on the sector is great. Industry estimates that environmental protection costs amount to 5% of all operational costs. To remain competitive in the global marketplace, European leather producers must exploit more efficiently their raw materials and avoid wasting collagenous material (hides and skins) that constitutes valuable raw materials for other industries and agriculture. Wasting raw materials creates waste and this has high adverse environmental and cost implications.. By-products should be either reused/recycled or converted into new, higher value products. The leather industry will be obliged under the river basin management plans (Water Framework Directive 2000/60/EC) to take measures to reduce water pollution in those cases where the discharge from a plant contributes towards the pollution of a body of water, preventing compliance with the "good status" criteria. The main environmental Directive directly affecting the leather tanning industry is Council Directive 96/61/EC concerning Integrated Pollution Prevention and Control: plants for the tanning of hides and skins where the treatment capacity exceeds 12 tonnes of finished products per day are subject to the IPPC directive. The European IPPC Bureau organises this exchange of information and produces reference documents (BREFs) which Member States are required to take into account when determining best available techniques generally or in specific cases. The BREF for tanning of hides and skins was adopted in February 2003. It may be due for revision because of significant new developments (e.g. chromium containing sludge, air emissions, VOC Directive, NPE Directive). The sector is affected by the potential impact of **REACH**, being important downstream users of a wide variety of chemical preparations. Given the similarities in technology, firm size, competitive pressure, and heavy use of chemicals, the industry could face a similar risk as the textile industry related to the vulnerability of low volume chemicals of critical importance to leather production and products, such as potentially significant adaptation costs and time-to-market problems. The industry also fears that REACH's "substance in article" provision will not prevent a competitive disadvantage vis-à-vis non-EU companies and that consequently its big customers in the automotive, furniture, clothes and footwear industries could increase their imports from non-European countries.
EXTERNAL COMPETITIVENESS	The EU is the world's largest supplier of *leather* but re-exports of leather made out of semi-finished products from other origins is growing. The main EU export markets are emerging economies that have developed a large manufacturing capacity for the production of leather articles: Hong Kong (18%), Romania, China and the USA, while most imported semi-processed *leather* (wet-blue) comes from Brazil (14.5%) and the USA (6%). Finished leather imports come mainly from India, Pakistan, Argentina and Brazil. The EU has traditionally run a trade surplus in value, due to high quality and design. Many third countries however maintain export bans and restrictions for raw hides and skins, e.g. Argentina, Brazil, India, Morocco, Thailand and Nigeria (with Brazil and Nigeria the EU has its biggest bilateral deficits in this sector). Furthermore, increasing purchasing power of Asian competitors on global raw material markets is affecting prices and the availability of raw materials to the detriment of EU tanners and many developing countries. The main EU export markets for *leather goods* are Japan (27%) and the USA (19.7%), while the origin of most imported *leather goods* is China (60%) and India (10.5%), with a resulting trade deficit since 1999. **Counterfeiting and piracy** are problems for the European *leather goods* industry. In this context, it should be mentioned that last November, the Commission adopted an Action Plan for the enforcement of IPR in 3rd countries. The action plan focuses on implementation and enforcement of existing IPR laws and proposes to identify priority countries where enforcement actions should be concentrated. **The 2 main concerns for the industry are access to raw materials and market access**. Since access to European raw materials has become more difficult (slaughter rate and beef production have dropped in recent years), access to raw materials outside Europe is crucial. As to market access for finished leather and leather goods, in third countries, the EU leather industry is often faced with considerable trade barriers (high import duties and tariff and non-tariff measures such as excessive labelling or certification requirements) whereas the EU markets are open to virtually unrestricted imports from all over the world. China and India account for 70% of EU imports but rank as the 20th and 35th EU markets, which is partly explained by their tariffs on EU leather goods. Market access improvements are expected first and foremost in the

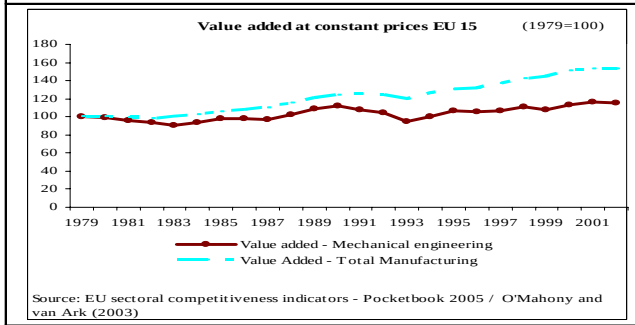
	context of the WTO. The Doha Development Round (DDA) in particular, is the framework where global tariff reductions should be agreed upon. **Increased attention to Corporate Social Responsibility (CSR)** in the sector can contribute to establishing a level playing field in international trade and to promoting sustainable business relationships in the sector.
EMPLOYMENT AND GEOGRAPHICAL DIMENSION	The sector is concentrated in the south of the EU, and thus the socio-economic life of certain regions depends largely on this industry. Italy with its employment of over 31,000 people is by far the most important *leather* producer. It is followed by Spain (7,400 employees). Italy is also by far the most important producer of *leather goods* accounting for 34 % of employment. It is followed by France which accounts for almost 18 % of employment. Together these two countries account for more than 50 % of the employment, enterprises and turnover of the *leather goods* sector. Spain comes third when measured on employment. Furthermore, new Member States are facing important restructuring challenges and adjustment processes that can lead to difficult situations at local and regional level. A European social dialogue for the *leather tanning* sector was set up in 1999 enabling the social partners to address the common challenges on the sectoral 'ethics' through the development of a code of conduct on fundamental rights, the promotion of sustainable development and respect for the environment as well as the identification of necessary skills and the improvement of vocational training. There is no social dialogue committee for the *leather goods* sector.

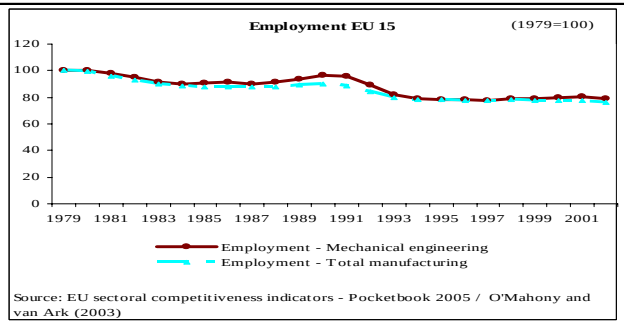
* Nace 19.1 and 19.2

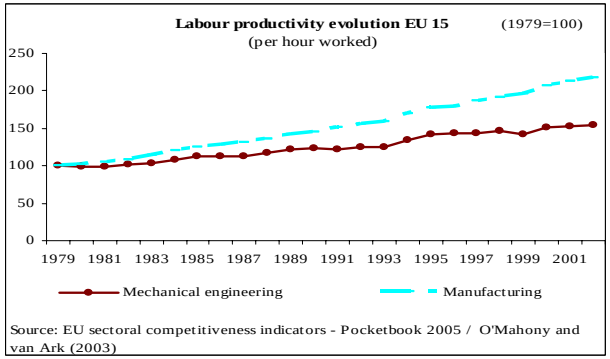
MECHANICAL ENGINEERING

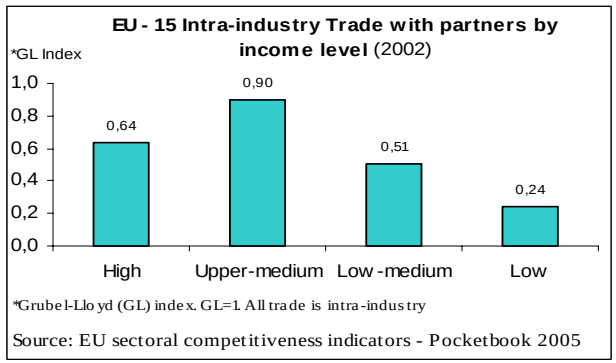


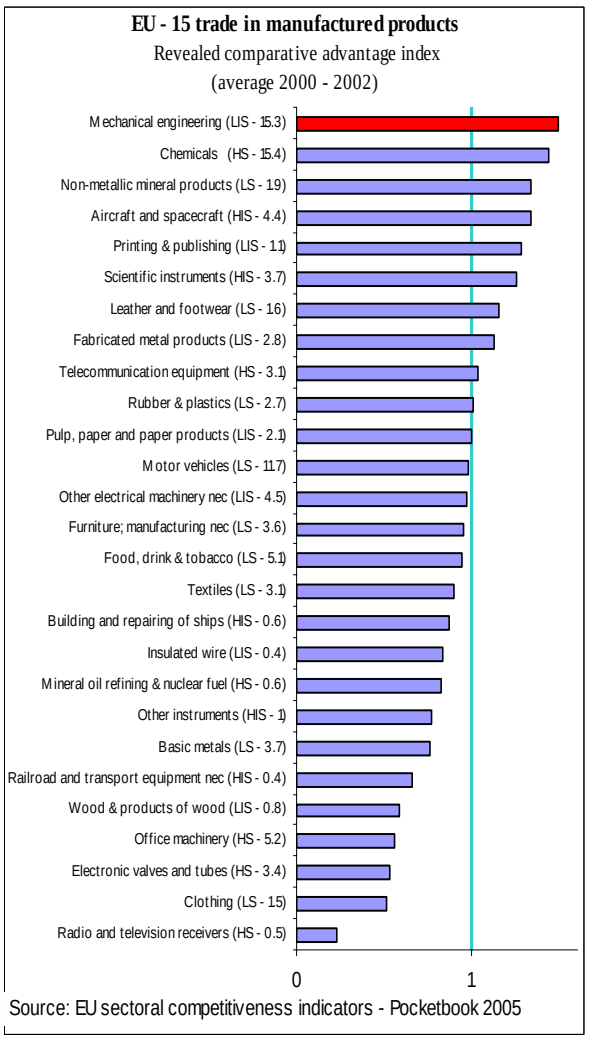












MECHANICAL ENGINEERING
COMPETITIVENESS ASSESSMENT

Mechanical Engineering is a large industrial sector in the European Union. 21.315 mechanical engineering enterprises with 20 or more employees produced in 2003 €360.086 million worth of machines and other mechanical equipment, directly employing 2,24 million people in EU15. Its size makes the EU the largest producer of mechanical engineering equipment in the world, clearly surpassing the USA and Japan (€279 bn and €172 bn in 2002 respectively). It accounts for 7% of the EU manufacturing industry's production and employment and for 8% of its value added.

Mechanical Engineering plays a key role in the economy as supplier of goods for other sectors therefore determining these sectors' potential to increase their productivity.

However, EU Mechanical Engineering has a productivity handicap vis-à-vis its main competitors. The productivity of the average EU mechanical worker is much lower than those of his American or Japanese colleagues and the sector's long-term productivity growth is slower than in the US thus further widening the already existing gap. In constant values the Japanese mechanical worker generated in 2003 €91.000, the US worker €86.000 and the EU worker €56.000 value added. This productivity gap, coupled with the relatively high labour costs, the increasing competition form emerging industrial countries and the currently unfavourable Euro exchange rate may affect the sector's future competitiveness.

Together with insufficient SME financing, which is considered a problem for the industry, the sector is very sensitive to the overall levels of investment primarily in the European and more generally in the world economy. Being a supplier of capital goods to customers that invest only when the overall business climate is encouraging, it is important to assure both a higher level of investment (currently averaging 3%) and a stable macroeconomic environment.

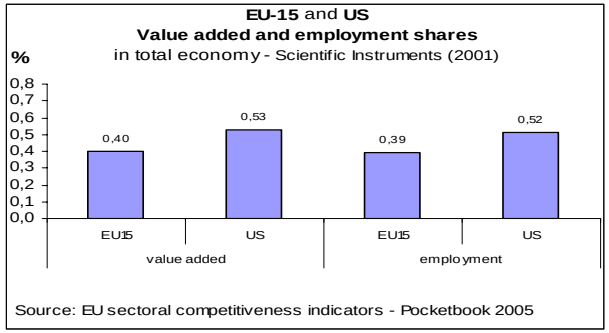
KNOWLEDGE	Manufacture of mechanical equipment is a knowledge-based business. R&D expenditure in EU Mechanical Engineering has remained remarkably stable over the last 10 years at 2.3% of the sector's turnover. This is relatively low and less than what the sector needs in order to keep ahead of its international competitors. The need for research incentives is therefore apparent. In high-tech equipment, the main challengers are USA and Japan and recently China in medium and especially in low-tech equipment Community-wide R&D initiatives, like Manufuture, can provide possibilities for the sector's companies to benefit from EU-funded research activities. Efforts should be made to allow more SMEs (90% of the sector's firms) to benefit from EU funded programmes. There appears to be a mismatch between the qualifications offered to students by the educational institutions in Europe and the skills needed by the industry. Both sides should therefore have the incentives to cooperate closer in order to address this problem that could create serious consequences in the future. The respect of intellectual property rights by competitors is essential in a knowledge-based industry like Mechanical Engineering. Counterfeiting. especially from China, is estimated at 5% of the sector's turnover, posing a serious problem. Speedy, affordable and less bureaucratic granting of EU-wide patents would be a sizeable competitive asset for this sector. There is also a need to improve the market surveillance systems in the EU.
COMPETITION	The sector is characterised by a high share of SMEs. Since 1990, 149 mergers have been approved by the Commission. Nine of these have been approved subject to remedies and two have been prohibited. There have also been two cases where the Commission found restrictive agreements

	by companies and imposed fines.
REGULATION	This sector is regulated by some important Community pieces of legislation such as the Machinery Directive, which has in fact de-regulated the market by introducing the New Approach principles of manufacturers' self-declaration of conformity and reference to the use of voluntary standards. The Pressure Equipment Directive harmonises the European market for equipment entailing hazards resulting from internal pressure, for example boilers in power stations, certain chemical installations or consumer products like pressure cookers or portable fire extinguishers. It applies to a quite large group of products, the yearly production of which is estimated to have a value of about € 90 bn, and allows for the introduction of innovative technical solutions without the need of changing legislation. Another important Directive affecting the part of the sector is the Lifts Directive, which aims to ensure a free access to the internal market for lift installers and equipment, while guaranteeing the safety of the users and maintenance staff. The Personal Protective Equipment Directive, which contributes to the prevention of occupational accidents and illnesses and the ATEX Directive (equipment to be used in potentially explosive atmospheres), are also part of the Community legislation body affecting the sector. These "New Approach" Directives have proven successful in terms of improved safety and liberalisation of EU trade. Although recognising the need and benefits of harmonisation, industry believes that the cumulative effect of legislation originating from various policy areas and levels pose problems, particularly for SMEs.
ENVIRONMENT	The sector is affected by horizontal environmental legislation such as the Waste Directive, the Packaging Directive, REACH, etc. Moreover the sector will be affected by the Directive for establishing a framework for setting eco-design requirements for energy-using products (EuP). In addition, Directive 2000/14/EC sets environmental noise requirements for fifty-seven types of machinery used outdoors. Finally, Directive 97/68/EEC and its amendments 2002/88/EC and 2004/26/EC on the harmonization of measures against emissions of gaseous and particulate matter pollutants from internal combustion engines on Non Road Mobile Machinery, set emission limit values to reduce the amount of pollutions in the air for the benefit of the environment.
EXTERNAL COMPETITIVENESS	EU Mechanical Engineering is a very export oriented industry: €131 billion of equipment exports outside the EU in 2002 gives this sector a notable 36% share in exports in relation to its production. Amongst all NACE 2-digit level sectors Mechanical Engineering is the one that contributes the largest trade surplus to the EU economy: over €74 billion. The EU controls a 43 % share in the global machinery trade. In high-tech equipment the EU has to compete internationally in the first place with the US and Japan. All three account for about 3/4 of world production of machinery and mechanical equipment. The US and Japan are the EU's crucial challengers in terms of production volume and technological standards. China has recently become a serious competitor in medium- and especially in low-tech equipment. The EU Mechanical Engineering sector is particularly strong in offering know-how intensive, customer oriented solutions of high quality and reliability including special equipment and turn-key plant supply. An important asset is also that the EU is the world's largest market for mechanical equipment. Weaknesses are a relatively low level of investment in capital goods, a skills lack, limited access to finance for SMEs, high labour cost, the increasing productivity gap with the US and increasing competition from emerging industrial countries in standard equipment.
EMPLOYMENT AND GEOGRAPHICAL DIMENSION	EU is the largest producer of mechanical equipment in the world and successfully present on all significant export markets except for Japan. Although mechanical engineering is a relatively mature technology with a relatively slow rate of structural change, continuous investment in new technologies is key to remain competitive. From 1995 to 2001 the sector grew considerably in both employees and number of enterprises. Given the increasing complexity of the equipment produced, engineers now have a higher share of the sector's overall employment: In the German mechanical engineering industry, for example, the number of engineers as a percentage of total employment has risen from 7% in 1982 to 16% in

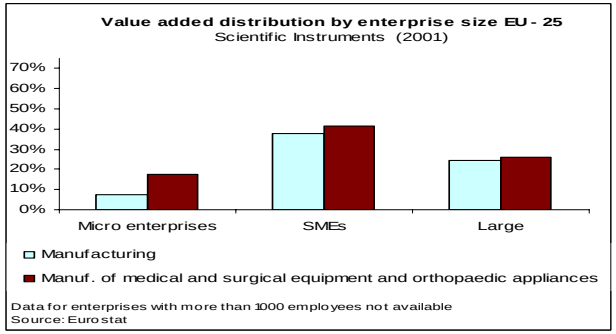
	2004. As from 2001, however, the sector has registered a slight reduction in both employees and number of enterprises. This trend of slow decline is expected to continue but does not indicate that the sector is facing an acute crisis, rather that productivity is increasing. There is no need for significant restructuring.

* NACE 29

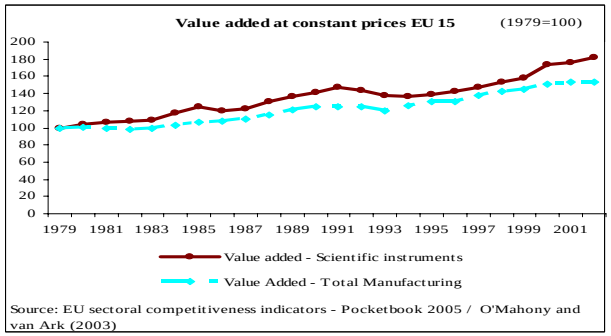
MEDICAL DEVICES



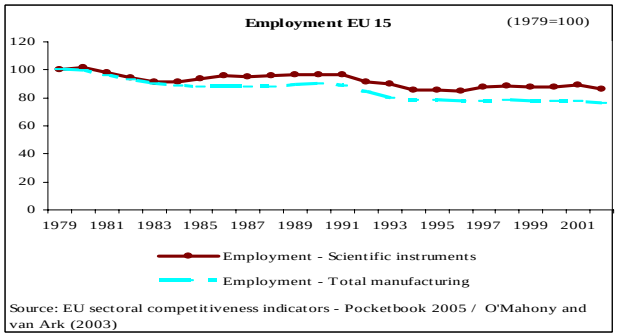
Source: EU sectoral competitiveness indicators - Pocketbook 2005



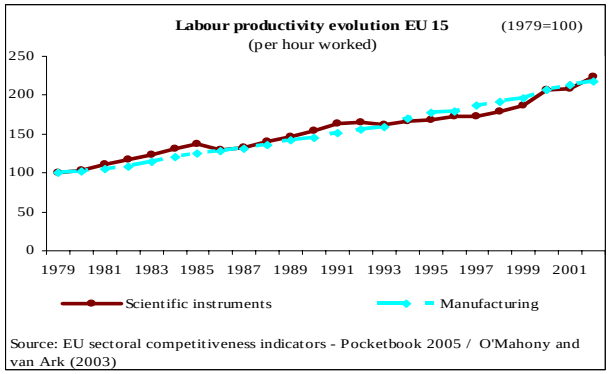
Data for enterprises with more than 1000 employees not available
Source: Eurostat



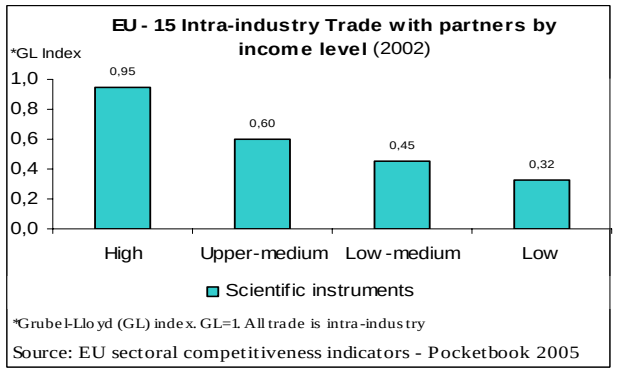
Source: EU sectoral competitiveness indicators - Pocketbook 2005 / O'Mahony and van Ark (2003)



Source: EU sectoral competitiveness indicators - Pocketbook 2005 / O'Mahony and van Ark (2003)

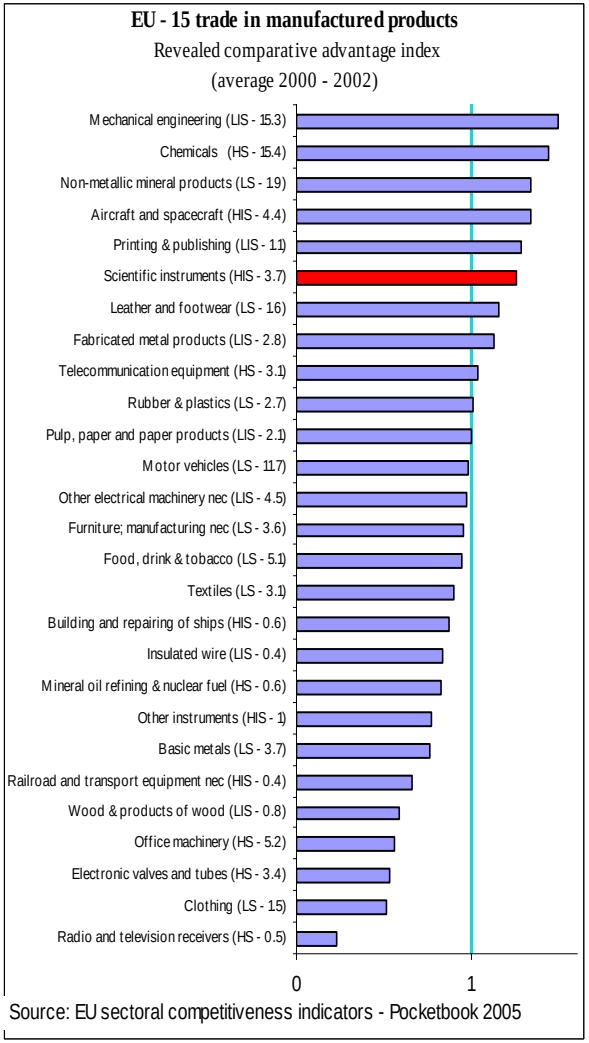


Source: EU sectoral competitiveness indicators - Pocketbook 2005 / O'Mahony and van Ark (2003)



*Grubel-Lloyd (GL) index. GL=1. All trade is intra-industry

Source: EU sectoral competitiveness indicators - Pocketbook 2005



Source: EU sectoral competitiveness indicators - Pocketbook 2005

MEDICAL DEVICES
COMPETITIVENESS ASSESSMENT

The medical devices industry in Europe contributes to about 1,1 percent of total EU25 manufacturing value added and to 1,3 percent of employment. The European market for medical technologies and devices is currently estimated at € 45 billion, generated by some 7,000 business entities employing about 350,000 employees. The manufacture of medical devices (medical and surgical equipment and orthopaedic appliances) generated in 2001 value added for € 17,2 billion in the EU25, from a turnover of € 41,3 billion. Medical devices and pharmaceuticals recorded the highest production growth rates in 2001 and 2002, while several other manufacturing sectors were showing negative figures. The product life cycle in the medical devices sector is shorter as compared to pharmaceutical products. The innovation process in the industry is mainly driven by a large share of small firm and the industry is characterized by a large involvement of the users (i.e. medical staff) in the innovation process. This industrial profile has relevant implications in terms of access to finance.

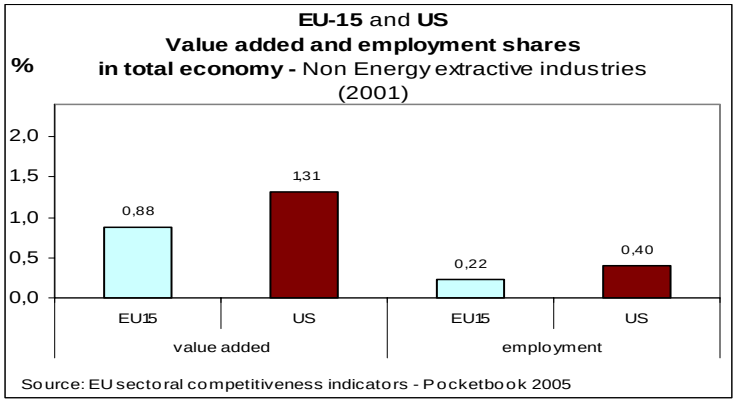
The medical devices sector plays a crucial role in the prevention and early detection of diseases as well as in facilitating treatment. Thus, it contributes to a cost effective health care policy. This aspect, taken together with the fact of an ageing population in Europe, may lead to a growing market in Europe.

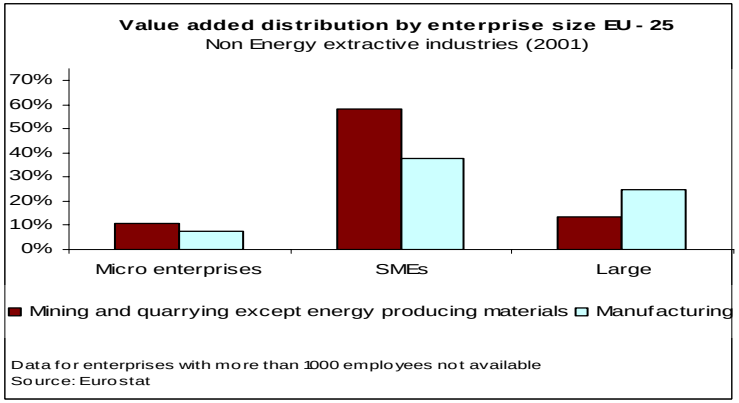
KNOWLEDGE	The number of brand new innovations in medical devices is small as compared to incremental innovations. The product life cycle in the medical devices sector is shorter as compared to pharmaceutical products. While the pharmaceutical industry is characterized by a knowledge base which is highly cumulative in nature and populated by large established companies, in the MD industry the knowledge base is less cumulative, and characterized by a high degree of interdisciplinarity. The innovation process in the industry is mainly driven by a large number of small firms, and the industry is characterized by a large involvement of the users (i.e. medical staff) in the innovation process. In comparison with the US main competitors on the global scene, R&D activity of European countries is lagging behind. Medical devices industry is high technological oriented, with short product life-cycles. For state-of-the-art devices, i.e. pacemakers, stents, a new "generation" of products is put on the market every few years. The major challenges of today are medical devices utilising substances (tissues) of human origin, and those using nanotechnology.
COMPETITION	The sector has a large share of small innovative firms. Since 1990, the Commission has approved six mergers in the sector, out of which two have been subject to remedies.
REGULATION	The sector is regulated by four directives of the EP/Council and two Commission directives. The revision of Directive 93/42/EEC concerning medical devices aims at improving the safety and quality of medical devices in order to obtain a higher level of health protection. In addition, these harmonized rules should improve the functioning of the internal market.
ENVIRONMENT	WASTE The existing legislation on waste from electrical and electronic equipment (WEEE) applies. A planned Communication on a Thematic Strategy for the Prevention and Recycling of Waste and an amendment of Waste Framework Directive (Directive 75/442/EC are under way. The Energy Using Product Directive applies. This provides a framework for the setting of eco-design requirements for Energy Using Products with criteria such as the product's entire life cycle and environmental impact. In addition,

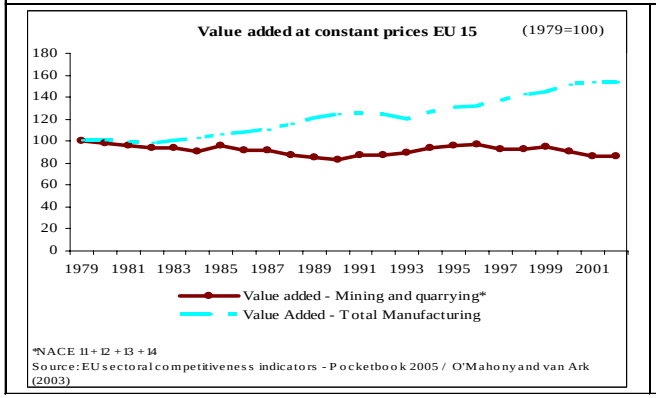
	the RoHS - Directive 2002/95/EC of the EP/Council on restriction of use of hazardous substances in electrical and electronic equipment (RoHS) applies. Nevertheless, the waste issue does not constitute a key challenge for the sector.
EXTERNAL COMPETITIVENESS	US companies are the main competitors to the European industry. The European medical devices industry is generally a net-exporter, but a net-importer vis à vis the US. The European industry is characterized by a large share of small firms –the average size of the European medical device firms is smaller than the average for EU manufacturing, while the reverse is true for the US. At international level, a number of cooperation instruments exist, such as MRAs (Mutual Recognition Agreements), GHTF – the Global Harmonisation Task Force (Australia, Canada, EU, Japan, US) and Bilateral Cooperation in Regulatory Areas (China). Continued efforts in these areas are critical to ensure market access for European manufacturers. The purpose of the GHTF is to encourage convergence in regulatory practices in order to ensuring the safety, efficacy, performance and quality of medical devices and to promote technological innovation and facilitate international trade. The primary way in which this is accomplished is via the publication and dissemination of harmonized guidance documents on basic regulatory practices. Future challenges will consist in increasing the market share of the European medical devices industry in particular in comparison with the US based industry.
EMPLOYMENT AND GEOGRAPHICAL DIMENSION	The European medical devices industry consists of some 7,000 business entities employing about 350,000 employees.

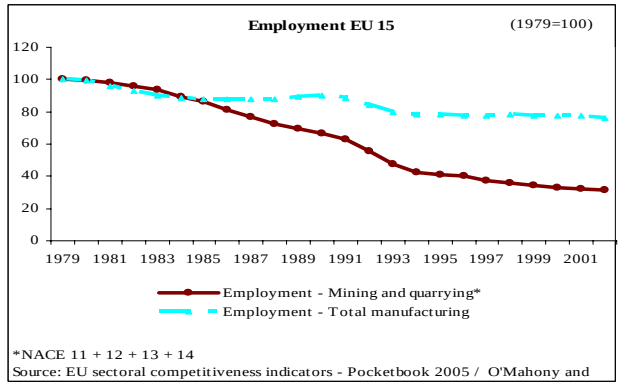
* Nace 33.1

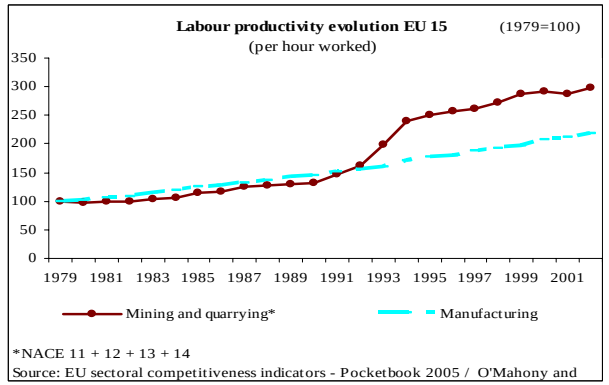
NON ENERGY EXTRACTIVE INDUSTRY











Non-energy extractive Industries* – by value (Million €)

	1999	2000	2001	2002	2003	2004
Exports	9216	11907	11612	12416	10960	12084
Imports	18388	23547	22852	20921	19254	23179

*Includes construction minerals (NACE 14.1 + 14.21); industrial minerals (NACE 14.22 + 14.3 + 14.4); Metallic minerals (NACE 13.1 + 13.2) and Other industrial minerals (NACE 14.5)

NON ENERGY EXTRACTIVE INDUSTRY
COMPETITIVENESS ASSESSMENT

*Size of the industry: production value 35billion €; value added 14 billion €; employment 267,000 people in 2001. The non-energy extractive industry is a **vital** supplier of raw materials to downstream industries such as the pharmaceutical, aerospace, automotive, road and construction sectors. The issue of having a level playing field regarding production conditions in third countries is often expressed. The EU non-energy extractive industry strives to remain competitive by supplying high quality materials.Increasing automation, particularly in deep mines, has resulted in a reduced work-force and higher productivity. The number of workers is declining particularly in the new Member States, as they bring their sites and practices up to modern standards. The industry needs to continue to advance technologically in order to produce more added value to end users.*

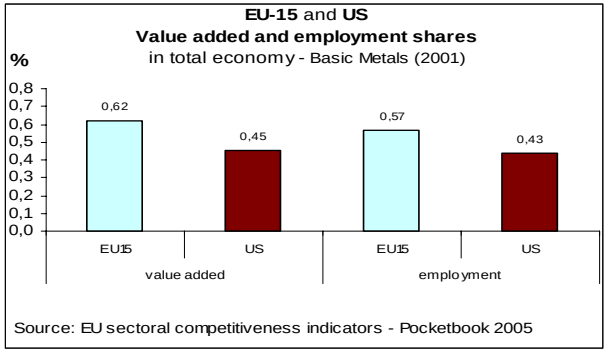
KNOWLEDGE	The industry has made real progress in its environmental performance over recent years due to the implementation of recently introduced environmental legislation (e.g. Environmental Impact Assessment Directive). However, further improvement is both necessary and achievable, although the scope for such improvements will vary depending on the sub-sectors involved. The introduction and dissemination of improved technology throughout the EU is considered to be a key factor in improving performance. An important challenge **related to research and technological development is skill shortage** in the longer term. Europe hosts many very distinguished mining engineering schools; however, too few school leavers are entering mining engineering and economic geology courses. Even though some of the world's leading industrial minerals and metal mining companies have their headquarters in Europe, the minerals industry is concerned that by 2015 there will be a scarcity of suitable researchers, technicians and managers in Europe. The launch of a European Technology Platform on Sustainable Mineral Resources was announced in March 2005. Preparatory work is ongoing.
COMPETITION	Because of the wide diversity of minerals extracted in Europe, consolidation within the industry overall is low, with a few exceptions. There are some major international companies, but they tend to specialise in particular mineral types. In the metal mining sub-sector major worldwide consolidation amongst the leading companies has happened over the past decade. There are many small companies, particularly in the construction materials sector (aggregates). There is some vertical integration. For example, most companies which extract gypsum also process it, manufacture gypsum products and supply complete systems for building interiors and partitioning. The European plasterboard industry is highly concentrated with three groups representing more than 90 % of both European plasterboard capacity and output. The capacity utilisation is not known as in many cases the maximum rate of extraction is limited by permit conditions rather than the ability of companies to produce materials more quickly. In general, the number of firms in the industry is stable. Barriers to entry are important and comprise: difficulties in obtaining permits to extract minerals, which can take more than 10 years to obtain, and high initial capital investment and high specialisation.

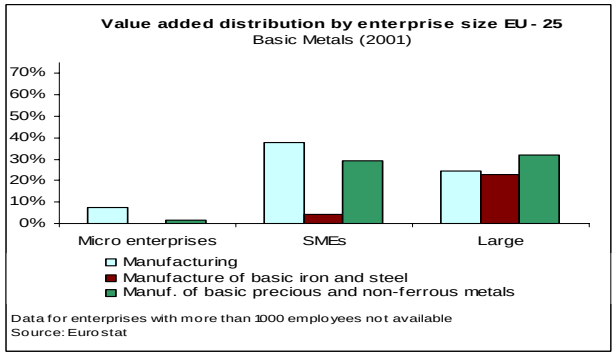
REGULATION	The industry is already strictly regulated. The majority of legislation which impacts the industry is horizontal in nature, e.g. the Birds and Habitats Directives ("Natura 2000") and Environmental Impact Assessment. No impact analysis has been done on the effect of the legislation, especially not of the cumulative effect. The legislation relates mainly to the environment. Many of the controls on the industry are through national legislation (e.g. land use planning). The **biggest concern of the industry is access to new deposits**, since obtaining permits is becoming increasingly difficult and expensive, while it is necessary to implement regulatory changes in mineral sites which are already in operation. Screening of legislation is important to ensure that it is proportionate to the potential environmental impacts the industry can cause.
ENVIRONMENT	The abovementioned Communication (2000) 265 identified two types of potential concern from extractive operations. Firstly, the extensive use of non-renewable resources may mean that these resources will not be available for extraction in the future. Secondly, the actual level of environmental impact of a particular operation, which depends on the management of the operation. The risks associated with the extractive operation can vary depending on several factors. Therefore management practices in the industry vary considerably from sub-sector to sub-sector. Mineral type, location and chemicals used are important factors. The industry will be affected specifically through the Proposal for a Directive on the management of waste from the extractive industry (COM(2003)319) which aims to put in place measures, procedures and guidance to prevent or reduce any adverse effects on the environment, and any resultant risks to human health, brought about as a result of the management of waste from the extractive industries. It will lay down the principles for waste operations and provides specific (permit) requirements for the safe management of waste management facilities. Furthermore the proposed REACH framework may have an impact on some parts of the industry if minerals, ores or substances occurring in nature and chemically modified are subject to registration requirements.
EXTERNAL COMPETITIVENESS	The EU is a net importer of minerals, with a trade deficit of 11 billion € in 2004. The EU imported industrial minerals worth € 11.4 bn. mainly from Botswana and South-Africa, while exports totalled 10.8 billion €. Mainly to India and Israel. This is thought to represent, in particular, the import and re-export of high value minerals such as diamonds. A slight upward trend appears for the production of feldspar, kaolin and talc in the EU; while gypsum is stable; and productions of fluorspar and potash have declined. For most metallic minerals Europe is a net importer. The EU imported 10.5 billion € worth of metallic minerals mainly from Brazil and Chile, while exports were only 0.5 billion €, mainly to Turkey and Saudi-Arabia. International trade in construction minerals is very limited because of their low intrinsic value, high volume, and high weight. Imports were valued at 1.1 billion € mainly from Norway and India, while exports totalled 0.7 billion € mainly to Switzerland and China. Globalisation is both opening up new markets and increasing the level of competition from developing countries. In particular, competition is strong from large-scale, high-grade overseas operations capable of producing metalliferous ores under low-cost conditions. **The EU extractive industry tries to compete by supplying high quality materials and continuous cost-cutting**. It has also been necessary to use trade defense instruments in recent years, mostly regarding value added products such as zinc oxide.
EMPLOYMENT AND GEOGRAPHICAL DIMENSION	Employment in the non-energy extractive industry as a percentage of total industry employment declined at an average annual rate of 2.1% between 1995 and 2003 at the EU-15 level. In 2003, the share of the employment in the non-energy extractive industry in relation to total industry employment amounted to around 0.5% at the EU-15 level.

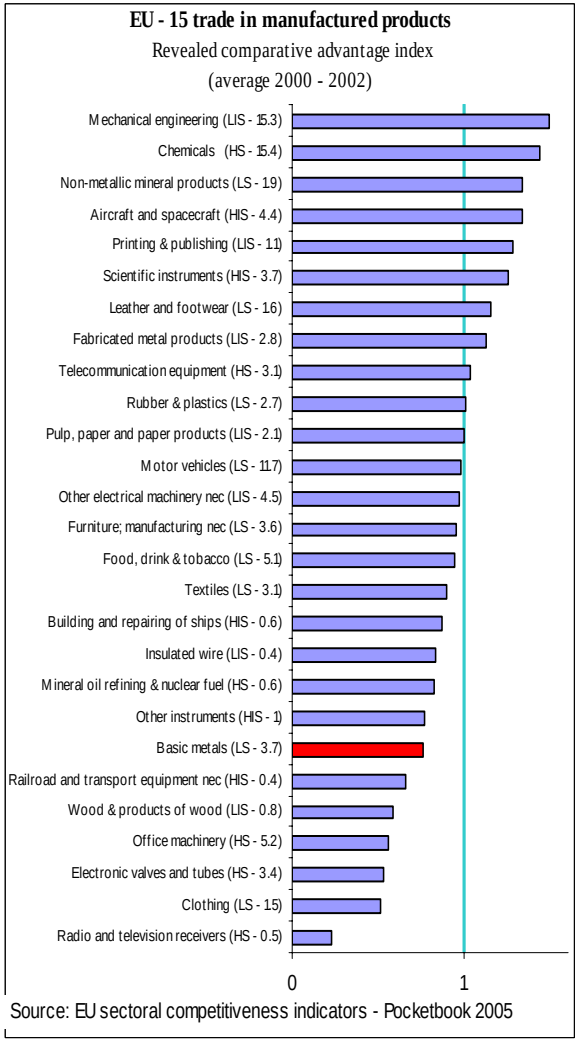
	An important characteristic of the extractive industry, which makes it different from other industrial sectors, is that it can only operate where suitable minerals are located, which is a result of past geological processes. This means that some minerals are extracted widely in all Member States, while others are only present in a limited number of areas. Some mineral types which are important for manufacturing industries are geologically not present in the EU, resulting in a complete dependency on imports. The metals mining sub-sector is located in many of the EU-25 countries, and in particular in some of the more Northern and Southern countries, such as Sweden, Finland, Greece, Spain and Portugal. There is also substantial metal mining in Poland and Slovakia. New mines continue to be developed, and provide employment and economic growth in regions which have difficulties attracting other forms of investment. Construction minerals are extracted in all Member States, as they are spread relatively evenly throughout the EU reflecting the abundance of natural resources but also the low intrinsic value of these products, which means that transport costs significantly influence the distance to markets. There is therefore relatively little international trade, either between Member States or with non-EU countries. Most Member States exploit at least one type of industrial mineral, but the pattern is variable. Germany, for example, is a major producer of kaolin, bentonite and potash. France is an important producer of gypsum, talc and fluorspar while within the UK, the extraction of kaolin and potash is significant. The EU is among the world's largest producers of some minerals, including feldspar, kaolin and potash. In 2003, most the employed workers in the EU-15 non-energy extractive industry were located in Germany (20% of EU-15 employed workers in that industry), Italy (20%), Spain (16%), France (12%) and in the UK (12%). This reflects in particular the size and dominance of the construction aggregates sub-sector within each Member State. In 2003, the employed workers in the EU-15 non-energy extractive industry were mostly low-skilled workers (around 45%) and medium-skilled workers (around 40%) industry. A European social dialogue was set up in the sector in 2002. The social dialogue makes a concrete contribution to the competitiveness of the sector, enabling the social partners across Europe to address the common challenges facing their sector in a consensual and innovative way. The challenges being addressed by them are: the economic and social management of restructuring; improving the quality of industrial relations through corporate social responsibility as well as initiatives to improve workplace health and safety.

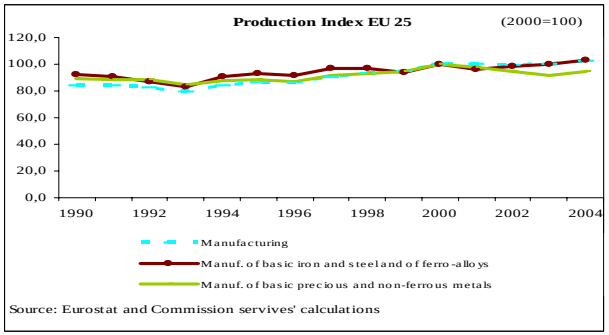
* Nace 13 and 14.

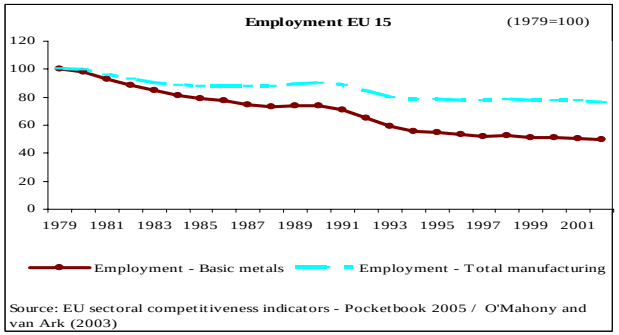
NON FERROUS METALS

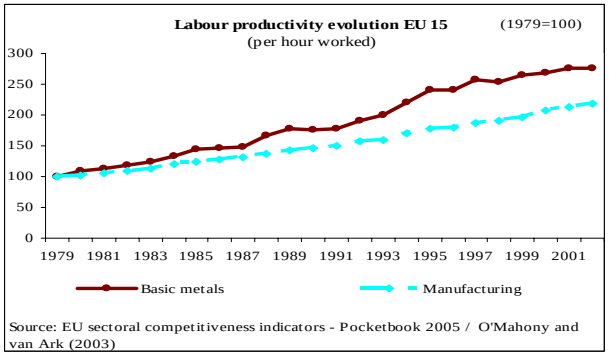


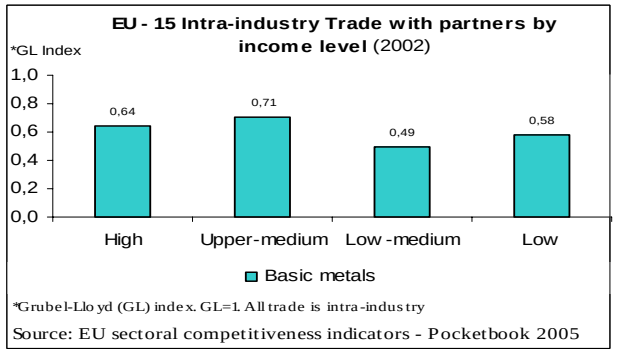












NON FERROUS METALS
COMPETITIVENESS ASSESSMENT

The share of the non-ferrous metals sector in EU manufacturing value added is 1.1% (€ 17,5bn.); and the share in employment is 1.0 % (321000 people). Employment decreased by 3.8% over 1999-2003, whereas productivity increased by 9.2% over the same period (Eurostat estimates for 2003, precious metals sector not included). Non-ferrous metals and alloys serve as inputs for a considerable number of applications in the manufacturing industry, so demand has constantly increased with manufacturing growth. Metal prices are determined at the London Metal Exchange, and have steadily decreased over two decades. Prices have only recently improved due to world-wide demand.

The sector is characterized by high energy intensity, medium/low labour intensity and low flexibility due to high establishment and closure costs. The most determinant factors in the (long-term) investment decisions of metal producers are access to raw materials and energy at competitive prices, and proximity of end-users. Given the high electricity prices in the EU, the scarcity of primary sources of metals (ores and concentrates), and the environmental and social costs embedded in EU and MS legislations, the proximity and size of downstream industries is the main remaining incentive to keep a certain activity in the EU. Other challenges: exchange rate fluctuations $/€.

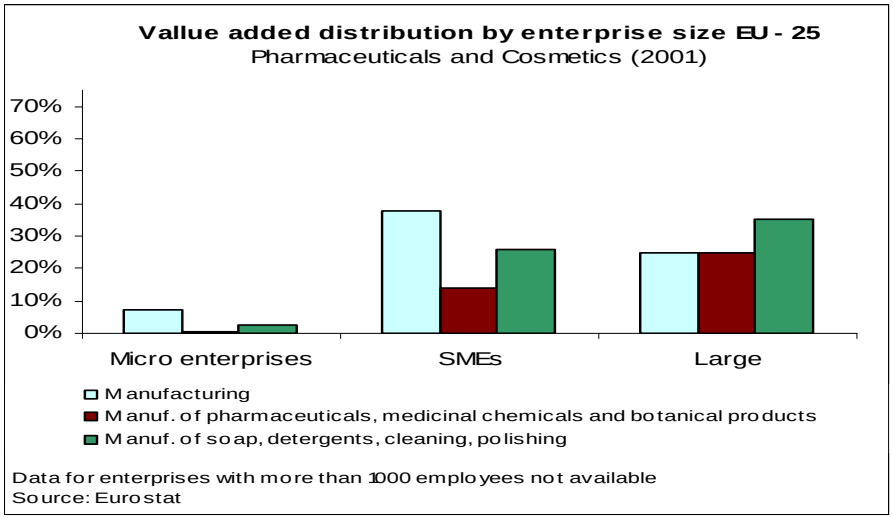
KNOWLEDGE	In terms of environmental performance and optimal use of energy and raw materials in the refining, recycling and processing of non-ferrous metals, the sector has already achieved substantial efficiency gains. More RTD is however needed to cope with future requirements in emission reduction and substances uses. Also, certain casting technologies of light metals (e.g. magnesium and new alloys) can be further improved. Large scale production is necessary in view of the economics of processes in both refining and first processing and the viability of "special" product lines is generally supported by large scale baseline production: to concentrate exclusively on small volume and high value added products is neither viable nor technologically sustainable. The non-ferrous metals industry is a key component of the EU sustainable production strategy by providing technological solutions in energy and material savings in a great number of applications (transports, aeronautics, IT and telecoms and construction) and by being capable of closing the loop of the products' life-cycle through recycling. The sector is a world technology leader in metal refining, processing and recycling.
COMPETITION	Vertical integration is not common except in the aluminium sub-sector; companies are mostly specialised either in metals refining/recycling or in metals processing. In general raw materials for non-ferrous metals production (including scrap) are supplied by specialised, independent mining companies or traders. The majority of companies in the refining segment and vertically integrated companies are large groups with international presence. The processing segment is composed of a large number of SMEs with only a few big groups. Except for aluminium, consolidation levels are low. Prices are highly transparent due to daily quotation on the London Metal Exchange (LME) which is the worldwide market price-setter for the refined metals. Raw material and, in particular, processed product prices are established by reference to the LME. This feature limits the capacity of the non-ferrous metals producers and processors to pass on their costs to their customers. For the last 20 years the sector has suffered from depressed price levels for all non-ferrous metals, due to excess supply from mines. The problem for companies was not so much the barriers to entry rather than the high costs of closure (long amortization period for primary metal producers, de-commissioning, land cleaning, demolition costs, etc.). However, the investments needed to start up a greenfield plant still represent an important barrier to entry.

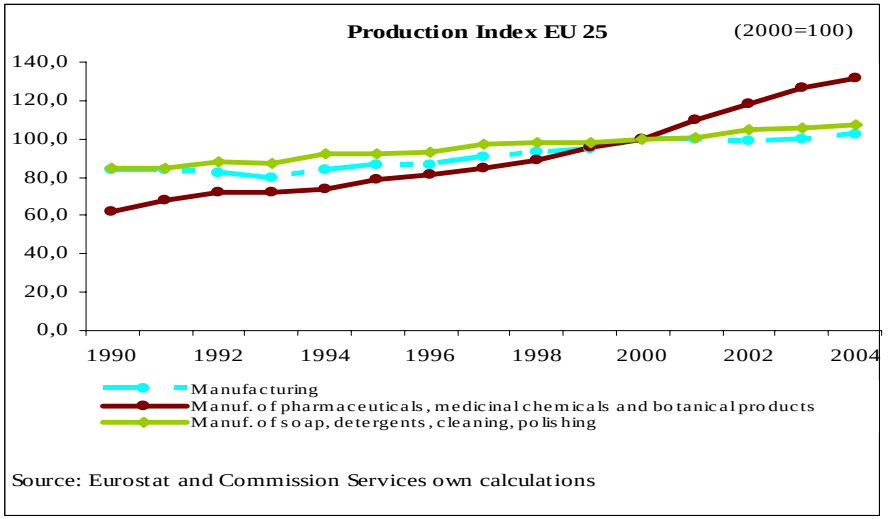
	There have been several merger/acquisition cases in the aluminium sector and there have been two cartel cases in copper tubes.
REGULATION	Better regulation and simplification are relevant issues in the area of environment, substances legislation, waste and recycling legislation and energy policy. All legislation is of EU origin.
ENVIRONMENT	Recycling of scrap metals is one of the most important elements in relation to the competitiveness of the sector. Due to the nature of the production of non-ferrous metals, the sector is significantly affected by the waste and recycling policies that both promote recycling activities and define the requirements under which such activities take place. As Europe has limited resources of raw materials and energy, the industry recycles scrap metals for re-use in its refining and processing operations. For example more than 70% of the EU refined lead production, nearly 60% of the aluminium production and more than 30% of the refined copper production originate from scrap metal. The non-ferrous metals sector is not covered by the EU's emissions trading regime. However, price effects on electricity due to the introduction of the system are of high concern for the sector, which is generally highly energy intensive. The industry is included in the IPPC Directive and there is a BAT Reference document on the non-ferrous metals sector that is being used to issue permits. Moreover, risk assessments (RA) on zinc, nickel, lead and copper are being carried out, providing estimates of individual use risks to the health and the environment. The lead and copper RA are voluntary risk assessments by the industry developed in close cooperation between the industry and competent authorities. In this context, to assess the hazard and risk, appropriate methodologies are discussed in order to take account of the specificities of metals, their compounds and alloys. This will be important for the implementation of REACH. According to industry, REACH might impose an administrative burden and create competitive disadvantages. Recent impact studies have demonstrated that the impact on the ferrous and non-ferrous metals industries is manageable, but have also indicated that further clarification is required, specifically on ores, scrap metal and by-products such as cokes.
EXTERNAL DIMENSION	The European Union has become the most important net importer of non-ferrous refined metals in the world, and its self-sufficiency ratio has experienced a decline over the last decades. The most important exporters of non-ferrous metals to the EU overall are Russia, Norway, Chile and Australia. EU exports of non-ferrous metal processed products are rather limited as a major proportion of the EU production is absorbed by the internal market. In recent years, the industry has become concerned about specific policies and practices put in place by third countries to restrict their exports of scrap metals to the EU or to foster their scrap and other raw materials' imports. . In particular regarding aluminium and copper scrap, the EU market is facing important reductions in imports and quickly growing exports. The fast growth in scrap exports is due to high demand from China and, in the case of copper, further promoted by China through VAT exemptions for imported scrap. State aids and lower social and environmental costs in third/emerging countries are shifting production to those countries and pushing up the prices of raw materials (and scrap metals) to levels that European producers cannot cope with anymore whilst exposing them to increased competition on processed products which are exported to the EU at cheap prices. China and India seem to be the biggest competitive challenge to EU producers due to their conditions of production; some of them are subject to discussions within the WTO.
EMPLOYMENT AND GEOGRAPHICAL DIMENSION	Location factors are critical in the investment decisions made by non-ferrous metals producers in their long-term strategy. Two factors are determinant: the access to raw materials and energy at a competitive price and the proximity of the end-users to serve them better and to minimize the transportation costs. For instance, the copper refining industry had to close several plants because of the increasing difficulty to secure enough copper scrap supply due to the competitive distortions on the scrap market. Also there

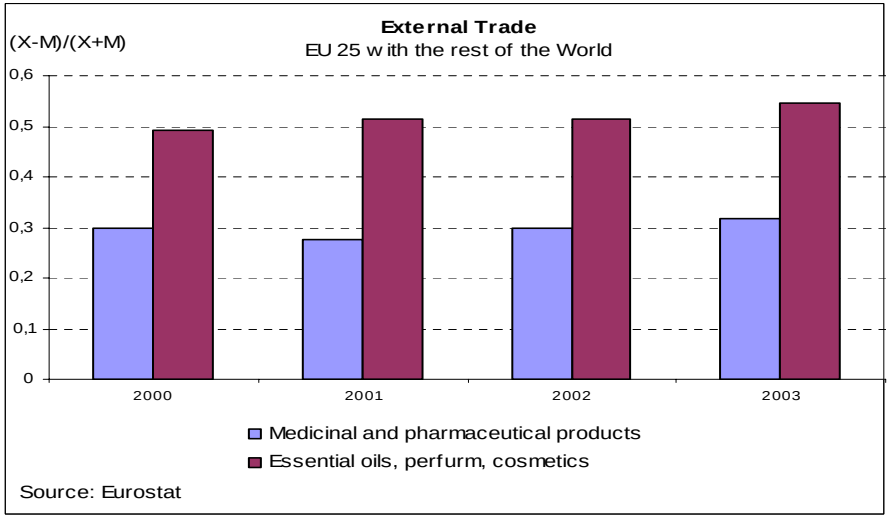
	was no new capacity investment by the EU aluminium industry for the last 20 years, mainly because of the growing electricity costs and the development of emerging markets in other areas of the world. The European environmental and social costs are also an important factor of influence in the considerations of the non-ferrous metals companies to invest in the EU.

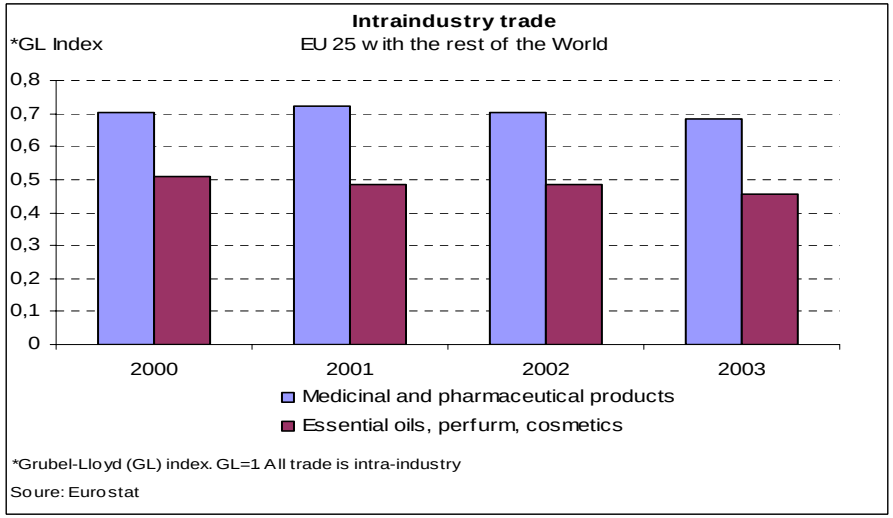
* Nace 27.42, 27.43, 27.44, 27.45, 27.53 and 27.54

PHARMACEUTICALS









PHARMACEUTICALS
COMPETITIVENESS ASSESSMENT

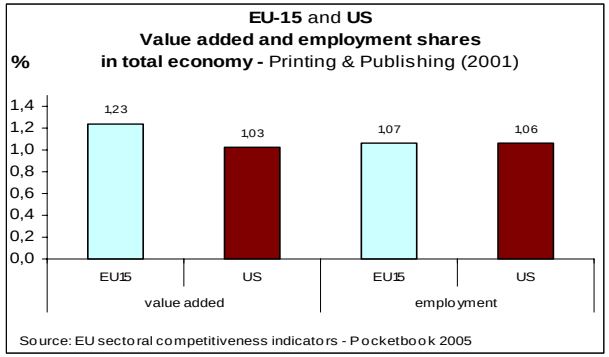
In total manufacturing, the pharmaceutical industry represents 1.6% of employment and 2.81% of production. The industry has experienced steady growth, but at a slower pace than in the US. Value added per employee is very high, about one third higher than in other high-tech industries. Several factors are expected to drive down investment returns and likely to limiting the industry's ability to attract money for R&D in future medicines: Declining R&D productivity; patents with shorter exclusivity periods due to public pressure and challenged by developing countries and newly industrialising countries; the rising costs of commercialising a new drug; and mounting price-pressures exerted by governments and/or private insurance schemes. Other concerns are caused by the lack of competitive national markets in Europe and the fragmentation of the European market; the inadequate protection of intellectual property due to the delays in the implementation of the biopatent directive and the non-existence of a Community patent; the poor coordination between private and public funding of research and across borders; and the low insufficient degree of exchange between the academia and the business community.

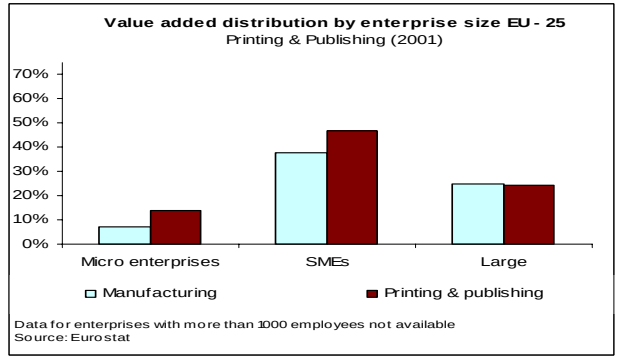
KNOWLEDGE	The EU lags behind the US in R&D spending (US R&D budgets are more than a third higher than in EU). Increased R&D investments seem to have led to more pharma/biotech patents in the US. Declining productivity – only one compound now reaches the market for every 13 discovered and is tested in pre-clinical trials, compared with one out of eight between 1995 and 2000, thus resulting in increased R&D costs. The main reasons for candidate drugs failing to reach the market are: lack of efficacy and of pre-clinical and clinical safety. However, breakthroughs in life sciences are transforming the process of drug R&D, which will lead to more individualised medicines and finally to tailor-made medicine. In this context, the Innovative Medicine Initiative will provide for a technology platform in order to accelerate pharmaceutical drug development and to tackle the current bottlenecks in the pre-competitive phase of the drug development process, thus contributing to the re-establishment of Europe as a leading centre for pharmaceutical R&D. Pharmaceuticals is a specific industrial sector with an important health aspect. Another factor which need further attention is the skill base in Europe as there seems to be divergence between the needs of industry with regard to skills, particularly in the field of chemical research, and the skills available in the labour market. In any case the balance between competitiveness based on market considerations and public health has to be struck to ensure patients' access to innovative medicines. Patient safety is also an important element of strengthening the competitiveness of the pharmaceutical industry by ensuring that the pharmaceutical products on the market are safe.
COMPETITION	Since 1990, the Commission has approved 53 mergers, out of which 14 have been subject to remedies, and has fined one cartel. More consolidation and restructuring of the industry is expected, which should lead to the emergence of four categories of producers: large multinationals, specialty pharmaceutical companies (mostly SMEs), generic producers and over-the-counter (OTC) manufacturers. Access to finance for SMEs, especially to venture capital, continues to be a problem as it constitutes a development barrier for new bioscience companies. Low revenues also affect those SMEs which are engaged in low-margin market like herbals and OTCs. There seems to be a need for more support for SMEs, for clustering as well as innovation policy.

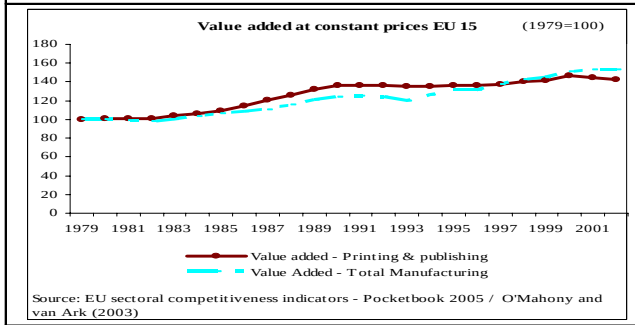
REGULATION	The legislation is harmonised at EU level and guarantees a high level of product safety. The new legislative framework has now to be implemented in all EU Member States The G10 Group highlighted some critical areas of national competence that have a major impact on the European industry, in particular; national pricing and reimbursement schemes and the increasing use of cost and clinical effectiveness criteria by national administrations. Given the current strong pressures on national health care budgets, MS authorities are trying to curb costs by focusing on pharmaceutical expenditures. The continued lack of international competitiveness and the economic/strategic significance of this industry to the European economy as a whole make a more comprehensive approach worth considering.
ENVIRONMENT	The impact ofREACH can mostly be only indirect as chemical substances used in the pharmaceuticals sector are excluded from registration and authorisation. In addition, pharmaceuticals research can benefit from a 15-year exemption for PPORD. Like other sectors, the pharmaceutical industry is subject to the legislation related to waste.
EXTERNAL COMPETITIVENESS	The EU generates a trade surplus in pharmaceuticals (approx. € 24 bn.), which increased between 1990 and 2002. The pharmaceutical sector is the single most important sector contributing to the trade surplus when compared with other high tech sectors. The EU industry becomes increasingly dependent on the U.S. both for its exports and imports. Since the early 1990s there has been a decline in the competitiveness of the industry, particularly when compared with the US. The EU invests about 1.9% GDP in R&D vs. 2.8% GDP in the US. This phenomenon has led to more pharma/biotech patents in the US, which at the end of the 90s overtook Europe and became the leading inventor of new active ingredients in the world. Also, US companies created 42% more pharmaceutical jobs than its European competitors between 1990 and 2001. In 1990, the pharmaceutical industry spent 32% more on research in Europe than in the US, while in 2003 it spent 17% more in the US. Even European companies have shifted part of their R&D to the US. Since biotech started in the U.S. the first-mover advantages seems still to be a source of a competitive advantage, leading to a constant brain drain from Europe. Market access to third countries is still a major source of concern for European companies, particularly caused by regulatory hurdles. Furthermore the non- or insufficient implementation of the TRIPS agreement in many important overseas markets puts the European industry at a disadvantage.
EMPLOYMENT AND GEOGRAPHICAL DIMENSION	The sector employs over 500,000 people of whom around 100,000 are employed in pharmaceutical R&D.

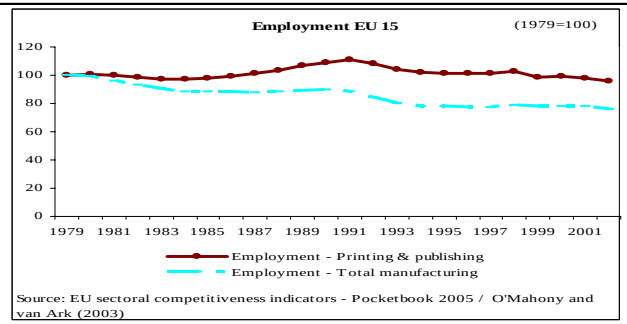
* Nace 24.3

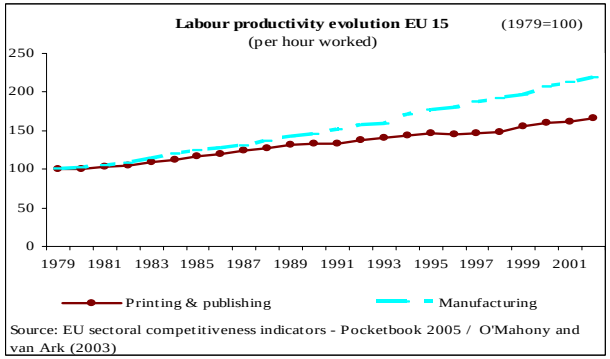
PRINTING AND PUBLISHING

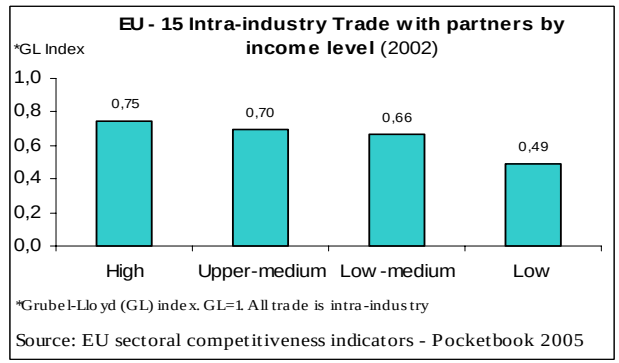


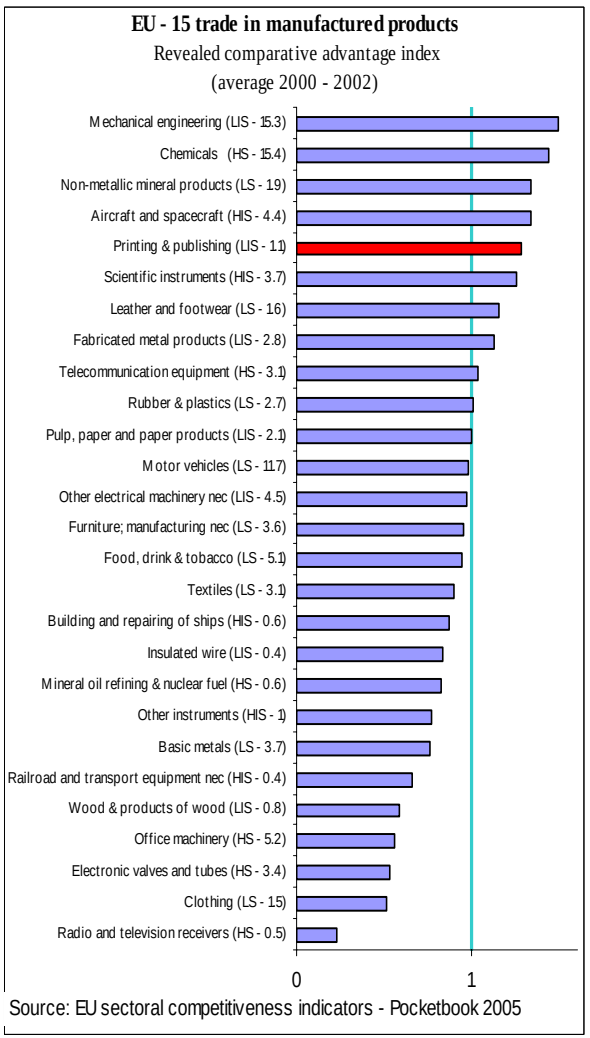












PRINTING AND PUBLISHING
COMPETITIVENESS ASSESSMENT

Printing and publishing is one of the largest industries in the EU, representing 4,5% of production, 6,1% of value added (€ 101 bn.) and 5,6% of employment out of total manufacturing. These sectors represent however distinct activities, whereby publishers are customers of the printing industry The industry is characterised by a negative growth trend for employment and a low growth trend for value added and productivity.

Productivity levels are lower than in the manufacturing sector in general, although it shows an accelerating trend in the EU -decelerating in the US. In comparison with US it is about 30% higher. There has been limited growth of all major publishing markets in recent years.

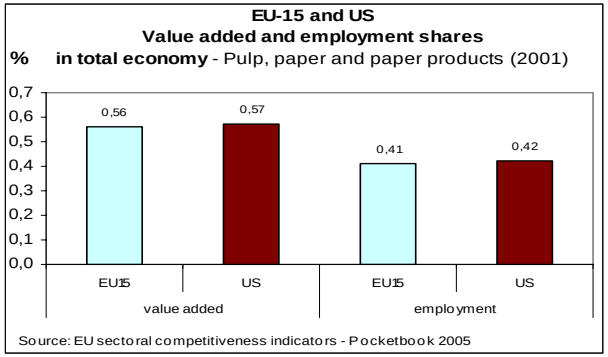
The various electronic/digital printing processes are becoming significant forces in the industry and contribute to the emergence of new market opportunities and niches rather than being a replacement for conventional printing processes. New products and markets together with smart applications are important challenges for the industry, for which innovation and entrepreneurship are essential. There is an increasing competition between newspaper and Internet, which has received an increasing share of advertisements and has become the major news source for many groups.

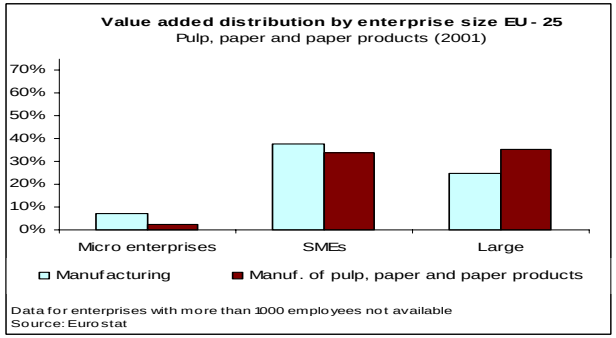
KNOWLEDGE	Increasing competition from electronic media: Currently print-based publishing remains the most important way in which publications are delivered. However the publishing industry is moving further into digital delivery and new production technologies, which will have a substantial impact on the sector. Many publishers have developed their own online and digital products and services, but significant investment is required to develop and maintain interactive services and the risks associated are very different from those of conventional printing and publishing. In the transformation to digital publishing, training of skills and technical knowledge have become decisive competitiveness factors. It is therefore essential that there is a sufficient capacity of education and vocational training available. Technically there is an increasing interlink between the paper industry and the printing and publishing industries with publishing companies demanding more and more specialized paper qualities.
COMPETITION	Both printing and publishing industries typically focus on national or regional markets. The industries are generally fragmented, though there are some large European corporations who are both publishers and large-scale printers. As regards publishing, the sector is currently undergoing consolidation, driven by the strong dynamics in digital media and on-line services. This trend, especially in the newspaper publishing, has raised concerns that a high degree of concentration could be detrimental to cultural diversity. Out of 57 merger cases approved by the Commission since 1990, 5 have been subject to remedies.
REGULATION	The publishing industry is directly or indirectly affected by Community and national legislation concerning for example copyright, advertising (e.g. tobacco) and the application of the VAT directive. For the printing industry, regulatory issues refer first of all to environmental legislation.
ENVIRONMENT	There are several environmental files that affect the printing sector: Eco-label for printing products, IPPC Directive and the BREF

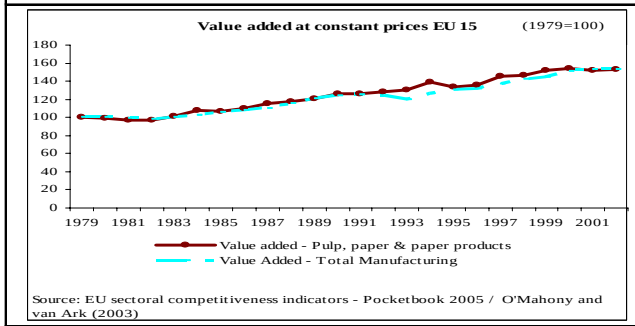
	on surface treatment using solvents, REACH, Thematic Strategy on the Prevention and Recycling of waste, Thematic Strategy on air quality, integrated Product Policy, Water Quality. The main legislative instruments that regulate pollution in the printing sector are the so called VOC Solvents Directive and the IPPC Directive (Integrated Pollution Prevention and Control). Directive 1999/13/EC on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain activities and installations (the VOC Solvents Directive) sets emission limit values (expressed in terms of the maximum solvent concentration in waste gases) and fugitive emission values (expressed as a percentage of solvent input). The substitution of solvent-based products by water-based products is considerably reducing VOC emissions in the sector. The Directive IPPC aims to reduce, prevent and control the pollution in an integrated way, using best available techniques (BAT). Printing installations are included under the draft BREF (Best Available Techniques Reference Document) on surface treatment using solvents (work ongoing). Requirements, including at least 23 declarations and test procedures, for the award of an eco-label for printed paper products, which are currently being developed, are most likely too burdensome for SMEs and will put them at a disadvantage in relation to large companies.
EXTERNAL COMPETITIVENESS	The internationalisation of the printing sector is low, and most of it has taken place in terms of increased trade within Europe, especially in border regions. The low level of internationalisation is caused by the high cost of transportation and language barriers, the need for a close relationship with the customer, the need for short runs and frequent updates, and short delivery times. The publishing sector shows a higher but still relatively low level of internationalisation relative to manufacturing as a whole. Printing and publishing exports represent less than 1% in total manufacturing exports, 0.5% in imports, with a resulting trade surplus over € 2 billion. However it seems now that printing jobs may be diverted to third countries with lower labour costs, a process that is widening to include almost all products except those with a very short delivery time like newspapers and weekly magazines. Globalisation of markets and audiences seems to call for industry consolidation in order to achieve economies of scale.
EMPLOYMENT AND GEOGRAPHICAL DIMENSION	The share of employment in the printing and publishing industry declined at an average annual rate of 0.1% between 1979 and 2001 within the EU-15. In 2003, around a half of the workers in the EU-15 printing and publishing industry were medium-skilled. The high-skilled workers represented about 25% of the employed workforce.

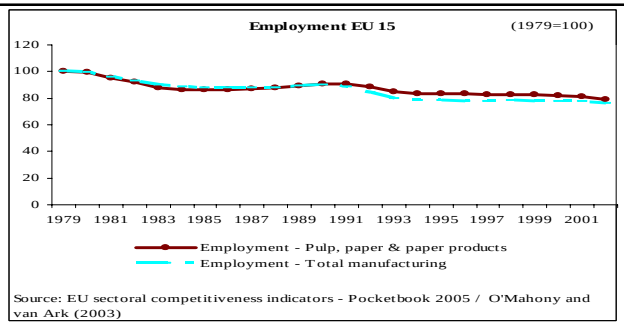
* Nace 22, 22.1, 22.2 and 22.3

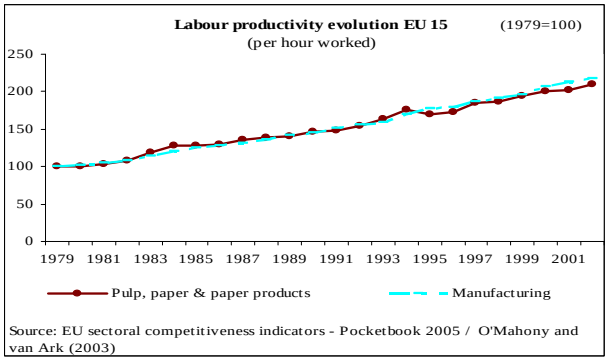
PULP, PAPER AND PAPER PRODUCTS

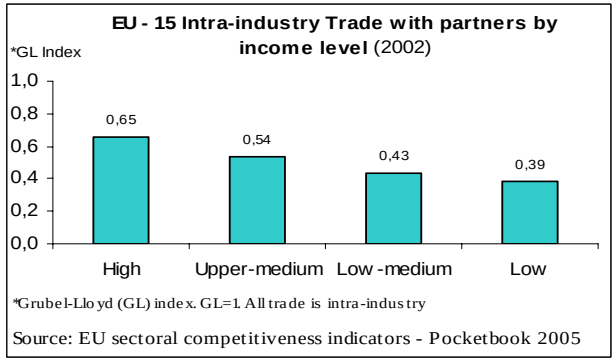


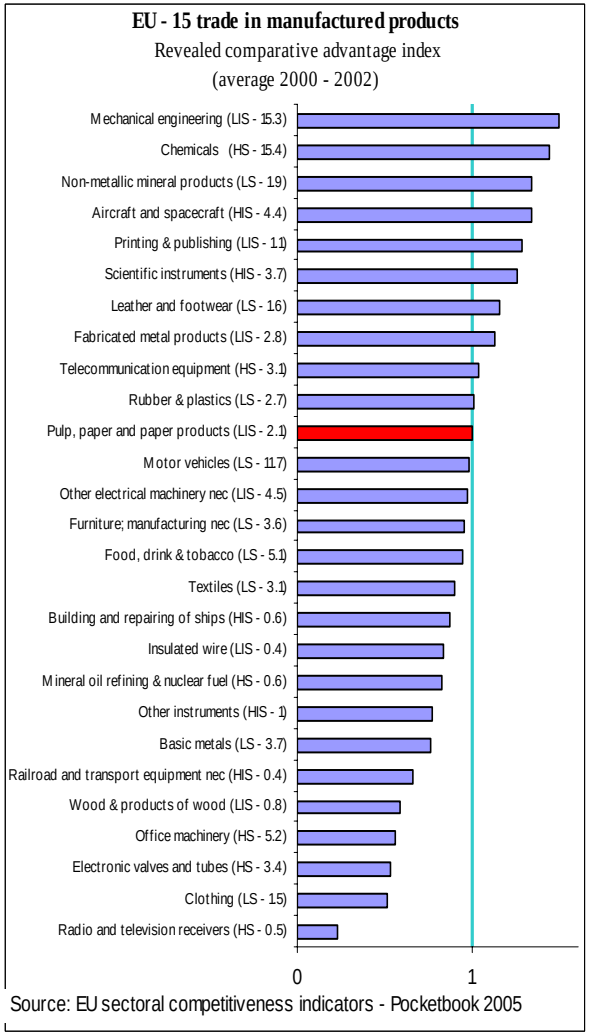












PULP, PAPER AND PAPER PRODUCTS
COMPETITIVENESS ASSESSMENT

The industry makes up 3% of EU manufacturing value-added (€50 bn), 3% of production value (€150 bn) and 2% of employment (740.000). Production of paper increased by 4.5% in 2004 compared with the previous year. Over the long term, output of paper and board has increased on average by 3.2% per annum since 1991.The sector shows a negative growth of employment but a positive growth for both value added and productivity, slightly below the average for all manufacturing sectors but much higher than in the US (1979-2001). Labour productivity in EU15 is about 20% higher than in USA due to the advanced equipment European manufacturers have invested in over the last 30 years. While profitability in the industry, measured as gross operating rate, is one of the highest within manufacturing, over the recent year, the European pulp & paper industry's profitability (net profit) has been under pressure and margins have been reduced because of an increased competition on domestic markets as well as on external markets – linked with the strong Euro / USD exchange rate. Long-term price evolution for the paper products is downwards. Over the recent period - 2000-2005 – price development has been less favourable for the European pulp and paper industry than for other manufacturing sectors and energy price increases have squeezed the margins. Market developments have suffered from a less dynamic economy in Europe compared to other areas in the world. Production within EU has to accommodate high costs for pulpwood, energy and labour and is meeting increasing competition from low-cost production in tropical and sub-tropical areas. Environmental legislation is also more severe in the EU than in these areas. Leading EU corporations intend to concentrate new capacity investments in third countries due to relative lower raw material costs. Generally cost is a major determinant of competitiveness because most of the products are commodities with little product differentiation. The industry is facing a challenge to develop new products with higher value-added. Another long term challenge stems from changes within the publishing industry and advertising services and their move into digital production and delivery. This is most clearly seen for newspapers in some specific markets. Furthermore transportation will become an important issue in terms of sustainability and cost with road transport becoming more and more expensive.

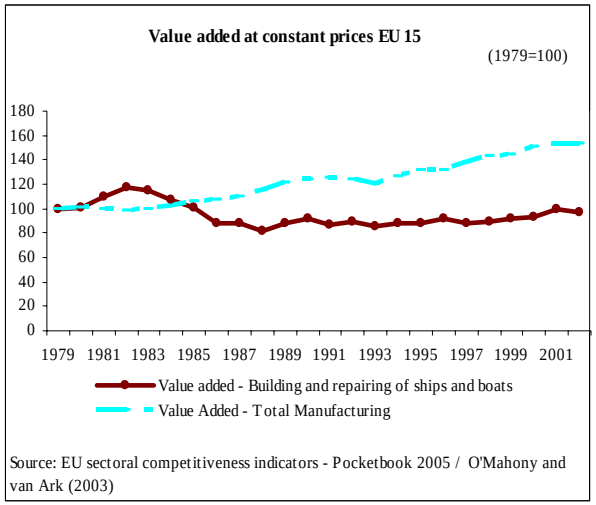
KNOWLEDGE	Main challenges are related to environment issues and to developing production technology and products with more specific qualities and higher value-added. The EU is at the moment leading in respect to "know-how" in the sector and has a performance and technological advantage, nevertheless, the pulp and paper production is coupled with high environmental costs that might increase even further in the future. The European technological edge has to be continuously advanced since state-of-the-art technology is offered to competitors worldwide. "Smart applications" including ICT concepts are challenges for the pulp, paper and paperboard manufacturing and the converting industry in order to increase the share of high value added products. An important challenge for the industry is to develop process innovations that support sustainable development but also improve flexibility in the production process Other challenging improvements for the sector concern on-site energy generation and reducing chemical and energy consumption e.g. by using new bio-catalysts, recycling of products, reduction of CO2 emissions from production and increasing use of on-site renewable energy sources in the production process. There is a technology platform set up by the European forest-based sector (FTP) where the pulp and paper stakeholders are engaged. This technology platform follows the "value chain" approach covering the whole chain starting at the forests and finishing with the final products. The way forward and ambition for the sector is to increase competitiveness while continuing to

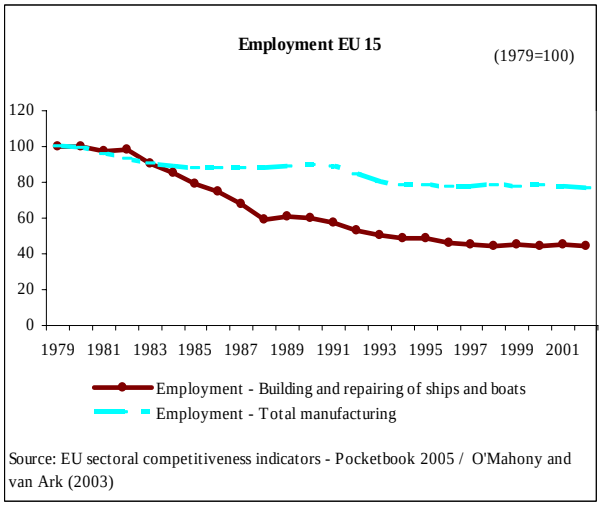
	build on their competence in providing services that enhance sustainability ("competitive and sustainable"). The development of the strategic research agenda includes working groups on forestry, wood products, pulp and paper products, bio energy and specialties/new businesses.
COMPETITION	We can distinguish the following degrees of concentration in the paper market: highly concentrated markets with a ratio of top 10 companies to total capacity (CR_{10}) superior to 85% for coated mechanical paper, uncoated mechanical paper, newsprint and coated wood free paper. Medium concentrated markets with a CR_{10} between 65% and 85% for carton board, market pulp, and tissue paper. Low concentration markets with a CR_{10} less than 65% for uncoated wood free, container board, and wrapping papers. Since 1990, the Commission has authorised 69 mergers out of which 3 were subject to remedies. One merger has been prohibited. The Commission has also imposed fines in two cartel cases. State aid has been approved in connection with some important capacity increases in the pulp and paper industry.
REGULATION	The development of the energy markets liberalisation has had and will have a major impact on the European paper industry profitability. The promotion of biomass and biofuels represents an important concern that might affect the availability of raw material for the sector.
ENVIRONMENT	Due to its main raw materials (wood and recovered paper) and its high energy consumption, the pulp and paper sector is largely affected by the environmental legislation and is often part of the debates on e.g. biodiversity, forest certification and illegal logging. The main environmental files of importance for the pulp and paper sector are the following: Climate change – emissions trading and linking Directive, post-2012 targets, Thematic Strategy on resources, Thematic Strategy on the prevention and recycling of waste, IPPC Directive (Integrated Pollution Prevention and Control) and Pulp and Paper BREF (Best Available Techniques Reference Document), Directive on packaging and packaging waste, REACH, Land use planning, FLEGT (Forest law enforcement, governance and trade), Forestry Action Plan , Biomass Action Plan, Thematic Strategy on soil protection, Thematic Strategy on air quality (CAFÉ), Eco-labels (printing paper, tissue paper, copying and graphic paper), strategy on bio-diversity, Natura 2000 and Water quality strategy. Climate change policy and the EU emissions trading scheme in particular, is currently one of the most important environmental issues for the sector. The main impact of emissions trading is the expected increase in the price of electricity. In particular, this industry is subject to global competition and the price of its products is set on the global market but some main competitors (e.g. Brazil, US, Indonesia...) do not have, at the moment, to comply with any limit values for CO2 emissions. Another main legislative instrument that regulates pollution in the sector is the IPPC Directive. Industrial plants for the production of pulp and paper and paper board with a production capacity exceeding 20 tonnes per day are covered by the Directive IPPC and are therefore required to operate according to permits conditions based on BAT taken into account BREF related to this sector (adopted in 2001). Furthermore recovered paper, subject to the waste legislation, is an important raw material for the sector and accounts for around 50% of the fibres used. Use of recovered paper has been a major development within the pulp and paper industry. Europe has become a world leader in the field of recovered paper with recovery levels significantly higher than those achieved in North America. The goal of the industry is to achieve complementarities between primary and secondary fibres (between virgin and recovered fibres). The use of secondary fibres has been continually rising as the consumer demand for recycled paper increases. A

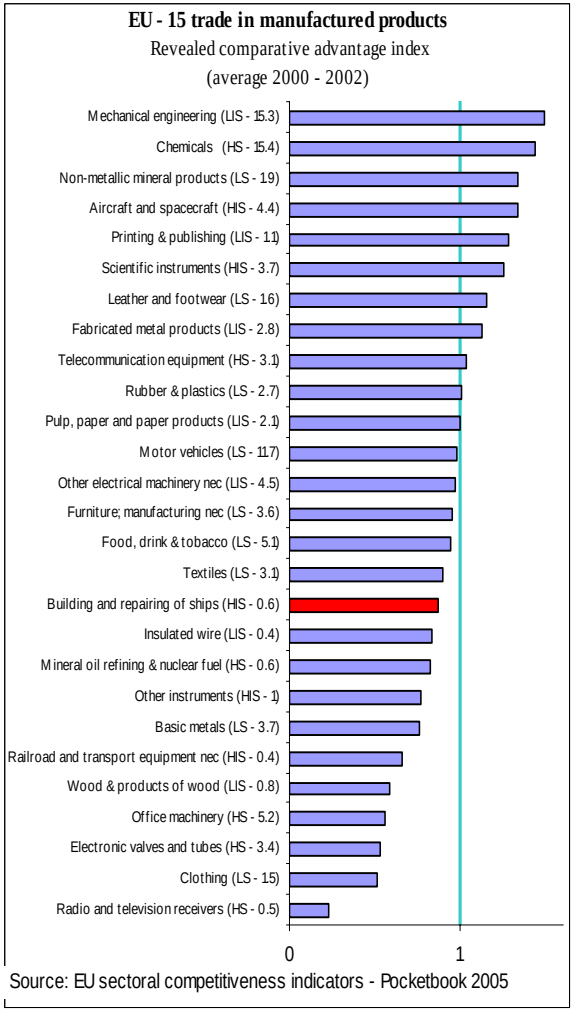
	cost-efficient and separate collection scheme is of primary importance in this area.
EXTERNAL COMPETITIVENESS	Fair competition and fair market access is an important issue for the paper industry. This is related to the possible subsidies obtained by companies in some third countries and to high tariff duties on paper in some markets as well as non-tariff barrier restrictions. Europe is one of the world's leading producers, with 30% of world paper and 25 % of the world pulp production. The EU is also the largest exporter of paper and paperboard in the world, with an important impact on the overall EU trade balance. Exports increased 75% over the last decade. The USA, the second largest exporter, is the main destination for EU exports of pulp, paper and board, accounting for about 15% of total EU15 exports, followed by Switzerland. Exports to Asia are developing rapidly. The main EU export destinations for the paper converting industry are Switzerland, USA, Russia and Norway. Pulp is the most important import item, with significant trade flows originating from North and South America.
EMPLOYMENT AND GEOGRAPHICAL DIMENSION	Employment in the pulp, paper and paper products industry declined at an average annual rate of 1% between 1971 and 2001 within the EU-15. Most the employed workers in the EU-15 pulp, paper and paper products industry were medium-skilled workers (around 50%) and low-skilled workers (34%) in 2003. The high-skilled workers only represented about 13% of the employed workforce.

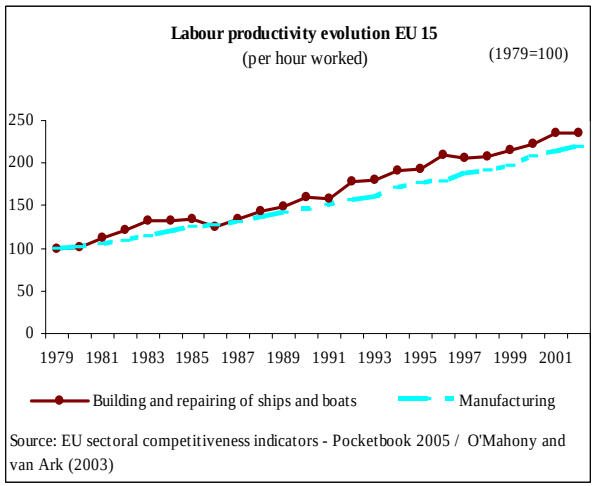
* Nace 21

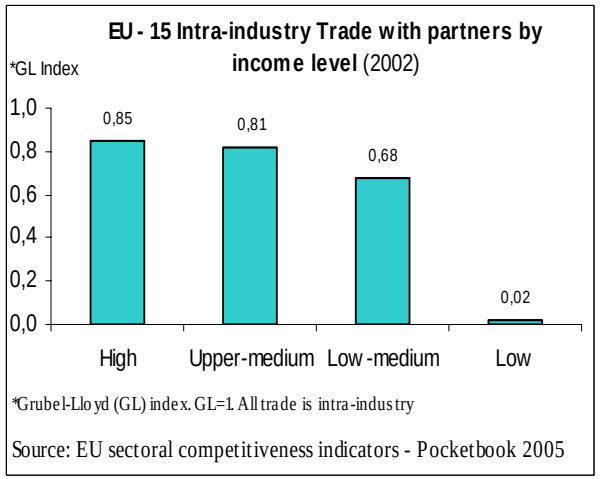
SHIPS&BOATS: BUILDING AND REPAIRING OF SHIPS AND BOATS*











* *To facilitate cross-sectoral comparison, the statistical overview for ships&boats as well as for other sectors is based on a common set of data. However, due to the fact that*

the distinct and separate economic activities of shiprepair and new building of both merchant ships and leisure boats are merged and in view of the applied methodology and timeframe, the data presented does not convey an accurate picture of the current state regarding shipbuilding (i.e. the construction of sea-going vessels only). Discussions on resolving the unavailability of comparable data from Eurostat for shipbuilding are ongoing and need now to be brought to a successful conclusion. In fact, more recent industry data for the construction of new ships presents a much more positive picture regarding productivity, turnover and external competitiveness. These figures notably indicate that labour productivity has more than quadrupled within 15 years (1988 to 2003) and that the EU now leads the world in terms of shipbuilding turnover.

SHIPS&BOATS: BUILDING AND REPAIRING OF SHIPS&BOATS COMPETITIVENESS ASSESSMENT

There are some 150 shipyards in Europe, with ca. 40 of them active in the global market for large sea-going commercial vessels. Compared to the main competitors Japan and Korea, with 5 and 6 major shipyards, respectively, the European shipbuilding industry is fragmented. Ca. 100.000 people are directly employed by yards (in commercial and naval shipbuilding as well as in ship repair); another 350.000 people are working in the supply industry (which has around 9.000 companies). The turnover of the entire EU shipbuilding industry (building and repairing of ships) is around 34 billion euro.

To facilitate cross-sectoral comparison, the statistical overview for shipbuilding as well as for other sectors is based on Eurostat data. However, due to the fact that this data merges the distinct and separate economic activities of shiprepair and new building of both merchant ships and leisure boats and in view of the applied methodology and timeframe, the data presented does not convey an up to date picture of the current state of the European shipbuilding (only) industry. In fact, more recent industry data for the construction of new ships presents a much more positive picture regarding productivity, turnover and external competitiveness. These figures notably indicate that labour productivity has more than quadrupled within 15 years (1988 to 2003) and that the EU now leads the world in terms of shipbuilding turnover.

Nevertheless, the industry continues to face massive challenges to its competitiveness which it tries to address together with the Commission (LeaderSHIP 2015). EU yards have stopped producing low-value vessels such as oil tankers, but maintain a strong position in passenger ships, smaller coastal vessels and specialised tonnage. There has been a significant shift from yard employment to employment by equipment manufacturers who increasingly offer turn-key solutions, leaving yards in the role of a technology integrator. In shipbuilding, the level of sub-contracting can go up to 80% in terms of value. EU shipbuilding ranges from globally active SMEs, producing anything from small high-tech war ships to luxury yachts, to very large state-owned military yards with the main production focus on ships for the national navy and very limited export activities.

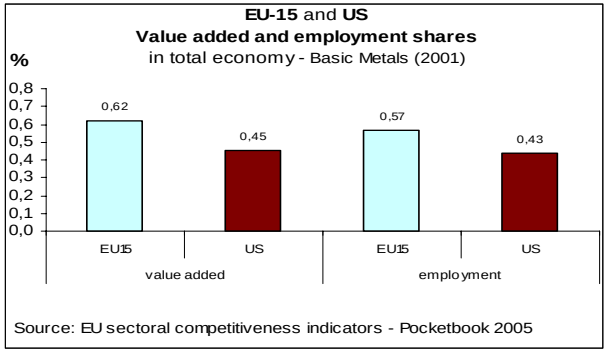
***Access to finance**: Securing financing, both for the construction phase (pre-delivery) and the operational phase of the vessel (post-delivery), is crucial for shipbuilding projects to come about. Shipbuilding financing almost always includes guarantees, either issued by private banks or state institutions. Pre-delivery financing constitutes a serious problem for yards. Typically, a shipyard's annual production value exceeds its own value, and a partly built ship is not recognised as a capital asset. With large volumes of purchased equipment, the value added by the yard's own activities amounts to the smaller part of the total contract sum, while it has to assume full liability for the entire project. Most ship owners require bank guarantees for any down payment made during the construction of the vessel, thus increasing the amount needed for the total project financing even further. A number of commercial banks are reducing their interest in shipbuilding and hence their commitment to a vital, but volatile industry. Reduced interest will lead to less expertise, which in turn accelerates this process. All these factors lead to growing difficulties for the arrangement of the ship financing. Although problems may differ depending on ship type, they constitute a serious impediment to the competitiveness of EU shipbuilders.*

KNOWLEDGE	The EU marine equipment industry is world leader, but Asian producers are making efforts on this field. The issue of Industrial Property Rights is one of the most important in *LeaderSHIP 2015*, as the future of the European shipbuilding industry hinges on its technological lead. Today, all major innovations in shipbuilding continue to come from Europe, but the industry suffers from problems: Yards and marine equipment manufacturers are not doing enough to protect their intellectual property through copyrights, registered designs, trademarks, patents or non-disclosure and specific collaboration agreements, and operating providers of shipbuilding know-how, working in close collaboration with yards, ship owners and flag states around the world, makes this know-how easily available to competitors. The industry has recognised its dependence on research as a driver to knowledge and has actively collaborated with European research programmes. The Waterborne Technology Platform launched in January 2005 brings together all stakeholders, national authorities and the Commission to better coordinate and implement a Strategic Research Agenda for the European maritime transport sector. Meanwhile, securing, enhancing and retaining the requisite skilled workforce remains a constant challenge and further efforts are needed to tackle this issue and to continue to improve the skills base of the workforce.
COMPETITION	The sector is mature, underwent important restructuring in the past and faces tough international competition, i.a. from unfair subsidies to the Korean industry.
REGULATION	In the EU, shipbuilding is regulated through EC competition law, and national shipbuilding policies have practically ceased to exist. However, due to the nature of the industry and its specific problems, Member States continue to support their shipyards in many ways, often leading to conflicts with other Member States and the Commission. There is no particular EC legislation for shipbuilding, apart from certain market access rules for marine equipment, as shipping and shipbuilding are traditionally regulated on the level of the International Maritime Organisation (IMO).
ENVIRONMENT	Shipbuilding is considered a comparatively clean industry as is the shipping industry. Main environmental concerns relate to ship recycling and ship emissions.
EXTERNAL COMPETITIVENESS	European shipbuilders hold ca. 19% of the world market in terms of volume (CGT), more than 30% in terms of turnover. EU shipbuilders are technology leaders in many fields, but struggle to take advantage of this as the global competition is mainly on prices. The EU marine equipment industry is world leader, followed with some distance by Japan. Korea and China make great efforts to gain a foothold in the equipment sector which provides most of the value added in shipbuilding. It is worth noting that ships are almost never physically imported, which makes the enforcement of patents very difficult). European yards are world leaders in the export of military vessels and dominate the markets for conventional submarines and fast attack vessels. As shipbuilding contracts are almost entirely priced in USD, a strong Euro is often seen as a handicap by EU shipbuilders. Historically, the industry has suffered from the absence of global rules and a tendency of (state-supported) over-investment due to the fact that shipyards offer a wide range of technologies, employ a significant number of workers and generate foreign currency income. Shipbuilding is therefore an attractive industry for developing nations. Japan used shipbuilding in the 1950's and 1960's to rebuild its industrial base, Korea made shipbuilding a strategic industry in the 1970's and China is now in the process to repeat these models. As a result the world shipbuilding market suffers from low profit margins, trade distortions and generally wide-spread subsidisation. Therefore, major players decided in October 2002 to launch a new round of negotiations to address both unfair pricing practices as well as subsidisation in order to restore normal competitive conditions in the world-wide shipbuilding

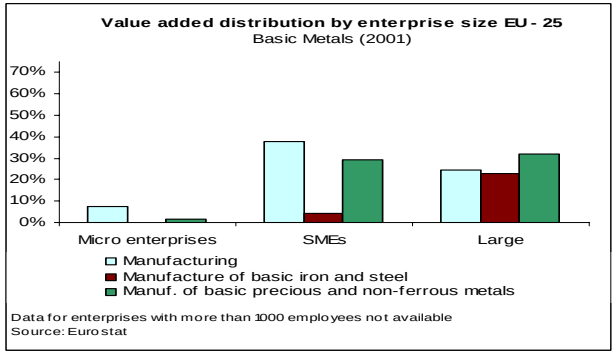
	market. Efforts to address these problems in the OECD have not yet been conclusive, although talks continue in a constructive way. The very close deadline to conclude the negotiation (December 2005) and the acceleration in term of meetings and input is expected to have a positive impact. The Community's efforts to bring Korean shipbuilding subsidies to the WTO have given a mixed result. The Panel found that the Korean Export/Import Bank had indeed, in numerous individual cases, provided **prohibited export-contingent subsidies** to Korean shipyards. The Panel did not, however, follow the Community as regards the systemic subsidisation through Korean government practices (via the public-owned banks) or the government-orchestrated bail-outs of bankrupt yards and gave Korea the benefit of the doubt, despite a wealth of circumstantial evidence. Obviously, the available WTO instruments are not perfectly well suited to address the complexity of shipyard subsidies in Korea (and elsewhere) and make the need for a specific Agreement even stronger.
EMPLOYMENT AND REGIONAL DIMENSION	90% of the employment in EU shipyards (new constructions) has been lost in the last 30 years (the drop is 75% for new building and ship repair combined), although the actual shipbuilding output has increased. This indicates the dramatic productivity increases achieved. A European social dialogue was set up in 2003 enabling the social partners to address major challenges such as economic and social management of restructuring, vocational training and the improvement of the sector's image to attract qualified younger workers.

* Nace (not applicable)

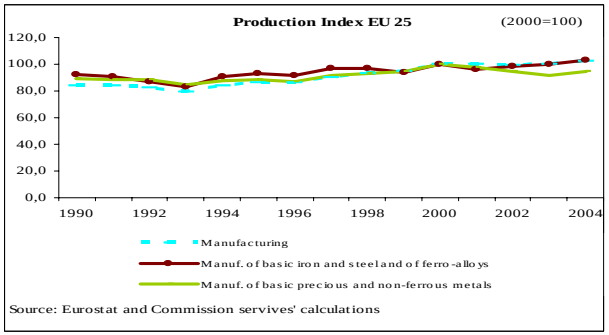
STEEL



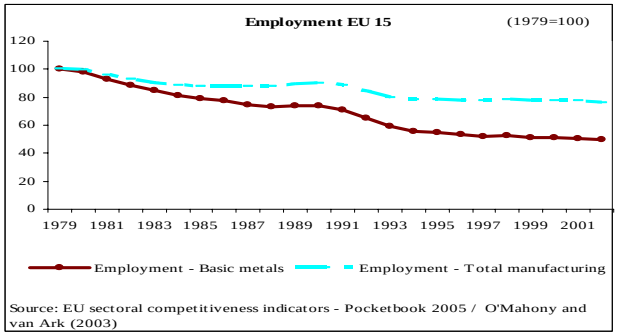
Source: EU sectoral competitiveness indicators - Pocketbook 2005



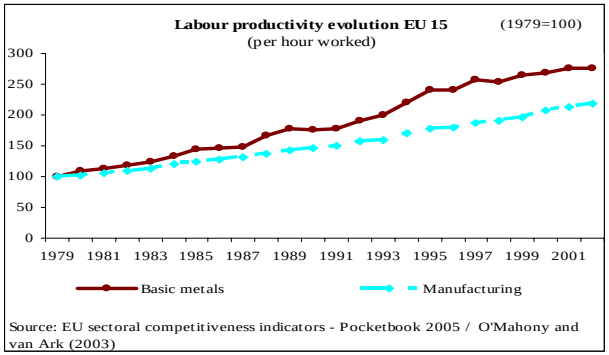
Data for enterprises with more than 1000 employees not available
Source: Eurostat



Source: Eurostat and Commission servives' calculations



Source: EU sectoral competitiveness indicators - Pocketbook 2005 / O'Mahony and van Ark (2003)



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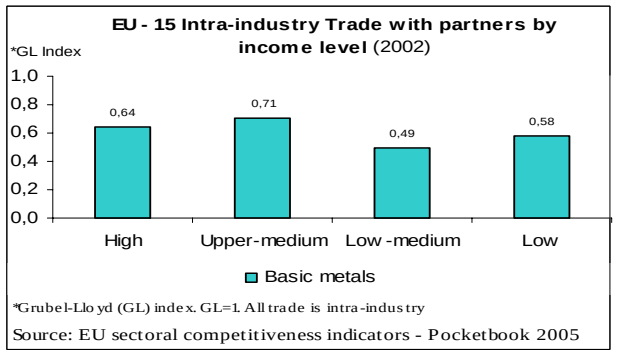
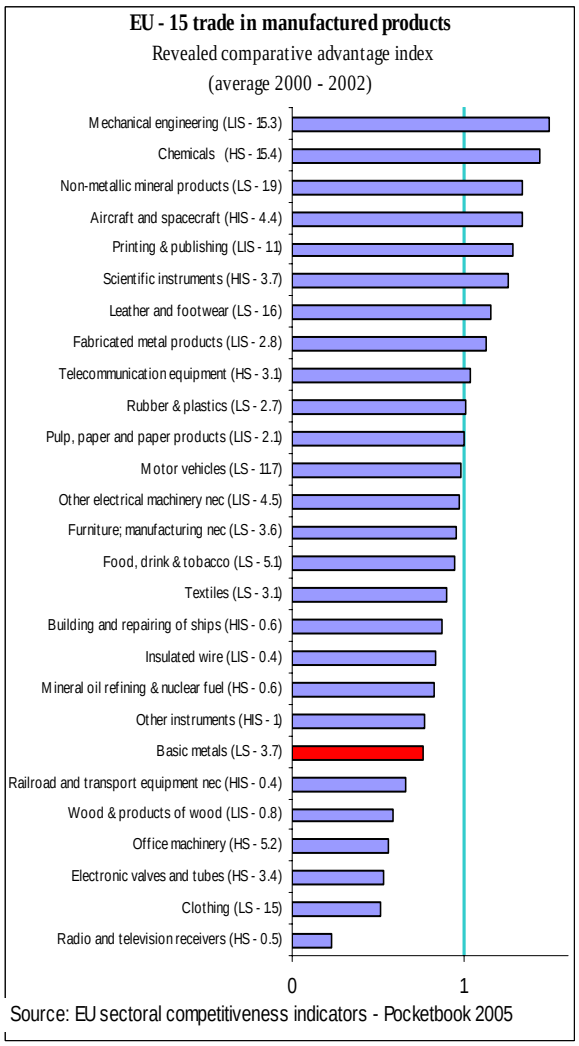


*Grubel-Lloyd (GL) index. GL=1 All trade is intra-industry

Source: EU sectoral competitiveness indicators - Pocketbook 2005



Source: EU sectoral competitiveness indicators - Pocketbook 2005

STEEL
COMPETITIVENESS ASSESSMENT

From 1998 to 2004, the steel industry has grown in most dimensions, including tons produced (6%), turnover (44.7%) and added value (40%), while employment has fallen (12.5%). The EU average productivity level is estimated at 560 tons per man and year. With however still a substantial difference between EU 15 and the new Member States. The challenges of EU steel industry are linked to the cost and availability of inputs (raw materials, energy, and labour) and to the competition of third countries producers operating in a different legislative framework. A very large part of the necessary iron ore, coal, and energy is imported, while ferrous scrap is sourced within the EU. The iron ore market is dominated by 3 producers controlling 75% of the world trade, and in 2005 the industry had to accept a 71.5% price increase. Worldwide, regional differences in price are mainly related to transport costs. The strengths of EU competitiveness are based on the high quality and added value given by the integration, organisation and efficiency of production, skilled manpower, and innovation. Nevertheless, the irruption of China in the market has pushed input prices to record levels, which could impact on EU competitiveness.

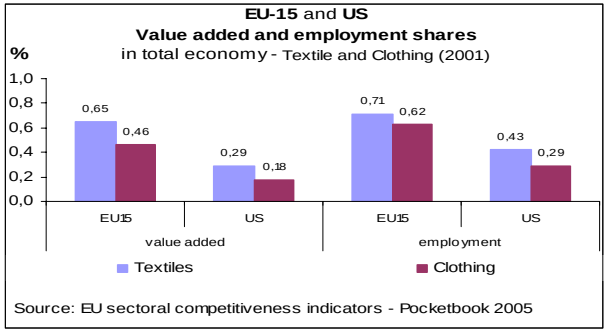
KNOWLEDGE	EU steel production is technology intensive and is highly innovative. Only 30% of the steel products offered to the market today existed ten years ago. However, the industry is reaching its improvement limits, notably in the fields of emissions and energy consumption, and so the need to support research into new technologies is urgent. The Steel Technology Platform (STP) and the Research Fund for Coal and Steel (RFCS) promoted by the EU aims at supporting research in the steel sector. Amongst the proposed topics included in the Strategic Research Agenda of the STP is the reduction of greenhouse gas emissions in view of meeting the Kyoto protocol. The steel industry is one of the biggest CO2 producing industries (1.8 ton of CO2 / ton of steel). Over the past 40 years, energy consumption and CO2 generation in the European steel industry have decreased by 50% and 60% respectively. During the 90's the EU steel industry achieved a decrease of the CO2 emissions of 18%. Today the CO2 emissions per tonne of steel represent almost the theoretical limit for the process. . The risk that European steel producers could see a loss of business to non EU competitors which are not subject to any CO2 emissions limitations is a key competitiveness factor. The skills of the European labour force are one of the competitive advantages of this sector in relation to its competitors. The skill problem for the European steel industry is related to the structural change and the technology break the sector is facing. There is a need for development of new competencies, namely in the area of new engineering fields and managerial skills. A need of a continuous training is related to this. There will be a demographic problem in the present working population in the steel sector, as many people will retire in the next 10 years. The same applies to the situation in science and technical universities related to the sector.
COMPETITION	The market is mature and concentrated. The consolidation of the EU steel industry is well advanced, and the 2 top world steel-producing companies are in the EU. More concentration is nevertheless expected, driven by the need to finance the increasing cost of innovative and environment-friendly technologies. The sector is squeezed between even more concentrated upstream industry (iron ore) and downstream clients (highly concentrated in certain markets e.g. cars). Barriers to entry are very high as steel production is very capital intensive, the minimum economic scale is high and investments are very specific. The sector is subject to special state aid legislation and currently only aid for closing down a plant is allowed. The industry in EU

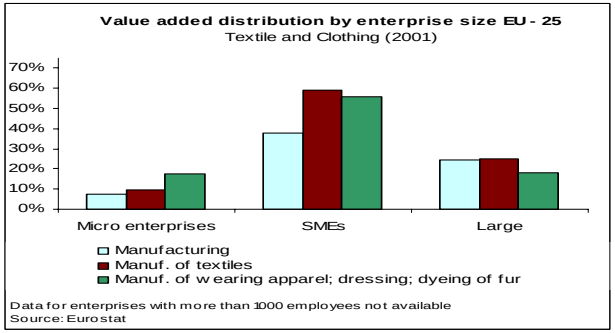
	15 has completed its restructuring since many years, while the restructuring in the new Member States needs still to be finalised. The Commission closely monitors the progress achieved and the implementation of the approved restructuring programmes so as to guarantee a global integration and the medium term viability of their national steel industry. Annual reports on progress achieved in steel restructuring in the Czech Republic and Poland are adopted by the Commission. The second monitoring report has been produced in July 2005. In Bulgaria and Romania restructuring programmes of the steel industries have been approved and are monitored by the Commission.
REGULATION	Main horizontal legislation is environmental (e.g. IPPC directive) and in the area of health and safety. Most of the legislation is of EU origin. Application of environmental legislation (e.g.waste) in Member-States is far from uniform and can create distortion on the market.
ENVIRONMENT	The following pieces of environmental legislation affect the steel industry specifically: Directive 94/62/EC on packaging and packaging waste, Directive 96/61/EC on integrated pollution prevention and control (IPPC), Directive 2002/95/EC on the restriction of certain hazardous substances in electrical and electronic equipment, Directive 2003/87/establishing a scheme for greenhouse gas emission allowance trading within the Community, Proposal for a regulation concerning the Registration, Evaluation, Authorisation, and restriction of Chemicals (REACH). The issues related to environment are: i) steel is one of the most recycled products in the world. More than 40% of EU steel is produced from steel scrap. Under EU legislation however, steel scrap is classified as waste, and its management and shipment are regulated within the framework of the waste legislation; similar consideration is valid for certain by-products (e.g. slag) from steel industry; ii) steel industry is concerned by the air quality legislation, notably the first and the fourth daughter directive to the Air Quality Framework Directive relating to particulate matter and As, Cd, Hg, Ni, PAH in Ambient Air (AQDD) respectively, and is participating actively to the CAFE (Clean Air for Europe) programme; iii) the steel industry is an important industrial emitter of CO2 in the EU, accounting for around 30% of all industrial CO2 emissions. Under the existing technology, 1,8 ton of CO2 is emitted and 16 to 19 GJ are necessary to produce one ton of steel. During the Kyoto reference period, steel industry made very significant efforts and reduced its carbon dioxide emissions by 18%. As fossil fuels and energy in general represent significant costs in steelmaking and are in large part imported, the EU steel industry has always worked hard at reducing its energy consumption. Nevertheless, chemical and physical laws are limiting further significant reductions on the basis of existing technology; iv) according to industry, REACH might impose an administrative burden and create competitive disadvantages. Recent impact studies have demonstrated that the impact on the ferrous and non-ferrous metals industries is manageable, but have also indicated that further clarification is required, specifically on ores, scrap metals and by-products such as coke; v) under the IPPC directive, BREFs (Best Available Technique Reference Document) have been drafted for steel production, steel processing, surface treatment for steel products, smitheries and foundries, and the documents are fair and balanced. Revisions are scheduled for steel and for the ferrous metal processing by the end 2005. The steel industry has been fully involved in the preparation and drafting of the BREF. Moreover, the IPPC framework is seen as a good forum for dealing with environmental policies, to minimise the risk of overlapping or contradictions between different directives. Three items of the environmental legislation will be the main challenges for the industry: 1) the EU Emission Trading Scheme (ETS) Directive as energy and fossil fuels represent significant costs in steelmaking, 2) the REACH legislation and 3) the revision of Air Quality first daughter directive on fine dust.
EXTERNAL DIMENSION	The European Union is the second biggest world manufacturer (18%), far ahead of Japan and the US. China is largely the first

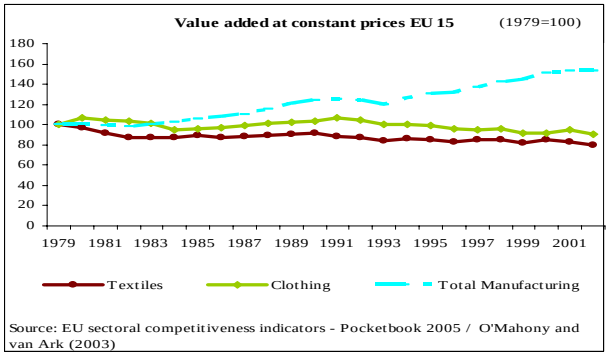
	world producer and consumer (30%). India and Brazil show important growth rates. The EU steel market is the most open in the world, and in 2004 all tariffs were fully eliminated following the 'zero for zero' agreement for steel under the Uruguay round. Consequently, the main external challenges are subsidies, and access to raw materials, and the steel sector is anxious to see the restart of the Doha round. The difficulties of access to third markets in 2003, troubled by distorting practices (the US safeguard and the reactions of its partners, anti-dumping cases, countervailing duties) continued in 2004, due to tariff and non-tariff barriers, (i.e. duty to scrap exports from Russia and Ukraine), and protectionist legislation in developing countries. In this situation, the US and the EU largely employed trade remedies against imports from low-priced producers. With Russia, Ukraine, and Kazakhstan, the EU signed bilateral agreements for steel products defining trade rules and quotas. Special trade agreements also exist with Candidate Countries, the Balkans and Turkey.
EMPLOYMENT AND GEOGRAPHICAL DIMENSION	Integrated steel production facilities where initially located near to the EU iron ore and coal mines, traditional production clusters being Saar, Ruhr, Lorraine, Midland, Wallonie, Silesia. Starting from the '70, due to the development of cheaper iron ore and coal production in developing countries, and the low overseas transport cost, local raw material became rapidly non competitive and mines have been progressively closed. As a result, new steel plants were located along coast near to harbour to handle imported raw materials and energy. Today, the non-coast steel facilities suffer of additional costs impacting their competitiveness. Minimills on the other hand are located near to industrial basins, where scrap is generated and client industry is located. Minimills produce 35% of the EU steel output.

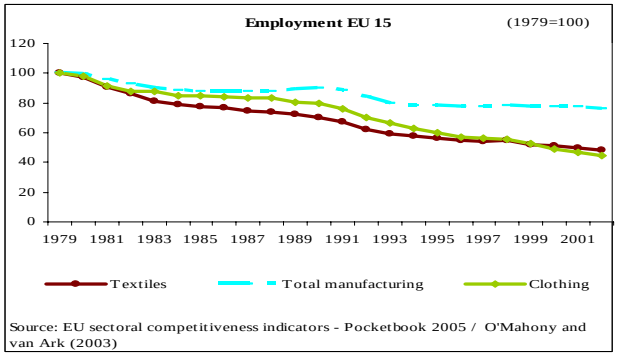
* Nace 27

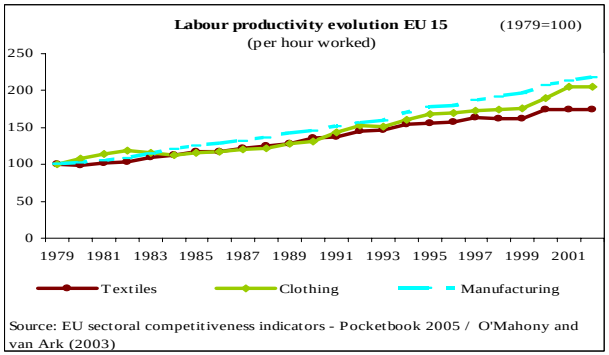
TEXTILES

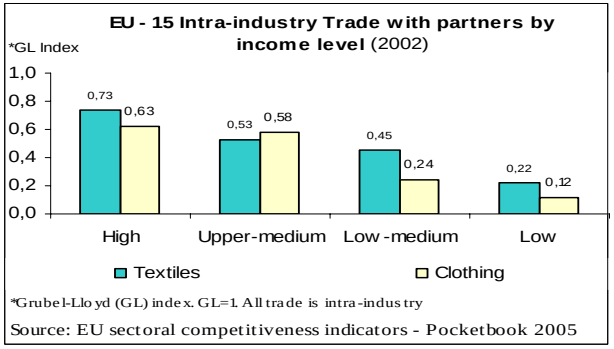

EU-15 and US
Value added and employment shares
in total economy - Textile and Clothing (2001)
%
1,0
0,8
0,6
0,4
0,2
0,0
0,65
0,46
0,29
0,18
0,71
0,62
0,43
0,29
EU15
US
EU15
US
value added
employment
Textiles
Clothing
Source: EU sectoral competitiveness indicators - Pocketbook 2005

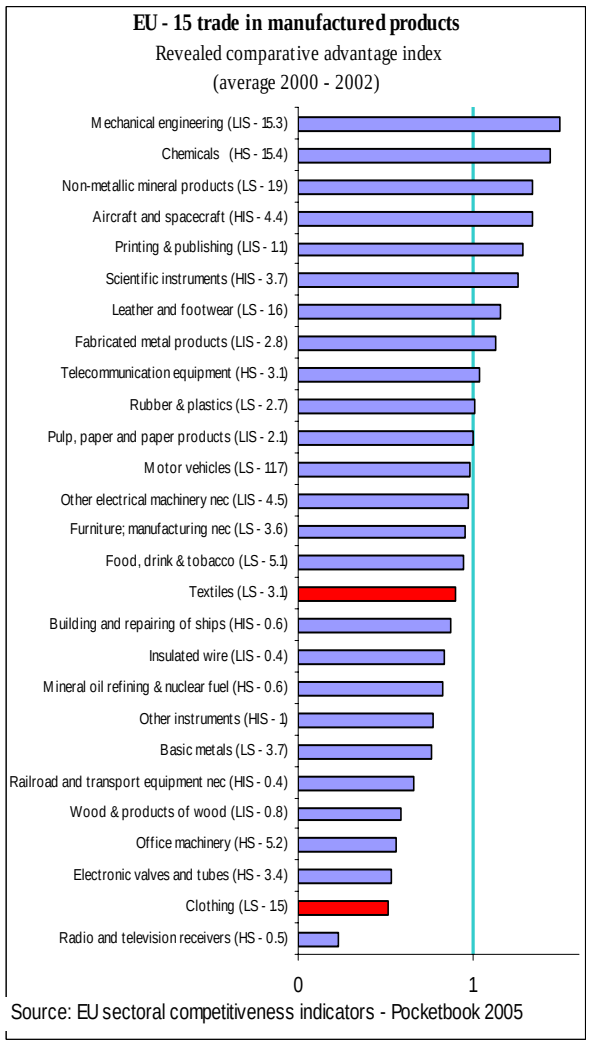

Value added distribution by enterprise size EU - 25
Textile and Clothing (2001)
70%
60%
50%
40%
30%
20%
10%
0%
Micro enterprises
SMEs
Large
Manufacturing
Manuf. of textiles
Manuf. of wearing apparel; dressing; dyeing of fur
Data for enterprises with more than 1000 employees not available
Source: Eurostat


Value added at constant prices EU 15
(1979=100)
180
160
140
120
100
80
60
40
20
0
1979 1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001
Textiles
Clothing
Total Manufacturing
Source: EU sectoral competitiveness indicators - Pocketbook 2005 / O'Mahony and van Ark (2003)


Employment EU 15
(1979=100)
120
100
80
60
40
20
0
1979 1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001
Textiles
Total manufacturing
Clothing
Source: EU sectoral competitiveness indicators - Pocketbook 2005 / O'Mahony and van Ark (2003)


Labour productivity evolution EU 15
(1979=100)
(per hour worked)
250
200
150
100
50
0
1979 1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001
Textiles
Clothing
Manufacturing
Source: EU sectoral competitiveness indicators - Pocketbook 2005 / O'Mahony and van Ark (2003)


EU - 15 Intra-industry Trade with partners by income level (2002)
*GL Index
1,0
0,8
0,6
0,4
0,2
0,0
0,73
0,63
0,53
0,58
0,45
0,24
0,22
0,12
High
Upper-medium
Low-medium
Low
Textiles
Clothing
*Grubel-Lloyd (GL) index. GL=1 All trade is intra-industry
Source: EU sectoral competitiveness indicators - Pocketbook 2005


EU - 15 trade in manufactured products
Revealed comparative advantage index
(average 2000 - 2002)
Mechanical engineering (LIS - 15.3)
Chemicals (HS - 15.4)
Non-metallic mineral products (LS - 19)
Aircraft and spacecraft (HIS - 4.4)
Printing & publishing (LIS - 11)
Scientific instruments (HIS - 3.7)
Leather and footwear (LS - 16)
Fabricated metal products (LIS - 2.8)
Telecommunication equipment (HS - 3.1)
Rubber & plastics (LS - 2.7)
Pulp, paper and paper products (LIS - 2.1)
Motor vehicles (LS - 11.7)
Other electrical machinery nec (LIS - 4.5)
Furniture; manufacturing nec (LS - 3.6)
Food, drink & tobacco (LS - 5.1)
Textiles (LS - 3.1)
Building and repairing of ships (HIS - 0.6)
Insulated wire (LIS - 0.4)
Mineral oil refining & nuclear fuel (HS - 0.6)
Other instruments (HIS - 1)
Basic metals (LS - 3.7)
Railroad and transport equipment nec (HIS - 0.4)
Wood & products of wood (LIS - 0.8)
Office machinery (HS - 5.2)
Electronic valves and tubes (HS - 3.4)
Clothing (LS - 15)
Radio and television receivers (HS - 0.5)
0
1
Source: EU sectoral competitiveness indicators - Pocketbook 2005

TEXTILES
COMPETITIVENESS ASSESSMENT

The Textiles and Clothing sector (T/C) accounts for 4% of EU manufacturing production and employs over 2.5 million workers with important regional concentration. There has been a steady decline in value added since 1995 (-1.2% per year) and an even stronger decline in employment (-3%), but accompanied by productivity gains (2%). Because of its labour intensive character in part of the sector, the T/C sector has around half the productivity of manufacturing as a whole, in the EU as in all the MS, with textiles displaying much higher productivity than clothing due to the respective capital intensities. Within the EU productivity varies widely; it is lower than the average in all NMS. Personnel costs in the T/C industry are around 40% lower than in the manufacturing sector in general. However, huge labour cost differentials with the main competitors cause lower price-competitiveness than in manufacturing. The sector has been adopting ***new technologies*** *at a fast pace, including new production techniques and – in some segments of the sector – ICT, and has a leading role in the global market in the development of new products.*

The competitive advantages of the EU production lie in the ***high quality of production*** *in technical, aesthetic and fashion-related terms; the development of highly demanded brands with a strong image; and the speedy, flexible and reliable delivery of products. Competitiveness also depends on the capacity of T/C enterprises to go beyond their traditional clusters and* ***efficiently integrate in an international supply chain****.*

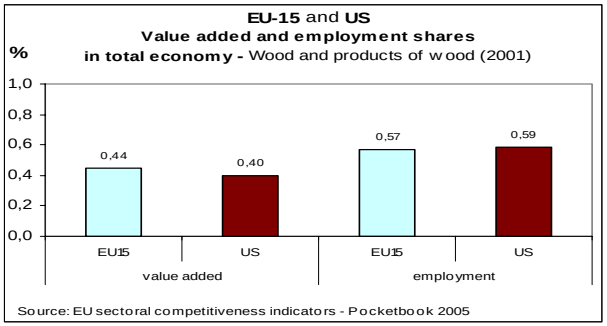
KNOWLEDGE	Key technological challenges: **new materials** and processes to develop speciality products from flexible high-tech processes; **establishment of expansion of textiles as raw material of choice in many industrial sectors** and new application fields; **developing technologies for customisation**, personalisation, intelligent production, networking, logistics and distribution to promote new business models that would enable industry to move up the value chain. In highly specialized products and processing methods, skills become very important. Many enterprises are experiencing difficulties in recruiting staff with specialized skills, such as a traditional textile knowledge-base, and there is a particularly acute need for ICT and e-business skills, which are becoming increasingly indispensable. The HLG on T/C (set up by the Commission in early 2004 with a mandate to formulate concrete recommendations to improve the competitiveness of the T/C industry) recommends focusing research efforts on these three main pillars. At EU level, projects are already underway covering all three pillars. Led by industrial and academic stakeholders, a Technology Platform is currently preparing a Strategic Research Agenda. Of particular interest to the sector is the proposal for **origin marking legislation**. The sector is in favour of compulsory marking of origin for imports.
COMPETITION	Since 1990, the Commission has approved 10 mergers, out of which 4 have been subject to remedies, and one has been prohibited. Only some textiles groups (brand names) are looking to consolidate vertically in order to be able to get closer to consumer. Small flexible clustered units appear more able to maintain their competitive position. The only exception is the synthetic fibres sub-sector where a gradual consolidation process with mergers and acquisition is taking place both at EU and international level. The aim of these operations is to rationalize the industrial production, to develop new products (technical textiles) and specific brand names. Of late, the industry has raised questions about the competition situation in the textile and clothing distribution sector (large retailers). Given the

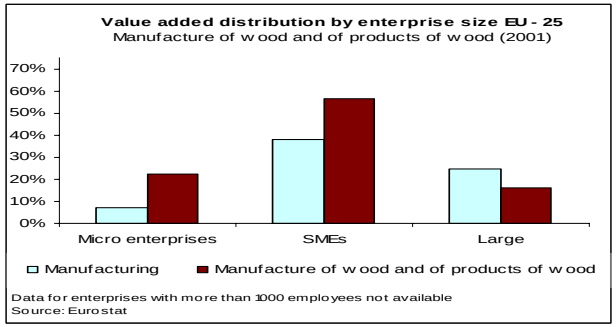
	decline of production and excess capacity in the synthetic fibre sub-sector, no state aid to this sub-sector is allowed under the Multisectoral Framework.In view of a similar excess in production capacity and the associated risk of market distortion due to uncontrolled state aid, the industry has been advocated for a stricter state aid policy for the entire textile sector.
REGULATION	Specific regulatory issues in the textile and clothing sector aim mainly to increase information about the fibres used in the textile products and to provide an appropriate level of health and consumer protection in the EU countries. The Directive 96/74/EC aims to provide coherent consumer information throughout the European Union by harmonizing the use of fibre names. The industry has problems with **protection of design and brands**. The implementation of the relevant legislation throughout the EU but also the enforcement of international agreements by EU trade partners needs to be improved. Furthermore, there is a need to raise the awareness of right-holders, in particular SMEs, on the existing possibilities to protect their rights, both in the EU and in third countries.
ENVIRONMENT	In addition to other more pressing competitiveness challenges, environmental issues remain a priority for the sector. One of the two main pieces of legislation at EU level affecting the textile and clothing industry is the **Integrated Pollution Prevention and Control (IPPC) Directive** of 1996, which includes installations for the pre-treatment or dyeing of fibres or textiles. The implementation of this Directive will speed up the modernisation process and lead to considerably less pollution by the affected installations. SMEs make up a significant part of all IPPC installations in Europe, and over 95% of textile and clothing companies. Given that the majority of SMEs are "vulnerably compliant" as far as the existing environmental legislation and regulations are concerned, as established by a study undertaken by the Commission. Member States may want to provide special support to operators who lack the resources to cope with the administrative and cost burden of the IPPC Directive. In general, from a textiles and clothing point of view, the various tools which already exist – including environmental management systems, labelling schemes, and improving the availability of information to all stakeholders – need to become more product-focused and user-friendly for the sector. For example, the Ecolabel for textile products is considered to be burdensome for companies to apply for, and lacking in visibility with customers and consumers. As well as EU-level action to improve these tools, further efforts by industry players and national authorities are needed to publicise and harness their potential to create competitive advantage for the sector at the same time as improving environmental performance. **REACH** is the other major environment-related concern for the sector. The textile and clothing industry is a highly intensive downstream user of the chemicals industry, and chemical substances provide an important source for its innovation and international competitive advantage. The business case study by EnviroTex / CAST (commissioned by DG Enterprise and Industry) points to potentially significant impacts in the sector, especially for SMEs. Relatively low margins on textile chemicals and limited possibilities to absorb or pass on the REACH costs would lead to an accelerated rationalisation in the textile chemicals portfolio. Specifically, a significant number of low volume textile chemicals of critical importance would become vulnerable to withdrawal from the market. Consequently, textile companies could face significant reformulation and adaptation costs and time-to-market problems. Furthermore, the workability problems related to the downstream user obligations, some of them specific for the textile sector could have an impact on costs and competitiveness. However, REACH could also bring business benefits and innovation through the increase in knowledge on textile chemicals.
EXTERNAL	Imports from China: China is the world T/C leader in terms of exports (40%) followed by the EU (29%) and the US (15%), though the

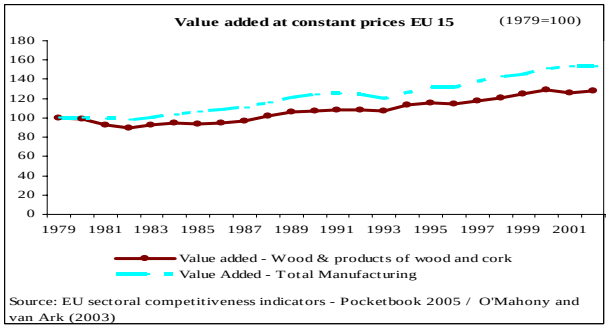
COMPETITIVENESS	EU leads in textiles. The EU external T/C trade balance has been deteriorating since 1999. China is now the origin of 22% of EU imports, increasing further since quota liberalisation. EU and China have recently agreed to control Chinese export growth until 2007 in order to secure a smooth(er) transition towards a liberalized trade market. **Market access**: Tariffs of most of our trade partners remain prohibitively high, including tariff peaks among OECD countries. Non-tariff barriers too require priority treatment as their incidence is growing and they are not efficiently tackled in the WTO. Relocation: The increased competitive pressure from Asia and the market power of multinational branding or retailing companies is pushing towards FDI or outsourcing of the whole production process, not just garment-making, mainly to China. Relocation is more limited when the industry is focused on quality upgrading. Development of the Euro-Mediterranian zone would enhance the competitiveness of T/C in the region. Furthermore, a successful and balanced outcome of the Doha Development Agenda is of paramount importance for the sector as it is the main avenue for improved market access in currently closed or highly protected markets. A **comprehensive and reciprocal tariff liberalisation** in the framework negotiations for the Association Agreement with the Mercosur is also one of the main future challenges of the EU's trade policy. Increased market access to emerging economies where middle classes are growing is of strategic importance, as these represent a quality-conscious market where the EU has the highest competitive advantage. **Increased attention to Corporate Social Responsibility (CSR)** in the sector can contribute towards establishing a level playing field in international trade and in promoting sustainable business relationships in the sector.
EMPLOYMENT AND GEOGRAPHICAL DIMENSION	Due to its labour intensive nature, the economic weight of the textile and clothing sector is higher in terms of employment than value added. At the level of the Union, textile and clothing **occupies around 8% of the industrial workforce**. There are important differences among Member States. In Lithuania and Portugal, T/C, represent close to 25% of the industrial employment. The percentages are similar or higher in the two accession countries Romania and Bulgaria which are highly dependant on T/C. In the new Member States in general, T/C employment is well above the 10% of the industrial work force, like in Italy and Greece. The importance of textile and clothing in national economies is often magnified by a **strong regional concentration**. Although regional data are not available for all EU countries, it is known that several regions concentrate a very high share of the national textile and clothing employment and production and are therefore heavily dependent upon this sector. In several EU regions, textile and clothing employment provides more than 10% - and in some cases more than 20% - of direct regional employment. The regions of Northern Portugal and the Flanders textile district concentrate close to 80% of their respective national textile and clothing employment. In Severocesky (CZ) and Macedonia (GR) this figure is around 50%. Catalonia (ES) with 40%, East Hungary with 36%, North-Rhine-Westfalia (DE) with 28%, Lombardy (IT) with 27%, North West and Yorkshire (UK) with 27%, and Rhone Alpes (FR) with 24% also concentrate a very significant part of the respective textile and clothing national employment. A European social dialogue was set up in 1999 enabling the social partners to address major challenges such as developing a code of conduct on fundamental rights linked to company competitiveness, improving the image and attractiveness of the sector, improving vocational training, promoting the selection of best value in public procurement or managing change in a context of rapid transformation.

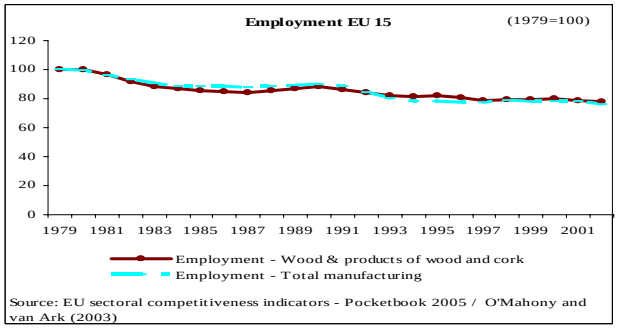
* Nace 17 and 18

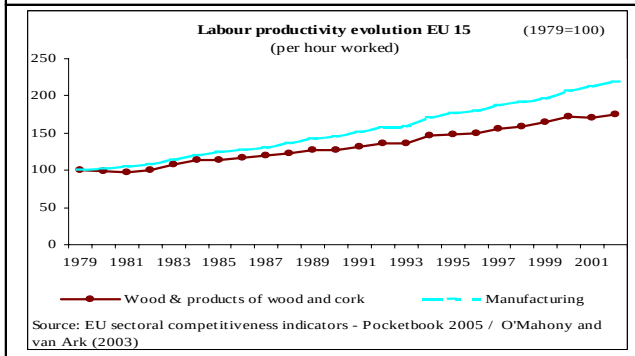
WOOD PRODUCTS

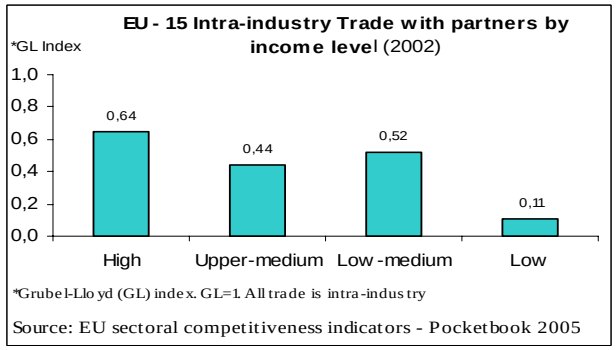


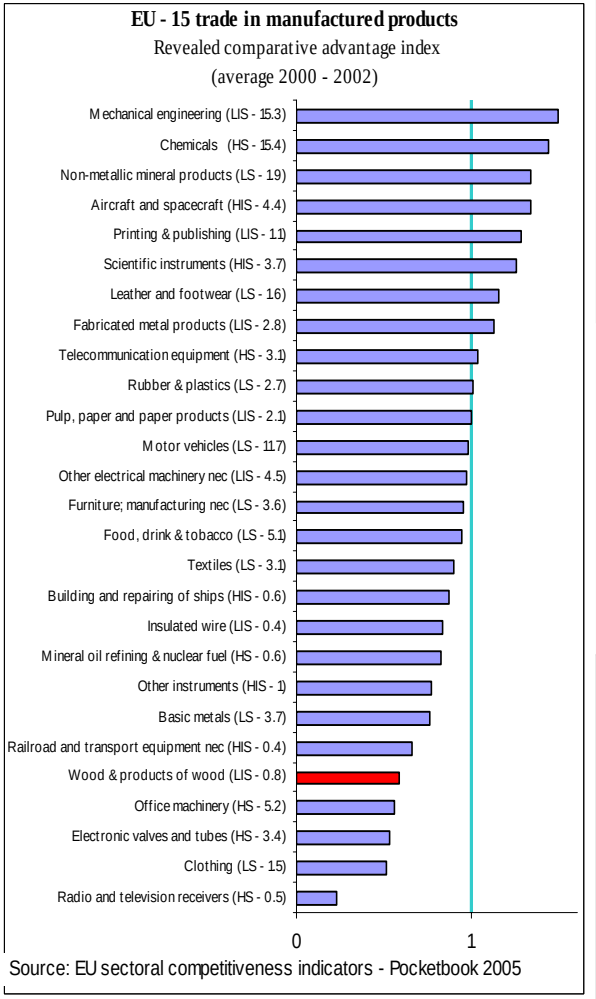












WOOD PRODUCTS
COMPETITIVENESS ASSESSMENT

Out of total EU manufacturing, the sector contributes 1.94 % of production output, 2.11 % of added value, and 3.49% of jobs through 131 000 enterprises. Production volume grew 15% between 1998 and 2002. Labour productivity has also been rising, largely through increased use of automation and information technology. This, together with the recruitment problems related to vocational education and poor image, has caused a steady decline in employment.

80% of wood for EU industrial processing and energy is supplied domestically, using only 65 % of annual EU forest wood growth. This level could be increased significantly without major environmental impacts, but the resulting wood would in many cases be too expensive for industry, as would any afforestation. In any case, even the continued availability at current levels will depend on public opinion the use of EU forests for wood production, as weighed against other societal requirements, such as nature conservation and recreation.

Among EU competitive strengths are the strong technology, know-how and skill base, and the proximity and access to one of the world's largest and most sophisticated markets. Competitive weaknesses relate to the EU lack of "wood culture", high factor costs, but globally set prices, all causing low profitability. This can sometimes be exacerbated by over-capacity. The industries main opportunities lie in expanding the use of wood by promoting wood as a lifestyle product, since the main internal threat is the increasing substitution by other materials, out of a failure to properly market the "green" properties of wood. Other advantages may be obtained from geographic clustering and other synergies between sub-sectors, as well as from participating in the supply chains from cost-competitive regions.

KNOWLEDGE	Although there is a skewed distribution of company sizes in all but the wood-based panels sub-sector, it can be said that the latter, together with the larger sawmills, harness advanced technology use, both for operational processes and process control systems. However, most of the technological development has been led by the machinery manufacturers and independent research centres, such as university departments or other dedicated establishments. In other areas, such as wooden construction products, much of the R&D lead over the last decades has been in N. America, with Europe only more recently developing its own programmes in these fields. Some of the R&D concenrns are being addressed by the Forest-Based Products Technology Platform.
COMPETITION	The sector is somewhat fragmented; the companies are mostly SMEs. Since 1990, only 7 mergers have been subject to Commission scrutiny and all of them have been approved. Over the last decade, a substantial amount of state aid has been observed to the sawmill and wood-based panels' sub-sectors in some Member States. For example, in the period 2000-2003 at least 147 M€ was accorded as aid in various forms to investments of which the total value was 462 M€. An overall view of the quantitative importance of such state aid is difficult to get because only big state aid cases need to be notified to the Commission by Member States. In any case, many of the cases notified to the Commission have been important, in particular concerning the new East German Länder under the Multi-sectoral Framework.
REGULATION	There is little sector-specific EU regulation, the main part being phytosanitary directives for the import of roundwood and the import and export of wooden packaging. The sector and its performance are strongly affected by many horizontal requirements, especially for environmental parameters.

	The wood resulting from agro-forestry and fuelwood development under CAP reform may contribute more to energy than wood for processing. Wood-based products are commonly used in the construction sector and are to a certain extent competing with products made from other materials. Falling under the Construction Products Directive, the performance requirements, which are not material-based, need to be expressed in harmonised European Standards and for innovative products in European Technical Agreements. The preparation of standards is delayed (overall only 200 out of 500 adopted) and needs to be speeded up to provide fair competition between products made from different materials. The acceptance of harmonised European standards and products in conformity with these standards are put in question in certain Member States, thus favouring the status quo.
ENVIRONMENT	The sector's performance is strongly influenced by many horizontal requirements, affecting the forest-based industries as whole. For wood, the most important are: i) forest resources and raw materials: FLEGT, Strategy on Bio-diversity, Natura 2000; ii) renewable energy: national RES implementation, Community Biomass Action Plan; land use planning. iii) production processes: climate change - emissions trading, linking directive and post 2012 targets, thematic strategies – recycling; sustainable use of resources, waste issues, IPPC e.g. surface treatments BREF, discharges to air, water , VOC Directive, dangerous substances, iv) Products and use: eco-labels, Integrated Product Policy, directive on packaging and packaging waste.
EXTERNAL COMPETITIVENESS	European manufacturers have experienced difficulties on foreign export markets e.g. classification of wood for structural purposes in Japan where US standards were taken as a model. Reference to European or ISO standards would solve the problem, and promotion of these standards would help the industry. In China similar problems are being addressed through the EU industry's "European Wood Initiative", which promotes EU wood export interests in the face of strong Canadian influence. Compared with other sectors, trade is relatively less important in the wood sector: A rather low proportion of the sector's goods are exported (7.5% vs. a 24% manufacturing average), contributing to less than 1% of total manufacturing exports and 1.5% of imports; the overall trade balance has been negative in recent years, but some sub-sectors show net exports. The main competition comes from China, Russia, south-east Asia and Latin America, based on established and low-cost resources. China is now the world's fastest growing producer and consumer of wooden products. In addition to the low labour, energy and wood costs available to many Chinese manufacturers, market prices may be influenced by government intervention to promote exports. Together, these easily compensate for the long and often double haulage costs (e.g. EU beech wood exported to China, processed there and shipped back as manufactured produce). Recent expansion of niche export markets has occurred into USA and Japan (AT, FR, SE, FIN). There is also big market potential in India, but high import tariffs impede this from developing yet. Access to raw materials is one of the key issues. Access to the vast and competitively priced Russian (temperate and boreal coniferous and non-coniferous) wood reserves are increasingly necessary, even though the very political and other stability which makes that possible may cause relocation in the longer term of some of the EU processing industry to Russia. Concerns about the procurement of many types of tropical and some boreal and temperate woods from legal and sustainable sources are being addressed through the EU's FLEGT Action Plan.

EMPLOYMENT AND GEOGRAPHICAL DIMENSION	In 2003, most employed workers in the EU-15 wood and wood products industry were low-skilled workers (around 49%) and medium-skilled workers (around 41%) industry. The high-skilled workers only accounted for around 9% of the employed workforce. The European social dialogue within this sector since 2000 gives a scope for action to the social partners. The social dialogue enables the social partners across Europe to address the common challenges facing their sector in a consensual and innovative way. The challenges being addressed by them are: the development of a sectoral 'ethics' through the promotion of corporate social responsibility and fundamental rights; the promotion of sustainable development; promoting the use of wood in construction and other sectors (e.g. renewable energy); education and training.

* Nace 20.1, 20.2, 20.3, 20.4 and 20.5