BDI
The Voice of
German Industry

Industrial value creation chains

How important is industry?

Germany's industrial business model is its lifeblood

Industry is more than just its contribution to macroeconomic value creation

Strengthening Germany as an industrial nation

Industry in Germany is currently experiencing a renaissance. For over 15 years its contribution to overall economic value creation has been stable. The crisis of the years 2008 and 2009 was overcome surprisingly quickly. The European Commission has now also rediscovered industry and aims to boost its share of value creation in the EU from the present 16% to 20%. Other countries are also becoming increasingly aware that industry has an important function as a hub for value creation chains. Industry therefore represents much more than just its own contribution to value creation, particularly in Germany, an industrial nation.

A strong industrial core and the ability to control complex industrial value creation chains are increasingly becoming the key to international competitiveness. This brochure presents facts, arguments and perspectives regarding the definition, meaning and development of industry in Germany and other important economies. It focuses on opportunities and threats. The central questions are:

- Why is industry important?
- How significant is the industrial value chain and how will it change?
- Where does German industry stand on an international comparison?

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Contents

Concept of industry

Industry is much more than merely the processing sector

Four concepts

Sectoral view

Industry is a branch of the economy.

- narrow: processing sector (manufacturing)
- broad: producing sector

classification by main focus

Key facts for Germany:

- gross value creation (GVC) share of processing sector: 22.6% (2011)
- 73% of all exports (2011) and 87% of R&D expenditure (2010)

Network view

- Industry consists of »own value creation plus input network« with other branches.
- Network: input purchases of other branches minus purchases of industry from other branches
- In macroeconomic terms, the balance is value creation

Key facts for Germany

- Network contribution to GVC: 10.2% (2008)
- Significance of industry with network: 30.2% (2008)

Product view

Industry is any company which mainly produces and sells industrial products.

Key facts for Germany:

- No industrial enterprise sells solely industrial products
- Surveys show that one third of turnover of industrial enterprises is made up of products that are not purely industrial
- 23% of the turnover of the other sectors consists of industrial goods

Process view

Industry is any company which makes identically reproducible goods.

- Widens classical industry to include service providers with industrial production procedures

Key facts for Germany:

- For every two classical industrial enterprises there is one service enterprise with industrial production processes

Sectoral view

The best-known definition of industry is based on the international official nomenclature of sectors of the economy. In a further breakdown, manufacturing industry or on a narrower view the processing sector are assigned to industry. This concept is internationally agreed and widely accepted.

Network view

The network view determines the value created by industry on its own and jointly with other sectors through intermediate inputs. In Germany this amounts to around one third of total value creation. Unlike with the sectoral concept, there is emphasis on the important hub function of industry for the organisation of cross-sectoral value chains.

Product view

The product view – like the network and process view – looks at the concrete activities of the enterprises. No industrial enterprise sells only industrial products. Many already have a hybrid business model, in which services are also supplied over the total product life-cycle.

Process view

A totally new concept for the definition of industry is constituted by the process view. Its essential feature is the **identical reproducibility** of products, since their manufacture is based on parts lists, designs, formulas or clear technical specifications. This generally also involves the utilisation of materials and resources. An additional characteristic is storage capability – enabling the separation of production and use. Both criteria are also met by many services, such as the production of software or technical services. For every two industrial enterprises there is one service provider which produces industrially.

Companies which manufacture identically reproducible products place very similar demands on where they locate. Their production is capital-intensive, they operate machines and plant, require extensive space, have above-average energy consumption, are not emissions-free, need technologically intensive knowledge and their members of staff have similar competences. All this makes them **natural allies** in efforts to secure industry-friendly framework conditions. That is why this new concept of industry is particularly relevant with respect to the representation of industry's interests in the political sphere and to public relations activities.

Concept	In favour	Against
sectoral concept	+ Internationally agreed data available + Widespread sectoral key	– Enterprise is a black box – Does not highlight value chains
network concept	+ Reveals input relations + Emphasises industry's hub function	– No official data – Only cross-sectoral relations
product concept	+ Shows actual turnover activity + Highlights importance of services	– Hardly any official data – No observation of product life cycles
process concept	+ Identical reproducibility widens the range of industrial enterprises + New coalitions based on mutual interests possible	– No official data – Degree of arbitrariness through self-assessment

Significance of industry

Facts and arguments

For 15 years industry has been experiencing a renaissance. Its share of value creation in Germany remains not only stable but also at a high level.

In most other countries this is not the case. Measured in terms of gross value creation, Germany is the world's fourth largest industrial nation. Among 51 relevant industrial nations, Germany is placed 9th for industrial density.

Irrespective of a worldwide trend towards tertiarisation, industry continues to be an important factor, especially against the background of the global financial crisis.

Contribution to value creation, employment and income

Industry is an important economic factor with above-average productivity and earning opportunities.

Participation in growth and prosperity in the world

Industrial products can be traded worldwide. Producers can thus directly participate in the upswing in the growth regions.

Engine for generating knowledge

Knowledge is the most important production factor of the German economy. Here industry's commitment is strong and above-average.

Hub function

Industry is closely interwoven with services enterprises. It is a central hub for value chains.

Contribution to SMEs

Industry is also characterised by medium-sized businesses. 10% of SMEs belong to the processing sector, 20% of those employed in SMEs work in them.

Solving economic and social problems

Without the products of industry, many social problems such as sovereign debt or social security could not be solved.

Jobs in rural areas

Production locations are shifting from heavily populated urban areas to rural regions, where industry represents an even more significant economic factor.

Contribution to value creation, employment and income

Industry makes a major contribution to macroeconomic value creation. In 2011 the processing sector was directly responsible for 22.6% of value creation in Germany.

A further decisive factor of industry is its high productivity. Thus 22.6% of gross value creation is generated by 18% of the total volume of work in the economy.

In 2011 the average member of staff in the processing sector created gross value of 50.31 euros per hour. In the economy as a whole the figure was only around 40 euros.

At the same time, incomes in industry are higher than average. As a result, in 2011 employees in the processing sector accounted for 25.1% of employees' income.

Consequently, staff remuneration in industry works out at 33.82 euros per hour, whereas in the economy as a whole it is only 27.30 euros.

International view

Around the world industry's contribution to gross value creation is lower than in Germany. Nevertheless, making up 17.5% of global value creation it continues to be an economic sector that carries great weight.

After China, the USA and Japan, Germany is the fourth largest industrial nation in the world. Of the 51 industrialised nations surveyed, there are only eight which have a larger industrial ratio than Germany.

Today the highest share accounted for by the processing sector is no longer in the classical industrial nations but above all in the newly industrialised countries. Thus the share in the industrial nations in and outside Europe averages around 15%, in Central and Eastern Europe the figure is 19% and in the BRICS countries as much as 23%.

Especially in Southeast Asia the processing sector is a strong factor with an average of 25% of gross value creation.

However, of all the classical industrial nations, Germany still has the highest share accounted for by processing industry in gross value creation.

Exports and direct investment

Industry as the locomotive for foreign trade

Globalisation as a locomotive for growth

- Exports and direct investment developing more dynamically than value creation and production value
- Processing sector is driving foreign trade
- Export ratios in processing sector are rising worldwide

German industry is very export-oriented. The export ratio of the processing sector has risen from 32.7% (1995) to 51.9% (2011). Over the same period the foreign trade surplus ratio (exports minus imports at production value) increased from 8.7 to 15.7%.

Thanks to its exports, Germany benefits from the upswing in all the world's growth regions. Particularly the BRICS and Central and Eastern European countries import a significant proportion of their goods from the Federal Republic of Germany.

Industry plays a central role here. 72.6% of total exports are accounted for by the processing sector. It is the driving force behind Germany's status as the number two export nation, close behind China.

While the processing sector is also a significant export factor in other countries as well, only in five other countries around the world does this sector have a higher share of exports. The average worldwide is around a solid 57%.

Germany's foreign trade is very focused on high-quality products. An outstanding part is played by highly productive intermediate goods and innovative capital goods .

Knowledge as a production factor

German industry lives by its brainpower

Research and development

R&D is a domain of industry

- Share of processing sector in all R&D expenditure in 2010: 86.7 %
- R&D ratio 25 times higher than in other sectors

R&D in enterprises

- 70% of companies engage in R&D
- As much as 90% of research-intensive industry

Innovation capability

Industry also leads with innovations

- Innovations decisive for competitiveness
- Innovation effort and yield above average

	Industry	Others
Innovation activity	65%	60%
New market introductions	18%	14%
Quality improvement	17%	17%

STEM employees

Strong focus on science and technologies is a major contribution to success

- STEM employees as a good yardstick for corporate technology orientation
- 533 STEM staff per 1,000 employees compared with 294 in economy as a whole
- At 9.4% high proportion of STEM graduates in processing sector (total economy: 5.9%)

International comparison

German industry committed to R&D

- Share of industry with R&D above average
- In other countries industry is also strong in R&D
- Germany placed 8th internationally in R&D

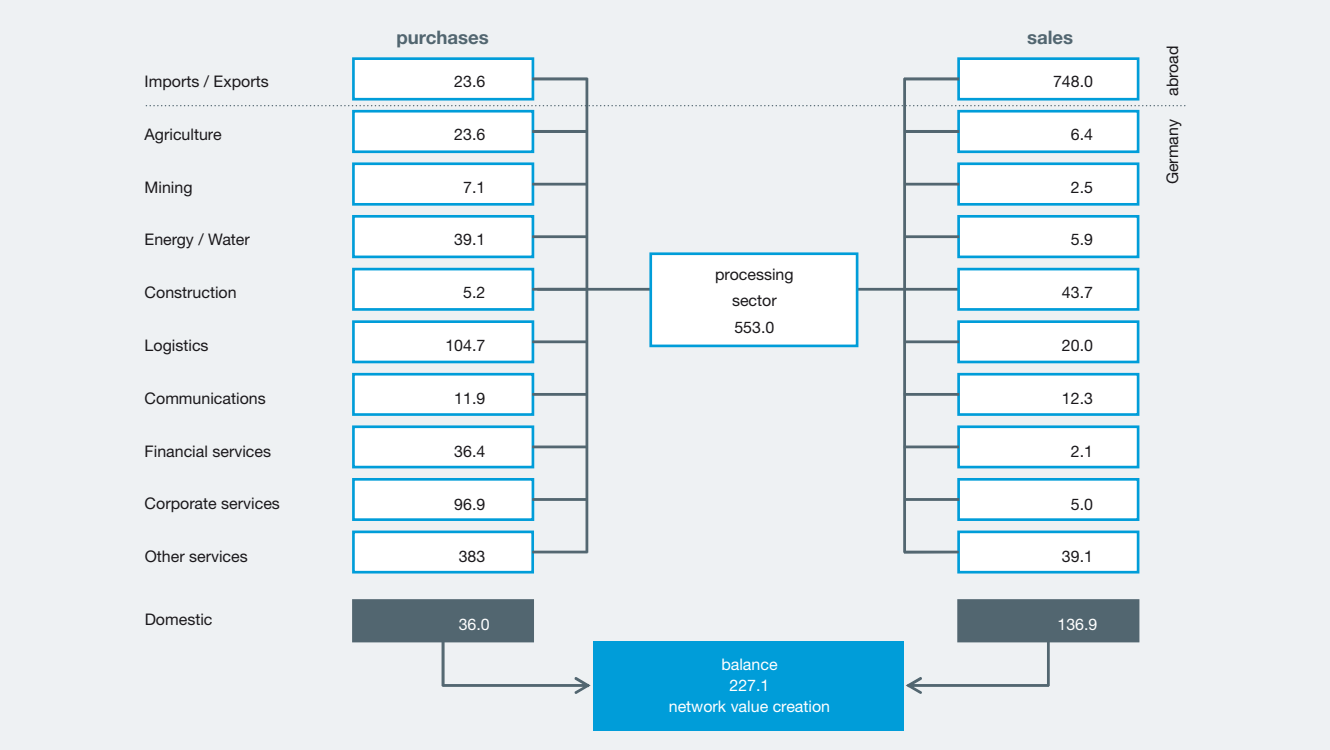
	R&D as a % of GVA	Pr. Sec. as a % of R&D
Germany	7.7	89.2
Industrialised countries	6.7	58.0

Ø 2005–2009

Hub function of industry

Through its purchase of inputs from other sectors the importance of industry is more than just its own share of value creation.

Intertwining of inputs from Germany and abroad



Source: Statistisches Bundesamt (2012), IW Consult (2012)

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Input networks

In 2008 the processing sector's own contribution to overall value creation was 444 billion euros. This is equal to 20% of Germany's value creation under the product concept of input-output calculation. At the same time, 227 billion euros more in inputs was purchased from other sectors than was sold to them. That amounts to another 10.2% of value creation in Germany. Without the processing sector, this value creation would not exist. Therefore, directly or indirectly the processing sector makes a contribution of 30.2% to value creation inside Germany.

Such a positive input network is also not untypical of other countries. Of 45 representative countries surveyed, in the case of 42 there was a surplus on balance resulting from inputs purchased and sold by the processing sector.

This hub function of industry is particularly marked in the Czech Republic, Sweden and Germany. Here, in the middle of the last decade, the average share of gross value creation by the input network was over 8%.

Industry density

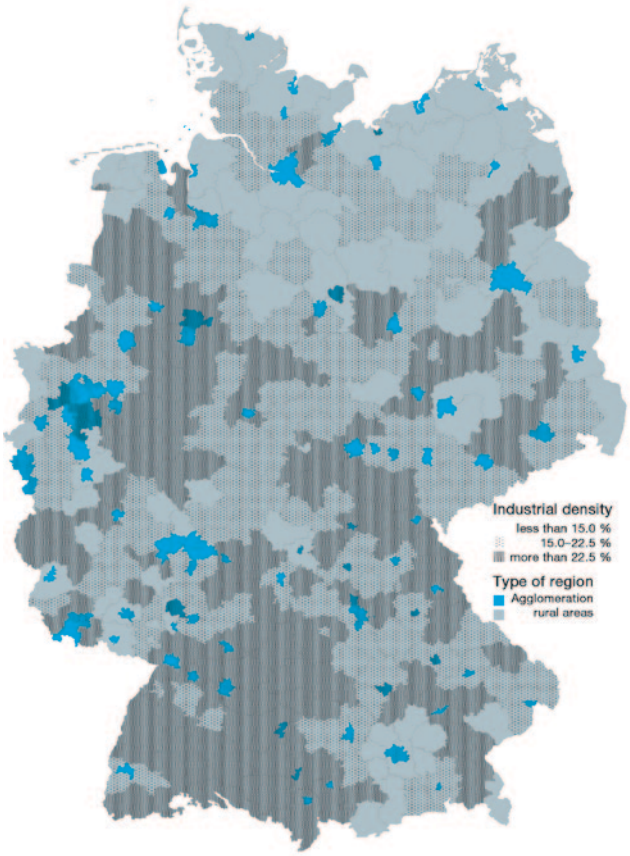
Industry is a major stabilising factor for the economic strength and perspectives of rural areas.

An average of 27.7% of all persons employed in rural areas work in the processing sector. That is 12% more than in urban conurbations. Among the fifty locations with the highest share of industry there are only six urban areas with a long industrial tradition such as Wolfsburg or Ingolstadt.

The major importance of industry for rural regions in Germany developed in the nineteen-seventies and eighties.

In addition, looking at the distribution of industry within Germany, both an east-west and a north-south disparity clearly emerge.

Industrial density of Germany's regions 2010



Source: Bundesagentur für Arbeit (2012), IW Consult (2012)

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Industrial SMEs

SMEs are a feature of German industry. At the same time industry is an important driver of employment and turnover for German SMEs.

SMEs on a European comparison

country	companies	employees
Germany	98.1%	48.3%
France	99.3%	56.2%
UK	98.9%	57.8%
Spain	99.6%	72.3%

Source: Eurostat (2012)

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Industry in small and medium-sized businesses

98.1% of companies in Germany have 250 employees or fewer and on this narrow definition are classsified as small and medium-sized enterprises (SMEs). Every 10th company in this classification belongs to the processing sector. At the same time, these firms generate 26.5% of the turnover of all small and medium-sized businesses.

However, other countries also record similar statistics with regard to the share of SMEs in the employment statistics and the companies of the respective country.

Significance of family businesses

Family firms predominate in the German corporate landscape. Estimates put 84% of German industrial enterprises as being family businesses.

Typical features of family firms are:

- Unity of ownership and management
- Close bonds with location
- Personal relationship with customers and staff members

They are characterised by rapid decision-making processes and flexible reactions to market changes along with a strong bond with their customers. They account for around 30% of industry's turnover.

Business model SMEs

Specialisation in high quality, individually produced niche products as German SMEs‘ model for success

Specialisation as model for success

A major reason why industrial SMEs are so successful in Germany is that they have specialised in the production of individual and high quality niche products. They frequently serve markets that are regionally limited or very specialised.

Significant factors for the success of SMEs are the quality of their services along with features such as reliability, flexibility, speed, meeting deadlines and trust, all of which can be summed up under the heading »German virtues«.

Here the degree of industrialisation depends crucially on the size of the company.

- Large firms and big concerns are internationalised to a very great extent.
- Industrial companies with fewer than 250 staff still have great potential for catching up in globalisation.
- Research and experimental development are predominantly carried out in big companies.
- Industrial companies with up to 500 employees account for only 13% of R&D expenditure.
- The rise in expenditure on innovation in the last 15 years comes mainly from companies with more than 500 employees.

Industrial structural change

Services and research-intensive branches on the advance including in the industrial sector

The trend towards services

Services are also on the advance in industry. Since the mid-20th century, services have been gaining in importance. And industry is no exception here. This trend is based on greater customer orientation and the growing demand for complete solutions and tailor-made products. Such solutions and products ever more frequently contain a substantial proportion of services. The services on offer from industrial companies do not therefore take the place of any industrial products but are developed around the various products and complement the company's offer.

The trend towards more services can be deduced from various factors:

- The share of value creation from the services sector has again risen since 1995 from 66.6% to 68.3%.
- At 68% services professions accounted for six percentage points more in 2011 than had been the case 15 years previously.
- In the processing sector the trend is also towards more service activities. According to an OECD survey, back in 2002 already 40% of employees were engaged in service activities.
- Surveys show that companies in the processing sector now generate only 67.4% of their turnover with purely industrial products.

Structural change – in Germany and internationally

An important contribution to value creation as well as rising productivity and wages are key features of German industry

Germany

Trend towards deindustrialisation halted

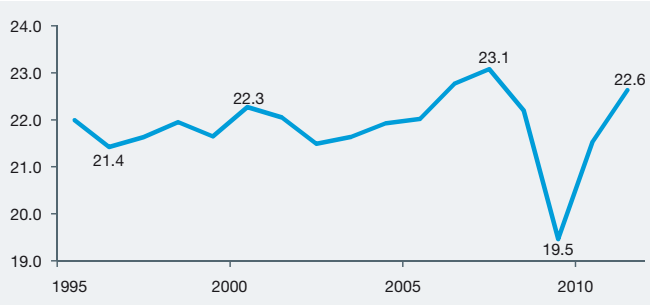
Processing sector still makes a significant contribution to gross value creation (22.6%)

Since 1995: productivity: up 69%; hourly wage rates up 45%

Incomes and productivity are higher than in the economy as a whole

However, above-average drop in work volume

Share of gross value creation



Source: Eurostat

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Internationally

An economic sector with substantial weight

Global share of value creation: 17.5 %

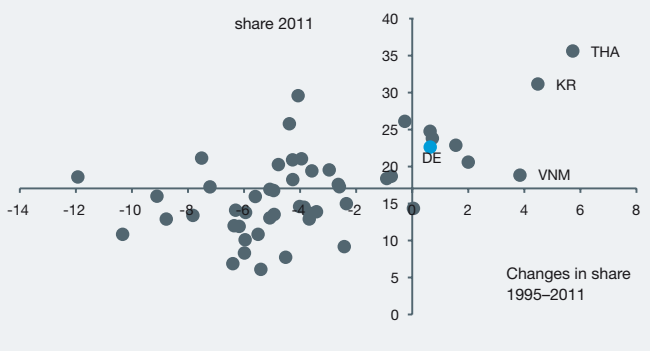
Also above-average rise in productivity internationally

Germany in comparison

There are only eight countries with an above-average and growing industrial share:

- These include Thailand, Korea, Vietnam and Czech Republic along with Germany
- Above-average and falling shares in many classical industrial nations, e.g. USA, UK, France

Industry's shares and changes



Source: OECD (2012), Eurostat (2012), Worldbank (2012), IW Consult (2012)

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Expansion of the international sectoral view: network view

The combination of industry and services in Germany makes a significant contribution to stabilising the processing sector.

International network view

country	size of network	growth of network*
Germany	31.1%	+3.0%points
Czech Republic	35.9%	+5.5%points
China	38.3%	+0.3%points
USA	14.8%	-3.9%points

Sources: OECD (2012), IW Consult (2012)
* Mid-2000s compared with mid-1990s

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In the network view the focus is on intersectoral value chains. In nearly all countries of the world, industrial firms purchase more from other branches than they supply them with. This factor makes the overall economic importance of industry greater than is expressed by industry's own contribution taken in isolation.

The value creation share of this network is particularly strong in Germany. With 31% of value creation, the network supplies a high proportion on an international scale. Only few countries have an even greater share. In the Czech Republic and Germany this proportion has revealed a positive trend. In other classical industrial nations such as the USA it has dropped. This demonstrates the sustainable close link between industry and services in Germany.

Development of shares of persons employed

The number of those employed in the processing sector is declining internationally. In particular, the economic crisis clearly left its mark on industry between 2008 and 2010. Worldwide between 1995 and 2010 around 10% of jobs in the processing sector were lost.

Cross-sectoral structural change

Structural change has also taken place within German industry. Knowledge-intensive industry has gained substantial ground compared with the rest of industry. Its value creation rose by over 50% between the years 1995 and 2010. There has also been stronger demand for knowledge-intensive services.

While the work volume in knowledge-intensive industry contracted by 14.2% over the same period, in comparison with other areas this decline is still relatively minor. In view of the rise in gross value creation, particularly in research-based industry, there have been substantial rises in productivity.

As with work volume, the share of employed persons in the rest of the producing sector fell by 18.1%, while the decrease in knowledge-intensive services at 8.5% was fairly moderate in comparison.

For services, both in the field of knowledge-intensive services (+31.8%) and other services (+17.7%) appreciably higher numbers of personnel were required.

In the case of knowledge-intensive services, there was increased demand for external self-employed personnel, as is implied by the difference between the numbers of those gainfully employed and those actually employed by business enterprises.

It can therefore be concluded that knowledge-intensive industry has clearly gained in importance as part of cross-sectoral structural change.

STEM intensity

The growing importance of knowledge-intensive industry has a positive effect on demand for STEM graduates. For some time these have been in short supply, a development which could pose a threat to the longterm growth opportunities of STEM-intensive industry. And it is precisely these branches of industry which make the largest contribution to growth of gross value creation.

Between 1995 and 2010 the top three branches of industry with the highest proportion of STEM graduates recorded growth of 52%. At the same time their share of the processing sector rose from 39.1 to 45.3%.

Structural change in foreign trade

The focusing of exports on the major growth markets is an important reason for the positive development of German industry.

Regional structure of German exports

year	industrial nations	Central and Eastern European countries + BRICS
1995	74.3%	14.9%
2000	75.9%	15.3%
2005	71.3%	19.2%
2011	64.6%	26.7%

Source: WTO (2012)

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Regional structure of Germany's exports

The regional structure of Germany's foreign trade has undergone a marked realignment in the course of its expansion. Whereas in 1995 74% of all exports went to other industrial countries, in 2011 this figure had dropped to 65%.

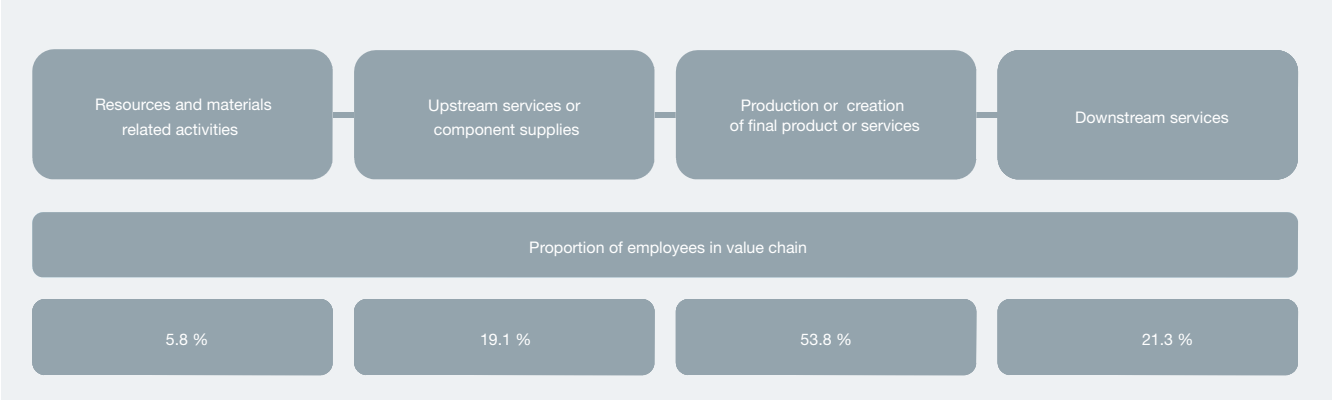
The winners are the countries of central and eastern Europe and the BRICS nations. 26.7% of all exports went to them in 2011. China alone took 6.2% of all exports and was thus Germany's third-largest trading partner after the USA and France.

While it is true that in all countries it is the goods of the processing sector that dominate foreign trade, in Germany at 72% this proportion is 21 percentage points higher than the world average. This makes Germany the second-largest exporter of industrial goods in the world, with the country doing better than many of its competitors in managing to maintain its position over recent years. A major reason for the positive development of German industry in recent years is that its exports are very much focused on countries that are particularly strong in growth. Especially in central and eastern Europe and also the BRICS countries, Germany has established a strong position.

Industrial value chains

A value creation chain defines all the stages of the production process including all upstream and downstream activities. It therefore forms the operative complement to networks and cooperations arrangements in which cooperation is organised by means of purely supply relationships.

Shares of persons employed in the processing sector and business-oriented services



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Position of business enterprises in the value chain

The value chain can be divided into four typical model stages:

1. Primary activities close to resources and materials
2. Upstream services and supplies of components
3. Production activity or provision of services
4. Downstream services

Most enterprises in the processing sector in Germany are engaged in stage 3, though there are great differences between various branches. For example, metal-producing enterprises are clustered at the beginning of the value chain and mechanical engineering firms are mainly to be found in stage 3.

Intertwining of industry

Both the share of sector-specific and external inputs as well as the extent of international intertwining have risen substantially in recent years.

Rise in input intensity

The development of the processing sector is moving in the direction of a more intensive division of labour with a stable domestic and a rising foreign input share. This development is being driven by hub industries, that is industries with a high input network. It is precisely these industrial input providers that are particularly reliant on these hubs.

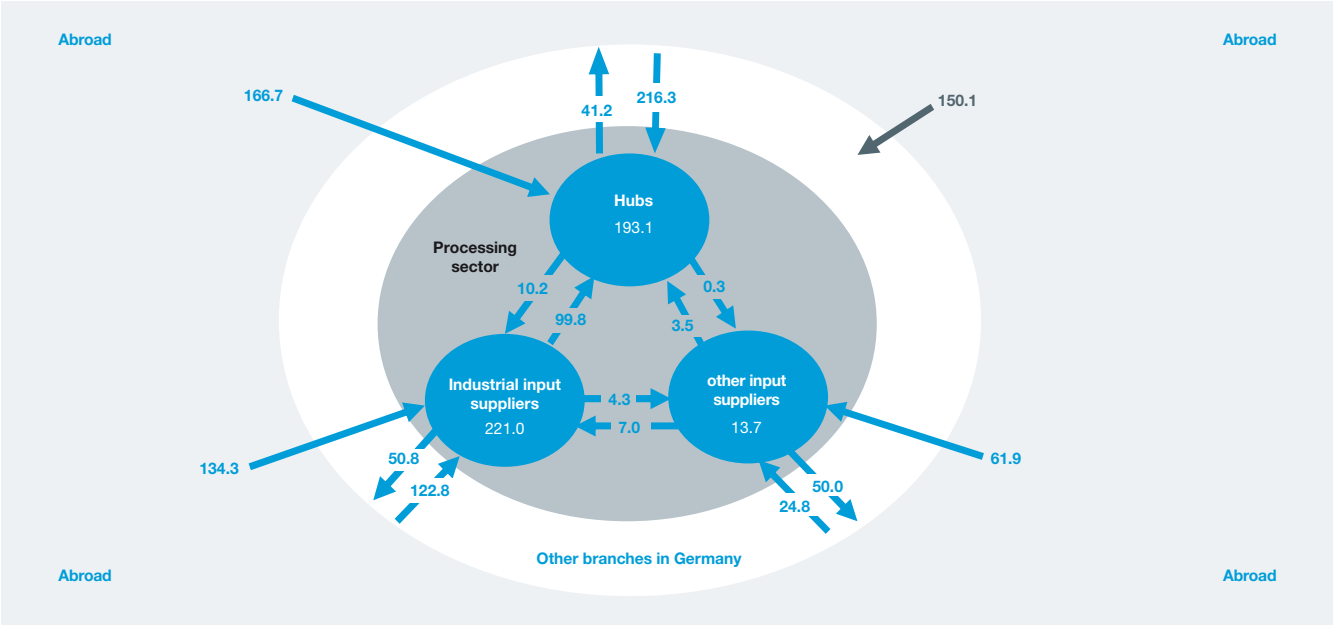
The rise in input intensity can be explained by the trend to increasing networking. This means the vertical integration of in-house production in individual enterprises is somewhat reduced and the enterprises at earlier stages become more important.

This is confirmed by the following facts:

- In 2011 the input ratio of the processing sector is above average at 69.8% (economy as a whole 53.7%).
- The input ratio has been rising steadily since 1995 with the exception of the crisis years 2008/2009.
- Per euro of production 29 cents is derived from inputs from the same branch. Just under 18 cents originates from purchases from other branches.

The depth of the value chain is therefore higher in industry than in other sectors of the economy.

Input intertwining by branch of industry



Source: Statistisches Bundesamt (2012)

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Growth multipliers

The importance of industry for the economy as a whole becomes particularly clear when the growth multipliers are calculated on the basis of a rise in final demand for its products.

- A rise of 1% (10.4 billion euros) in final demand for goods of the processing sector generates aggregate production increases of 20.8 billion euros. The multiplier is 1.99.
- In the services sector the effects are lower. The multiplier here is only 1.54.
- In comparison with the services sector, there are relatively long value creation chains going beyond the sector's own boundaries.

Supplier dependence

The majority of companies in the processing sector are dependent on at least one of their suppliers. According to a questionnaire sent out by the IW Future Panel in the year 2012, the enterprises therefore have more exact information about the links in their value chain.

- 62% expect an adverse impact on their value chain if one of their direct suppliers defaults.
- 59% are aware of the dependence of their suppliers.
- 83% are familiar with the number of links in their value chain.

Importance of national value chains

Geographical proximity can have a positive influence on the success of companies. Companies in the processing sector consider geographical proximity – and the consequent existence of national value chains – to be very important. Results from the IW Future Panel show:

- A clear majority of companies – irrespective of their opportunities in the international market – state that Germany is at the centre of their customer and supplier networks.
- In the case of over 90%, the biggest customer, supplier or competitor has its headquarters in Germany.
- For around 80% national interconnections remain a vital parameter.
- 37% prefer domestic suppliers despite a higher price.
- A further 48% prefer domestic suppliers in the case of an identical price-performance ratio.
- In mechanical engineering, 89% state a preference for German suppliers.
- Nevertheless, countries abroad are gaining increasing importance as suppliers and sales markets.

Hybrid value creation

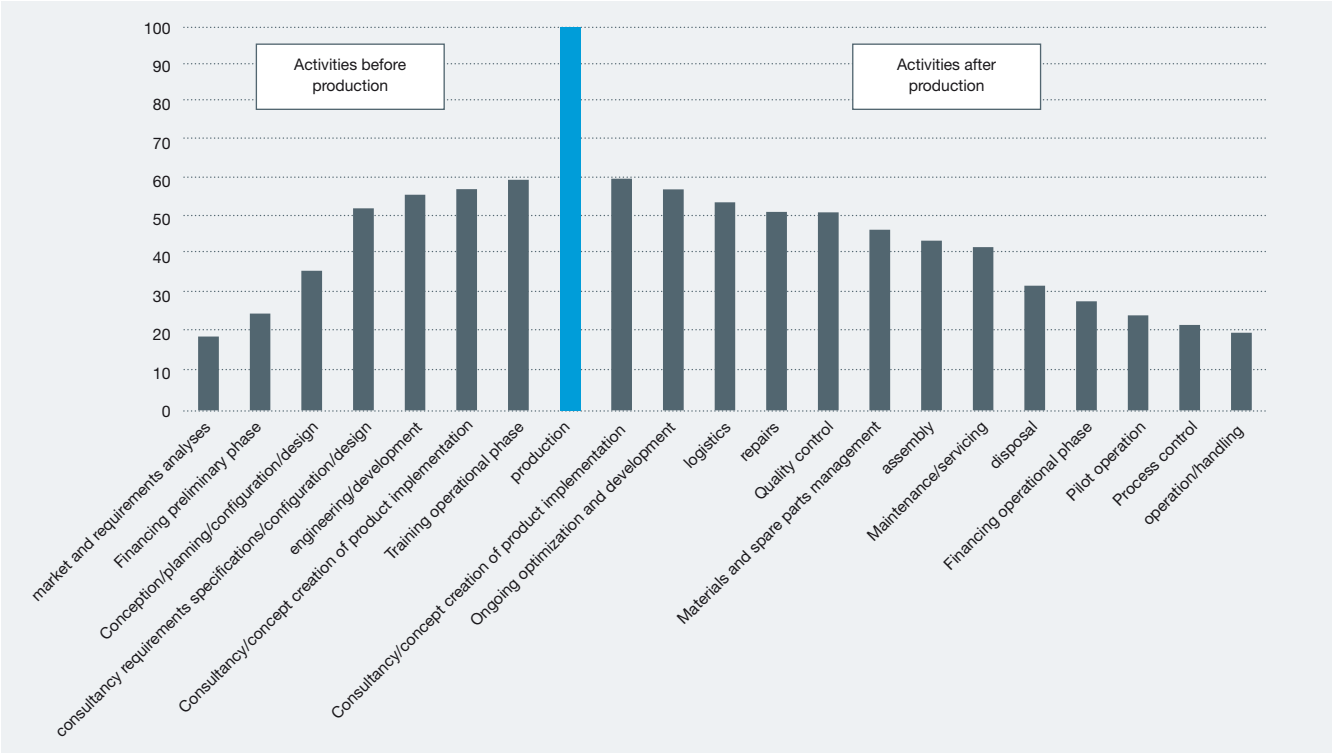
Enterprises which generate turnover with industrial products and offer a minimum number of activities along a life-cycle oriented value chain are described as hybrid. Enterprises which in addition offer performance guarantees above the statutory minimum level are designated hybrid-plus enterprises.

Prevalence

Hybrid business models are not yet particularly widespread.

- 16% of enterprises in industry and industry-related services can be described as hybrid.
- Of these 2% are of the hybrid-plus type.
- Hybrid business models are usually organised in networks – only 7% of these enterprises offer all the activities themselves.

Activity profile of a life-cycle oriented value chain
Proportion of firms that offer activities either alone or in a network



Source: IW Future Panel (2012)

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Features

Hybrid enterprises are characterised by special strengths.

- They are better equipped with the success factors internationalisation, innovation, research and development.
- They are especially closely networked with their customers.
- They reveal above-average customer orientation with regard to innovation and are a driving force behind innovation processes.

Success

Hybrid enterprises are more successful than other, non-hybrid, enterprises.

- The development of turnover and employment is better.
- Success increases with the number of activities offered in the value creation chain

Global shifts

Enterprises in the processing sector are expecting substantial shifts in value creation chains to take place by year 2016. Asia – and China in particular – will play an increasingly important role in the next few years.

Changes in the customer and supplier structure

Companies in Germany are expecting that in future they will be integrated in even more dynamic value creation chains. A survey by the IW Future Panel in 2012 revealed that only around 40% of enterprises stated they had had no changes in customer structure since 2008. And only around 60% of firms had registered no change in the structure of suppliers. When asked about expectations for the next 3-5 years, the proportions were even lower with 23 and 43% respectively.

Particularly in the case of suppliers, most of the changes will come about voluntarily. The reason most frequently given was a cost advantage achieved through the new supplier.

Changes since 2008 / Changes up to 2015		Gain of new customers: No	Gain of new customers: Yes
Loss of existing customers	No	39.7% / 23.3%	27.3% / 31.3%
Loss of existing customers	Yes	5.6% / 3.1%	27.5% / 42.3%

Changes since 2008 / Changes up to 2015		Gain of new suppliers: No	Gain of new suppliers: Yes
Break with previous suppliers	No	60.5% / 42.5%	9.3% / 19.2%
Break with previous suppliers	Yes	3.5% / 4.3%	26.6% / 34.0%

Source: IW Future Panel (2012)

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Business model D for Deutschland

The strengths of German industry lie in its capacity for differentiation, for devising tailor-made solutions and mastering complexity.

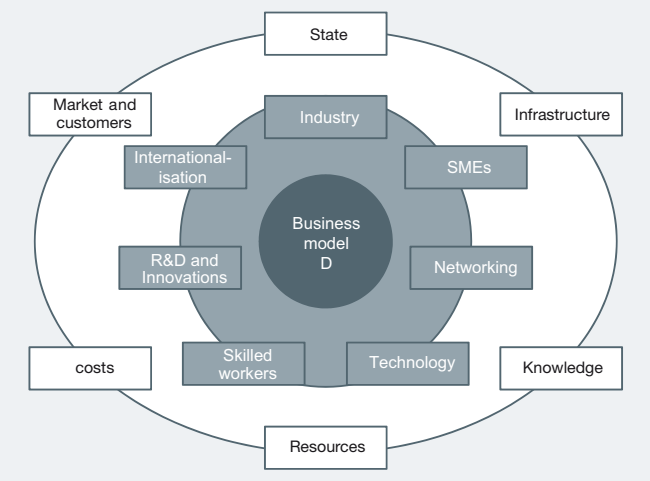
Features and overall environment

In order to hold their own in international competition, enterprises must be able to keep up in an innovation race as well as in a cost race. The specific strengths of German industrial enterprises are well suited to these tasks.

While German firms rarely lead the field in technological developments, they are very successful in combining different cutting-edge technolgies. They produce individually adapted and high-quality products for a strong domestic market, while at the same time being traditionally very much oriented to the world market. This permits special products to be manufactured in reasonable quantities.

The German network economy with its clusters of suppliers, science, training and infrastructure is thus well placed to deal especially well with tasks of great complexity. In particular, the capacity for differentiation can be seen as a German core competence with which a head start can be gained.

The business model D for Deutschland should be seen as a theoretical construct. This concept sums up the view that specific features give German companies the ability to steal a march on competitors from other countries.



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Analyses at corporate level

Internationalisation, research and development together with innovations are features of particularly successful enterprises. However, at least two of these three characteristics are necessary for better-than-average success.

Companies displaying all three features are top representatives of business model D for Deutschland. In the following they are described as »type D« enterprises.

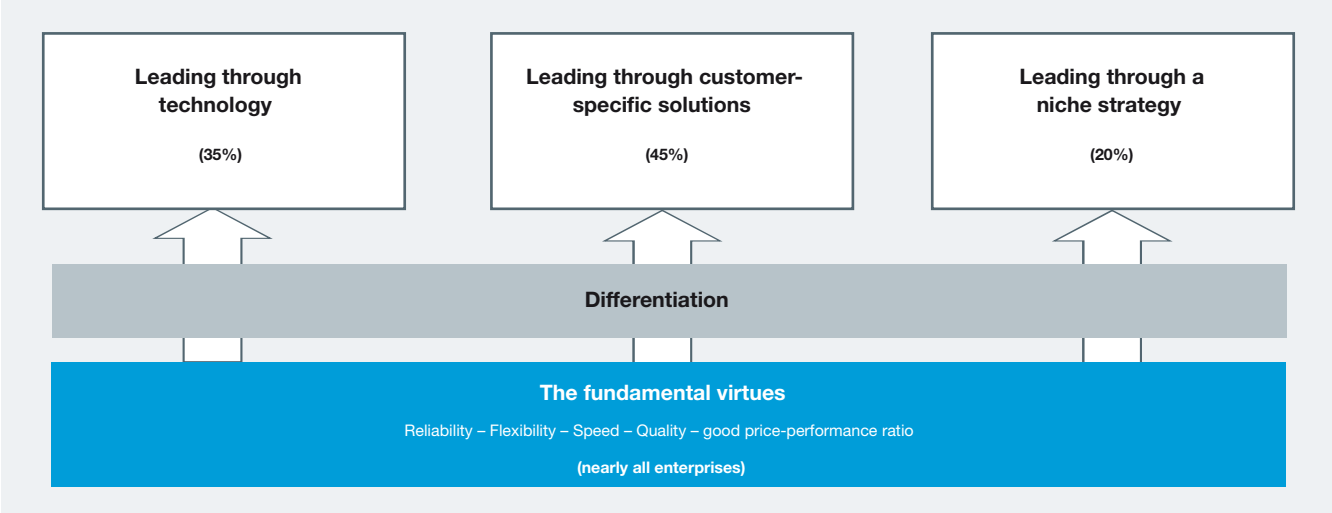
Basically the three features can be summed up by the slogan »Vorsprung durch Technik« (leading through technological edge). A good one third of German companies can be so described. In contrast, very nearly half of German firms back the slogan »Vorsprung durch Kundenspezifität«, meaning leading above all by providing customer-specific solutions to problems and a complete service range. The remaining 20% of companies pursue a niche strategy.

Ultimately the business models always aim at aligning corporate policy with those areas in which companies have a competitive advantage or see the chance of one.

Here nearly all enterprises are founded on the classical virtues – reliability, speed, flexibility, quality – and on a favourable price-performance ratio.

For 10% of companies using the internet as a core component of their business model already plays a central part in their planning.

Success factors of the German business model



Source: IW Future Panel (2010)

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Analyses at aggregate level

When individual branches of industry are considered, specific features of Germany as a business location emerge in comparison with the international picture. However, similar structures are to be found in South Korea and the Czech Republic. A development in favour of a similar business model can also be observed in China.

Industry orientation

Industry carries an above-average weight in the German economy. At 22.6% industry's contribution to gross value creation is higher than the international average.

However, since other countries such as China, the Czech Republic or South Korea are similarly placed, industry orientation alone is not a sufficient criterion for business model D for Deutschland to be seen as a special case.

Knowledge orientation

Knowledge orientation is another vital pillar of business model D for Deutschland.

For example, internationally Germany is one of the locations with the greatest strengths in innovation and research. German companies have an above-average STEM orientation and focus heavily on members of staff with secondary (vocational) education and training. Germany's dual training system is another special feature of the country as a location for industry. Apart from Germany, only Austria and Switzerland have such a system in place.

Export orientation

German industry is internationalised to an above-average extent. The processing sector's share of total exports is also higher than the average at 73%. On the whole, compared with other European competitor countries, Germany has managed to hold its ground well with regard to its share of the world market.

Specialisation

German industry specialses in research-intensive goods. Its strong points do not, however, lie so much in top technologies but more in the mid-range segment.

Hub function

The German processing sector has a very definite function as a hub. Of every euro of value creation, 50 cents is generated as part of a network. A similar situation is only to be found in the Czech Republic and Sweden.

Depth of the value chain

German industry has greater vertical integration of production than most other countries. As a result of the major export orientation, domestic input markets have less significance as sales markets than is usual internationally.

A look at the IOT multiplier, impulses for growth through a rise in final demand for industrial products, reveals that this tends to be lower than average on an international scale. The depth of value chains can therefore be assumed to be closer to average. High imports of inputs are one of the reasons for this.

Diversification

The structure of the industrial sector in Germany covers a broad range and is very diversified. Nevertheless, the country is not one of those with the highest degree of diversification in its sectoral structure but ranks only in the mid to upper part of the table.

One reason for this is increasing specialisation in the metal and electrical industry and industry-related services.

Location quality

What does a successful industry need?

Location factors

Industrial enterprises have specific requirements of their location. The conditions there are generally more important for them than is the case with services enterprises. In a survey carried out by the IW Future Panel in 2012, over 90% of the industrial companies questioned stated that the issues of energy and raw materials along with the national regulatory framework are important or very important for them.

In comparison with the services sector, for industrial enterprises certain topics are of above-average importance and can thus be identified as particularly relevant for industry:

- Energy and raw materials
- Industrial relations
- Human resources
- Innovation environment
- Costs
- Value creation chains

Type D enterprises place especially high demands on the quality of location. They attach above-average importance to issues such as an innovation environment, openness/foreign trade, value creation chains, and infrastructure together with the transport sector of rail, aviation, and shipping.

How does Germany compare internationally?

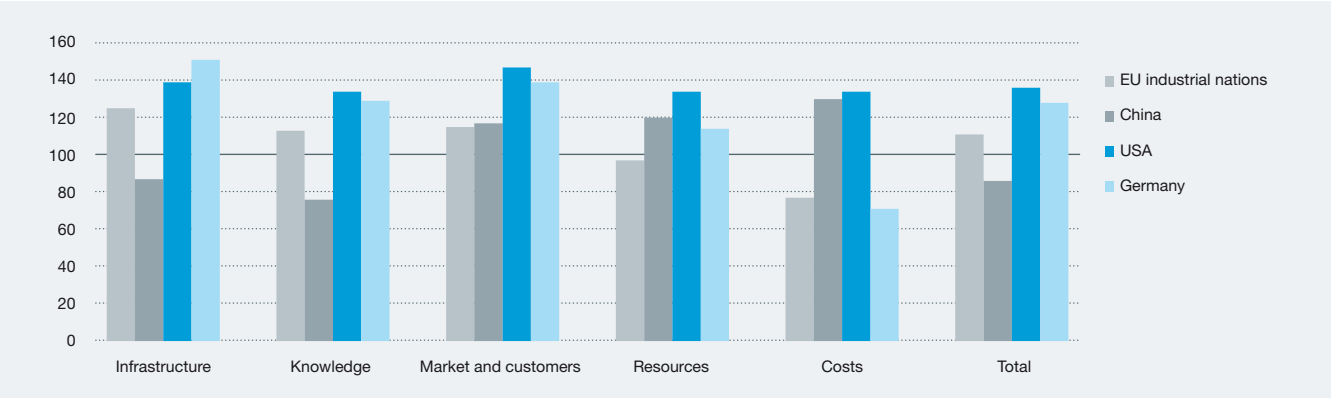
Ranking 2010

In the current ranking of location quality Germany is placed 5th out of 45 countries.
At present, classical industrial nations have appreciably better location quality than, for example, newly industrialising countries outside Europe. In comparison with other European industrial nations, Germany enjoys better-than-average quality.

Infrastructure is one of Germany's main assets. In this area Germany leads the international field. Germany also has strengths in the subdomains of logistics performance and internet access. The country is also very well positioned in the areas of state, knowledge, resources along with market and customers.

Below-average results have an adverse effect on Germany when it comes to costs. Here other industrial nations and above all newly industrialising countries have clear advantages. The difference emerges especially clearly in the areas of labour costs and energy costs.

Index industrial location quality



Sources: World bank (2012), IMF (2012), OECD (2012), WEF (2012), IW Consult (2012), Fraser Institute (2012)

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Location quality – a look at dynamism

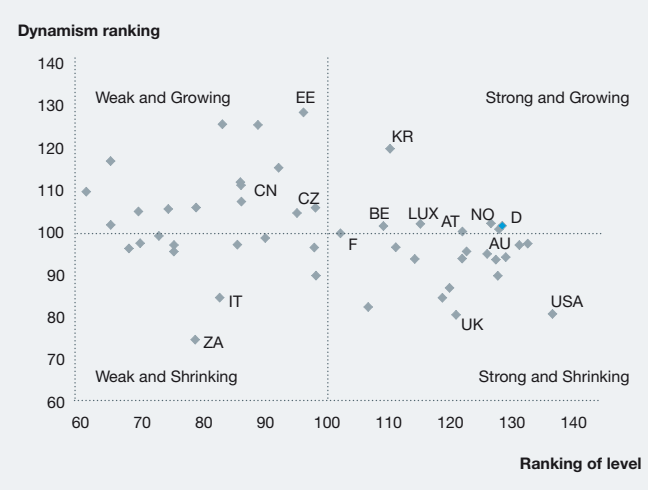
The ranking of dynamism reflects the change in industrial location quality over a 15-year period up to 2010. Here Germany has stood its ground internationally, retaining a high level.

Germany on an international comparison

Compared with other long-established industrial nations, Germany has done well internationally in maintaining its position as a location for industry. While the USA continues to command advantages in costs and human resources, Germany still leads internationally, particularly for infrastructure. Other classical European industrial nations, such as Great Britain, have performed badly in comparison with Germany.

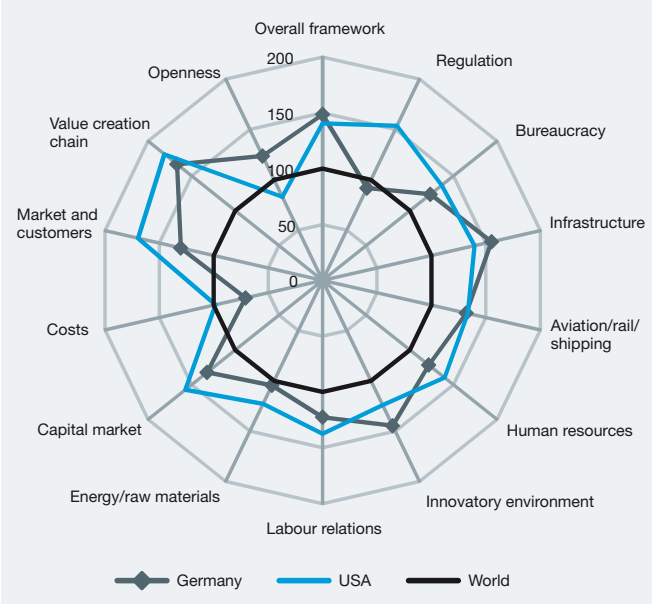
The clear winners in the dynamism ranking, the Baltic states, have caught up in nearly all areas. It is only in the areas of human resources and infrastructure that Germany has done better.

Level and dynamism of location quality



Source: IW Köln (2012)

Comparison of level: Germany – USA



Source: IW Köln (2012)

Opportunities and threats

The success of German industry cannot be taken for granted. Opportunities have to be worked for and threats must be identified and appropriate action taken. In this connection 10 megatrends can be observed.

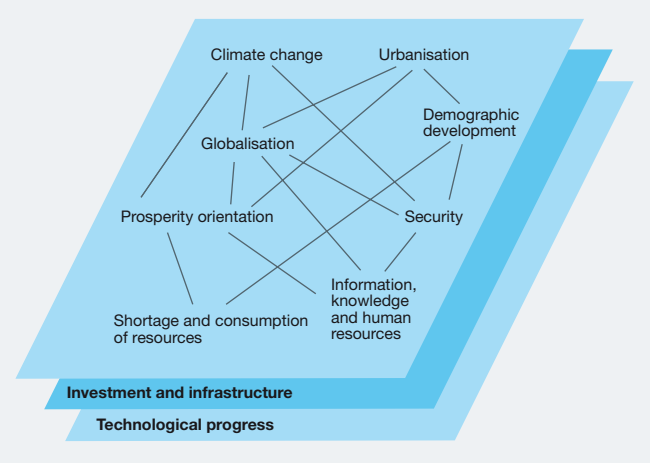
Individual aspects

The global opportunities and perils are based on 10 megatrends. These should not be viewed in isolation from each other but as being frequently closely interconnected. These ten aspects can be listed as follows:

- Globalisation
- Prosperity orientation
- Demographic development
- Urbanisation
- Shortage and consumption of resources
- Climate change
- Technological progress
- Information, knowledge and human resources
- Investment and infrastructure
- Security

Further aspects can derived from these trends. Other important issues are a strong grounding in the future markets, differentiation and hybrid value creation, the energy policy turnaround in Germany, a new protectionism, external shocks and a change in the political setting, the post-materialism emerging in Germany and the advantages and disadvantages of Germany as an industrial location.

Links between the megatrends



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