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IMPROVING COMPETITIVENESS AND INDUSTRIAL STRUCTURES IN THE COMMUNITY

(Commission communication to the Council)

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SUMMARY

1. Objectives and main conclusions

As announced in its 1985 work programme, the Commission has decided, in response to the wish expressed by the European Council of 28 March 1984 in Brussels, to consider ways of providing the Community with better industrial structures in order to improve its economic performance and offer a more effective response to social and employment concerns.

This Communication therefore forms part of a general process of reflection on the Community's economic and social strategy, which began with the work on the completion of the internal market (1), the strengthening of the technological base (2) and the implementation of a concerted strategy for growth and employment (3), and which will go on to include a detailed analysis of a social and job creation strategy for the Community.

Industrial competitiveness is a complex concept, but is normally taken to cover the ability of firms to face up to their competitors on domestic and world markets. At world market level this ability does not only depend on the capacity to produce at costs which enable the products in question to be sold at a profit; there is also a dynamic aspect, to it, namely, the ability to keep abreast of, and even to influence, the processes of adaptation so as to supply the range of products for which demand is most dynamic. Any worsening of the competitive situation of European industry will, by definition, have adverse effects on growth and employment.

The strategy outlined in the Commission's annual economic report, the aim of which is to introduce more vigorous growth which creates more jobs, fits in well with the need to make European industry more competitive. This is because stronger growth makes the adjustment of structures easier and is based on an improvement in investment profitability, two factors which are crucial to the development of competitiveness.

In this document, the Commission has endeavoured to identify the key elements which determine the Community's competitiveness and the factors likely to assist its improvement, namely

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- (1) COM(85)310 final : Completing the internal market
(2) COM(85)84 and COM(85)530 final : Towards a European Technology Community
(3) COM(85)570 final : Annual Economic Report 1985-86

- on the one hand, the position and the specific characteristics of the Community industries in an international context both in terms of general economic factors and in terms of technology and business performance, with particular attention being paid to SMEs; and

- on the other hand the strategies employed by its main trading partners. Clearly, what is said here about those strategies is not meant to imply that they are an example to be followed, firstly because they are not transferable and also, more importantly, because they do not necessarily correspond to the Community's own objectives and in particular to its concern to reconcile the striving for economic efficiency with maintaining and developing social progress.

Naturally, a number of the factors that determine industrial competitiveness have major social implications. That is why the Commission is at pains to emphasize the benefit to the Community of a cooperation strategy based on a concerted approach to the problems by the two sides of industry, trade unions and firms' representatives, the Member States and the Community institutions.

The Commission believes that, this is the approach that must be adopted, towards making European firms more competitive if growth and employment are to be improved.

Its purpose in this communication is to provide all the parties concerned with a basis for discussion from which operational proposals can emerge. The ideas set out in this document must not therefore be construed as either recommendations or as representing the definitive position of the Commission, but simply as arguments designed to provide substance for a dialogue which are susceptible of improvement in the process.

The conclusions of this analysis can be summarized as follows :

a) Though operating in an extremely tight international context, industry in the Community :

- has given a very mixed performance, generally holding its own against US industry but losing market share to Japanese industry in certain sectors

- has been giving cause for concern with its restructuring, with little being done for the fastest-growing sectors over the last decade.

b) To meet the challenge of the fiercer international competition generated by industry's strategies amongst the Community's main rivals (i.e. the USA's, Japan's and the Pacific countries'), European industry and governments

- have embarked on a major recovery campaign, starting in the early 1980s and marked, in particular, by greater convergence of their industrial development policies;

- however, both the effort and the returns could be greater if the Community's industrial, technological, commercial and training structures could be adapted more rapidly.

c) Based on these findings, the areas to be examined with a view to improving the Community's industrial competitiveness are :

- completing the internal market of the Community
- reaffirming the Community's commitment to free international trade, which is embodied in the GATT system
- strengthening the industrial base of the Community
- promoting the adjustment of production structures
- encouraging the revitalization of European industry and taking advantage of the major contribution of SMEs to growth and employment.
- making a firm commitment to achieving the objective of economic and social cohesion in the Community
- making it easier to adapt the Community's human resources
- stimulating dialogue and concertation on economic and social matters in the Community

The details of these operational aspects will be described in subsequent presentations.

2. Summary of the analysis

The Commission analysis is subdivided into three sections : the specific characteristics of the Community, the factors determining industrial competitiveness in the Community and the opposing strategies.

a) The most prominent features of the frame of reference against which the Community's industrial competitiveness must be seen are :

- The far-reaching changes in industrial structures, with the services sector growing (to account for almost 42% of the EEC's GDP 50% of the USA's and roughly 46% of Japan's), the expansion of the black economy (sometimes thought to account for an estimated 20% of the GDP of many Community countries and of the USA), the expansion of in-house trade by very large multinationals and barter trading.

Europe's capital goods and services sectors have been particularly hard hit by these changes, since their operating environment and structures appear to be more rigid than those of their rivals, which makes it more difficult to assess their real position.

- The specific characteristics of industry in the Community, and in particular its internal diversity (which will increase further still with enlargement), has not yet brought all the benefits which it could have done since the markets are not yet sufficiently adequately integrated or cohesive and because of the lack of a rational division of industrial labour within the Community.

- The Community market is exceptionally open to outside competitors which means that European industry is in constant competition with its international rivals : the arithmetic mean of the customs tariff for industrial products is around 6% in the EEC, the USA and Japan alike, but the Community levies it on only a very small proportion of its imports and has a much narrower tariff spread than its rivals (the EEC imposes tariffs over 20% on only five products, against ten by Japan and far more by the USA).

This openness is reflected in the import penetration rate on the Community market, which stood at 13% for industrial products in 1985 (compared with 11% in the USA and 5% in Japan).

b) The following points emerge from the analysis of the factors determining industrial competitiveness in the Community :

- Generally, after a period of structural weakness between 1972 and 1982 brought on by an excessively low investment rate, unfavourable production cost trends, heavy job losses and loss of world market share, European industry has started to recover, with its cost competitiveness improving, investment picking up markedly and exchange rate fluctuations working - up until 1985 - in its favour. This improvement, linked to favourable circumstances, should not lead to an under-estimation of the structural adjustments which are still required. But Japanese industry still enjoys comparative advantages over its European rivals in most areas, and in particular on productivity, investment rate, cost of capital and unit labour costs.

- Manufacturing industry in the Community has been giving a number of reasons for concern, particularly because of its underinvolvement in the fastest growing industries (notably information technology and electronics- and markets (particularly on the Pacific market). European industry has failed to adapt its output to the changing demand in these sectors, resulting in market penetration by third countries increasing far faster in the Community than in the USA or Japan. (Between 1973 and 1982 the penetration rates in

these sectors rose from 10% to 17% in the Community, from 6.3% to 10.2% in the USA and from 4.2% to 5.2% in Japan). The low penetration rate on the Japanese market indicate that the actual level of protection is higher than the nominal rates of custom duty suggest.

- Overall, the analysis of the services sector shows that the Community is potentially well-placed, though the lack of uniform statistics makes analysis risky. Integration of the Community's internal market would be one of the greatest boosts to competitiveness in this sector in future, not only in services themselves, but also in all those industries which use services.

It must also be added that the traditional distinction between manufacturing industry and the services sector is becoming less and less clear-cut, however much it is needed for statistical purposes. Industrial structures are changing and these two types of activity are becoming inextricably linked, with industrial services accounting for a large proportion of the growth in the services sector.

Lastly, the development of services in the Community has an important role to play for employment, particularly through the contribution of SMEs.

- There seems to be room for improving the Community's performance on technological competitiveness. Although Community industry has the advantage of the top know-how and highest production levels in a large number of industries, it is still slower to incorporate technological progress into its processes and products and less adept at converting technological potential into industrial and commercial success. But the situation varies so widely that this general verdict must not be allowed to block out the revival now under way, particularly in the capital goods industries.

Two important remarks should be made at this point :

. first, the Japanese challenge is not so much, at least at present, a technological one, but more a question of industrial logistics, marketing and long-term commercial strategy;

. secondly, for the Community, these are two factors which plays as important a role as technology in determining the competitive capacity of firms : the firms' environment which is the principal public policy area for industry and the firms' own ability to adapt to changing international circumstances.

- The major curbs on the competitiveness of European firms are that their strategies and products are not as well tuned to the market (though significant lessons can be learnt from comparative studies available on this subject), that they are less profitable than their rivals, that they have little capacity to innovate, with the result that they are falling further and further behind Japanese companies in

filing patents (Japanese companies filed 40% of all patents worldwide in 1980, with the top the Japanese companies accounting for one third), the lack of sufficiently forceful entrepreneurship, as reflected in the far lower business start-up/failure rate than in the USA.

c) The comparison of the opposing strategies lead to the following conclusions :

- Japan's rapid progress will remain the greatest challenge to its rivals' industrial development. Japan's success is based on a unified economy and society, with highly concentrated production and industrial export structures, and an efficient industrial strategy, whose weaknesses should nevertheless be mentioned (shipbuilding and aluminium smelting for instance). The most striking feature is that Japan has been giving industrial development priority in two ways : first, over other economic and, even more so, social policy objectives and, second, by putting the future before the present, with very heavy investment and enormous efforts to win markets. Consequently, this strategy raises the problem of conditions of competition on world markets.

- America's chief aspiration is to meet this challenge with a package of measures to restore its technological domination and revitalize its industry : impact of the Federal budget deficit, tax policy, civil and military research, industrial cooperation, trade policy and deregulation. This strategy combines the benefits of general measures to revitalize firms with the industrial spin-offs of preciser, more clearly focused management of research policy. It could have a major impact on Community industry.

- The emergence of the Pacific countries is the third cause for concern about the future of industry in the Community, which is in danger of being left out on a limb as these countries develop. The chief problem for industry in the Community is, therefore, to avoid succumbing to the fiercer competition aroused by the growth of these newly industrializing countries, which have been specializing in branches of industry similar to the Community far more so than to the USA or to Japan, without at the same time being able to exploit the advantages of their newly-opened markets.

- The Community has, beyond question, woken up to this mounting international competition. It has made significant progress since 1982-83 in the form of :

. macro-economic policies creating a more favourable environment for the development of producing industries;

. the convergence of national attitudes towards industry, through a more restrictive position on State intervention and making policies more effective;

. making sure that business and government strategies take greater account of the European dimension, notably in the form of joint European projects (e.g. ESPRIT, BRITE, RACE, EUREKA, etc.); and

. strengthening industrial cooperation between firms inside and outside Europe (in the form of a growing number of inter-firm joint ventures); and

. adapting human resources to the new technologies and to the European dimension, particularly in the context of Community projects (COMETT, ERASMUS, YES, ...).

That leaves the question of whether the movement is on a large enough scale and intense enough to restore and improve the position of the Community's industries.

IMPROVING COMPETITIVENESS AND INDUSTRIAL STRUCTURES IN THE COMMUNITY

Introduction

The economic crisis has turned industrial competitiveness into one of the top policy objectives for industrial and public operators (1).

In 1981, the Commission services produced a report on the competitiveness of industry in the Community, at the behest and with the help of the European Parliament(2) .

The Commission's purpose in this communication is to provide all the parties concerned with a basis for discussion from which operational proposals can emerge. The ideas set out in this document must not therefore be construed as either recommendations or as representing the definitive position of the Commission, but simply as arguments designed to provide sustance for a dialogue which are open to improvement in the process.

Consequently, it makes no attempt to give an exhaustive description of the state of European industry (3) nor to update the 1981 reports(4) .

(1) cf. for example, the January 1985 report from the Commission to the US President on industrial competitiveness

(2) The competitiveness of industry in the Community, Commission of the European Communities, 1981

(3) The ideas set out below apply esclusively to "industry", by which the Commission means all activities to produce goods or provide services for the market

(4) Commission staff are carrying out parallel work to update these reports.

On the whole, over the last ten years industry in the Community has been operating in a tight international context.

Despite this constraint and the pessimism pervading so many assessments of the Community's industrial performance, European undertakings have not fallen behind and some have continued to register very respectable results on world markets.

After all, European industry has undeniable assets to help it to stand up to its international rivals, even if it also suffers from weaknesses stemming from certain specifically European characteristics and is threatened by the Community's partners' aspirations and strategies.

1. Specific characteristics of the European socio-economic environment

This document does not set out to examine the particular situation of individual Member States or different industrial sectors in the Community, but to make global assessments of the competitive situation of European industry as a whole compared with external competition.

Nevertheless, internal diversity within the Community, which remains marked in certain areas, determines, in part, its strengths and handicaps and contributes to the definition of the context of the competitiveness of its industry.

a) A mixed economic performance

Since the first oil shock, for the Community :

- annual growth has been only 0.5% lower on average than that in the US,
- employment creation has been extremely disappointing, but productivity has increased rapidly
- the share of world trade has declined, by a rate similar to that of the US .

In a context of low overall economic growth, caused among other things by insufficient redeployment towards expanding sectors, this effort undoubtedly occasioned great sacrifices.

After emerging as a major competitor to the US in the period up to the first oil shock, pressure from Japan and the Pacific Basin confronted the Community at a time when industrial investments had not yet been depreciated and before a very high degree of economic integration could be achieved.

b) Internal diversity and barriers

Through differences in historical background and in the development paths of Member States has come a much less homogenous distribution of economic activity and degree of development in the European Community than in the United States. In addition, the second round of enlargement, particularly, will lead to a marked weakening in the degree of homogeneity (see Table). This is a structural characteristic, and over time differences in economic performance have persisted, notwithstanding recent improvements in certain areas (notably inflation and the external deficit)

and this is a factor which will justify an effort by the Community to achieve cohesion.

- From the point of view of demand, the profile of final demand in Greece, Spain and Portugal differs substantially from the rest of the Community with a much higher share going to food and clothing and a much lower share to investment in machinery and equipment (see graphs). In addition the industrial sectors of new members are even more biased towards those few which demand is growing only moderately or slowly than that for the Community as a whole, with the result that they are likely to add to the already considerable imbalance in fast-growing, high technology sectors.

- In a sense this weakness also carries a strength in the form of a great diversity of the production base and its capacity to supply markets with rare combinations of requirements. Nevertheless this rather specific type of advantage applies mostly to certain forms of non-standardised consumer products rather than mass market consumer goods or products destined for the industrial sector.

The industrial situation of less favoured regions might also be, in the perspective of the strengthening of the industrial base of the Community, an opportunity to develop new productive activities.

Experience since the first oil shock has been to reinforce internal diversity. Leaving aside the on-going process of enlargement, adaptation to the more competitive atmosphere has led to a widening of the difference between Member States' individual economic performance. Furthermore in the energy sector, in which substantial investments have been made and Europe's dependence reduced in a lasting and significant manner, the effect has been to introduce a much greater variability in their response to changes in the price of energy, than before the first oil shock. These differences, in situation as well as in performance, make a common European response even more difficult.

c) Human resources

Recent experience suggests that economic success no longer rests essentially on the level of factor endowments and their rate of change, but that a number of less material elements are playing an increasing rôle. This means that Europe must concentrate on working out effective methods of using its non-material resources and enhancing their potential. Since they are bound up with prevalent attitudes towards the firm and its rôle in society, with the educational system, and with the structure of relations within enterprises, recipes can not be imported from outside but must be developed from within.

The need to balance risk with security, the high level of social endowments and the refusal to pass on the negative impacts of socio-economic developments onto the individual are common features of Member States. In a number of cases they have given rise to rigidities, those on the labour market and on the sectoral allocation of resources being the most obvious. However, the need for security is not necessarily incompatible with that of faster adaptation to the new competitive conditions. By accepting the need to provide for the social cost of such adaptation and by the use of positive adjustment policies to assist the process, adaptation can be speeded up without compromising security.

At the present time increasing sectoral and occupational mobility is a pre-requisite for the improved functioning of the economy. This question of mobility must be tackled in a concerted manner, and the preparation and involvement of the parties concerned is essential if the changes in view are to succeed.

2. The international context

Over the last ten years in general, and since the latest energy crisis in particular (1), the European economy has been operating in a difficult international environment.

This state of affairs has had a far-reaching impact on its competitiveness and on the scale of changes made. It stems partly from basic industrial structures in the Community and partly from the importance to the Community of maintaining free trade and a competitive market.

Some of the chief constraints on European industry's environment over the last few years have been :

a) the internal Community market is exceptionally open to outside competitors

This is particularly evident from the Community's imports as a proportion of GDP and from industrial products' share of these imports :

(1) cf. Statistical annex

In 1985, the import penetration rate (imports as a proportion of home demand) for manufactured goods stood at 13% in the Community, compared with 11.2% in the USA and only 5% in Japan. It must be stressed that the current US penetration rate very much reflects the strength of the dollar over the last three years. In 1982 the US rate was only 9.5%.

Within the Community, the import penetration rate grew fastest on the high-demand markets, where it moved up seven points between 1972 and 1982 to finish at 17% compared with 10.2% in the USA and 5.2% in Japan (1).

There are three reasons why the Community market is so open :

. its average customs tariffs are low with a very narrow spread. In 1984 the average level of tariff protection on the Community market was comparable to that on the Community's two leading partners' markets but the spread was much narrower, as can be seen from the table set out below :

openness of the markets

	Average level of protection (industrial products)	Number of products charged duties over 20%	Proportion of industrial trade covered by binding customs duties (2)
EEC	6.4 %	5	100%
USA	6.3 %	large number	100%
JAPAN	6 %	10	83%
KOREA	22.6 %	very large number	14%

Source : GATT and Commission departments

(1) cf. European Economy n° 25 and Statistical annex (also for the definition of high-demand products)

(2) These figures mean that the Community and the USA have notified GATT of all customs tariffs on industrial products and, therefore, may not change them without first conducting negotiations and providing adequate compensation under the GATT arrangements. This obligation is imposed on only a very small fraction of the developing countries' customs tariffs

. Only a limited proportion of the Community's imports are actually charged this tariff, since so many of the Community's trading partners are granted general (EFTA and ACP) or limited (GSP) exemptions.

. As the Community has been integrating its market (1), it has also been establishing greater freedom of external trade. In practice, the Community is far better placed than its partners to resist protectionist pressures, because the Member States' differing interests leave no alternative but to reach a more liberal compromise on commercial policy decisions and also because its very open decision-making procedures give the Community's partners every opportunity to voice their interests.

It must also be added that current tariffs on the Community market are, of course, much lower than in the newly-industrializing countries, which, moreover, have consolidated only a very small proportion of their tariffs into binding GATT tariffs.

Last but not least, by nature the very establishment and repeated enlargement of the Community has always been a big boost to freer international trade and a more open market because :

. it has made it possible to remove customs barriers sooner;

. all the steps made towards completing the internal market and, in particular the measures on standardization and on the removal of technical barriers to trade, have been non-discriminatory and, consequently, of equal benefit to firms from the Community's trading partners;

. the Community has continuously pursued a determined policy to promote competition and free trade.

(1) Cf. in particular the rule prohibiting measures having an equivalent effect to quantitative restrictions on imports and exports and the policy to control state aid is so far as it affects trade between Member States.

b) Overall the Community's industry is more exposed to world financial and monetary deregulation than its partners'

Obviously, deregulation of the world money and financial markets has hit some firms harder than others. Exchange rate fluctuations have, on occasion worked to the benefit of European firms. In particular, the long period of dollar strength up to early 1985 gave a big boost to the competitiveness of European goods on the US market. However, two major factors suggest that on the whole this deregulation has hit European industry harder than its US or Japanese rivals :

- . despite the impact of the European monetary system, European firms have been far more prone to the general climate of uncertainty.

Against this background, European firms are clearly more vulnerable to exchange rate risks than their rivals, especially since foreign trade accounts for such a large proportion of their activity. They also have to content with the complexities born of the large number of currencies in the Community.

- . the Community's pattern of exports has proved more vulnerable than its partners', since the Community is more heavily committed to exporting to the developing countries in greatest difficulty. Moreover, the rapidly developing economies (and in particular the Pacific region) still take a far smaller share of the Community's exports than of exports from the Community's trading partners (1).

(1) Cf. CEPPII (Centre d'Etudes Prospectives et d'Information Internationale) report entitled : "Economie Mondiale 1980-1990, la fracture", 1984 and the Statistical annex.

The Community's telecommunications hardware exports are one striking example. Between 1978 and 1983 the EEC's share of OECD exports of telecommunications hardware (telephone exchanges, switchboards, etc.) slumped from 46% to less than 30%, while Japan's rose from 14.5% to 23% and the USA's from 15.7% to 19.3%. One of the chief reasons for this poor performance lay in the weak geographical distribution of the EEC's exports, and in particular the very small share going to the Asian countries (cf. Trade in IT and communications services: the impact on trade in hardware of the restructuring of the telecommunications services market, OECD, ICCP (85)14).

c) Fiercer international competition

Community industry has been, and still is, up against increasingly fierce foreign competition :

- large sections of the European economy have been under pressure from their rivals' export strategies;
- Technology has heightened competition and necessitated faster, more painful restructuring. Here too European industry has been handicapped by a slower rate of adjustment. It must also be stressed that countries, such as Japan, which are still catching up and, consequently, growing faster have been forcing the pace with their technological development policies, thus inevitably shortening plant and product life.

d) Rapidly changing industrial structures

A fourth point must be added : the far-reaching restructuring of production which sometimes makes it difficult to discern the real industrial trends. Three broad developments must be stressed :

- the emergence of the services sector : henceforth services will account for a major share of the value added and, even more so, of the jobs created in the leading industrialized countries. This can be attributed partly to the expansion of conventional services (e.g. banking, insurance, etc.) and partly to the increasing encroachment of service-type activities into manufacturing as new technologies spread. As yet little is known about the impact of the changes, since the available statistics do not give the full picture. The Commission has decided to embark on a study on this subject in response to Parliament's call to follow up the 1981 report on competitiveness. This communication takes account of the preliminary results of the work on it.
- Expansion of the black economy : many studies have suggested that the black economy sometimes accounts for over 20% of the GDP of certain Community countries and of the USA. They view this expansion as one of the chief explanations for the marked decline in productivity growth in industry and as a further complication for macro-economic trend analyses (1)

(1) cf. in particular "Consommation" the social and economic review published by CREDOC (Centre de recherche, d'études et de documentation sur la consommation), Vol. 4, October-November 1982)

- Increasingly complex trading relations : just as the black economy blurs the picture of the home economy and makes up for some of its shortcomings or faults, a series of shifts in international trade have been making it increasingly difficult to assess and interpret patterns of trade :

. First, the share of international trade absorbed by in-house trade by very large multinationals and the links between such trade and the undertakings' strategies on industrial cooperation and establishing branches in other countries are growing closer (one US Senate report found that the top 300 US undertakings accounted for two thirds of the USA's exports and one third of its imports);

. Barter trading is expanding rapidly, taking increasingly complex forms and spreading to new geographical areas;

. There has been growing trade in services, which are far harder than goods to analyse with today's methods of gathering data and statistics (1).

(1) cf. Statistical annex

II. FACTORS DETERMINING INDUSTRIAL COMPETITIVENESS IN THE COMMUNITY

Amongst the numerous factors affecting competitiveness, this chapter will concentrate on those areas for which reasonable information exists and in which significant developments have occurred since the publication of the first report in 1981. It will attempt to isolate the factors which appear to have had an over-riding importance rather than a complete presentation of all of the areas which may affect competitiveness in one way or another.¹⁾

The determining role played by the general business climate and environment (macro-economic context, social climate, etc.) must be stressed, because it is in this field that policy makers hold special responsibilities.

1. Industrial competitiveness

(a) General factors

Within the area of quantifiable factors affecting competitiveness, the level and development of costs, both for labour and for capital, are amongst the most important determinants:

-Developments in labour costs arise from a number of factors, of which wages are only one. Non wage costs, productivity and exchange rates have all exercised strong influences on international developments in the real cost of labour. These developments have shown rather different patterns in recent years than over the longer term, which, if sustained, would imply a much more favourable competitive position for the Community with regard to labour costs. Between 1973 and 1982 real wage costs in the Community, expressed in national currencies, rose at a rate half way between those of the USA and Japan. However, differentials in productivity growth meant that labour costs per unit of output in the U.S. and the Community developed in a comparable fashion, whilst those of Japan declined substantially.

Since 1982, the increase in real wages in the Community has slowed considerably (1.2% per annum between 1982 and 1985 against 2.9% over the period (1982/73), whereas the tendency of the previous period was maintained in the USA and Japan. Taken with recent progress in labour productivity, the moderate growth in real wages has led to a drop in unit labour costs for the Community as a whole. Nevertheless, spectacular differences remain between Member States. Certain countries (Netherlands, Denmark, Germany) have seen their unit costs fall by over 3 % per annum, whilst others (UK) have seen their performance deteriorate.

Domestic developments have been reflected in international competitiveness to only a small extent because exchange rates have become sharply out of line from purchasing power parities. These developments have recently enabled the Community not only to make up lost ground, but even to achieve a new level of competitiveness when unit costs are expressed in a common currency. Using 1972 as a base

¹⁾ cf. Economie Européenne No. 25, September 1985

equal to 100, unit labour costs in a common currency in 1985 for the Community had reached 87.7 compared with 102.5 for Japan and 110.5 for the U.S. With the current volatility of the exchange markets, these positions can be quickly reversed, and it remains, therefore, appropriate to use real unit labour costs in national currency as an indicator of cost developments over the longer term, confirming the advantage of Japan over both the Community and the U.S.

- Measuring developments in the cost of capital is less straightforward than that of labour. Real long term interest rates affect firms differently, in part because of very favourable legislative conditions for depreciation, in part because interest payments reduce tax liabilities, and because of the very different ratios of debt to equity which are to be found across countries and between firms. Real interest rates have risen sharply across the world and it does not appear that Community rates are substantially higher than those of its main competitors. In the case of the U.S., however, the very high interest rates now prevailing have been borne almost entirely by consumers, since the real burden to industry has been cut through the implementation of new rules governing depreciation (Accelerated Cost Recovery System) and investment tax credits, notably those laid down in the Economic Recovery Act of 1981 and the Tax Equity and Fiscal Responsibility Act of 1982. In addition it is clear that the fragmentation of financial markets in the Community is a factor increasing costs for European firms.

Although the development of costs are important factors determining competitiveness, the capacity to develop new products and reply to the demand are of even greater significance. In turn, the level of investment represents a very important indicator of the state of the productive apparatus and therefore the capacity to reply to this challenge of fast changing markets.

Since 1973, the rate of investment (share of gross fixed capital formation in value added) for European industry has been declining regularly with that of American industry increasing. After 1982, the investment rate of American industry has exceeded that for the Community (see Graph), with Japanese industry regaining a very high rate, after a sharp drop in the mid-seventies. Between 1972 and 1980 industrial investment increased five times as fast in Japan as in the Community and in the United States by ten times. Since then, industrial investment stagnated in Europe, only reaching its level of 1980 again in 1985, whilst both Japan and the United States showed comparable growth (18%). This slow down in industrial investment is such that the upswing under way in the Community in no way compensates for the accumulated handicap.

Of particular importance for competitiveness is the structure of investment. Thus it is in the high growth sectors (computers and office machines, electrical and electronic goods, chemicals and pharmaceuticals) that the slow-down has been most marked for the Community and the acceleration most significant in the United States and Japan. As an explanation for this surprising development it should be noted that the rate of return on invested capital at replacement cost fell faster than in the United States and Japan. Moreover, this fall in the rate of return in the Community is generally faster than that for industry as a whole, so that the actual rate of return in high growth sectors is now below that for other sectors, contrary to the Japanese and U.S. experience.

Lastly, conditions of supply for raw materials (cost, conditions for access, etc.) also constitute an important factor in the competitiveness of several industrial sectors.

(b) Manufacturing industry

In spite of the recent improvement in the Community's external balance, and the strongly positive balance of trade in manufactured goods, for which exports should exceed imports by 40 % in 1985, a number of structural weaknesses have developed over the years. Of particular importance in this respect are the capacity to reply to growing demand and to supply the most developed markets. Sectors in areas of fastest growing demand (double the average rate) are to be found in electrical and electronic machinery, data processing, office machinery and precision instruments, chemicals and pharmaceuticals (see table). Sectors of weak demand (below average) cover textiles and clothing, iron and steel, metal products, non-metallic minerals and other manufacturing products.

If the ranking of industries according to growth of demand remains very stable across countries, differences in growth rates make for an unequal distribution of the total market. Thus taking the Community, U.S. and Japan together, the Community represents 44% of the combined population, but only 37 % of the market for industrial products and 33 % of the market for high technology products. The U.S. with 37 % of the combined population represents 42 % of the market for high technology products, and Japan with only 19 % of the population 25 % of that for high technology. Taking into account remaining imperfections of the European market, the U.S. and Japan therefore possess a sizeable advantage in terms of both the size and rate of growth of their markets.

Geographical coverage of markets is important, because developed countries not only represent the largest and most stable areas for industrial products, but they are also leaders in innovation. Being competitive on these markets, therefore, is necessary to maintain the overall dynamism of industry. In terms of the geographical coverage of trade, the Community imports primarily amongst the industrialized countries from the U.S., Japan and S.E. Asia but exports to the less competitive areas of other members of O.E.C.D. developing countries and state trading countries. In terms of market share, the Community has been losing heavily in the fast expanding sectors, notably electrical equipment and office machinery, but gaining market share for those sectors for which demand is growing only slowly. The U.S. and Japan, however, have both been gaining market share heavily in the fast expanding sectors at between 2 % and 5 % per annum. In addition industrialized countries account for only 34 % of EEC exports for high and medium technology goods, against 45 % for Japan and 51 % for the U.S.

Europe's disappointing export performance is mirrored by rising import penetration for electrical goods and office machinery, whilst that for intermediate and lower technology goods has been held to levels comparable to that of the U.S. Poor export performance and rising import penetration point to a slow adaptation of European industry to the changing structure of demand and slow take up of technical innovation. At a time of slow overall growth, certain sectors with a high technological content have benefitted from a sustained increase in

demand of between 5% and 13% per annum. These sectors are substantially the same throughout the developed countries. Sectors of average demand are also those of medium technological content (increases of demand between 2 % and 5 % per annum) whilst sectors of slow increases in demand correspond to products with low technological content (growth of demand of 0 to 3 % per annum).

The lack of success of Community industry in replying to the demand for high technology products and in maintaining market share has led to a deterioration of its relative specialisation 1) towards slower growing, lower technology items. This in turn increases its vulnerability to competition from the Newly Industrialized Countries and to difficulties facing developing countries in financing imports because of the fall in the price of oil and the international debt crisis.

(c) Services

Competitiveness in services has become an increasingly important issue because the service sector has displayed much more dynamic growth than manufacturing, because a combination of technical innovations affecting the office environment, deregulation and the increasing recourse of industrial firms to specialised suppliers makes the service sector both much more diverse and much more important as a determinant for the performance of the business sector. In this context, competitiveness in the services sector can be appreciated in two ways, as a contribution to the competitiveness of the manufacturing sector and in terms of the competitiveness of internationally traded services. Since many producer services, notably marketing, finance and consultancy, are of increasing importance to the goods producer sector, the quality of such services is important as a determinant of overall industrial performance. In addition, certain types of services, including project consultancy, congregate direct exports through the specification of goods produced in the country of origin of the provider of the service. A report of the U.S. International Trade Commission cites many examples of such linkages. 1)

With regard to international competitiveness in services, the restrictions placed on the free flow of services mean that balance of payments statistics do not necessarily reveal comparative advantage. Such restrictions are of particular significance for producer services. A recent GATT inventory of restrictions to trade in services runs to twelve pages .

Where limitations are placed on trade in services, many firms in internationally competitive sectors choose to open subsidiaries abroad. In this way, they can build up a sizeable position on foreign markets, export the practices of the country of origin, thereby indirectly favouring other firms from the same source, and come to control significant parts of certain services which are of great importance to industrial competitiveness. The establishment of management counselling

1) Share of these products in industrial exports and production

1) The relationship of exports in selected U.S. service industries to U.S. merchandise exports.

services by U.S. specialists represents an obvious example. In the field of accountancy, seven of the top revenue earning firms in the USA in 1983 were also amongst the top ten auditors in the UK in terms of the numbers of companies audited by each firm. Ultimately, such developments could lead to a concentration of "know how" in the hands of controlling firms.

Proportionately, international trade in services is much less important than trade in goods, because many services are, by definition, untradeable. Nor is it true that trade in services has been growing particularly fast. If investment income is excluded, growth rates for services have been below those for goods throughout the 1970s. A similar geographical distribution of trade in services to that for goods can be observed, with the developed countries taking a dominant, although declining share (82 % of imports and 73 % of exports in 1981).

Of trade in services (excluding investment income) freight has been taking a declining share in the total and other private services an increasing share, with the categories other transport, travel and government transactions more or less stable. The category "other services" is very heterogeneous, and indeed different reporting practices mean that coverage varies from country to country. Within this category are usually to be found property income, banking, non-merchandise insurance, construction and engineering, films and broadcasting and a residual "other services-other" which makes up the greatest part of the group in value.

Trade in services is much more important for the Community than for the US and Japan. In 1983, the share of private services in total exports for the US and Japan lay at 11% against 20% for the Community.

Looking at the balances for individual items for services, the Community maintained a positive balance for transport until 1983 when it became negative. The actual amount of the balance fluctuated rather widely over the period 1974-83 with a maximum of 2410 million ECU in 1980 to a minimum of -257 million in 1983. This compares very favourably with Japan and the U.S. which ran deficits of 3 1/2 billion and 2 1/4 billion ECU respectively in 1983. On travel, the Community's consistent deficit mirrors that of Japan, with the U.S. also running a deficit around half of that of Japan in most years.

Other services, covering the crucial areas of many producer services, remain one of the great strengths of the Community. Not only is the current surplus nearly double that of the U.S., but it increased at a faster rate than that of the U.S. over the period 1974/83. At the same time the Japanese deficit widened sharply to reach 8 billion ECU against an American surplus of 9 1/2 billion ECU and a European one of 16 billion.

Overall, the analysis of the service sector trade shows that the Community has strong points. The main advantages of the Community appear to lie in advisory and construction services (rance) in banking and insurance (United-Kingdom), in transport (Netherlands,Greece and Denmark), and tourism (Mediterranean regions).

But these strong points are not fully exploited because of the fragmentation of the market for services in the Community. Work at the

Community level to do away with obstacles to the free movement of services must be strengthened. This is essential, not only for the future of services themselves, but also for the competitiveness of manufacturing industry which is more and more dependent on them. Manufacturing industry can not hope to be competitive nor make most use of its resources without adequate access to the Community's whole potential in the fields of consultancy, banking, insurance, data processing and software, engineering and many other services

2. Technological competitiveness

Technology is considered to be one of the most decisive factors for industrial competitiveness in the 90's. This is as true for industrial sectors with a high rate of technological development (e.g. informatics, telecommunications, bio-technology) as it is for the more mature sectors such as shipbuilding, textiles, clothing, foodstuffs and construction.

It is through its wide-ranging contribution to increased productivity potential of all factors of production, from labour, capital, materials and energy to inventory stock control, organisation and management, quality control and marketing, that new technologies assumes its central role as determining industrial competitiveness. This fact also explains why all sectors, regardless of product or service produced, are faced with the task of mastering the state-of-the-art technology.

Automation in the manufacturing industries is now a major objective of European industrial policies and the strengthening of technological innovation policies has become an industrial necessity.

From the first stage of automating continuous production processes (1960-1970), development perspectives have become much further reaching and today encompass automating machining, assembly, handling and inspection, in practice regardless of length of series or economies of scale. A growing proportion of manufacturing industries can now be automated. The economic impact of such modernization is important for the Community: the gross value added by industry represents almost 40% of total value added in the Community.

Although attention today is clearly focussed on the high technology sectors and new technologies, technological advance and the mastering of state-of-the-art technology play a decisive role for the competitiveness of all individual enterprises and of industry as a whole:

- Whereas production of the technologically advanced equipment and products is in itself a major economic issue for the Community, the strategic importance of advanced technology is far larger, as its use in both production equipment and new products is a potential source of spectacular improvements in industrial productivity. It permits increases in the period of use of production equipment (moving towards 24 hours-a-day), it introduces flexibility in the production process improving market adaptability, it makes possible automation of small production series and reduces production time in general.

- In the course of this development the present day distinction between leading-edge and mature industries or sectors will gradually disappear. Since the potential for increasing productivity and flexibility is greater in mature industries (and probably most so in traditionally labour-intensive industries), so is the incentive to employ the new technology. Already there are signs, in the automobile industry for example, of a process of "dematurity" leading, through use of advanced production techniques, to changes in competition parameters of enterprises in the industry including product specifications (design, durability, performance) and capability of (large) firms to respond to changing markets.

Increasingly, the dividing line will be between those enterprises who make full use of the new technology and those who do not within the same industrial sector. It is less important whether a particular industrial sector is successful in making this transition than whether a sufficient number of firms across industry manage to adopt to and develop new technology in their field. Hence, the challenges of new technology go far beyond any narrow sectoral definitions; they concern the competitiveness of Community industry as a whole, indeed its ability to exploit new opportunities.

To assess the state of Community industry in this respect and the means for improving the Community's technological competitiveness, the following distinction can be useful:

- a. The "production" of new technology, normally referred to as research and development, which takes place in public and private sectors alike,
- b. The use of new techniques in the production process, normally leading to increased productivity and flexibility, reduced waste, improved product and quality control, economies in management, servicing etc,
- c. The implementation of new techniques into the products, leading to improved product performance, versatility in use, product quality and new products.

A strategy for improving, since maintaining and further developing the technological competitiveness of the Community industries must have the aim of reducing (possibly removing) constraints and limitations at each of the three levels above while taking account of the interactions between them.

a. Production of new technology - R&D

According to estimates for 1985, total R&D expenditure in the USA and Japan is roughly equivalent to 2.9 and 2.5 per cent of GNP, respectively. This compares to an average for

the Community of about 2 per cent. In absolute terms Japan's R&D spending is roughly half that of the Community whereas the USA is using 50 per cent more than the Community¹. Although these overall figures would indicate an R&D effort for the Community as a whole which is comparable to what is done by the main competitors, some qualifying remarks are necessary with regard to the impact of R&D on technological competitiveness:

- The Community has been and still is spending a larger fraction than both the USA and Japan on basic research, primarily carried out by universities and related institutions. Conversely, notably the USA is spending much more on applied research and development, related to military and space programs and industrial spinoffs. It could be said that whereas both the USA and Japan are to a large extent carrying out R&D with a view to later practical industrial use, the Community is trying - within the same general magnitude of amount spent - to cover the entire range of R&D activities, from basic scientific research to industrial prototypes.
- From the point of view of industrial competitiveness this difference in strategies has meant that the Community industry in crucial R&D areas is lagging behind its main competitors. This is of particular significance in fields where R&D today is providing the key production technology and products of tomorrow, notably semiconductors (the raw material of Information Technology, automation and computer integrated manufacturing), new materials (including composites, ceramics, joining techniques and surface treatments) and chemistry and biochemistry².
- It is a generally accepted fact that Europe's future in chemistry and chemical engineering lies in specializing into fine chemicals and specialities with high value added. Bulk commodities such as standard fertilizers are facing still harder competition from oil-countries. However the finer end of the market is equally competitive with a strong presence of American and Japanese firms supported by major R&D efforts. These efforts lead unavoidably to higher productivity in the chemical industry and it is thus indispensable to increase Europe's R&D activity. Areas to be covered are catalysis, particle technology, separation techniques,

1. See also table YY of the appendix for details for 1981, the last year for which comparable international statistics are available.

During the 70ies Japan has increased R&D expenditure from 1.5 to 2 per cent of GNP and is expected to further increase to 3 per cent in 1990. The USA is forecast to increase R&D expenditure from 94 Billion dollars in 1984 to 116 Billion in 1987.

2. Specific R&D areas have been defined in the framework of Community programmes ESPRIT, BRITE and RACE.

membrane science and technology, computer modelling of molecules, genetic engineering and use of computers to control processes, the latter permitting economies in small-scale batch productions.

A continued Community deficiency in the areas mentioned would lead Community industry into obsolete and non-developing niches of production and force even the most advanced firms to source technology from the USA and Japan, a situation to some extent already present in semiconductor technology. Should this become a general phenomenon, a European presence in the most competitive markets would be next to impossible to maintain.

The efforts sustained in Japan by MITI and in the USA by the Department of Defense, NASA and the National Science Foundation are ample proof of the strategic importance attached to mastering these technologies. As a result, Europe capacity in engineering and soft-ware should be strengthened through appropriate measures to exploit the potential of the industries concerned (large engineering firms, technical consultants, high technology SMEs). The direction of European R and D programmes towards applied research and demonstration projects is a means to realize this objective.

b. Production technology

Whereas the level of European R&D efforts would seem at par with those of our main competitors, the situation is different in the field of production technology. Community standards require substantial improvements in a number of industrial sectors - notably those which supply inputs for other industries - and a wide range of areas, of which some are identified below:

- Improvements leading to higher productivity include the use of advanced techniques and equipment such as CAD/CAM, industrial robots, lasers, fully automated paint spraying systems and robotized arc welding¹. The Community is gaining ground in these areas as illustrated by the following figures: in 1983 Japanese industry employed 16,500 robots, USA 8,000 against some 10,400 in Europe. Estimates for late 1984 give the figures 44,000 for Japan, 13,000 for the USA and 20,500 for Europe. The Community has, after a relatively slow beginning, been able to catch up with and even overtake the USA and close part of the gap to Japan in the use of industrial robots.

Although many of the basic technologies needed to maintain and further develop this position are being tackled at Community level already, this area involves very

1. c.f. Advanced Manufacturing Equipment in the Community, Communication from the Commission to the Council, COM(85)112, final, for further reference

substantial investments for individual enterprises. These investments can be recuperated within the short write-off period only if certain production levels, necessitating a Community-wide market, can be attained.

- Improvements are needed concerning the reliability of machinery and the ability to predict its residual life. Both become important, the more expensive the machinery and the more costly for the enterprise if a piece of equipment fails.
- The investments necessary for the individual enterprise before it can employ the most advanced production technology available poses a particular problem. It is a characteristic of Community industry, that it consists of a few large and many medium-sized and small enterprises. They need, as do other enterprises, to improve productivity, product ranges and product quality through new technology. An effort to simplify new production systems, to reduce their complexity and bring their costs within the reach of SMEs is of particular importance to Community industry.
- Introducing flexibility in manufacturing poses yet another challenge. Increasingly, survival in competitive situations demands flexibility. In everything - from clothes to motor cars - a single factory must be able to produce a number of different models simultaneously and to change proportions of the various models and their characteristics to meet demands of a rapidly changing market.

This can be obtained by integrating, notably, new information technology into the production process, today in the form of CAD/CAM, but ultimately in the form of computer-integrated manufacturing covering not only decisions related directly to production but also the overall business strategy of the firms. Europe's position is one of weakness in this field, notably due to the dominance of large American firms. However, proposals already on file with the Commission show that there in the Community industry is both the will, the capacity and the ability, all backed by substantial expert knowledge in universities and research institutes, to meet this challenge.

The development towards what has been termed "the factory of the future", i.e. a factory integrating the components NC machine tools, robots, flexible cells, flexible production systems, local communication networks, computer aided-management, engineering and design has already brought forward large enterprises in the engineering, electrical, electronics and computer sectors. It is clear that large companies play a central role in the development process. However it is equally clear that small businesses are also caught up

in, must adapt to and play a significant role in this industrial transformation.

The fact that all European enterprises, regardless of size, product or nationality, need to apply the most up-to-date technology in production makes the areas mentioned above particularly important for Community industry. It is equally important to assure that the Community-wide demand can be met by production techniques that do not have to be tailored according to 10 or 12 different national standards.

c. Product technology.

Whereas access to technological know-how and up-to-date production technology are necessary elements for industrial competitiveness, they are not sufficient to secure it. The product itself, implementing new technology directly (e.g. chips in wrist-watches, new materials) or indirectly (e.g. improved design and reliability, improved servicing and marketing) is essential.

In this field Japanese industry has proved second to none especially in consumer goods such as cameras, TV-sets, video recorders, HI-FI equipment, cars etc. As explained elsewhere industrial policy measures coupled with original home market protection has led Japanese information technology industry, notably computers and certainly telecommunications, to rapid development.

Community industry has been far less successful in implementing new technology into products over a wide range of markets. Likewise it has been often too late to introduce new products or product specifications- product innovation has been too slow¹. For several reasons this is the key problem in European technological competitiveness:

- In Information Technology the Community suffers from lags in the introduction or the availability of new products and technologies, notably in the semiconductor industry. In this industry, first entry implies that the company is in a position to offer lower prices than all competitors due to the combination of high production volume, rising quality and falling costs. Late entrants are trapped at positions higher up the learning curve than the first-comers. Furthermore, because of the strategic position of the semiconductor industry as supplier for a range of other industries, forces these industries to seek supply from the first-comer, more often than not of Japanese or US origin. But since domestic users tend to have easier and earlier access to both new products and lower prices, European semiconductor users are at a competitive disadvantage.
- If in the semiconductor area Europe is able to supply only a diminishing proportion of the needed components,

1. See also section on innovation below.

the telecommunications industry is doing somewhat better due however to well established producer-user relationships, promotion of national champions and public dominance of the PTTs.

These positions can only be maintained and developed if a truly European telecommunication industry can be created over the forthcoming years. 1

- In other fast-moving advanced technology markets, consumer electronics for example, Community industry has retreated into well established productions of engineered commodities such as colour TVs without an equivalent activity in R&D. The result has been a substantial loss in industrial employment.
- In office automation the main development ahead is to link presently unrelated office machines and functions (typewriters, storage media, word processors, photocopiers, private branch telephone exchanges (PBXs) and computers). Although Europe has a presence in this market, it does not cover the entire range of products and maintains a position only in typewriters. Word processors and computers are heavily dominated by US producers, and Japanese and US photocopiers split that market. Hence the Community, although strong in PBXs, lacks the product ranges needed to introduce a complete automated office system.
- One of the key technologies of importance to future industrial competitiveness is that of new materials. The Community is a long way behind the US and Japan, notably because of the central support given to this research area in the two countries. The USA situation is formidably difficult to challenge, since so much R&D in new materials and their applications has been funded 100 per cent over many years from the defence and space budgets.

The Community problem is dominated by the engineering aspects of new materials, their performance, the methods of manufacturing components from them, the problems of mixed use of metals with composites, ceramics and plastics, and hence the problems of joining them. Failure to master these techniques would bar Community industry from competing in a number of rapidly expanding markets as well as traditional markets, where the use of new materials improve product performance, durability and reliability.

Product innovation in all fields has thus become a critical factor in competition, and the speed of change itself adds to the European problem of catching up in a number of areas.

1. See COM(85)276 : Commission communication to the Council "State of Community policy in telecommunications".

3. COMPETITIVENESS OF ENTERPRISES

The evidence discussed in a preceding section on manufacturing industry showed that in the EC development of growth sectors was limited, and as a result, supply has not followed demand, import penetration increased more than in the US and Japan. This lack of competitiveness can be explained notably by the insufficient integration of the European market which prevents European firms from taking advantage of a domestic market comparable to that of their American and Japanese competitors and by insufficient profitability of industry in the Community. Recent work ¹⁾ concluded that:

(i) the rate of return on invested capital, which is the most significant indicator of profitability, declined in the sixties and seventies in the Community;

(ii) in the period 1981 to 1984 the rate of return in the Community as a whole appears to have remained more or less constant; its present level is probably lower than adequate from the standpoint of fostering sufficiently strong investment, employment and economic growth;

(iii) profitability has recovered more strongly in the US, which helps to explain in part why investment there has grown even more strongly despite the high rate of interest.

In the free market economy of the Community, enterprises obviously bear and must keep the first responsibility in the fight for industrial competitiveness. In this context the following factors play a major role:

- a) strategies of enterprises
- b) finance
- c) motivation, management and education
- d) entrepreneurship
- e) capacity for innovation
- f) specific characteristics of SMEs

3 a) Strategies of enterprises

The notion of strategies for enterprises is wide-ranging and three focal points will be discussed below:

- i) market features and investment
- ii) the establishment of global operations
- iii) quality and market orientation.

¹⁾European Communities Economics Policy Committee, May 1985 (II/02/85-EN), Profitability and rates of return in the Community. See also Tables xx and yy in annex.

i) Market features and investment

The most important characteristic is that the market in which enterprises perform is global. 1) The major areas, the US, Japan and the EC, which form the bulk of this global market, have several problems in common: developed economies, technologies, rising social costs, aging populations, jobs (especially skilled ones) are becoming scarce and R&D costs are escalating. Their markets also have similarities with converging products and converging consumer needs and preferences, 2) the Community market being characterised by barriers and internal disparities which render it much less homogenous than the American and Japanese markets.

The pace of technological innovation and of its commercialisation, especially in the high technology industries has become so rapid that product life cycles are shorter than before and a technological advantage can be eroded very quickly.

Lead-times for competitors to acquire comparable technology become shorter. Thus, prompt setting-up of the production process (through flexible equipment) and of the commercialisation of advances in technologies through a superior distribution capability become the key to success.

As the cost of developing and placing new products in the market kept rising, the importance of penetrating several markets simultaneously and quickly increased. These "global" products (with minor modifications to cater for local tastes) have to rely on investment in capital-intensive flexible production with automation and robotisation, which in turn need the larger market even more. 1) 2)

On this issue, many EC firms have lagged behind Japanese and the US companies, as seen not only from the lower levels of investment (Table xx) but also from the comparison of consumption of advanced electronics and of installed automation and robotisation (Tables xx, xx and xx).

1) Customers in US, Japan, Europe buy about 85% of all computers and consumer electronics products. US, Japan and Germany buy 70% of world numerically-controlled machine tools.

2) It is not only demand patterns and product life cycles that have similarities, but also the "consumer education" and infrastructure resulting from comparable levels of economic and technological development.

1) Even markets the size of the US or Japan may still be relatively small in supporting fully automated plants for world markets (eg. semiconductors, machine tools).

2) Typical examples of repercussions of this capital intensive production are the productivity increases in the automobile and consumer electronics industry but also in processes in the chemical, textile and steel industry.

ii) The establishment of global operations

Establishing global operations is necessary in order to penetrate world markets rapidly simultaneously with domestic markets and therefore amortise the high costs of developing and of placing new products.

The Japanese firms have been successful in this sphere mainly through a cost leadership strategy, pursued throughout the cost-chain: design 1) , lower-cost production (sophisticated planning, automation, minimal stocks and work-in-progress, "just-on-time system" etc.) and efficient distribution networks through the Trading Houses. 2)

In order to open up and maintain global scale operations they have resorted to getting established in other markets through

- the usual development of distribution channels
- partnerships, joint-ventures, subsidiaries.

They resorted to the latter for the following three reasons:

- very high cost of breaking-in
- existence of important regional differences in business practices
- existence of risk of protectionist measures.

Japanese corporations did not stay domestic in "peaceful" niches without competition, trying only to reduce production and overhead costs, but developed somewhat "fighting" attitudes towards competitors' markets.

The evidence is that they have developed a high commitment to global operations and devoted the appropriate funds and human (managerial) resources. One cannot say the same for the efforts of EC companies to establish themselves in a defacto insider position in Japanese markets, in order to bypass overt or covert import difficulties. In 1980, a staff of 852 was employed by European firms established in Japan, and some 13000 by European offices of Japanese companies.1) Despite the existing differences in the size of markets and the disparities in European economies, this is evidence of an enormous gap.

1) Japanese companies like Seiko, Sony, Cannon, Matsushita, Casio and Honda have been making special efforts to develop products for all markets, having their designers spend a lot of time in contact with foreign customers and dealers. Trading houses, through their established networks have also been contributing to design for global products.

2) The cost contribution of the Trading Houses on final product cost is fairly low due to their efficiency and persistantly minimal profit margin of about 2%. (Source: OECD, Japan's general trading companies, 1984)

1) Source: JETRO

Recent surveys also indicate that Japanese and US firms are fairly readily entering into cross-border relationships.1)2) There are of course partnerships undertaken by European firms as well (eg. British Leyland-Honda, Nissan-Volkswagen). But the emerging pattern from the list of several recent and planned joint ventures between US-Japanese companies, given in Table x in the annex shows the increasing importance of the trans-Pacific production system.

Of course there is a critical size for companies wishing to go for global operations, depending on product, below which such a strategy is not sustainable. There are however enough EC firms of sufficient size 3) that could go for global operations on top of those that already have, with more aggressive strategies for third country markets and more comprehensive ones within the EC. In the perspective of world-wide activities for firms, the development of cooperation between industrialised regions of the Community and less favoured areas should be supported.

iii) Quality and market orientation

An important ingredient of business strategies beyond price/cost leadership, is the competitive position in quality and other non-price characteristics. Non-price factors are not easily defined or quantifiable and no satisfactory statistical indicators are available. Nevertheless, product quality, including reliability, design, styling, after sales service, on time delivery and safety do play an important role in competitiveness.

Recent extensive surveys 1) have shown that the samples surveyed thought Japanese companies to pay particular attention to quality with very good after sales service and on time delivery, which in combination with aggressive marketing strategies has led to high penetration of other markets.

1) Survey on International Cooperation, by the EMF Foundation 1985

2) An increasingly important share of imports to the USA come from foreign subsidiaries of American companies, as US firms take their manufacturing off-shore. Taiwan for example had a trade surplus of \$ 11 billion with US in 1984. Four of its 10 largest exporters were RCA, Texas Instruments, General Instruments and Atari, all four being US firms.

3) TABLE: the 100 largest world companies (ranked by sales)

	1966	1976	1982	1984
USA	69	47	43	46
JAPAN	3	11	11	12
EC	21	35	34	26
Europe non EC	7	1	3	3
Rest of world	0	6	9	13

(Source: Fortune)

See also Table x with world 200 largest by industry branch, in annex.

1) EMF

The importance of "quality" in competitiveness has been recognised by industry in several Member States, which have embarked upon "quality" campaigns. And the recent development of EC policies in standardisation and certification are certainly a step in the same direction.2)

Companies' attitudes towards quality go hand in hand with marketing strategy.3)

The above surveys found that Japanese companies adopt a strong orientation towards sales, market intelligence and marketing emphasis in a more aggressive approach.

2) The existence of standards which reflect the requirements of world markets can help enterprises design, make and sell products with the quality features that customers want.

3) An interesting indicator of their marketing orientation is advertising expenditure, given in the table below.

Advertising expenditure, per capita in US \$, 1982

USA 285

JAPAN 90

EC-average 83

(Belgium 115, Denmark 115, France 76, Germany 87, Greece 19, Ireland 37, Italy 55, Netherlands 130, UK 115)

3 b) Finance and profitability

The relative position of a company within an industry depends on cost advantage and/or differentiation, the two elements on which firms are based to obtain sustainable competitive advantages.

As discussed above, Japanese companies have been successful mainly through a cost leadership strategy, supported by substantial investment in technology, equipment, and commercialisation. The rapid development of this technological, production and distribution capacity was based on the availability and cost of borrowed capital in Japan at a time when similar developments in EC and US were not possible due to lower savings rates and higher money cost.¹⁾ The Japanese rates of return on invested capital were sufficiently high compared with the cost of borrowed money and firms grew on debts (positive financial leverage). This was encouraged by the lending policies of industry-oriented banks and finance houses having equity links with major industries. This allowed further rationalisation of Japanese production, which in turn reduced further costs and increased value added.

The relatively low cost of capital, and the particular business and banking culture on borrowing is reflected in the proportion of companies total assets financed by borrowing.²⁾

Despite the measurement problems, the relative importance of this information is not diminished. It shows that among the countries examined Japanese firms had the highest gearing ratios (proportion of borrowing), US companies rely most on own resources with the EC being an intermediary case with variations amongst the Member States. This is an indication that Japanese firms have been able to raise funds through borrowing without losing control by issuing shares to outsiders.³⁾ Thus, their real return on own (share) capital has been relatively higher than it would have been with other forms of financing.

European firms did not have either sufficiently wide access to the stock market, a major source of corporate financing in other advanced industrialized countries. In the EC the UK stock market is the largest

1) The superior Japanese performance in investment is certainly related to the higher availability of low-cost funds, which in turn is based on the record national savings rate which in 1982 was 30% of GDP, almost twice that of US at 16%. In Europe, gross domestic savings as a percentage of GDP were: Germany 21%, France 18%, UK 17%, Italy 19%, EEC average 17.6% (see Tables xx, yy, zz on savings, GFCF in Annex).

2) See Table xx in Annex, comparing total borrowing as percentage of total assets of companies in France, Germany, UK, US and Japan.

3) The potential advantage of positive leverage in maintaining ownership and control is probably weaker in countries like the US where stock markets are making equity a more common form of company funding and where ownership is already fairly widely dispersed.

one, and ranks fourth world-wide 2) with 2400 firms quoted. In contrast German companies are less involved in these activities: only 450 companies were listed on the German exchange in 1983 with a combined stock value of DM 225 billions, about 1/3 of that in London. In comparison, the US stock market is not only large but also broad based: the top-ten American companies account for 16% of the total (including giants like IBM). The Netherlands have the most narrowly based stock market with 3 companies accounting for 62 % total capitalisation. 3)

For these reasons, the Commission has for some time been engaged in efforts to harmonize the conditions for stock exchange flotation and to reinforce the cohesion of stock markets in the Community (IDIS project).

2) After the New York Stock Exchange, NASDAQ, the American over-the-counter system and the Tokyo Exchange.

3) Share ownership in US is also the widest, about one in five Americans own shares, against a minimal 4% in UK and an increasing proportion in Belgium (12% in 1984).

3 b) Finance and profitability

The relative position of a company within an industry depends on cost advantage and/or differentiation, the two elements on which firms are based to obtain sustainable competitive advantages.

As discussed above, Japanese companies have been successful mainly through a cost leadership strategy, supported by substantial investment in technology, equipment, and commercialisation. The rapid development of this technological, production and distribution capacity was based on the availability and cost of borrowed capital in Japan at a time when similar developments in EC and US were not possible due to lower savings rates and higher money cost.¹⁾ The Japanese rates of return on invested capital were sufficiently high compared with the cost of borrowed money and firms grew on debts (positive financial leverage). This was encouraged by the lending policies of industry-oriented banks and finance houses having equity links with major industries. This allowed further rationalisation of Japanese production, which in turn reduced further costs and increased value added.

The relatively low cost of capital, and the particular business and banking culture on borrowing is reflected in the proportion of companies total assets financed by borrowing.²⁾

Despite the measurement problems, the relative importance of this information is not diminished. It shows that among the countries examined Japanese firms had the highest gearing ratios (proportion of borrowing), US companies rely most on own resources with the EC being an intermediary case with variations amongst the Member States. This is an indication that Japanese firms have been able to raise funds through borrowing without losing control by issuing shares to outsiders.³⁾ Thus, their real return on own (share) capital has been relatively higher than it would have been with other forms of financing.

European firms did not have either sufficiently wide access to the stock market, a major source of corporate financing in other advanced industrialized countries. In the EC the UK stock market is the largest

1) The superior Japanese performance in investment is certainly related to the higher availability of low-cost funds, which in turn is based on the record national savings rate which in 1982 was 30% of GDP, almost twice that of US at 16%. In Europe, gross domestic savings as a percentage of GDP were: Germany 21%, France 18%, UK 17%, Italy 19%, EEC average 17.6% (see Tables xx, yy, zz on savings, GFCF in Annex).

2) See Table xx in Annex, comparing total borrowing as percentage of total assets of companies in France, Germany, UK, US and Japan.

3) The potential advantage of positive leverage in maintaining ownership and control is probably weaker in countries like the US where stock markets are making equity a more common form of company funding and where ownership is already fairly widely dispersed.

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3 c) Motivation, management and education

i) Motivation

Industrial efficiency depends on many factors ranging from the obvious ones, like wage levels and output per capita, to more qualitative factors related to employee performance. And performance at work is not only a result of education (discussed further below) but also of flexibility and motivation.

The Japanese workforce demonstrates low absenteeism, low turnover, readiness to accept new tasks and willingness to contribute to corporate goals. According to a Japanese survey by the Office of the Prime Minister, nearly half of Japanese companies employees viewed their work as their principal "raison d'être" and one third declared themselves willing to sacrifice their private lives for their companies. This consideration has to be related to the social commitment of large Japanese companies which leads them to assume a greater role in the fields of education and social protection than their European counterparts (this partly balancing the relatively weak public involvement in these matters as compared to European standards).

The results of an international survey 1) comparing attitudes to work in several industrial countries showed that in Japan, the traditional readiness to devote one's life to "the company" was diminishing. While this represents a relative decline in the work ethic in Japan, performance is still superior to that of its main competitors.

In the traditional Japanese (life-time) employment system, the high morale of the work force in the big companies is accompanied not only by limited strikes, low turn-over and low absenteeism, but also by increased willingness to propose and accept introduction of new technology and processes (2).

Statistics on strikes given in the Table below confirm such attitudes in the Japanese workforce, as well as more positive attitudes and working consensus in U.S.

The Japanese system of decision making through extensive consultations and consensus-building through participation procedures apparently ensures better implementation of sophisticated plans, quality in production etc.1) There are recently developments also in EC firms on participative procedures, including quality circles, where teams of workers are given the opportunity to improve products and processes. The fact remains though that the social consensus in Europe in regard to industry is less favourable than the one prevailing in the US and certainly in Japan. The need for reinforcing active intra-company participation and dialogue between economic partners is thus obvious, in strengthening the dynamism of the enterprise economy.

1) US Aspen Institute for Humanistic Studies, 1983, "Japanese in the '80s"

(2) Statistics on the number of working days lost per year in the various countries are attached in annex 38

1) This system of course slows down the speed of taking decisions, which under certain circumstances eg. of very fast moving products, may be counterproductive.

ii) Management

Managerial motivation and the quality of business executives are obviously also very important for competitive performance.

This is because managers are responsible for analyzing their firms' activity, identifying competitive advantages, devising strategies and implementing them consistently, and putting innovations into practice.

Recent surveys suggest that :

- Education and training of managers in Europe are inadequate. The business institutions do not prepare them with the same thoroughness as in the US and the companies do not find enough incentives to invest in training.
- Executive earnings in the EC, according to 1985 surveys, are on average significantly lower than in the US and Japan, especially for top management. Besides, managers in US get equity stock as strong additional incentives.²⁾
- The EC business environment does not apparently offer the same social rewards for success. Moreover, failures are generally considered as a handicap in Europe when they often appear as a positive experience for managers in the US, with the consequences such an appreciation implies for entrepreneurial dynamism.

Professional management and scientific concepts related to it historically developed in Europe later than in the US, for two main reasons:

- Greater direct involvement of family-type owners of European companies in business administration. This has created some uncertainties and confusion between operational responsibilities of managers and proprietorial prerogatives, contributing to creation of conflicts. It is also seen as being uncondusive to the international mobility of management.
- The fragmentation of the European market. Professional management first developed and performed well in mass production and distribution in large and homogeneous markets. The EC market, which has not the degree of integration and homogeneity of the US and of the Japanese market, did not provide a sufficiently strong incentive for adapting mass production and process methods. Neither did it provide an incentive for developing large integrated systems of production/procurement/marketing.

These historical developments are reflected even today in the organization and corporate structure of large firms and in managerial attitudes and performance: European managers are seen to have a disadvantage for designing global strategies and products, to be less attracted by overseas posts and by cross-border industrial cooperation.

(new positive developments however are taking place as discussed in section IV)

2) "Stock option plans as incentives", Report EUR 9596, 1985

iii) Education and training

The educational system seems to have been less suitable for producing the high proportion of engineers, researchers and businessmen required in the EC for the new type of international business. 1)

Existing and anticipated human resource requirements for new technologies at advanced level (engineers, scientists, high level technicians) clearly exceed current higher education outputs, both quantitatively and qualitatively. This is true not only in absolute terms -within the Community - but also in comparison with the Community's most serious competitors, the United States and Japan. Firms, in particular, SMEs consider that the lack of qualified people represents a major obstacle to full exploitation of new technologies, and justifies particular attention to training.

Results from a recent trilateral survey 2) show for example that in Germany no fewer than 55% of the user factories regard the shortage of people with suitable micro-electronics expertise as a very important problem. In Britain the proportion is 45 % and in France 51%. This deficiency is considered even more serious than, say, the lack of finance for development or production costs.

On the quantitative side, the problem can be briefly illustrated by reference to the situation in the US and Japan. It is important nevertheless to point out the problems of comparability of statistics which create uncertainty. The number of engineering graduates per year per million inhabitants is 260 in the European Community. In the United States it is 350, in Japan it reaches 630.3. The graduate input of Japan and the United States is impressive by any standards. In terms of sheer numbers, the United States was producing almost 1.3 million graduates and post-graduates per year at the turn of the decade. The figure for Japan was over 400,000. The rate of graduation from universities is of course directly related to the proportion of young people entering higher education, which in turn is related to the numbers of school leavers obtaining the necessary qualifications for entry. Here again the comparisons with the United States and Japan, and also with Sweden, are particularly striking.

If one takes further education as a whole (i.e. including university) entrants as a percentage of a generation amount to 61% in the US and 37% in Japan against respectively 20% in Germany, 32% in France, 28% in Italy and 29% in the UK (but 33% in Denmark) (Source - OECD 1985)

The proportion of an age group acquiring diplomas giving access to higher education amounted to 87% in Japan (1981), 72% in the US (1980), 82% in Sweden (1982) - but only 26% in Germany (1982), 25% in Denmark (1980), 28% in France (1983), 39% in Italy (1981), 26% in the UK (1981) and 44% in the Netherlands (1981) (Source - OECD 1985).

1) COM(85) 431 Final - COMETT

2) Source: PSI, YDI and BIPE report on Microelectronics in Industry - an international comparison (1985)

3) Source: NEDO Report on Competence and Competition, 1984

On the qualitative side, education in Japan seems to be more operational than in Europe, although with some rigidities. Mathematics and science form an integrated and heavily emphasized part of the Japanese school curriculum. Standards are assessed by experts to be very high owing to better trained and motivated teachers and to very tough competition and examinations. The level expected from students entering University is almost equivalent to that attained in the end of the second year in the best US universities.

3 d) Entrepreneurship

The relative importance of creation of new enterprises, in comparison to business failures 1), on the basis of the data available, is generally seen to be less favourable in Europe than in US.

According to a recent study 2) there are three apparent factors that seem to inhibit entrepreneurship in Europe and in Japan more than in USA:

- the level and structure of taxation, certain regulations and government intervention
- cultural barriers, such as the attitude to venture capital, bankruptcy and geographical and professional mobility, and the shortage of entrepreneurs prepared to start up businesses
- financial infrastructures and the scarcity of venture capital.

Concerning finance, the main problems which should be underlined is the insufficient integration of financial markets in the Community, which are too narrow to reply to the financing needs of European firms, in particular from the point of view of venture capital. However, progress has ensued from the development of secondary stock exchange in France, Denmark and the United Kingdom.

The US venture capital market on the other hand apparently works much better. The US has a significant expertise in this sphere, which, it has been suggested, could be exported (like management consulting in the 60's). Estimates vary as to the actual size of US risk-capital market, but it is likely to be a multiple of the estimated ECU 5.5 bn European market (more than half of it in UK) 1). Europe's venture capital is different from that of the USA, being more dependent on financial institutions and sometimes on government and less on private initiative. Besides, the EC venture capital market is very fragmented and mostly domestic. In the USA, more than a quarter of the total comes from foreign sources, notably Europe. The average size of investment in

1) Statistics on bankruptcies, given in Table xx annexed indicate that the number of liquidations depends not only on the business cycle but also on attitudes towards risk. Where no business failure occurs, companies must be either consistently profitable or avoiding big risks. (Japan, Germany) US, UK more risk takers.

2) Entrepreneurship and its impact on US economy, Report to the President's Commission on Industrial Competitiveness, December 1984.

1) "Venture capital in Europe 1985" A Peat-Marwick Mitchell study for the European Venture capital Association, August 1985.

Europe is much smaller than in the USA. In addition, the degree of transnational syndication is not yet sufficiently developed.2)

Japan has been more effective in competing against large US companies but has nevertheless important cultural constraints as it is not as respectable as in the US to be an entrepreneur and recruit talented management from the traditional corporations. Japanese financial infrastructure is geared to the larger firms and new businesses have difficulties in obtaining finance for their subsequent needs. MITI is already giving priorities to creating an "entrepreneur-friendly" venture capital market and US firms are already offering related services in Japan.

2) Progress is however evident in Europe, where ten large firms from 5 different countries set up a joint finance company (Euroventures) in 1984 to administer some funds. The short supply of risk capital in Germany has also brought into the market a number of new venture capital companies (e.g. Technoventure, backed by Siemens, Deutsche Bank, Bayer, Daimler-Benz and Mannesman). The expanding venture capital in the EC has reached in 1984 0.19% of the GNP on average, while in the US, represents 0.41% (in decline).

3 e) Capacity for innovation

The capacity to innovate is directly related to the profitability and the competitiveness of enterprises which, together with entrepreneurship are the keys to exploiting new ideas and products and contributing to structural adaptation.1)

The positive attitudes of Japanese companies towards innovation are remarkable: they are prepared to plan for long-term development, to improve production methods, to change product lines, to exploit inventions commercially 2) and to redeploy-recycle workers better than the US and than most EC companies.3)

EC countries do have a major original research potential, certainly higher than Japan and lower than US. As an indicator of basic research potential in the period 1950-1983 Japan had only 3 Nobel prize winners in the areas of physics, chemistry, physiology, medicine and economics; EC countries had 66 while US had 114. This is already a reversal of the situation existing before the war, where most Nobel prize winners were from European countries. Nevertheless, an important number of prize winners in the period 1950-1983 was trained in Europe and then moved to the US.

Past development as well as present characteristics and dynamism of Japanese enterprises have been based on a more integrated technological innovation including education, technology transfer, some indigenous R & D, commercialisation and diffusion of technology and products. The social environment and consensus within the firm was favourable to such policies. The Government plays an active role in promoting development of industrial innovation, interacting with industry and universities to help product development (JRDC).

Although there are differences in the patenting systems 4), the evidence from patents statistics is a useful illustration: the number of patents granted in 1982 to residents per 100 000 in habitants is highest in Japan (34 followed by US (16) and Germany-France, but the EC average (8) is much lower. On the other hand, the number of patents originating in a country but registered abroad is very low in Japan (7), and US (11) and much higher in many EC countries: Germany (14), France (31), UK (36). (see Annex on patents Stats. 1982) In fact, it is not only the number of patents registered in EC countries that is insufficient, but also the efficient exploitation of patent information and of

1) COM(81) 620 final and O.J. L353/15 of 15.12.83

2) In recent surveys by the European Management Forum, Japanese firms and secondly only US firms are most capable of bringing product innovation to market, adopting process innovation and implementing management techniques.

3) Structural adaptation in Japan is done in a controlled manner with industries and government, without allowing a big role to foreign competitors, unlike the US and the Community where market forces are the main instrument of renewal.

4) In Japan separate patents for each claim are granted, while in Europe and US, a patent may cover more than one function.

research.1) The Japanese and Americans have a leading know-how in exploiting the data banks with patents. This enhances the Japanese capacity to introduce new technology or inventions from abroad (foreign technology), which seems to be the result of successful policies rather than pure luck.

Indeed protection of intellectual property is particularly important to Japanese policy. Indicative of this pattern is the number of applications registered by large companies: Toshiba alone, in 1982, filed about 14000 patent protection applications, followed by firms like Hitachi, Matsushita Electric, Fuyitsu, Mitsubishi Electric etc., in a total of some 180000 applications. Amongst a million patents filed world wide in 1980, about 40% were Japanese. 2)

This is a reflection of an attitude, which, if continued, will give Japan a net positive balance in technology trade, currently in deficit of more than one billion US \$. 3). It is the result of a strategy based on the establishment of a patent network, especially in the more promising technological fields, which in effect make it difficult for competitors to enter the market.

Another aspect of this strategy is that of collecting ideas from other firms, the end result being the production of patentable products. Advantage can therefore be taken of the practice by some European firms of non-lodgement of patents. The strategy was first used by the Japanese at home and then became an international strategy. The number of patents lodged by Japanese firms operating abroad almost doubled between 1972/75 and 1976/81. This performance was 20% higher than either the US or Germany.

A direct relationship between the number of Japanese patents on export markets and their improved position in these markets can therefore be detected: filing of patents can serve as an advance indicator of trading activities of competing countries.

In comparison, the European environment for innovation is less favourable for the following reasons:

- fragmentation of EC market reduces incentives for firms to innovate (effective demand for innovation weaker)
- inefficient use of research funds which although important (Tables in annex on R&D expenditure), do not achieve synergy and multiplier effects (patents are a rough indicator of R&D efficiency)
- fewer researchers and engineers per 1000 inhabitants,
- smaller proportion of young population receiving higher education.

Innovation is an important determinant of business adaptability, not only through provision of new products and services but also through new production methods/processes. Innovation in several cases fails to make a practical impact if the new products are not brought to market

1) In the EC the Luxembourg Convention of the Community Patent signed, in 1975 which will offer important advantages to industry, has not yet entered into force.

2) Source: Japanese patent office

3) Source: Commerzbank

quickly, thus capturing a significant share. This is particularly crucial for products with short life cycles, where as already discussed in preceding section, the speed of introduction determines profitability. (example: body scanner, discovered in Europe, developed and industrialised in USA and marketed by Japan)

3. f) Characteristics specific to SME's

The factors of competitiveness of enterprises evoked in the preceding discussion - strategies of enterprises, finance, motivation, management, education, entrepreneurship and capacity for innovation - concern of course all firms, regardless of size.

Although it is not possible, for obvious statistical reasons and for reasons related to the nature of SME's, to evaluate their contribution to the competitiveness of Community industry, it is clear that, in the last few years, they have played a major role in preserving the innovative and export capacity of the Community, either directly or indirectly through subcontracting for the large enterprises.

In the EC 95% of enterprises are SME's; and contribute some 50% of total industrial employment, which varies for the various Member States from 43% to 75%.

It is therefore clear that the preceding remarks do not concern any specific group of enterprises exclusively. A number of them, nevertheless, are of particular importance for the SMEs :

- SMEs in the Community show in general higher flexibility and adaptability to changing market conditions
- SMEs have had and continue to have difficulties related to their size in the areas of research and finance, especially in terms of access to risk capital needed for the necessary investment in high technology. Furthermore, they are, by nature, more sensitive than large firms to the constraints of the environment and to the costs linked to the fragmentation of the Common market and of the costs of penetration of external markets.

For these reasons the Commission has reviewed the situation of SMEs in terms of tax environment, competition policy, company law, Community research programmes and social environment and begun work which takes into account their special features and in all Community policies and which ensures that their competitive possibilities are favored by a maximal relaxation of their environmental constraints.

These issues will be the subject of discussion in relevant documents in preparation by the Commission's services.

III. THE OPPOSING STRATEGIES

The foregoing sections outlined the general industrial competitiveness trends in the Community over the last ten years and the main factors determining them.

They all point to one fact : European industry's capacity to compete has been eroded, even if this general verdict must be qualified, depending on the Member State, industry or undertaking concerned.

Naturally, the undertakings themselves bear, and must continue to bear, primary responsibility for keeping industry competitive.

But it is equally clear that their capacity to do so over the next ten years is bound up with a number of constraints, most of them imposed by the environment in which they come up against their foreign competitors.

To ask how to get a grip on these constraints does not only mean joining in the debate on government intervention so often evoked when considering an individual State's or the Community's industrial strategy (1).

On the contrary, the analyses in the next few sections show that it is not the relative importance of the public and private sectors which determines the success of an economy but, more simply, the unity of all economic operators concerned in their choice of objectives and in their efforts to achieve them.

A look at the Community's main rivals' strategies in comparison with the situation in Europe casts light on these points

Clearly, what is said here about those strategies is not meant to imply that they are an example to be followed, firstly because they are not transferable and also, more importantly, because they do not necessarily correspond to the Community's own objectives and in particular to its concern to reconcile the striving for economic efficiency with maintaining and developing social progress.

(1) Here "industrial strategy" means the strategy of a whole economic entity and not just government policies within that entity.

1. JAPAN : A VOLUNTARIST STRATEGY

Numerous studies have attempted to explain the secret of Japanese industry's success over the last few decades. Cost advantages due to different wage and working conditions than in the USA or in the more prosperous areas of the Community, the impenetrability of the Japanese market for imports, and industrial targeting are all often mentioned.

This communication is not intended to add one more chapter to the studies but, instead, to show the implications of Japan's industrial development strategy for the Community.

With this in mind, two points must be made from the outset :

- most of the Community industries competing against Japanese rivals claim that there is, on average, a 20-30% gap between production costs in Japan and in the Community (1). Evidently, there is every chance that the growth rate in the Community will remain below Japan's until this gap is substantially narrowed;
- second, only two factors can explain this gap : (i) specific differences between the Japanese and Community economies and (ii) the efficiency of European firms and the quality of the environment in which they operate. Accordingly, the only way to strike a better balance will be to take a combination of international relations measures and measures to improve economic efficiency within the Community. This section is concerned primarily with the second set of measures, though lessons can be drawn from them for the external relations side too.

(1) Figures quoted by the automobile and consumer electronics industry in particular. Some studies give far higher figures for the gap between component production costs.

Above all, the success of Japanese industry can be attributed to a combination of a united system and an efficient method.

a) Unity of the system

Japanese industry is not competitive in every area, nor absolutely. The bulk of of Japan's manufactured goods trade surplus, with both the Community and the USA, comes from a few fields in which Japan is the world leader (1).

Consequently, the question is not as much why Japan has been so successful in the fields where it is clearly the most competitive but more why and how it has kept foreign rivals, and in particular European undertakings, out of much of its market, even when they are the best.

Two explanations for the apparent impenetrability of the Japanese market are frequently put forward : first, social and cultural factors which, undeniably, have a significant influence and, second, the undertakings' export drive (2).

But the principal reason probably lies in the unique structure of the Japanese economy.

Structures in the Community cannot compare with the unity and concentration in Japan (3).

In an age when size is not only essential to remain competitive, particularly in high-technology industries, but also a decisive means of controlling the market, the unique structure of the Japanese economy gives it a considerable advantage over its rivals.

(1) cf. statistical annex

(2) cf. Chapter II

(3) Of course, concentration does not necessarily equal efficiency and the situation in Japan clearly cannot simply be applied to the Community as it stands.

This advantage stems from :

- the exceptional level of concentration in Japanese industry : of the top ten industrial groups in the world, six, including all the top four (Mitsubishi, Sumitomo, Mitsu and DKB) are Japanese three American (Exxon, GM and Mobil) and only one European (Royal Dutch Shell);
- this concentration is further heightened by the pyramid structure of Japanese industry, where 65.5% of all small firms work as sub-contractors (1) and, consequently, depend on the big industrial groups (2);
- what is more, even these large groups have very close ties with the Japanese trading agencies ("sogo sosha") (3) which handle over half of Japan's foreign trade;
- finally, they keep a very tight grip on Japan's internal distribution network : between 70% and 80% of the retail trade on some sectors of the Japanese market is channelled through "captive" customers. In the consumer electronics industry, for example, no more than 8% of the wholesale market is taken by independent wholesalers and at most 35% of the retail market is open to foreign competitors (4).

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- (1) 1983 Ministry of International Trade and Industry (MITI) White Paper
 - (2) This pyramid structure enables Japanese groups to buy their component supplies from firms offering notoriously inferior wages and social welfare conditions.
 - (3) "Sogo shosha" committee, 1982 : in 1982, 53% of Japan's exports and 62% of its imports were channelled through the "sogo shosha".
 - (4) UNICE (Union of the Industries of the European Community) Working paper entitled "Principaux obstacles aux importations sur le marché japonais" (1985).

Clearly, under these circumstances, the Japanese economy is far more oligopolistic than its rivals.

This unique feature does not necessarily imply competition by Japanese firms on their home market is any less fierce. Indeed, home competition is one of the fundamental driving forces behind Japanese industry.

But it does offer the objective weapon of strong unity against competition from abroad, whether on the home or world market or on the production, distribution or foreign trade sides.

Consequently, this gives Japanese industry the big advantage of a home market serving as a springboard to a favourable position on the world market rather than as a battlefield for competitors from all over the world.

b) Efficiency of the method

Just as much as the unity of the Japanese economy, the efficiency of the undertakings' and public authorities' method of promoting industrial and technological development in Japan has been, and still is, another key factor in the success of the Japanese economy.

The method consists of systematic cooperation between all parties concerned (i.e. industry, government, laboratories and universities) to set and attain clearly defined industrial and technological development objectives.

This goes far beyond the "industrial targeting" epithet so often attached to Japan's industrial policy since it does not apply purely, nor even primarily, to the public sector.

Originally the method was conceived as a temporary instrument for restructuring and modernizing industry. Little by little, however, it has turned into a system for guiding the development of the Japanese economy.

After initially focusing on basic industries (i.e. electrical engineering, shipbuilding, steel and coal), the government aid has subsequently been channelled into a series of strategic industries, starting with mechanical engineering and electronics.

Sectoral policies following the same pattern have also been introduced for the car and petrochemical industries.

These have been backed up by more general policies on :

- the preparation of scenarios sharing the structural development prospects of Japanese industry;
- greater cooperation between government and industry in setting industrial targets.

- intensified export promotion campaigns, and in particular the JETRO (1) scheme and the tax support for exports (e.g. the 4%-6% tax deduction on the value of exports or the 50% deduction on export revenue).

Japan therefore has a fully-fledged, comprehensive industrial and technological development strategy based on a concerted approach looking beyond specifically industrial policy measures and progressively including research, education and town and country planning.

The main measures taken to implement this policy have been :

- regular surveys of major technological developments by teams of academics, civil servants and business managers (in 1971, 1976 and 1982);
- industrial targets based on the findings of these surveys, e.g. giving priority to the electronics industry in 1974, the aim being to pick out the industries with the most promising growth prospects;
- projects to create the right conditions for attaining these objectives : ongoing projects include ones on office automation, telecommunications, space, and industrial electronics. The technologies essential for the future are identified by broad field of application in the light of the industrial objectives set, the specifications are assessed and then the technologies are developed in the field by means of joint projects by teams of undertakings formed for the duration of the project only and coordinated and funded by the MITI.

The AIST (Agency for Industrial Sciences and Technologies) helps the MITI to coordinate and organize the schemes, all of which are aimed directly at mastering technologies too risky or novel for undertakings to apply immediately.

Finally, regular comparisons of the state of technological development in Japan and in rival countries are made to gain a picture of the chances of transferring or acquiring technologies and of likely future development priorities.

(1) Japan External Trade Organization

This policy is backed up by :

- a consistent education strategy;
- a patenting policy which has gradually evolved into a key industrial policy instrument (1)
- a new "technopole" (high-technology centre) policy to combine industrial strategy, industrial development policy and technological progress. The policy announced by the MITI in 1980 consists of organizing industrial development in Japan into (19) fields, each with its own clearly defined priorities plus a wide range of highly attractive incentives to promote them.

Although similar schemes exist in the USA and in the Community, none is on the same scale or as systematic as the Japanese programme :

- the US schemes are regional ones coordinated at Federal level;
- the Community has fewer schemes, without any Community-level coordination (ASTON and WARWICK in the United Kingdom, SOPHIA-ANTIPOLIS in France or HILDESHEIM in Germany, for example).

Japan's comprehensive, systematic approach to industrial and technological development has enabled it not only to catch up with its rivals in many fields but actually to overtake them in strategic areas such as optical fibres, ceramics, integrated circuits, lasers, etc.

The weaknesses of this strategy should also be underlined, for instance in shipbuilding and aluminium, which are currently undergoing severe difficulties in Japan.

On the economic and industrial front, this considerably reduces firms' technological development costs and lead times.

Some Japanese firms' technological development costs have been cut to one-third those of their European competitors and their lead times to half those of their rivals.

(1) cf. chapter II, 3, c

In the final analysis, Japan's industrial success stems from a combination of a method of continuously adapting its technological strategy to its economic and industrial objectives and of such a highly concentrated unified economy that the method can be used to defend Japan's interests against international competitors particularly effectively.

But we must temper our praise of this success, and of its uncontested impact on industrial growth and Japan's trade surplus, with a work about its social drawbacks.

In practice, Japan's endeavours to improve its industrial competitiveness have led it :

- to give industrial development greater priority than its rivals over environmental conservation and improvements in non-monetary aspects of the standard of living (e.g. quality of life, social infrastructure, etc);

- to attach little importance to social welfare : Japan's pension, sickness insurance and unemployment benefit systems lag far behind the Community's,

- to develop a two-tier economy, leaving a substantial proportion of the active population working with little security for wages far below those paid by the large undertakings. Above all, this provides large undertakings with a network of low-wage subcontractors and perpetuates the very low productivity levels in vast sectors of the economy (e.g. the services sector and agriculture).

2. AMERICAN ASPIRATIONS

Japan's fast growth is not the only industrial challenge facing the Community.

In addition, out of concern at the threat to its technological leadership and at the increasing market penetration by Japanese products, the United States of America has progressively pieced together an economic and industrial recovery strategy which, likewise, could undermine Europe's position in the world economy.

The basic idea behind this strategy has many points in common with the ideas on the development of European industry set out in chapter I.

But the Community and the Member States must pay particular attention to the means and instruments employed.

A. Fiercer competition between the USA and Japan

Most of the numerous assessments of the competitiveness of US industry made over recent years (1) have reached two main conclusions ;

- First, that US industry's competitiveness is being eroded, particularly in high-technology industries; and
- Second, that the main challenge to the USA is posed by Japan and the Pacific region, not by Europe.

(1) cf. in particular, - "US competitiveness in high-technology industries", US Department of Commerce, 1983
- The report of the President's Commission on Industrial competitiveness, January 1985.

The main explanations or signs of this loss of competitiveness to emerge from these various studies are :

- the slow increase in labour productivity (only 1.2% per annum in the USA between 1960 and 1983, compared with almost 6% in Japan and over 5% in Korea);
- the USA's deteriorating balance of trade, with the deficit widening over the last ten years to US \$ 123.3 thousand million in 1984, of which US \$ 36.8 thousand million was attributable to trade with Japan;
- declining market share, particularly in high-technology industries : according to the President's Commission report, US industry has lost market share in seven high-technology industries out of ten over the last few years (1);
- insufficient, poorly coordinated civil research and development, particularly from the point of view of manufacturing technologies and the link between research and commercial and industrial spin-offs;
- backwardness in spreading automated production processes.

Although there is no need to go into all the details of these analyses, which are very similar to those conducted in Europe, two fundamental points must be remembered :

- First, all these studies distinctly conclude that the main threat to US competitiveness emanates from Japan and the newly-industrializing Pacific countries but not from the Community, a judgment which either underestimates the Community's development potential or is a realistic, but perturbing assessment;
- Second, neither the scale nor the single-mindedness of the USA's efforts to safeguard its industrial and technological leadership should be underestimated.

It is worth taking a closer look at the main components of the USA's approach.

(1) See also Mr. Delmas's January 1984 report entitled "Réflexions sur la compétition nippo-américaine dans les hautes technologies" (Reflections on competition between Japan and the USA on high technology).

B. America's response

The panoply of measures by the US authorities to restore the competitiveness of US industry fall into six main categories : impact of the public deficits, tax policy, civil and military research, industrial cooperation, trade policy and deregulation.

- The rapid growth in the USA in 1983 and particularly in 1984, achieved in the main at the expense of large public and external deficits speeded up the process of adjustment in US industry and helped the profitability of investment in that industry.

- Tax policy is used as an instrument to restore the competitiveness of US industry. At the heart of this policy lie investment incentives, and in particular the 1981 Economic Recovery Tax Act which introduces tax credits investments, exceptional depreciation terms and 20%-50% reduction in capital gains tax. Apart from the direct impact (an upswing in investment despite high real interest rates), one of the most remarkable effects of these measures has been the boom in the venture capital supply, which has virtually doubled since the new rules were imposed.

- Three points connected with civil and military research must be stressed :

i) the general research and development revival in the USA. Following 1960-1979 decline, the percentage of GDP spent on R&D in the USA has recovered to almost 2.8%, the highest in the world. Although the large part played by military research (0.9 point) has raised doubts about the efficiency on the R&D, its dimensions coupled with the concomitant economies of scale undeniably give the USA a considerable advantage over its competitors (in 1985 the USA will invest more in R&D than Germany, Japan and France combined);

ii) the launching of the Strategic Defence Initiative (SDI) programme will further increase the scale, coordination and industrial spin-offs of US military research (1);

iii) the impetus given to inter-firm cooperation on research, particularly by the 1984 National Cooperative Research Act to relax the anti-trust legislation on precompetitive research agreements and by the RDLP (Research and Development Limited Partnership) support to help finance such operations (with investors' profits being taxed, like capital gains, at 20%). According to the US Department of Commerce, US \$ 2 000 million has been invested in RDLP since the legislation was adopted in 1982 (2).

Consequently, US research in general can be expected to have an even greater impact on industry than in the past. Combined with the tightening-up of the USA's transfer of technology policy, this could have far-reaching consequences for industry in Europe.

(1) cf. The Commission communications entitled "Towards a European Technological Community", COM(85)500final and COM(85)350final.

(2) cf. Economic impact 1985/2

- Industrial cooperation between US and Japanese undertakings has spread from the car industry (1) to many other sectors, and in particular to high-technology industries. The agreements between General Motors and FANUC on computer-integrated manufacture (2), between IBM, NEC and NTT on integrated circuits and telecommunications and between Fujitsu and Amdahl on computers are the most outstanding examples.

Of course, Community undertakings have also been reaching similar agreements with Japanese and American firms. What is striking however, is the scale and depth of this cooperation between Japanese and US firms. The potential danger for the Community lies in the possible emergence of hyper-competitive companies marrying the technological knowhow of the Americans with the productive efficiency of the Japanese.

- Lastly, the deregulation of the US economy, particularly in the transport, telecommunications and financial services sectors, has been under way for a number of years. It is regarded by some as one of the main stimulants to the services sector in the USA. This does not prevent certain misgivings being voiced in the USA about some of its implications, particularly in terms of the abolition of certain services, a lowering of safety standards (in the transport sector, for instance) and the development of private oligopolies.

The pace of innovation in the financial services sector has also picked up, giving birth to a wide range of new customer services. This trend has further boosted the key role played by services in the US economy (the services sector generates over two-thirds of America's GDP according to the Department of Commerce's "1985 US industrial outlook").

- It is important to note the efforts made by the USA to strengthen its trade policy by defending the industries hardest hit by foreign competition (e.g. steel, textiles, etc.) and promoting the interests of the sunrise industries both in international trade organizations (such as the GATT debate on the liberalization of trade in services) and in America's bilateral relations (e.g. the negotiations on the opening-up the Japanese telecommunications market).

This summary of the broad lines of the US policy for sustained industrial recovery clearly illustrates America's aspirations and needs.

It is essential not to underestimate how effective this policy could be :

- For one thing because it has already begun to have a tangible impact, particularly on the high-technology firms;

- For another, because it could combine the benefits of general measures to revitalize industry and industrial targeting to allow a more precise, more clearly focused management of defence research.

(1) Cf. "Structure and prospects of the European automobile industry" COM(81)317final

(2) "Advanced manufacturing equipment in the Community" COM(85)112final.

3. DEVELOPMENT IN THE PACIFIC REGION

In addition to Japan's and the USA's declared intent to strengthen their share of the international division of labour, in the years to come the Community will increasingly be up against a third force - the newly-industrializing Pacific countries.

Most experts predict that they will notch up the highest growth rates over the next ten years (e.g. 4% projected real annual growth up to 2000 according to the Japanese Economic Planning Agency).

But there is a danger that the Community could be particularly prone to the competition from these new trading partners because :

- their growth is very largely export-led, whilst their home markets remain heavily protected;
- their type of industrial specialization has more in common with that of the Community, than with that of USA or Japan.

Two fundamental factors must be taken into account by the Community first, the implications of these countries' policies, Korea probably being the most striking example, and, second, the potential consequences of the emergence of a Pacific axis.

A. The Korean example

Korea's per capita GDP rose by an average of 6.5% per annum between 1965 and 1983 and its exports by almost 15% per annum from 1973 to 1983.

Naturally, these exceptional performances must be seen in the context of the low base from which Korea started. But they also reflect a policy which could have rapidly growing implications for the Community.

In the final analysis, the Korean economy's remarkable progress is based on a highly voluntarist industrial strategy which has increasingly upset the balance of world trade.

This strategy consists of a combination of :

- a heavily protected internal market, despite the recent liberalization measures, and a deliberate policy of buying Korean products to replace imports. There are still complete import bans on a wide range of products; even in 1988 products such as automobiles and a large choice of consumer goods will still be either subject to quantitative restrictions or purely and simply banned. What is more, no more than two-thirds of the imports qualify for the "normal" 20% customs tariff;

- intense industrial concentration : no more than 50 industrial groups ("chaebol", equivalent to the "zaibatsu" in Japan) virtually control the entire Korean economy; eight trading companies (SAMSUNG, HYUNDAI, DAEWOO, SUNKYONG, LUCKY GOLDSTAR, SSANGYONG, HYOGUNG and KUMBO) handle over half Korea's exports (1);

- a privileged position in terms of the comparative advantages stemming from Korea's favourable productivity-to-wages ratio plus the opportunity to use modern technologies thanks to the very highly-educated population by the standards of a country at this stage of development

- heavy intervention by the public authorities which have adopted a highly "dirigiste" approach, using administrative measures and financial controls to back up their chosen industries.

However clearly this rapid growth in the Pacific has boosted world economic growth and progress, the fact remains that the means employed could change the international division of labour in a way which could have a significant impact on the position of industry in the Community.

The emergence, day by day, of developed countries in the Pacific could heighten the impact.

(1) cf. "Problèmes économiques", 1984; Financial Times, August 19th, 1985.

B. The emergence of the Pacific axis

According to the report by the US President's Commission on Industrial Competitiveness, US trade with the Pacific countries has already overtaken US trade with Europe and will be double it by 1995 if current growth rates are sustained.

These are symptoms not only of the emergence of a new centre of world economic activity but also of the special ties between the Pacific countries and the USA.

Looking beyond the figures, the Community must ask :

- If the Pacific countries are going to take a growing share of the world market in the years ahead, what can be done to ensure adequate outlets for European industry on heavily protected markets against competitors with a series of big advantages over European firms for historical (Japan) or geographical reasons (proximity to the USA);

- How can it respond to the newly-industrializing countries, growth and its impact on competition on the world market, both in terms of the direct effect of exports from those countries on the world market and of the possible shift towards a new division of labour within the Pacific region, a trend which already seems to have started and which would further consolidate the Pacific countries' competitive position? Japan is already gaining most from this growth in the Asian countries, to which it can sell capital goods and components in return for raw materials and food. In this way it is helping to speed up the growth of their exporting industries and at the same time expanding those branches of its economy which are complementary to its near neighbours'.

The chief problem for industry in the Community is, therefore, to avoid succumbing to the fiercer competition aroused by the emergence of these newly-industrializing countries without being able to exploit the advantages of their new markets.

x

x x

IV. THE COMMUNITY AWAKENING

After managing a respectable economic performance over the last twenty years despite its natural and historical handicaps, the Community is now confronted with a particularly tense international industrial situation.

Now that its comparative advantages have been eroded and it has failed fully to exploit the potential offered by the diversity within the Community, the Community must withstand leading rivals pursuing determined strategies posing a serious challenge to the future of industry in the Community.

But various shifts in European firms' and governments' industrial policies indicate that the Community has, beyond question, woken up.

It is clear from the foregoing sections that industrial strategy does not mean action by the public authorities alone. Japan's success the USA's recovery and the emergence of new powers in the Pacific region cannot all be put down solely to the national policies being pursued in the countries concerned.

Above all, they are the result of a united approach by all economic operators to promote industrial development. In practice, this unity implies accepting a given industrial priority and the adoption of more clearly-defined growth targets, whether by companies or governments.

Comparison of the Community's and the Member States' industrial practices with those of their rivals shows that considerable progress has been made in this respect.

PROGRESS BY INDUSTRY IN EUROPE

Naturally, no brief analysis of changes in industrial practice in the Community can give any more than an extremely incomplete picture of the true situation. Nevertheless, close examination of the guiding principles behind the government measures and companies' decisions over the last few years shows a marked convergence which has revitalized industry in Europe.

But two preliminary remarks must be made :

a) All major industrialised countries intervene to promote industrial development through a wide variety of financial and other instruments. Contrary to what some of the Community's leading trading partners sometimes say, the influence of state support for industry in the Community is not unsimilar to that of its main industrialised rivals.

In Japan while the public sector may pay less direct financial support to industry in general there is a very precise, determined strategy to target public aid on growth industries. The aid is concentrated on short-term market-oriented projects and has thus had a big impact on the competitiveness of Japanese firms on world market.

In the USA the emphasis has been on a general "horizontal" industrial promotion policy with almost 50% of US industrial aid in 1982 being spent on general purposes (38% on investment aid and 40% on R and D aid). Moreover in the USA there are major industrial spin-offs from the defence and space exploration programmes.

In the Community public financial support for industry serves a number of broad policy objectives. In recent years there has been considerable emphasis on the need to restructure outdated and uncompetitive industrial structures. Sectoral measures aimed at rationalising certain declining industries have been accompanied by more general measures designed to promote R and D, and the introduction of new technologies. This adjustment process has now largely been completed and in most Member States there is a clear shift away from sectoral schemes and towards more general measures of industrial development. There has been a marked increase in the share of public finance for industry being channelled into R and D in recent years. In the Community industrial aid also serves important regional and social objectives. Incentives to firms to locate their activities in less-developed regions compensate for the extra costs incurred there and make an important contribution to the economic life of the regions concerned. Several Member States have also introduced temporary employment maintenance and job creation schemes in an effort to overcome high unemployment levels.

b) Second, public sector financial support is clearly not the only aspect to be considered when assessing the level of industrial support granted by the individual economic powers. In any more general assessment of whether European, American or Japanese companies have the most favourable climate to operate in, many factors suggest that European firms are far from the best-placed. In practice, the total public-sector financial "support" received by Community firms is drastically reduced by the extra costs incurred as a result of the inadequate integration of the European market (which some calculations put at at least 2% of the Community's GDP¹, or more than the total financial support paid to industry).

Setting out from these two general premisses, four factors indicate that industry in Europe is making significant progress (i) the convergence of the national policies to create a more favourable environment for industry, (ii) the development of European policies, (iii) the strengthening of industrial cooperation not only inside the Community but also with countries outside and (iv) greater involvement of the two sides of industry.

A. Re-drawing of national policies to create a more favourable environment for industry :

Two points support this view :

. Firstly, following the general increase in State intervention by all industrialized countries over the last ten years, the Community and the Member States are now showing determination to move towards greater competition.

. Secondly, while continuing to serve social and regional objectives, state support priorities have gradually been shifting from declining industries to growing ones, while at the same time State support schemes have been made more transparent and the procedures simplified.

B. The development of European policies

Although the Community authorities' funding of industry remains extremely limited (less than 1% of the national support), two important points must be noted :

. On the one hand, European policies are doing more to help industrial development; strengthening the internal market, developing joint research projects such as the ESPRIT, RACE, BRITE, EUREKA programmes¹), organizing transnational exchanges between industry and universities, diverting Community aid from declining industries towards

¹ cf. the 1984 report from Mr. Albert and Mr. Ball to the European Parliament on progress towards economic recovery in Europe in the 1980s

1 COM(84)305final; COM(84)608final; COM(85)113final

growing ones, just like at national level, paying greater attention to industrial priorities in macroeconomic recommendations 2) and implementing the Community's competition policy on research and development 3) .

. On the other hand, a broad consensus is gradually emerging between economic operators to take greater account of the European dimension in their national policies and business strategies. In the latter case there has been a remarkable increase in the number of joint positions adopted by European industrialists to this effect (e.g. the round table of European industrialists, by the Group of 12 on information technology and by big European firms proposing measures to strengthen the internal market) and in undertakings' decisions which have immediately been put into effect, e.g. to set up European venture capital associations, the growth of industrial cooperation outlined below and so forth.

C. Strengthening industrial cooperation between firms inside and outside Europe

A growing number of increasingly far-reaching agreements are being concluded not only in traditional sectors such as the car industry but also in new industries, whether in the form of State-backed research programmes such as the ESPRIT programme or of purely private initiatives. Agreements such as the one on digital telephone exchanges between Italtel, CIT-Alcatel, Siemens and Plessey or the project to set up a pan-European electronics components undertaking are both examples of this trend.

D. Greater involvement of the two sides of industry

Changing attitudes on the part of the workforce and a new cooperation between the two sides of industry have also contributed to the progress made by European industry.

Three factors can be mentioned in particular :

- the greater emphasis being placed on training and adapting it more closely to the needs of industry and to the new technologies,
- participation in the changes taking place in industrial organization, especially when new technologies are introduced, and
- a commitment to more frequent dialogue, directed to a greater extent towards finding of satisfying both industry's requirements and social needs.

2 Annual Economic Report, 1984-85 (COM(84)587final

3 Cf. 14th Annual Report on Competition Policy

Together, these four general trends show that all sectors of the Community economy are now aware of the importance of industrial development to Europe's economic and social future and have done all that they can to adopt policies which will promote it.

That leaves two problems, however - the scale of action and resources needed to counterbalance the Community's main rivals' policies and how Europe can exploit its inherent assets and thus strengthen its competitive position on world markets.

STATISTICAL ANNEX

1. Total private services : share of world exports
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37. Venture capital in the European Community.
38. Industrial unrest average annual number of working days lost per 1000 workers

Total Private Services: Share of World Exports (percentage)

	1959/60	1969/70	1979/80
Belgium/Luxembourg	3.5	3.6 ^m	5.9 ^m
Denmark	2.7	2.4	2.8
France	8.9	10.2	13.0
West Germany	9.9	10.0	12.4
Greece	0.8	0.9	1.7
Ireland	1.0	0.7	0.4
Italy	8.6	9.3	8.7
Netherlands	5.4	5.7	7.1
United Kingdom	22.9 ^t	16.2	13.8
Portugal	0.5 ^v	0.8	0.8
Spain	1.8	4.8	4.9
Canada	5.0	4.9	2.9
Japan	2.6	5.5	7.6
Switzerland	4.0 ^{n o}	3.8 ⁿ	3.5 ⁿ
United States	22.4	21.0	14.4

Quelle: N. Oulton, International Trade in Services and the Comparative Advantage of EC Countries, a.a.O., S. 185/1986.

Diversity of economic development (GDP/per capita)

Weighted coefficient of variation in GDP per capita

	1973	1981	1983
EUR 6	0.10	0.10	0.11
EUR 9	0.10	0.11	0.11
EUR 12	0.17	0.19	0.19

Coefficient of variation = $\frac{\sigma}{\bar{x}}$, where σ is the standard deviation weighted by total population and \bar{x} the Community average

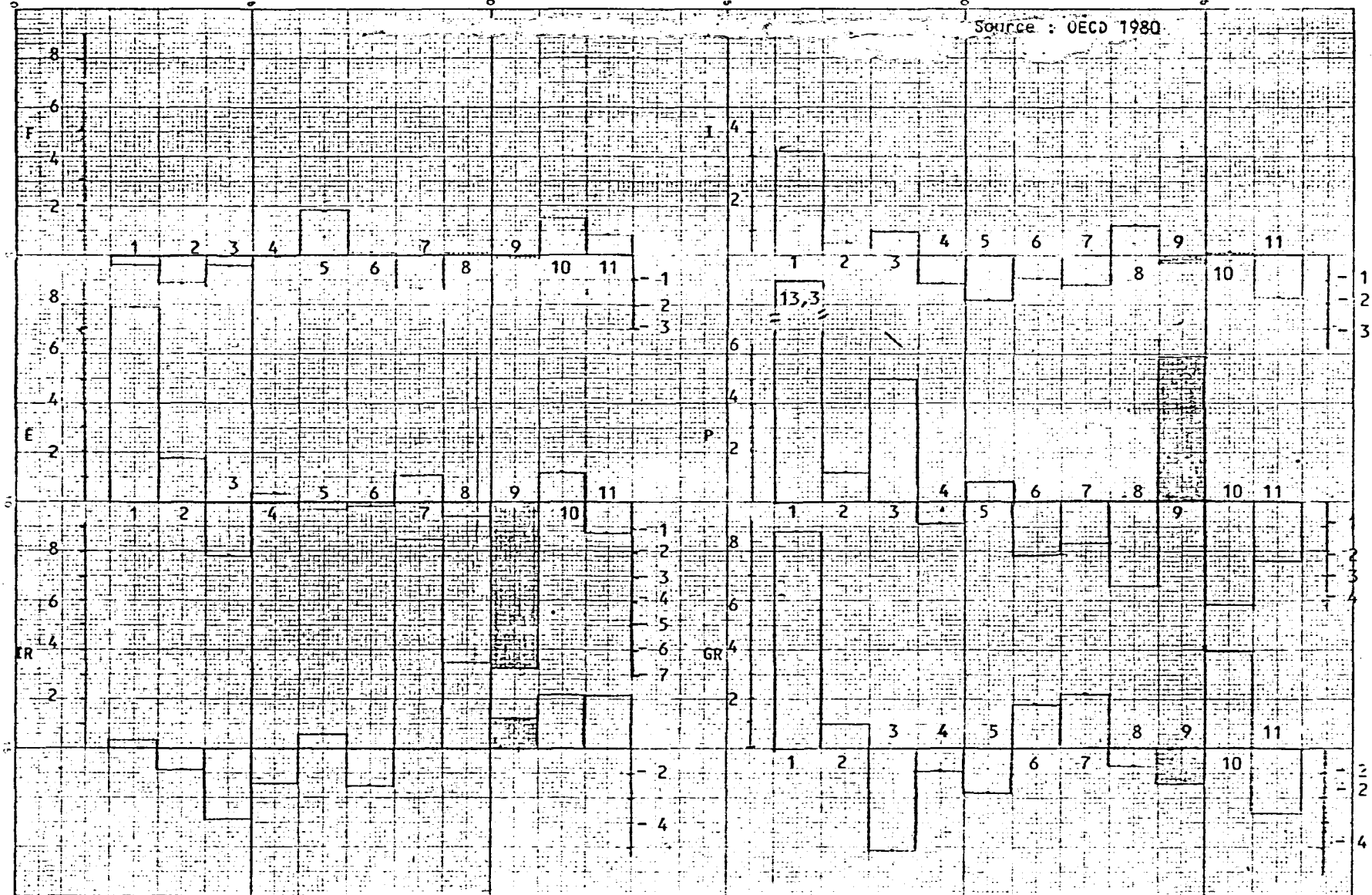
Source : Calculated on basis of National Accounts ESA 1960-1983; EUROSTAT

FINAL DEMAND STRUCTURE

ANNEX 3

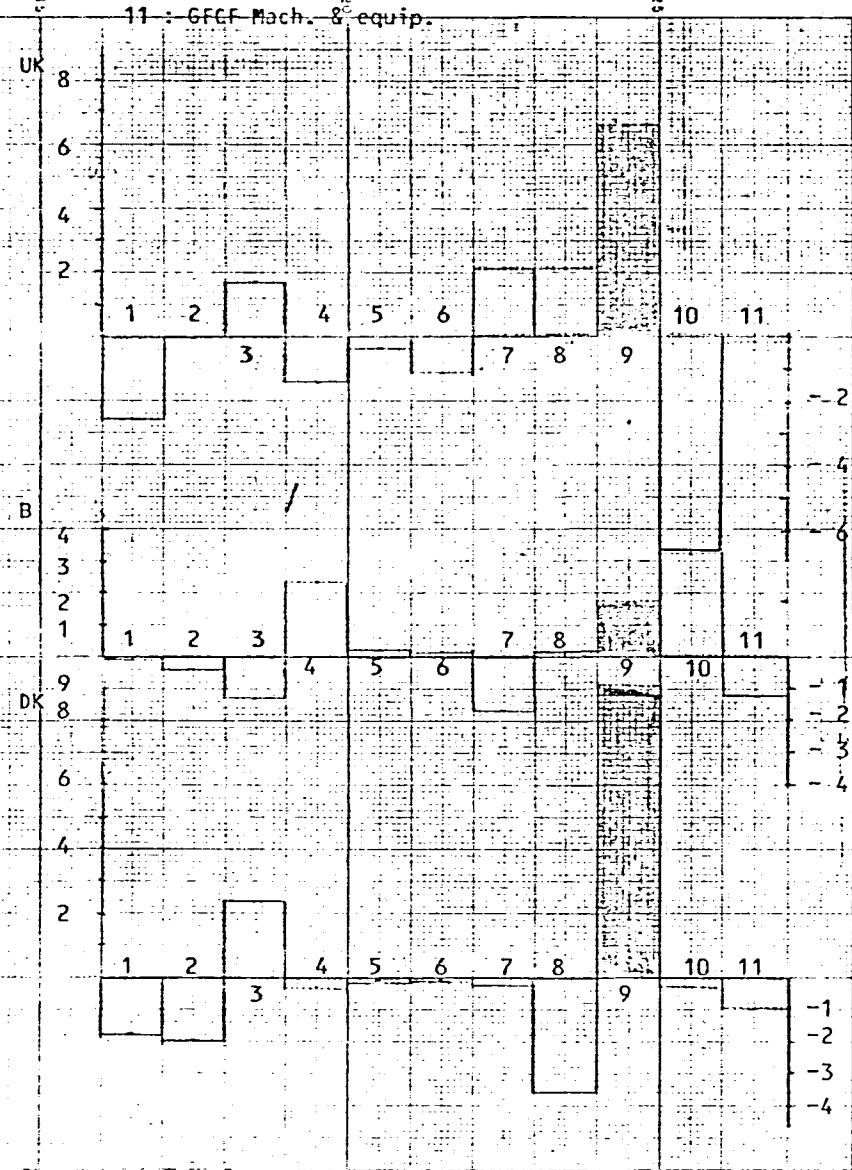
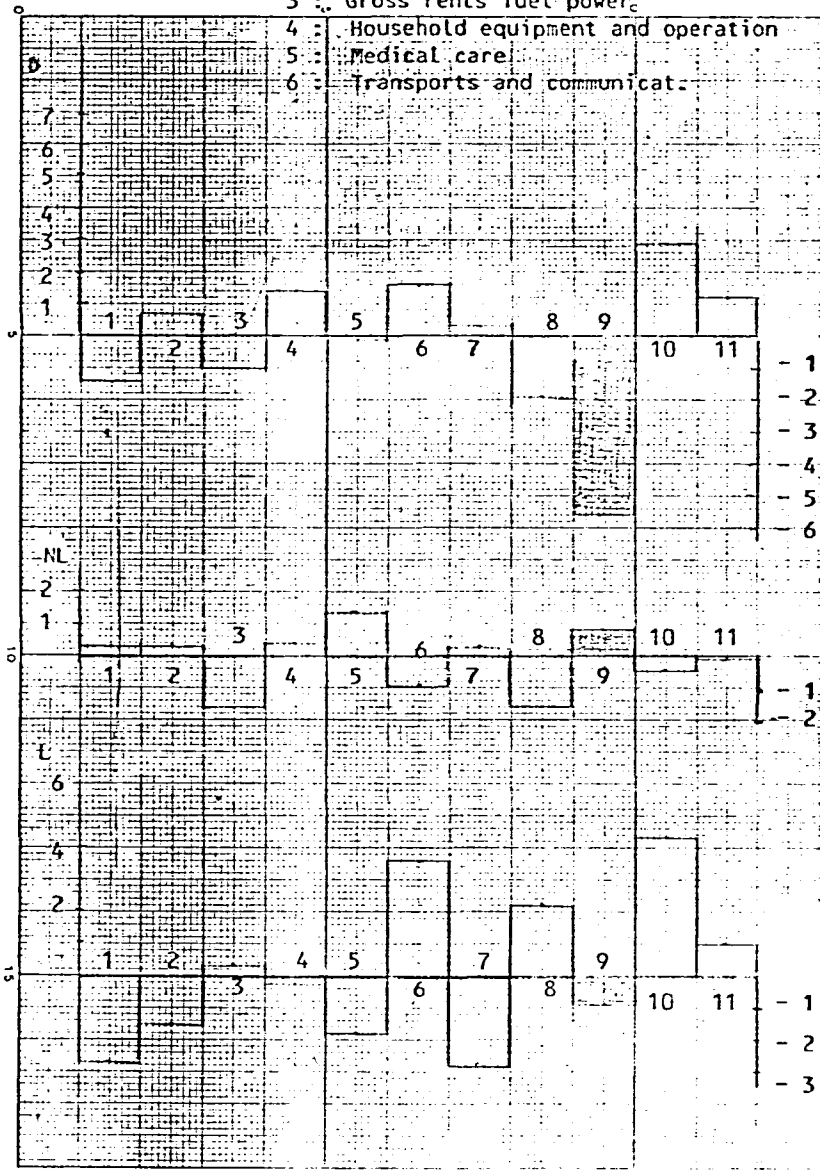
Percentage gap from the EEC (Ten's) average Final consumption in GDP

Source : OECD 1980.



- 1 : Food, bev., tobacco
- 2 : Clothing & footwear
- 3 : Gross rents fuel power
- 4 : Household equipment and operation
- 5 : Medical care
- 6 : Transports and communicat.

- 7 : Recreation and education
- 8 : Miscellaneous
- 9 : Collect. cons. of GOVT
- 10 : GFCF, construction
- 11 : GFCF Mach. & equip.



ENERGY DEPENDENCE (%)

Country	1973	1983	Change
DK	99.6	86.1	-13.5
Japan	94.8	85.0	- 9.8
GR	91.4	65.3	-26.1
B	88.0	73.8	-14.2
I	85.7	80.7	- 5.0
IRL	85.7	62.5	-23.2
F	81.7	61.5	-20.2
EUR 10	64.3	41.5	-22.8
G	55.7	51.1	- 4.6
UK	50.2	-17.8	-68.0
NL	22.9	7.0	-15.9
USA	16.9	12.0	- 4.9

6 = 19.11

6 = 35.4

Source : EUROSTAT and International Energy Agency

Wage costs and productivity in industry
(average annual growth rate 1973-82)

	High-demand sectors			Medium-demand sectors			Low-demand sectors		
	W(1)	P(2)	C(3)	W(1)	P(2)	C(3)	W(1)	P(2)	C(3)
EUR	2.7	4.3	-1.5	3.1	2.7	0.4	2.4	2.2	0.1
USA	1.3	2.0	-0.8	0.9	0.5	0.4	1.1	1.1	-0.0
JAPAN	3.8	11.3	-6.7	4.6	5.8	-1.1	4.0	3.6	0.4

- (1) Real per capita wages
(2) Per capita productivity
(3) Real unit wage costs, i.e. real wage costs per unit output in national currency (real per capita wages over productivity)

Source : EUROSTAT and Commission departments

Unit wage cost trends in industry

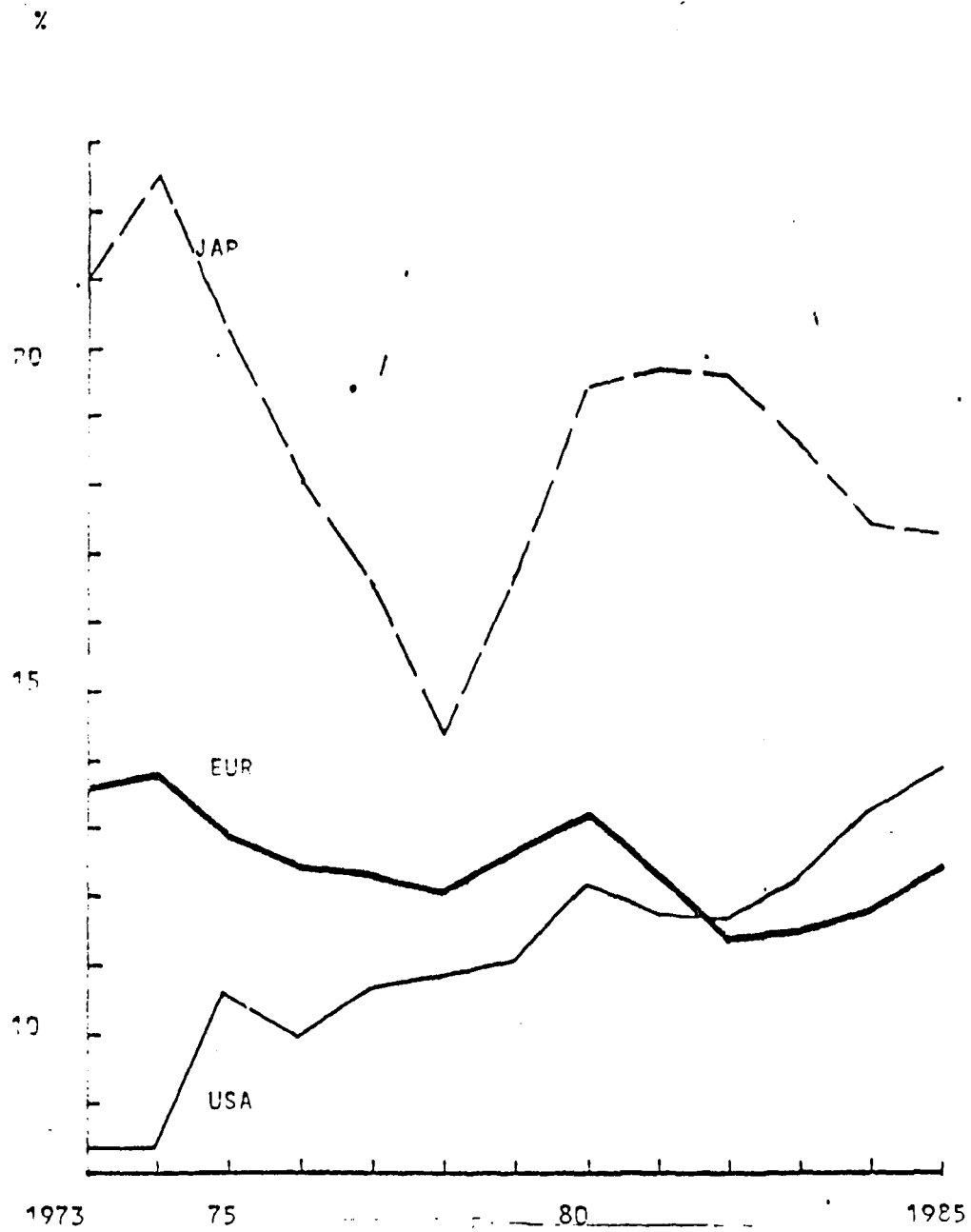
	Real wage costs/unit output in national currency			Relative unit wage costs in the same currency		
	EUR	USA	JAPAN	EUR	USA	JAPAN
1982	-0.6	-0.5	-4.4	-3.7	11.6	-14.6
1983	-2.7	-5.2	-1.2	-3.6	2.7	8.6
1984	-3.7	-1.4	-3.8	-8.4	10.7	0.9
1985	-2.3	-1.8	-1.1	-3.4	6.8	-1.7
Cumulative reduction over the period	-9.1	-8.7	-10.1	-17.9	35.5	-8.0

1 Defined as real wages (per capita wages multiplied by the gross national product deflator), divided by per capita productivity

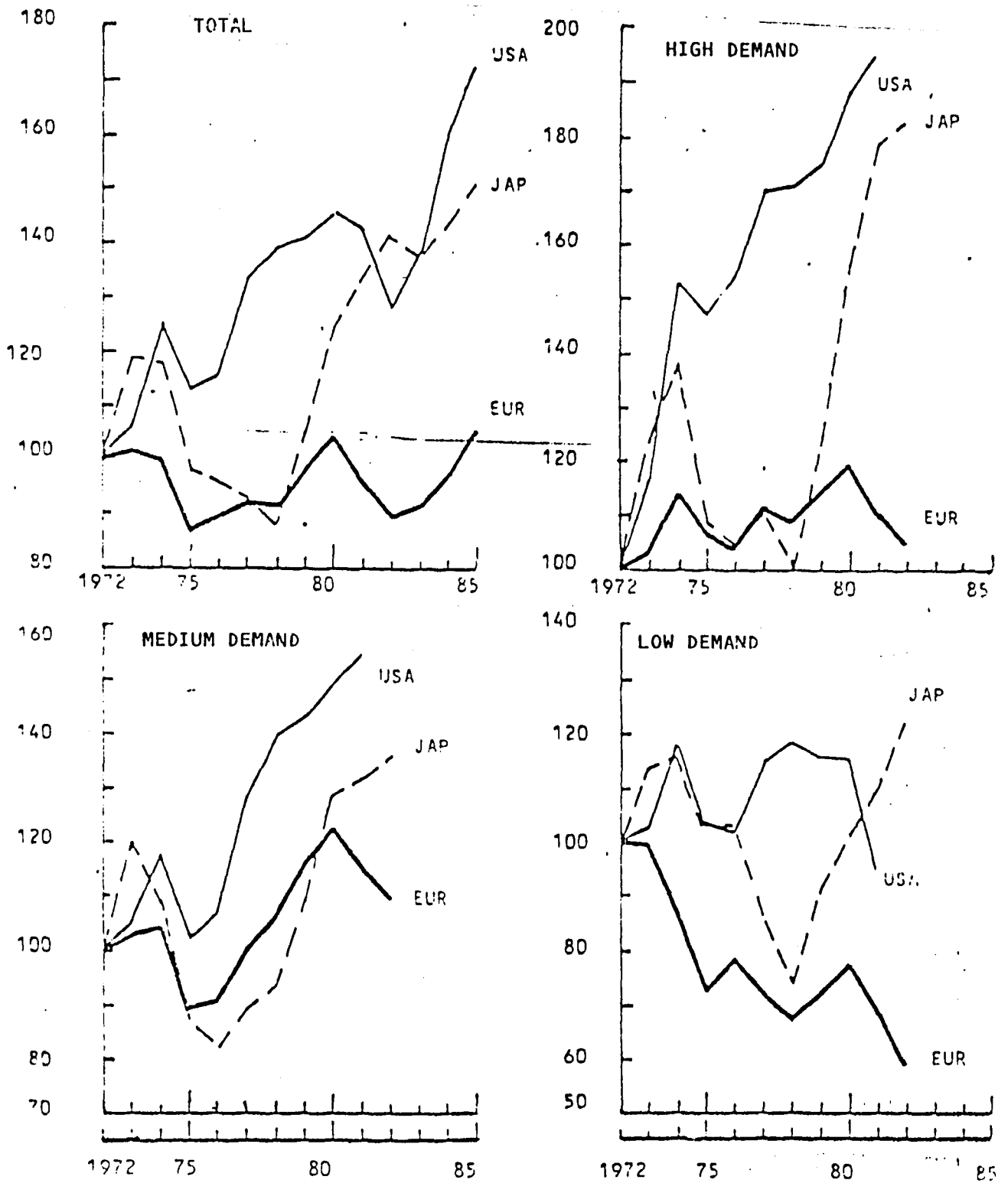
2 Wage costs per unit output in common currency (US dollars) in relation to the weighted average for the top 19 competitors.

Source : Commission departments

Rate of investment in industry



Gross fixed capital formation in industry



Domestic demand trends, in volume (1973-82)
average annual growth rate
(at 1975 prices and exchanges rates)

	EUR	USA	Japan	Total 3 zones
<u>High-demand sectors</u>	5,2	4,8	13,5	6,7
Electrical and electronics hardware	3,7	5,5	15,1	7,7
Information technology, office automation and precision equipment	8,9	5,7	6,8	7,0
Chemicals and pharmaceuticals	5,5	3,7	11,8	6,4
<u>Medium-demand sectors</u>	1,9	4,8	5,2	2,5
Rubber and plastics	3,2	5,0	1,2	3,5
Transport	3,2	1,4	7,1	2,9
Paper, packaging	1,8	2,9	3,7	2,6
Food, beverages and tobacco	2,0	1,7	3,8	2,2
Industrial machinery	0,2	3,2	3,6	2,0
<u>Low-demand sectors</u>	0,2	0,5	3,0	1,1
Miscellaneous products	1,3	1,8	1,4	1,5
Textiles, leather and clothing	0,2	1,5	2,7	1,2
Steel and metallic ores	0,7	-0,7	3,7	1,3
Metal goods	-0,5	0,0	4,2	1,2
Construction materials, non- metallic ores	0,9	0,3	1,8	1,0
TOTAL INDUSTRY	1,9	2,3	6,4	3,1

Source : Eurostat and Commission departments

Dimensions of the home market in 1982
(in constant purchasing power)

	EUR	USA	Japon	Total 3 zones
<u>High-demand sectors</u>	32,7	42,1	25,5	100
Electrical and electronics hardware	31,6	42,5	26,4	100
Information technology, office automation precision equipment	28,4	53,9	18,1	100
Chemicals and pharmaceuticals	34,8	38,2	26,7	100
<u>Medium-demand sectors</u>	39,0	44,5	16,8	100
<u>Low-demand sectors</u>	37,1	35,1	27,5	100
TOTAL	37,0	40,7	22,3	100

Source : Eurostat and Commission departments

Note : Internal market = output + imports - exports

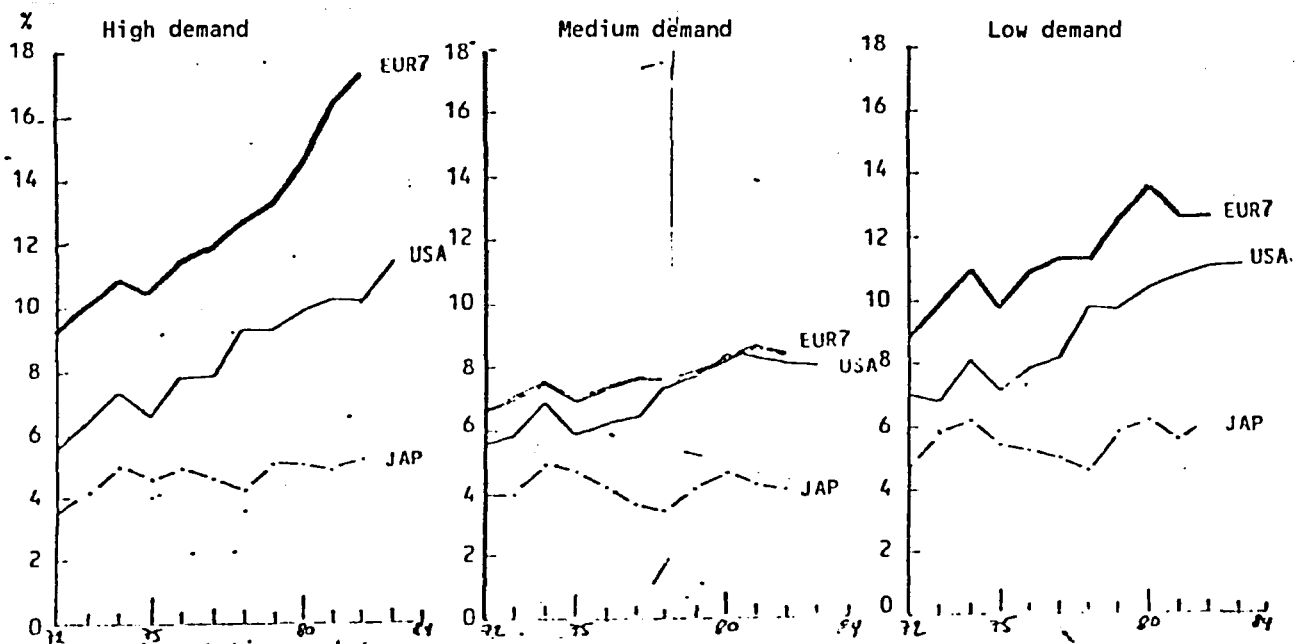
Export market share (1983)

	EUR		USA		JAPAN	
	Percentage change between 1973-1983	1983 %	Percentage change between 1973-1983	1983 %	Percentage change between 1973-1983	1983 %
<u>High-demand sectors</u>	-2.5	25.6	+2.7	20.4	+5.6	18.8
Electrical and electronics hardware	-1.8	23.7	+2.4	20.2	+11.4	29.1
Information technologies, office automation and precision equipment	-5	17 .	+5	27.4	+8	23
Chemicals and pharma- ceuticals	-1	30.8	+1.9	17.6	+0.5	7.8
<u>Medium-demand sectors</u>	-1.2	25.8	-0.3	18.5	+6.1	15.3
<u>Low-demand sectors</u>	+4.1	29.4	+1.0	9.2	+1.4	13.4
TOTAL INDUSTRY		26.6		16.9		15.9

Source : Eurostat and Commission departments

Percentage change : difference between 1973 market share
and 1983 market share.

Penetration rate
 (total imports as a proportion of domestic demand)
at current prices



EUR7 : Imports from non-Community countries

Penetration rate : industrial products on the internal market

	EUR		USA		JAPAN	
	Percentage		Percentage		Percentage	
	change		change		change	
	between	1982	between	1982	between	1982
	1973-1982	%	1973-1982	%	1973-1982	%
<u>High-demand sectors</u>	+7.9	17.3	+5.9	11.5	+1.6	5.3
Electrical and electronics hardware	+10.9	19.1	+6.7	15.5	+1.7	3.8
Information technologies, office automation and precision equipment	+14.7	33.6	+4.5	14.1	+1.3	7.8
Chemicals and pharma- ceuticals	+3.6	11.8	+2.9	6.8	+1.5	5.9
<u>Medium-demand sectors</u>	+1.8	8.5	+2.3	8.0	+0.2	4.1
<u>Low-demand sectors</u>	+3.8	12.8	+4.2	11.2	+1.4	6.2
<u>TOTAL INDUSTRY</u>	+3.6	11.6	+3.4	9.5	+1.0	5.2

Source : Eurostat and Commission departments

Note : Penetration rate = $\frac{\text{imports}}{\text{domestic demand}}$

World trade in goods and services
(Average annual growth rates in %)

	1970-80		1975-80	
	Revenue	Expenditure	Revenue	Expenditure
Goods	16.9	17.3	16.9	17.2
Services				
<u>including</u> investment income	16.9	16.8	18.1	18.9
<u>excluding</u> investment income	15.2	15.3	15.3	16.0

Source : A. Herrmann; W. Ochel; M. Wegner : Wettbewerbsfähigkeit von internationalen Dienstleistungen in der E.G. Feasibility-Study, Munich, July 1985.

Regional breakdown of international trade in services
(including investment income in %)

	Revenue		Expenditure	
	1970	1981	1970	1981
Total services	100	100	100	100
Industrialized countries	89.0	82.2	78.8	72.6
Oil-exporting countries	1.2	5.3	6.9	9.5
Other developing countries	9.7	12.5	14.3	17.8

Source : DIW, Der internationale Handel mit Dienstleistungen, 1984.

STRUCTURE OF INTERNATIONAL TRADE IN SERVICES,
BY CATEGORY OF SERVICE
1970, 1975, 1980 and 1981

	REVENUE					EXPENDITURE				
	According to IMF(A)		According to IMF(B)			According to IMF(A)		According to IMF(B)		
	1970	1975	1975	1980	1981	1970	1975	1975	1980	1981
	in '000 million SDRs									
Freight ¹	12,3	21,4	22,9	43,5	47,7	15,6	33,0	31,6	62,6	69,3
Other transport	12,8	27,5	27,4	56,9	65,8	14,7	29,1	29,7	59,4	69,5
Travel	18,5	34,6	35,1	75,7	83,4	17,9	34,9	35,0	77,2	84,1
Investment income	26,3	57,1	57,2	169,5	223,7	28,4	58,5	57,6	177,9	244,3
Other public services	7,8	12,6	11,9	22,4	26,1	9,9	14,9	13,3	33,4	38,2
Other private services	19,9	44,4	47,0	95,3	107,9	19,0	43,9	43,0	88,4	103,8
Total services	97,6	197,5	201,4	463,2	554,5	105,5	214,3	210,2	499,0	609,3
	Proportion of all services (in %)									
Freight ¹	12,6	10,8	11,4	9,4	8,6	14,8	15,4	15,1	12,6	11,4
Other transport	13,1	13,9	13,6	12,3	11,9	14,0	13,6	14,1	11,9	11,4
Travel	19,0	17,5	17,4	16,3	15,0	17,0	16,3	16,7	15,5	13,8
Investment income	26,9	28,9	28,4	36,6	40,3	26,9	27,3	27,4	35,7	40,1
Other public services	8,0	6,4	5,9	4,8	4,7	9,4	7,0	6,3	6,7	6,3
Other private services	20,4	22,5	23,3	20,6	19,5	18,0	20,5	20,4	17,7	17,1
	Proportion of total services, excluding investment income									
Freight ¹	17,3	15,2	15,8	14,8	14,4	20,2	21,2	20,8	19,5	19,0
Other transport	18,0	19,6	19,0	19,4	19,9	19,1	18,7	19,5	18,5	19,0
Travel	25,9	24,6	24,3	25,8	25,2	23,2	22,4	22,9	24,0	23,0
Other public services	10,9	9,0	8,3	7,6	7,9	12,8	9,6	8,7	10,4	10,5
Other private services	27,9	31,6	32,6	32,4	32,6	24,6	28,2	28,1	27,5	28,5

¹Including freight insurance

Source : DIW

The allocation of the output of market service activities in the European Community

(Data for 1975 : Percentages)

NACE activity number	Proportion of output allocated to :				
	Intermediate consumption by industry ¹	Intermediate consumption by services ¹	Final demand by households ²	Exports of households ²	Total
57 Wholesale and retail trade	17,5	7,7	64,7	10,1	100,0
59 Lodging and catering services	6,7	11,0	82,3	-	100,0
61 Inland transport	34,2	24,9	31,4	9,5	100,0
63 Maritime and Air transport	19,9	27,0	9,0	43,2	100,0
67 Communication	19,1	45,8	31,8	3,1	100,0
69 Services of credit and insurance institutions	7,5	73,7	16,2	2,6	100,0
73 Renting	2,1	9,7	87,3	0,9	100,0
79 Other services	22,8	29,1	44,0	4,1	100,0
Total excluding 57 and 73	19,2	34,5	38,7	7,6	100,0
Total excluding 73	18,7	26,6	46,4	8,3	100,0
Grand total	16,8	24,6	51,1	7,5	100,0

source : Eurostat (zusammengestellt von Michael Green, DG II).

¹ In this table the term industry covers all activities except market and non-market services; the term services covers the sum of market and non-market services

² Final demand by households includes expenditures by foreign tourists in the Community

Total Private Services:
Share in Country's Total Exports (percentage)

	1959/60	1969/70	1979/80
Belgium/Luxembourg	15.5	15.0 ^m	20.0 ^m
Denmark	22.9	24.6	28.4
France	21.1	20.8	22.1
West Germany	13.0	11.9	13.5
Greece	38.0	41.2	47.7
Ireland	28.8	23.1	10.9
Italy	29.8	24.3	20.6
Netherlands	18.6	19.6	20.0
United Kingdom	26.3 ^t	27.7	23.8
Portugal	23.5 ^v	28.7	30.2
Spain	30.7	47.8	35.5
Canada	11.9	11.7	9.4
Japan	10.2	11.9	12.8
Switzerland	24.8 ⁿ ^o	24.4 ⁿ	21.7 ⁿ
United States	16.6	18.5	13.5

Quelle: N. Oulton, a.a.O., S. 185/186.

International Trade in Services and the Comparative Advantage of EC Countries,

1981
Financement total et des pouvoirs publics de la R-D en MioECU

	Col.1	Col.2.	Col.3
	D.I.R.D.	R-D fin. Etats	D.I.R.D./ P.I.B.
Pays	MioECU	MioECU	%
Belgique/Belgie...	1267.00	* 542.32	1.48
Danmark.....	552.73	250.17	1.07
France.....	10343.02	6760.35	2.01
Deutschland.....	15255.58	7057.56	2.48
Hellas.....	69.50	69.03	0.21
Ireland.....	120.11	63.67	0.75
Italia.....	3210.42	2060.71	1.01
Nederlands.....	2393.79	1251.13	1.88
United Kingdom...	11090.02	6443.56	2.42
EUR-10.....	44301.47	24498.52	2.00
Autres donnees pour comparaison			
Japon.....	24380.07	6569.77	2.37
U.S.A.....	65993.10	30216.31	2.51

Notes: Col.1=Depense Interieure Brute de R-D (Gouvern., Industrie, ASLB, Universites)
 Col.2=R-D financee sur les budgets des Etats qui comprend egalement les depenses pour la R-D executee a l'etranger.
 Col.3=Ratio D.I.R.D./P.I.B.
 * estimation nationale

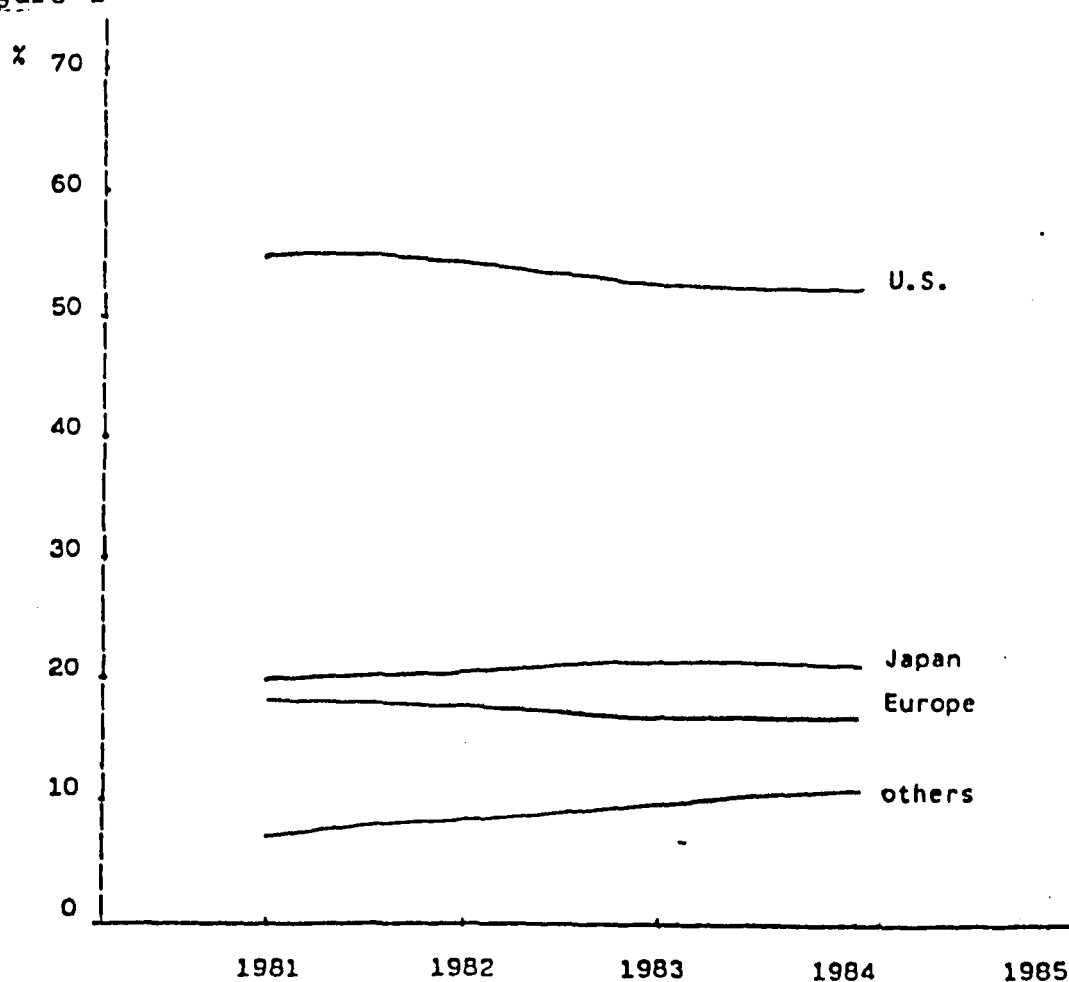
Source: Unite des indicateurs S-T de l'OCDE, Paris

Distribution (%) of world semiconductor consumption *

	1981	1982	1983	1984
Europe	17,6	17,5	17,3	17,3
Japan	19,6	20,5	21,1	20,7
U.S.	54,9	53,3	52,2	51,9
others *	7,9	8,7	9,4	10,1
	100 %	100 %	100 %	100 %

* Except East Countries

Figure 2



Source : Services of the Commission of the European Communities

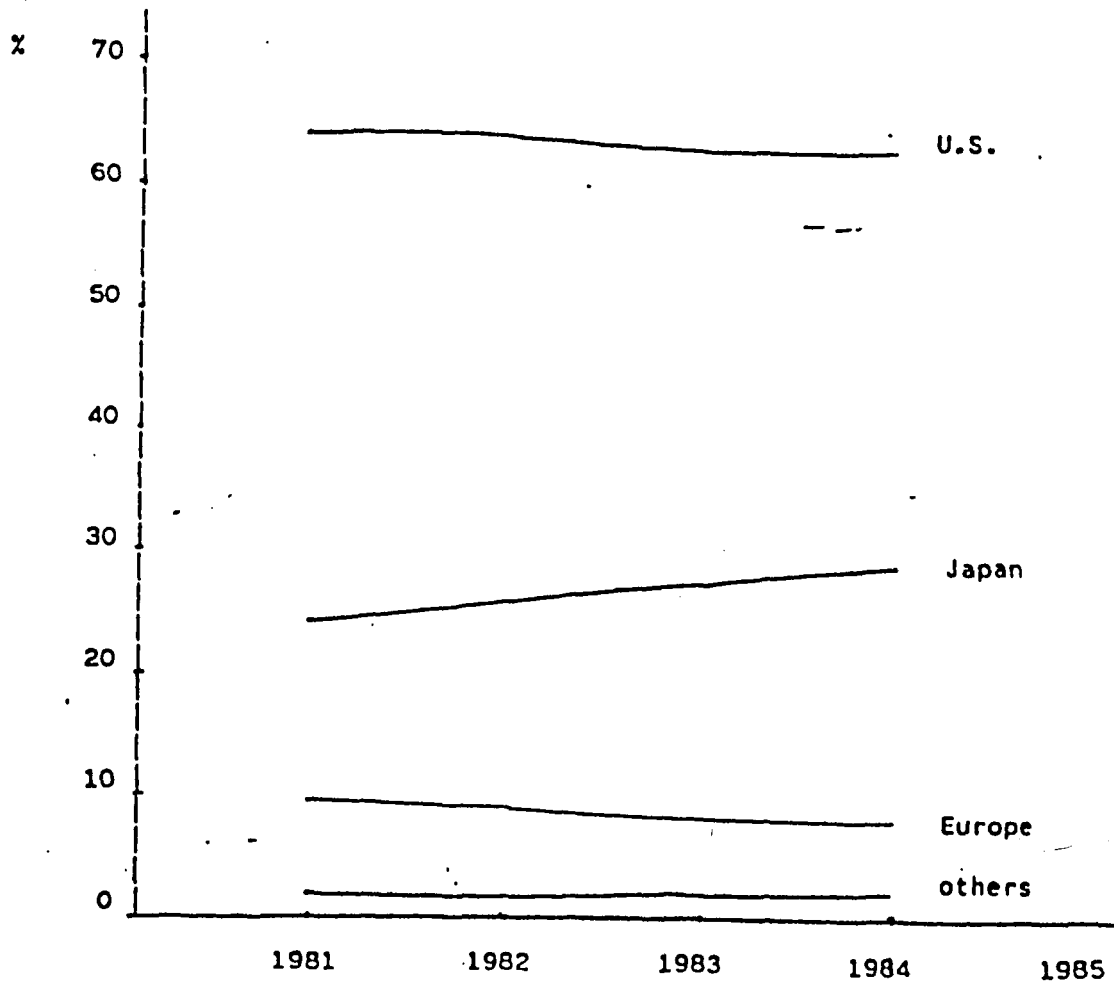
Distribution (%) of world semiconductor production

	1981	1982	1983	1984
Europe*	9	8,5	7,9	7,6
Japan	24,6	26,3	27,8	28,3
U.S.	64,2	63,2	62,4	62,2
others**	2,2	2	1,9	1,9
	100 %	100 %	100 %	100 %

* European owned firms

** Except East-bloc countries

Figure 1



Source : Services of the Commission of the European Communities.

	Estimated robot population in various countries					Average annual growth, 1980/83.
	78	80	81	82	83	
FRG	450	1.200	2.300	3.500	4.800	41 %
U.K.	125	371	731	1.152	1.753	47 %
France	n.a.	580	790	1.385	2.010	36 %
Italy	n.a.	400	450	790	1.800	46 %
Total	n.a.	2.551	4.253	6.827	10.383	42 %
Japan	3.000	6.000	9.500	13.000	16.500	29 %
U.S.	2.500	3.500	4.500	6.250	8.000	23 %
Sweden	800	1.133	1.700	1.300	1.900 ¹¹	n.a.

Source : OECD, British Robot Association and Association Française de Robotique Industrielle

Number of robots per 10 000 workers in industry (NACE2/4)			
	1978	1980	1983(a)
Federal Republic of Germany	0.5	1.4	6.3
United Kingdom	0.2	0.6	3.4
France	n.a.	1.1	4.1
Italy	n.a.	0.7	3.4
Japan	2.3	4.4	11.8
United States	1.1	1.6	3.9
Sweden	7.8	11.0	20.3(b)

(a) Commission estimate for employment in 1983.
(b) Not comparable with previous figures (see preceding table).

Exhibit Some recent and planned US-Japanese joint ventures

Automobiles	GM - Toyota Ford - Mazda Chrysler - Mitsubishi Motors
Computers	IBM - Matsushita Electric Sperry-Univac - Nippon Univac National Semiconductor - Hitachi Honeywell - NEC Tandy - Kyolera Sperry - Mitsubishi
Copiers, photographic equipment	Kodak - Canon
Disc players, air conditioners	GE - Matsushita
Jet liners	Boeing - Mitsubishi Heavy Industries - Kawasaki Heavy Industries - Fuji Heavy Industries
Lightweight plastic components	Armco - Mitsubishi Rayon
Machine tools	Bendix - Murata Machinery Company GM - Fujitsu Fanuc Houdaille - Okuma Houdaille - Mayekawa
Programmable controllers and sensors	Allen Bradley - Nippondenso
Robots and small motors	Westinghouse - Komatsu - Mitsubishi Electric IBM - Sanyo Seiko

Source : Table from "Japan Inc., USA" by Robert Reich in the New Republic
26 November 1984

Top 200 international industrial corporations :
breakdown of activities 1) 2)

	EEC	NON-EEC EUROPE	USA	JAPAN	OTHERS
TOTAL	53	9	88	28	22
<u>Activity:</u>					
Petroleum Refining	10	3	17	7	11
Motor vehicles and parts	10	1	5	5	3
Chemicals	7	2	6	1	-
Metal manufacturing Metal products	8	-	4	5	3
Electronic appliances	6	2	9	7	1
Mining	4	-	1	-	-
Food beverages, tobacco	4	1	16	1	2
Industrial + farm equipment	2	-	2	1	-
Pharmaceuticals	-	-	2	-	-
Aerospace	-	-	8	-	-
Office Equipment + Computers	-	-	7	1	-
Measuring, scientific, photographic equipment	-	-	3	-	1
Other	2	-	8	-	1

- 1) Sources : 1. "FORTUNE" Magazine - 29 April 1985
2. "FORTUNE" Magazine - 19 August 1985

2) Ranking was based on sales figures ranging from \$ 90.854.000 for n°1 to \$ 4.231.462 for n° 200.

Capital gearing ratios of companies calculated from reported data

	1970	1975	1980	1981
France	65	70	70	72
Germany	63	63	64	65
Japan	84	85	84	63
United Kingdom	52	51	49	49
United States	44	37	37	38

Note : OECD "Non financial Entreprises Financial Statements" Financial Statistics
Part 3 : calculations in National Westminster Bank, Quarterly, Nov. 1984

Companies financial assets as a percentage of their total assets

	1970	1975	1980	1981
France	46	44	47	48
Germany	38	39	42	42
Japan	59	58	58	58
United Kingdom	34	33	35	36
United States	30	27	27	26

Source : OECD. "Non-financial Enterprises Financial Statements", Financial Statistics
Part 3. Calculations in National Westminster Bank Quarterly Nov. 1984

Effective average rates of mainstream corporation tax (1)

	1970	1975	1980	1981
France	6.4	8.1	8.6	10.5
Germany	9.0	7.3	7.3	9.7
Japan	9.3	10.7	12.6	17.8
United Kingdom	10.7	19.2	10.1	9.2
United States	16.6	20.3	17.5	17.8

Note : Mainstream corporation tax as a percentage of the gross operating surplus of companies on a national account basis. J. Kay and J. Sen, The Comparative burden of Business taxation, Institute for fiscal studies, Working paper 45, 1983

T A U X D' I N T E R E T N A T I O N A U X

Taux d'escompte de la Banque centrale
(Fin de période, en pourcentage annuel)

	1979	1980	1981	1982	1983	1984
Etats-Unis	12.00	13.00	12.00	8.50	8.50	8.00
Canada	14.00	17.26	14.66	10.26	10.04	10.16
Japon	6.25	7.25	5.50	5.50	5.00	5.00
Belgique	10.50	12.00	15.00	11.50	10.00	11.00
Danemark	11.00	11.00	11.00	10.00	7.00	7.00
France	9.50	9.50	9.50	9.50	9.50	9.50
Allemagne	6.00	7.50	7.50	5.00	4.00	4.50
Italie	15.00	16.50	19.00	18.00	17.00	16.50
Pays-Bas	9.50	8.00	9.00	5.00	5.00	5.00
Royaume-Uni	17.00	14.00	-	-	-	-

Source : FMI, Statistiques financières internationales, Septembre 1985

Net national saving as a percentage of GDP

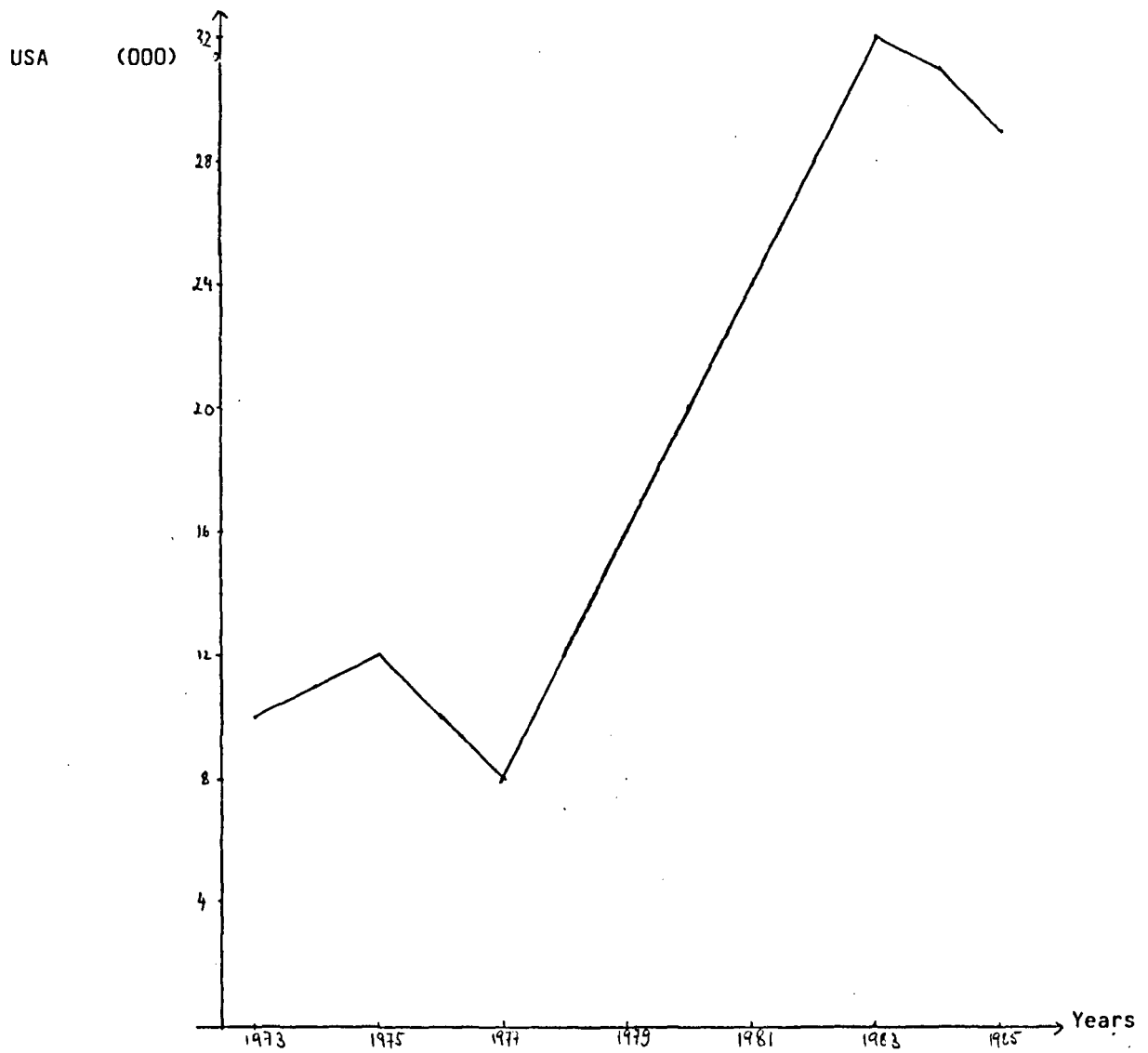
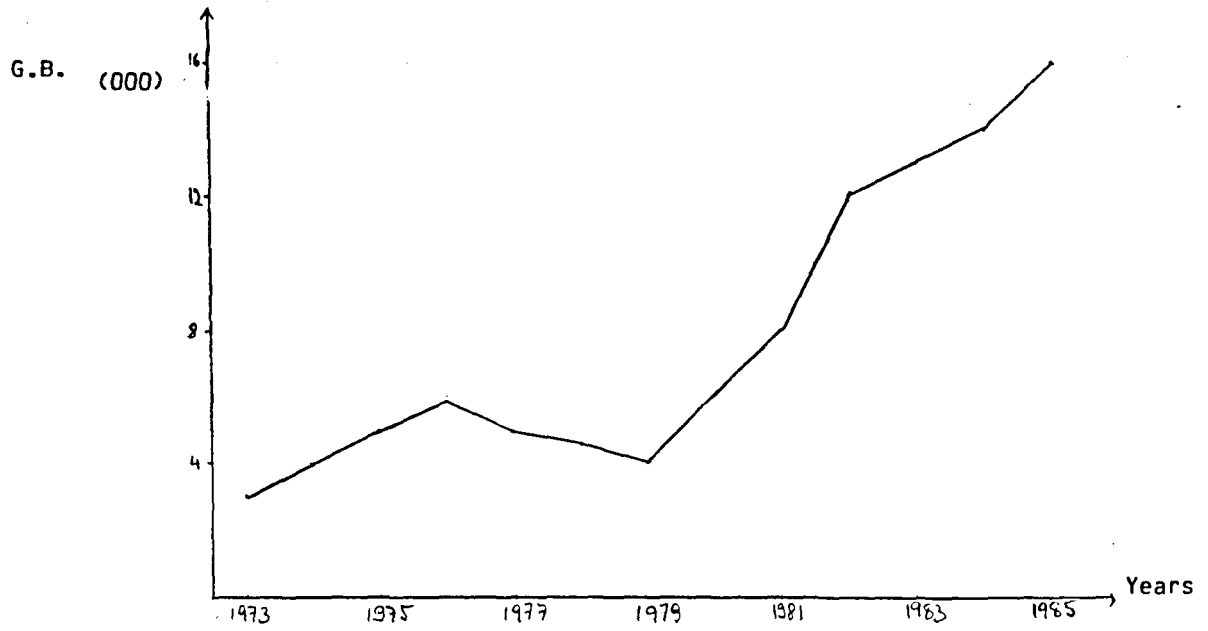
	1973	1979	1983
EUR 10	15.4	11.2	7.3
D	16.3	11.7	9.5
F	16.5	11.6	6.5
I	14.0	13.2	6.8
NL	20.2	11.1	10.2
B	15.5	9.2	5.2
L	37.5	38.7	
UK	10.3	8.0	5.2
IR	14.8	10.3	7.4
DK	17.2	8.1	5.2
GR	25.9	18.1	11.0
ESP	17.2	11.2	7.3
POR	24.7	27.7	
USA	10.1	7.6	2.2
JAP	25.5	18.4	16.2

Gross fixed capital formation as a percentage of GDP

	1979	1980	1981	1982	1983
EUR 10	18.2	21.1	20.0	19.2	18.8
D	21.9	22.8	22.0	20.1	20.7
F	21.5	21.9	21.3	20.5	19.6
I	18.8	19.8	20.2	19.0	17.9
NL	21.0	20.9	19.2	18.3	18.2
B	20.8	21.3	18.1	17.5	16.1
L	25.8	27.3	22.9		
UK	15.5	18.1	16.5	16.6	16.5
IR	31.0	28.7	29.4	26.1	22.8
DK	21.0	18.8	15.7	16.1	16.2
GR	25.9	24.3	22.4	20.2	20.5
ESP	18.9	19.4	20.3	18.5	18.5
POR	26.4	28.6	30.7		
USA	19.8	18.9	17.8	15.1	16.8
JAP	32.1	31.9	31.0	29.3	28.4

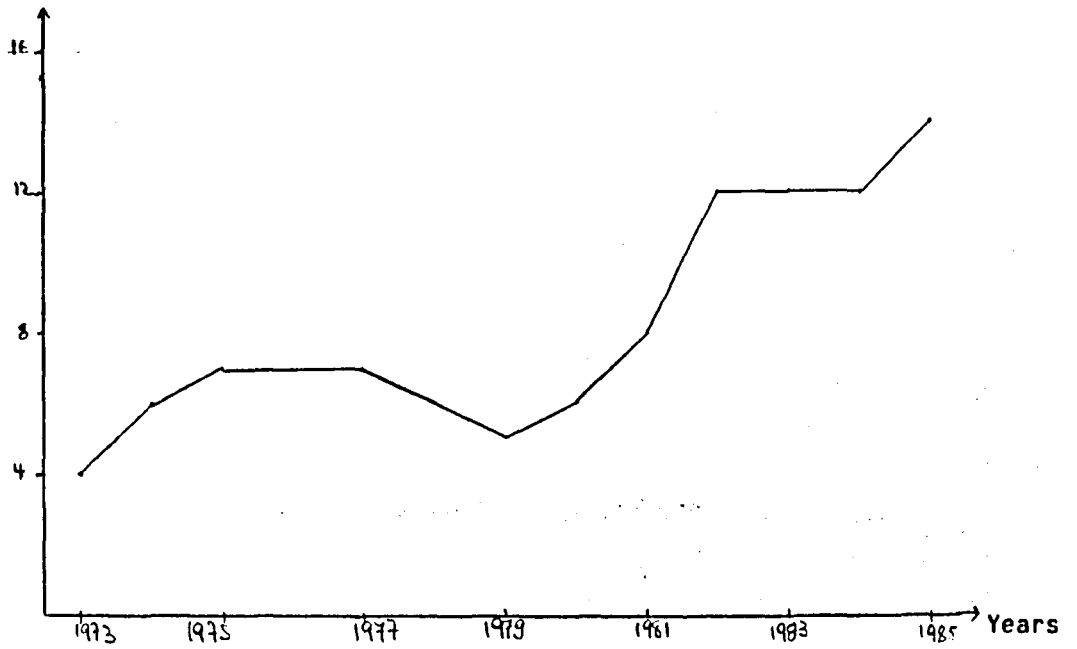
Source : National Accounts ESA : 1960-1983; EUROSTAT

Number of business failures



RFA

(000)



JAPAN

(000)



International Comparison of the Proportion of Surviving Companies

Country Period	Japan 1964 - 84		United States 1950 - 72	United Kingdom 1957 - 69
	First Market Tokyo Stock Exchange	First and Second Market Tokyo Stock Exchange		
Status in 1964				
Survived	399 (87.1)	768 (85.4)	583 (58.3)	1826 (51.2)
Acquired	41 (9.0)	67 (7.5)	384 (38.4)	} 1740 (48.8)
Liquidated	8 (1.7)	26 (2.9)	19 (1.9)	
Others	10 (2.2)	38 (4.2)	14 (1.4)	
Total	458 (100)	899 (100)	1000 (100)	3566 (100)

Sources: For the United States; Dennis C. Mueller, Profits in the Long Run.

For the United Kingdom; Douglas Kuehn, Takeovers and the Theory of the Firm.

For Japan, Odagiri, University of Tsukuba, 1985.

Note: In parentheses are percentages.

Gross rate of return on invested capital, enterprises excluding housing¹
(capital stock valued at replacement cost).

8

	B	D	F	I	NL	UK	EC ²	USA	Japan
1960-73	10,6	11,6	13,1	8,3	11,6	9,2	10,8	10,2	11,9
1974	10,3	9,1	11,4	6,5	10,1	5,9	8,6	8,6	8,8
1975	8,6	8,6	9,6	4,2	8,7	5,0	7,3	8,4	6,5
1976	8,1	9,6	9,0	4,9	10,1	6,3	7,8	8,8	6,1
1977	7,7	9,6	8,8	4,3	9,8	6,9	7,9	9,3	5,7
1978	7,5	10,0	8,7	4,5	9,6	7,1	8,0	9,4	6,3
1979	7,5	10,3	8,4	5,7	9,0	6,2	8,0	9,1	5,8
1980	6,9	9,4	7,3	6,2	8,6	5,3	7,3	8,3	5,8
1981	6,0	8,8	6,2	4,3	8,9	4,9	6,5	8,3	5,2
1982	6,1	9,1	6,1	4,0	8,7	5,0	6,5	7,4	4,8

¹ Gross operating surplus as % of gross capital stock, imputed labour income of self-employed assumed to be equal to the per capita labour income of employees.

² Weighted with GDP at 1975 purchasing power parities.

Source: DIW on behalf of the Ministry of Economic Affairs. (EC average - Commission services)

Net rate of return on invested capital, enterprises excluding housing
(capital stock and depreciation measured at replacement cost) (1)
(%)

	B	D	F	I	NL	UK	EC (2)	USA
1960	10,9	16,3	15,3	6,8	14,5	11,4	12,9	7,2
1961	11,7	13,8	14,2	7,7	12,4	10,8	11,9	7,7
1962	10,6	12,5	14,2	7,8	11,7	9,1	11,1	9,4
1963	9,9	11,4	13,7	6,6	10,4	9,7	10,5	10,2
1964	11,0	12,3	13,6	5,0	11,0	10,2	10,6	10,6
1965	11,2	11,9	13,9	6,3	10,7	8,9	10,6	12,3
1966	9,8	10,7	14,7	8,1	8,7	7,7	10,3	13,0
1967	9,4	10,0	14,5	8,4	9,2	8,1	10,2	12,4
1968	10,2	12,3	13,8	10,0	9,9	8,0	11,0	11,7
1969	11,4	11,5	14,0	11,9	10,0	6,2	10,9	9,8
1970	12,3	11,0	14,3	9,0	8,7	4,6	9,9	7,5
1971	11,2	9,9	13,6	5,7	7,4	6,5	9,1	8,3
1972	11,6	9,6	14,5	6,1	8,1	5,6	9,2	9,1
1973	12,3	8,9	14,1	5,3	9,1	5,5	8,8	9,9
1974	10,4	7,3	11,0	3,9	7,8	2,2	6,6	7,4
1975	7,6	7,0	9,4	0,3	5,6	1,4	5,0	7,2
1976	7,2	8,2	7,6	1,4	7,9	3,5	5,7	7,8
1977	6,4	8,6	7,3	0,5	10,5	4,3	5,9	8,6
1978	6,2	9,1	7,1	0,8	10,1	4,5	6,0	8,5
1979	6,0	9,6	6,8	2,9	9,0	2,5	6,0	7,8
1980	4,8	8,0	5,1	3,6	7,4	2,2	5,2	7,0
1981	3,3	7,1	3,6	0,6	8,0	1,5	3,9	7,0
1982	3,5	7,5	3,4	0,3	7,8	1,7	3,9	5,6
1983	4,0	8,0	3,4	-0,2	8,0	1,7	4,0	5,9
1984	4,0	8,3	3,4	0,0	9,0	1,7	4,2	6,0

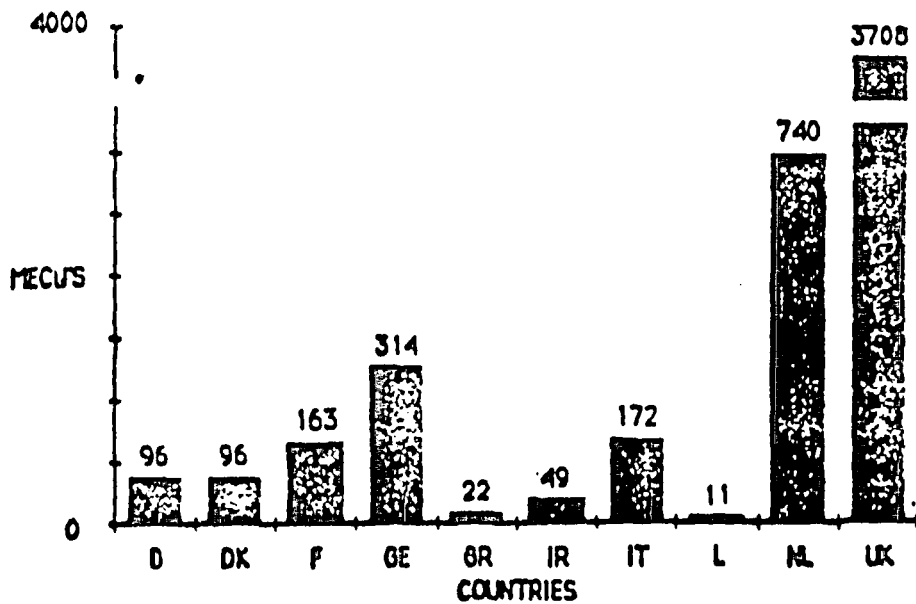
(1) Net operating surplus as % of net capital stock excluding housing, imputed labour income of self-employed assumed to be equal to the per capita income of employees. Depreciation on capital is measured at replacement cost.

(2) Weighted using GDP at 1975 purchasing power parities.

Source : DIW on behalf of the Ministry of Economic Affairs (EC average - Commission services).

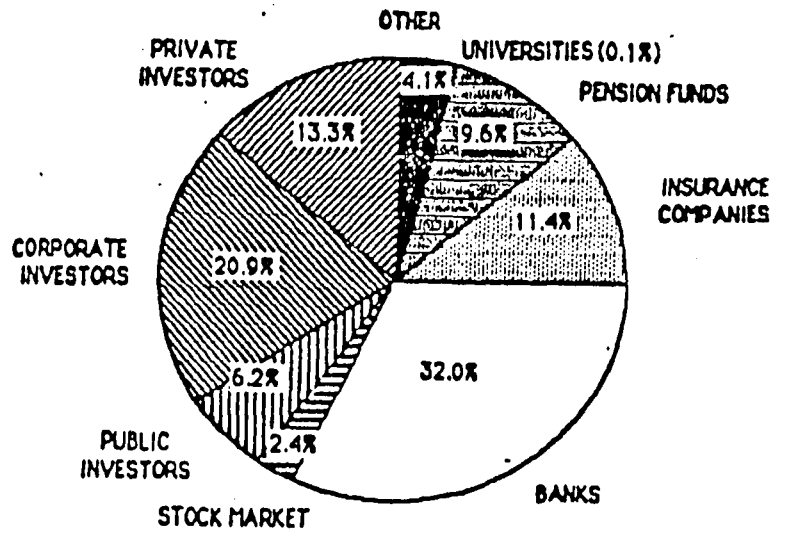
Total size of venture capital funds available in the European Community
(December 1984)

	<u>MECU</u>
Belgium	96
Denmark	96
France	163
Germany	314
Greece	22
Ireland	49
Italy	172
Luxembourg	11
Netherlands	740
United Kingdom	<u>3.708</u>
	5.371

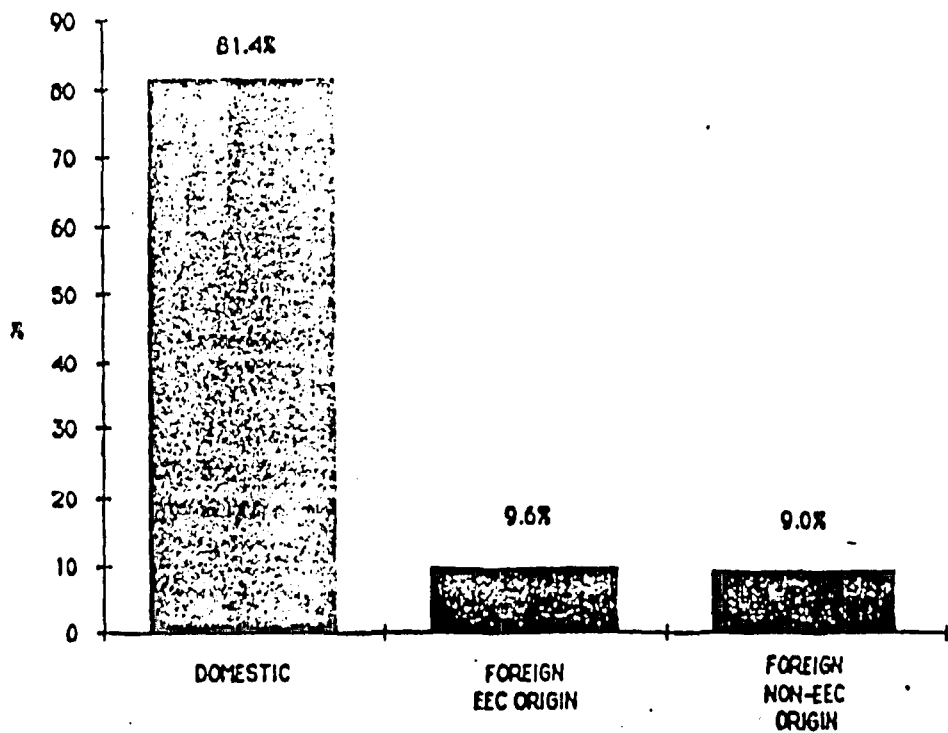


Source : Peat Marwick Mitchell & Co "Venture Capital in Europe 1985" Brussels August, 1985

Sources of capital: investors :



Sources of capital: geographical analysis



Source : Peat Marwick Mitchell & Co "Venture Capital in Europe 1985" Brussels August 1985

<u>COUNTRY</u>	Industrial Unrest Average annual number of working days lost per 1000 workers, 1981-1983
<u>European Communities</u>	
Belgium/Luxembourg	-
Denmark	115.4
France	91.1
Germany	1.5
Greece	n.a.
Ireland	388.4
Italy	696.8
Netherlands	24.0*
Portugal	152.1*
Spain	381.3
United Kingdom	224.3*
<u>Other European Countries</u>	
Austria	0.5
Finland	228.6*
Norway	54.0
Sweden	19.5
Switzerland	0.6
<u>Other Countries</u>	
Australia	421.0
Canada	598.1
Japan	9.4
Korea	1.2
New Zealand	224.6*
USA	54.2*

* 1981 - 1982

Source : ILO Statistics Department; Yearbook of Labour Statistics 1983;
Bulletin of Labour Statistics - February 1984.