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The future of European manufacturing

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Preface

KPMG commissioned the Economist Intelligence Unit (EIU) to produce this report, which explores the key trends, drivers and challenges facing manufacturers in the EU-15 and is based on the following research activities:

- The Economist Intelligence Unit conducted a wide-ranging survey of 172 senior executives of manufacturing companies operating in the EU-15 about the challenges facing their industries.
- To supplement the survey results, the Economist Intelligence Unit conducted in-depth interviews with senior executives of European manufacturing companies operating in the mechanical and electrical engineering sectors.

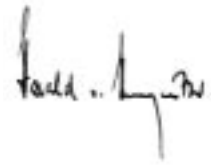
Introduction

Globalization is a key challenge facing European manufacturers. Customers continue to go offshore, the allure of Eastern Europe - with its cost advantages and a skilled labor force - remains strong and the development of the Chinese market is gaining rapid momentum. All this represents challenges as well as opportunities at the same time but also leads to questions about the attractiveness of Western Europe as a manufacturing location.

From our experience servicing our manufacturing clients, we do not believe manufacturing in Europe is without a future. To learn more about what European manufacturers think about the attractiveness of Europe as a manufacturing location, how they were dealing with the need to globalize, the key issues likely to impact on their profitability and their views on the future, we commissioned the Economist Intelligence Unit to conduct this survey for us.

The results of our survey confirm that Western Europe has a strong competitive advantage in high value added manufacturing goods. Europe's key strengths include high product quality, strong labor productivity and close proximity to existing customers. In this context, shifting the lower value added manufacturing to a low cost location can in fact, strengthen the company's overall competitiveness. Relocating manufacturing facilities also offers opportunities, particularly for companies who are keen to penetrate these lower cost locations as new markets.

We would like thank all of the participating companies for taking the time to contribute to our survey.



Harald von Heynitz
KPMG Deutsche Treuhand-Ges. AG

Global Chair
Industrial & Automotive Products

Executive Summary

Mounting competitive pressures are forcing European manufacturers to source an increasing proportion of their components from suppliers based in low-cost countries. They are also investing heavily in production facilities in emerging economies such as China in order to be close to their fastest-growing markets and to reduce production costs. These trends pose a range of challenges for European manufacturers, and have raised fears that the EU-15[1] could experience a steady hollowing out of its industrial base. While it is certainly the case that the attractiveness of the EU-15 as a location for the production of low and medium-technology goods is now increasingly limited, there is little doubt that European manufacturing has a future.

In a new, Europe-wide survey of 172 senior executives conducted by the Economist Intelligence Unit for this report, a large majority of European companies report that intensifying competition will be the biggest threat to their profitability over the next three years. The response of many will be to reduce the proportion of their production carried out in the EU-15. At present, nearly a third of the companies surveyed undertake three quarters or more of their production in the EU-15; according to the survey results this will fall to just 19 percent in three years' time, with the primary beneficiaries of this trend expected to be China and eastern Europe. The survey points to a similar decline in the proportion of research and development (R&D) likely to be carried out in the EU-15. Whereas 44 percent of the surveyed companies currently undertake 75 percent or more of their R&D in the EU, only 31 percent expect to be doing so in three years.

What forces are driving this shift in emphasis away from the EU-15? The need to reduce labor costs is the single most important reason, cited by 65 percent of respondents, whereas the drive to rationalize manufacturing operations was given by 48 percent. Other factors that strongly influence companies' decisions where to locate production facilities include the need to access more favorable labor regimes and the need to be close to key sales markets.

[1] Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden and United Kingdom

Who took the survey?

A total of 172 executives participated in our survey. Germany and the U.K. provided the largest number of respondents, but there was a good response from all the major EU-15 industrial economies.

Senior-level executives dominated the group of respondents. One in three respondents were C-level executives or board members; the remainder were senior managers.

Electronics and electrical equipment makers along with companies from the consumer goods and automotive sectors accounted for 60 percent of respondents. The others were distributed fairly evenly across the mechanical and electrical engineering, medical equipment, aerospace and metallurgy sectors.

Which of the following title best describes your job?

	% respondents
Manager	39
Senior Vice President/Vice President/Senior Executive	17
Chief Executive Officer/Chief Operating	15
Chief Financial Officer/Treasury/Comptroller	12
Board member	6
Technology Director/Chief Knowledge Officer	3
Other	9

Source: Economist Intelligence Unit survey, August-September 2004

Where is your company headquartered?

	% respondents
Germany	18
UK	14
US	11
France	7
Italy	7
Sweden	7
Netherlands	4
Spain	4
Denmark	4
Finland	4
Switzerland	3
Norway	2
Belgium	2
Other	13

Source: Economist Intelligence Unit survey, August-September 2004

- Further down the value chain, the trend to relocate production and sourcing will accelerate, with China and the east European countries in particular seen as highly attractive sources of components and locations for assembly. Whereas investment in eastern Europe will often be used to supplant production facilities in the EU-15, many companies investing in manufacturing capacity in China and India will do so primarily to be close to these fast-growing markets rather than to export back to Europe.

- The redistribution of production facilities need not be a zero-sum game. If locating certain activities in cheaper locations improves the competitiveness of EU-15 manufacturers, they will be in better shape to invest in the higher-value operations that they retain in the EU-15. Moreover, as major suppliers of capital goods and high-value-added goods and components, the expansion of manufacturing activity and rising income levels in developing economies such as China will also benefit EU-15 manufacturers' sales.

- Globalizing production and sourcing activities isn't easy or cheap. Yet the evidence of our survey suggests that too few manufacturers ensure their investment decisions are based on the fullest information or have the best risk management tools in place. The survey also suggests that European manufacturers could be missing out on the opportunity to access cheaper capital - respondents do not expect to switch away from bank loans towards equity over the next three years.

- The losers in this highly competitive environment will be companies that fail to move up the value chain. Their future looks increasingly bleak. Similarly, countries within the EU-15, such as Spain and Portugal, which have relied on large-scale investment by foreign companies to produce medium-technology goods and where the proportion of value-added in manufacturing output as a whole is currently relatively low, are particularly vulnerable. The best-placed European countries are those where production is most R&D-intensive such as Germany and the Scandinavian countries.

The EU-15 as a whole will retain key advantages as a manufacturing location, at least for the production of high-value, technology-intensive goods, and these advantages will, for the time being at least, continue to offset the pull of cheaper, especially distant, locations. Labor costs in emerging economies are low, but other costs are high as a result of corruption, bureaucracy, weak infrastructure and poor logistics. Indeed, in much of modern manufacturing wage costs are fairly marginal. Of far greater importance are design, engineering competence, training and skills levels, and in these areas the EU-15 as a whole will remain strong. The competitive challenges are clear, but fears of an accelerated hollowing out of Europe's industrial base look wide of the mark.

Part I: Game over for Europe's manufacturers?

The remarkable opening of the world economy over the past 25 years has changed the competitive landscape of the manufacturing industry. In the early post-war years manufacturing was entirely dominated by companies based in the OECD (Organization for Economic Co-operation and Development) economies, primarily in Europe, the United States and Japan. But now the traditional manufacturing, processing and finishing businesses upon which the wealth of the West was founded seem to be migrating wholesale to emerging economies, where costs are lower and regulation lighter. Does this mean it will soon be uncompetitive to manufacture in Europe?

There is little doubt that European manufacturers face intensifying competitive pressures and that more of them are actively considering relocating production. According to our survey results, two-thirds of respondents cited increasing competition as the factor that had had the most impact on their companies' profitability over the previous three years, well ahead of weak demand, which was cited by 54 percent. Moreover, one of the ways in which they intend to respond to these pressures is by reducing their dependence on the EU-15 as an industrial location. While 32 percent of companies say they have 75 percent or more of their manufacturing in the region today, just 19 percent expect that to be the case in three years' time.

Roughly what percentage of your company's production is currently carried out in the EU-15 versus what percentage of your company's production activity is likely to be carried out in three years' time.

	None	0-25%	25-50%	50-75%	75%+	Average, %
Currently	10%	21%	21%	16%	32%	48.3%
In three years' time	9%	25%	30%	17%	19%	42.0%

Source: Economist Intelligence Unit survey, August-September 2004

According to our survey results, China is expected to account for nearly 20 percent of all new manufacturing investment over the next three years; eastern Europe for 13 percent; and India along the rest of the Asia-Pacific for a further 10 percent. Moreover, when asked to cite the three countries that would absorb most new investment in manufacturing capacity over the next three years, a striking 56 percent of respondents cited China as one of the three. Looking at the EU-15 states individually reveals a strong similarity in terms of spending plans across countries.

Roughly what percentage of your company's investment in new manufacturing capacity will be allocated to the following regions or countries over the next three years?

	Latin America	North America	Euro-Zone	Rest of WE*	New EU States**	Rest of EE***	Africa/ Mid-East	China	India	Rest of Asia-Pacific
All countries	3.7	8.0	30.3	14.7	8.5	4.4	2.0	18.3	4.0	5.9
Germany	3.9	10.5	36.3	5.3	8.6	6.3	1.5	19.5	3.0	5.3
France	3.2	10.9	42.1	9.5	11.4	4.1	1.8	13.5	3.0	0.5
Italy	5.0	2.5	51.3	0.0	4.6	2.5	3.8	28.8	0	1.7
UK	0.9	4.6	14.1	48.5	8.5	2.0	1.2	13.4	2.2	4.7
Euro-area	3.7	7.6	41.1	4.7	8.3	5.6	2.5	20.0	2.6	3.9
EU-15	3.1	6.9	33.6	16.6	8.6	4.7	2.0	19.1	3.5	4.4

* UK, Sweden, Denmark, Norway. Switzerland
** Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, Slovenia
*** Balkans, Romania, Bulgaria, Turkey, Russia and ex-Soviet republics

Source: Economist Intelligence Unit survey, August-September 2004

Reducing labor costs was cited by 65 percent of the respondents as one of their three top objectives for relocating manufacturing capacity. Hourly wage costs are strikingly low in emerging economies like China and India, and even in middle-income economies such as Poland. For example, average hourly wage costs in Germany were US$30.5 in 2003, compared with US$3.1 in Poland and just US$0.8-US$0.9 in both China and India. Moreover, this gap in labor costs is set to persist over the medium term. Rationalizing manufacturing operations was the second most cited objective, given by 48 percent of respondents. Other oft-cited reasons were reducing distribution costs and accessing more flexible labor markets.

Is it game over for manufacturing in Europe? The short answer: no. Although wage costs are clearly an obstacle to performing lower value-added tasks in the EU-15, they only constitute a small proportion of total costs (particularly higher up the value chain). These total costs reflect a whole range of factors including levels of labor productivity, logistics, quality levels, social and physical infrastructure

Labor costs: A comparison of current and projected hourly wage costs (US$ per hour)

	2003	2004	2005	2006	2007	2008
Germany	30.5	33.8	36.7	37.7	36.6	36.7
US	22.1	22.9	23.5	24.2	24.9	25.7
Japan	20.5	21.8	22.1	22.7	23.2	23.7
UK	22.1	22.9	23.5	24.2	24.9	25.7
Poland	3.1	3.5	4.0	4.2	4.4	4.4
China	0.8	0.9	1.0	1.2	1.5	1.7
India	0.8	0.9	0.9	1.0	1.1	1.2

Source: Economist Intelligence Unit survey, August-September 2004

and the transparency of the regulatory environment. When asked to identify the biggest obstacles to relocating production out of the EU-15, 56 percent of companies gave quality levels as one of their three responses. Similarly, 73 percent of respondents answered that supplier quality standards are of great or critical importance in deciding where to locate production facilities.

"Our facilities in China are not there to build cheaply and export - they are there to service those markets."

Richard Sharp,
Company Economist, JCB

Our interviews suggest that the availability of skilled labor, high levels of productivity and the capacity to innovate, combined with very strong infrastructure, will continue to make manufacturing in Europe attractive. Tellingly, although competition from other locations is increasing, survey respondents still plan to allocate 45 percent of their investment in new manufacturing capacity over the next three years to western Europe.

Moreover, investment in emerging economies is very often being made with the aim of serving their booming markets rather than supplanting European production. This is especially so in the case of further-flung locations such as China. Lars Pettersson, CEO of Sandvik, voices a typical view. "We don't migrate based on cost," he says. "We migrate based on the market, the import duty regime and for customer reasons. Our facilities in China are not there to build cheaply and export - they are there to service those markets." This view is also echoed by Richard Sharp, company economist at JCB, the British construction equipment maker, who says, "Our expansion into China and India is driven by the need to be close to markets rather than to cut costs."

Even where the relocation of manufacturing activity is done with the aim of supplanting production facilities in the EU-15 - as is often the case where companies invest in eastern Europe - it is not necessarily bad news for the EU-15 as an industrial location. First, where it involves relocating production that can no longer be undertaken profitably in the EU-15, it is likely to help secure the competitiveness of a company, thus ensuring the future of some domestic production. Second, investment by companies in eastern Europe is not a zero-sum game. The EU-15 supplies a large majority of the capital goods to countries in the region and as the dominant trade partner stands to benefit disproportionately from their rising purchasing power. This is especially so in the case of Germany. In 2003, German exports to the Czech Republic, Hungary and Poland accounted for nearly 7 percent of total German exports, a similar proportion as exports to Italy. Although imports from the Czech Republic, Hungary and Poland are now rising faster than German exports to these countries, Germany still ran a trade surplus with the three economies in 2003.

"My feeling is that there is no cause for European manufacturers to panic. What they do have to do is understand that the low-cost competitors will become gradually more competitive at the higher end of the market in the coming years"

Arne Bilberg,
Head of Technology, Linak

"My feeling is that there is no cause for European manufacturers to panic," says Arne Bilberg, head of technology at Linak, a Danish electrical engineer. However, he adds, "What they do have to do is understand that the low-cost competitors will become gradually more competitive at the higher end of the market in the coming years." This places great importance on European companies continuously improving quality levels and increasing the proportion of value-added in their output. A key factor in their ability to do this will be their innovative capacity, a topic we return to in part III.

Part II: The case for Europe

The European companies surveyed and interviewed for this study consistently cited a number of common factors to explain their continued commitment to the EU-15 as a production location, particularly for higher-value products. In many cases, these locational strengths were seen as pivotal to their competitiveness and outweigh the pull of lower labor costs elsewhere. These include:

"There are still huge problems in achieving quality products in somewhere like China. It is even difficult to achieve consistency"

Lord Kumar Battarcharya,
Professor of Manufacturing,
University of Warwick

- **Quality. The most compelling reason to remain in Europe is quality levels.**

  According to our survey results, poor quality is the biggest obstacle to relocating manufacturing capacity outside Europe, cited by 56 percent of survey respondents, well ahead of logistics, which was cited by 47 percent. The quality of manufactured products from locations like China and India is widely overrated, according to many manufacturing specialists. "Quality is a problem and will be a problem," says Lord Kumar Battarcharya, professor of manufacturing at the University of Warwick in the U.K. "Even today, if you want to produce something relatively straightforward like seals, there are still huge problems in achieving quality products in somewhere like China. It is even difficult to achieve consistency." He adds, "The big problem is not so much that there are quality problems, but that you cannot get quality problems rectified efficiently where you have huge assembly systems to take advantage of low wage costs on a large scale."

  The issue of quality is usually at root an issue of cost, say companies. High quality is achievable just about anywhere in the world: there is nothing inherent in the environment in India or China that makes it unattainable. The question is at what cost, says Mr. Bilberg at Linak. "There is a steep learning curve when you move facilities into a new market like China," he says. "But even after you have climbed that learning curve you are still left with high logistics costs, and most likely a long lead time problem for your customers." All of these issues generate costs, which means that many products are simply not suitable for offshore manufacturing, says Mr. Bilberg. "At the moment high-tech products demand high-tech facilities, and those products are still best manufactured in Europe," he says.

"Every individual production line represents millions of dollars of investment, and the lines have to run at 90 percent capacity. That business is located in Germany because that is where we can get those results"

Tobias Becker,
Head of Strategy,
ABB Power Technology

  In such environments, many European companies say they are unlikely to risk siting very capital-intensive commitments and mission-critical processes in low-wage environments. ABB Power Technology's business in medium-voltage interrupters - the heart of a power switching system - is an example, says Tobias Becker, the company's head of strategy. "These products have to be created in a very capital-intensive clean-room environment," he explains. "Every individual production line represents millions of dollars of investment, and the lines have to be run at 90 percent capacity. That business is located in Germany because that is where we can get those results."

  He also argues that availability of a complex talent pool - not just one talent, but a set of interlocking competencies - will continue to dictate European production for many companies. "In some of our businesses-power conductors, for example - there is a needed talent pool in Europe that is just not available elsewhere."

- **Labor productivity. Average labor productivity is very high in the EU-15.**

  An old adage in the manufacturing business is "the lower the wage, the higher the cost". Although wage rates are very high in western Europe compared to emerging economies, the disparity in unit wage costs - which take into account output per worker - is much narrower. As the table below illustrates, labor productivity in the EU-15 is considerably higher than even the best-performing of the east European countries and massively greater than in China or India. In the case of medium-to-high value-added goods at least, manufacturers will not achieve comparable levels of labor productivity without huge investment in education and training, which is very expensive. Very high labor productivity is a function of a range of factors that cannot be easily replicated.

"Low average wage rates do not always translate into low wages paid by the migrating company."

Tobias Becker,
Head of Strategy,
ABB Power Technology

GDP per hour worked (US$)

India	1.1*
China	1.4*
Turkey	5.63
Poland	7.04
Slovakia	7.63
Czech Republic	11.45
Hungary	12.22
Spain	27.71
Italy	37.75
UK	39.10
USA	42.66
Germany	47.88
France	48.49

*Economist Intelligence Unit estimates

Source: Economist Intelligence Unit, September 2004

And as Mr. Becker points out, low average wage rates do not always translate into low wages paid by the migrating company. He says, "People who really can deal with a global company like ABB but are also local - those people are very expensive. Take a local brand manager in Shanghai who is completely comfortable with an ABB - that kind of employee probably costs one and a half times what the cost would be in the U.K."

Moreover, the ability of Europe to rise to the competitive challenge of low-cost wage environments has almost certainly been underestimated. There are signs that Europe's labor markets are becoming more flexible, answering one of the biggest criticisms of Europe as an industrial location highlighted in our survey. The increasing scope to shift manufacturing production out of Europe is intensifying pressure to adopt more flexible labor market arrangements. This is most obvious in Germany, where companies are using the threat of relocation to extract concessions from their workforces. Recent agreements between the unions and major industrial employers such as Siemens and Bosch to increase the length of the average working week and to adopt more flexible working arrangements were the direct result of these companies threatening to move production out of Germany.

"The biggest challenge is to stay close to the customer, and meet customer demands as fast as possible"

Arne Bilberg,
Head of Technology, Linak

"We can work with the customer wherever he wants. We can do the design on his desk if that's what he wants. But then you can choose to realize that design in Sweden, or in Germany, or in China"

Lars Pettersson,
CEO of Sandvik

"In order to sell products into developing markets, companies often have to commit to manufacture locally and to technology transfer"

Gregoire Poux-Guillame,
Director of Hydro Plants and Services, Alstom

- **Proximity to customers. A strong incentive to maintain manufacturing and other activities in Europe is the need to remain close to customers.**

Many companies require manufacturing suppliers to provide constant development of products, rapid alterations in delivery rates, just-in-time production and delivery, and a convincing collaborative presence. All of this can be hard to fulfill at a distance. "The biggest challenge is to stay close to the customer, and meet customer demands as fast as possible," says Mr. Bilberg of Linak.

Staying close to the customer has become a corporate mantra. But the interpretation of "close" can vary considerably, depending on the nature of a company's business. One example of a company that believes in remaining close to the customer at the actual point of distribution is Denso Marston, the U.K. arm of the Japanese power systems and automotive components maker Denso. Denso Marston is typical of companies with very large volumes of repeat orders, where precise control of distribution to large customers is critical. "We deliver to Toyota in the U.K. 16 times a day," says the company's head of manufacturing, Andrew Appleyard. "In this business the shorter the distance, the lower the cost."

But other companies consider that "close to the customer" matters more at the product design stage than it does at the manufacturing stage. This is a relatively recent development: according Mr. Pettersson of Sandvik, design and manufacturing have become delinked, thanks to the introduction of computer-aided design, and this has changed the way manufacturers organize to deliver customer service. He points out that traditional drawn designs rarely specified a product exactly. "That's why in the past you had to have the design office very close to the manufacturing plant," he says. Today, computer-modeled designs specify products fully. "This has allowed us to be much more flexible in manufacturing organization," says Mr. Pettersson. "We can work with the customer wherever he wants. We can do the design on his desk if that's what he wants. But then you can choose to realize that design in Sweden, or in Germany, or in China."

Of course, the need to be close to the customer can also work against the EU-15 as a manufacturing location. As European companies generate an increasing proportion of their sales outside of Europe, the rationale for retaining their primary manufacturing focus in the EU-15 becomes less compelling. Gregoire Poux-Guillame, Director of Hydro Plants and Services at the French engineering company, Alstom, says that in order to sell products into developing markets, companies often have to commit to manufacture locally and to technology transfer. "Take the hydro-generation business. Fifteen years ago this was a European business, in terms of our industrial base. Today, the big markets are all in Latin America and Asia. Our manufacturing has shifted accordingly - we now have facilities in Brazil and China," Mr. Poux-Guillame explains.

Emerging economies are cheap on some measures, but are often more expensive once all the risks are factored in.

"Europe is still a lower-risk environment for businesses with a very heavy capital commitment"

Tobias Becker,
Head of Strategy, ABB Power Technology

- **Risks. Companies considering the issue of potential migration of production out of Europe frequently express reservations about the risks.**

  Emerging economies are cheap on some measures, but are often more expensive once all the risks are factored in: bureaucracies are generally corrupt and macroeconomic and political risks high. Political stability was rated by 63 percent of survey respondents as being of great or critical importance in deciding whether to relocate. By contrast, less regulation was cited by just 24 percent.

  "Look at all the hassle you have in setting up in China, or in India," says Lord Battarcharya. "Look at the levels of corruption. Look at how difficult it is to do any kind of infrastructure development." Mr. Pettersson of Sandvik also agrees that one of the critical issues in manufacturing is political uncertainty. A stable financial environment and physical security are still critically important to companies that use high-value production assets. "Europe is still a lower-risk environment for businesses with a very heavy capital commitment," says Mr. Becker of ABB. Mr. Bilberg of Linak, which currently manufactures in Denmark and the US, warns that when considering using low-cost locations, "you always have to look at the total cost of such a set-up".

Part III: The long-term challenges

"Low-cost makers will always reproduce products that have been in the market for years. What European manufacturers like Linak have to do is work constantly to be 'next generation'"

Arne Bilberg,
Head of Technology at Linak

Our research suggests that the future of European manufacturing is nowhere near as bleak as is often feared. In light of the strong concerns expressed by companies - both through the survey and in the interviews - over low quality levels and risks in nominally low-cost locations, relocation of production and sourcing will, for the time being at least, focus on low-to-medium technology goods rather than the high-value ones in which European manufacturers enjoy their comparative advantage. As Mr. Bilberg of Linak says, "Low-cost makers will always reproduce products that have been in the market for years. What European manufacturers like Linak have to do is work constantly to be "next generation".

However, the challenge to stay "next generation" will intensify as the quality of products from low-cost locations improves. Indeed, judging when the quality/cost equation turns favorable will be vital in designing successful global manufacturing strategies. Lord Battarcharya of Warwick University estimates that "precision manufacturing may start to emerge in China within fifteen years, perhaps ten". European companies will thus have to steadily increase their level of innovation and fully exploit opportunities to minimize risk and maximize efficiencies if they are to meet the competitive challenge posed by the further development of low-cost, industrial locations.

One of the key medium-to long-term challenges facing European Manufacturers is the need to raise spending on R&D.

One of the key medium-to-long term challenges facing European manufacturers is thus the need to raise spending on R&D. The EU-15 economy as a whole is much less R&D intensive than that of Japan or the US. Indeed, only two members of the EU-15 - Sweden and Finland - devote a higher proportion of GDP to R&D than the US or Japan.

German spending - at 2.5 percent of GDP - is broadly in line with the US, and its strength in capital goods, and technology-intensive goods more generally, means that its manufacturing base is probably less exposed to competitive pressures than most other EU-15 countries. The situation elsewhere in the EU-15, however, looks much less favorable. In Spain and Italy, for example, R&D expenditure was equivalent to just 1 percent and 1.1 percent of GDP respectively in 2002. Although there are no separate data for R&D spending by the EU-15 manufacturing sector as a whole, the OECD does produce data for a range of individual industrial sectors, such as the instruments and electronics industries. These reveal that R&D spending by European manufacturing is lagging well behind that of the US and Japan.

R&D spending by European manufacturing is lagging well behind that of the US and Japan.

Total R&D expenditure as a % of GDP

	2002
Austria*	1.9
Belgium**	2.2
Denmark	2.5
Finland	3.5
France	2.2
Germany*	2.5
Greece**	0.7
Ireland**	1.2
Italy**	1.1
Netherlands**	1.9
Portugal	0.9
Spain	1.0
Sweden**	4.3
UK	1.9
US*	2.6
Japan	3.1

* 2003

** 2001

Source: OECD, Main Science and Technology Indicators, July 2004

Without a greater commitment, it will be hard for European manufacturers to insulate themselves from competitive pressures by moving up the value chain.

Without a greater commitment to innovation, it will be hard for European manufacturers to insulate themselves from competitive pressures by moving up the value chain. In this context, perhaps the most worrying aspect of our survey is that the respondents as a whole expect to reduce the proportion of their R&D carried out in the EU-15 over the next three years. If this reflects increased spending on tailoring products to local markets, it is not necessarily a cause for concern. Similarly, it could also be a product of the nascent globalization of R&D spending and will be matched by an increase in foreign R&D spending in the EU-15. The concern has to be, however, that it reflects an increasing readiness to locate higher-value-added activity in cheap locations. Indeed, in the long term the case for doing more R&D abroad will surely strengthen as the importance of the EU-15 as a source of sales declines and companies move more of their manufacturing capacity closer to growth markets.

Roughly what percentage of your company's R&D activity is currently carried out in the EU-15 versus what percentage of your company's R&D activity is likely to be carried out in three years' time.

	None	0-25%	25-50%	50-75%	75%+	Average, %
Currently	10%	17%	14%	15%	44%	55.1%
In three years' time	12%	19%	16%	21%	31%	49.1%

Source: Economist Intelligence Unit survey, August-September 2004

"You need a dynamic environment to drive innovation ....but it is also difficult to keep the dynamic in an environment where economies are growing only very slowly. We need to go to places where people are interested in investing in those businesses"

Tobias Becker,
Head of Strategy, ABB Power Technology

The R&D activities of many heavy manufacturers are often very capital-intensive, and hence costly and disruptive to relocate. Says Mr. Poux-Guillaume of Alstom, "When you consider where to locate R&D, you have to remember that we are not a company like Microsoft: development cannot always travel over IT networks." He points out that creating complex products like gas turbines requires extensive trials in testbeds. "Most players in this business will have just one testbed, which in Alstom's case is in Grenoble." However, with Europe accounting for a diminishing share of sales, core product development need not remain in Europe indefinitely. "One of these days, maybe soon, you will see these development facilities appearing in Asia or Latin America," says Mr. Poux-Guillaume.

Mr. Becker of ABB argues that you need a "dynamic environment to drive innovation". He says, on the one hand, that it may be difficult to drive innovation in a country with low investment in process automation, as is the case in most low-cost emerging economies. But, on the other, it is also "difficult to keep the dynamic" in an environment where economies are growing only very slowly. "We need to go to places where people are interested in investing in those businesses." says Mr. Becker.

Companies often have to commit to technology transfer in order to sell products into developing markets and this entails obvious risks. According to Mr. Poux-Guillaume, China has already built up some very significant producers that exploit his company's licensed technology. "Some time soon these manufacturers will not need to buy the next generation of products from us. And they will not only be satisfied with producing for China, but will be looking to export to the rest of the world," he argues. Trends such as these place a huge onus on European companies maintaining their technological lead.

Our research reveals further challenges for European manufacturers besides strengthening innovative capacity. One strategy to reduce costs, for example, would be to exploit potentially cheaper sources of finance, such as raising capital on the equity markets. However, our survey reveals that European companies are in no hurry to reduce their dependence on relatively expensive long-term bank loans as their principal source of finance. Indeed, the proportion of respondents - 59 percent of the total - that expect to rely principally on long-term bank loans over the next three years is unchanged compared to the current period. There is a very modest rise in the proportion of respondents citing equity financing - up from 26 percent to 28 percent - and private equity and venture capital - from 24 percent to 27 percent - but nothing that indicates a major shift in thinking. Although there are notable exceptions, such as the U.K. and the Netherlands, equity financing and private equity financing remains underdeveloped in the EU-15 compared to the U.S. Although the late 1990s saw considerable change in this area, the subsequent falls in share values, symbolized by the implosion of Germany's Neuer Markt, which was once Europe's biggest stock exchange for small and medium-sized companies, has reinforced the reluctance of many firms to raise capital on the equity markets.

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Indeed, German companies actually intend to reduce their dependence on equity financing over the next three years, with the number of German respondents citing equity as one of their expected sources of capital falling to 20 percent,

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Jane Crawford,
Managing Director, 3i Germany

down from 31 percent at present. In the face of the deteriorating availability of long-term bank capital in Germany - a product of the ongoing restructuring of the German banking sector and the implementation of Basel II 2006 - this could be costly. German banks are already taking a more risk-averse approach to corporate lending and from 2006, when Basel II comes into force, the cost of bank-based credit is expected to rise further. Capital adequacy ratios will have to more closely reflect company-specific risk, with the result that the banks will be required to set aside more capital to cover riskier loans. For Germany's often poorly capitalized manufacturers, which have relied heavily on bank credit, the implications are likely to be far-reaching. Without a greater reliance on equity financing, and the improved corporate transparency this implies, it could be hard for companies to attract capital. This, in turn, threatens to hold back their growth. According to Jane Crawford, Managing Director of the venture-capital and private-equity firm, 3i Germany, "Many German companies would rather not grow than take on equity, as they are nervous of having to become more transparent and fear the loss of control." She adds that although things are changing, the process is slow and "many weaker companies could come to the market too late".

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Richard Sharman,
Partner, KPMG LLP (UK)

As their supply chains becoming increasingly global, European manufacturers also face a broadening range of risks, from financial and currency risk through to regulatory risk. This requires more sophisticated procedures to manage risk and assess investment decisions. Risk has traditionally been handled informally, with the reward end of the risk-reward equation receiving far more rigorous analysis. This was sufficient when the risks faced were largely internal to the company, as was the case when companies concentrated their production in Europe. However, as their supply chains and production networks are becoming increasingly internationalized, they are being confronted with quite different risk profiles. According to Richard Sharman, a partner at KPMG LLP (UK) in London, the primary risks facing European manufacturers five years ago were health and safety legislation, product liability, and the protection of physical assets. He says, "They still face these, but also have to address a further set of risks associated with corruption and bureaucracy, product quality, regulatory factors as well as poor communication and logistics. In addition, they need to weigh the impact on intangibles, such as a company's reputation, of moving production to lower-cost locations."

At present over half of the companies surveyed rely on in-house models to assess investment decisions, and 15 percent employ no assessment model at all.

As the majority of these new risks are social and political in origin, and as such are external to the company, in-house solutions, relying on the analysis of financial ratios, give an incomplete picture of the risks facing companies. Companies increasingly need to employ external advice to construct risk profiles and to provide an integrated set of methods and techniques that managers can apply to their investment decisions. However, at present over half of the companies surveyed rely on in-house models to assess investment decisions, and 15 percent employ no assessment model at all. Just 15 percent employ the services of a strategy consultant, and these are almost exclusively companies with a turnover in excess of €1bn. Although 42 percent of companies already use an integrated risk management information system and 42 percent employ early warning indicators to manage risk, few companies with a turnover of less than €1bn do so, despite the fact that they are increasingly exposed to a similar range of risks as the larger manufacturers.

The game continues

As the competitive pressures facing European companies intensify, more and more European companies will elect to expand their manufacturing capacity in low-cost locations, both to reduce their costs and to be close to fast-growing markets such as China and India. As a result, the proportion of their production that is carried out in the EU-15 is set to decline.

Fears that all manufacturing in the EU-15 will soon be uncompetitive are overblown, however. The EU-15 retains some key competitive advantages, which, in the medium term at least, will continue to make it an attractive location for the manufacture of medium and high-tech goods. For many companies, the combination of high labor productivity and quality levels, good logistics, strong social and physical infrastructure and a transparent regulatory environment will continue to offset very high wages, and deter them from relocating production.

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Equally, there is no cause for complacency. Over the longer term, quality levels and labor productivity will rise in the emerging markets, eroding the comparative advantage of European producers. European manufacturers are well placed to profit from the growth of industrial capacity and in income levels in emerging economies but only so long as they can retain the higher ground of value and innovation.

Conclusions

Senior executives are under constant pressure to increase efficiency and deliver increased share holder value while having to cope with challenges such as global competition, new technology and constantly changing regulation.

Through a global network of professionals focused on serving manufacturing companies, KPMG member firms provide industry specific strategies and support to clients. We help them to respond positively and effectively to their issues, to help them stay ahead of the competition and achieve market leading results. Headed by dedicated and experienced professionals, each service directly addresses the issues and challenges that organizations face.

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