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# The Futures Project

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## The Competitiveness Map

Avenues for Growth

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## Executive Summary

Europe's competitiveness is rooted in its ability to sustain the production and consumption of high value-added products and services, based on an efficient division of labour within Europe and with the rest of the global economy. Current technological (e.g. ICT, life sciences), economic (e.g. Single Market, globalisation) and political (e.g. enlargement) transformations are affecting Europe's competitive position in the world economy, but are also driving a restructuring process of its economic geography.

Performance in terms of trade and exports is widely recognised as an important indicator of the competitiveness of nations and regions, and as a driving force towards higher performance that enables specialisation benefits due to the global division of labour. Nevertheless, extra-EU exports amount to only 10% of EU-15 GDP. To explore future opportunities and challenges to competitiveness requires that we look in particular the supply and demand sides of the domestic economy (i.e. at trends in consumption and emerging strengths in production) as well as spatial patterns of specialisation, legal and regulatory framework conditions, the availability of high-performance infrastructures, or the quality of the R&D system. Europe needs to continue to offer good conditions for investment in activities with a high added value as well as for a highly skilled labour force, in order to be able to maintain and improve the present standard of living, and produce the wealth necessary to cope with the financial challenges of the future.

Europe will have to deal with new challenges and opportunities in three main respects. Firstly, these are the types of goods and services that will be produced in Europe ("What"), secondly the locations of their production ("Where"), and thirdly the forms of organisation in which production will take place ("How").

What to produce in Europe?

### Beyond high-technology: Making more of the value of intangibles

In a knowledge-based and customer-driven economy, it becomes increasingly important to integrate high-technology into complex goods and services which are geared towards individual user requirements. In the future, most added value is likely to come from this intelligent integration rather than from high-tech components *per se*. While Europe is frequently regarded as lagging behind in certain high-tech areas, especially in basic segments of the information and telecommunications industry, it is highly competitive in a broad range of sectors which require the intelligent use and embedding of high-technology. In the emerging era of ubiquitous computing, "embedded" devices will have an important role to play across all sectors, whereas the basic development and production of ICT hardware is believed to be likely to become a commodity. Under these conditions, it will be crucial to remain at the forefront of scientific and technological progress, but this will not be enough. In addition, non-codified know-how, e.g. in terms of creativity and design skills, but also copyrights, standards and brand-names, will acquire an even more important role than at present. This implies that R&D should look beyond high-technology *per se*, and focus more on its integration and application in products and services.

## The European lead markets: first-class producers and first-class consumers

What is going to be produced in the future will depend to a large extent on the trends and developments in the domestic markets. The ageing European population will alter the structure of demand and consumption, just as well-informed consumers will increasingly push for healthy food and 'environmentally sustainable' products, purchased through a trustworthy system of electronic commerce. Other key trends identified by the experts refer to the growing value of non-material parts of consumption (especially a move towards knowledge products), the quest for superior quality, and a higher degree of customisation of goods and services. The large European home market with its demanding consumers is developing into a good proving ground for products to meet these trends in consumption.

The trends identified on the demand side and the strengths on the supply side of the European economy are converging in many respects. The demand for high quality, customised goods and services matches the ability on the production side of the European economy to bridge between high-tech on the one hand and user-oriented design on the other. Together with the size of the European market, these characteristics are conducive to Europe's developing into a "global lead market" in many sectors, i.e. into a market which offers the best combination of size, demanding and wealthy consumers, and an advanced R&D systems. This is an important development because key enterprise functions from R&D to marketing tend to be located close to these lead markets.

Europe is already a leading location in a number of areas which have been driven by the needs and requirements of its consumers and citizens. For example, it is unlikely that we would have such a highly competitive environmental service industry if European societies had not been so concerned about the environmental impacts of the goods and services they consume. This lead market function could also become highly relevant in those areas, where much of future demand growth is expected to come from, e.g. with respect to an ageing population or intelligent housing.

Governments can play a role in stimulating these lead markets through their expenditures on health, education, and social welfare, but also through the adoption of innovative technologies, services and internal organisational procedures. If companies, for example, can file their documents to public administration easily by the Internet rather than by going through cumbersome paperwork, this would be an incentive to introduce this technology quicker.

## Growth in services: more personal attention and knowledge-intensity

Services represent a significant and growing part of EU economies. Many of the growth sectors in services are still to a large extent of a non-transferable nature (e.g. most personal services, health, public services, many utility services). They require a good familiarity with the local circumstances and requirements, and cannot be easily transferred elsewhere. What matters with respect to competitiveness is the efficiency (and thus the productivity and cost) with which these non-tradable elements of services can be made available in the economy. Not least due to constraints of public budgets, new innovative incentive mechanisms are needed to improve the efficiency of these services. Mechanisms such as quasi-competition between different public and private providers could help contain the costs while maintaining the high standards of public services which make up one of the particular qualities of European society.

New types of services have emerged under the heading of information or knowledge-intensive services which tend to be highly productive, innovative and increasingly transferable (e.g. knowledge-intensive business services, financial services, e-commerce). In order for them to grow further it is necessary to provide reliable legal and regulatory framework conditions. This is clearly

an issue for e-commerce, where authentication and standards are crucial preconditions for public acceptance.

Where to produce in Europe?

Relocation: investment to enter the largest consumer market of the world

Global investment patterns reveal a growing interest in Europe as a world region to invest in. In view of the trend towards customisation and flexible automation, proximity to the European consumer markets is expected to become an argument of growing importance. Moreover, the declining share of labour costs in many traded products and the reduction of the wage gap make the relocation of production facilities, for example to East Asia, less interesting. Asian as well as Latin American countries remain interesting destinations for investment for strategic reasons, namely in order to have a foot in large future growth markets. However, even in this respect, one should take into account that Europe will remain the largest and probably the most sophisticated consumer market in the world for quite some time.

The general economic framework conditions in Europe are expected to improve further with the removal of the remaining barriers to the Single Market and the Economic and Monetary Union. For Europe to maintain a lead market function in technology and skill intensive sectors, it is also crucial to host leading R&D institutions and offer good opportunities for the most creative and entrepreneurial brains. While the diversity of national innovation systems in Europe represents an advantage in many respects, it can be expected that industrial research activities in an increasingly integrated market will tend to operate on a European scale, too.

A new division of labour in Europe: exploiting complementarities

Also within Europe, the economic geography is changing. Most obviously, the enlargement process will change the division of labour among European countries, leading to structural adjustments in industry, services and agriculture in both Western and Eastern Europe. The key issue for Europe's competitiveness should be seen in the opportunity to exploit complementary comparative advantages in an enlarged Union. In the short to medium term there is scope for the Central and Eastern European countries to build on their comparatively low labour costs and a good skills base. However, this would not be a promising strategy from a longer-term perspective. Wages and standards of living are expected to rise in the course of the enlargement process. A broadly based modernisation strategy towards a more technology and skills-intensive economy – though with differences across countries – is regarded by most experts as a necessity. Infrastructures, stable political institutions and an R&D and education system to improve the skills base are basic pre-conditions for such a modernisation process.

The renewal of the economy in the Central and Eastern European Countries (CEECs) has until now been fuelled by significant amounts of foreign direct investment. A second wave of domestic investment will be needed to sustain the transformation process, and to expand the present isolated poles of high productivity to the countries and regions at large. The clustering of industrial activities, research and education institutions around such specialised poles represents a possible strategy, and it could benefit from the experiences made elsewhere in Europe. Such an approach could build the new possibilities offered by ICT in order to connect industrial locations in the CEECs “virtually” to their partners in Western Europe, as pioneered e.g. by the automotive industry. Regional and economic policies are thus confronted with the difficult task of helping to

close not only the economic gap between East and West, but also the gaps among and within the accession countries.

The upgrading of the economic tissue also implies more competition between new industrial locations in the accession countries, and established sites in the current EU. It is important to be aware of these potentially difficult repercussions on the economies of Europe as a whole, even if from an aggregate perspective European competitiveness will benefit from a higher degree of specialisation and division of labour. Already now, the relocation of parts of the production chain in car manufacturing to the Central and Eastern European countries has caused concern among workers in Germany, France and Spain

#### Strategies for space and content: customisation and decentralisation

There are first indications of trends towards a stronger decentralisation of economic activities in the EU, but taking place under the roof of larger, often even global, companies (“global localisation” or “glocalisation”). This trend is expected to be reinforced in the future by the further customisation of goods and services and by the new possibilities offered by information and telecommunications technologies, even if there is still some uncertainty as to how far concentrating effects in the application of ICT (i.e. spatial vicinity matters also for information-based industries) will outweigh their potential for decentralisation. Experts agree that the traditional comparative advantages of large agglomerations (e.g. based on access to rivers and ports, natural resources) will be increasingly superseded by the growing importance of the local knowledge and skills base for an information-based economy. This offers in principle new development possibilities for disadvantaged locations, and challenges the established ones. Particularly for the less favoured regions there is “a window of opportunity” in which to make a leap forward in economic development by moving quickly towards an information economy. An upgrading of their economies is also timely because EMU and the Single Market have brought about more competitive conditions for industry and less room for manoeuvre in economic policy. While the availability of information infrastructures, the existence of an R&D support network, and the upgrading of the training and education systems to prepare professionals and citizens for the knowledge economy are regarded as key “enabling factors”, there is no simple recipe for success. Informed local experimentation and the cooperation with other regions to build up jointly the necessary “critical mass” to attract investment.

How to produce in Europe?

#### The European firm model: adjusting to a larger but highly diverse market

The organisation of firms has already been changing under the influence of ICT, customisation and flexible production. Due to the specific conditions of the European economy in terms of its large market size and considerable diversity of demand, different types of organisational practices are emerging. With the Single Market, European industry seems to be moving towards larger conglomerates (e.g. as a consequence of mergers and acquisitions), but they build on a network of production and distribution centres in their different main markets. Particularly firms in the chemical industry, in car manufacturing, in distribution and in telecommunication in particular have pioneered such new approaches.

The larger private firms have been the first to adopt these new models, but over the next few years, SMEs and also the public sector are expected to follow suit. Currently, initiatives to modernise the

public services and administration are under way in Member States and at EU-level, in order to make them more efficient, to the benefit of the citizens and firms.

The possibilities for policy to improve the conditions for private firms to operate efficiently in Europe lie mainly in the removal of barriers in the Single Market and the establishment of harmonised and reliable frameworks. A pro-active approach to framework setting is particularly important to enable and guide emerging markets in a socially acceptable way, such as e.g. the entire world of electronic business or genetic modification of food products. But efficient organisational models in response to emerging changes and challenges will not be restricted to the private sector. With the costs of public services expected to remain a significant part of the European economy, the efforts to offer better quality at a better price will have to be reinforced over the coming years. This will also involve a cultural shift towards an understanding of public administration as “serving the citizens”. The Commission has already moved ahead in this respect, but similar efforts will have to be made at all levels of government and administration. Introducing elements of competition can be helpful in this respect, independently of whether a service is provided by a public or private entity.

#### New frameworks for the digitised economy: lessons to be learnt from the European experience

The current global rule systems are not geared towards the specific characteristics of growing industries that are rooted in ICT or life sciences, where intellectual property rights and competition issues are quite different in nature from other, more traditional industries. Intellectual property rights, as key incentives for innovation, cannot be easily implemented for digitised goods and services, and are at least disputed in the life sciences area. The control of standards for key technological components can lead to market distortions and technological “lock-in” in areas well beyond the core market of a firm. The combination of Intel’s microprocessors and Microsoft’s operating systems (“Wintelism”) is just one prominent example, but similar issues could emerge e.g. in mobile communication, or with respect to ubiquitous computing. Self-regulatory schemes, to the extent that they can be properly enforced, seem to be a promising way to deal with these new regulatory challenges, but they nevertheless require some degree of legal provisions and harmonisation.

Europe’s experience with the establishment of common market rules constitute a precious ‘cultural competitive advantage’ in the sense that the governance of global digitised markets will make it necessary to solve difficult standardisation and regulation problems. A highly developed ability to mediate compromises and ensure their implementation will be needed, of the kind that has emerged in the EU over the past decades.



## 1. Introduction

Once its boundaries have been enlarged the EU will represent about one fifth of world economic output, nearly one quarter of world trade,<sup>1</sup> two thirds of world monetary reserves, but just 6.5% of world population and one tenth of the world's land surface. The EU has a structural surplus in trade with the rest of the world (extra-EU trade) which amounted to €32 billion in 1998, of which, according to the OECD's definition, a significant part is earned from high-technology products (OECD 1999b). These data underline the EU's strong competitive position in the world economy.

On the other hand, there are indications that the EU is not making enough of its potential for growth and, in particular, employment. During the nineties, average growth stood at a level of about 1.8% per year, with unemployment rates above 10% (CEC 1999b). The employment rate in the EU is about 60% of working age population whereas in the US and Japan the same figure is at a level of nearly 75%.

This situation is often put down to Europe's failure to benefit as much as it could from the new market-driven developments of the globalising world economy after the end of the cold war, and in particular from the opportunities offered by the new technologies of the information society. This is confirmed by the weak performance in basic fields of information technology where Japan and, in particular, the US are doing better. Rather than offensively setting out to open up these new frontiers, the EU is often perceived as defensively attempting to delay or avoid the painful structural adjustments forced upon it by the changing context.

Over and above the need to address these problems, Europe is facing a number of challenges specific to it. It **is currently undergoing a critical phase of development** involving major political (enlargement) and economic (Economic and Monetary Union, Single Market) transformations. These are part of a wider debate about the further deepening and widening of the European integration process and represent an additional factor of uncertainty. Against this backdrop the Futures project has set out to address the issue of the competitiveness of the European economy. The questions it asks is "What are the perspectives for Europe's competitiveness in the future?" and "What will be the influence of these major driving forces?"

For firms, competitiveness is today a *sine qua non* for expansion or even simply survival in more liberalised markets. In principle, the concept of competitiveness can be extended to other institutional agents, including public administrations. Although it may be difficult to interpret competitiveness for regional entities, it can be understood as the aggregation of competitive firms and institutional agents, taking into account that multiple synergies can exist between the different elements of this aggregate competitiveness. It is through these synergies that the full potential for growth, employment and citizens' welfare can be realised. The competitive spirit in the EU has received strong stimulus in recent years from a process of integration and the opening up to competition of previously protected economic sectors within the world's largest single market. The level of competition in both the public and private sectors concerned has increased, which also has beneficial implications for European competitiveness. Europe's competitiveness can thus be defined as **its ability to maintain and develop economic activities, in order to generate wealth, employment and a good and sustainable quality of life for its citizens.**<sup>2</sup>

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<sup>1</sup> Extra-EU trade only; if intra-EU trade is included the share is even higher.

<sup>2</sup> For a detailed review of different aspects of competitiveness, see the introduction to the Report by the former Commission President Santer's Competitiveness Advisory Group (Jacquemin/Pench 1997).

This ability has a domestic and an international aspect. From a domestic perspective, Europe needs to offer good conditions for human and other forms of capital to establish themselves, and to produce and to consume high value-added goods and services.<sup>3</sup> These conditions include issues of taxation and administrative rules as well as a solid home market, social cohesion, efficient infrastructures and a skilled workforce. From an international perspective, the generation of wealth, employment and quality of life depend on an efficient division of labour between Europe and other world regions in order to benefit from comparative advantages .

This understanding of competitiveness implies a need for continuous improvement of the internal dynamics and performance, as well as on international cooperation. It implies a proactive approach to the continuous improvement of the internal operation of the economic system in Europe, building on the achievements of the past. This includes social cooperation and welfare redistribution as complementary elements to enhance European wealth.

This report aims to **identify some of the most important emerging changes, trend breaks and challenges for competitive performance which Europe will have to face in the coming years**, and the policy issues which will have to be addressed in order to make sure that Europe maintains its strengths in areas that create wealth and employment. It is thus not meant as a comprehensive and comparative review of the current state of European competitiveness, but as a selection of key topics for the future.<sup>4</sup>

The approach we suggest for looking at these issues gives a prominent role to three aspects which may appear to be less prominent in many other analyses of competitiveness, but which are expected to play a crucial role with respect to the types of economic activities which we see emerging in Europe by 2010. First of all, it is necessary to take into account the **qualitative character of the upcoming transformations** which are difficult to capture in a – albeit sophisticated – extrapolation of current trends. The types of changes we will be facing do not affect Europe's competitiveness incrementally, but challenge it in a fundamental way.

Secondly, **developments on the domestic demand side of the economy** are given a prominent place in our analysis. With extra-EU exports amounting to €718 billion in 1997, representing less than 10% of EU gross domestic product (Eurostat 1998, OECD 1998a), it would be inappropriate to concentrate solely on the comparative performance of export markets in a number of key manufacturing sectors. In a time of a growing mobility of the key production factors, especially of knowledge and finance, the economic and social boundary conditions which are offered by a region, country or world region become key determinants of competitiveness, and thus of the location of investment. Moreover, a sophisticated consumer market has become an asset for doing research and development, activities which are nowadays much more closely linked to the markets than they were in the past.

Thirdly, a closer look needs to be taken at the **economic geography within Europe** which is not going to stay as it is now, not least given the impact of the enlargement process. While there are on the one hand major challenges in terms of wider wealth gaps in the EU, on the other there are many

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<sup>3</sup> There have been many very interesting studies over the years ranging from the OECD 1996 study, the US Council on Competitiveness (1995), to the Japanese Keidanren study (1996) as well as the EU Commission's White paper on Growth, Competitiveness, Employment (CEC 1993).

<sup>4</sup> A number of more comprehensive, but retrospective exercises are carried out on a regular basis. For example, there is the yearly Competitiveness Report of the European Commission (CEC 1998a, 1999a), but also the nationally comparative publications by IMD International (IMD various years) and the World Economic Forum (WEF various years).

opportunities to exploit the diverse range of comparative advantages enjoyed by European locations.

The structure of this competitiveness map is based on three main chapters, dealing with aspects which could be summarised as the *what*, the *where* and the *how* of European competitiveness:

- **Chapter 2 aims to identify economic activities which offer a promising perspective for the European economy in the future.** This is based first of all on the current and emerging areas of strength in the European economy, i.e. those areas in which Europe already has a comparative advantage or which are expected to become critical in the future (2.1). The second element to which much attention is given is an analysis of the emerging patterns of consumption (2.2), giving indications of promising key areas of demand for the future. Finally, the largest part of the economy, the service sector, is undergoing major changes now that services are becoming more innovative and tradable (2.3).
- **In Chapter 3 likely transformations of the economic landscape in Europe are assessed.** The analysis addresses the impacts of the current changes in economic (e.g. EMU, globalisation), political (e.g. enlargement) and technological (e.g. information-based economy, transportation) conditions on the location of investment and the specialisation patterns of industry. The first aspect addressed is the impact on Europe of changing global investment patterns (3.1). Secondly, the impact on future specialisation patterns in Europe of the European integration process is examined (3.2). Finally, we look at the changes in the comparative advantages of different locations in Europe, and thus the issue of regional balance (3.3).
- **Chapter 4 concentrates on some of the organisational and institutional implications of maintaining and improving Europe's competitiveness.** This issue is particularly relevant with respect to new models of business organisation and rule systems for globalised and digitised markets. Driven by deregulation and the emergence of the information economy, the organisational models of firms are changing, giving rise to new ways of organisation and interconnection, especially under the specific conditions of the European economy (4.1). As a second main organisational issue, globalisation, digitisation and deregulation have brought about new requirements for the rules of global market organisation. These will be discussed in the final section (4.2).

The concluding section brings together the main arguments and issues, highlighting in particular those aspects which are likely to require the attention of European policy in the coming years. With respect to several of these issues, policy could provide a framing and enabling function for future developments to the benefit of European competitiveness.



## 2. What to produce in Europe?

Europe is among the wealthiest regions of the world, but its economic growth has been somewhat moderate during the last twenty years. Most future projections assume growth rates of between 1.5 and 3% for the coming years, but these projections do not take into account the qualitative changes to which our economies will be subjected between now and 2010. Similar to other industrial economies, Europe has moved to a situation where services make the largest contribution to wealth creation and employment (about two thirds). This trend has been paralleled by the declining roles of agriculture and industry, even if industry may be the driving force behind a large part of services.

Recent trends in productivity and GDP growth indicate that the wealth gap with the US and to some extent Japan will decrease only slowly by 2010.<sup>5</sup> However, this does not translate automatically into a competitive disadvantage. Higher productivity is the key factor determining wealth creation in society, but it is only in conjunction with labour costs that it has implications for competitiveness on global markets. As labour costs in Europe vary a lot – from high-cost countries such as Germany to low-cost countries such as Portugal – the issue of cost competitiveness depends very much on individual sectors and market segments. Anyway, with extra-community exports contributing only about one tenth to wealth creation in Europe, a productivity gap of a few percentage points with the US would affect Europe's overall competitiveness only marginally.

When looking at the European economy in sectorial terms (see also data in Annex), one can observe that the importance of the **agricultural sector** has declined in all countries, both in terms of employment and GDP. The bottom threshold of its contribution seems to be in the order of 2 to 3%, even if some Mediterranean and Eastern countries are still well above this level. The structural change in agriculture has been very rapid in the new accession countries, and it will continue along these lines during the coming decade. In the agriculture-intensive Southern European countries, the relative economic importance of agriculture is expected to decline further, though not down to the same levels as in the North.

The picture for **industry** is more differentiated, but in general it is also reasonable to suppose there will be a modest decline in its contribution to GDP, although at a much slower pace than in the case of agriculture. However, it will remain one of the pillars of the economy, with an added value of between 30 and 40% in most countries. There are some exceptions to this general trend. The most obvious one being Ireland, where the recent economic boom has actually led to an increase in industry's share of GDP. In most Central and Eastern European Countries (CEECs) the process of restructuring industry is still under way, and the sharp decline in industrial activity has only recently come to a halt. In fact, many industries are now growing faster than the average for the economy as a whole. The relative decline of the industrial sector does not mean that it will also decline in absolute terms. Volumes of industrial output will almost certainly continue to grow, even if in terms of value the increase may be relatively small.

The main growth area in the future is **services**. Even in comparatively poorer Member States such as Portugal, services already contribute more than 50% of GDP. In the Central and Eastern European Countries services have in the meantime reached a level which is coming close to that of the EU-15. However, further growth of services in the CEECs faces a number of barriers. The available statistics may overstate the speed of service growth to some extent, because certain types of activities which in the past were counted as industrial have become business services in the

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<sup>5</sup> For detailed data on recent trends in labour productivity and GDP growth see CEC (1998a).

recent past as a result of the trend towards outsourcing in industry. Obviously, there is a need to take a more differentiated look at services (Section 2.3) because the situation in traditional services differs significantly from that of the “new” types of knowledge-based and high value-added business services.

The current state of growth patterns is also reflected in the figures for changes in employment in each sector. Between 1988 and 1996, it was only due to employment growth in services (+ 6.3 million jobs) that the losses in industry and agriculture (-4.8 million jobs in total) could be offset. Forecasts up to 2001 show a similar picture (DRI 1997).

## 2.1 Producing in Europe - A broad industrial base with high potential in intangibles

***The frequent complaint about a lack of competitiveness of the European economy is not supported by data on productivity growth and trade. Europe’s economy shows different strengths to those of the US and Japan. It may be less strong in some selected high-tech segments, but Europe is well prepared to meet the challenge of the growing emphasis being put on providing customised products and services to highly demanding customers. Building on a broader range of outputs and on intangible assets, a strategy of integrating high-tech components into high value-added products and services could be preferable to a dedicated high-tech approach.***

### Trends in production and trade performance

European industrial GDP is concentrated in five principal sectors that count for about 50% of the total: motor vehicles, machinery, chemicals, food & drink and fabricated metals.<sup>6</sup> Most other sectors have shares of between 3% and 5%. This type of production structure is more or less shared by the EU, Japan and the US.

During the period 1988/1998 the total value added of the European manufacturing sector grew on average by 2.9% per year. According to the OECD definition of high-technology industries<sup>7</sup>, Europe shows positive growth rates in all high and medium-high technology sectors, with the sole exception of computers and office equipment. In particular, radio, TV and telecommunication equipment, motor vehicles and medical, precision and optical instruments have shown very high rates of value-added and productivity growth. On the basis of these data there is little evidence to support the frequent criticism that the EU is weak in high technology sectors.

DRI growth projections suggest several European industry sectors will have future positive rates of real production and productivity growth. In particular, the following sectors are expected to sustain a growth rate of more than 3% per year in the medium term (in declining order of growth)<sup>8</sup>: pharmaceuticals, office and precision machinery, chemicals/petroleum products, rubber/plastic, electrical engineering, motor vehicles, mechanical engineering, and paper/printing/publishing (see Figure 2.1, 2.2).

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<sup>6</sup> The sectors considered are essentially based on NACE2 categories.

<sup>7</sup> OECD classification is based on indicators of technology intensity such as i) R&D expenditures divided by value added; ii) R&D expenditures divided by production; iii) R&D expenditures plus technology embodied in intermediate and capital goods divided by production (OECD 1999b).

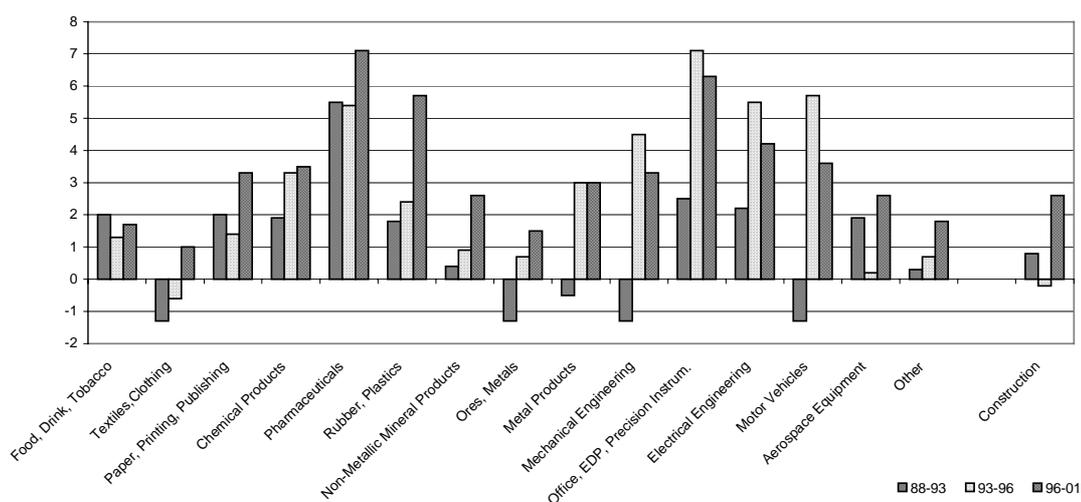
<sup>8</sup> In principle, this ranking is based on three elements: contribution to GDP, growth of production in real terms, and growth in productivity. This analysis can also be applied to the individual Member States in order to describe their specialisation profiles.

**Table 2.1: Performance of selected EU-manufacturing sectors**

	Average growth in value added 1998/1988	Growth in 1997/1988		
		Value added	Productivity	Employment
<b>High &amp; medium-high technology industries</b>				
Chemical & chemical products	2.6	3.3	4.5	-1.2
Office machinery & computers	-2.2	-1.1	2.1	-3.2
Electrical machinery/apparatus	2.4	2.7	4.8	-2.1
Radio, TV & communication equipment	4.4	5.1	5.9	-0.8
Medical, precision & optical instr.,	3.5	2.9	4.9	-2.0
Motor vehicles, trailers	3.8	3.9	4.4	-0.5
Other transport equipment	2.6	3.7	5.9	-2.2
<b>Medium-low technology industries</b>				
Coke, refined petroleum, nuclear fuel	2.2	3.1	4.4	-1.3
Rubber & plastic products	4.5	4.5	4.1	0.4
Other non-metallic mineral products	2.2	2.2	3.8	-1.6
Basic metals	0.2	0.8	5.1	-4.3
Fabricated metal products	3.9	4.1	4.0	0.1
Machinery & equipment n.e.c.	3.6	3.5	4.6	-1.1
Furniture; manufacturing n.e.c.	3.7	3.2	3.1	0.1
<b>Low technology industries</b>				
Food products & beverages	3.4	3.8	3.8	0.0
Tobacco products	5.9	5.8	9.6	-3.8
Textiles	0.9	0.7	4.5	-3.8
Wearing apparel; fur	0.6	0.2	3.1	-2.9
Tanning & dressing of leather	-0.1	0.3	3.4	-3.0
Wood, products of wood and cork	3.3	3.2	3.7	-0.5
Pulp, paper & paper products	2.0	2.1	3.7	-1.6
Publishing, printing & reproduction	4.4	4.3	3.3	1.0
<b>Total manufacturing</b>	<b>2.9</b>	<b>3.2</b>	<b>4.3</b>	<b>-1.1</b>

Source: CEC 1999a

**Figure 2.1: Average growth in real production [%]**

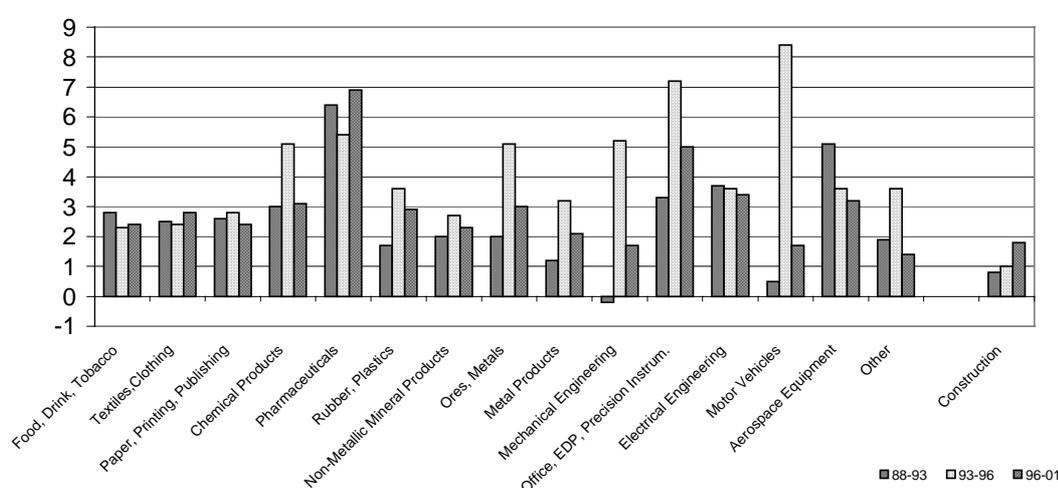


Source: DRI 1997, categories differ from the NACE standards

Employment has generally declined in almost all sectors. In sectors like textiles & clothing and basic metals productivity growth outpaced growth in value added, leading to the inevitable consequence of declining employment. The aforementioned negative growth in the value added of office machinery and computers is the main reason for the sharp fall in employment in this sector (-3.2% per year). In Western Europe, this trend in industrial employment is expected to cease now that limits to rationalisation are about to be reached, although some additional changes will still take place in the CEECs due to the ongoing restructuring process.

Most of these trends are shared with the US and Japan, although employment gains have been possible in some sectors of US industry (e.g. motor vehicles, radio/TV/communication, rubber/plastic). Sectors that are exceptions to this rule are office machinery and radio/TV/communications, which are growing far stronger in both Japan and the US.

**Figure 2.2: Average growth in productivity [%]**



Source: DRI 1997, categories differ from the NACE standards

Significant differences in trade performance exist between Europe, Japan and the US. **Europe is present in a wider range of export industries than either the US and Japan.**<sup>9</sup> Compared with the rest of the OECD, the EU shows a positive specialization in mechanical engineering, non-metallic mineral products, and other manufacturing. Meanwhile, the EU shows a negative specialization in most electronics-related sectors (electrical engineering, office and data-processing equipment/computers, instrument engineering) and resource-based sectors (wood, paper).

In 1997, EU showed a trade deficit of about €25,000 million in office machines and computers, the product with highest deficit after petroleum and petroleum products (about €50,000 million). The source of EU imports of these products is shifting from Japan and the US (72.7% of the total in 1990 to 46.4% in 1997) to Singapore, Taiwan and other South East Asian countries.

Sectors such as textiles, clothing and leather products show a strong export specialization within the OECD but also a trade deficit. This means that the degree of specialization relative to OECD countries is not sufficient to offset the large trade deficit with the world as a whole. EU also specialises in luxury fashion goods, which it exports to markets such as Switzerland, Japan and the US (over 40% of total exports), while it imports cheap products from less advanced countries like China, Turkey, India and the Maghreb.

<sup>9</sup> See also the export specialisation profiles in the Annex.

Machinery and transport equipment represent the most important EU sector for exports. In particular, in 1997 industrial machinery<sup>10</sup> registered a surplus of about €2,000 million, twice the 1990 value. Similarly, although it has a lower degree of export specialisation than OECD countries, the motor vehicles and parts sector contributes a consistent and growing surplus. Another booming sector which is in surplus is that of Medicinal and pharmaceutical products: from 1990 to 1997 it tripled its trade surplus, reaching over €1,000 million.

**Table 2.2: Trade balance of the EU 1990 - 1997**

Trade Balance of selected sectors [€million]	1990	1995	1997
<b><i>Main EU trade deficit sectors</i></b>			
Petroleum and petroleum products	-54.648	-40.727	-50.827
Office machines & computers	-16.305	-19.189	-25.650
Clothing & clothing accessories	-12.699	-19.695	-24.686
<b><i>Main EU trade surplus sectors</i></b>			
Road vehicles	16.150	29.824	35.689
of which passenger cars, etc.	9.577	19.639	21.171
Machinery specialised for particular ind.	18.681	28.159	34.313
General industry machinery and equipm.	14.316	21.743	27.725
Medicinal and pharmaceutical products	3.995	8.628	12.397

Source: Eurostat 1998.

The EU's hidden strength in exploiting intangibles

In the context of the emerging information society and decreasing rate of fixed capital investments, the competitiveness of the EU will increasingly depend on industry's capacity to generate, adopt and adapt knowledge-based technologies. This means a further reinforcement of the shift from tangible to intangible assets, such as R&D capital, human capital, design, patents and licenses, copyrights, brand-names, and other intellectual property rights, etc.

Although intangibles are difficult to measure, the European industrial structure seems to show a growing trend towards industries with a higher intensity of intangible factors of production. In fact,<sup>11</sup> most of the highly dynamic industrial sectors in the EU, such as pharmaceuticals, office machinery, chemicals, electrical engineering and motor vehicles, are technology-driven industries. These industries are responsible of a considerable share of the total manufacturing value added, as showed in Table 2.3.

<sup>10</sup> Machinery specialized for particular industry (SITC 72) and General industry machinery and equipment (SITC 74).

<sup>11</sup> This is based on a new taxonomy introduced by WIFO (Österreichisches Institut für Wirtschaftsforschung) in order to group industries according to their use of factor inputs distinguishing between the exogenously given competitive advantages based on factors endowments (e.g. physical capital and labour) and endogenously created advantages based on purposeful investments in intangibles assets. The categories are named mainstream-manufacturing, labour-intensive, capital-intensive, marketing-driven and technology-driven industries.

**Table 2.3: Value added shares in total manufacturing by factor input in 1997**  
[%]

	Mainstream manufacturing	Labour intensive	Capital intensive	Marketing driven	Technology driven
EU-15	25.41	15.31	15.55	21.28	22.46
USA	21.26	12.22	13.51	23.17	29.84
Japan	24.86	16.00	16.01	21.00	22.13

Source: CEC 1999a

On the other hand, in manufacturing sectors like textiles, clothing, leather products, food products, precision instruments, there are areas where Europe performs extremely well and will continue to have an important role in the future. In particular, this is true of production segments with high quality standards and where Europe has a long tradition of dealing both with design (i.e. furniture and Italian fashion) and with complexity (i.e. photographic equipment, power engineering, or optical instruments).

Another strength of EU industry is its ability to use high-tech components in the production of goods usually regarded as traditional mainstream products. Cars, domestic appliances, electrical equipment and housing are good examples. It is able to apply high-tech in a way that meets customer needs so as to produce outputs with a high added value. In fact, high-tech industries, such as aeronautics or electronics, often achieve less value added per employee than in more traditional sectors, such as steel or the automotive industry.<sup>12</sup> This strategy relies on intangible assets, such as highly skilled human capital capable of integrating high-tech components – although frequently without producing them – into other goods. In this respect, one should not overlook the fact that in spite of its undeniable strengths in some key technologies such as ICT, the US is still running a major trade deficit in high-technology products.

Another area where Europe seems to be well positioned is in the environmental industry and service sectors. While, on the one hand, strict environmental regulation has made certain polluting industries virtually disappear in Europe, on the other hand, it has stimulated the emergence of “environmental” industries and services. Depending on the future perception of the main environmental challenges, including those in Eastern Europe, these often cross-cutting environmental industries could develop into a European specialisation area in export markets.

#### Issues and challenges

Several European industrial sectors show positive dynamism both in production and productivity growth. The diversified portfolio of European manufacturing industries represents a good opportunity to integrate high tech components into a wide range of conventional goods in order to increase their value added. In order to be successful in this integration process, along the lines of the mobile phone example, it is important to have a high degree of familiarity with, and knowledge of, the technology in question. The R&D base of the European economy will thus continue to be crucial to competitiveness, but in order to be fully effective in a broader range of sectors it would be necessary to link it more closely to industrial activities which until now have been regarded as less research-intensive. For example, the construction industry will possibly receive new impulses

<sup>12</sup> See for the underlying argument in Krugman (1994), and Eurostat (1999a) for recent data.

from ICT once the step towards intelligent housing is made. Similarly, new findings in biotechnology are expected to have a far-reaching impact on agricultural production.

As a general tendency, many of these sectors rely extensively on the exploitation of intangible production inputs. The promotion of a business environment favourable to intangible investments should be a priority on the policy agenda. This is something which it may be possible to achieve by establishing long-term trans-European co-operation in R&D, and improving mechanisms for giving firms access to finance.

However, one needs to be aware that improved legal frameworks will be needed to make sure that the benefits from intangibles can actually be reaped (e.g. through intellectual property rights).<sup>13</sup> Moreover, if the real value of goods and services will reside to a lesser extent in their physical properties, but in the embodied know-how (e.g. in knowledge-based services), it becomes increasingly difficult to ensure consumer protection. Brandnames may substitute partially for a quality guarantee by public certification, but it is not yet clear in how far public concerns can be assured.

## 2.2 Emerging patterns of consumption are shaping the future lead markets

*Changes in the long-term patterns of demand give valuable indications of the type of goods and services which will be needed in the future. Moreover, a demanding and sophisticated domestic market is also an important “proving ground” for new and innovative products and services, and thus an asset for a competitive economy.*

The demand side of the European economy fulfils two important functions with respect to competitiveness. First of all, it is at the origin of more than 80% of demand for goods and services produced in Europe. Private consumption and direct government expenditure therefore drive the bulk of economic activities.<sup>14</sup> This means emerging long-term trends in the domestic markets are important indicators of what the future requirements for the production of goods and services will look like.

Secondly, with faster innovation cycles requiring a closer connection and interaction between consumers and producers, the European home market **is an essential factor in improving and sharpening the competitiveness of products and services**. The US benefits considerably from the size of its unified home market, which for a long time has been the largest in the world. Today, with the unified European economic space, Europe is the largest market in terms of purchasing power. This is an important asset. European citizens are also regarded as being extremely demanding customers in terms of the quality and sophistication they look for. In principle, this provides optimal conditions in which European companies can test their products and services on their home market.

In the last two decades consumption patterns have followed a fairly regular path; the types of goods and services consumed have depended to a considerable extent on citizens' purchasing power (GDP per capita) and the influence of this can be traced in the main fields of consumption. The coming years are expected to bring about a number of qualitative changes as a result of recent trends in lifestyles, private consumption, demography and social change, all of which indicate a number of future cross-cutting trends on the consumption side.

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<sup>13</sup> The importance of this issue has already attracted fresh attention recently, see e.g. CEC (1999e).

<sup>14</sup> GDP in terms of consumption is usually split into the following categories: private final consumption, government final consumption, gross fixed capital formation, trade balance and net national savings.

## Growth and diversification of demand in Europe

The three main elements of demand (private consumption, government consumption, and gross fixed capital formation) show a similar distribution pattern in all EU countries. For most high-income countries of the world the average share of private consumption would be equivalent to 55-75% of GDP. Government consumption is much lower: approximately 15-25% of GDP, with gross fixed capital formation making up the rest.<sup>15</sup>

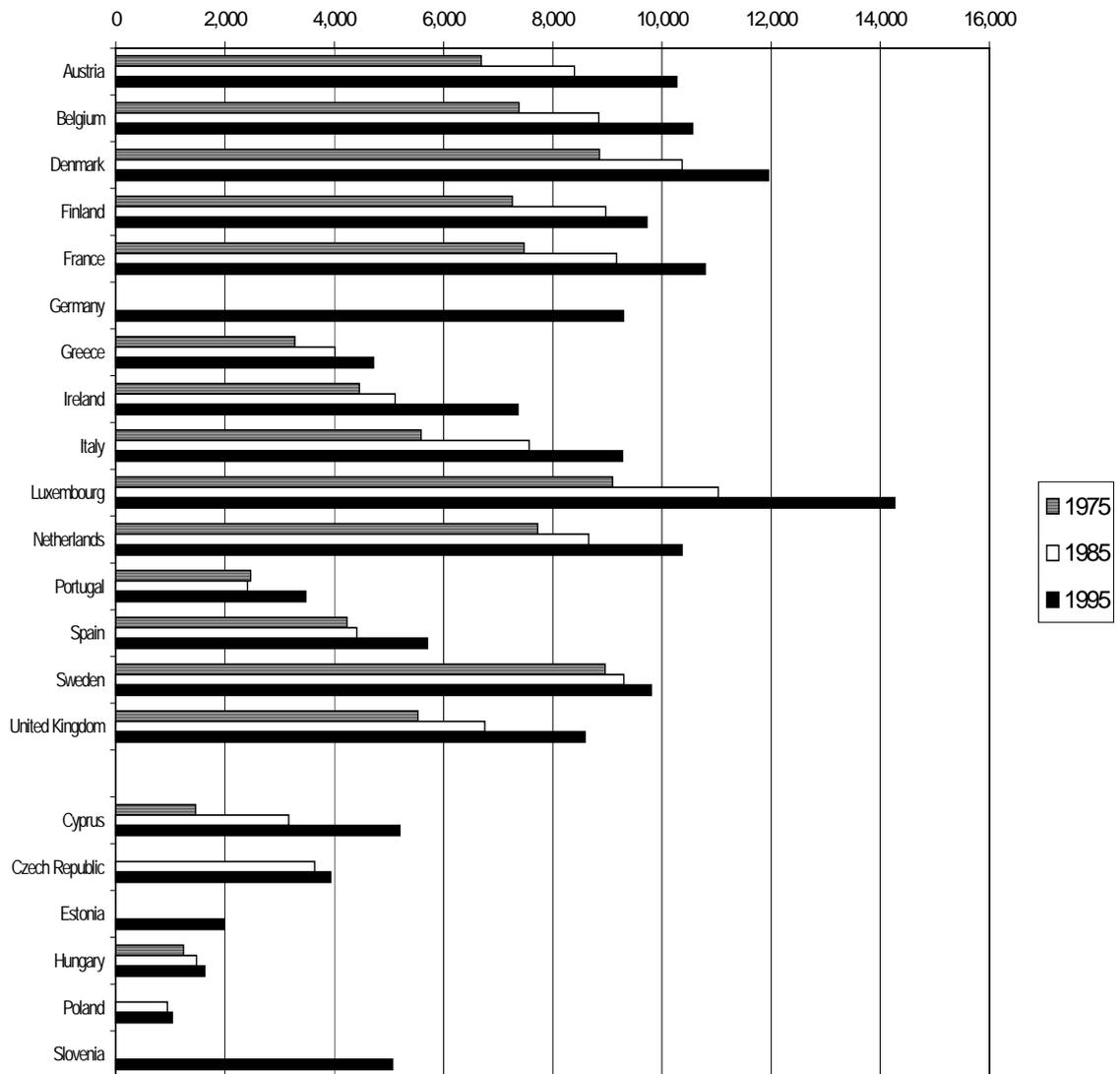
These shares have been quite stable over the last two decades and reflect differences in political and economic cultures. Growth of consumption mirrors economic growth patterns, and has been steady over the last three decades. Between 1970 and 1995 private consumption grew by about 50% (Figure 2.3). Under business-as-usual conditions we can expect private consumption in the EU-15 to grow by another fifth between 2000 and 2010. However, if in fact we enter a phase of qualitative rather than incremental change, then such a simple extrapolation may well not hold true.

While all European countries have increased their private consumption levels, the per capita values differ significantly (see Figure 2.3). The biggest difference, however, is visible in the potential new accession countries. Only Slovenia and Cyprus are near EU levels of consumption. Given the very different starting points, it is likely that the differentials will be reduced only very slowly, even if the growth rates of the PAC economies are significantly higher than those of the EU-15.

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<sup>15</sup> In Europe government consumption fluctuates between 26% for Sweden and 14% for Greece and the Netherlands. Obviously, this includes only direct government consumption, not public salaries which are accounted under private consumption (OECD (1998a))

**Figure 2.3: Private consumption per capita [PPP, constant 1987 US\$]**



Source: Worldbank 1998, CEC 1999c and IPTS estimates 1999

In the past, the patterns of distribution of consumption across different areas tended to change slowly over time. Historical records show that with growing per capita GDP the share of “basic” types of consumption (in particular food) declines, whereas spending on luxury items (e.g. recreation) increases. Although they need to be interpreted with caution some of these long term trends can give a hint as to possible emerging patterns, at least for those countries which are somewhat behind in their economic development. As their income has grown the consumption patterns in poorer countries have tended to converge towards those of the richer ones. This argument can be applied in particular to the accession countries as it is conceivable that the patterns of consumption in the CEECs will develop along similar lines as those that today characterise Spain, Ireland or Portugal.

Based on Private Final Consumption Expenditure data collected by the OECD (National Accounts) it is possible to sketch out a picture of the development of household expenditure between 1970

and 1995, per country<sup>16</sup> and per category of consumption (see Annex for more detailed data). While these data should be interpreted with caution,<sup>17</sup> some developments stand out particularly strikingly:<sup>18</sup>

- The most eye-catching difference is in the relative weight of **food**. Countries differ considerably according to whether they have a high or a low per capita consumption. Food takes a decreasing share of household expenditure as we increase our total expenditure. In the less developed European countries and regions (i.e. mainly some regions of the Mediterranean Member States and the accession countries) expenditures are expected to continue falling, while for the others the lower threshold level will soon be reached. Cultural factors mean that the share of food and drink will probably not fall to the level of the US (11%).
- Housing, while already one of the biggest chunks of private expenditures, is expected to continue its upward path over the years ahead. In general, expenditure on housing also discriminates between high and low national per capita expenditure. Only this time the relationship is the opposite: High income countries seem to spend more on housing than low income countries. Other discriminating factors seem to be geography and climate: Northern European households spend more on housing than Southern European ones.

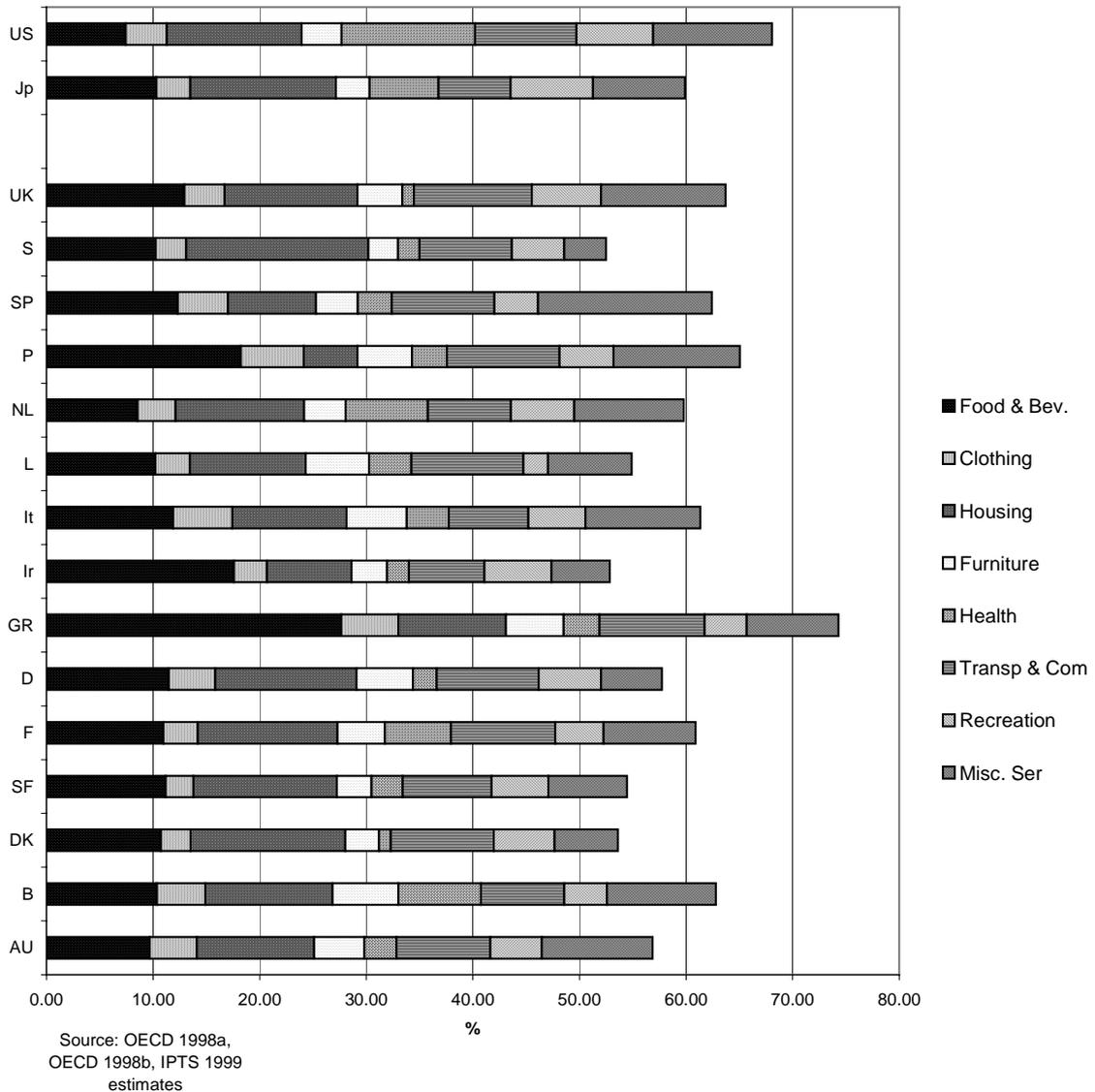
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<sup>16</sup> The accession countries are not included since there is no detailed and comparable information on consumption patterns from before 1995

<sup>17</sup> Price increases and inflation have not been considered here, which means that some of the trends could be overemphasised. Food prices have tended to be rather stable or even decline, whereas private transport costs have tended to grow, as have health costs.

<sup>18</sup> Further details can be found in the Annex.

**Figure 2.4: Household Consumption Expenditures 1995 [% GDP]**

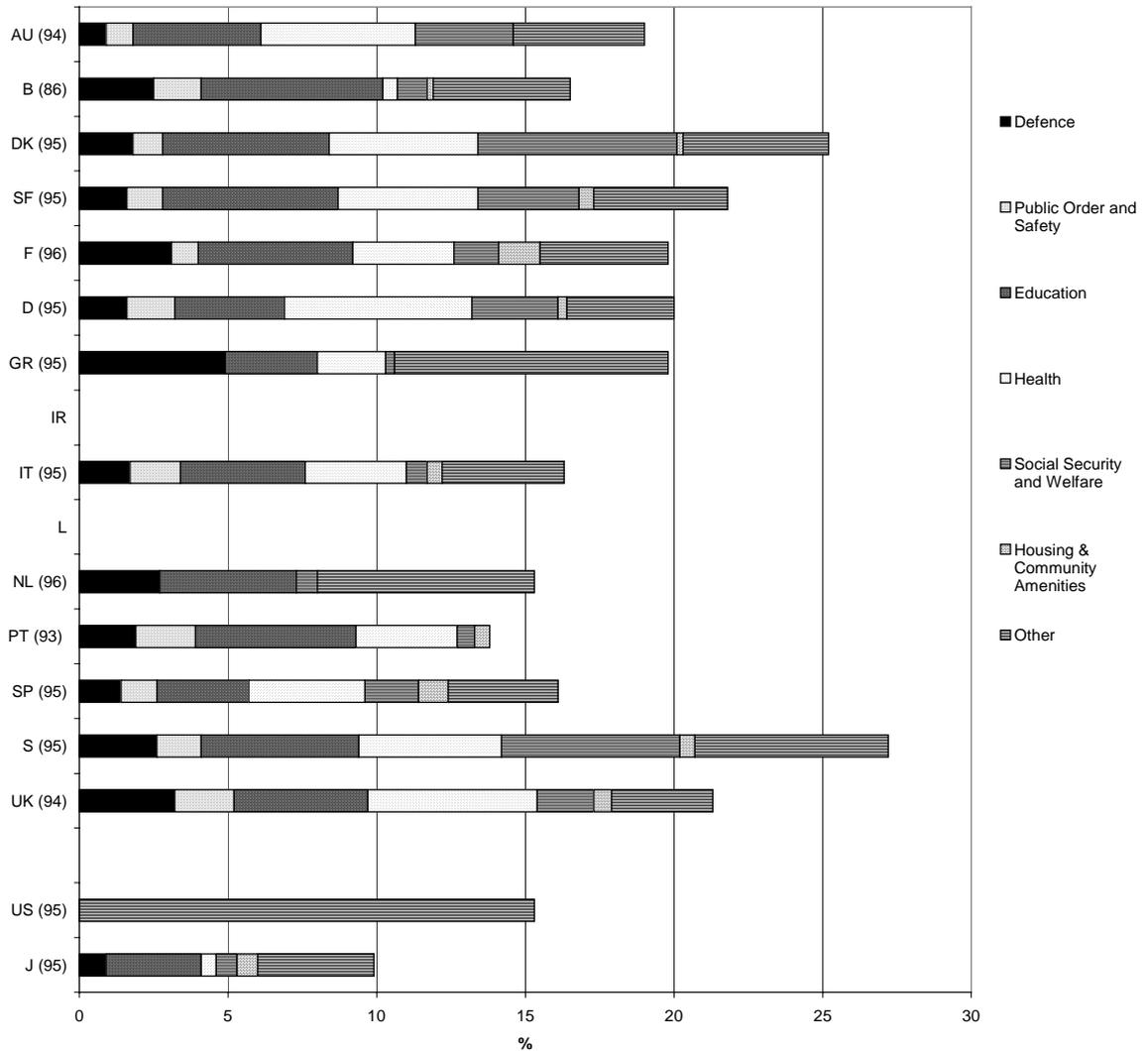


- Health-related expenditure has risen continuously, and the growth pattern is expected to continue over the coming years. The ageing of the population and the availability of ever more sophisticated technologies represent the two key ingredients for a further rise in expenditure. A threshold level may in the future be set by the limits to the expansion of public health budget. Obviously, this depends on whether the health system is public or whether the services are provided by private companies (see also Futures report chapter on the social costs).
- Transport and communication is another area where expenditures tend to rise significantly, even if parts of this increase may be due to price effects. While ICTs may have increased the efficiency of physical and non-physical communications, the overall growth in demand largely outstrips these gains. Moreover, ICTs have also created new forms of communication (Internet, Pay-TV, information services) which add a new category with a high growth potential to this area of expenditure. Tourism and recreational travel are not likely to decline either.

As far as direct government expenditures are concerned (i.e. excluding salaries which are accounted for in household consumption expenditures), education, health and –in some countries–

social security/welfare represent the largest categories. As described in more detail in the Futures report “Settling the bill”, the expected growth in education and health expenditures is cause for considerable concern about the future. Social security and welfare expenditures, on the other hand, have been contained during the past decade.

**Figure 2.5: Government final consumption expenditure [% GDP]**



Source: OECD 1998a, OECD 1998b, IPTS 1999 estimates

The pressure to reduce public expenditure has prompted demands for the public sector to become more efficient. Rather than a threat, this could also be looked upon as an opportunity for the public sector to play the role of pace-setter in a competitive economy. It is fairly unlikely that European citizens will spend less on health in the future, independently of whether health services are paid through a private insurance scheme or a supportive public system. In fact, where public spending on health is low, private spending is correspondingly higher (independent of any judgements about quality). What is more important is that there are incentives for efficiency. These can come through (quasi-) competition as well as through other preferred mechanisms, depending on national cultures and traditions.

## Emerging areas of demand

Beyond these current trends there are also some indications as to where demand is likely to grow in the future, and what implications this could have for the production side of the economy. In these ‘qualitative’ changes of current forms of consumption are expected to happen.<sup>19</sup> Based on the work of the different Futures workshops, six such future growth areas can be identified:

### Quality consumption

The trends in lifestyles and private consumption indicate a growth in “quality consumption”, i.e. a growing emphasis on products and services which offer superior quality. For example, the Futures panel on ICT and the information society identified the area of “**intelligent housing**” as one of the key areas of growth in the future. In this development, the introduction of miniaturised ICT components in conventional household appliances will ease our daily lives at home.

Another area where quality is expected to be a key issue in the future is **food**. In response to the recent difficulties to guarantee safe and healthy food products (from BSE to hormones and poisoned eggs), consumers are increasingly sensitive to the perceived quality of food. Not only are specialised shops responding to this trend, but increasingly also large supermarket chains.

Finally, there are several service areas where quality counts more and more: health, communication, leisure, and –to give another example of a very fast growing business – security.

#### **Box: Quality food: eco-products vs. GMOs?**

Food and health are closely related issues and are of major concern to citizens. The future development of the agro-food system is closely related to developments in this area. With the demand for healthy and controlled food on the one hand, and the technological opportunities offered by genetic modification of food on the other, the agro-foods industry is confronted with a difficult dilemma. They can concentrate on genetically modified food and run the risk of losing consumer confidence, or prefer to develop a more “ecologically” oriented market and – possibly – lose out on the new paradigm of GM-food.

This is a crucial choice which also has important repercussions on competitiveness. Europe’s food industry is a very strong sector, with close links to biotechnology firms. The industrial conditions for the development of a GM-based food cluster are currently fairly good. If Europe bans genetically modified food in response to consumer concerns, the European food industry could be placed at a disadvantage in global markets, if the other main markets continued to accept GM-food. However, at the moment the situation is still unresolved, with first tentative movements in the US, Japan and elsewhere contesting the genetic modifications of food. This example shows that issues of market demand, consumer acceptance and technological opportunities are closely intertwined.

The example of food products also shows how important full control of the production chain from the farmer to the retailer is if quality control is to be taken seriously. For instance, this full control improves the possibilities to guarantee whether a product is indeed free of GMOs or not.

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<sup>19</sup> In quantitative terms, the areas identified here need to be seen in conjunction with the growing expenditures for social security, health, environment and education as described in the Futures Report on ‘Settling the Bill’.

With competition moving increasingly into the market segments of what in former times might have been referred to as superior products and services, the price mark-up which in the past could be commanded on them is coming under increasing pressure. Those firms that are able to satisfy consumer demand for high-quality services will be the ones that have the best perspectives in the future, at least in the European market.

It is not clear whether the trend towards quality is a typically European phenomenon or whether the awareness of quality products will also grow in European firms' main export markets. However, firms which are able to deliver high quality are well-positioned to set themselves apart from competitors in the high-value ranges of products and services.

#### Towards services and "dematerialisation"

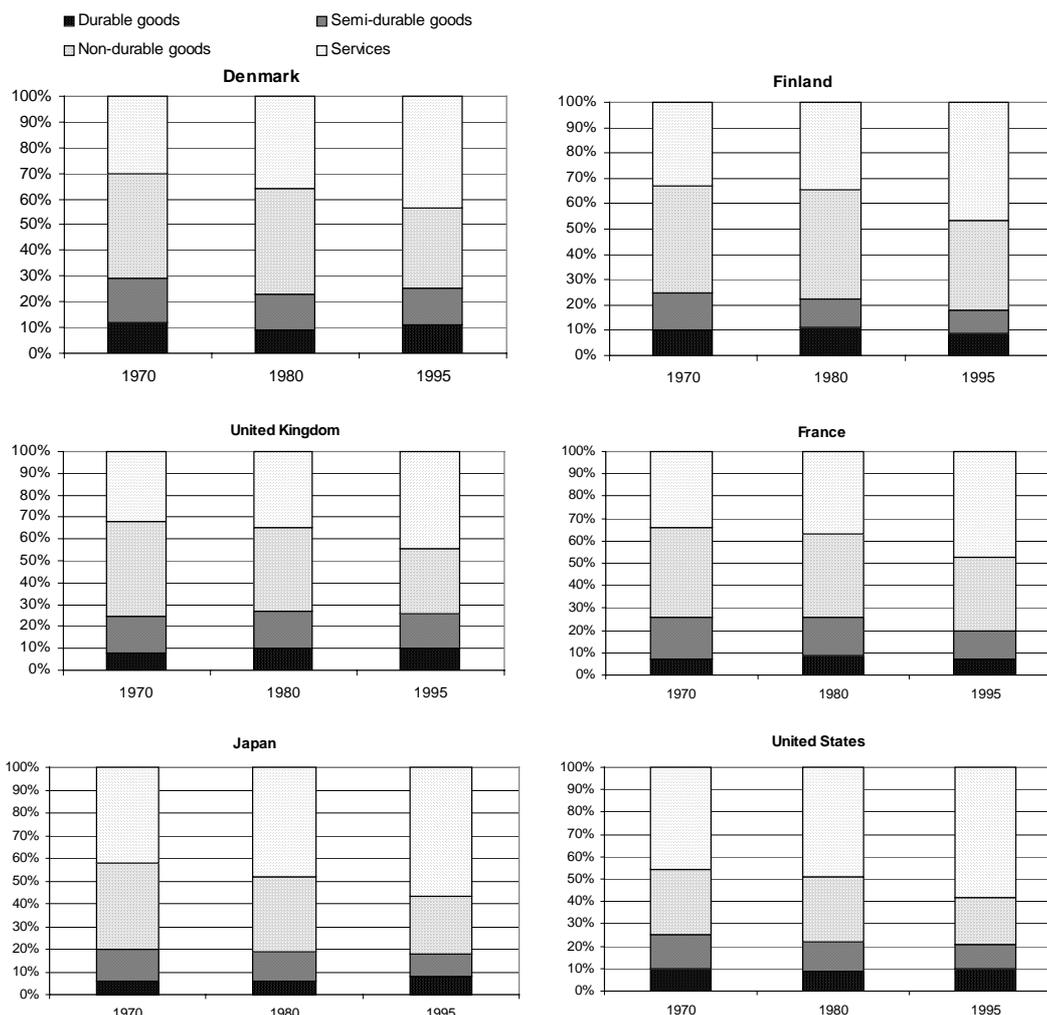
The dematerialisation of consumption is a cross-cutting trend which comes in various forms. While the consumption of products tends to move towards a higher quality and value, it has remained fairly stable in terms of volume. However, the added services are coming to play an increasingly important role, even if we should take into account that the recent growth in the relative value of services is also partly due the decline in the prices for manufactured goods.

This issue can be tied in with the observation that **an increasing part of our household budget is spent on services**, and less on goods (see Figure 2.6). The key point is that, in fact, many companies are progressively identifying themselves with the delivery of a service, and consumers are increasingly interested in getting a service tailored to their needs rather than having to worry about how to make the best out of a product. This move towards a service economy is expected to continue over the years ahead. Together with the move towards higher quality, one could thus speak of the age of "embodied quality services".

A good example of this is the area of **mobility provision**. While at present the ownership of an individual car may still be the basis of independent mobility, firms have started to offer a wide variety of "mobility packages". These include not only the access to different types of vehicles, depending on one's personal needs (e.g. for long-distance holiday travel, normal shopping and commuting, for leisure trips, etc.), but also the full service, finance and maintenance packages. Similarly, ideas such as car-sharing and integrated mobility service provision schemes have attracted a growing number of customers. Consumer preferences with respect to mobility may be changing slowly, but especially in the busy cities of Europe, these options are becoming more and more attractive.

Dematerialised forms of consumption (from the newspaper on the Internet and mobile telephony, to Internet-banking and e-commerce) are obviously being greatly facilitated by the pervasive role of information and telecommunication technologies. The diffusion of this type of consumption so far has been relatively slow and, as with many technological developments, social acceptance and integration into daily life will be the main stumbling-block as they require the familiarity of consumers and users to be familiar with ICT interfaces.

Figure 2.6: Consumption of durable goods and services in selected countries [% of total household expenditures]



Source: OECD 1998a, OECD 1998b

In the case of new forms of banking, finance and insurance, acceptance seems to be growing fast, but there are still doubts about the projected rapid growth in some areas, such as electronic commerce. The issue of how to integrate products into services in an intelligent way will thus require more attention in the future. An intelligent combination of user-friendly design and services with intelligent hardware components is needed.

### Knowledge-based consumption

The emergence of a knowledge-based economy may be related to the dematerialisation of consumption, but it goes clearly beyond it. The growing importance of knowledge and intelligence for all areas of consumption justifies highlighting it as a separate growth area of consumption.

In order to keep pace with the speed of technological and economic changes, education and learning will take on increasing importance over the coming years, and especially in the sense of an accompanying activity throughout our working lives (see Panel Report Demographic and Social Change). New education and training services will be called for by citizens in order maintain the quality in their workforce. Distance learning, facilitated by the Internet, will become an important element of self-education.

But the need for learning and educational services will also be felt by people wishing to learn how to use the new technologies which pervade our daily lives. Although much progress has been made to make products more intelligent, intuitive and easy to use, they still require a fairly large amount of understanding and knowledge.

The sophistication of products and services, combined with the need for ease of use, has driven up the value of embodied knowledge and intelligence. Even products as humble as a vacuum cleaner or a washing machine can be expected to incorporate more “knowledge components” as part of the trend towards ubiquitous computing (see panel report ICT/IS).

### Consumption by an elderly population

Ageing will be one of the key drivers of change in society over the decades ahead (see panel report Demographic and Social Change). An ageing population will require different types of products and services. This is most obvious in the health and personal care services which, are anyway among the future growth sectors. They require direct face-to-face interaction, and cannot easily be substituted for by less labour-intensive means.

The pressure to improve and expand **health services** runs up against concerns about the financing of the health sector, independently of whether it is are financed from public or private sources.<sup>20</sup> However, at least in the case of health the “willingness to pay” does not seem to have reached its limits yet, especially when taking into account the future state of the age pyramid in Europe. The upper limit for total (i.e. public and private) expenditures which is currently represented by the US (14%) is not yet in sight.

The ageing part of the population is also expected to be **financially well off and so have significant purchasing power**. What will they spend their money on? Personal services, leisure activities and travel are likely candidates.

Many **products will have to be customised to meet the needs of the elderly**, and firms will have to adjust their products accordingly. Driver assistance for vehicles may be one example, but also user-friendly information systems and devices to make living at home easier for the physically impaired, or learning and training schemes to help them participate more fully in the information society. This applies in particular to the possible scenario of an ageing workforce.

Beyond these direct requirements of an ageing population, one should also consider indirect effects on other age groups.

### The personalisation of goods and services

The desire for self-fulfilment through the consumption of goods and services is one of the main drivers for the customisation of goods and services. Individualism being a fundamental value in Western societies, the ability of producers to deliver differentiated goods and services is becoming a key asset.

The customisation of products and services may have been an important first step in this direction, but there is more to the issue. In a society where most of the material needs of a large swathe of the population have been satisfied (without forgetting those who have not reached that level of well-

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<sup>20</sup> In the Competitiveness Map the issue of spending on health, social affairs and education will be addressed only marginally. These issues are addressed in more detail in the Futures report on ‘Settling the bill’.

being), self-fulfilment, entertainment, aesthetic values and individualism are becoming more important. What matters are the dreams associated with a product rather than the product itself; the intangible “entertainment and self-fulfilment” value behind it. The goods and services people purchase in the future will increasingly have to offer more than just the fulfilment of an objective function, but to help the buyer achieve a feeling of individuality.

The declining importance of the real value of a product or service as compared to its symbolic or emotional value can be exemplified by looking at advertising and marketing. It is not only the objective qualities which make German cars, Italian brand names in fashion or certain American soft drinks so attractive, but the intangible reputation and symbolic value associated with them. “Selling dreams” is set to become an ever more important element of successful products and services.

### Sustainable consumption

Over the past two decades we have witnessed how **ecological and environmental consciousness has pervaded society**. Concern over environmental issues is not likely to decline, given the fact that issues such as climate change are long-term problems. The public is more sensitive to environmental concerns in general, even if this has only been translated into a change in consumption patterns towards a more “sustainable” lifestyle in the case of a small number of consumers . Market researchers interpret these first “lead users” as being just the first wave of a more environmentally-aware generation of consumers. These changing preferences will become increasingly noticeable in the next decade.

#### **Box: The environmental challenge – cost or opportunity?**

In many respects, not least as a result of public pressure, Western European industry has been at the forefront of initiatives to deal with environmental degradation. New production technologies have been introduced, and certain dangerous products banned. While initially these changes were strongly regulation-driven, increasing use has been made of market forces to provide incentives for setting up an inherently clean production system. Its most recent impact is the move from supplying products to services, which many see as the best way to integrate (“internalise”) environmental concerns into the firms’ innovation and decision mechanisms.

At the same time European industry has achieved a leading position in environmental products and services. When the issue is looked at over a longer time period, the publicly and politically enforced “lead” in this area has enabled the environmental industry to develop into a leading-edge business. In fact, the debates in Europe have triggered a similar debate and learning process in other countries, and thus also triggered market growth for environmental goods and services pioneered in Europe.

This “virtuous circle” could be repeated in other areas where Europe is currently in the lead with respect to most other countries, e.g. regarding the ageing society or the controversial field of genetic manipulation.

Source: IPTS (1999): Futures Panel Report *Environment and Natural Resources*

Environmental issues have also started to pervade the **production processes underlying manufacturing and services**. While driven partly by environmentally aware industrial users, the main pressure seems to have come from regulation (see Box). The full impact of the changing market and policy conditions will become effective only over the coming years, as production

facilities are modernised or replaced at the end of their normal life-cycle (see the report of the Futures panel on 'Environment and Natural Resources' ). The shift towards more sustainable production processes initially implied additional costs to industry, but if the pressure of environmental concern continues, an early shift in production and consumption paradigms could turn out to be an advantage.

#### Issues and challenges

When looking at competitiveness in terms of the creation of economic activities in Europe, it is indispensable to take emerging patterns on the demand side of the economy into account. Current consumption trends and the changing tastes of a new generation of consumers point to the important role of the customer in shaping the types of goods and services produced. Informed and competent customers with sophisticated demands are in fact an asset for an economy because they allow new goods and services to be tested and improved on the home market.

Demand is not only a matter of quantity, but also of quality. European firms have a significant locational advantage in this respect, because the consumer market is large and sophisticated and can thus play the role of a lead market for innovative goods and services. Europe should be aware of the opportunities afforded by these lead market functions and be prepared to use them, especially in the following respects:

- With a rapidly ageing population in Europe, European firms have a certain lead time with respect to many other economies when it comes to the development of goods and services for the elderly. There is no doubt that the specific demands of this group of consumers (which tend to have high purchasing power) is a key market of the future, not only in Europe.
- Similarly, the high quality which is usually demanded by European citizens obliges firms to offer the best they can deliver. The sophistication and attractiveness of the European market is thus also based on its demanding consumers. Consumer policy can have an impact on how good consumers are informed and can critically evaluate products and services. Transparency is in fact an important mechanism to make sure that producers can receive effective feedback from their clients and thus improve their competitiveness.
- The experience made with new demand-driven products and services in Europe is also of interest to other countries facing similar demands . As happened in the environmental field, but in the future possibly also with respect to ageing, food safety and genetic engineering, the European solutions to address these issues might be adopted elsewhere. This offers also a route for opening up potential markets to European products and services .

Governments have a direct impact on the demand side of the economy through their procurement function, which represents approximately one fifth of GDP. Public procurement oriented towards stimulating innovative products and services could contribute to reinforcing the lead market functions of the European economy. Knowledge-intensity can be promoted if public services try to purchase advanced products and services, and dematerialisation could be reinforced if these bodies made as much use as possible of Internet-based interaction with the citizens.

Similarly, the dominant role of public spending in areas such as health and education means that there are major opportunities for steering them in an innovative direction. Moreover, quasi-

competitive frameworks and benchmarking exercises could help make them more efficient and thus contribute to a more competitive economy.

### 2.3 The service economy: New opportunities, but also several pitfalls

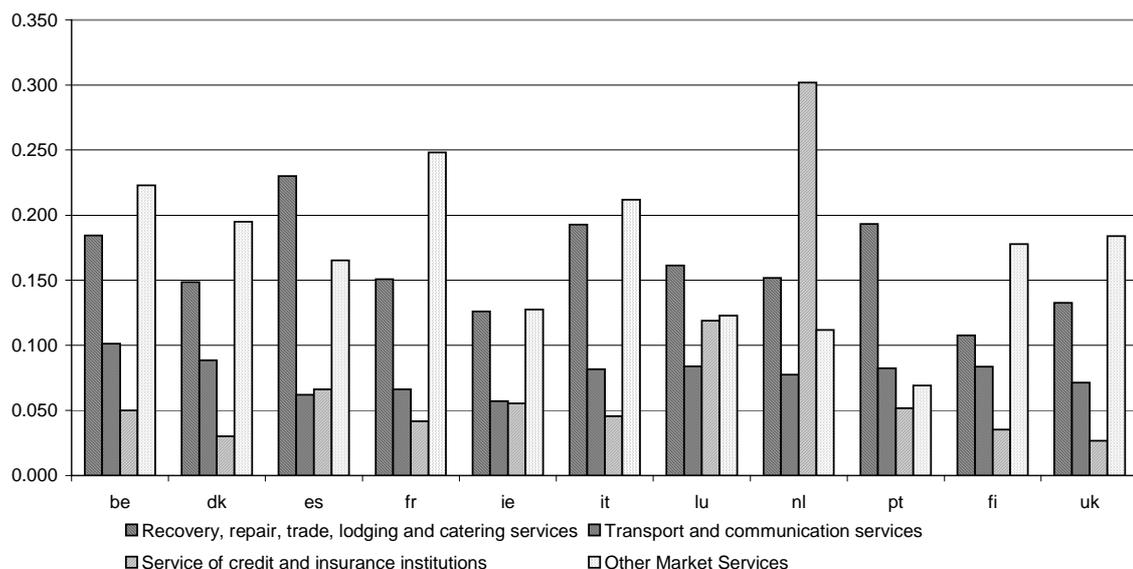
*The service sector has attracted growing policy attention over the last years, but there is much uncertainty about how to address the challenging developments in this sector. In fact, contrary to what is usually thought about services, the new emerging information and knowledge-based service sectors require a highly-skilled labour force and offer significant scope for innovation.*

Driving forces behind the creation of a service economy

In the last thirty years OECD economies have been characterised by constant growth in the services sector. In the mid-1990s, services accounted for almost 70% of GDP in OECD economies. The EU average share of value added in services GDP has increased from 47.9% in the 1960 to 67.9% in 1990. These trends are not only due to higher spending on services with growing income, but are also reinforced by a number of important **driving forces** (OECD, 1999a):

- Outsourcing by established firms of many of their former activities;
- Increasing numbers of smaller production units and firms which use external services to supplement their own internal resources;
- The specialisation and increased division of labour in many areas;
- The need for greater flexibility within firms;
- The increasing importance of services in the economy;
- The rise of a knowledge-based economy, which relies on more expertise and specialised service inputs.

**Figure 2.7: Contribution of different branches of services to GDP in 1995**



Source: OECD (1998c).

Moreover, the **impact of new technology** (particularly of information and communications technologies) and of **globalisation** have been identified as major influencing factors. They have modified the way the production of goods and services is organised and the way of life in society at large. This joint impact is particularly strong in business services, such as computer software and information processing, technical factors and research and development, marketing, financial services, business organisation and human resource development.

Information-intensive and personal services are driving growth and employment

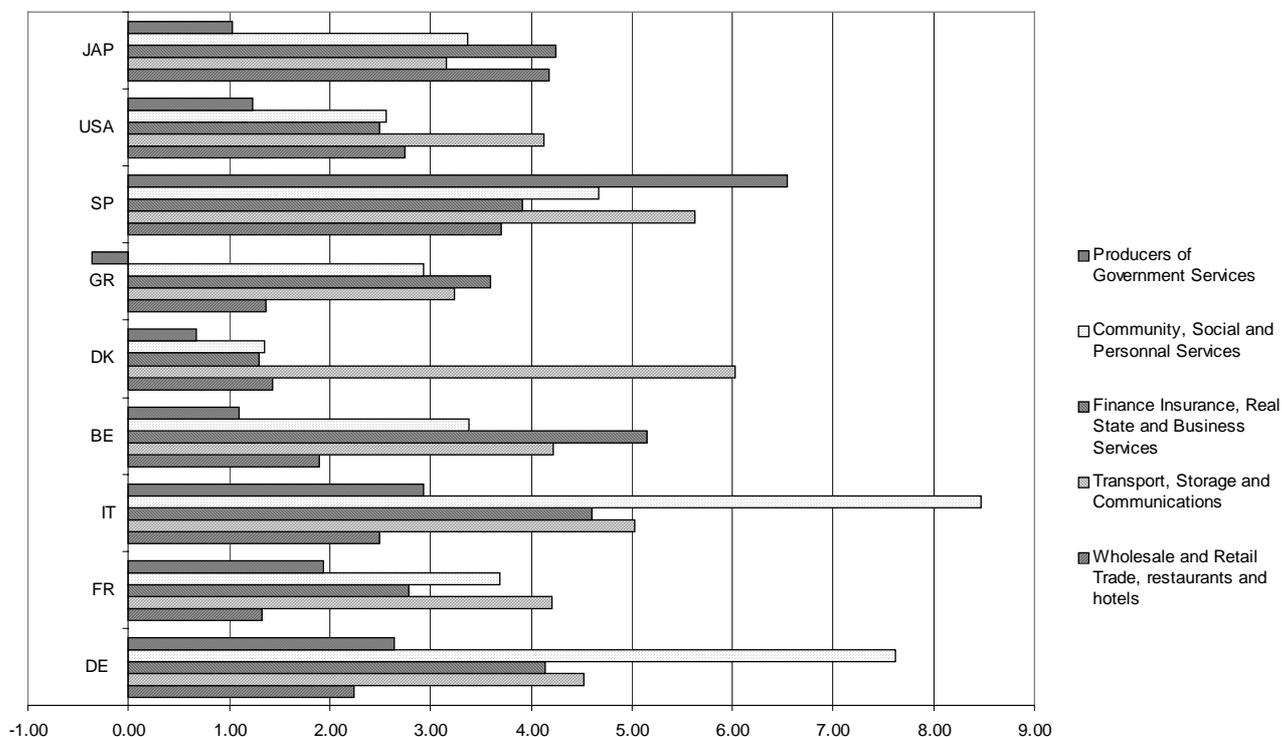
The fastest growing service sectors (as indicated in Figure 2.9) in the OECD and Europe, both with respect to employment and output, are finance/insurance/real estate services, business services, and personal/social/community services (OECD 1999a). Most government services are tending to stagnate, while wholesale/retail/restaurants/hotels are even declining. Transport and communication services are growing slowly.

However, it is important to make a clear distinction between **the ‘new’ types of information-based services** (such as finance/insurance and certain business services) and **‘traditional’ personal-attention based services**. This can be made clear by looking at the underlying drivers of growth.

**Financial and insurance services** are becoming a very competitive growth area as operation of both the Single Market and, perhaps more importantly, EMU come into effect. The opening up of the market has also led to an increased presence of American and Japanese firms, to which European banks and insurance companies have responded with a wave of mergers and acquisitions (see Box). These dynamics are reinforced by a growing overlap and integration of financial, banking and insurance services under one roof. Demographic factors are seen as the main reasons for growth in this sector. Out of concerns about the future of the social security systems, the ageing of the European population is expected to increase total savings and thus fuel the growth of insurance companies and banks. Competition is also fostering the development of new and cheaper types of financial services.

The growth in **business services** needs to be seen in relation to the changing practices and organisational patterns of firms. Business outsourcing (see also Section 4.1) has certainly contributed to boosting the business-service sector. Even R&D functions are increasingly being provided through the market. A considerable share of national R&D is carried out in the services sector in OECD countries. The share of services in R&D accounts for about 15% of total business R&D in the OECD area. ICT-related services have a particularly high technological intensity, however, innovation in services relies less on R&D than on manufacturing.

**Figure 2.8: Average annual growth rates 1985-1995 of branches of services**



Source: OECD (1998c)

The share of services in business R&D has been growing steadily in almost all OECD countries (Table 2.4). The absolute values should be interpreted cautiously, however, given the fact that the way R&D in services is measured differs from country to country.

**Table 2.4: Share of services in business R&D<sup>21</sup> [%]**

Country	1980	1997	Country	1980	1997
Denmark	20.3	31.9	Norway	15.5	32.4
Finland	5.7	12.8	Spain	12.9	15.7
France	5.7	10.8	Sweden	11.2	11.6
Germany	2.5	4.3	United Kingdom	5.5	19.1
Ireland	9.6	13	United States	4.1	19.5
Italy	11.4	17.8	Japan	4.5	3.5
Netherlands	6.9	18.7	<b>Total OECD</b>	<b>4.7</b>	<b>15.2</b>

Source: ANBERD 1999

<sup>21</sup> Share in total of manufacturing and services industries.

The demographic and social developments over recent years have already led to a boost in **community, social and personal services** (see Panel Report Demographic and Social Trends). In Germany, Italy and Greece these are the fastest growing types of services and they are also growing strongly in the other countries for which data is available (Figure 2.9). They comprise first of all personal attention services (e.g. for the elderly or childcare), but also the entire range of leisure activities, whose growth is being encouraged by new lifestyles and patterns of work. People spend more time and more money on leisure activities than ever before, and the leisure industry (including multimedia, cinema, sports, holiday travel, etc.) is the main beneficiary of this development. These trends are not only reflected in household budgets, but also in the changing preferences of the different age groups (e.g. with regard to shopping and entertainment needs).

**Box: The restructuring of banking, insurance and financial services in Europe**

The banking sector in Europe is currently in a phase of restructuring and the number of banks has been falling since 1992 (Eurostat 1999c). There is also estimated to be over-capacity in banking worldwide. In the near future, banks will need to rethink their overall strategy by adopting a more customer-oriented approach and implementing new service delivery systems. An ageing population, with growing retirement portfolios, dual income families with little time to spare for visiting banking branches, and increasing customer demands for banking services are all factors contributing to the re-orientation of the traditional banking sector.

Banks are likely to diversify and provide a broadening array of financial products to their customers including, for instance, asset management services. Insurance firms are expected to come into closer competition with banking institutions and vice versa. In fact, both in Europe and globally, the integration of banking and insurance is already underway. Again, advances in ICTs facilitate these developments.

Bank mergers are taking place in several EU member states, but they tend to involve primarily national institutions. This defensive attitude against Single Market principles tends to nurture national champions that can compete better on global markets thanks to their size, but it does not foster the establishment of a genuinely European system of banks. There have so far been only a few cases of Europe-wide mergers in banking, such as the alliance between Italy's third largest bank group by assets, UniCredito Italiano, and Spain's second largest, Banco Bilbao Vizcaya-Argentaria, which will be finalised in January 2000.

This restructuring process is being accelerated by growing competition from outside Europe as a result of the removal of trade barriers and also by progress in other areas, such as the completion of the negotiations for financial services at the World Trade Organisation. These factors will bring about an increase in the volume of transactions taking place on international financial markets. On the one hand, this will offer additional opportunities for Europe-based financial services to expand their markets. On the other, the European banking system is relatively inefficient, being on average able to achieve just half the profits of their US counterparts. In other words, in an increasingly globalised and integrated financial market, European banks are in a rather weak starting position and will have to make a big effort over the next few years. As a consequence, the current dominance of Japan and the US in innovative financial business services could soon apply also in retail banking.

It is particularly interesting to look at the new employment profiles and productivity levels of the emerging services. Recent research conducted by the OECD has highlighted the fact that on **average jobs in the service sector** should no longer be categorised low-skilled (OECD 1999a). As recent trends have demonstrated, much of the growth in service employment over the last decade

have involved highly-skilled workers, especially in areas such as real estate, business and financial services, and in health-care services.

**Productivity** is one of the most difficult indicators to measure in the service sector. While productivity growth tends to be regarded as comparatively slow in services, this does not hold for services which benefit from the greater use of ICT and other advanced technologies (OECD 1999b, p. 9). This seems to be the case, for instance, in sectors such as distribution, communication, and consulting/management.

The tradability of services is increasing, but with limits

One of the keys underlying trends behind the expansion of the ‘new’ services is their growing information intensity. A clear pattern of growth of knowledge and information-based services can be observed. The products of these types of services contain a **high degree of tacit (‘intangible’) knowledge**, whereas manufactured products and processes contain a high degree of codified knowledge (Windrum/Tomlinson 1999). Knowledge-intensive services are to a large extent built on a combination of codified and non-codified knowledge and skills. Information services such as the exploitation of data-bases (‘data-mining’) are a good example of codified knowledge services, whereas business services (e.g. consulting) are of a rather mixed nature.

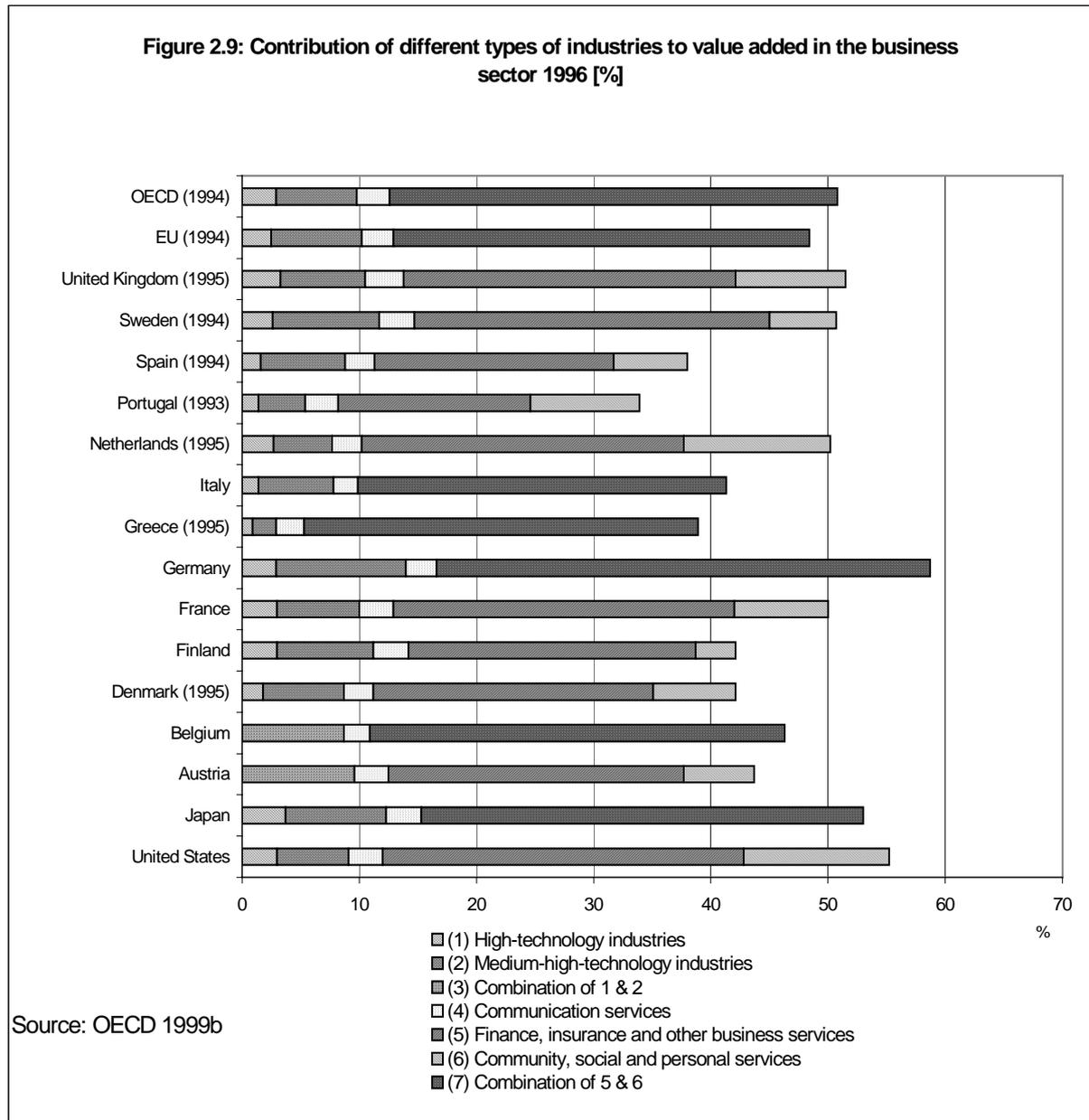
A second example is the **ICT sector** itself. In fact, the ratio of expenditures in ICT services relative to the expenditure in information technologies continues to expand and has reached about 70% of the total ICT market (Eustace/Mortensen 1998). At the same time, there is an increasing trend towards integrating information technology products with information services, thus enabling economies of scope. This leads us to expect that the current process of information mega-alliances including information technology, information services and telecommunication companies is likely to continue (“horizontal integration”).

This convergence of service provision and manufacturing (often going hand in hand with customisation) can also be observed in many sectors other than ICT. Traditional utilities companies are increasingly pursuing a service concept. Car manufacturers are also offering more and more full-service packages, including finance, maintenance and mobility guarantees.

Figure 2.9 illustrates the increase in high- and medium-high technology manufacturing and the growth in services. In the United States and Japan growth in manufacturing has outpaced that in services, whereas in Europe services performed significantly better than manufacturing.

In many other areas, the widespread **diffusion of knowledge-based services is being facilitated by ICTs** and in particular the Internet. The crucial role of the Internet is due to the fact that it gives users direct access to service providers and even producers, thus circumventing the distribution chains. At least in principle, it allows individuals and firms to have direct access to information, and to compare competing services. The Internet offers a new infrastructure for doing business, which is particularly attractive when combined with the effective use of electronic commerce. Knowledge-intensive services are vehicles of knowledge transfer, but these firms are engaged in the co-production of ‘new’ knowledge and material artefacts with their clients. These services offer complete ‘problem-solving’ solutions, which incorporate the combination of product and service that many clients really need. Being able to deliver these combinations can be considered a competitive factor.

Traditionally, services have been considered largely non-tradable, because they are difficult to store and transfer. However, there is evidence that services are becoming more easily transportable, thus tradable. International competition is therefore also becoming an issue for services. At first glance, the possibility of transferring information easily across the world seems to facilitate the **tradability** of information and knowledge-intensive services in particular, and thus the relocation of jobs involved. This is certainly true for certain standard business services (e.g. software development), and it is also reflected in recent data on trade in services.<sup>22</sup> However, many other services still



require solid familiarity with the local circumstances.<sup>23</sup> In other words, while tradability may in general grow, many of these tradable services still need to be rooted and provided locally. Among these local circumstances one should also count regulations and trade barriers. In view of the importance of creating jobs, such locally based high-value service activities could be a key element of employment and innovation policy.

<sup>22</sup> According to OECD, trade in services represents about 25% of trade in goods, but this figure is rather underestimated because it only includes the exchange of services across borders, not within firms (OECD 1999b).

<sup>23</sup> C.f. the difference between “culture-specific” and “universal” products and services (Coates et al. 1997).

OECD data suggest that trade in services accounted for 25% of trade in goods in 1997 and that this share is growing rapidly. Moreover, the internationalisation of the services sector is likely to promote the diffusion of innovative concepts and so trigger the emergence of new specialisation patterns in services according to each country's comparative advantage in tradable services. This new division of labour in services would thus have a positive impact on long-term economic growth.

Whether trade opportunities for services will materialise depends on a number of **conditions**. The barriers to trade in services include restrictions on market access arising out of requirements of nationality; requirements concerning legal forms or ownership; qualifications, standards, and licensing; and barriers created by government procurement rules. While some of these restrictions have been discussed during the most recent trade round, barriers to trade in services remain far more pervasive than barriers to trade in goods. Not even in the Single European Market, which is theoretically equally applicable to services, has it been possible until now to remove fully all barriers to the free exchange of services and assure their tradability across national borders. In view of these difficulties under the relatively benign conditions in Europe, it is rather unlikely that an effective removal of barriers to trade in services will become a reality in the near future.

The more traditional types of services, which are less information and knowledge intensive, are far less tradable as they tend to require local presence. This condition holds for most government services and wholesale/retail, restaurant and hotel services, which are the two main groups of service employers. In some –particularly Nordic– countries more than 70% of employment is in services, and even in Greece and Portugal the level is above 50% and growing rapidly.

One of the characteristics of this type of service is that they rely to a significant extent on close relationships with customers. By their very nature, they cannot easily be relocated. **Their significance for competitiveness resides in the efficiency and quality with which they can be provided** to the (local) economy. The wholesale/retail sector is a case in point. In recent years fierce competition has driven an increase in efficiency. Consumers are increasingly concerned about what they buy and when. Their spending behaviour acts as a catalyst for further increases in the competitiveness of the distribution sector. The key issue therefore becomes rationalisation, the pursuit of economies of scale, and increased labour productivity to limit cost increases. Even if recently there has been a trend among some large retailers to opt for diversification and expansion as the internal market has become saturated, others have adopted the 'successful' strategy of specialisation by taking into account the specificity of each national market in Europe. For this reason, expansion of some firms has taken the form of operational cross border alliances, such as international buying groups and joint project development agreements (DRI, 1997). Other areas such as education, health and government services, where competitive pressure is at best limited, are often struggling with problems of efficiency (c.f. 'Settling the bill' report of Futures project).

Other sectors where quality and specialisation will play a growing role are personal services and services related to the tourism sector. These sectors are characterised by intense competition, and generally consumers are more knowledgeable and demanding about what they receive. Especially, for services related to the tourism sector (i.e. hotels and restaurants) the Euro can be expected to boost demand for intra-EU travel.

## Service innovation in the intangible economy

The second key issue relating to services is their evolving level of **innovativeness**. Services have traditionally been regarded as less innovative than manufacturing, but with the emergence of information-intensive services this situation is changing. A key difficulty in tracing these innovations lies in their 'soft' nature. There are no patents for service innovations, and other forms of IPR protection (copyright, trademarks) are not very common in the service sector, either. However, some services such as R&D and computing services, consultancy and training, are important elements in the networks that create innovations, since they help diffuse technology and innovative concepts to other firms. These knowledge-intensive business services (KIBS) constitute a second layer of the knowledge infrastructure, supplementing the layer formed by universities, research institutes, and traditional knowledge transfer institutions (Bilderbeek/Den Hertog 1998).

The increase in knowledge-intensity, in conjunction with the potential of new technologies, is opening up new opportunities for services, but firms need to rely on the technical expertise of service providers to exploit these opportunities. A **large increase in demand is expected for business services** in areas such as computer services and systems integration, computer and IT consulting, network and data mining and electronic information services. Currently, the US seems to be leading in the provision of this kind of business service. However, over the coming years, they will grow more rapidly in Europe than in the US, albeit starting from lower levels of market penetration. American firms are setting up subsidiaries in European markets to exploit this market opportunity.

The further **expansion of information infrastructure** and greater ease of access will thus become key concerns for all economic entities (see the Future panel report on ICT and the Information Society). Firms are confronted with the problem of how to organise the knowledge to which they increasingly have access and on which they increasingly depend for both their day-to-day and strategic operations ("**knowledge management**"). In this respect, Europe seems to be at a disadvantage relative to the US, for instance, because SMEs, which are the core of the European economy, tend to be more reluctant to adopt innovative management approaches than larger firms (CEC 1998b).

A second main area of change in services will come from **electronic commerce transactions**. Electronic commerce may initially take off in the business realm, but the more secure and reliable these services become, the more will they also be accepted by end consumers. The reasons for the interest in electronic transactions are straightforward: ICTs and outsourcing enable significant cost savings (see Table 2.5) and these cost savings and efficiency gains make transactions cheaper. These savings also accrue in manufacturing, but the impact has been particularly strong in information-based services.

A key issue with respect to acceptance of e-commerce is a **reliable authentication technology**. This is essential in order to build trust in this new form of economic exchange. At the moment, it is still restricted to a small number of products/services (notably computer products, books and travel), but many experts predict exponential growth over the coming years.

**Table 2.5: Savings of distribution costs for selected products due to the use of e-commerce  
[US \$ per transaction]**

	Airline tickets	Banking	Bill payment	Term life insurance policy	Software distribution
<b>Traditional system</b>	8.0	1.08	2.22 – 3.32	400 – 700	15.00
<b>Telephone-based</b>		0.54			5.00
<b>Internet-based</b>	1.0	0.13	0.65 – 1.10	200 – 350	0.20 – 0.50
<b>Savings due to use of Internet/e-commerce [%]</b>	87	89	71 - 67	50	97 - 99

Source: OECD (1999c), p. 14.

In any case, **electronic commerce offers great potential for the development of a wide variety of business sectors**, including for example:

- Education, training and skill formation services – through expanded use of interactive and distance learning;
- Technology and consultancy services – where the main activity of these services is transmission and sale of information and knowledge;
- Advertising and marketing services – especially if more suppliers sell directly to consumers.

**Box: Authentication in electronic commerce**

Electronic commerce over a networked environment (mainly Internet) is a new way of conducting business, not a new a business sector *per se*.

Though a rather recent and limited phenomenon (US: \$26 billion in 1998) it already affects large sectors of the existing economy, such as communications, finance and retail trade (altogether, about 30 per cent of GDP) and shows promise in areas such as education, health and government (about 20 per cent of GDP).

Forecasts suggest that by 2003-05 commerce over the net will reach \$1 trillion, raising expectations of a market volume of more than two trillion by 2010.<sup>24</sup> The main bulk of this growth will in business to business transactions (already 80% of current e-commerce).

Three factors are contributing to this growth:

→ E-commerce reduces transaction costs and (potentially) improves product/service quality; it is cheaper to set up and run an electronic store than a bricks-and-mortar one; there are easily achievable efficiencies of just-in-time inventory and improved demand forecasting (it is anticipated that it will be possible to reduce current US inventory levels by 20-25 %); more precise buying behaviour is possible (people know what they want from the net); error rates in ordering are reduced by web based orders; better customer care is possible (help desk, smart follow up etc.) and dramatic cuts can be made in distribution costs (see Table below).

→ A ‘bandwagon’ effect amongst competitors is to be expected: e.g.; Amazon.com triggered Barnes & Noble to the same, which prompted Bertelsmann follow suit, etc.

<sup>24</sup> This estimate is taken from CEC (1998c), which in turn uses data from different sources such as OECD, Aktivmedia and Forrester Research.

→ Large businesses will insist that all their suppliers link into their e-commerce system as a condition of doing business (e.g. Boeing putting supplier parts on its site and hence becoming an 'infomediary')

Though in the years to come SMEs will be the most affected –large companies already have EDI systems in place– in the business to business segment, the business to consumer market will follow too.

Back in 1998 total US online retail shopping had reached \$7.8 billion; which was three times what was spent the year before (Forrester and Zona research quoted in Red Herring, April 1999). 1998 also showed a shift in the profile of online buyers: from the young, male early adopters, to the normal consumer profile (including women and the elderly) indicating that it may be possible for e-commerce to be viewed as a normal transaction by the average consumer.

Source: OECD (1999c)

### Issues and challenges

As discussed in the previous sections one of the key advantages of the service sector lies in its continuing growth. However, it is becoming more evident that **the new emerging type of services (i.e. knowledge and information based services) have different requirements and have to be differentiated from the more traditional ones** (personal services, many public and utility services). This is especially important with respect to policy. In fact, some service areas are able to expand organically without requiring any enabling or regulating policy intervention. For example, business services are not as highly regulated as other services areas, and market access conditions are fairly liberal. In cases of market or other kinds of failures which prevent the full expansion of services or endanger fair competition, a policy initiative may be advisable. For example, the current wave of consolidation in the retail/wholesale sector requires the attention of competition authorities in order to prevent market distortions. In electronic commerce and the financial sector policy measures are crucial in order to enable the diffusion of new types of services, e.g. with respect to authentication. In addition, the regulatory framework and in particular the availability of standards can be extremely valuable to regulate financial transactions in E-commerce operations. On the other hand, a new regulatory framework may act as a key element in promoting new emerging areas, such as environmental services. Infrastructure development and education/training initiatives could become important to enable the uptake of ICT-based services.

Services tend to be regarded as lagging behind other sectors in terms of innovation. However, services can be innovative in terms of both technological and organisational innovations. Furthermore, the part of the service sector which is information intensive is particularly innovative, but this is insufficiently reflected in the statistics. As a consequence, **innovation policies are still very much based on the situation in the manufacturing industries**. Although some aspects of these policies may apply to service innovation, there is evidence to suggest the need to adjust present innovation policies to the specific characteristics of the emerging knowledge and service economy. In fact service innovation should be considered a separate phenomenon with its own characteristics, problems and challenges. Government policy measures for innovation could foster service innovation by helping to develop stronger links between universities and service firms.

As already stated above, support should be differentiated and not general. A framework for innovation could be based on policies that will enhance technology diffusion throughout the economy, promote networking and clustering, increase the leverage of research and development, and strengthen the capacity of the innovation system to respond to the globalisation process. Moreover, governments are in a key position to enhance innovation for those services that are

provided publicly. For example, there is scope for strengthening innovation through benchmarking processes in the health-care, education, security and urban and environmental management sectors.

The tradability of services has only recently come under the spotlight. Trade in services has been expanding rapidly, and the removal of barriers to trade in services is of high priority. For example, the quality and efficiency of business services could be improved by further liberalisation of international trade and investment. However, this would first require a reliable framework to be put in place, and this is currently still “under preparation” at the WTO.

In general terms, the services sector lacks an *ad hoc* regulation at European level. There are several aspects of this sector that would benefit from a regulatory framework. For example, total quality is an important requirement of services, but at present there are no regulations that establish how quality can be measured. An adequate regulatory framework will also have impacts on service tradability and internationalisation. Sometimes existing regulations or policy hinder even innovation in the services sector. For example, procurement guidelines are a barrier for those enterprises that are able to offer a complete package of solutions to problems, where these solutions integrate products and services. In general, procurement guidelines tend to look only at the prices of products and compare their functions. Procurement guidelines do not consider the service aspect of a ‘problem-solution’ approach that some service companies are already able to provide.

As far as the promised bright future of e-commerce is concerned, achieving forecasted growth depends in the first place on the (technical) availability and (financial) accessibility of e-commerce systems, as well as on the requisite skills. Moreover, what is so unique (and problematic!) about e-commerce is the premium placed on openness, both from the customer point of view (privacy and security) as well as from the business point of view. To reap the potential cost savings fully, firms must indeed be willing to open up their internal systems to suppliers and customers. This raises policy issues concerning security and potential anti-competitive effects as firms integrate their operations more closely. Business efficiency will also increase through the opportunity for “boundary crossing” as new entrants, business models, and changes in technology erode the barriers that used to separate one industry from another. This leads to increased competition and innovation, which necessitates a consistent regulatory environment. In sum, one of the main policy topics with regard to e-commerce is the technical and regulatory establishment of regimes of trust. Within and between firms, as well as between firms and consumers.



### 3. Where to produce in Europe?

#### 3.1 Europe is benefiting from the redirection of investment flows

*Up until the mid-nineties, many European firms relocated parts of their production outside the EU, particularly in East Asian countries. In the meantime, technological developments and the declining importance of labour cost advantages have changed the conditions for investment. Nevertheless, both Asia and Latin America continue to be important as locations in which to invest, but now the motivation is to be present in markets which in the long term promise to be the largest and fastest growing consumer markets in the world.*

The changing geography of global investment

**Globalisation** is widely regarded to be one of the key drivers of economic change. Fuelled by a worldwide trend towards market liberalisation, privatisation and highly mobile capital, national economies are becoming increasingly interconnected. However, in terms of its tangible dimensions (trade and foreign direct investment) the global economy is in fact undergoing a process of **regionalisation** into three main trading blocs: the EU, ASEAN and NAFTA. In Europe, for example, in the mid-nineties between 60% and 70% of trade flows took place inside the EU. About half of these intra-EU trade flows were based on “vertical” product differentiation, with trading partners specialising in complementary quality levels within the same product class, or on different links in the production chain (Soete 1999). Foreign direct investment (FDI) flows confirm the consolidation of these global-regions. FDI in Europe peaked in anticipation of the Single Market in 1993, driven to a considerable extent by an increase in intra-EU investments.

However, the rate of economic integration between the three main blocks has also been accelerating. Back in the eighties, the East Asian tiger economies were already absorbing significant amounts of efficiency-seeking foreign investment.<sup>25</sup> A particular cause for concern from the European perspective was the fact that several European firms invested in these regions in order to relocate production to countries in which labour costs were much lower, while the workforce was sufficiently skilled to carry out the necessary work-steps. This relocation strategy, which was intended mainly to produce standardised goods for the world market, led to a loss of employment and wealth creation in Europe. Labour intensive industries such as textiles or assembly of electronic products, were particularly hard hit.

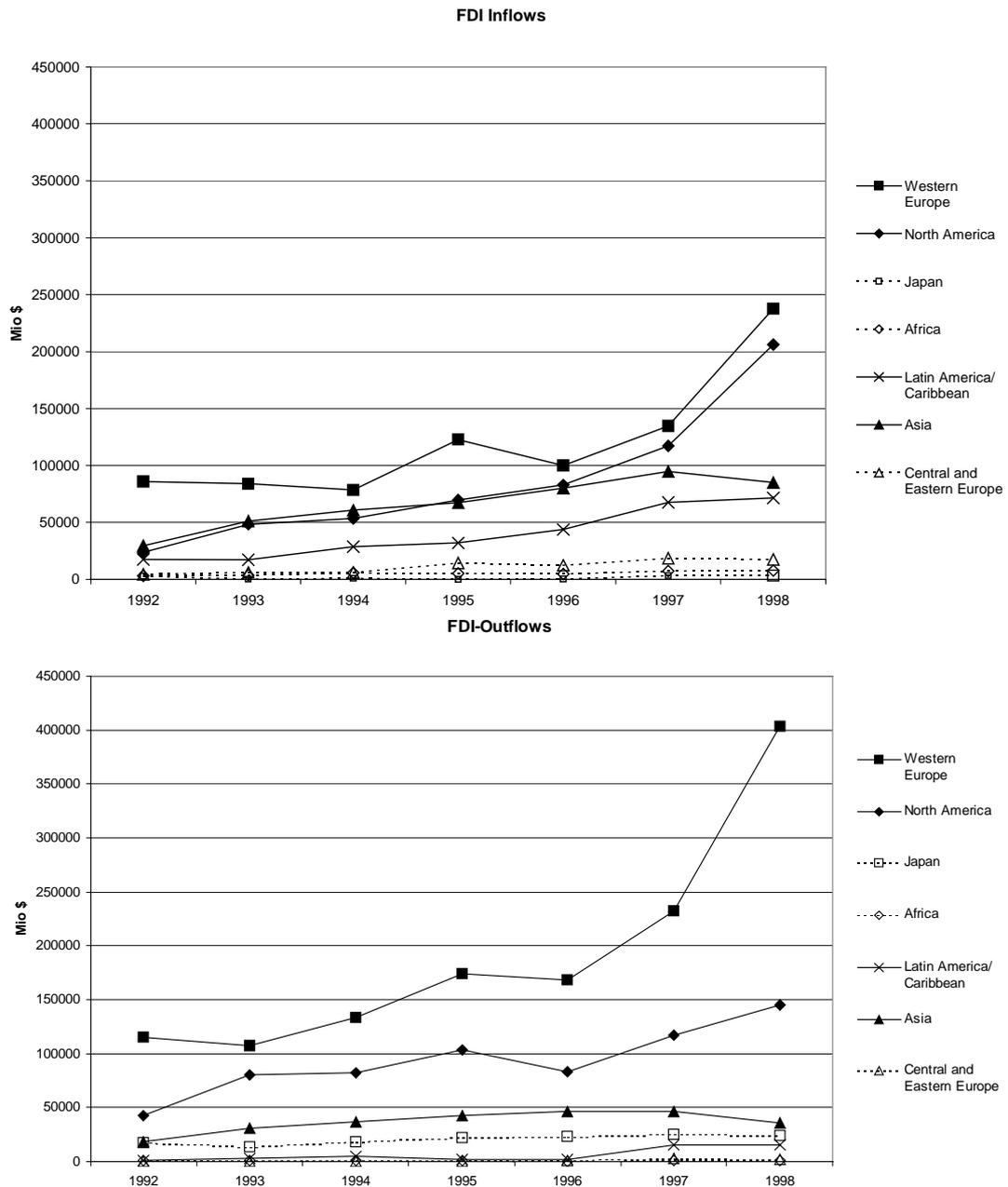
In recent years, firms seem to have started to come back to Europe. Foreign Direct Investment may represent only a comparatively small fraction of total investments, but it is a good indicator of where the investment conditions are perceived to be good and to be promising for the future.<sup>26</sup> The growth of FDI to Southeast, East and South Asia has slowed during the nineties, while it continues to grow rapidly in Latin America, the US, and –with some aberrations– in Europe. In absolute terms, since the end of the eighties Europe has continued to be the most important destination for FDI, at least if intra-EU investment is included (which represents about half of FDI to EU

<sup>25</sup> Usually efficiency-seeking FDI is distinguished from market-seeking and resource/asset-seeking FDI.

<sup>26</sup> In terms of gross fixed capital formation, which can be used as an indicator of investment activities in absolute terms, during the nineties growth has been faster in the US than in Europe. This is in no small measure due to the economic boom; it nearly doubled in the US between 1990 and 1998. In both regions nearly 21% of GDP now goes into gross fixed capital formation (CEC 1999a)

countries). As is also confirmed by the EU's recent annual economic reports (CEC 1999b, 1997), the EU as a whole has become increasingly attractive for investors outside the EU, especially since 1995. Additionally, in the mid-nineties, Central and Eastern Europe started to take off as a location for FDI. The statistics up to 1998 do not yet fully show the emerging pattern, but according to the World Investment Report 1999, there are indications of a further slowdown in Asia (not least due to the financial crisis) and of a further increase towards Europe as a whole.

Figure 3.1: FDI inflows and outflows by major world regions, 1992-1998 [Mio US \$]



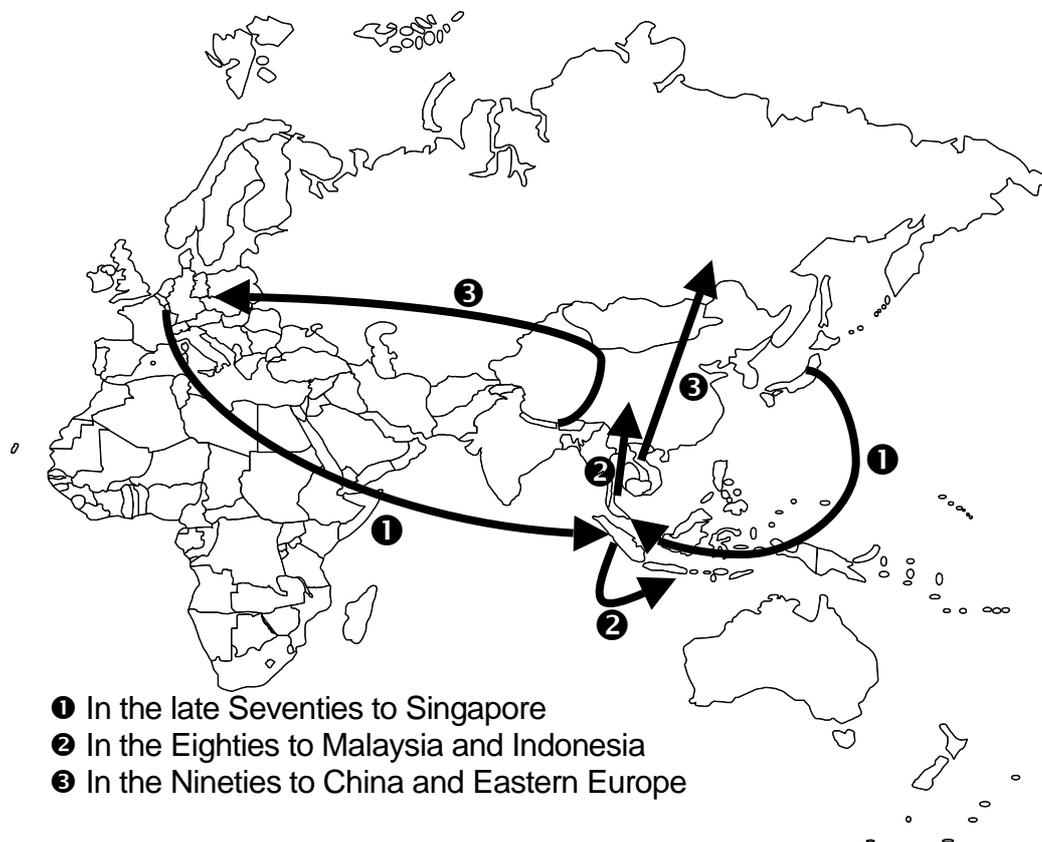
Source: UNCTAD 1998, 1999, data include intra-EU FDI

The EU is also the world's largest source of Foreign Direct Investment. While other industrialised countries represent about 60% of outward investment, the developing countries' share has been

rising since the beginning of the nineties. The growth in outward investment is paralleled by comparable inflows, and thus indicates European companies' competitive edge (CEC 1997).

As far as investment of European firms in Europe is concerned, there is the additional **anecdotal evidence of individual firms** which previously relocated to East Asia and which are now investing again in Europe. At least for labour intensive industries (textiles) and production stages the low labour costs and good skills in the Central and Eastern European countries have been an argument in favour of a to return to Europe. In the seventies many firms in the consumer electronics industry (see Figure 3.2) moved production facilities from Europe to places like Singapore, and later to Malaysia, Indonesia and Mexico. In the nineties, there was on the one hand a further move to low-labour-cost locations such as China, but also a return to Eastern Europe, especially Poland and Hungary. The more sophisticated parts of the production process were kept in Europe or moved back there.

**Figure 3.2: Geography of investment flows in the consumer electronics industry 1970-1995**



Source: IPTS

Investment moves closer to the consumers

Several reasons have contributed to the improvement in investment conditions in Europe. High on the list are two factors which are both related to the changing models of production and consumption. First of all, new and **more flexible production technology and automation** have made it possible to respond to demands for customisation. While cost reductions in mass-produced goods may have been one of the main motivations for relocation to Asia in the Eighties, firms are

increasingly required to **customize their goods and services** to the patterns and preferences of local demand.

New and more sophisticated skills were needed to run the new flexible production sites. The more sophisticated and complex the production process becomes, the more important it is to be able to rely on highly skilled and reliable employees who are flexible and able to implement new requirements from the customer. Moreover, the tighter integration of production chains is difficult to realise over long distances, but just-in-production or production-on-demand require just such a tight-knit integration. As a consequence, several firms had a rather disappointing experience of relocation to other regions of the world because of the difficulties of transferring many of the tacit and cultural specificities of their home base to the new environment, and the difficulty of responding appropriately to the changing requirements of the lead markets.

There is hardly a doubt that the trend towards customisation will continue over the coming years. As a consequence, the role of **home and lead markets** will become even more important. In order to be able to react immediately to changing customer needs, it is necessary to be present where the main future trends are being set and tested. This not only affects firms' marketing and sales departments, but also demands an increasingly flexible production model, particularly in the later stages of the production chain. For example, while in the past, R&D was conducted in isolation from markets and remote from marketing activities, R&D centres now need to be located closer to the markets. This has happened in the case of biotechnology in the US and with mobile communications in Europe.

In general terms, the qualities of the EU as a lead market have improved significantly with the implementation of Single Market policy and Economic and Monetary Union. Europe is not only the largest market on the world, but probably also the most diverse and in many respects the most demanding one. The further removal of barriers and the simplification/harmonisation of administrative procedures is expected to improve the situation yet further over the next few years.

The quest for quality and the growing influence of consumers are important mechanisms for improving the competitiveness of goods and services. Europe has this lead market function for a number of important industries, such as motor vehicles or food products, for example. In biotechnology, the US is usually regarded to be the lead market, moreover the regulatory framework and entrepreneurial environment there are particularly conducive to it. The tighter regulations in Europe may nevertheless be an advantage in the longer term, depending how customers eventually react. It is interesting to note that concerns about genetically modified food, which originated in Europe, are now being increasingly voiced in the US and Japan. Firms that are able to respond early on to those concerns, i.e. at the R&D stage, have a competitive advantage. Rather than perceiving consumer concerns always to be a danger to competitiveness, they should be regarded as an asset signalling future trends in consumer behaviour.

Firms have to respond to these developments. New production technology and globalised markets affect the way business is organised, and thus also their investments. **The "global localisation" or "glocalisation" of firms** has been one of the responses to the new opportunities offered by ICTs and the liberalisation of markets on the one hand, and by the need to be close to the customer on the other. "Glocalised" firms benefit from their global base, but also from their local presence through offices and branches, allowing them to be familiar with the local context conditions and enabling them to provide goods and services in a way which matches local requirements. R&D activities may be concentrated close to the lead markets, but some degree of development may also be needed to adjust products to the local conditions in individual markets.

In addition to domestic developments in Europe (the harmonised single consumer market, EMU), a number of **developments in Asian countries** have contributed to making the “tigers” appear less attractive locations in which to set up low-production-cost plants. Even if most of the Asian economies are expected to recover soon from the financial crisis, the general trend towards higher labour costs and standards of living indicates that the cost advantages they had in the eighties are being eroded and cannot be fully outweighed by growth in productivity. However, although rising labour costs may have reinforced this erosion, they are no longer the main argument for the relocation of production. The share of labour costs represents less than one quarter of production costs in the industries most affected by relocation trends (Eurostat 1999a). These industries are, according to a Belgian survey, clothing, textiles, and food/drink. In the same survey it was pointed out that only in 12% of cases were labour costs the main reason for investing abroad, while the access to new or high growth markets was decisive in 69% of cases (CEC 1999a). Subcontracting to foreign suppliers is more often motivated by low labour costs. Accordingly, the reasons for refocusing investment on Europe, and on the CEECs in particular, should be seen to be less a result of low labour costs in CEECs (although it may have been an additional argument) than the fact that they are close to the Single European market.

A number of **other factors** are making a further contribution to the ongoing change. Insurance and customs are a significant cost element for many goods. According to calculations by Philips, insurance costs make up just 2% of total costs in the Netherlands or Austria, but 13% in Hungary and 19% in Malaysia.<sup>27</sup> A significant part of the former cost advantages of East Asian locations (and, by the way, also of Central and Eastern European countries) are eaten up by these additional cost items.

Transportation costs, while still being of minor importance for high-value, low volume products, start to matter when it is necessary to ship goods over thousands of kilometres. Proximity to the largest consumer market in the world not only offers advantages in terms of transportation, but also in terms of the ability to customise products and deliver associated services (e.g. just-in-time production).

For the immediate future, this has two important **implications**. First of all, investment in Europe is neither deterred nor encouraged by the low labour costs, but is instead driven by arguments which have more to do with specific skills and competencies and proximity to the Single European Market. While this may sound like good news, it also implies that the current comparative advantages of the CEECs in terms of labour costs are not likely to be sustainable.

Being prepared for the main future growth markets

There are at least **two important reasons why East Asian as well as Latin American countries remain attractive locations for investment**. First of all, certain information-based tradable services (standard software development, for instance) are not affected by considerations of proximity to home markets, transportation, and in many cases insurance and customs are not issues either. Here, the advantages of a cheap-but-skilled labour force can be fully exploited because the final product can be easily transferred to the customer. However, there are many open questions with respect to trade in services which will have to be addressed in the coming years and which will require careful attention.<sup>28</sup>

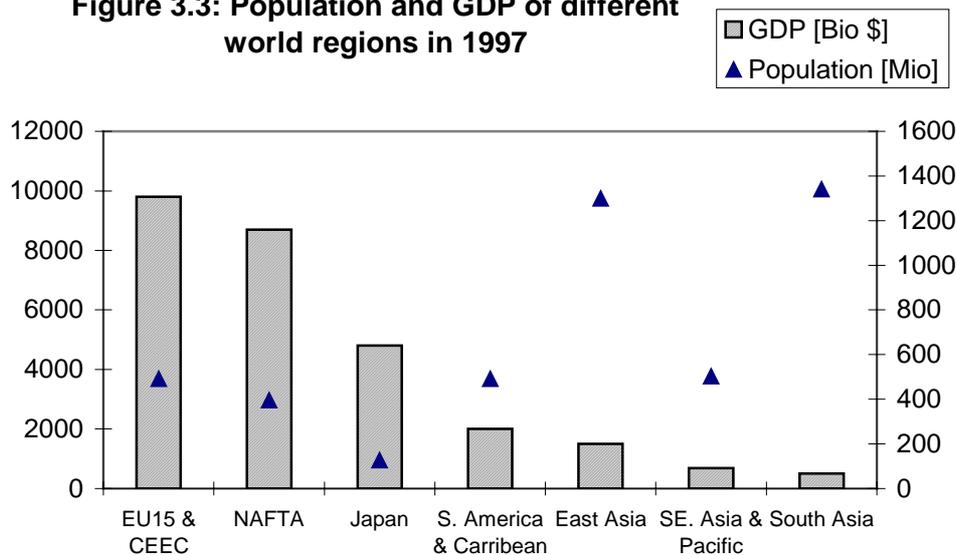
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<sup>27</sup> Data taken from NRC Handelsblad (1995).

<sup>28</sup> For an overview of several of the open issues, see Miozzo (1999).

What will differ from the last decade is that FDI will be driven less by the promise of lower production costs (“cost saving FDI”) and more by the possibility of access to what is expected to become –at least in the longer term– the largest consumer market in the world (“market opening FDI”). For the moment there is still a long way to go until East Asia or Latin America will really represent unified consumer markets, but the example of China with its 1.2 billion inhabitants shows how important an early presence in this market is for strategic reasons. China is already the main destination of FDI in Asia.

**Figure 3.3: Population and GDP of different world regions in 1997**



Source: UNDP 1999

However, with respect to purchasing power, Europe will remain the largest market for quite some time (see Figure 3.3). Even if the economies of the Asian countries grew 3% faster than the European economy, their GDP would still be 2.5 times smaller than that of the EU 26 by 2010. Moreover, the higher sophistication of demand and consumer needs in Europe is a guarantee for keeping large parts of the R&D-intensive sections of the production chains in Europe.

#### Issues and challenges

While the high labour costs in Europe have frequently been accused of being a danger to competitiveness, they do not in fact play a particularly important role as determinants of investment locations. This development is reflected in the shift **from cost-saving to market opening FDI**. On the contrary, new developments in production technology and markets rather favour the “Standort Europe”. However, at the same time this confirms the hypothesis that a low labour cost strategy is not a promising way forward for the pre-accession countries.

In this respect, and given the size and sophistication of the European market, it is quite likely that Europe will continue to be the destination for increasing amounts of investment –both foreign and domestic– which will fuel the European economy. There are nevertheless a number of inroads by which this promising situation can be further improved:

- The harmonisation of economic framework conditions has not yet been fully achieved, but is expected to be further improved in the next few years, especially as regards services. Nor has the single currency yet fully come into effect. If both developments progress further and are

also applied as widely as possible to the pre-accession countries, the market-related advantages of investing in Europe will be enhanced.

- In order to maintain its role as a sophisticated lead market in many sectors, Europe requires knowledgeable and critical consumers. This makes it necessary not only to strengthen consumer protection, but also to make sure that European consumers have the knowledge and skills necessary to use new products (e.g. regarding ICT and e-commerce).
- The size and sophistication of the European market alone is not enough to keep highly knowledge-, research- and technology-intensive activities in Europe, if the context conditions for conducting R&D are not conducive or if the main resource –human brains and creativity– are not available. Investment in skills development, training and education, and research systems will become ever more important in order to offer attractive conditions to highly-qualified people in Europe.

Particular attention should be paid to the emergence of new areas of demand, such as those outlined in Chapter 2.2. If Europe develops into the lead market in these areas, it will be able to maintain a stream of inward investment. By leading the development of new products and services (e.g. for an ageing population, or with respect to quality consumption in the food sector) new global trends can be set from which the European economy could benefit as much as its trading partners.

Finally, a presence in other markets such as Asia and Latin America is vital to opening up future export markets, but also to contribute to global wealth creation by a more efficient division of labour among world regions. It is thus important that European firms with export aspirations continue to make strategic investments in production sites in these future markets. This is a vital factor in maintaining Europe's long-term export potential.

### 3.2 New patterns of specialisation in an enlarged EU

*The economic integration of Europe, following in the wake of the political process of enlargement, will affect Europe's competitiveness in many respects. Beyond the initial costs of adjustment and restructuring in East and West, the new enlarged Europe offers the opportunity to improve economic potential by exploiting the advantages of specialisation and a large harmonised market. The first promising developments in this direction need to be further supported by appropriate regulatory frameworks and policy strategies.*

The scale of the challenge

Managing the process of economic integration in an enlarged Europe is one of the most important challenges for the years ahead. Both in terms of size (population, surface area) and in terms of the gaps existing in the countries of the enlarged EU (wealth, technology, institutions), integration will require major efforts from all the countries concerned. It is to be expected that the integration process will take about twenty to thirty years, i.e. a full generation. Among the central and eastern European countries the Czech Republic and Slovenia alone are likely reach the average of the EU15 already in about fifteen years time, assuming a growth differential at least two percentage points above the EU-15 average.<sup>29</sup>

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<sup>29</sup> For more details on the scale of enlargement, see the Enlargement Report of the Futures Project.

Beyond the revolutionary impacts which enlargement (as a political process) and economic integration are having for the competitiveness of the CEECs, the transformation will also have important implications for the competitiveness of Europe as a whole. **It is important to understand that we will not only be confronted with a “catching up” process** necessary to bring the economies in the pre-accession countries up to the level of the countries of the EU-15, but that this also brings with it structural changes for the Western European economies. The challenge consists of exploiting the potential complementarities and benefits of this process, and smoothing out unavoidable transition problems in both East and West. The final outcome should be the construction of a more competitive and balanced Europe.

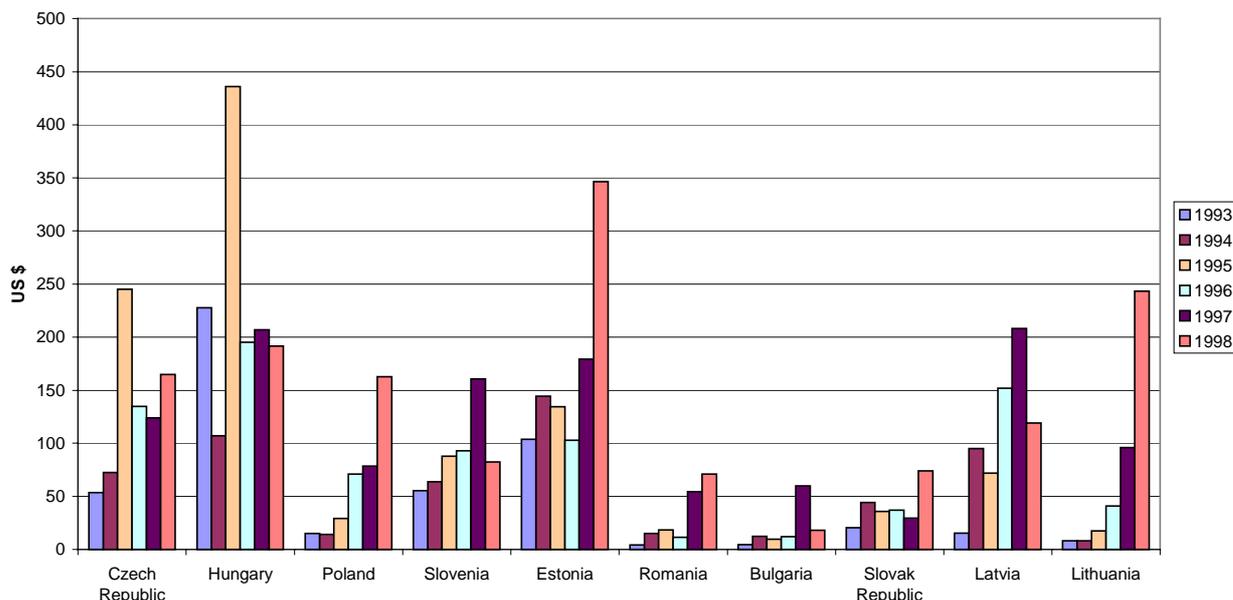
First of all, economic integration requires the strengthening of **investment and trade** between the EU 15 and the CEECs. In this respect, much progress has already been made during the nineties. A second key element in improving the competitiveness of the both the CEECs and Europe as a whole, is the **modernisation and restructuring** of the economies of the accession countries. This should be further complemented by attempts to build up selected areas of strength and **specialisation** in the individual countries and regions, implying a new **division of labour** in Europe’s agriculture, industry and services.

Rapid progress towards economic integration

**The process of economic integration of the accession countries with the EU 15** has made a lot of progress over the last few years. Since 1990, imports from and exports to the EU have multiplied, with Germany, Italy and Austria being the main trading partners (WIIW 1999). Over the same period, the former close links with Russia and other Eastern European countries have declined dramatically.

Another indicator of the pace of economic integration is **foreign direct investment** (Figure 3.4). Per capita FDI has increased significantly in most pre-accession countries, even if it has recently slowed somewhat in the most advanced candidate countries (notably Slovenia). The PACs are now reaching shares of FDI-stocks in GDP similar to, or even higher than, in the EU. In other CEECs FDI only started to take off in 1997. In absolute terms FDI is particularly high in Hungary, Poland and the Czech Republic, while the main sources of FDI are Germany and Austria.

Figure 3.4 Foreign Direct Investment per capita [US \$]



Source: EBRD (1998), CEC (1999c), UN (1999)

In order to guarantee further integration, a number of important issues need to be addressed. First of all, **liberalisation and the establishment of market systems for all industries** is a pre-condition for attracting foreign investors and for overcoming the slow growth of domestic industrial investment.<sup>30</sup> It is important that foreign investment be accompanied by a second wave of domestic investment in order to achieve a broader modernisation of the economies, down to small and medium sized enterprises. Secondly, investment in the CEEC economies will be made only if the **institutional and regulatory environment is stable and reliable**, i.e. when it makes it possible to calculate risks and anticipated benefits.

In this respect, the **prospect of EU-membership** represents an important stabilizing factor by strengthening confidence in the future development of these economies. However, it also places them under pressure to adjust their institutional and regulatory frameworks and bring them in line with the EU *acquis communautaire*.

#### The restructuring of the agro-food sector

The process of restructuring the agricultural sector in the Central and Eastern European Countries (CEECs) began during the nineties. The large gap in productivity and employment between agriculture in the EU-15 and in the CEECs generated fears that with the entry of another 10 million farmers into the Union (as compared with the current figure of 7.5 million in the EU-15) the Common Agricultural Policy would collapse. However, with the guidelines adopted in Agenda 2000, it seems that a compromise has been found which is acceptable to all partners (for details see the Enlargement chapter).

<sup>30</sup> For data on the growth of domestic investment, see Enlargement Report of the Futures Project.

**Table 3.1: The importance of agriculture in the broader EU**

1996	Agricultural area		Agricultural Production		Agricultural Employment		Labour Productivity		Food expenditure
	000 ha	% tot. area	Bio ECU	% GDP	000	% tot. empl.	ECU/ farmer	ECU PPP/ farmer	% household income
Poland	19474	59.1	6.5	6.0	4130	26.7	1570	3140	35
Hungary	6184	66.5	2.1	5.8	298	8.2	7050	13325	24
Czech Rep.	4276	54.3	1.2	2.9	211	4.1	5690	15079	31
Slovenia	785	38.7	0.7	4.4	61	6.3	11480	15957	23
Estonia	1450	32.1	0.3	8.0	74	9.2	4050	7493	30
CEEC-I	31172	56.7	10.6	5.3	4774	18.4	2220	4595	
Romania	14789	62.0	5.3	19.0	3975	37.3	1330	4642	58
Bulgaria	6164	55.5	0.9	12.8	769	23.4	1170	5218	54
Slovakia	2445	49.9	0.7	4.6	169	6.0	4140	11178	35
Lithuania	3151	48.5	0.5	10.2	398	24.0	1250	3813	52
Latvia	2521	39.0	0.3	7.6	208	15.3	1440	2995	39
CEEC-II	29070	55.0	7.8	13.1	5519	27.9	1410	4625	
CEEC-10	60242	55.9	18.4	7.0	10293	22.5	1790	4189	
EU-15	135260	41.8	117.5	1.7	7514	5.1	15640	15640	18
EU-20	166432	44.0	128.1	1.8	12288	7.1	10420	11344	
EU-25	195502	45.3	135.9	1.9	17807	9.2	7630	9266	

Source: Club de Bruxelles (1996); Eurostat (1999b), CEC (1999c), Eurostat website 11/1999

In 1996, agricultural labour productivity in the EU-15 was, on average, approximately four times higher than in the CEECs, but it can be expected that this productivity gap will gradually close over the years ahead, especially in the case of the new, market-oriented segment of agriculture. This segment has grown out of the redistribution of former collective farms and the merging of very small individual plots, originally owned by people who gave up agriculture to earn their living in the cities. This process will also lead to a **reduction in employment in CEEC agriculture**. Already during the past decade, employment and the contribution of agriculture to GDP have declined, except in Bulgaria where the rate of industrial decline outstripped that of agriculture. The expected growth in labour productivity needs to be set against the remaining differences in labour costs. If growing labour productivity is accompanied by low labour costs, agriculture in the CEECs would maintain a noticeable competitive advantage over West European farmers, at least for the typical products of these countries. The experience of industry supports the hypothesis that labour costs will remain low in comparative terms in the near future.

The pace of modernisation depends on a number of crucial variables. For example, it **is not easy to distribute indivisible fixed capital assets (e.g. machinery) that belonged to collective and state farms**. This problem is generally avoided by making continued use of old co-operative structures in order to share this equipment. In other cases, newly established small farmers may feel the lack of a well-supplied market for equipment and services. There is a permanent shortage of capital and

financial instruments to invest in modern equipment. Finally, after decades of collectivised agriculture, farmers often do not have the necessary skills to run the entire spectrum of activities on a farm.

Agriculture in the CEECs is also an important issue for the development perspectives of rural spaces and thus for the wealth gaps between the major urban agglomerations and the countryside. This is clearly an issue for European structural funds, especially as the CEECs are expected to receive a large part of these funds in the future. Only Slovenia, parts of the Czech Republic and the area around Bratislava are expected not to qualify for funding. As a consequence, **regions in Southern European countries** – especially Southern Italy and Spain will be displaced from their current position as recipients of structural funds. The flow of EU funds will contribute to modernising and reshaping the agricultural landscape, improving farm structures (fixed investments in farming are often limited given the low profitability of the primary sector).

From a long-term and pan-European perspective, it is interesting to explore what agriculture will look like in an enlarged EU, especially once the modernisation process has made some headway. With an additional population of just 100 million people, the **agricultural surface area will almost double**. This increase in available land implies a **permanent structural change in the agricultural productive capacity of the EU**. The acceleration of the modernisation process and the transformation of agrarian structures following accession may activate the CEECs' productive potential and constitute a future issue, not only for the future development of the CAP, but also in anticipating changing patterns of specialisation in agriculture and the agro-food industry.

Export flows from the CEECs toward the EU reveal a specialisation in livestock-related products, mainly destined for Central European countries such as Germany and Austria. Thus, whereas the markets for agricultural products from the Mediterranean countries are not likely to be affected given their clear climatic advantage (e.g. for producing fruit and wine), competition might become fiercer in areas such as meat and cereals.

Such considerations give rise to speculation that **bulk production of food could progressively move from the north-west to the east of Europe**.<sup>31</sup> High value-added production and organic/green products might be produced in Northern Europe, meanwhile CEECs may specialise in staple foods such as cereals and other agricultural raw materials. North-western and Mediterranean countries could also dedicate an increasing part of their agricultural land to leisure and recreation. While this may be a somewhat speculative vision of the future, it at least allows us to glimpse a scenario in which the comparative advantages of the respective regions can be exploited, and thus the risk of overproduction limited.

These possibilities are also highly relevant to the agro-foods industry in both the CEECs and the EU-15. The **food processing industry** represents approximately twenty per cent of national industrial output in most CEECs. While it could still rely on its local relationships until the mid-Nineties, the entry of foreign agro-food firms has challenged established companies. Multinational capital has already replaced state monopolies in the upstream sectors of the food supply chain and it will also spread within downstream sectors in the future. This is particularly the case in the beverages and tobacco industries, given the relatively stable domestic markets and good export opportunities. As a consequence, the processing parts of the production chain have partly been moved out of the CEECs, which have been left with primary production and distribution.

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<sup>31</sup> See Futures panel report on Life Sciences and the Frontiers of Life

On the positive side, the entry of foreign firms is facilitating the adoption of modern technologies and also reshaping the organisation of the whole food supply chain in a more efficient way. Vertical integration of all segments of the food production chain may in the future even include the farming side in order to control the quality and source of food products. This would also be of interest to farmers because in exchange they would get a certain guaranteed selling price, inputs to production (e.g. seeds), technical assistance and credit.<sup>32</sup>

Similar to other economies with low but growing GDP per capita, demand for agricultural products in the CEECs is expected to increase in parallel with growing consumer income. Therefore, with a population of about 100 million people, the CEECs represent a significant market for domestic as well as for imported products, and especially for those that can not be produced locally, such as Mediterranean fruit.

The integration of Eastern and Western European agriculture, possibly together with food production industries, offers major opportunities for improving their efficiency and competitiveness. From the perspective of European Union finances this is a very desirable option. The reduction of subsidies could liberate additional financial resources, which then could be used to restructure the agricultural systems in the CEECs after their integration.

Industrial specialisation, but not only in low labour costs

After an initial phase of industrial decline up until 1992/93, the industrial sectors in the accession countries have steadily recovered. However, only Poland has so far managed to reach production levels higher than those prior to 1990. Foreign Direct Investment in the CEECs has driven modernisation in a number of key sectors. Further restructuring is expected to take place, especially in those countries where modernisation has so far not been achieved.

Industrial decline and restructuring in the CEECs has gone through a number of phases since 1989. In the early years, i.e. up until about 1992, industrial development in the CEECs was characterised by continuity of the **specialisation patterns along the lines established** during the communist period. For example, Hungary and Poland further developed their agro-food sectors, and Slovakia and Hungary also developed their refineries. Continuing overhang in heavy industries was paralleled by structural deficits in sophisticated engineering branches (WIIW 1999).

The situation started to change after 1992 when the shakeout in inefficient heavy manufacturing industries got underway. At the same time the inflow of foreign capital fuelled a recovery (see Figure 3.5). Capital was attracted by **low labour costs** in combination with a comparatively **highly skilled labour force**. To this was added the attraction of being present in the new emerging markets, and even more so the possibility of an easy point of entry to the Single European market.

Foreign investment enterprises have contributed significantly to the increase in labour productivity in the CEECs. While labour costs have remained comparatively low, the CEEC economies have a clear comparative advantage in **labour-intensive branches**. Unit Labour Costs (ULC) capture this double influence of productivity and labour costs. In most CEECs, ULC are still between 25 and 60% of the Austrian level (see Figure 3.5).<sup>33</sup>

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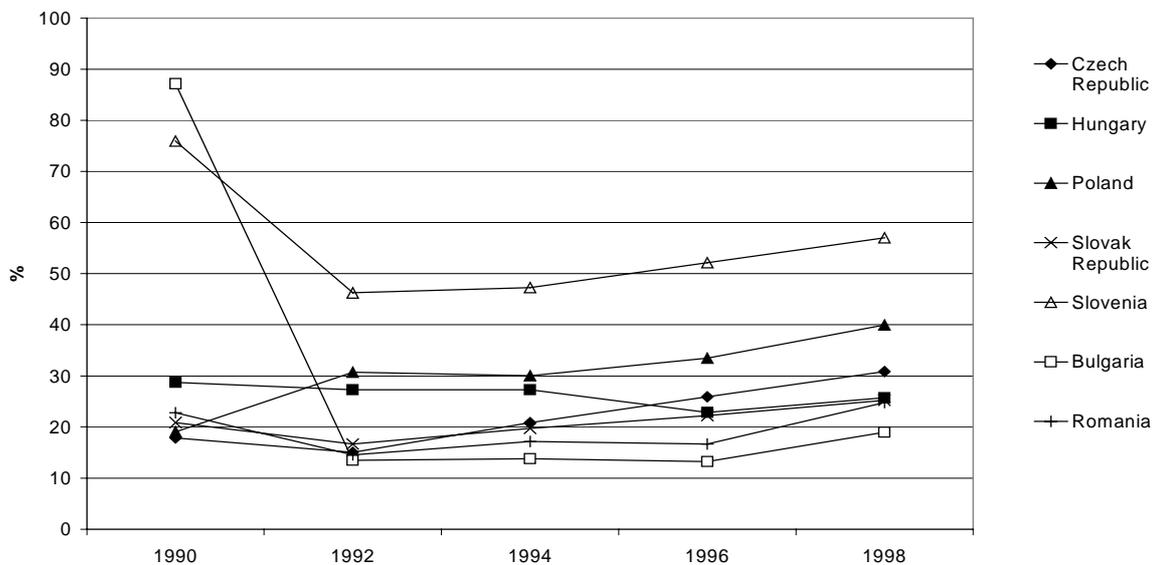
<sup>32</sup> For the moment, it is still illegal to sell land to foreign investors in most CEECs, but local farmers can be bound to multi-nationals also by contract.

<sup>33</sup> Unit Labour Costs are often used as an indicator of competitiveness because they take the role of both productivity and labour costs into account.

Reliance on labour cost advantages is a risky strategy, because with the expected closing of the wealth gap in an enlarged EU, labour costs would probably rise and erode this comparative advantage. It is therefore important for these countries to move onto an advanced technology- and skills-based trajectory to maintain economic growth in the longer term.

The specialisation patterns that have emerged since the mid-nineties look promising in this respect,

**Figure3.5: Comparison of Unit Labour Costs Index [PPP adjusted, Austria = 100]**



Source: WIIW (1999): Structural Report 1999

at least for some of the pre-accession countries. Industry has been growing rapidly since production bottomed out in 1992/93, **and is enjoying annual growth rates of up to 10%**. Nonetheless, only Poland had reached 1989 levels of production by 1998. Some of the key industries that have benefited from FDI are now relatively competitive, especially those in Hungary, Poland and Czech Republic. Car and vehicle component industries, office machinery, food processing and telecommunications are just a few of the positive examples.<sup>34</sup>

In terms of inputs,<sup>35</sup> the **labour intensive industries** have indeed been an important growth area, reflecting the labour cost advantages of most CEECs. However, since the mid-nineties the relative performance of labour-intensive branches has stagnated in most CEECs, though with the exception of Romania. At the same time, **energy intensive industries** have been performing quite well in most countries (with the exception of Hungary). Commodity production from **capital intensive industries** such as iron/steel, non-ferrous metals, cement, or petrochemicals continues to benefit from the fact that the mostly old-fashioned capital assets were written off a long time ago, the competition from low-cost producers (China and India) is weak, and the pressure for pollution control from environmental regulation is relatively low.

The gap in **technology/R&D and skills-intensive branches** is closing only very slowly, although the Czech Republic, Hungary and the Slovak Republic have improved in this respect. This slow progress is largely due to the quality gap with Western European products, which cannot be outweighed by the low labour costs. When looking at the deeper reasons for the difficulties in catching up technologically, it is necessary to take into account the situation of the innovation and

<sup>34</sup> See for more details and examples also the Enlargement Report of the Futures Project.

<sup>35</sup> The respective data can be found in WIIW (1999).

education and training systems in the CEECs. The upgrading of industry in the CEECs will not be possible without the parallel upgrading of these two underlying sub-systems. In particular, the R&D systems in most of the CEECs need to be geared more towards the requirements of an advanced industrial economy. Scientifically strong, they tend to lack the ability to transfer their results into practical innovations. Consequently, applied research in the accession countries tends to be concentrated in firms rather than public institutions.

The improvements in industrial performance are also reflected in **trade patterns**. In terms of both imports and exports, trade has grown fast, with some 40 to 70% of CEECs' trade now being conducted with the EU-15. Currently, most CEECs have a significant trade deficit with the EU, especially in more advanced and technology-based goods and services. Progress has been made more recently in skills- and R&D-intensive products, providing evidence of an upward track in the complexity, quality and added value levels of CEEC products, especially in the Czech Rep., Poland, Slovenia and Hungary. Exports are growing nearly as fast as imports, and the density of trade linkages will further increase given the need for specialised equipment in areas such as transportation, environment and telecommunications (Kandler 1998). For the EU-15, the trade impact of the CEECs has been slight, but trade doubled to about 8% of extra EU-imports during the nineties.

The current specialisation patterns can be understood in more detail by looking at the recent trends in trade and export specialisation at industry level. For the seven non-Baltic states as a whole, the highest competitive gains between 1993 and 1996 have been made in the following industries:<sup>36</sup>

- Manufacture and assembly of motor vehicles and motor vehicle engines
- Manufacture of electrical machinery
- Manufacture of tools and finished metal goods
- Production and preliminary processing of non-ferrous metals
- Manufacture of ready-made clothing and accessories.

These trends do not apply equally to all PACs. In fact, a high degree of diversity can be observed among them. It is also interesting to note that sectors which have lost competitiveness in one country have gained competitiveness in others, confirming the hypothesis that there is also competition among the CEECs themselves (for example, in footwear and clothing, which has moved to the Slovak Republic, Romania and Bulgaria). The “advanced group” which has started to trade successfully in goods produced by skills and technology/R&D-intensive industries is composed of Slovenia, Hungary, Czech Republic and Poland, whereas Romania and Bulgaria are lagging behind in this respect. The Slovak Republic has a somewhat intermediate trade position, with some technology-intensive branches doing quite well.

Although the picture differs across the CEECs, current industrial specialisation patterns are somewhere in between those of the Northern and Southern EU countries,<sup>37</sup> and tend to move, at least among the more advanced countries, towards similar patterns of specialisation as the northern EU members (OECD 1998, WIIW 1997). This raises the issue of competition or cooperation between locations in Eastern and Western Europe. Examples from the automotive industry show that while converging at aggregate industry level, CEECs specialise in different elements of the production chain than EU-15 countries (Tulder/Ruigrok 1998). In some cases, this goes hand in hand with a relocation of research departments to Eastern Europe (e.g. to Hungary in the case of

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<sup>36</sup> For country details see Annex, based on WIIW (1999)

<sup>37</sup> For an overview see tables of specialisation in the Annex. No data are available for the Baltic States.

vehicle engine research). This East-West integration has been facilitated by new practices at firm level, where more flexible and ICT-supported production methods make it possible to co-ordinate production chains spread across different countries (see section 4.1).

The success of the strategies pioneered by the car manufacturers, i.e. to exploit complementarities and comparative advantages in different locations of the widened Europe and to move parts of their production chain to Eastern Europe, indicates that this could also be a model for other industries. In fact, similar developments can already be observed in electrical and other machinery industries.<sup>38</sup>

**This transformation process will have repercussions for industrial locations in Western Europe too.** Adjustment problems will be unavoidable, if plants are closed down and moved eastwards, but overall this will contribute to an improvement in Europe's competitiveness.

This new **“division of labour” between industry in Eastern and Western Europe** may be desirable from an aggregate European perspective, but it would **keep industry in the CEECs in a dependent position as suppliers of the main industrial powerhouses in the current Member States**. It also implies that we would have to accept far more significant structural gaps and dependencies within an enlarged Union than at present.

In order to make sure that the CEECs continue on an upward track in technology and skills intensity, it is important to avoid their becoming locked into a low labour cost trajectory, in spite of the short-term advantages this may offer. A second significant problem is the fact that FDI has so far lead mainly to **isolated poles of high productivity in an otherwise rather backward economic landscape**. There have not been major spin-off effects for the wider economy, as shown by the slow growth of domestic investment. Suggestions have been made to concentrate on the establishment of regional, possibly cross-border, clusters of specialisation. The generalised lack of large domestic firms means the most promising cores for such clusters would obviously be the foreign-owned branch plants.

Supporting the emergence of a service economy

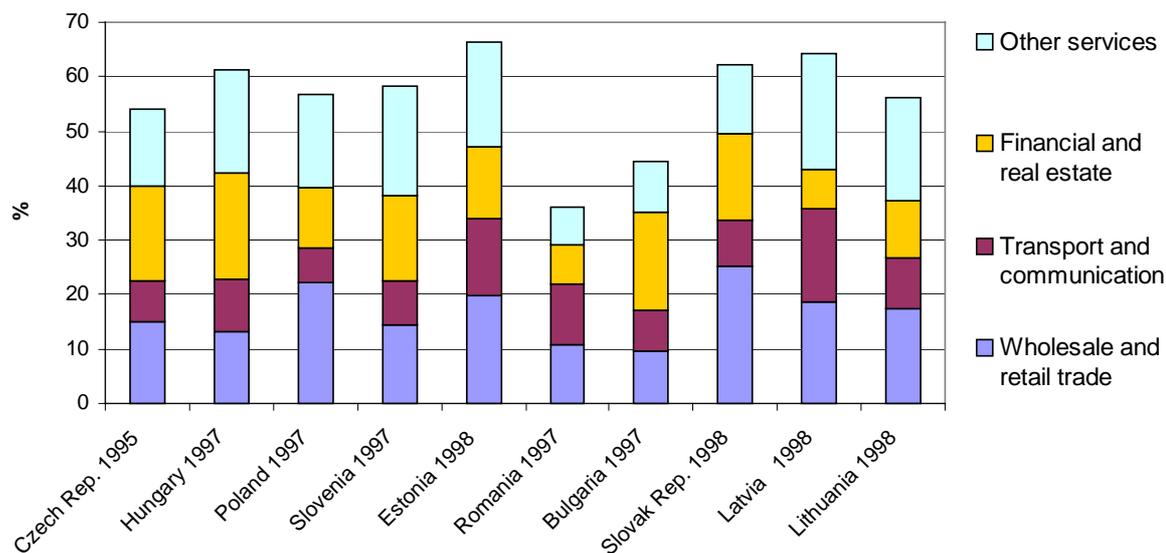
Part of the legacy from the communist past in Eastern Europe was an underdeveloped service sector, and things did not begin to pick up until the early nineties. Since then, however, services have grown rapidly and now account for 50 to 65% of GDP, which is only slightly behind the EU-15 average. Only figures for Romania and Bulgaria have remained below this level. Since about 1995 in particular, Foreign Direct Investment has driven the upgrading of the service sector, so that by 1997 one third to one half of FDI stocks had gone into services in the more advanced candidate countries.<sup>39</sup>

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<sup>38</sup> Additional evidence on this issue can be found in case-examples published recently by the European Round Table of Industrialists (ERT 1999).

<sup>39</sup> Here referring to Czech and Slovak Republics, Hungary, Poland, and Slovenia.

**Figure 3.6: Share of major service sectors in GDP [%]**



Source: UN 1999

\*Note: Other services include community services, education and culture, health care and social welfare and public administration.

While it is certainly true that the aggregate economic importance of services is approaching the same level as in the EU 15, this is **to a large extent due to a “catching up” phenomenon**. Whether one should reasonably expect a similar service growth in the future, requires some deeper analysis. Traditional service activities, e.g. in wholesale/retail or personal services have already caught up in recent years. Very little additional growth can be expected to come from these market segments. **High-value leisure services (recreation, entertainment, etc.), that have become very important economic activities in Western Europe, will not take off in the short to medium term**. This is mainly a result of the lower income levels in the accession countries. However, in the longer term the stimulation of a more sophisticated demand structure, going hand in hand with growing income levels, would change this outlook.

The future **growth in utility services will depend on the progress towards liberalisation and privatisation** in these areas, and thus the further inflow of FDI in order to maintain investment in modern equipment. Telecommunications and transport, in particular, are two key service areas with cross-cutting functions for the economy, and their performance will improve significantly if the privatisation policy is continued in all CEECs. One of the crucial problems is that currently the (public) utility services still employ large numbers of people, but their productivity is comparatively low.

The service segment from which major growth impulses are expected in Western Europe are information and knowledge-based services, e.g. knowledge-intensive business services (KIBS), financial services, ICT-based services, and electronic commerce. **With the exception of financial services, there are several barriers to the expansion of these highly productive services in the CEECs** which make fast growth fairly unlikely. These barriers relate mainly to technical and infrastructure issues, but are also as result of shortcomings in organisation, institutions and skills:

- As shown in the country profiles of key resources for the information society, CEECs are **lagging behind in the development of an adequate IT infrastructure**. As long as such infrastructure is not available, many information intensive services will be unable to flourish.
- Moreover, another obstacle to the emergence of information and knowledge-based services is that there seems to be a **shortage of human resources** skilled in business and commerce needed to manage them.
- If firms in accession countries do in fact concentrate on supply functions for Western-European multinationals, **the scope for setting up knowledge-intensive business services (KIBS) in CEECs would be somewhat limited** as most of these services would be provided in-house by the mother companies.
- **Banking, insurance and financial services are still underdeveloped** in the CEECs, even if they have started to attract FDI recently. Their expansion is crucial because they fulfil a support function necessary for the operation of the market economy as a whole. However, without a reliable institutional framework this is unlikely to happen soon. Only once this issue has been resolved can they can be expected to grow at any speed in the near future.
- **Electronic commerce requires a high trust, robust and technologically sophisticated banking system and an appropriate ICT-infrastructure**. Both still need to be built.
- Information-based services aimed at a wider public require not only **widespread access to the relevant ICT systems**, but also the necessary skills to use them. Currently, there is neither a high penetration rate of PC-ownership nor generalised knowledge about how to access ICT-systems.

In other words, the growth in services in the CEECs is likely to continue to be concentrated in the traditional service areas, such as the utilities. This argument is also supported by the fact that there is a major structural backlog in services to be caught up in the CEECs. However, knowledge- and information-based services depend on a number of enabling conditions. Most important are the upgrading of the industrial base, the development of appropriate infrastructures and the improvement of the skills base.

It will be of crucial importance in the future to first **remove the barriers to these “enabling” services** because they fulfil a cross-cutting function for the economies of the CEECs.

#### Issues and challenges

Given the scale of the enlargement of the EU due to take place over the next decade, and the extent to which the economies in the CEECs will have to be modernised, it is clear that the economic restructuring process will affect Europe as a whole. The key issue with respect to competitiveness lies in the **establishment of new and complementary patterns of specialisation in current and future Member States**. It offers considerable potential for overall efficiency gains through a new division of labour along the length of the production chain.

There are potentials for exploiting such complementarities in all three economic sectors. In agriculture, the fertile and wide open spaces of Eastern Europe offer better conditions for bulk production than the densely populated areas in Western Europe. The transition problems in terms of re-skilling, unemployment, the need for investment capital, etc. will require investment by multinational companies from the agro-food industry. Apart from the Common Agricultural Policy

framework, structural policies for the development of the rural space can help underpin this process.

As exemplified by the automotive industry (but recently followed by other sectors) manufacturing industries offer a number of opportunities to exploit complementarities between East and West. For the moment, low labour costs combined with comparatively high productivity and skills levels represent the main comparative advantages of the CEECs. In the longer term a sustainable upgrading of the entire economy will have to be achieved if the economies of the Eastern European countries are to avoid remaining behind the current members of the European Union. This danger is particularly pertinent for some of the second wave candidates, whereas the level of skills and technology in the first wave countries is already moving slowly upwards. The task ahead is complex and requires the upgrading of education and R&D systems, as well as the modernisation of transport, energy and ICT infrastructures.

Some service areas are expanding rapidly and have contributed to the brisk pace of economic growth over the last few years (wholesale/retail, utilities). However, for innovative and high value-added knowledge/information services, the CEECs still lack the **necessary “enabling” infrastructures and skills**. In order to accelerate the development of a service economy, additional efforts are thus needed. These could also be provided, for example, if the public sector were to play a leadership role.

Foreign direct investment has been a key driving force behind modernisation until now. The CEECs will continue to depend to a significant extent on these inflows, but for sustained long-term economic development it will also be essential to strengthen domestic investment, and in particular, to develop advanced industrial activities around and beyond the main poles of foreign direct investment. This latter aspect is crucial in order to avoid the concentration of economic activities in just a few main central agglomerations and thus the widening of the regional gap.

### 3.3 Europe's economic geography: between concentration and decentralisation

*Globalisation has become one of the catchwords of debates about competitiveness, but we are at the same time confronted with a similarly important, but far more unnoticed transformation of the economic space. The emergence of an information economy and new market requirements (e.g. customisation) change the comparative advantage of locations. While it is still unclear whether this will favour an overall decentralisation of economic activities or not, it is likely that the opportunities and risks for regions and locations will change.*

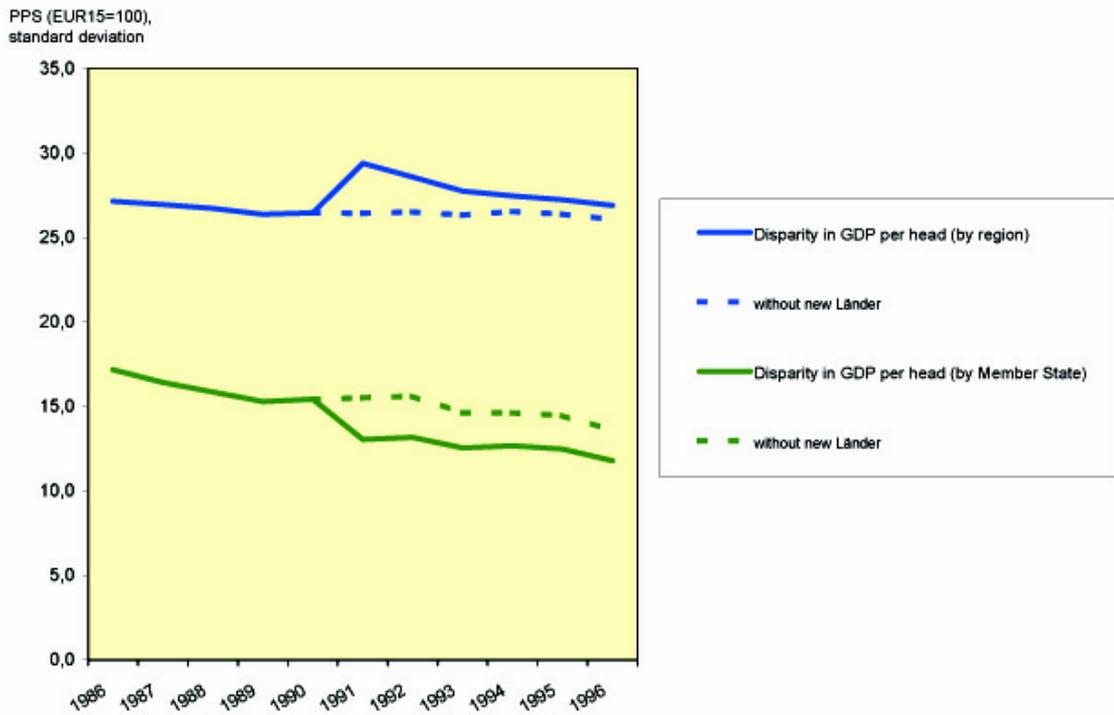
Beyond the changes brought about by new patterns of investment and specialisation at global level, within Europe the economic geography is also expected to undergo major changes at national and sub-national, right down to local, levels.

There is evidence of a slow but noticeable process of ‘deconcentration’ of economic activities and a reduction of economic disparities among Member States. This holds true with respect to several criteria: core vs. periphery, high-income vs. low-income, north vs. south, small vs. large countries. In the case of most of these variables the gaps have shrunk over the past decade (see Figure 3.7 for data by Member States).

National specialisation patterns for the EU15 in terms of dominant skills types and factor inputs (see Annex) show that, contrary to what was expected after strengthening the European integration process during the nineties, concentration has declined in both technology-intensive and highly

skills-intensive sectors in favour of the countries on the European periphery. This trend has been reinforced by faster growth in the peripheral countries than in the core countries.

**Figure 3.7: Disparities in GDP per head, 1986-1996**



Source: CEC (1999d).

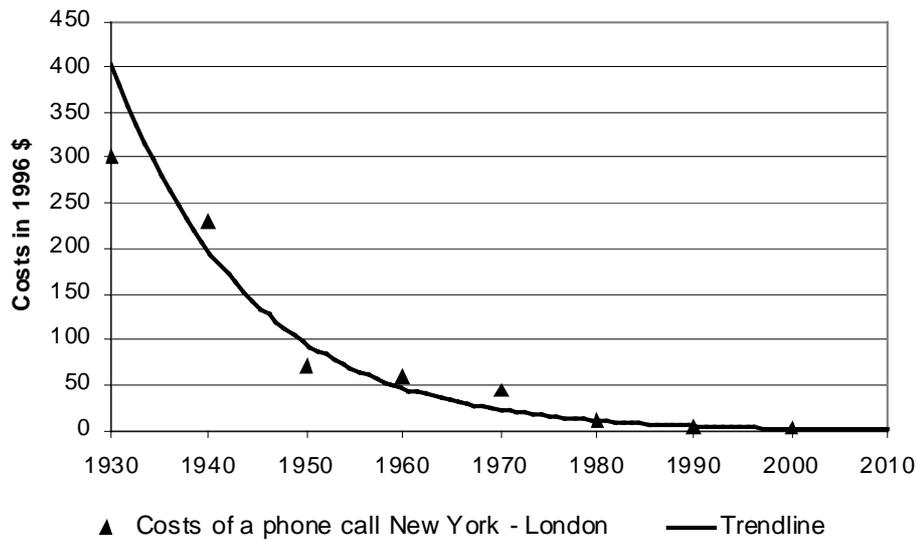
Within the individual Member States, however, the situation looks different. Regional disparities in Europe have remained stable in terms of GDP, even when the effect of German reunification is excluded (Figure 3.7). These observations need to be interpreted with care, but an exploration of the underlying driving forces of underlying the comparative advantages of locations in Europe sheds more light on the issue.

Driving forces have contradictory impacts on locations

Probably the most influential force behind the changing comparative advantages of locations needs to be seen in the emergence of what is usually referred to as the knowledge and information economy. Information and Communication Technology (ICT) networks not only permit access to information worldwide, but also provide the backbone for the logistic co-ordination of widely dispersed production sites. Products and services are themselves also increasingly intangible in nature and therefore transmissible over ICT-networks. With the costs of ICT going down all the time (see example of long-term cost trends for telephone calls in Figure 3.8), the opportunities for using ICT to coordinate decentralised economic activities are improving.

In other words, the emergence of a more strongly information-based economy in principle favours a decentralisation of economic activities, and has even led to claims that we are entering an era in which distance no longer matters (“the death of distance”).

**Figure 3.8: Cost development for long-distance phone calls**



Source: Various publications by World Bank and International Monetary Fund

Many important tasks could be carried out remotely from the centre of Europe where congestion and high land prices have become major problems. In fact, many new IT-facilitated services have moved to places which are remote from current centres of economic activity in Europe. For example, call centres providing information services and support hotlines have been set up in Ireland. Nokia has set up a research centre in Laponia, far from its home base. In the near future one should not rule out the possibility of living on the Mediterranean coast, but working on-line for a company in the Netherlands or Sweden. Developments ushered in by ICT diffusion might thus run counter to past agglomeration trends since ICT has the potential to make many activities footloose: tele-shopping, tele-banking and even tele-work are activities which could be located virtually anywhere.

However, this argument can also be turned around, because it becomes easier to transfer intangible products and services from the central agglomerations to remote locations, as long as the necessary infrastructure is in place. The current centres continue to benefit from agglomeration effects, some of which also operate in an information-based economy: These effects include being close to a large pool of customers, and in particular the “clustering” effect of related ICT activities enabling informal knowledge transfer, or the development of better quality ICT and other infrastructures. Thus, **agglomeration effects also occur in the case of information-based activities; nevertheless they can work in favour of places other than the traditional centres of the industrial economy.**

Physical proximity is also important in the case of another driver in our economies: customisation. In addition to the points mentioned in Section 3.1, customisation also changes the relationships between the suppliers and users of goods and services. Physical proximity matters a lot when it comes to delivering highly-customised products and services. This is now particularly true of many service activities. While we should be aware of differences between types of services, many of them **require physical presence at the place of consumption, i.e. in the locality where the consumer is located.** This type of service requires personal face-to-face interaction, or at least a good familiarity with local circumstances and conditions. This need for proximity not only applies to personal services, but also to highly sophisticated business services such as consulting.

In other words, customisation of the “physical-presence-based” type of services favours setting up shop for production, servicing or distribution in the vicinity of large agglomerations with high purchasing power. However, customised goods and services also need to be delivered to places outside the main agglomerations. As economies of scale matter less in customised production than in mass production, the critical threshold level beyond which decentralised production becomes profitable is lower. The detailed balance depends on factors such as the relative costs of physical transport, or the possibility of customising final products from pre-fabricated components (e.g. in the case of personal computers), but overall the opportunities for the decentralisation of parts of the production chain are improving.

Moreover, in spite of the slow pace of change typical of **transport systems**, it is quite likely that the next ten to fifteen years will see a significant increase in transport costs (see Box) and thus create incentives to restructure the location of economic activities. The advantages of large-scale production systems, requiring a centralised and transport-intensive distribution system, are increasingly counterbalanced by external effects (emissions, CO<sub>2</sub>, safety, noise, congestion, infrastructure) and these look set to be gradually internalised into firms’ calculations.

Congestion costs in particular seem to have an important “hidden” cost dimension beyond direct operation costs and time losses. The indirect costs in terms of delays represent a key problem for industrial freight logistics, favouring an organisation of supply and distribution chains which reduces the dependence on just-in-time delivery. The clustering of production facilities is a possible response to this problem on the production side. As shown by the SMART factory in Hambach, integrated manufacturing solutions where the first line suppliers are located on site help not only reduce transportation problems, but also make the coordination of production easier.

**Box: Trends in transport costs<sup>40</sup>**

Technological advances have driven the costs of transport services down over recent decades. This trend has been reinforced in the last few years by liberalisation and deregulation measures, leading to a drop in the prices paid by users. In parallel, transport infrastructures have been expanded, thus improving physical access. On the other hand, there are clear indications that the costs to end users can be expected to rise in the future:

- Transport demand continues to grow, particularly in the vicinity of large agglomerations. Congestion costs are estimated at about 2% of GDP and are on an upward trend (Panel Report Environment). Long-distance transport is reaching capacity limits on roads, rail and airports. In the Netherlands the number of traffic jams nearly doubled from the mid-Eighties to the mid-nineties, rising from 5600 to about 10000 (Maddison *et al.* 1996). The situation is expected worsen in some countries with the increase in East-West traffic between the EU and the accession countries, in spite of efforts to build new infrastructures and improve existing ones.
- The marginal costs of building additional transport infrastructures in the already densely networked regions of Europe are growing rapidly, because of the high cost of remaining free land. Other new and advanced technological solutions (e.g. underground freight distribution systems as considered in the Netherlands) are extremely costly.

<sup>40</sup> Further data on congestion costs are available but are rather diverse in nature. For example Morisugi (1997) estimates about 1.23 – 2.8 cents per veh. Km congestion costs in the US. Orfeuill comes to absolute costs of about 15-29 billion francs France in 1991 for congestion alone. According to Maddison *et al.* (1996), the number of traffic jams increased in the Netherlands from 5640 in 1985, to 6088 in 1990, 7482 in 1991 and 9850 in 1992. The accelerating rate of congestion growth is particularly remarkable.

- Environmental considerations have prompted demands for comprehensive internalisation of the external costs of transport, which will contribute to an increase in transport costs.<sup>41</sup> For the moment, a number of regulatory measures have enforced the use of modern clean-up equipment to reduce air pollution, but a further internalisation of external costs through tax measures is expected over the next few years. While they depend on future policy decisions, a full internalisation would raise transportation costs significantly. Recent studies estimate the remaining external costs of transport due to environmental impacts at about 1.6% of European GDP.<sup>42</sup>

Obviously, for high-value goods, it may still be a long time before transport costs start to matter overall, but for lower-value bulk products (food, beverages, ores, etc.), the expected increase of transport costs could have an impact fairly soon.

It has been suggested that the congestion issue will soon be solved by the move towards an information-based society. The expectation is that physical transport may be replaced by information flows, thus alleviating congestion problems. However, empirical research, (e.g. from the field of tele-working) is far from conclusive on this point. The uncertainty as to whether higher information intensity will actually lead to a reduction in physical flows is due to the possible influence of “rebound effects”: for example, people no longer forced to commute on a daily basis might be willing to make longer trips once or twice a week.

In sum, the future impact of these generic driving forces on the spatial patterns of the European economy is far from clear cut. To a large extent it depends on how one assesses the strength of the individual drivers. What is clear, however, is that the comparative advantages of different locations are changing under the influence of these forces, and will bring about new opportunities and risks.

Further decentralisation and specialisation both appear to be likely, but it should not be taken for granted that all peripheral and less favoured regions will automatically benefit from them. It is necessary to **look at the individual circumstances in each region**. The ability of the regions to develop into performing locations depends in the end on the locally available resources and complementary assets. For the new knowledge-intensive growth industries, comparative advantage depends on different local factors than in the past. With natural resources and physical capital losing importance as production factors, relative to knowledge and human skills, high value-added information-based services can be delivered from almost everywhere around the world. In order to exploit this potential, the necessary infrastructures, skills and institutions also need to be in place. Moreover, it is necessary to build up **agglomeration effects for information activities**.

We are therefore faced with a situation which has yet to define the direction it is likely to take, but which is still dependent on policy choices and decisions. Beyond the classical districts in traditional industries (e.g. the tile and textile industries in Italy, leather and foods in Spain), the approach of setting up an institutional tissue to support the economic activities in targeted sectors has also been successful in advanced, knowledge-based industries, for example for micro-engineering in the French Doubs region, biotechnology around the Swiss-German border near Basel, call centres around Dublin, aerospace in the Midi-Pyrénées, the learning city Jena, etc.<sup>43</sup> Most examples confirm that the construction of a knowledge-oriented specialisation profile was decisive for success. This may imply accepting the loss of traditional activities (such as the ‘old’ labour-intensive sectors), and require intelligent organisational models to exploit synergies either within the regions concerned, or with other regions in Europe.

<sup>41</sup> See recent European Commission White Paper on Fair Payment for Infrastructure Use (CEC 1998d).

<sup>42</sup> See Environment and Natural Resources Panel and OECD (1998e). 60% of external costs are expected to arise from accidents, and 40% from environmental pollution.

<sup>43</sup> Several other examples of traditional and knowledge-based clusters can be found in Braczyk *et al.* (1998).

Beyond the three basic pre-conditions enabling information-intensive activities (infrastructures, institutions, skills), the high degree of diversity among regions and the specific comparative advantages they bring makes it impossible to propose generalised recipes for success. Bottom-up, experimental initiatives to develop regional strategies offer a more promising approach.

A “window of opportunity” for the less favoured regions?

While decentralisation is a cross-cutting issue affecting all locations in Europe, the underlying developments are of particular relevance to the less favoured regions. The new structure of comparative advantage offered by the emerging knowledge economy provides opportunities for them to catch up with more developed regions. Ireland has frequently been mentioned as an example of a ‘region’ that has managed to develop an IT-based economy in a very short period of time, based on massive inflows of capital.

However, the situation for the less favoured regions is further complicated by the new framework conditions defined by Economic and Monetary Union (EMU). EMU is having a harmonising effect on the European economy and it is improving the transparency of markets in Europe. It is intended to help remove barriers to trade, reinforce competition and thus give all participants the possibility of benefiting from the opportunities offered by a larger market. Less favoured regions (LFRs) in Europe will benefit from these new conditions in many respects, but they also pose a number of particular problems for them.

An open and transparent market stimulates competition and opens up new market opportunities for companies from LFRs. However, it also challenges several of their established sectors. In many LFRs there are major producers in traditional sectors which compete with non-European companies. A mechanism like adjusting exchange rates to improve domestic competitiveness is an option that is no longer open to members of EMU. Therefore it is unlikely that companies from LFRs will be able to compete with foreign competitors on the basis of price alone in the long run.

Moreover, the removal of barriers to the single market and the transparency of the EMU facilitate the exploitation of economies of scale. Fears have been raised that this could favour economic concentration in the core locations of the EU. As indicated in the previous section, there is a number of counteracting mechanisms at play which could prevent this from happening. In fact, as shown in Figure 3.7, the levels of GDP in the Member States as a whole are converging, whereas the internal differences within them are growing.

The accession of new, comparatively poor Member States represents a dual challenge for the (current) LFRs. Not only will structural funds tend to move towards the accession countries, but the emerging industries in the accession countries may develop into potential competitors.

Some regions are better prepared to deal with the new situation than others. In particular, less favoured regions in bigger countries which are already used to adjusting to a common (here national) monetary policy regime will find it easier to get used to the discipline imposed by EMU. On the other hand, regions which in the past benefited from monetary adjustment policies, i.e. mainly in the cohesion countries, will have to get used to a quite different macro-economic policy approach than that applied in the past (Tsipouri 1999).

Even if EMU imposes a number of restrictions, it nevertheless represents a protective umbrella against full global competition because it gives privileged access to the EU market. The present phase may thus be the last opportunity for these firms to modernise before the global markets are

opened further. Policies to support modernisation are thus crucial to stabilise them and speed up adjustment so that they can perform well in an increasingly competitive environment.

In sum, beyond the generic changes in comparative location advantages discussed earlier, the LFRs will be particularly affected by the changes brought about by EMU and the enlargement process. **It will be vital for the economic development of the LFRs that they embark on a modernisation process of their** economies in response to the changing conditions. In view of the new structures of opportunity offered by the emerging knowledge economy, at least some of the currently less favoured regions seem to have quite good chances of catching up. In fact, there are also indications that this modernisation process is already underway: the average size of firms is growing, and organisational innovations are being introduced. Economic growth in the main host countries of less favoured regions (Spain, Portugal, Ireland and Greece) is faster than the EU average. In this respect, two key aspects of the future development of regions need to be addressed:

- First of all, it is necessary to **identify appropriate opportunities and areas of specialisation** which would enable regions to develop competitive advantages, especially in the future growth areas: services and knowledge-intensive activities. The difficulty for regions will be to find the right niches in this expanding area, i.e. those in which they can develop and exploit agglomeration advantages (e.g. by setting up new economic clusters).
- Secondly, a **strategy for developing these areas of opportunity** needs to be implemented. Numerous examples show that policy has an important role to play in the implementation of these long-term development strategies, but also that there is no simple recipe for success.

Obviously, each region differs in terms of its specialisation profile. In a recent OECD study four different types of region are distinguished (high-tech/high-rent, industrial districts, cathedrals in the desert, globally vulnerable), each requiring different development approaches (OECD 1999d). The most basic element suggested is to focus on the necessary qualifications and skills of the local workforce by shaping education and training in line with the specialisation profile. Other measures to support a specialisation strategy are oriented towards the stimulation of knowledge-based services and technology transfer. Each type of region differs in terms of the types of measures which promise to be effective, not to mention the cultural and historical factors influencing the prospects of success. As a consequence, it is hard to devise general strategies for how to build up regional clusters and exploit local agglomeration effects.

#### Issues and challenges

Mainly as a consequence of the impact of ICTs and EMU, but also as a result of a number of other factors, the comparative advantages of different locations are being reshaped, and considerable restructuring potential still remains for the future. Moreover, it is not yet clear **which specific locations will in the future benefit from this trend**. Some regions are already well placed, having invested heavily in new skills and infrastructure, and built on their established competencies, but others will still have to undergo a process of restructuring. Particularly in the case of the less favoured regions, the current phase of turbulent change due to the coincidence with EMU, offers the opportunity to develop new areas of strength.

The Irish case may be one example to follow, but experience with recent attempts to develop regional innovation systems and clusters indicate that there is no clear-cut governance and policy model which guarantees success. When comparing examples from around the world, 'dirigistic'

government-driven approaches have been as successful as self-regulated ones.<sup>44</sup> What seems to be important is compatibility with the local circumstances. As a consequence, regional development policies cannot be defined in detail at national or even higher policy levels. Specific and experimental local development strategies set up by local and regional authorities seem to be more promising. Attempts to support the development of a more decentralised European economic landscape by means of European and national policies would have to **concentrate on those enabling conditions which need to be in place to support regional and local programmes for the knowledge- and information/service-based economy**. The conditions to make such new learning regions reality are, in particular:<sup>45</sup>

- ICT infrastructure and service development; even now many less favoured regions still have a sub-critical supply of appropriate information infrastructures and services;
- human skills in the use of advanced information and telecommunication technology;
- institutions to support the specialisation strategy of the region;
- good working and living conditions to attract qualified people to the regions and encourage them to stay;

Obviously, measures to strengthen the generic driving forces towards decentralisation (e.g. a different pricing framework for transport), could also be helpful in improving the development possibilities of regions.

For regions which do not have the necessary combination of potential strengths to develop successful clusters the development model of clusters may not be appropriate because it relies on the presence of an entire production chain in one region. However, the widespread availability of ICTs together with the role of local comparative advantages enables the **“virtual” clustering** approach, in which elements of the production chain are in physically different locations. At least for regions which do not have the critical mass to develop a cluster of their own, being interconnected “online” to the epicentres of innovation represents an opportunity to benefit from the knowledge-based economy, and thus improve their economic development.

The issues of specialisation and clustering throw up two additional problems at European level. With the current economic landscape of most Member States being characterised by a broad coverage of industrial and service activities, any attempt to set up similar activities in regions, be they less favoured or located in Eastern Europe, will raise **problems of intra-European competition**, i.e. competition between different regions. National industrial policy would have to abandon the strategy of producing most goods and services domestically, and concentrate only on their areas of strength, within the overall aim of a better division of labour within Europe.

In principle, most of the arguments raised apply equally to the enlargement countries, where a major restructuring process is under way and new specialisation patterns are also emerging. These new patterns of complementarity are thus a key characteristic of the emerging new European economy.

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<sup>44</sup> For individual examples see Braczyk *et al.* (1998)

<sup>45</sup> See also similar arguments raised in Cornford *et al.* (1999) and Lundvall/Borras (1998).



## 4. How to produce in Europe?

### 4.1 Firms in the knowledge economy

*Many firms may have been faster than governments in preparing for, and adjusting to, the new technological opportunities and economic challenges. The notion of what firms need to do to stay fully up-to-date is changing, as are the ways in which they relate to their environment. Some however, are finding it more difficult to prepare for the new requirements of service orientation, customisation and fiercer competition.*

Manufacturing and industrial production throughout the world are about to be “reinvented”. Not only will new technological innovations be introduced into the production system, but the entire architecture, organisation and distribution system will be reshaped. This will give the customer a more central role in determining production and profoundly alter patterns of co-operation with other firms. The main trends in modes of firm organisation show a general move toward strategies that allow firms to cope with rapid structural changes. However, besides adaptability and flexibility, firm competitiveness will still be centred on short-term strategies such as price reduction and quality improvement. Firms will react to changes in the business environment by adjusting their structure. Depending on their size, they will adopt the most appropriate reorganisation modalities. In particular, main movements are toward the creation of Europe-wide organisations, partly through mergers, acquisitions and network building, but complemented by a more decentralised production system in order to cope with the high degree of diversity of the European market.

#### Firm organisation and networking in Europe

Principal strategies of new modes of firm organisation are: (i) the intensification of horizontal communication within firm departments (internal organisation) and (ii) the construction of network relationships with external institutions (external organisation). These two strategies apply best to large and small size enterprises, respectively, and in general they contribute to reducing manufacturing lead-time (including product development time), improving customer service, reducing inventory and increasing responsiveness, against a backdrop of highly variable customer demand patterns and changing specifications.

Two major concomitant forces will play an important role in determining the new patterns of firm organisation. First, increased liberalisation and deregulation of world markets will play a decisive role in removing sectoral barriers, altering firms’ priorities and strategies and relocating productive units. In Europe, the establishment of the Single Market and Economic and Monetary Union will reinforce these effects, although some barriers will remain. In particular, barriers such as regulation on product and service standards, testing and certification procedures, or the lack of a harmonised VAT system will need more time to be brought down.

Secondly, developments in ICTs will enable the reshaping of the relationships between the departments within firms and between individual business units. Knowledge management in particular will be crucial for running a flexible organisation. ICTs (in particular the Internet) provide the tools by which management can deal with service-orientation and customisation in a global economy because they greatly facilitate and encourage closer interaction between manufacturers

(and service firms), suppliers and customers. Large distribution and supermarket chains have been at the forefront of implementing such new practices.

New forms of **internal firm organisation** will require organisational adjustments enabling the necessary high degree of adaptability. Paradigms such as “agile manufacturing”, the “learning organisation”, the “fractal company”, etc. place the emphasis on the capacity of firms to absorb new information rapidly and transform it into operational knowledge, so as to allow them to react quickly to changing customer needs. Closer co-operation between production, R&D and marketing departments will contribute to speeding up the innovation development process and the adoption of new technologies.

The growing services orientation is part of firms’ strategy to sell not just a product, but the function or utility (end-service) intrinsic in it, as it is this which offers the user or customer added value. In many cases, the outsourcing of activities to service providers has become almost total, with firms delivering very complex products almost entirely via external services and with almost no production base of their own.

On the one hand, logistics will continue to be a key activity in the future of manufacturing production. Throughout the entire production and supply chain, the neat co-ordination of the different stages will be pivotal in order for firms to be competitive. A typical example of this is the importance of an efficient transport service for just-in-time production so as to guarantee a lean, flexible and integrated production system. On the other hand, more intangible investments will contribute to firms’ competitiveness through multiple effects such as value-added growth, lower transaction costs, reduced inventories and shorter production cycles, and better access to information.

New forms of networking will shape the **external organisation** of firms in the future. In response to market deregulation and liberalisation, and enabled by the development of ICTs, an increasing number of firms are becoming integrated pan-European organisations. In particular, multinational enterprises are moving from a “stand alone strategy”, with affiliates based in a specific territory, operating autonomously and duplicating activities, to a “complex integration strategy”, whereby enterprises operate within interdependent networks. These networks involve the development of production/distribution networks, the establishment of joint subsidiaries and a multiplication of alliances.

This new Euro-organisation method consists of more intense international collaboration among producers, between producers and customers and less conflictive labour relations. It involves flows of information and incentives, and complex combinations of horizontal and vertical linkages among firms comprising the networks. The new production system consists of the integration of two large networks: i.e. production and subcontracting. In the first of these networks, firms co-ordinate all production activities and are responsible for transmitting technological innovations to other network partners. In the second of these networks, subcontractors tend to specialise in the production of more labour-intensive phases, and in locations where labour costs are low. Network interdependence and flexibility enables firms to shift production or supply in response to changing markets and cost conditions, and to reduce their costs, minimise their risks and, therefore, maximise their profits.

Other important aspects of current trends in these new modes of external business organisation are the growing number of acquisitions and mergers between exclusively European enterprises, on one hand, and the generation of spin-off companies, on the other. Industrial restructuring via mergers encompasses mainly intangibles, such as knowledge generation, finance and organisation, and places less emphasis on production. This process is essential for cross-border technology transfer

and it will strengthen the functioning of the internal market by enabling a better reallocation of resources in response to adverse economic shocks. The new European mega-enterprises may operate more successfully at the global level and compete or co-operate with the “big players” from other world regions (see Box). However, in the banking and finance sectors, mergers seem mainly to take place within national enterprises, following the so-called “Too Big To Fail” philosophy, at times in opposition to the aims of the Single Market (see Box).

Spin-offs partly counterbalance the trend towards mega-mergers. They are the outcome of the effect of two main drivers. The first driver is the need for large firms to restructure when a specific activity no longer fits in with the company’s core strategy, or to externalise some functions where it is possible to reduce costs and risks or avoid direct layoffs and costly social plans. The second driver is for spin-off companies set up on the initiative of individual entrepreneurs. These so-called “pro-active” spin-offs exploit knowledge acquired in the parent company and may decide either to collaborate or to compete with it. In both cases, the spin-off strategy has a positive effect on European industrial competitiveness. Spin-off companies boost employment and are an important element in the creation of New Technology-Based Firms. At the same time, parent companies can benefit from the restructuring that follows the spinning-off of some activities.<sup>46</sup>

**Box: The main reasons behind mergers and acquisitions.**

For the last few years mega-mergers have been at the top of the agendas in both the manufacturing and service sectors and these trends are expected to continue over the coming decade. Automotive giants such as Daimler-Chrysler or Renault-Nissan and pharma-biotechnological complexes such as Novartis or Hoechst/Rhone-Poulenc are complemented on the service side by mergers such as the Star Alliance of airlines and the merger between Deutsche Telekom and Telecom Italia. Mergers were often initially stimulated by the need to be present in a certain market, but nowadays production capacity and key functions such as R&D tend to be concentrated at locations which offer the best conditions for a specific activity.

In summary, the main reasons behind mergers and acquisitions are:

- Exploitation of economies of scale in order to reduce costs, e.g. in R&D and platform development for complex products.
- Flexibility to relocate production relatively easily.
- Liberalization, which started early in the US, and only recently in Europe where the policy of “national champions” prevented the inflow of foreign capital for a long time
- Strategic advantages emerging from the complementarity of product, service and technology portfolios.
- Control of technological standards.

Access to markets where the partners were not previously present.

- Customization, requiring firms to be present in local markets, complemented by political requirements to produce locally.
- The widespread use of ICT to manage the logistics of globalised multinationals.

Sources: Coates *et al.* (1997), Eustace/Mortensen (1998), Borrus/Zysman (1997)

New forms of internal and external organisation will change the relationship between firms and space. They will lead to the establishment of “virtual” enterprises, where competitiveness is built more on network relations than on strategic location, but at the same time, they will stress the importance of being present locally in crucial markets, where business is based on direct contacts

<sup>46</sup> For detailed information on spin-offs see IPTS (1999)

among firms, suppliers and customers. In particular, the imperative of delivering customized products and services “just-in-time”, firms are obliged to adapt to local markets and have both production/assembly and distribution/servicing (“glocalisation”) present locally. These new forms of enterprise organisation will also involve new financial, fiscal and accounting schemes. The issues this raises range from the security aspects of financing “virtual” organisations (where do the assets reside?) through to insurance (e.g. product liability) and tax collection.

The increasing complexity of the production process will pose new challenges, particularly for small firms that will increasingly need to improve their networking capacities. An advantage will be the increasing use of new ICTs in order to expand the size of their geographical space and improve the quality and intensity of inter-firm interaction. This change will first of all affect firms’ input side: establishing communication with other firms and suppliers, and accessing external sources of knowledge and innovation will be crucial to achieving cost-efficient new modes of production. Then, they will have to network more on the output side of their businesses. Electronic business is putting producers, who in the past dealt exclusively with distributors, in direct contact with the end customer. In the markets for computers, software and media, distributors are about to disappear unless they specialise in the provision of customised services. The availability of customer database/information (but also the way to relate to customers and understand their needs) will be one of the most valuable assets - for any business entity in any sector – with which to create competitive advantage in the new environment.

New business practices will respond to all these developments by building on diversity in capabilities and styles of manufacturing, production and services. In Europe, these practices are likely to need to combine and harmonise differences rather than homogenise raw-, intermediate- and end-products (as the American Mass Customisation model tends to do<sup>47</sup>). The European economic system, in general, offers the largest variety of similar products (e.g. footwear, textile) and services (e.g. architectural design), and it constitutes an indisputable advantage in the more and more variegated global market. Furthermore, the combination of small production units (also geographically dispersed) and large clusters of competence (e.g. industrial districts) constitute in Europe a consolidated system with the capability to be creative, and so to innovate.

**Table 4.1: Comparing firms:1990 mass production vs 2025 custom production**

1990 mass production firm	2025 custom production firm
<ul style="list-style-type: none"> <li>• Weak customisation: limited choices from a prefabricated list</li> <li>• Economies of scale</li> <li>• Just-in-time delivery: focus on inventory reduction</li> <li>• Specialized workers</li> <li>• Slow turnover</li> <li>• Hierarchies</li> <li>• Vertical integration</li> <li>• Landfill and incinerate waste</li> <li>• Separate departments and incompatible information systems</li> <li>• Focus on technology</li> <li>• Price competitiveness</li> <li>• Labour and machines compete for work</li> </ul>	<ul style="list-style-type: none"> <li>• Strong customisation: customer designs</li> <li>• Economies of scope</li> <li>• Just-when-needed delivery: focus on rapid turnaround for customer</li> <li>• Multi-skilled workers</li> <li>• Rapid changeover</li> <li>• Networks and teams</li> <li>• Alliances and virtual organizations</li> <li>• Recycling, reclamation, and re-manufacturing</li> <li>• Enterprise integration</li> <li>• Focus on the organization</li> <li>• Quality competitiveness</li> <li>• People and machines work together</li> </ul>

Source: Coates *et al.* (1997)

<sup>47</sup> *Mass Customization* deals with manufacturing a product or service in response to particular customer’s needs. It is implemented by modularize components to customize end products and services.

## Issues and challenges

Market forces, fiercer competition and the need to customise products and services will be factors in shaping the new business organisational set-up. In order to compete successfully, firms will have to develop their ability to learn and react rapidly to changing market and consumer needs. In general firms learn autonomously, but their capacity to learn may be improved by supporting horizontal measures such as education programmes, allowing people to retrain themselves and increase their mobility on the job market.

The establishment of more flexible firms and of networks of firms will be crucial for improving firms' capacity to deal with complex production tasks. In Europe, many firms seem already to be on the right track, building on their experience with variegated and sophisticated consumer needs, thanks to the traditional diversity of European markets. However, small firms in particular find it difficult to address more complex tasks and may lag behind in the adoption of new organisational practices. There is a need to redirect investments in human resources development in order to make possible the generation and adoption of new modes of business organisation.

The role for policy action in the business restructuring process may be limited to shaping the framework conditions for firms' initiatives, but it can nevertheless have a major impact. One worthwhile measure might be to reduce penalties for bankruptcy, making it easier for firms to engage in "learning by failure" and still have a second chance. In addition, a potential role for governments is to raise awareness of best practice among decision-makers in business and the trade unions and facilitate networking among firms, especially SMEs, in order to speed up the introduction of modern forms of business organisation. In particular, government could support the exchange of experience between front-runners and laggards, and between large and small firms. In the latter case, large firms may find it useful to act as tutors for small firms, helping them to develop new organisational structures and then including them in their sub-contractor networks.

The new patterns of business organisation also raise issues for competition policy. The greater degree of networking and flexibility makes it difficult to understand who controls or dominates a given market. Moreover, a higher degree of customisation and service provision will imply that markets become increasingly difficult to distinguish from one another. The model of a car company that offers mobility services together with insurance, financing and maintenance packages, but limits its own manufacturing functions mainly to final assembly, is not far-fetched (think e.g. of SMART). One could at least question whether it should still be regarded as belonging to the vehicle manufacturing industry, or not.

### 4.3 The new global game of the rules in a digital economy

***Digitisation of the economy will change the nature of market relationships in both global and European contexts. Trade in intangible products and services raises new questions about the organisation of efficient markets, and in consequence, about the role of legal and regulatory frameworks which must guarantee fair and free competition, at the same time ensuring that the public interest is safeguarded and innovation is encouraged.***

The intangible dimension of the globalised economy

Globalisation of the economy, or rather world-wide regionalisation, is reflected in growing trade and foreign direct investment flows, as section 3.1 above illustrated. But **globalisation also has a very important “intangible” dimension** which is expressed in a number of different ways (Soete 1999). These include

- Financial flows, perhaps the most influential intangible, which have grown in OECD countries from 10% of GDP in 1980 to between 150 and 250% of GDP in 1995;
- Intermediate service flows within and between firms, enhanced by the deregulation of markets worldwide. The emergence of large multinational telecommunication conglomerates is one of the clearest examples.
- Formal international cooperation on joint ventures, strategic alliances or collaborative research. Witness the fierce competition for cooperation among airlines.
- Global knowledge flows in specific communities of interest and across the broad range of media, very much facilitated by widespread use of the Internet;
- Transfers of tacit knowledge (that is, knowledge which is held by individuals or organisations, though not recorded or codified in any formal way) through greater personal mobility and exchanges in industry, politics, science and culture.

Intangibles are widely regarded to be of growing importance, both as production factors and as outputs. However, many of the flows associated with them are exchanged outside of the market context. They also take place within the hierarchies of firms or within informal networks. This raises the question whether the market, usually regarded as at least potentially the most efficient mechanism for exchanging goods and services, is the appropriate mechanism to coordinate intangible transactions or whether there is a need to improve the frameworks and rule systems that govern them.

Following the 1998 crisis on the financial markets there were calls to introduce tighter rules on the financial market. Trade in services is also a potential issue for the future agenda of the WTO. While these may be pressing and high-profile issues, what are possibly even more important problems have emerged as a result of the digitisation of products and services themselves, i.e. the changing character of the traded entities.

Focusing on standards and competition issues

Going even beyond the structural and organisational changes in the global economy, the **digitisation of many products could affect the efficient operation of certain key rules of the economic game**. With intangibles expected to continue growing much faster than average trade and wealth creation, this is likely to turn into a crucial problem by the end of the coming decade. In fact, markets for intangible goods and services **challenge traditional assumptions about how markets operate**.<sup>48</sup> This can be illustrated through the example of software:

- Software is easy to copy, which means that it is difficult, if not impossible, to make sure that producers get paid for their efforts (i.e. property rights are weak).

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<sup>48</sup> In essence, the three characteristics which are put into question on intangibles markets are excludability, rivalry and transparency, see Soete (1999).

- Where strong property protection is introduced there is a risk of monopolistic behavior exercised through proprietary standards, a situation typical of software products.
- Exchanges of informational goods and services are subject to strong asymmetries between seller and buyer. It is often difficult to assess the value of the information which is offered or to compare it with that from other sources. This calls for trusted intermediaries to broker deals or for suppliers to offer free trial versions.

Markets for intangibles are thus different from conventional product markets. Strong property protection, as exists for conventional products, can inhibit the non-rival nature of many intangibles.<sup>49</sup> Protecting exclusivity, i.e. to guarantee that producers are paid for their work, without inhibiting non-rivalry in use is a crucial issue for dynamic efficiency and the incentives to innovate. The issue is whether these conditions constitute a market failure calling for intervention in the form of property protection and competition policy.

The sale of software is nowadays often combined with service provision, at least for business applications, so that the problem of reaping the benefits of innovation in software development has become less pressing. However, in other areas such as sound files for music, or video films in the future, property protection is increasingly recognised as a problem. Even in the case of DVD, which was originally thought to be well protected against copying, ways have been found in the meantime to circumvent the copyright protection. Reforms to the Berne Convention and the development of electronic copyright management systems constitute respectively legal and technical responses to such problems.

The problems associated with intangible goods can be further illustrated by the example of standards. Intel and Microsoft have effectively established a ***de-facto proprietary standard*** in the PC market (“Wintelism”).<sup>50</sup> Due to the critical importance of the core microprocessor and the operating system, these two elements in the production chain enabled the two companies involved to control the technological trajectory of the entire area of personal computing. This restricts the emergence of new, possibly more advanced solutions for personal computing. However, it should be stated that the effects of this joint dominance are likely to be mitigated with time by the proliferation of different platforms and standards in the future trend towards ubiquitous computing (see Futures panel report on ICT and the Information Society).

With the growing role of information and communication technology in many other industries, the control of key standards can become a major concern for industrial strategy. In fact, it has already attracted a lot of attention in areas such as interoperable telematics systems in transport, Global Navigation Systems by Satellite (GNSS), information services and electronic commerce. If indeed we are entering the era of ubiquitous computing the need for seamless inter-operability between different devices is likely to trigger new standardisation debates.

**Open standards** (as opposed to proprietary standards exemplified by Wintelism) have been praised for their advantages. Indeed, the case of the GSM mobile telephony shows how an open standard can create enormous market growth. A similar situation is developing in the digital television and future-generation mobile communications fields through industry-led forums like those of the DVB and UMTS.<sup>51</sup> In all these cases, the supporting function of the EU in the standardisation debates has played an important part, but there is not necessarily a guarantee of

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<sup>49</sup> “Non-rival” describes consumption in which one person's enjoyment of a product or service does not diminish any one else's enjoyment of the good. Such goods should not be confused with “public goods”, which are non-excludable as well as non-rival.

<sup>50</sup> Following the arguments presented by Borrus/Zysman (1997).

<sup>51</sup> DVB – Digital Video Broadcasting; UMTS – Universal Mobile Telecommunications System

success. Proprietary standards can become established on the market before any policy-driven agreement is made, or if a dominant first-mover ignores the consensus reached in markets where the first-mover advantage is unassailable.

These examples show that **standards are key factors for global competitiveness**, and that the control of key standards implies privileged access to markets. The control of technologies enables and ensures the control of markets. “Market power” and monopolistic practices can only be identified on the basis of a good understanding of the underlying technological and standardisation issues.

#### Issues and challenges

Both examples mentioned (intangible products, and to a somewhat lesser extent, standards) point to institutional adjustments needed to exploit the potential benefits of the emerging ICT-based markets. These relate mainly to the need to **take account of globalisation in the legal frameworks ensuring fair competition**. The current national and regional focus of such frameworks will be rendered unsustainable, if only because of the ease with which they can be undermined by “forum shopping” whereby firms no longer subject to geographical constraints seek to locate themselves within jurisdictions which impose the least burden of regulation. Formal legal approaches to the regulation of market players are already being replaced by **self-regulatory schemes**, and to the extent that these are based on broadly agreed principles, and have suitable enforcement mechanisms, they represent a step in the right direction. However, most observers consider that **some minimum legal provisions will always be necessary**, begging the question of a globally harmonised approach to their implementation. Such harmonisation could be achieved by a strengthening and widening of the existing co-operation which takes place between competition authorities, or by subsuming competition legislation into the ambit of multilateral trade bodies such as the WTO. The latest round of talks does not however give grounds for optimism in finding solutions which involve extending the scope of action of such bodies.

A particular problem for competition policy is exemplified by the case of global ICT standards. The need to encourage innovation and investment in new markets needs to be offset against the risk of market foreclosure by dominant players controlling proprietary standards. It will also have to be measured against the overall public interest in constructing the fabric of interconnected systems and services required to ensure the effective implementation and development of the Information Society. It will become increasingly difficult to devise general rules, and cases will need to be treated individually, taking account of the balance between the different requirements in any given instance, and supported by a solid understanding of the technological and market issues arising.

## 5. Conclusions: The key issues for policy

The issues and challenges raised in the preceding chapters have looked at the “What”, “Where” and “How” of future economic activities in Europe. All these issues depend to a varying extent on political choices and decisions, and these can help improve the competitiveness of the European economy in a variety of ways.

### 5.1 What to produce in Europe –intangible value is what matters

What tends to matter more and more in a customer-driven and knowledge-based economy is to reconcile the use of **high-tech components with the requirements of user-oriented design**. This implies that both the dominance of advanced technologies and the ability to gear them towards sophisticated demands are key ingredients of a competitive economy.

In both respects, Europe is performing well, but could improve further. With respect to the role of the domestic market, the creation of the largest market in the world offers good conditions for firms to launch and develop their new products and services. Moreover, the sophisticated demand of European citizens helps driving performance upwards.

In terms of technology, European firms have shown themselves to be particularly adept at exploiting the intangible value of well-designed and customer-oriented products and services, though often by making use of high-tech components rather than developing their own, especially as far as ICT is concerned. However, this requires complete familiarity with the latest developments in high technology.

In the future, such abilities are expected to become even more important, especially when taking into account trends towards intelligent housing, ubiquitous computing, or the design of new food products.

The key issue over the next decade is therefore the ‘absorptive capacity’ of European firms so they are able to integrate high-tech elements into sophisticated goods and services with high added value. Research and development in high-tech areas will thus be particularly beneficial if it allows improving simultaneously the absorptive capacity of firms, as well as the availability of appropriately skilled people to carry out the necessary design tasks. In other words, R&D should not only be targeted on high-technology *per se*, but in addition also on its integration and application in products and services.

What is going to be produced in the future will also depend to a large extent on the **trends and developments in the domestic markets**. The ageing European population will alter the structure of demand and consumption, just as well-informed consumers will increasingly push for healthy food and environmentally sustainable products, possibly purchased through a trustworthy system of electronic commerce. Other key trends that have been identified relate to the growing value of non-material parts of consumption, especially a move towards knowledge products, the quest for superior quality, and a high degree of customisation of goods and services. The European home market with its demanding consumers is a good proving ground for these new trends in consumption.

An interesting point is that the trends on the demand side and the strengths on supply side of the European economy in many ways complement one another. Starting from the emerging patterns of consumption, the demand for high quality, customised goods and services matches the ability on the production side of the European economy to bring together high-tech and good design.

In order to prepare for these emerging trends, governments and the public administration in general can perform a lead function through both its procurement policies and the adoption of advanced procedures, e.g. by giving incentives for the widespread use of ICT for interaction between citizens and the administration.

Services represent a significant and growing part of EU economies. Many of the growth sectors in services are still to a large extent of a **non-transferable nature** (e.g. most personal services, health, and public services, many utility services). They require considerable familiarity with the local circumstances and requirements, and cannot easily be transferred elsewhere. What matters for competitiveness is the efficiency (and thus the productivity and cost) with which these non-tradable elements of services can be made available in the economy. Not least due to constraints of public budgets, new innovative incentive mechanisms are needed to improve the efficiency of these services. Mechanisms such as quasi-competition between different public and private providers could help contain the costs while maintaining the high standards of public services, which make up one of the particular qualities of European society.

**New types of services have emerged under the heading of information or knowledge-intensive services.** These tend to be highly productive, innovative and increasingly transferable (e.g. knowledge-intensive business services, financial services, e-commerce). In order for them to grow further it is often necessary to provide **reliable legal and regulatory framework conditions**. This is an obvious issue for e-commerce where authentication and standards are crucial preconditions for public acceptance. In other fields their easy transferability across borders places a question-mark over current regulations governing trade in services.

## 5.2 Where to produce in Europe – a new division of labour

There are indications of a **shift in global investment from Asia to Europe**. In view of the trend towards customisation and flexible automation, proximity to European consumer markets has become important argument. Moreover, the declining share of labour costs in many traded products and the shrinking of the wage gap make the relocation of production to East Asia less attractive. Even in the case of products where labour costs still matter, the Central and Eastern European countries are an attractive option as labour costs are comparatively low and they are right next door to the European market. However, this may only be a transition phase on the CEECs' way towards advanced economies. Investment in Asia is now essentially determined by the need to have a foot in the main future markets, but even in this respect, one should take into account that growth of the Asian markets is promised only in the long-term, whereas Europe is the largest and probably the most sophisticated consumer market in the world.

The general economic framework conditions are expected to improve further with the removal of the remaining barriers to the Single Market. However, in order for Europe to maintain a lead market function in technology and skills intensive sectors, it is also crucial to host leading R&D institutions and offer good opportunities for the most creative and entrepreneurial brains. While the diversity of national innovation systems in Europe represents an advantage in many respects, it is to be expected that industrial research activities in an increasingly integrated market will tend also to operate on a European scale.

The economic geography of Europe is also changing. Most obviously, the enlargement process will **change the division of labour among European countries**, leading to structural adjustments in industry, services and agriculture in both Western and Eastern Europe. The key issue for Europe's competitiveness should be seen in the opportunity to **exploit complementary comparative advantages in an enlarged European Union**. While in the short to medium term there is scope for the Central and Eastern European countries to build on their comparatively low labour costs and skills, this would not be a promising strategy from a longer-term perspective. Wages and standards of living will rise as the enlargement process progresses. The way forward for these countries must be seen to lie in a broadly based modernisation headed towards a technology and skills-intensive economy. Infrastructures, skills and stable political institutions are basic pre-conditions for the modernisation process. In parallel, the R&D and education systems will have to be geared towards the needs of a modern industrial economy.

The renewal of the economy in these countries has so far been fuelled by the significant amounts of foreign direct investment that have been received. A second wave of domestic investment will be needed to sustain the transformation process, and to expand the present isolated poles of high productivity to the countries and regions at large. The clustering of industrial activities, research and education institutions around such specialised poles is a possible strategy, and it could benefit from experience acquired elsewhere in Europe. Such an approach could also benefit from the new possibilities offered by ICTs in order to connect industrial locations in the CEECs in "virtual networks" with partners in Western Europe, as pioneered by the automotive industry, for example. Regional and economic policies therefore face the difficult task of helping to close not only the economic gap between East and West, but also the gaps between and within the accession countries themselves.

The upgrading of the economic fabric implies fiercer also competition between new industrial locations in the accession countries, and established sites in the EU-15. It is important to be aware of the potentially difficult repercussions of this for the economies of Europe as a whole, even if from an aggregate perspective European competitiveness will benefit from a higher degree of specialisation and division of labour, though often under the umbrella of bigger companies or conglomerates.

In addition to the challenge of enlargement, it is possible that the European economic space will also undergo a process of decentralisation in the coming years. The new possibilities offered by ICTs in conjunction with the growth in demand for customised products and services favour strategies of local presence and local production. There is still some uncertainty about whether the agglomeration effects of ICTs (i.e. spatial proximity also matters for information-based industries) will outweigh their potential for decentralisation. However, the traditional comparative advantages of agglomerations (e.g. access to rivers and ports, natural resources) are increasingly being superseded by the growing importance of the knowledge and skills base in an information-based economy. This offers new development possibilities for disadvantaged locations, and challenges the established ones. For the **less favoured regions** in particular there is a window of opportunity within which to make a leap forward in economic development. An upgrading of their economies would also be timely because EMU and the Single Market have brought about more competitive conditions for industry and less room for manoeuvre in economic policy.

An appropriate regional development strategy depends very much on the local circumstances and thus requires a certain degree of informed experimentation. The construction of the necessary information infrastructures, the establishment of an R&D support network, and the upgrading of the training and education systems to prepare professionals and citizens for the knowledge economy will have to be addressed. For regions which do not have the potential to develop new

economic clusters of their own, possibilities to connect and combine their resources with other, more powerful regions could be of value (trans-regional cooperation).

### 5.3 How to produce in Europe –balancing efficiency, flexibility and reliability

**Business organisational practices** have to keep pace with the new trends in technology (ie. digitisation) and the economy (ie. liberalisation/deregulation). This affects both firms' internal organisation and the way they interact with one another. Internally, flexibility and the ability to update their knowledge and skills base will be crucial. With respect to external linkages, networking in R&D, production and marketing is much easier than in the past, enabled by the new information and telecommunication technologies. We can already perceive developments towards more horizontal and vertical integration of firms through networking. Such strategies combine the scale advantages of larger, globally operating conglomerates with the flexibility of comparatively small firms (e.g through “glocalisation” or “virtual clustering”). In Europe, the new emerging practices of firm organisation need to be adapted to the particular conditions of the European economy, i.e. large size with high diversity in demand.

The larger private firms have already started to reorganise in response to the new context conditions, but over the next few years both SMEs and the public sector will have to follow. Currently, initiatives to modernise public services and the administration are underway in Member States and at EU level so as to enable them to fulfil their role of benefiting citizens and businesses more efficiently.

The changing nature of goods and services in a globalised and digitised economy affects the principles of efficient market operation and calls for modifications to the current **“rules of the game” in global as well as in European markets**. Intellectual property rights, as key incentives for innovation, cannot be easily implemented for digitised goods and services. The control of standards for key technological components by particular actors can imply a distortion of power relations on formally efficient markets. Similarly, unfair competition can occur through the control of key technologies, not necessarily by the direct control of markets. If indeed we are entering the period of ubiquitous computing, then controlling the standards for the respective key technologies becomes a crucial issue with respect to market dominance. Self-regulatory schemes, to the extent that they can be properly enforced, seem to be a promising way to deal with these new regulatory challenges, but they nevertheless require some degree of legal provisions and harmonisation.

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