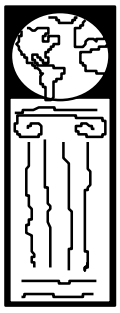
Reaching higher productivity growth in France and Germany

Synthesis



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October 2002

This document is an excerpt drawn from the report "Reaching higher productivity growth in France and Germany", published by the McKinsey Global Institute in October 2002.

The full report can be obtained from:

McKinsey Global Institute website:
http://www.mckinsey.com/knowledge/mgi/

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FOREWORD

For fifty years following the end of the Second World War, France and Germany continually narrowed the labor productivity gap with the US. In the mid-1990s, however, the trend reversed: France and Germany are no longer catching up. Weakening productivity performance should worry us given the current and projected demographic challenges: future living standards depend on high productivity growth. To develop effective solutions for dealing with these challenges, policy makers and business leaders in France and Germany need to base their decisions on a complete and nuanced understanding of the barriers to and drivers of higher productivity growth.

To contribute to such an understanding and derive actionable recommendations, the McKinsey Global Institute (MGI) performed an extensive in-depth analysis of the labor productivity performance of six sectors in France, Germany, and the US. The full report consists of an executive summary, seven chapters and an appendix. The first chapter, the Synthesis, provides an overview of our approach and conclusions, and can be read as a stand-alone summary of our work. The remaining chapters provide our case studies on Telecommunications, Retail banking, Automotive, Road freight, Retail trade and Utilities. Each of these cases has a brief summary in the beginning.

The MGI – McKinsey & Company's economic think tank – combines the firm’s business experience with the rigor of academic thinking. This document reflects active dialogue between industry experts, experts from premier research institutions, and our own specialists, who work closely with executives of leading French and German businesses. This project was conducted under the direction of Heino Faßbender, Diana Farrell, Eric Labaye, and Vincent Palmade. Thomas Kneip and Stephan Kriesel were responsible for the management of the project. We are very grateful to the companies and individuals who supported our research by agreeing to provide data about their operations through interviews and surveys.

In addition, our work benefited tremendously from in-depth discussions with the academic board: Olivier Blanchard from the Massachusetts Institute of Technology in Boston, Martin Baily from the Institute for International Economics in Washington DC, Hans Gersbach from the University of Heidelberg, Monika Schnitzer from the University of Munich, Jean Tirole from the University of Toulouse, and Robert M. Solow, Nobel laureate and the "godfather" of growth discussions – all of whom contributed significantly to interpreting the results of our research. McKinsey & Company has the privilege of serving many of the leading companies in France and Germany. Through this work, we have observed the huge potential that can be tapped in order to boost productivity performance. We hope that our report will help policy makers and business leaders unlock this potential by providing them with an objective and fact-based perspective.

Before concluding, we would like to emphasize that this work is independent and has not been commissioned or sponsored in any way by any business, government, or other institution.

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October 2002

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With more than 6,500 consultants deployed from 82 offices in 44 countries, McKinsey advises leading companies on strategic, operational, organizational, and technological issues. We work for the largest and most prestigious companies in each market we serve. In addition, we advise a diverse group of governments, public sector institutions, and nonprofit organizations on management and policy challenges. McKinsey has had a permanent office in both France and Germany since 1964, where we have served many of the top blue-chip companies in the areas of financial services, telecommunications, high tech, automotive, basic materials, and consumer goods.

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The McKinsey Global Institute (MGI) is the internal economic research think tank of McKinsey & Company. Founded in 1990 and based in Washington, DC, its mission is to offer insights into global economic issues of relevance to our clients and international leaders, and to research the key barriers to faster growth in the world economy.

The MGI's methodology is a combination of two distinct disciplines: economics and management. Both of these disciplines are concerned with economic growth, but neither is positioned to understand it fully. Economists have scant access to the real-life problems facing business managers, while managers often lack the time and incentive to look beyond their own situation to the larger issues of productivity in their industry or the economy as a whole. McKinsey's economic research remedies this situation by combining the academic rigor and breadth of economics with the deep and practical industry knowledge and management understanding we use in our daily work with clients. The MGI's research is founded on a unique collection of facts and microeconomic analyses that is beyond the reach of most academic and government-sponsored research. Our teams have conducted in-depth analyses of fourteen countries covering all continents, ranging from the most advanced economies (e.g., the US, Japan, the UK, the Netherlands, France, and Germany) to the developing ones (e.g., India, Russia, and Brazil). In each country, a representative sample of economic sectors has been studied covering a broad spectrum of products and services. The result is a unique perspective on productivity and its contribution to economic growth.

ACKNOWLEDGEMENTS

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The destination: Stronger productivity performance in France and Germany

After fifty years of reducing the labor productivity gap with the US, France and Germany are no longer catching up. This should worry us given the current demographic challenges, as future living standards depend on high productivity growth. In order to take appropriate action, policy makers and business leaders in France and Germany need to fully understand the barriers to and drivers of productivity growth.

As productivity is shaped in companies and sectors – not at the aggregate level – we analyzed the labor productivity performance of six sectors that can provide valuable insights into productivity performance differences and improvement potential in France, Germany, and the US.

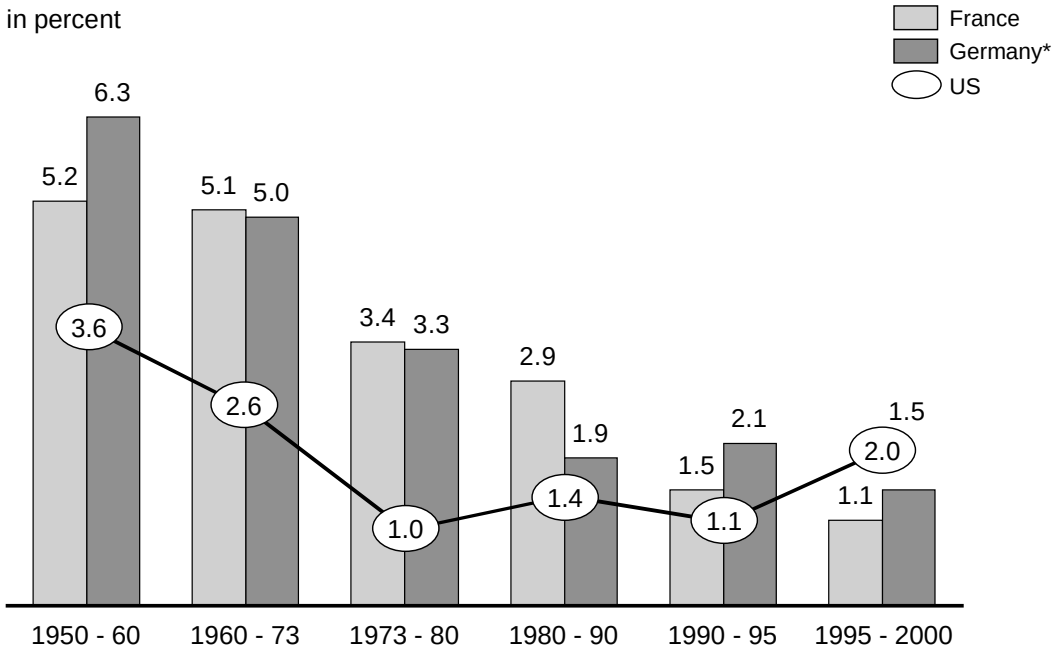
FRANCE AND GERMANY ARE NO LONGER CATCHING UP IN THEIR PRODUCTIVITY GROWTH

For some fifty years, until the mid-1990s, France and Germany were steadily narrowing the labor productivity gap with the US. From the mid-1990s onwards this situation reversed, US productivity grew at a faster rate than in France and Germany, and the gap started to widen again (Exhibits 1 and 2). In 2000, the labor productivity gap, as compared with the US, is estimated to have been 5 percent in France and 15 percent in Germany (see Box 1).

Exhibit 1

COMPARISON OF LABOR PRODUCTIVITY GROWTH RATES, 1950 - 2000

CAGR in percent



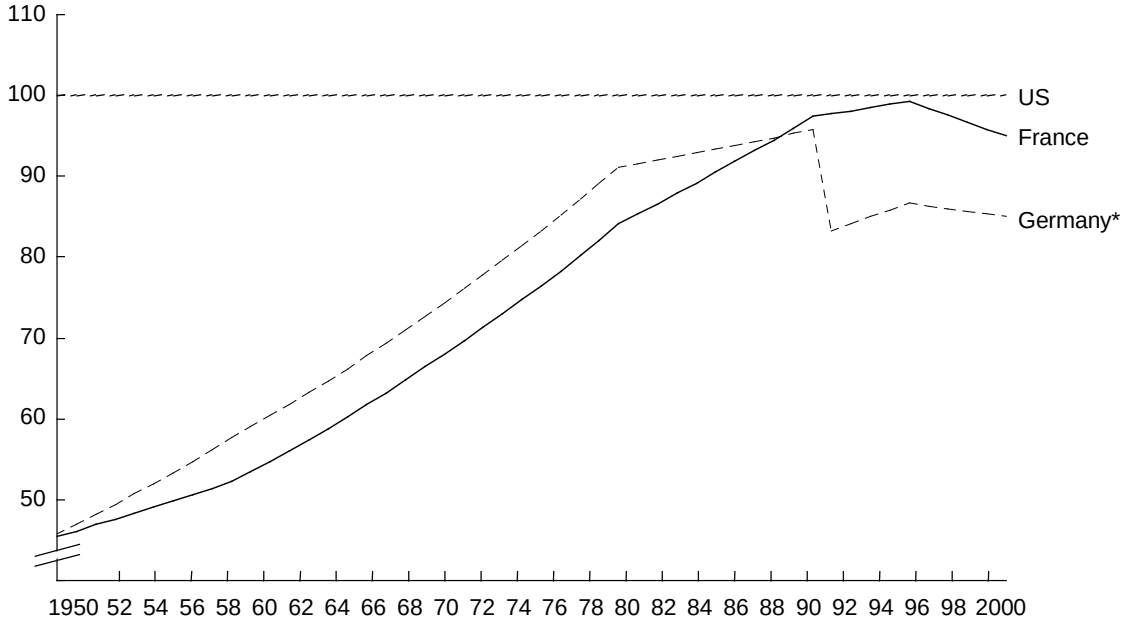
* Until 1989 only West Germany; the year 1990 was omitted due to variances attributable to reunification

Source: Groningen University and The Conference Board: GGDC total economy database, 2002

Exhibit 2

BUSINESS SECTOR PRODUCTIVITY, 1950 - 2000

Indexed to US



* West Germany until 1989 and total Germany thereafter

Source: Groningen University and The Conference Board: GGDC Total Economy Database, 2002, http://www.eco.rug.nl/ggdc, OECD, BLS, INSEE, MGI analysis

Box 1: Determining comparable labor productivity levels

When comparing labor productivity levels simply measured as total output of the economy – i.e., GDP[1] – divided by the total hours worked in 2000, France appears to be 4 percent more productive than the US, and Germany trails the US by 6 percent. These non-adjusted figures have important shortcomings, however, and mask the real extent of the productivity problem in France and Germany:

1) Output[2] created by the public sector is extremely difficult – if not impossible – to measure. As we are primarily interested in the business sector of the economy, and want to avoid errors resulting from differences in the output measurement of the public sector, we have excluded public administration, education, and health from our productivity measure. This reduces labor productivity in France and Germany by 2 percentage points relative to the US.

2) High reservation wages in the two European countries exclude low-productivity workers from the active workforce. In the US, more than 10 percent of the active workforce is paid less than French and German[3] minimum remuneration. Adjusting for this reduces average productivity in France and Germany by approximately seven percentage points compared with the US.

The productivity gap in 2000 compared with US levels is therefore estimated to have been 5 percent in France and 15 percent in Germany (Exhibit 3). Other research supports these estimates, both at the aggregate and at the sector level.[4]

---

1 Purchasing Power Parity adjusted.

2 The (net) output of a sector is defined as the goods and services produced (e.g., cars), less intermediate inputs (e.g., raw materials, rent, etc.).

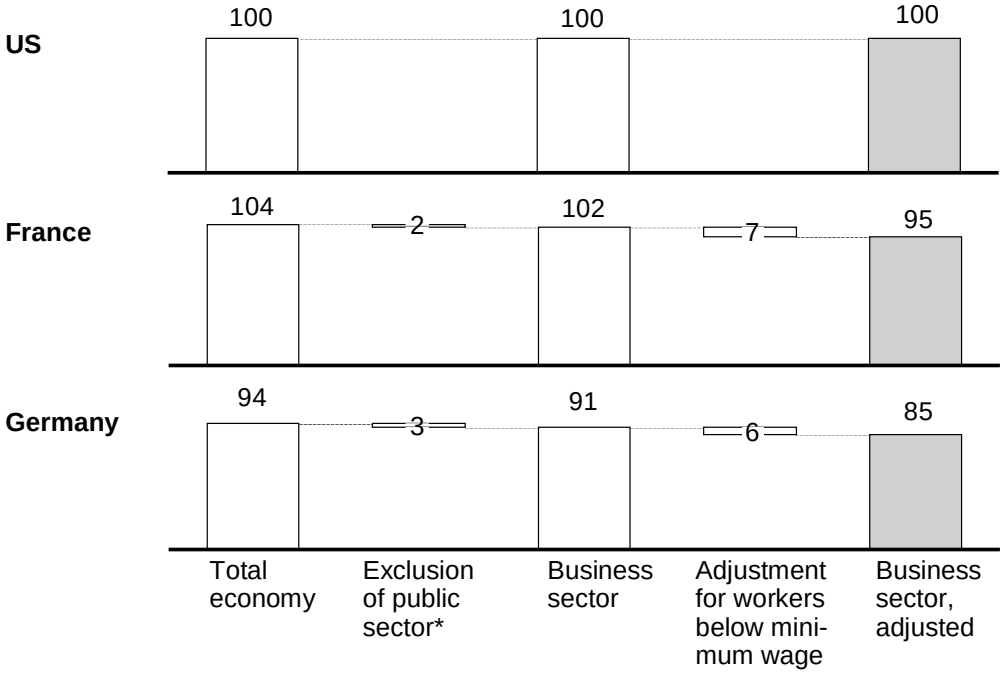
3 Although there is no single minimum wage in Germany, the combined effect of wage floors set in collective bargaining and social benefits for the long-term unemployed results in a comparable minimum employment cost.

4 Recent work by the IW Köln shows that productivity in manufacturing in the US was 6 percent ahead of West Germany and 11 percent higher than in France. In a sector-specific analysis, the OECD showed that in the mid-1990s, productivity was higher in the US than in France and Germany in 16 out of 19 business sectors. Most sectors analyzed in the course of this and other previous MGI studies also showed lower productivity levels in France and Germany than in the US.

Exhibit 3

LABOR PRODUCTIVITY ADJUSTMENTS, 2000

GDP per hour worked, Index 100 = US level



* Public administration, defense, compulsory social security, education, health, social services

Source: OECD, Groningen Database, BEA, BLS, INSEE, StBA, MGI analysis

France and Germany do not compensate for this gap through higher capital productivity. In fact, both countries employ more capital per unit of output than the US does.

FUTURE LIVING STANDARDS IN FRANCE AND GERMANY DEPEND ON HIGH LABOR PRODUCTIVITY GROWTH – ACTION NEEDED

The current situation should be of major concern to business people, economists, and politicians alike, for the growing prosperity and improved living standards seen in France and Germany over the past fifty years have been largely dependent on the continued improvement in productivity.

A widening labor productivity gap with the US will, however, aggravate the income gap that already exists (see Box 2). GDP per capita is currently approximately 30 percent lower in France and Germany than in the US. This is the combined result of lower labor productivity and lower labor input. In the two European countries, a smaller percentage of the population is in work, and those who do work also work fewer hours. As a result, they currently produce 30 percent less goods and services. This also means that, on average, each individual in

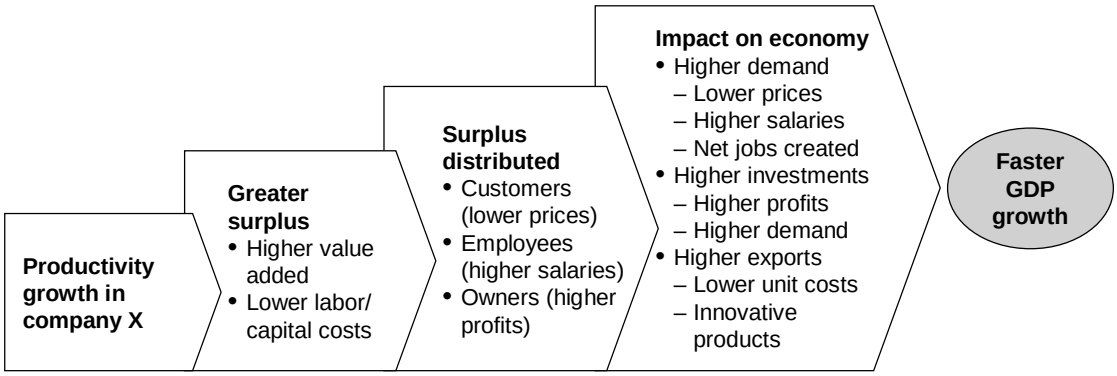
France and Germany earns less and has less income available to spend and save than a counterpart in the US.

Box 2: Labor productivity – the source of sustainable economic growth

Sustainable economic growth is not possible without increasing productivity. This is because GDP per capita is a product of two factors: employment (the percentage of the working-age population actively engaged in economic activities and its average working time) and labor productivity (the output produced per unit of labor). Employment levels differ across countries and through time, but the potential to increase employment levels is naturally limited and will lead only to a one-time shift in GDP. For GDP per capita to grow in a sustainable manner, therefore, productivity must increase. When a company increases its productivity, it can pay workers higher salaries, retain higher profits, and/or reduce prices. This surplus will be channeled back into the economy through increased consumer spending, through higher exports, and/or through more business investment. It will thus increase GDP (Exhibit 4).

Exhibit 4

RELATIONSHIP BETWEEN PRODUCTIVITY AND ECONOMIC GROWTH



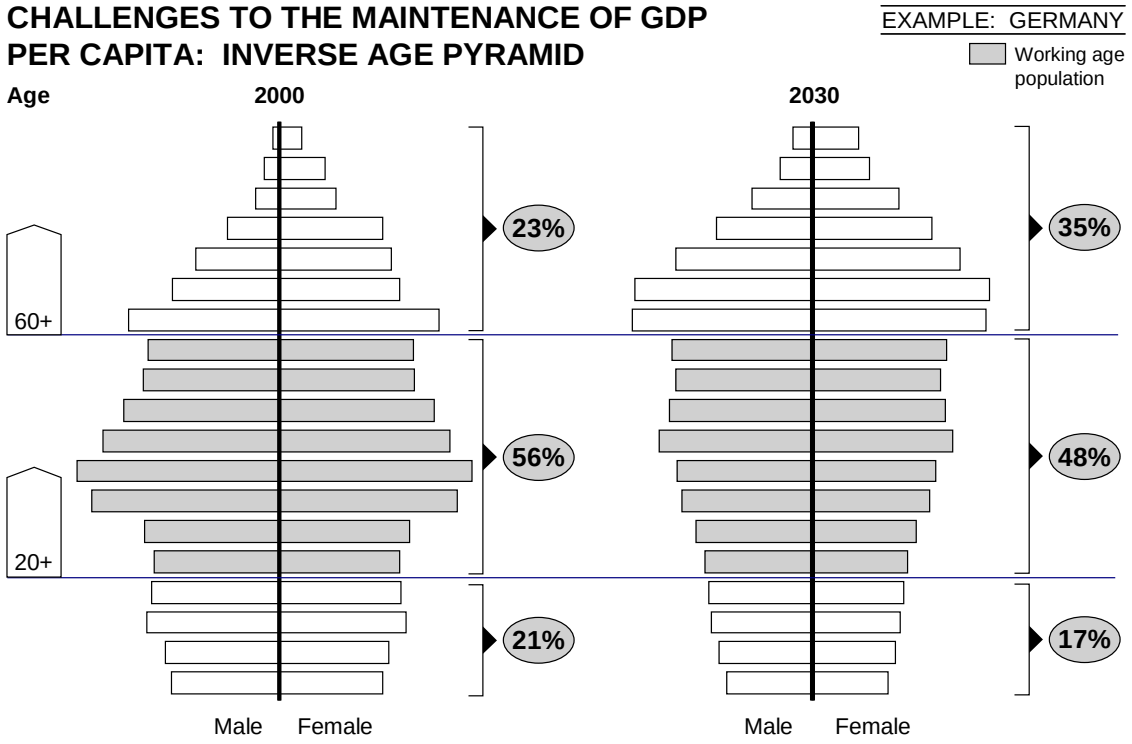
Source: MGI analysis

Higher labor productivity not only directly increases national welfare, it also improves the competitiveness of firms and national economies, creates the financial platform for social spending, and is – in the long run – the only sustainable engine of job creation.

Given the current demographic structure and forseeable development in France and Germany, an increase in labor productivity will be required merely to maintain the current standard of living. In the absence of significantly higher levels of immigration, an aging population will lead to a considerably smaller share of the population working (and thereby contributing to the domestic product). While today there are 2.3 people of working age for every pensioner in the population in Germany, by 2030 this ratio will have fallen by more than a third, to 1.4 (Exhibit 5). This means that people will either have to work longer (more years or more hours per year), or produce more within a given time to sustain, let alone improve, current living standards for the entire population.

Exhibit 5

CHALLENGES TO THE MAINTENANCE OF GDP PER CAPITA: INVERSE AGE PYRAMID



Source: Statistisches Bundesamt

This is just one reason that highlights the need for action to speed up productivity growth in France and Germany.[5]

[5] Maintaining international competitiveness at high wage levels (and growth rates) is an additional reason why high productivity growth rates are needed.

DRIVERS OF AND BARRIERS TO PRODUCTIVITY GROWTH RATES ARE NOT SUFFICIENTLY UNDERSTOOD

A wider understanding of the drivers of productivity is therefore critical to enable France and Germany to accelerate their productivity growth rates. Some of these drivers are obvious, others less so. One of the drivers focused on in public debate is the lower level of involvement of France and Germany in the production and use of IT. This is often considered to be the main cause of lower productivity growth rates in France and Germany.

There is indeed some truth to the assertion that productivity growth in France and Germany did not benefit as much from the IT manufacturing sectors as the US did. A recent study shows that the IT manufacturing sectors[6] directly accounted for 0.3 percentage points of the total US productivity growth in the early 1990s and 0.5 percentage points in the late 1990s.[7] By contrast, France and Germany's overall productivity growth rates directly benefited from their respective IT manufacturing sectors by approximately only 0.2 percentage points throughout the decade. IT manufacturing accounts for 1.3 percent of total GDP in France and 1.5 percent in Germany, compared with 2.3 percent in the US (Exhibit 6). The impact of the high productivity growth in the IT manufacturing sectors was therefore smaller in France and Germany. However, this effect explains only approximately one-third of the difference in productivity growth between France and Germany and that of the US since the mid-1990s.

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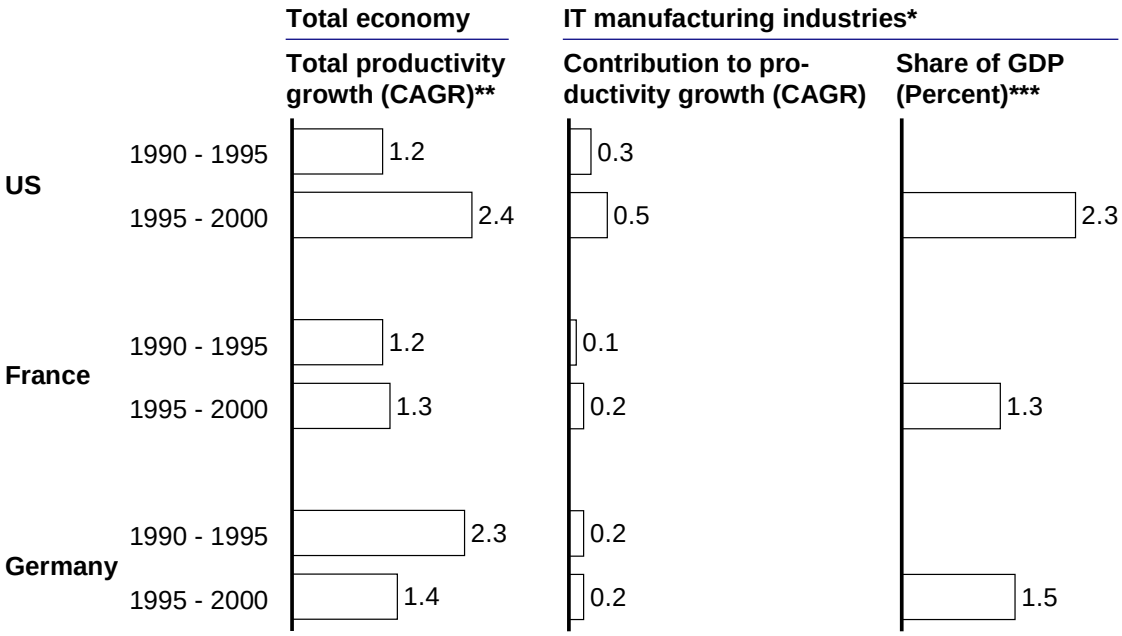
6 In the study quoted, IT manufacturing industries are defined as office, accounting, and computing machinery; insulated wire and cable; radio, television, and communication equipment; medical appl. and appl. for measurement, etc.

7 Van Ark, Bart; Inklaar, Robert; McGuckin, Robert H.: "Changing Gear: Productivity, ICT and Service Industries: Europe and the United States"; 2002.

Exhibit 6

CONTRIBUTION TO GROWTH BY IT MANUFACTURING INDUSTRIES



* IT manufacturing industries defined as office, accounting, and computing machinery; insulated wire and cable; radio, television, and communication equipment; medical appl. and appl. for measurement, etc.
** Numbers are different from exhibit 1 as they are based on persons employed in production, not hours worked; in addition some adjustments were made by the authors of the analysis cited to ensure comparable accounting of IT
*** 1999 for France and Germany; 2000 for the US
Source: Van Ark, Bart; Inklaar, Robert; McGuckin, Robert H.: "Changing Gear: Productivity, ICT and Service Industries: Europe and the United States"; 2002.

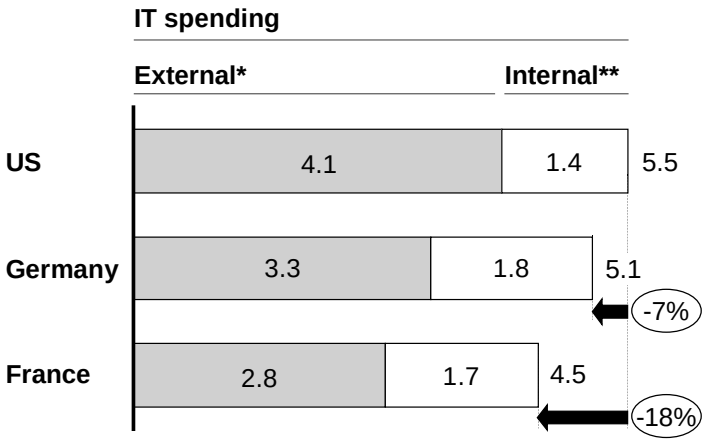
The remaining two-thirds of the productivity growth gap is often explained by the lower IT spending of French and German companies (Exhibit 7). However, this explanation is neither complete nor entirely convincing. First, it does not explain why France and Germany are spending less on IT. Second, a recent MGI study showed that simply spending more on IT does not automatically lead to higher productivity growth.[8] IT investments were often necessary to improve productivity in several sectors, but mostly required corresponding business process changes, as demonstrated in the case of retail and wholesale*:* IT investments needed to be combined with innovative supply chain management, modern formats, and advanced merchandise management in order to have a significant impact. In some sectors, IT investments yielded disappointing returns when they were made too early, or were too extensive, as happened in the retail banking industry and with many CRM investments that are not used to their full potential.[9] Overall, as we will outline below, our analysis supports these findings.

8 See: McKinsey Global Institute: "Productivity Growth 1995-2000, Understanding the Contribution of Information Technology Relative to other Factors"; McKinsey Global Institute; Washington, DC; October 2001.

9 While this is true for the sector level, these IT investments may have paid off for some companies individually by enabling them to improve their market position against competitors.

Exhibit 7

IT SPENDING IN FRANCE, GERMANY, AND THE US, 2000
Percent of GDP



* Spending on in-house IT staff and related expenditure (e.g., facilities)
** Spending on IT hardware, software, and IT services (e.g., consulting)
Source: PAC, OECD, MGI Analysis

SECTOR-LEVEL ANALYSIS IS NECESSARY TO DERIVE INFORMED ACTION

Productivity is shaped in companies and sectors, not at an aggregate level. MGI research covering 15 countries and over 28 industries has confirmed that the real drivers of and barriers to productivity growth are to be found at the sector level. They can be fully understood only by analyzing the whole range of potential factors and their interconnections. Our current study of productivity growth in France and Germany in the 1990s[10] covers six sectors*:* Telecommunications, Retail banking, Automotive, Road freight, Retail trade, and Utilities.[11] These six sectors were chosen for specific reasons. They are not assumed to be representative of the entire economy of France or Germany. Rather, we chose to examine them because of their unique characteristics and the insight that this could provide into understanding the drivers of productivity in these two countries. The sectors were selected because they displayed the following characteristics:

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[10] Post-1992 data series are used to avoid issues related to the German reunification. In some sectors, a shorter time series had to be used due to limited data availability.

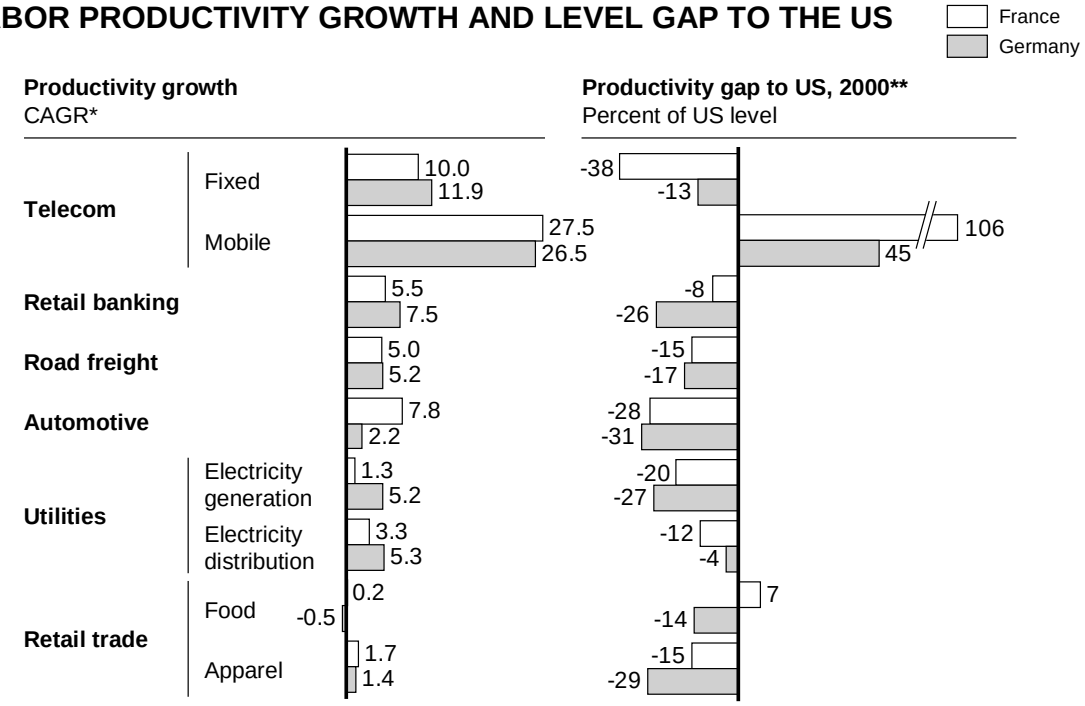
[11] We intentionally did not include the IT manufacturing sectors as their direct impact on productivity growth has already been studied in detail (e.g., Van Ark, Bart; Inklaar, Robert; McGuckin, Robert H.: "Changing Gear: Productivity, ICT and Service Industries: Europe and the United States"; 2002).

- ¶ High productivity growth in at least one of the three countries
- ¶ Differences in sector performance between the countries
- ¶ Potential relevance of IT to the productivity improvement.

Most of the sectors studied showed significant productivity growth in the period studied (Exhibit 8).

Exhibit 8

LABOR PRODUCTIVITY GROWTH AND LEVEL GAP TO THE US



* Telecoms and road freight 1992 - 2000; automotive and utilities 1992 - 1999; banking 1994 - 2000; retail 1993 - 2000

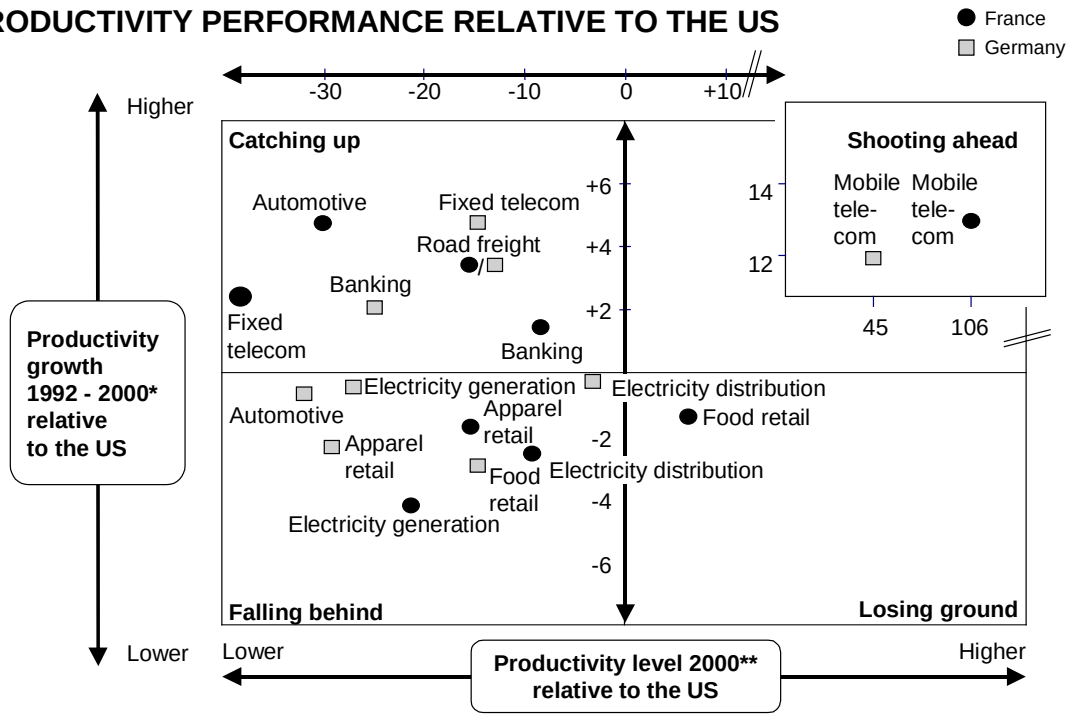
** 1999 for automotive and utilities

Source: MGI analysis

However, a simple segmentation of their performance in France and Germany against US productivity levels reveals that this basic fact hides several important differences. The first difference is that, while all but two sectors still exhibit lower productivity levels than achieved in the US, two broad groups emerge showing opposing longer-term characteristics*:* the first group is converging with US levels, the second falling even further behind (Exhibit 9). The notable exceptions are mobile telecommunications and French retail, both of which are well ahead of US productivity levels. Mobile telecommunications productivity was growing much faster than in the US throughout the period and ended up significantly higher in both France and Germany. However, French retail trade, which earlier had a similar advantage, is losing some of its lead. The following is a brief summary of each sector's characteristics:

Exhibit 9

PRODUCTIVITY PERFORMANCE RELATIVE TO THE US



* Automotive and utilities 1992 - 1999; banking 1994 - 2000, retail 1993 - 2000

** 1999 for automotive and utilities

Source: MGI analysis

¶ *Telecommunications* – Both France and Germany have been catching up with the US in terms of telecommunications productivity, although a clear distinction needs to be made between fixed-line and mobile telephony, which exhibit very different characteristics. In fixed-line telecom services, productivity in Germany grew faster than that in France and the US; but, in 2000, it was still 13 percent behind the US level. In mobile telecommunications, both France and Germany managed to grow much more rapidly than the US, and France reached more than twice the US productivity level. Taken as a whole, telecommunications productivity in Germany is now 3 percent ahead of that of the US, while productivity in France still lags behind US levels by approximately 15 percent (Exhibit 10).

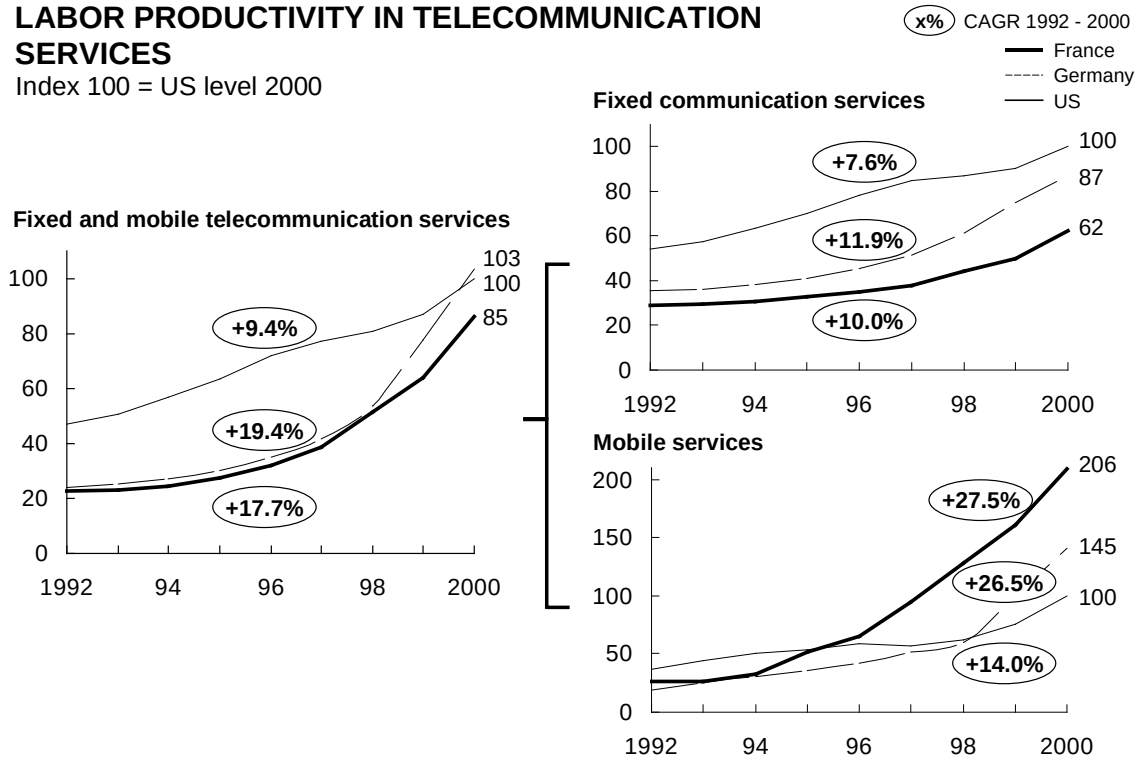
¶ *Retail banking* – France and Germany both managed to narrow the productivity gap with the US to 8 and 26 percent, respectively, in 2000.

¶ *Road freight* – France and Germany showed significantly higher productivity growth throughout the 1990s than that seen in the US, although, in 2000, their overall road freight productivity levels were still 15 and 17 percent behind that of the US, respectively.

Exhibit 10

LABOR PRODUCTIVITY IN TELECOMMUNICATION SERVICES

Index 100 = US level 2000



Source: FCC, NECA, CTIA, Reg TP, ART, ITU, OECD, Gartner/Dataquest, annual reports, operators' Websites, MGI analysis

- *Automotive* – Starting from a very low level, France exhibited much higher productivity growth rates in the automotive sector than the rates in either the US or Germany.
- *Utilities* – Unlike the automotive sector, productivity growth rates in utilities in France were much lower than in Germany and the US.
- *Retail trade* – We looked specifically at food retailing and specialty apparel stores. France still has the highest productivity in food retail in the three-country comparison. However, its rate of productivity improvement is less than that of Germany and the US, so it is beginning to lose some of its earlier advantage. In specialty apparel retailing, both France and Germany show lower rates of productivity improvement and lower productivity levels than the US.

In summary, the chosen sectors provided a suitable basis for gaining insight into the drivers of and barriers to productivity growth. Analyzing the rapid productivity growth seen in most of the sectors studied helped reveal the causal factors of such productivity growth. Country-specific factors were easy to identify in those sectors that developed very differently in France and Germany. Identifying the reasons behind the remaining productivity gap between the French and German sectors and their US counterparts allowed us to build a complete picture of the barriers to and potential sources of future productivity growth.

The vehicle: Innovation is the engine – but constrained by inappropriate regulation

The development and diffusion of innovative products, services, and processes are the only sustainable sources of productivity improvement. Many of the innovations of the 1990s were supported or, in some cases, made possible only through the application of IT. We identified sizable differences across countries regarding the degree of innovation diffusion and the extent to which these innovations were leveraged through scale. The scrutiny of the selected sectors revealed that the differences were primarily caused by insufficient competitive intensity as a result of poor regulation, but also by differences in the nature of demand and lower income levels in France and Germany – rather than by differences in the propensity to invest in IT. At the aggregate level, the negative impact of this environment on productivity growth is likely to have become an increasing constraint during the late 1990s, as IT emerged as a key enabler of many important innovations.

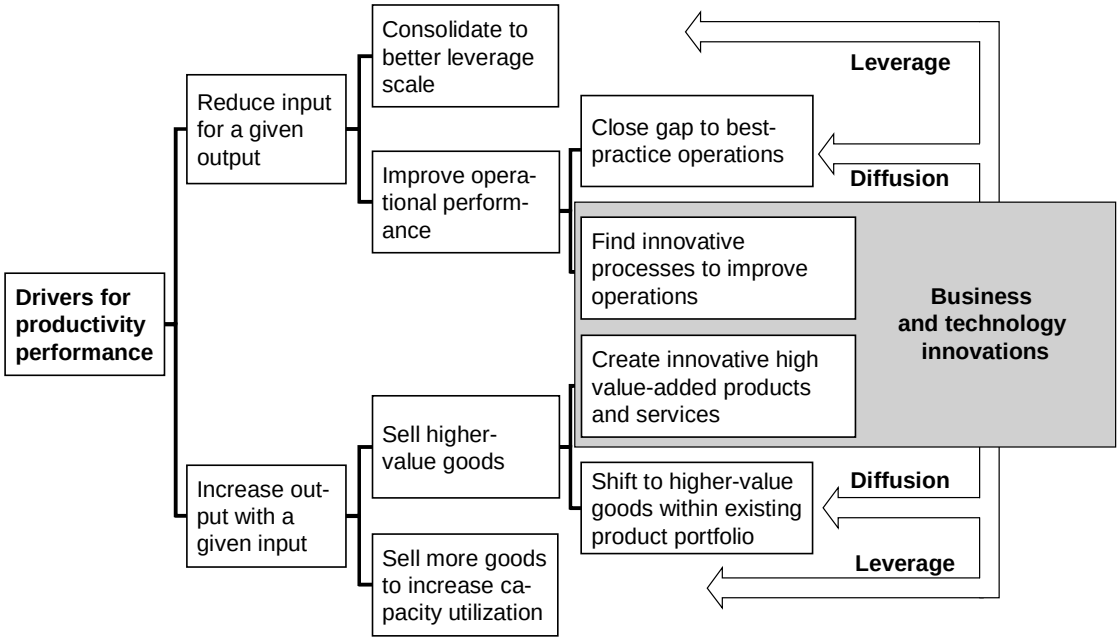
INNOVATION IS THE ENGINE OF SUSTAINABLE PRODUCTIVITY GROWTH – IT ACTS AS A CRUCIAL ENABLER

Productivity performance can be improved in various ways (Exhibit 11). To improve their operational performance, companies can either seek to develop innovative processes themselves or copy those developed by others to close the gap to best practice.[12] Introducing innovative products and services also helps improve productivity performance, as a modern product portfolio often creates higher value added per hour worked. Finally, if companies suffer from sub-optimal scale, they can either consolidate or seek to increase their sales volume to better leverage their fixed resources.

[12] Sometimes, companies do not even need to implement innovative processes, but simply need to reduce excess labor capacities to close the gap to best-practice operational performance.

Exhibit 11

DRIVERS FOR PRODUCTIVITY PERFORMANCE



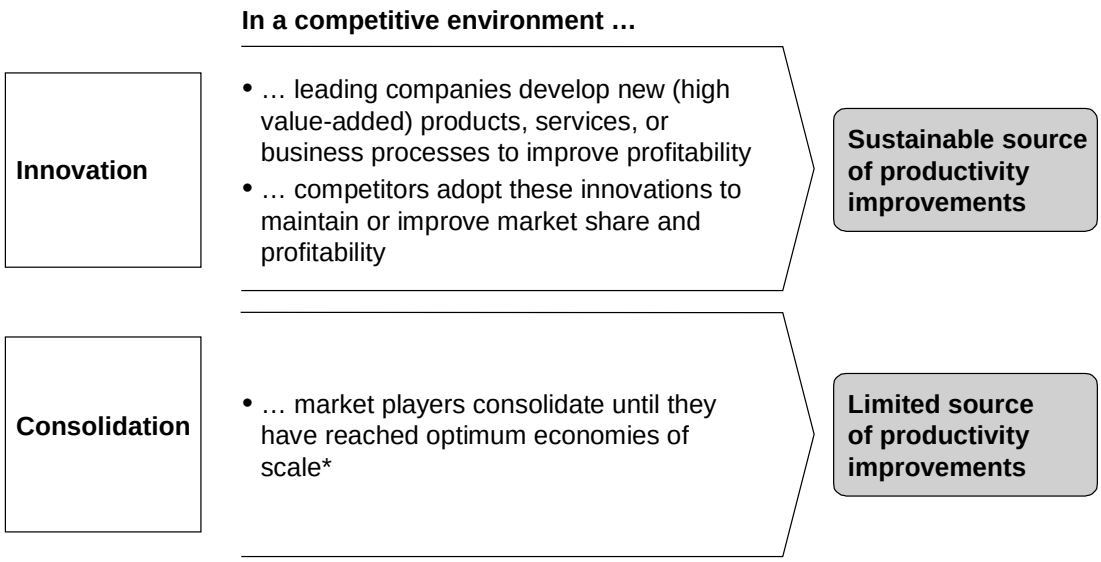
Source: MGI analysis

In the long run, the development and diffusion of innovative products, services, or processes are the only sustainable sources for productivity improvements, despite the fact that some industries were also able to achieve productivity growth through consolidation (and, in the shorter term, there is further potential to reach more efficient scale).[13] However, once companies within a sector have reached optimum scale, they should not consolidate further. At this point, the only sustainable sources of productivity growth are business and technology innovations (Exhibit 12).

[13] In retail banking, for example, 1.5 percentage points of the annual productivity growth in Germany can be attributed to the concentration of banks and branches or the centralization of services – and there is further potential to consolidate.

Exhibit 12

MANAGERIAL LEVERS FOR PRODUCTIVITY IMPROVEMENTS



* Natural monopolies would consolidate until competition is diluted; therefore, regulation is required

Source: MGI analysis

Within the sectors analyzed, innovations have been the engine of productivity growth in France and Germany, as they have been in the US. They include innovative products, such as mobile telephony, as well as modern business processes, such as further progress in back-office automation in retail banking. During the 1990s, most business innovations involved the application of information technology. In some cases, only the application of IT made the corresponding innovation possible. In other cases, IT played more of a supporting role. Two examples highlight the critical role IT has had in creating productivity-boosting innovations:

- *Mobile telecommunications* – The success of mobile communication technology created an entirely new business segment and shaped the productivity performance of the telecommunications industry in all three countries.
- *Retail banking* – New technologies gave rise to further back-office automation, as well as to new sales channels such as online banking. Together with the shift towards electronic payment formats, these developments were the source of up to half of the productivity growth in retail banking in France and Germany (Exhibit 13).

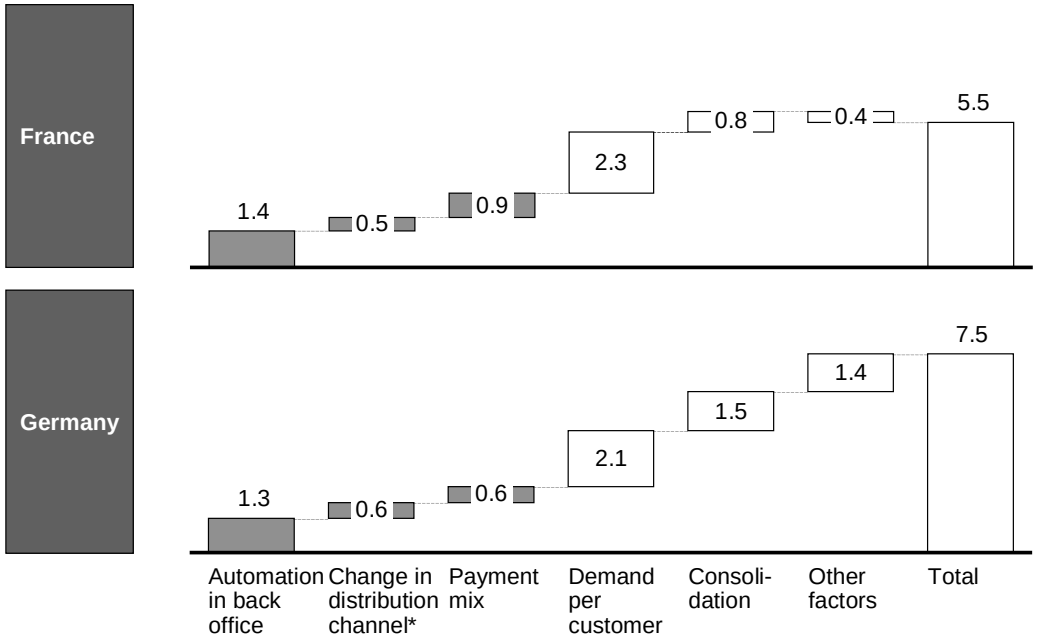
Exhibit 13

LABOR PRODUCTIVITY GROWTH IN RETAIL BANKING

Percent CAGR 1994 - 2000

ESTIMATE

IT-related



* Higher share of IT-based channels, e.g., Internet, call center, and ATM

Source: MGI analysis

Some innovative business processes were introduced in the US or elsewhere prior to the 1990s, but filtered through to France and Germany much later. In these examples, IT played only a supporting role:

- *Automotive* – French car manufacturers implemented best practices such as lean manufacturing, improved purchasing, and adopted design simplifications that were already established in other markets. These steps helped them boost labor productivity by almost 15 percent annually in the late 1990s (Exhibit 14).

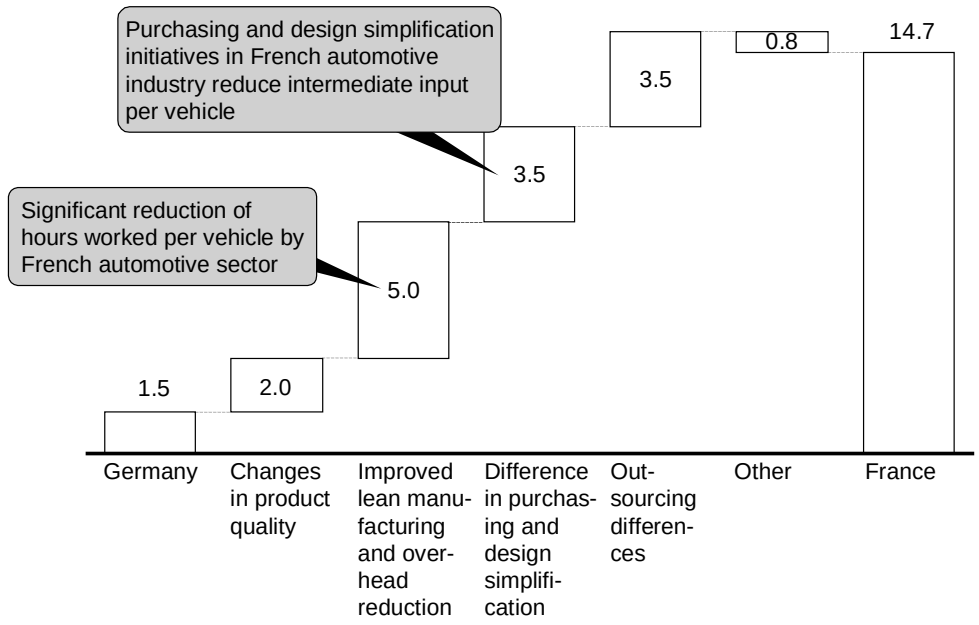
- *Fixed telecommunications and utilities* – In fixed telecommunications as well as the German utilities industry, operational improvements drove productivity growth. This was due to the installation of modern operational processes and the removal of excess labor capacity.

Exhibit 14

LABOR PRODUCTIVITY GROWTH IN AUTOMOTIVE – FRANCE vs. GERMANY

ESTIMATE

CAGR 1996 - 1999



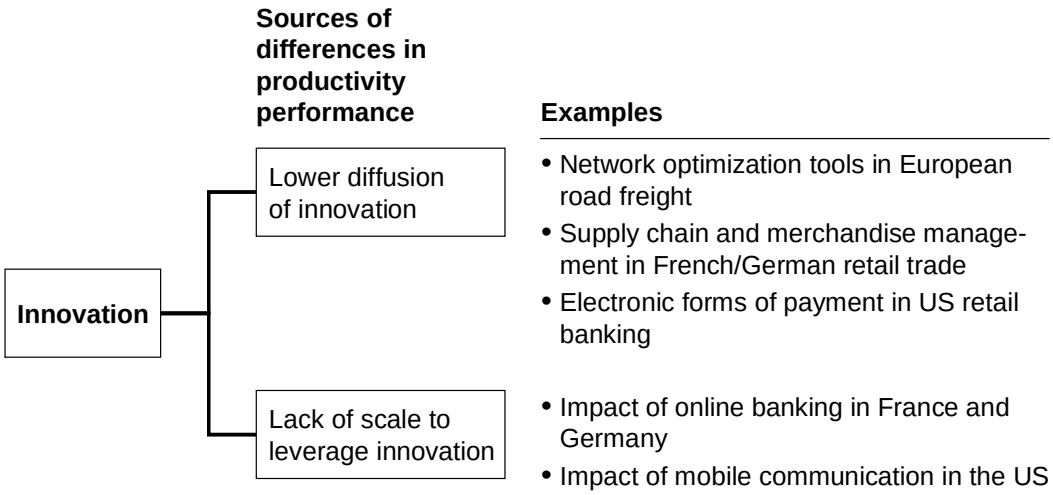
Source: INSEE, Statistisches Bundesamt, MGI analysis

DIFFUSION AND LEVERAGE OF INNOVATIONS DIFFERED ACROSS COUNTRIES

Innovations are not adopted evenly across countries nor do they have the same degree of impact on productivity in each country (see Box 3 and Exhibit 15). Disparities in the rate of diffusion lead to important productivity differences, as observed in the following sectors:

Exhibit 15

KEY SOURCES OF DIFFERENCES IN PRODUCTIVITY PERFORMANCE ACROSS COUNTRIES



Source: MGI analysis

¶ *Road freight* – IT-based network optimization tools were not implemented in France and Germany to the same extent as they were in the US (Exhibit 16).

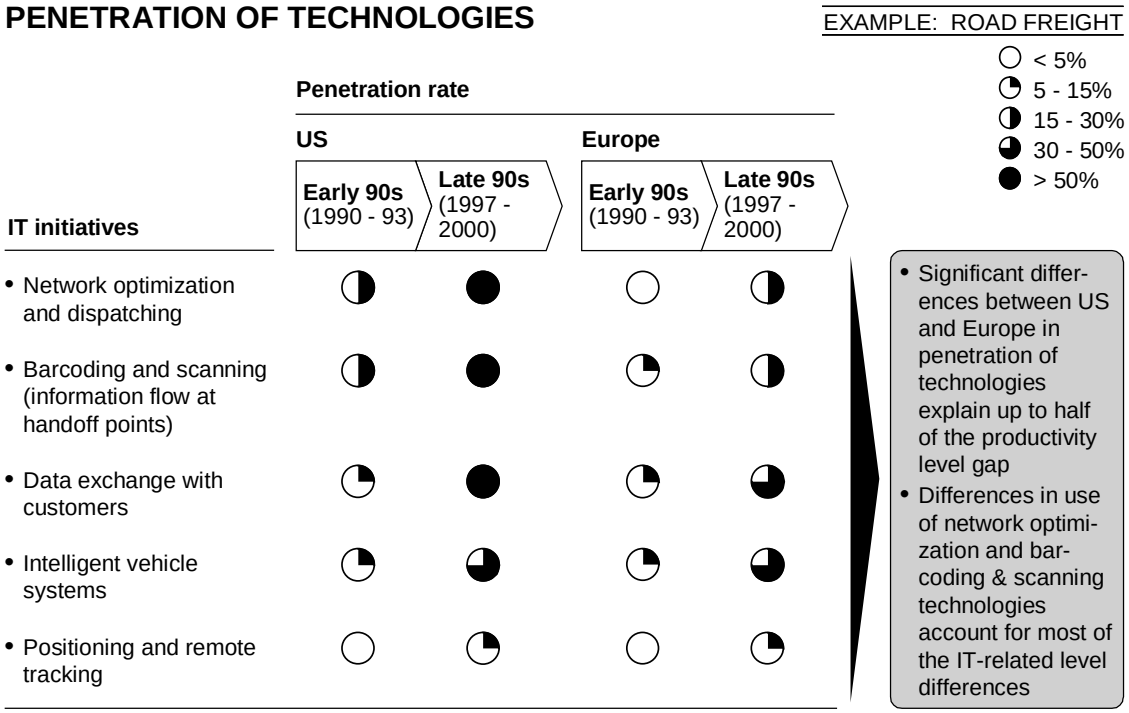
¶ *Retail trade* – Some of the best-practice business processes first implemented by leading retailers in the US[14] have yet to filter through to French and German retailers.

¶ *Retail banking* – In the US – and to a much lesser extent also in France – checks are still the most prominent form of payment transaction, while in Germany, more efficient electronic payment methods prevail.

[14] For example, more collaborative supplier relations in combination with key IT applications, such as collecting point-of-sale data on individual products, data warehouses, forecasting tools, and a common platform for sharing this information.

Exhibit 16

PENETRATION OF TECHNOLOGIES



Source: ATA, expert interviews, MGI analysis

Box 3: "Development", "diffusion", and "leverage" – understanding the impact of business and technology innovations on labor productivity

In terms of labor productivity performance, some countries benefit more than others from innovations within a given sector. There are three factors behind this: differences in the ability to develop innovative products, services, and processes; differences in the diffusion of these innovations; and differences in the ability to leverage the benefits of these innovations.

1) *Development of innovative products, services, and processes* – At the company level, developing business or technology innovations can lead to a productivity advantage, especially if the company can capture a sustainable first-mover advantage. This holds true in industries where the competitors' ability to replicate the innovation is limited and the benefits of the innovation can be "internalized" by the innovating company (e.g., through patents or "winner takes all" network effects). If most innovations within an industry are developed by companies in the same country, this will translate into a productivity advantage at the national level.

2) *Diffusion of innovations* – Other business and technology innovations can be more readily replicated. Following their development, they are adopted by other companies. If they are spread more in one country than another, this can

cause large productivity differences (e.g., if manufacturers of only one country applied lean manufacturing methods, that country would show higher productivity levels).

3) *Leverage of the benefits* – Even when business and technology innovations are diffused equally in all countries, their impact on productivity may differ depending on the specific domestic business environment. IT-based business innovations, in particular, may sometimes only be leveraged fully when there is sufficient scale to do so. If an industry in one country is more concentrated than in another, companies in the more consolidated country market are likely to benefit more than their foreign competitors. When customers display different purchasing habits, this demand factor may also contribute to differences in leverage.

Although the ability to develop innovative products, services, and processes should not be underestimated for improving an individual company's productivity, the sectors studied in this report show that the diffusion and leverage of innovation plays a far greater role in explaining productivity differences across countries at the sector level.

Even where innovations have been adopted evenly across countries, their impact on productivity has varied considerably. IT-based innovations in particular enable companies to leverage scale more effectively. The impact of these innovations was therefore highest in industries with a high degree of consolidation or with a high output volume per customer:

- *Telecommunications* – Mobile telecom services are as widely available in the US as they are in France and Germany. However, productivity growth stemming from the development of this new business segment was significantly higher in France and Germany than in the highly fragmented US industry. In 2000, US productivity lagged behind French levels by 50 percent.

- *Retail banking* – Modern channels and back-office automation have been installed by retail banks in all three countries and have had a positive effect on productivity by allowing banks to service a virtually unlimited number of transactions at a marginal extra cost. However, the productivity benefits of these innovations have been highest in the US because the number of transactions per customer is highest there.

IT IS A CRUCIAL ENABLER OF INNOVATIONS – BUT NOT A SILVER BULLET

As highlighted above, IT frequently played a critical role in the development of innovation. Examples included back-office automation in retail banking and

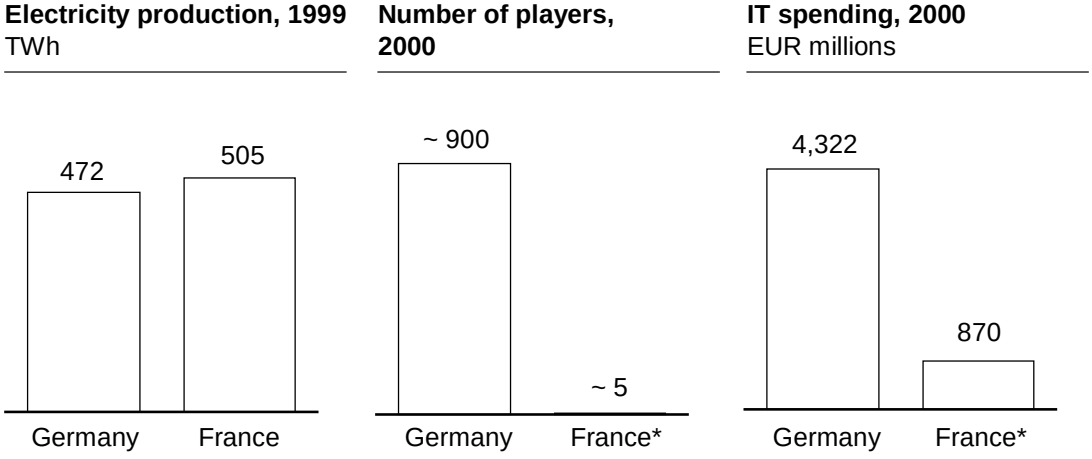
digital technology in mobile telecommunications. It is therefore sometimes thought that differences in the propensity to invest in IT might explain France and Germany's lag in diffusion of innovation, but this is not the case.

Despite IT's indisputable role as a powerful tool in developing innovative products, services, and processes, it is important to recognize that it is not a silver bullet, and a greater level of IT spending does not automatically lead to higher productivity. There are numerous examples – on both sides of the Atlantic – illustrating that the impact of IT investments on productivity has been disappointing at the sector level. Other examples, such as the utilities sector, demonstrate that the level of IT spending may differ across countries primarily due to differences in the industry structure (Exhibit 17).

Exhibit 17

POTENTIAL IMPACT OF INDUSTRY FRAGMENTATION ON IT SPENDING LEVEL

EXAMPLE: UTILITIES



* This refers mainly to EdF, which has a market share of over 90%, and a few small local players that were included in the study cited.

Source: PAC, MGI analysis

While there was no single "killer application" that emerged as playing a particularly critical role in the majority of sectors, IT applications that did have a high impact on productivity typically demonstrated the following common set of characteristics:

- *Tailored to sector-specific business processes and linked to key performance levers* – Wherever IT played a critical role as a key enabler of inno-

vation, we found that the IT applications were highly sector-specific and were focused on the key cost and value drivers of the relevant sector.

¶ *Co-evolved with managerial innovation* – Most of the IT applications that had a high impact on productivity were introduced at the same time as significant changes to the business processes:

- *Retail trade* – US food retailers started to collect point-of-sale data on individual goods, introduce data warehouses, and use advanced forecasting tools. In order to reap the benefits of these applications, US retailers also increased their level of collaboration with suppliers by sharing the collected data, thus helping them optimize their production schedule.

- *Retail banking* – Technical innovations and higher online usage rates enabled banks to build up new and more efficient distribution channels. However, not every bank was able to increase its productivity as a consequence. Only when the introduction of the new technology was accompanied by strategic and operational changes was it possible for the banks to reap the benefits of these applications.

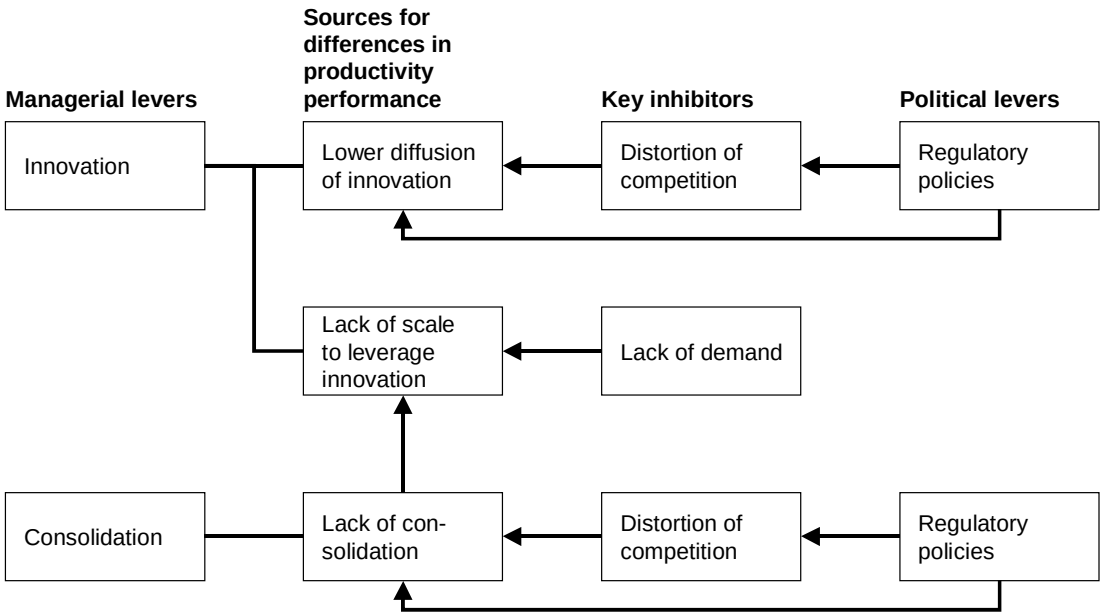
These findings underpin our strong belief that differences in IT spending are not in themselves the causal factor of productivity differences between the US and France or Germany. Scrutiny of our sectors revealed, instead, that distortions to the competitive environment, as a result of inappropriate regulation as well as differences in the nature of demand, were the prime barriers to France and Germany's ability to leverage and diffuse innovative products, services, and processes. This was true whether or not such innovation involved the application of IT.

WEAK PRODUCTIVITY PERFORMANCE CAUSED BY INSUFFICIENT COMPETITIVE INTENSITY AND DISTORTIONS – THE IMPACT OF INAPPROPRIATE REGULATION

Our research suggests that the key inhibitor to the diffusion of innovation is a distorted competitive environment resulting from inappropriate sector-specific regulation (Exhibit 18). In some sectors, we also identified regulation that directly limited the ability or willingness of companies to diffuse innovation. Let us examine a number of examples from the sectors studied:

Exhibit 18

KEY SOURCES FOR DIFFERENCES IN PRODUCTIVITY PERFORMANCE ACROSS COUNTRIES



Source: MGI analysis

- *Road freight* – Formerly, price regulation and market access restrictions in both the French and the German industries curtailed the level of competition. In turn, this discouraged consolidation and kept the industry fragmented in both countries. As a result, there was little use of IT-based network optimization tools that were instrumental in improving productivity performance in the US.
- *Retail trade* – In France, hypermarkets have established a very strong market position and are effectively protected from innovative competitors by zoning laws. Traditional, less productive stores are also protected, and the modernization of the format landscape has been slowed down, as changes have to occur within the existing store network. While still leading the international comparison, French food retailing started to lose ground in terms of labor productivity in the course of the 1990s.[15]

[15] In Germany, the barrier is less related to the regulatory environment, and rather more linked to the existing industry and ownership structure. Significant retail overcapacity combined with the fact that most retailers are not publicly traded made it difficult for innovative new or foreign companies to get access to attractive retail locations. In addition, privately owned companies are not exposed to capital market pressure and stay in business even with very low returns. This significantly slows down the consolidation process that is currently happening. For an interim period, this means that traded companies that enter the German retail market will not earn sufficient returns on investment to satisfy shareholders.

- *Retail banking* – The regulation of electronic transfers in the US[16] gives retail banks there an incentive to push check payments rather than introducing a common standard for more efficient paperless payment methods (a system implemented in Germany in the 1970s). This example of product-market regulation is not a barrier to competition, but rather a direct distortion of market prices that leads to an inefficient product portfolio.

In some sectors, inappropriate regulation (including ownership structure) has also limited the opportunities for companies to build scale and thus maximize the benefits from innovative products, services or processes.

- *Telecommunications services* – The lower productivity in the US mobile telecommunications segment is not determined, as is sometimes thought, by the lack of a common technology standard or even by the use of analog technology.[17] Rather, the key factor is that, despite similar penetration rates, more than 50 mobile providers serve fewer than 200,000 customers each in the US, while in France and Germany, where there are in total only three and four providers respectively, each provider serves on average 10 million customers. This is a direct result of the regional license auctions in the US. Although competitive market forces are at work and consolidation has started in the US, the legacy of this regulatory approach continues to have a negative effect on productivity (Exhibit 19).

- *Retail banking* – Competition is distorted in Germany where small state-owned and cooperative banks are, because of their ownership structure, prevented from building sufficient scale and are not exposed to shareholder pressure from capital markets. The resulting fragmentation puts the German banking sector at a significant productivity disadvantage compared with France and the US (Exhibit 20).

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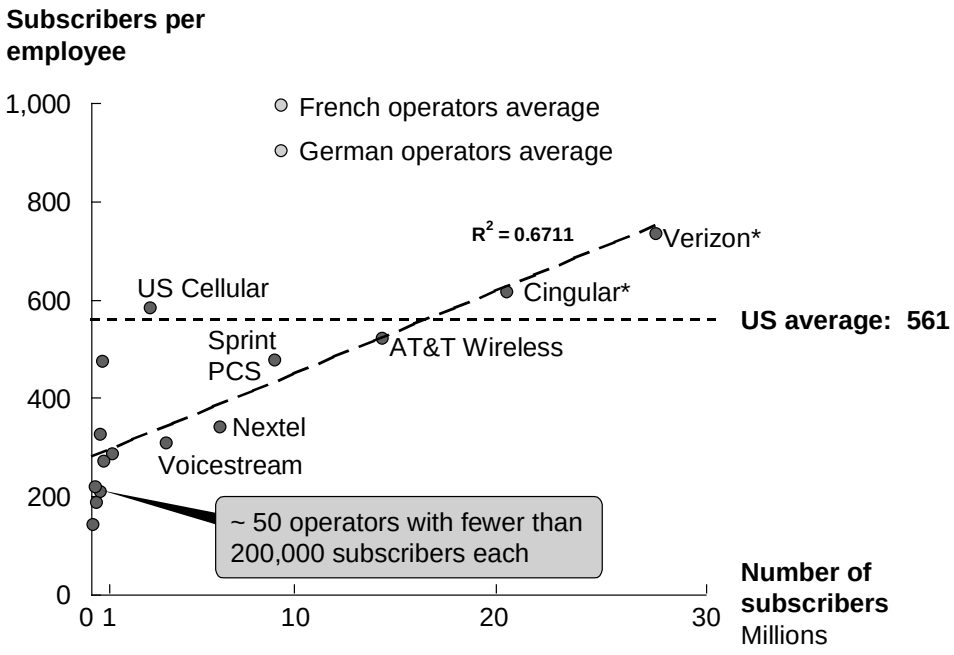
16 Regulation of electronic payments in the US allows retail banks to delay check processing, but mandates electronic payments to be processed within one business day.

17 Only a minor fraction of the total productivity gap can be attributed to these factors.

Exhibit 19

SUBSCRIBERS PER EMPLOYEE AT TOP 25 US MOBILE OPERATORS, YEAR-END 2000

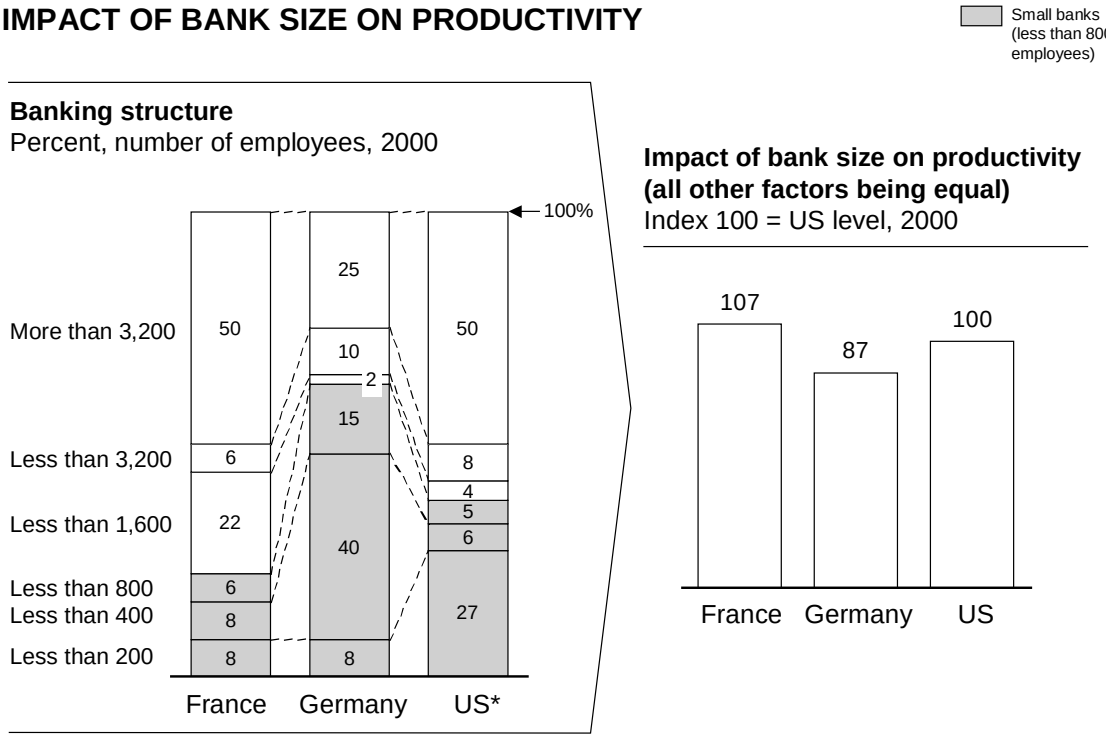


* Based on 2001 year-end figures

Source: FCC, Hoovers', MGI analysis

Exhibit 20

IMPACT OF BANK SIZE ON PRODUCTIVITY



* 1997

Source: National bank associations, BLS, MGI analysis

WEAK PRODUCTIVITY PERFORMANCE CAUSED BY THE PARTICULAR NATURE OF DEMAND AND LOWER AGGREGATE INCOME

Inappropriate regulation is one important factor limiting a company's ability to reach efficient scale. Another important set of factors identified in the sectors studied are differences in the nature of demand and the level of aggregate income. Structural differences such as geography or climate, as well as differences in individual preferences, influence the level of demand for a certain good, say air conditioning, in a given country. Likewise, people with higher income are more likely to consume more of the same good – or more sophisticated goods of the same category[18] that typically deliver higher value added per hour worked – than people with lower income.

We specifically measured higher productivity as a result of larger quantities consumed in sectors with a fixed network infrastructure. In these sectors, higher output volume leads to higher capacity utilization. The telecommunications and utilities sectors fall into this category. Other physical networks, like the branch and ATM networks of retail banks, also depend on high capacity utilization:

- *Telecommunications* – The fixed-line networks in France and Germany show lower levels of utilization than in the US. Traffic per line in the US is 2.0 to 3.5 times the levels in France and Germany respectively. This leads to a 40 percent productivity disadvantage for the European countries. Two-thirds of this gap is linked to long-distance traffic where prices have reached similar levels in the three countries (Exhibit 21).[19]
- *Utilities* – Similarly, the utilization of the power grid in electricity distribution differs significantly across countries. Annual electricity consumption per household in 2000 in the US was more than double that in Germany.[20]

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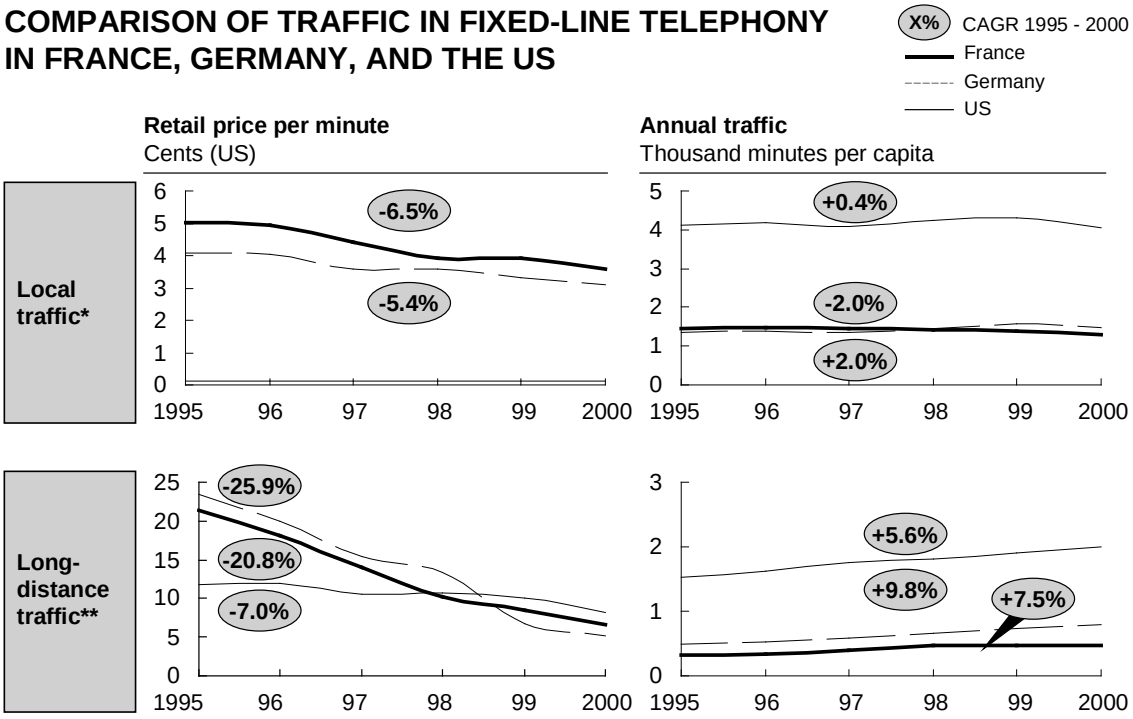
18 For example, luxury goods or goods that benefit from brand premiums.

19 Therefore, differences in traffic cannot be attributed to differences in regulation that lead to higher prices.

20 Besides true demand effects, such as higher income, cultural differences, and individual preferences, higher retail prices as a result of taxation also affect consumption volumes.

Exhibit 21

COMPARISON OF TRAFFIC IN FIXED-LINE TELEPHONY IN FRANCE, GERMANY, AND THE US



* Excluding Internet dial-up traffic
** Excluding fixed-to-mobile traffic in France and Germany
Source: Reg TP, ART, NECA, FCC, ITU, MGI analysis

¶ *Retail banking* – Banks in all three countries provide a network of branches and ATMs. The productivity of these networks is affected by the level of their capacity utilization, i.e., by the number of transactions. In the US, bank customers conduct significantly more transactions than do their German and French counterparts. The lower demand per customer leaves German and French banks at a productivity disadvantage of approximately 6 percent, independent of any further scale-based improvements that might arise through consolidation.

While the impact of low demand on specific sector productivity is quite sizable, the impact at an aggregate level may be limited for the nation as a whole, as there are only a few sectors where productivity depends on the utilization of a fixed network.

Demand also plays an important role in explaining differences in non-network-based sectors, particularly where people can shift to consuming goods of higher value added per hour worked, e.g., goods that benefit from brand premiums or luxury goods:

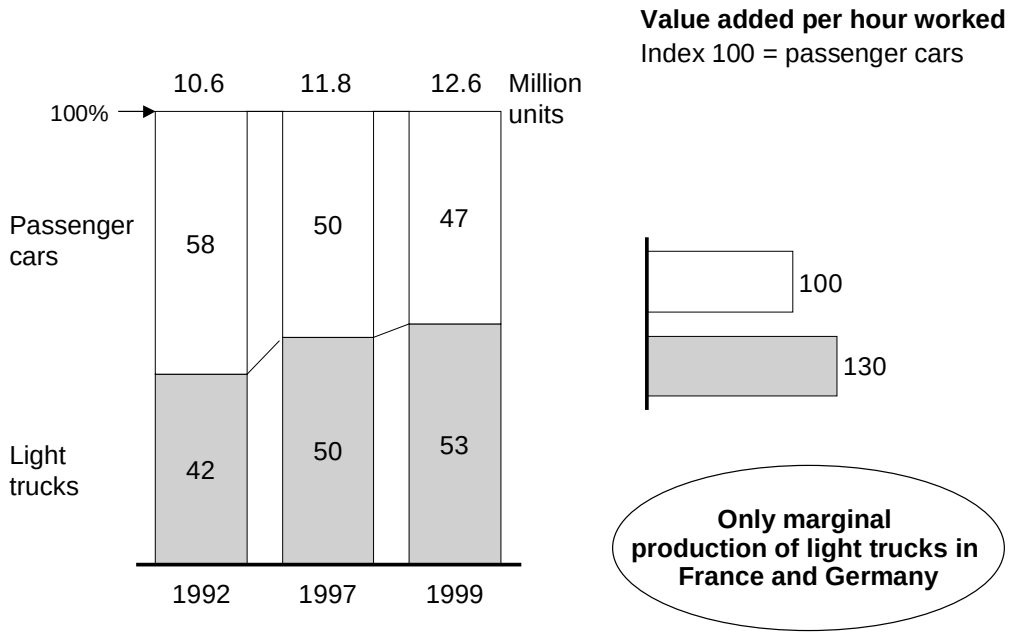
¶ *Retail trade* – US consumers spend significantly more on higher value clothing, explaining 12 percentage points of the productivity advantage

of the US specialty apparel retail segment when compared with France and Germany.

¶ *Automotive* – In comparing the French and German automotive industry to that in the US, 11 percentage points of the productivity gap can be explained by differences in demand: the US has benefited from the light truck boom in recent years. These vehicles are easy to manufacture, but deliver high value added per hour worked. Today, 50 percent of the vehicles sold in the US fall into this category, while in the two European countries – triggered by the higher taxation of energy consumption – demand is growing for small, sophisticated vehicles that create lower value added per hour worked (Exhibit 22).

Exhibit 22

US LIGHT VEHICLE PRODUCTION, 1992 - 99
Percent



Source: DRI-WEFA, New York Times, VDA International Auto Statistics, MGI analysis

¶ *Retail banking* – US customers typically carry two to three times greater financial assets and loans than their French and German counterparts. This explains up to 10 percent of the lower productivity in these two countries.

To the extent that these different consumption patterns are linked to individual preferences or structural differences, the effects may cancel each other out when examined at the aggregate level. Higher demand for one kind of good might come

at the cost of demand for other goods and services. However, as average income is 30 percent lower in France and Germany than in the US, it is quite likely that people in the US will consume more of the same as well as more expensive goods. These differences may well explain some of the productivity differences at the aggregate level.

The lower aggregate income is a result of lower productivity (which is addressed in the course of this study) and less labor input. In the US, a greater share of the working age population works more hours per year than their French and German counterparts. This is partly a matter of choice: people in France and Germany enjoy longer vacations, prefer to work fewer hours a week, or decide to retire early. In exchange, they accept a lower average income. However, earlier MGI studies[21] have also shown that, among other factors, labor market rigidities are an important barrier to higher labor participation rates: high reservation wages (i.e., minimum wage and unemployment benefits) lead to higher unemployment and lower participation of low-skilled workers.

In summary, insufficient competitive intensity, restrictive regulations, and lower aggregate income levels created an environment in France and Germany that did not facilitate the rapid diffusion of innovative products, services, and processes. With the emergence of IT as a key enabler of many important innovations, the negative impact of this environment on productivity growth is likely to have become an increasing constraint, at the aggregate level, during the late 1990s.

The following two sections highlight how policy makers can lay the groundwork for a more supportive environment and how business leaders can apply a broader view of productivity to identify further improvement opportunities for their businesses.

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[21] MGI: "Removing barriers to growth and employment in France and Germany" (1997); MGI: "Employment Performance" (1994).

The road: Policy makers need to lay out the economic highway

Policy makers are responsible for laying the groundwork for a competitive market environment – and they have started to do so. Many of the regulatory improvements initiated during the 1990s resulted in positive productivity growth. However, many opportunities still remain for removing the barriers to open market access for competitors or for creating a level playing field for competition on quality and prices. Providing this regulatory environment is often a difficult and complex task and requires smart regulatory solutions. In order to transform productivity improvements into economic growth and employment, policy makers also need to ensure that the redeployment of displaced workers is facilitated and innovative sectors find a fostering environment.

POLICY MAKERS HAVE STARTED TO LAY THE GROUNDWORK FOR A COMPETITIVE MARKET ENVIRONMENT

The sector cases show the distortion of market competition resulting from poor regulation to be the key inhibitor of innovation diffusion. Policy makers are responsible for laying the groundwork for a competitive market environment. By improving the regulatory environment, they can provide an "economic highway" that delivers the right conditions in which those companies with the highest productivity will succeed.

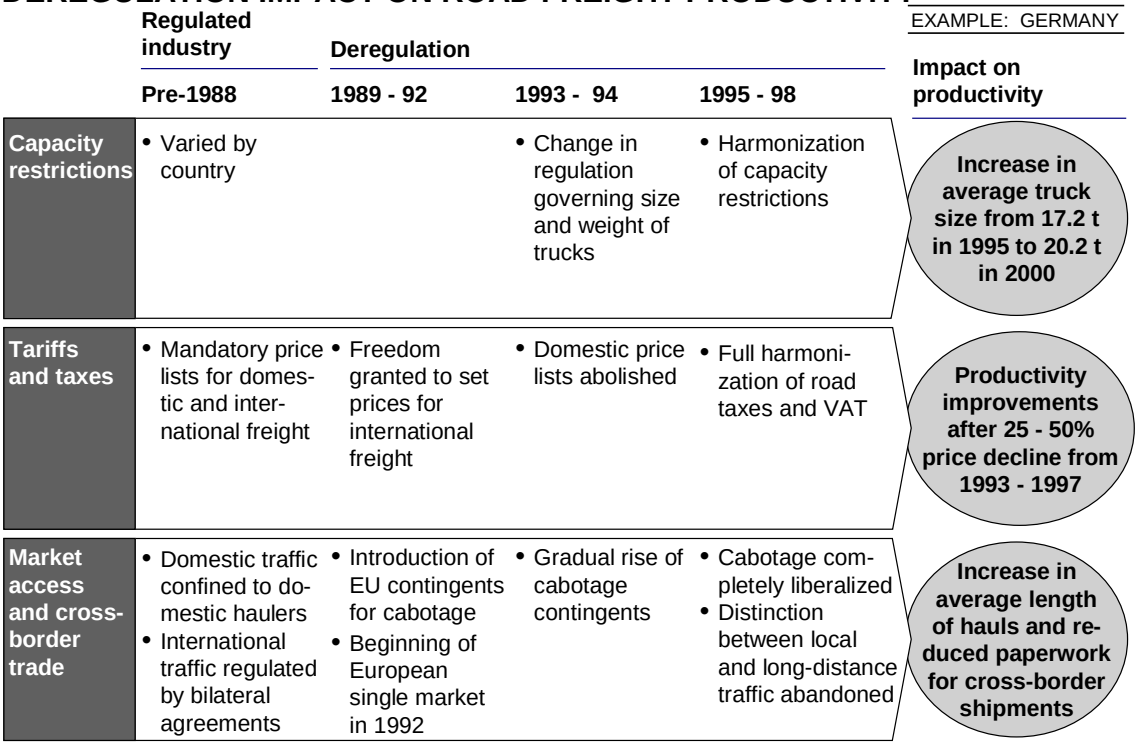
The good news is that this is already starting to happen. Efforts to increase competitive intensity by providing a better regulatory environment over the course of the 1990s have been rewarded. The positive impact of removing regulatory restrictions demonstrates the power of competition to stimulate productivity growth:

- *Road freight* – Productivity growth in the road freight sector in France and Germany was fueled firstly by the deregulation of European market access, but also by the elimination of fixed price lists, the relaxation of capacity restrictions, and increasing demand for cross-border shipments brought about by the European single market. Increased competition initiated the industry consolidation process. Companies have also started to use the network optimization tools that are already widely diffused in the US (Exhibit 23).

Exhibit 23

DEREGULATION IMPACT ON ROAD FREIGHT PRODUCTIVITY

EXAMPLE: GERMANY



Source: BAG, Aberle, MGI analysis

¶ *Automotive* – The gradual removal of import quotas for Japanese cars, in combination with stagnating western European markets, became a serious threat to the profitability of French car manufacturers. They have responded by implementing best-practice operational processes and have thus improved their productivity.

¶ *Telecommunications* – The liberalization of the fixed-line businesses in opening market access to third parties forced incumbents to improve their operational performance. This led to a steep workforce reduction by Deutsche Telekom's fixed-line business and, to a lesser extent, by France Telecom.

¶ *Utilities* – The initial liberalization of the German electricity market led to a fall in wholesale prices and put heavy pressure on power generators, forcing them to improve their historically low productivity levels in order to remain profitable. As a consequence, German power generators reduced their overstaffing and increased their operational efficiency.

These regulatory improvements were often accompanied by privatization programs. Increased pressure from the capital markets encouraged formerly state-owned companies to improve productivity in order to succeed in the new competi-

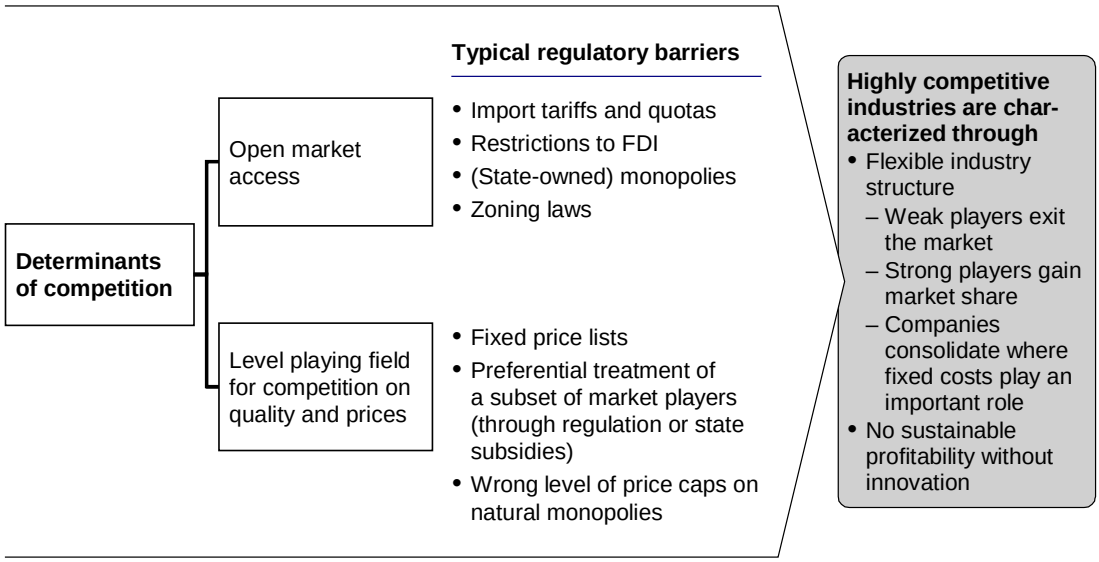
tive environment. Examples include the partial privatization of Renault in the automotive sector and that of the two telecom incumbents in France and Germany.

MANY OPPORTUNITIES REMAIN TO IMPROVE THE COMPETITIVE ENVIRONMENT

The bad news is that, despite all these regulatory improvements, there are still numerous barriers to competition in France and Germany – and to a lesser extent also in the US.[22] If France and Germany are to significantly improve their productivity in the longer term, policy makers need to review regulations that either restrict market access for new or foreign competitors or create an uneven playing field in terms of competition on quality or price (Exhibit 24). It needs to be acknowledged that, in most industries, framing effective regulation is a complex task. However, ensuring that mistakes are corrected is as important a part of the task as framing the legislation in the first place.

Exhibit 24

REGULATORY BARRIERS TO COMPETITION



Source: MGI analysis

[22] Some of these limiting factors may exist for good reason – for example for environmental protection, or the preservation of lively urban centers. Others, however, were more short-sighted attempts to protect domestic industries against competitive pressure. This report tries to make the economic impact of these policies more transparent.

We have identified the continued existence of numerous barriers to open market access or a level field for competing on price and quality:

- *Open market access* – In many of the sectors, access to the domestic market for new or foreign competitors is still limited – directly or indirectly – by regulatory barriers:
  - *Automotive* – Removing the 10 percent import tariffs would force the French and German industries to improve productivity in order to catch up with US and Japanese performance.
  - *Utilities* – During the 1990s, the French utilities sector lost its productivity advantage because of the slow liberalization of the sector and its protection against increased market pressure. Labor productivity growth initiated within the company was even hindered by the politically motivated order from the French government to hire a large number of employees. In Germany, liberalization has already started. However, there is still further room for improvement in network pricing.
  - *Retail trade* – Strict zoning laws in France had a positive effect on average productivity by increasing capacity utilization. However, the resulting lower store density in modern food retail has an adverse effect on consumer convenience. In addition, zoning laws also raise the entry barriers for new competitors with more innovative processes and formats. This protects traditional, less productive stores, but slows down the modernization of the format landscape – and thus future productivity growth.
- *A level playing field* – If regulation leads to the preferential treatment of a subset of (less efficient) market players, it hinders competition on quality and prices. Less efficient companies will stay in business while they would not do so when not so protected, and average productivity will be lower than it would be otherwise. In a number of sectors we found this type of regulation: either in the form of direct subsidies or indirectly, because more efficient companies are prevented from offering lower prices or better service. In German retailing, for example, the tight restrictions on opening hours mean that the more efficient store formats, which could benefit from providing better service in the form of longer opening hours, are prohibited from doing so.

Ensuring open market access and a level playing field is particularly tricky in network-based sectors with very high fixed costs. Network activities, such as the electricity grid, railroad infrastructure, or local-loop telecommunications, continue to be a natural monopoly even after liberalization. Smart regulation has to

guarantee that third-party access is fair, and incentives to increase productivity are needed. The UK's electricity supply sector demonstrates a successful approach.

- In the UK, regulators set decreasing price caps, which forced the grid provider to increase its operational performance. In addition, they defined transparent rules that guaranteed fair access to the grid for competing third-party retailers. As a result, competitive intensity went up and prices fell, leading to higher productivity growth than in either France or Germany (Exhibit 25).

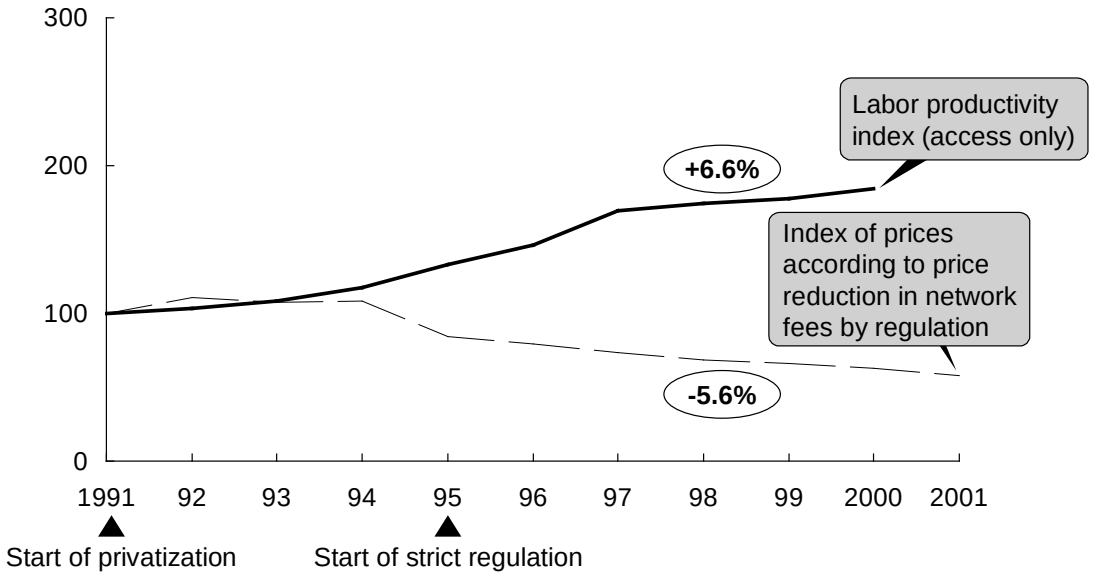
Exhibit 25

REGULATED PRICE CAP AND IMPACT ON LABOR PRODUCTIVITY IN ENGLAND AND WALES, 1991 - 2000

ELECTRICITY DISTRIBUTION

x% CAGR 1995 - 2000

Index 100 = US level 1991



Source: MGI analysis

- German network operations show further room for improvement. Current regulations allow the German network operators to set their prices at their cost plus a profit margin. Future regulation needs to create a level playing field for the different providers and put pressure on network operators to improve their productivity. The "Association Agreement II plus" already points in the right direction.

- In France, third-party access to the network was not regulated in the time period observed, leaving room for the incumbent to build up high barriers to entry for new distributors.

The concepts of open market access and a level playing field should also hold true on a European level. For many domestic industries, a long-term shift from a national to a European scale may deliver future opportunities to improve productivity, as was demonstrated by the road freight and utilities sectors. Policy makers should, therefore, continue their efforts to remove direct and indirect barriers to a European market expansion.

In addition to the opportunities for regulatory improvement, some sectors could benefit from increased shareholder pressure through reduced state ownership and more active shareholder participation. The privatization of French banks, for example, has yet to have a significant productivity impact. Cross-holdings of privatized banks and the remaining state-ownership of La Poste limit the pressure to improve efficiency. The small state-owned and cooperative banks in Germany also lack capital market pressure to improve their efficiency. Other sectors with potential for increased shareholder pressure include the automotive industry and telecommunications.

TRANSFORMING PRODUCTIVITY IMPROVEMENTS INTO ECONOMIC GROWTH AND EMPLOYMENT

There is a widespread belief that productivity improvements and employment creation are antagonistic objectives, as higher productivity, it is argued, leads to job destruction. This argument, however, does not hold true when looking at the economic development of the US in the course of the 1990s. Both productivity and labor input were growing at high rates – and this growth even accelerated in the late 1990s. The actual effects of productivity improvements on employment have been studied in more detail in earlier MGI studies.[23] On the one hand, it is true that one of the direct effects of productivity improvements in an industry is that fewer workers are needed to produce the same amount of output. On the other hand, in a competitive environment, lower costs will lead to lower prices and stimulate demand for the industry's products overall. This will also improve its position against foreign competitors and increase foreign trade. Eventually, this greater demand can again lead to an increase in employment. In addition, higher productivity in a given industry creates more income for the industry's shareholders and remaining workers. This will increase the demand for goods and services produced in other sectors of the economy and thus has the potential to raise overall employment (see also Box 2).

In order to enhance these structural changes and to speed up the transformation process, policy makers need to ensure that the redeployment of the displaced

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[23] MGI: "Removing barriers to growth and employment in France and Germany"; 1997; MGI: "Employment Performance"; 1994.

workers is facilitated and innovative sectors find a fostering environment in which to grow:

- *Redeploying displaced workers* – Labor market flexibility will continue to be important for the efficient reallocation of workers as further regulatory improvement and technological progress will bring about structural changes within and across countries.

- *Fostering innovation* – Policy makers need to focus their industrial policy activities on providing a supportive environment for the creation and growth of innovative businesses – e.g., the support of basic research activities or the installation of requisite infrastructure – rather than trying to protect sectors that are in decline and that would otherwise not survive in a competitive environment. Innovative businesses develop around new product and service categories and form the nucleus of innovative sectors. Such sectors usually grow fast, in terms of both size and productivity – as was seen in mobile telecommunications and the IT manufacturing industry. Failing to participate early on in the growth of such new sectors can retard the productivity improvement of an economy. The significantly higher contribution of the IT manufacturing sector to productivity improvement in the US as compared to that seen in France and Germany demonstrates this.

Business leaders will increase employment if they have a sense that ongoing positive economic development will continue to increase demand. In the same way, innovative businesses will best develop and grow in such an environment. Macroeconomic policies, therefore, need to accompany any regulatory reforms to accommodate such expansion.

In the driver's seat: Business leaders need to master productivity growth

Business leaders have a natural incentive for improving the productivity performance of their companies: in a competitive environment – where price premiums are rapidly competed away – productivity growth is the most sustainable source of profitability and a prerequisite for maintaining or expanding their market position, or even for staying in business (see Box 4). Within the sectors analyzed, the two key levers for productivity growth in the years to come have been identified as innovation and – in cases where opportunities remain to reach optimum scale – consolidation. When managers accept a broader view of productivity, they may even be able to identify improvement opportunities along the value chain in the form of vertical collaboration or horizontal specialization.

Box 4: Productivity and profitability – understanding the link

To clarify the link between productivity and profitability, let us consider two equal companies that compete in the same regional market with access to the same input factors. Both have similar levels of productivity and profitability. If one company manages to increase its productivity, it will by definition be able to produce the same quantity of goods and services of the same quality with less input, thereby enjoying a cost advantage. The resulting profit is then used by the company for new investments or distributed to shareholders as dividends. The company may also choose to offer lower prices in order to gain market share or to pay higher wages in order to attract higher-skilled labor.

A one-time increase in productivity, however, will usually not lead to a sustainable profitability advantage. In order to stay in business, the other company will also have to follow suit and improve its productivity. Once the two competitors reach the same productivity levels, they will start to compete on prices, until the original profitability advantage has disappeared.

In the competitive environment described, the most sustainable source of profitability is constant productivity improvement. In other words, profitability is the fleeting reward of productivity improvement.

This simple concept also holds true in more complex market situations. Two companies that are located in different regional environments, but compete directly on a global market may face different input factor costs (i.e., higher wages or cost of capital). In an equilibrium state, the company that faces higher input factor costs will be able to compensate for this disadvantage through higher productivity.

Higher wages, for example, reflect the greater productivity of the labor force in that region. In a competitive environment, where there is a level playing field, an increase in productivity by one company will then start the same process as described above. In fact, this process may eventually lead to converging input factor costs between the two countries.

INNOVATION IS THE KEY LEVER FOR SUSTAINABLE PRODUCTIVITY IMPROVEMENT – BUT IN MANY INDUSTRIES FURTHER CONSOLIDATION IS ALSO REQUIRED

Our research suggests that there is still plenty of opportunity in France and Germany, but also in the US, to improve productivity by reaching efficient scale and by improving the ability to provide customer value through more development and diffusion of innovative products, services, and processes. Examples of sectors with a less-than-efficient industry structure include:

- *Retail banking* – Even though increasing demand in Europe has helped improve economies of scale, and consolidation has started in the light of declining profit margins, there is still ample room for further consolidation, particularly in Germany. Consolidation is necessary to leverage existing fixed assets and labor as well as to reap the benefits of innovative sales channels and back-office automation.

- *Retail trade* – The overcapacity in German retail trade calls for consolidation. However, the fragmentation of the industry and the fact that most retailers are not publicly traded are slowing down the consolidation process.

- *Telecommunications* – One of the most striking examples of the impact that differences in scale can make is that of the US mobile communication sector. There, consolidation is far from over.

In addition to consolidation, the development and the diffusion of innovative products, services, and processes provide further potential for productivity improvements. The sector cases offer examples of where there is likely to be further diffusion of current innovation:[24]

- *Road freight* – Following a decade of impressive productivity growth, fueled by deregulation and the creation of the European single market, haulage companies are now in a position to shift their focus away from

[24] By definition, it is impossible to identify on a sector level instances where the development of a new innovative product, service, or process, is expected to improve productivity performance. Nevertheless, on a company level, the development of innovations is key to higher productivity and profitability, particularly when the benefits of the innovation can be internalized, e.g., through patents.

increasing truck capacity to improving operations through the increased deployment of IT. More than half of the 20 percent gap in road freight productivity in France and Germany versus the US is attributable to the latter's more intensive use of IT, primarily as a result of earlier deregulation. US companies currently make better use of IT-enabled tools, e.g., for network optimization and resource-to-load assignment.

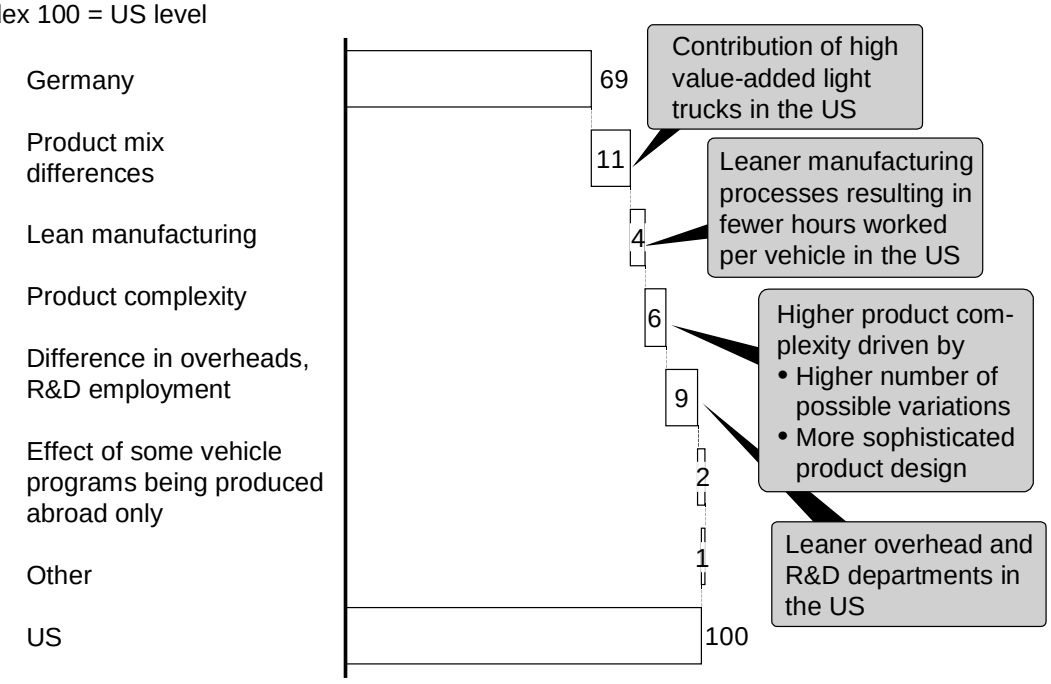
¶ *Automotive* – Despite the strong productivity performance of French car manufacturers in the late 1990s, both the French and German automotive industries still lag behind US and Japanese productivity by some 30 percent. To close this gap, they must create leaner processes, employ fewer people in production, and reduce product complexity. This is no simple task. At a time when competitive differentiation is a key factor for success, automotive manufacturers need to find the right balance between a highly customer-focused approach and the greater standardization of platforms, modules, and parts (Exhibit 26).

Exhibit 26

LABOR PRODUCTIVITY LEVEL DIFFERENCES – US vs. GERMANY, 1999

EXAMPLE: AUTOMOTIVE

Index 100 = US level



Source: Statistisches Bundesamt, US Census Bureau, expert interviews, MGI analysis

The impact of innovations on productivity and the cost efficiency of the corresponding IT investments may vary from company to company. This will depend on the degree to which the innovations are in line with the company's strategic and operational goals. In addition, the IT investments must usually be accompanied by

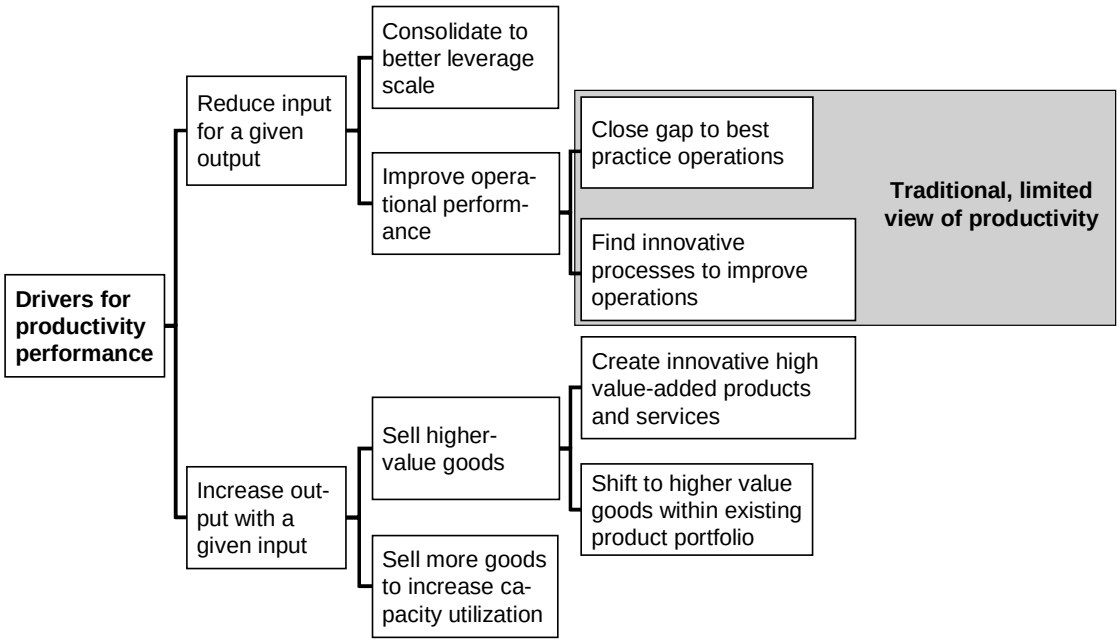
corresponding changes in the business processes to lead to the desired impact. Business leaders, therefore, need to closely evaluate the strategic fit of their IT investments, clearly analyze opportunities and risks, and rigorously monitor the possible leverage of these IT investments.

STRATEGIC MANAGEMENT NEEDS TO ENCOMPASS ALL ASPECTS OF PRODUCTIVITY IMPROVEMENT

Business leaders need to ensure that they have a sufficiently broad perspective on productivity that equips them to recognize and exploit all opportunities arising from product and process innovation. This requires productivity measures that go beyond the traditional ones (Exhibit 27).

Exhibit 27

DRIVERS FOR PRODUCTIVITY PERFORMANCE



Source: MGI analysis

Productivity measurement is usually practiced using a collection of more or less related physical yardsticks, such as "hours per car" or "number of accounts per person." The traditional view of productivity highlights aspects of improving operational performance: "How can I produce my products or services with fewer people?" As Exhibit 27 illustrates, the macroeconomic concept of productivity as real value added per hour encompasses much more than this and includes aspects

of value to the customer and, in addition to operational performance, efficient scale. This holistic view has yet to be fully transferred to the corporate world.[25] When it is, it will help business leaders focus on productivity improvement along the entire value chain. This will open up improvement opportunities along two further dimensions:

- *Vertical collaboration along the value chain* – Much of the success of the US food retailing sector is based on a more intensive collaboration with suppliers to optimize supply chain processes. This allows suppliers to optimize their production schedules and benefits retailers, as they can rely on a steady flow of merchandise and are, as a consequence, able to reduce inventory levels. German and French retailers have not yet established this type of relationship with suppliers. Supplier integration requires a greater level of collaboration, for example, sharing demand data and forecasts with suppliers. It also requires that advanced IT applications are in place, such as point-of-sale data for individual products, data warehouses, and forecasting tools as well as a common platform for sharing this information.

- *Horizontal specialization* – Consolidation through mergers and acquisitions is not the only way to reach greater scale. Retail banks, for example, have started to unbundle their value chain, select and outsource specific functions, and reorganize them as specialized service businesses. This combines the benefits of specialization and consolidation (Exhibit 28). The establishment of the transaction bank Natexis in France, which provides transaction processing for a number of banks, is a successful example.

Both vertical collaboration and horizontal specialization are heavily dependent on the application of IT. Capturing the benefits of improved vertical and horizontal value chain management again requires strong collaboration between IT and strategy at the top management level. On the one hand, strategic management needs to understand the support IT can provide to utilize the power of vertical and horizontal networks. On the other hand, IT management needs to understand the strategic options under consideration that may lead to structural changes in the value chain and that might require flexible open architecture networks.

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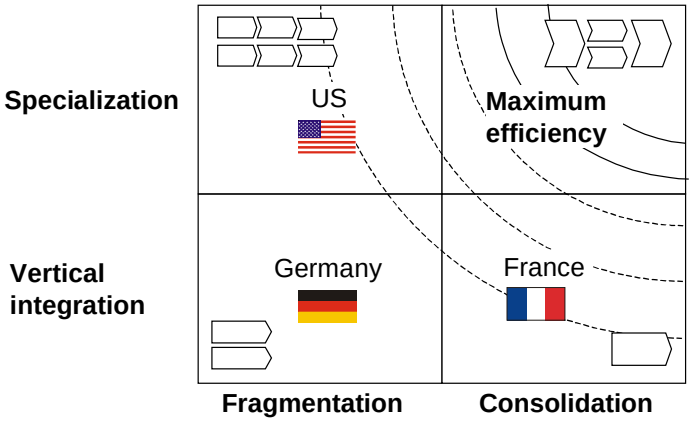
[25] Instead of looking only at labor productivity, managers will need to also consider capital input and thus follow the concept of total-factor productivity. In most cases, however, the key levers for labor productivity improvements identified in this study – consolidation and innovation – also lead to improved total factor productivity.

Exhibit 28

SPECIALIZATION AND CONSOLIDATION IN RETAIL BANKING

ILLUSTRATIVE



Benefits of specialization

- No cross-subsidy and higher natural selection
- Higher transparency of prices
- Enables convergence to optimal size for each part of the value chain
- Higher competition and innovation
- Enables best practices in IT for the specialized function

Benefits of consolidation

- Synergies
- Economies of scale
- Avoids duplication of IT systems which are mainly fixed costs

Source: AFB, BdF, BIB, Lang and Wetzel (1999), Vander Vennet R. (1994), Humphrey (1990), MGI analysis