



Federal Ministry  
for Economic Affairs  
and Energy

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# Industrial Strategy 2030

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*Guidelines for a German and European industrial policy*



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# Foreword



Germany's strength in international competition and its high degree of individual and societal prosperity are rooted to a considerable extent in the traditional strength of its industry. Following the Second World War and again following German reunification, it was Germany's industrial centres which made much of the new, forward-looking value creation possible. Germany remains one of the leading industrial countries in the world today.

However, at the latest in the economic and financial crisis of 2008/2009, it was clear that new responses needed to be found to the changing environment. Accelerating technological advances, tougher international competition and a pro-active implementation of what are in many cases state-driven industrial strategies have changed the global economic situation. The breadth of these changes, not least due to digitisation, has further increased this need. Germany and Europe are therefore standing at the beginning of a fresh chapter in industrial value creation.

As a globally successful industrial centre, Germany must pro-actively and successfully shape this development. I presented my proposals for this in February 2019 in the draft National Industrial Strategy 2030. I made it clear at the time that this was an initial approach which made no claim to be complete or represent a consensus (p. 16 of the draft National Industrial Strategy of 5 February 2019). After all, a persuasive and successful development and implementation of an industrial strategy requires the interplay of all the industrial stakeholders.

Over the last few months, I have engaged in a comprehensive and constructive dialogue with many stakeholders about challenges and opportunities, the policy environment, priorities and measures. Milestones of this dialogue process were the congress on 6 May 2019, the ensuing structured dialogue in cooperation with the Alliance for the "Future of Industry" in five separate dialogue forums, and the Industry Conference on 24 September 2019.

I am delighted that such an intensive discussion process was triggered by my proposals. The dialogue with the business community, the trade unions, academia and policy-makers has showed that we agree that we need to equip our industrial base even better for the future. The debates focused on a competitive policy environment, promotion of technology and our technological autonomy. I thank all the participants for valuable suggestions, on the basis of which the draft has now been revised.

This process has succeeded in placing economic and industrial policy back at the heart of the policy debate. The outcome is a comprehensive concept to strengthen the competitiveness of Germany's and Europe's industry. This will determine whether the European model of prosperity, freedom and society can be maintained. My guiding principle is and remains the Social Market

Economy. In many cases, strengthening the market economy is the best response to structural change.

Here, the Industrial strategy 2030 envisages a triad of measures:

- Firstly: We need to improve the policy environment for industry, e.g. in the field of taxes and charges. I have commissioned a study into the conditions for doing business in Germany. This will provide further ideas on how to take the necessary decisions for the future at national level so that companies can unleash their potential and compete internationally on a level playing field.
- Secondly: In particular, we need to activate the potential for innovation and bring more technological innovations into the production process. Key enabling technologies must be further strengthened as a vital driving force for structural change and as a basis for new and efficient products and services.
- Thirdly: The fostering of the competitiveness of German industry must go hand in hand with protecting Germany's technological autonomy.

At the same time, it is clear that major policies affecting German industry are decided in Brussels. Building on the shared achievements of the European single market and the interests we share with our European partners, we need to take key decisions at European level for the future of our industrial competitiveness.

I am therefore advocating an ambitious, long-term EU industrial strategy with specific and effective measures to support European industrial companies. I will therefore place a focus on industrial policy during the forthcoming German EU Council Presidency. Business, the trade

unions and policy-makers have a shared responsibility for the competitiveness of German industry and the safeguarding of prosperity and jobs.

The Industrial Strategy 2030 is designed to be a medium-term process to strengthen industry which will be continued in a joint dialogue with all the relevant stakeholders. We in the Federal Government will also launch and progress projects of relevance to industry which have been highlighted in this Strategy. We will work to ensure that the policy environment in Germany and Europe meets the needs of the high level of technological and commercial dynamism around the world.

Government and business are addressing this challenge together and with a high degree of self-confidence, because "Made in Germany" is not only the world's most successful and highly regarded brand, but is also an obligation for us all to keep it at the top of the rankings. By doing this, we will contribute to the success of our companies in a time of digitised globalisation, and will show – despite the current challenges – that and how our Social Market Economy can offer solutions for this.

Yours,



Peter Altmaier  
Federal Minister for Economic Affairs and Energy

# Industrial policy – a key element of the Social Market Economy

Germany has one of the **strongest industrial economies** in the world.

With around seven million employees in jobs subject to social insurance contributions, roughly 60% of total research and development spending, and an approximately 23% share of gross value added, Germany's industrial companies make a major contribution to the country's prosperity. Many of the industrial goods made in Germany deploy cutting-edge technology and are produced using digitised Industrie 4.0 processes. Also, industry-related services in upstream and downstream processes are playing an increasingly important role. Embedded in the European single market, German industry is also working closely with our European partners to boost the economic weight of the EU.



Our industrial base is characterised by a large number of **small and medium-sized enterprises** (SMEs), many of which are **family-owned**. Their innovative capacities have enabled many of these firms to build up a first-class market position over recent decades. Some 1,000 – mainly medium-sized – companies from Germany are **hidden champions**, or world market leaders in their field of business.

Many of them work together with **large companies**, using highly automated and capital-intensive production processes to make complex industrial goods.

This fruitful **coexistence** of industrial **SMEs**, **large industrial firms** and efficient service providers makes a major contribution towards the current strength of German industry. The traditional cooperation between industrial companies in value chains is increasingly changing into cooperation in dynamic value networks. If an economic area has complete and highly automated value networks ranging from the production of basic materials to processing and sales, services, research and development, these networks will be more resilient. The efficiency and flexibility of these industrial networks of SMEs and large firms form a major foundation for Germany's economic success.

Here, German industry particularly benefits from the following factors:

- the institutional framework of the **Social Market Economy**,
- the commitment, innovative capacity and social responsibility of the **entrepreneurs**,
- the good training and willingness to work on the part of the **workforce** in Germany, which is rooted not least in the education system, including the dual training system,
- the broad-based **research system**, which is excellent in many technical fields, and the close integration of industrial firms with industry-related research institutions and technical universities,
- the **advantages of free world trade** and the **European single market**, which enable German industry to benefit particularly greatly from the international division of labour
- and the successful model of **social partnership** and a responsible wage policy.

These strengths of the German economy need to be maintained and developed. In order to create a basis for this, the Federal Minister for Economic Affairs and Energy has commissioned a comprehensive **analysis of the business environment**. The findings of the analysis and the proposed measures to boost competitiveness are to be the subject of a conference in 2020 on the business environment. Following this, discussions between the ministries are to take place with a view to launching measures to boost industrial competitiveness.

To this extent, the Industrial Strategy 2030 should be viewed as a medium-term process. In this process, the focus will particularly be on responding to the increasing **technological and political challenges** in a way that creates opportunities, and thus also on helping to develop European industrial policy.

This primarily involves the following points:

- Firstly: Industry is experiencing far-reaching structural change driven by a number of **basic innovations**. Their potential applications embrace nearly all the sectors and trigger long-term growth cycles. Many of these technical innovations are disrupting production and logistics processes and consumer behav-

our around the world. These **game-changer technologies** can disrupt markets and transform entire value networks. Examples of this include the new possibilities offered by artificial intelligence (AI) like machine learning and deep learning, or the potential for automation offered by Industrie 4.0. Developments taking place throughout biotechnology, including genetic engineering, the bioeconomy and bionics, and in new materials, nanotechnology and lightweighting are also capable of driving and redirecting industrial structural change. The second-generation quantum technologies (particularly computing, communications, measuring technology and simulation) offer enormous potential, with some significant effects on commerce. The aim for German and European firms must be to participate in the game-changing technologies, to help shape them and to set corresponding standards.

- Secondly: The emergence of the **platform economy** is closely related to digitisation and, increasingly, also AI. It has generated entirely new opportunities for value creation. However, it also entails the risks of market monopolisation. Today, the large internet platforms control enormous volumes of capital and data, and thus themselves become drivers of innovation. So far, European platform companies have not developed anywhere near as dynamically as those in the United States and China. The expansion of the platform economies from a market initially oriented to private consumers to one focused on commercial clients will be the next stage of the development. Germany is well positioned in the field of business and industrial platforms, Industrie 4.0 and digital services like cloud infrastructure. We need to build on this and safeguard and expand the expertise of industry, and of industrial SMEs in particular, as a core aspect of industrial competitiveness in the digital age.
- Thirdly: Another central industrial challenge derives from the need to combat climate change. Even if industrial greenhouse gas emissions dropped by 30% between 1990 and 2017 (the EU average was 27%), substantial additional efforts will be required to attain the sectoral target for industry in 2030. The costs of these investments rise with every tonne of avoided carbon emissions. There is therefore a need for intensive support for the transformation to a low-emission industrial sector.
 

At the same time, we need to make use of the industrial opportunities which derive from the growing markets for environmental and climate technology. Here, a major role is played by the **energy transition**. It must take place in a cost-efficient manner so that it can become a successful commercial model for industry. Only then will other countries follow suit.
- Fourthly: Germany is engaged in an international race with other industrial nations and dynamic emerging economies to gain the lead on game-changing technologies. **Other countries are pursuing pro-active and strategic industrial policies**. They have adopted comprehensive strategies for the development, production and export of technological expertise, and some of them are backing this up with substantial funding and regulatory measures. At the same time, the trend towards protectionist measures and away from the principles of open and free trade are increasing around the world. We are seeing a growing deployment of ambitious and offensive industry policy strategies and instruments, not all of which conform to market principles. Increasingly, countries are having recourse to instruments which run counter to the rules of international competition and violate corporate international property rights. Also, the global economic weight has shifted clearly in

the last 20 years towards emerging economies and towards China in particular. For Germany, this means that we are not only competing to offer the best products and services, but we are also competing with economic systems which rely more on state subsidies, protectionism and intervention. Germany rejects this approach to industrial policy and confronts it with its own model.

Commerce and policy-makers in Germany and Europe have to cope with these trends. It is therefore necessary to modernise some of our economic policy instruments in order to be prepared when other countries use unfair trade practices or state intervention to undermine market-based competition.

- Fifthly: Not least, the **trade relations** with our U.S. and British partners are negatively affected by recent political developments. The envisaged withdrawal of the UK from the EU has already had a far-reaching impact on our bilateral balance of trade and on industrial integration between Germany and the UK. Agreement on an orderly withdrawal process with a legally secure agreement is therefore a top priority. In the transatlantic relationship, it is important to avoid impending trade barriers which would also create considerable risks in terms of the future development of globalisation.

Despite all the opportunities generated by digitisation and the new technologies, the combination of these developments is posing considerable **challenges** for our economic and social structure. The mastering of these challenges is a joint task for government and commerce:

- The task for the **companies** is to compete and to produce innovations so that they can survive on the world's markets. They need to grasp the opportunities offered by the **Social**

**Market Economy** and international trade, and also bear the risks entailed in commercial activity.

- In the Social Market Economy, **policy-makers** have the task of setting a policy environment that enables companies to unleash their potential and compete internationally on a **level playing field** – both nationally and internationally. The challenges posed by the new technologies and the pro-active industrial policies being pursued by many countries are creating fresh challenges for industrial policy: We need to safeguard the performance and efficiency of Germany as a centre for industry (Pillar 1); we need to draw on private capital to boost funding for technology (Pillar 2); and we need to give better protection to security-relevant technologies and critical infrastructure (Pillar 3).

In its Industrial Strategy 2030, the Federal Ministry for Economic Affairs and Energy is setting out appropriate proposals to tackle these challenges in a Social Market Economy context.

Many of these questions can and must be answered at European level. The Economic Affairs Ministry therefore regards this strategy as a contribution to a pan-European strategy.

The **aim of the National Industrial Strategy 2030** is to work together with the stakeholders in the business community to help safeguard and regain commercial and technical expertise, competitiveness and **industrial leadership at national, European and global level** in as many areas as possible.

This objective is not static, since the massive emergence of companies, particularly from the United States and China, which are developing and implementing game-changing technologies

is constantly changing the international competitive situation. In order to attain this goal, the **hidden champions** amongst our industrial SMEs and the **family-run firms**, as well as the large companies, need to assert their competitive advantages in the global economy, and the existing value networks need to be strengthened in general. The coexistence of SMEs and large companies is the foundation of the efficiency and performance of the industrial value networks in Germany and Europe.

The future development of small and medium-sized enterprises is therefore a particularly important aspect of economic policy. For this reason, the Economic Affairs Ministry has published a separate **SME Strategy** in parallel to the Industrial Strategy 2030. At the heart of this is an improvement in the policy environment so that all SMEs can cope with the economic challenges and maintain and expand their strong position in national and international competition, also in the coming years.

Large, medium-sized and small **industrial champions** work successfully together with their suppliers, many of which are SMEs, in closely meshed value networks. This supplier base is a crucial factor determining the overall success of the value network. However, wherever economies of scale are decisive, e.g. because high capital costs necessitate large production volumes if companies are to be able to compete, or in cases where large orders worth billions need to be won in the face of international competition, large firms are increasingly dominating the world markets. We need large industrial OEMs in order to succeed here.

There are still many such companies in German industry. They have grown up on the market over long periods of time and are an essential element

of our economic structure. However, a large number of companies have emerged in recent decades in the field of digital value creation in particular which are now some of the most valuable in the world. Back in 2005, 14 German firms were amongst the 100 most profitable companies in the world; today, the figure is down to five. Industrial champions can be national, European or even international. The need for corporate investment in research and innovation is far greater than ever seen before, particularly in the field of digitisation.

A decisive role in future competition will be played by a coexistence of industrial companies of all sizes and their cooperation with innovative start-ups. This collaboration strengthens the position of both commerce and German industry in international competition.

The aim is that industrial value creation should continue to expand in Germany and Europe and not – as was the case in some European companies in recent decades – stagnate or even decline. The Economic Affairs Ministry is basing its approach on the idea that industry should account for 25% of gross output in Germany by 2030.

The way in which industry's share of gross output develops over time ultimately depends on investment activity, innovation and productivity trends. These variables develop in different ways in different sectors of industry. But the sectors of industry have one thing in common: their innovative activity and productivity are generally higher than the average for the economy as a whole. They thus play a key role in the German economy and also generate value creation and jobs in the service industries. The list of highly innovative industrial sectors is long; here are a few examples:

- the automotive and vehicle industry,
- the steel, copper and aluminium industry, and the other non-ferrous metals and energy-intensive industries,
- the chemical and pharmaceutical industry,
- mechanical and plant engineering including Industrie 4.0 and additive manufacturing,
- the electrical engineering and IT industry,
- the optical and medical technology industry,
- the environment and energy technology industries,
- the aerospace industry,
- the maritime industry,
- the security and defence industry, and many other sectors of industry, many of which are dominated by SMEs, which as innovators and drivers of growth make indispensable contributions to our industrial and macroeconomic output.

The Economic Affairs Ministry is a firm advocate of a policy for **open world trade** within a rules-based trading system. We reject nationalism and protectionism and the related industrial and trade distortions. The Economic Affairs Ministry is in favour of a continued development of the system of free world trade and a reform of the World Trade Organization (WTO), and is working with its European and international partners and the European Commission to resist the current protectionist tendencies. These efforts must continue to include an ambitious bilateral free trade agenda, particularly with the fast-growing regions in Asia and Latin America.

The substance of the Industrial Strategy 2030 has been discussed in recent weeks and months in an **intensive dialogue process** with relevant players from industry, commerce, the trade unions, academia and policy-makers. The discussions were objective and constructive, and produced a large number of ideas and proposals. This input has fed into the process of compiling this Industrial Strategy.

Beyond the measures cited here, the Economic Affairs Ministry is also working actively to improve the policy environment so that the whole spectrum of German industrial companies can continue to enjoy success in international competition. This process is being backed not least by the Alliance for the “Future of Industry” and in future also by an independent monitoring group (see Chapter IV).

# Policies for better industrial competitiveness

The Industrial Strategy 2030 is based on three pillars which build on one another:

- improving the policy environment for industrial activity in Germany,
- strengthening new technologies and mobilising private capital, and
- maintaining technological autonomy.



## Pillar 1: Germany as a centre for industry: improving the policy environment

The success of Germany's economy and thus also of German industry is built on the initiative and the willingness to take risks of the private sector. In accordance with the principles of the Social Market Economy, the Economic Affairs Ministry believes that its primary task is to advocate an **economic policy environment** which offers companies the necessary scope to unleash their creativity and initiative.

Over the last two years, the Federal Government has already taken some initial forward-looking decisions to ensure that **Germany remains a successful centre for industry**. In view of the challenges described, however, the Economic Affairs Ministry sees a need for further action with regard to the manufacturing sector and also the SMEs in this sector; the needs of the latter are also being addressed in parallel in the SME Strategy, which contains additional measures.

### Cutting the level of corporate taxation

In recent years, many leading industrial nations have cut their levels of corporate taxation. As a result, companies in Germany are now at a relative disadvantage, and this needs to be urgently tackled by a **reform of corporate taxation**.

The main objective of this reform must be to **lower the taxation on retained profits of partnerships and corporations to 25%**. The Economic Affairs Ministry will therefore work in particular towards the following measures:

- Improved **offsetting of trade tax** against income tax, and in the case of corporations, the introduction of offsetting of trade tax against corporation tax. Further to this, the current **corporation tax rate** of 15% could be moderately lowered.
  - A gradual reduction of the **imputation of trade tax**, with a view to its abolition.
  - An improvement in **depreciation conditions** (not least for digital innovation products).
  - A raising of the **depreciation ceiling** for low-value assets from the current level of €800 to €1,000.
- Further to this, a binding timetable for the complete **abolition of the solidarity surcharge** must be stipulated for all taxpayers, including corporations. The partial abolition of the solidarity surcharge adopted by the Bundestag on 14 November 2019 for roughly 90% of taxpayers as of 2021 can only be a first step.
- In order to keep an eye on developments in corporate taxation around the world and to improve the international benchmarking of how attractive Germany is in terms of taxation, **regular tax monitoring** is to be introduced.
- A strong signal for innovative commercial activity in Germany is sent out by the **tax breaks for research** from 2020, which also enable a party commissioning research to set off its expenses for that research against tax. The Economic Affairs Ministry advocated this during the legislative process.
- Improvements and reduced taxes in the case of the **preferential rate of taxation on retained earnings** for partnerships and, in addition, the introduction of an **option model** for corporate taxation.

## Limiting social insurance contributions

The social security systems need to be designed with a view to their future viability in order to uphold social cohesion. The comparatively high level of social insurance contributions can be a disadvantage for companies doing business in Germany. The Federal Government has agreed to **stabilise the overall contribution rate to social insurance at below 40%** of gross wages.

In order to give companies a secure medium-term and long-term basis for their planning, and in order to send out a clear signal that Germany is an attractive place to invest and work in, the Economic Affairs Ministry is calling for a ceiling of 40% to be imposed on welfare charges and for this to be anchored in the Basic Law. An **overall social insurance report** is to project the future development of the overall contribution rate and if necessary to make proposals for measures to be taken.

The reserves in the unemployment insurance funds should be utilised to cut the contribution rate to 2.2%, via a moderate reduction in the reserves of the Employment Agency. A first step has been taken in the cabinet decision of 18 November 2019, which envisages a cut in the contribution rate to unemployment insurance of 0.1 percentage points to 2.4% as of 1 January 2020.

## Making the labour market more flexible

Digitisation and structural change are necessitating a modernisation of the labour market. In order to safeguard private-sector jobs in the long term, the Economic Affairs Ministry is calling for more flexible provisions in labour law:

- In the case of **labour market regulation**, we should use the scope available under EU law to adapt the Act on Working Hours to the modern age and to have only a weekly cap on the

maximum number of hours worked. This regulation should apply to all companies, whether or not they are covered by collective agreements.

- In order to make it possible to calculate the risks of liability for minimum wage entitlements when work is subcontracted out to other companies, and to avoid unnecessary burdens on relations between companies, the Economic Affairs Ministry calls for the **client's liability** for payment of the **minimum wage** to be **restricted** to the first stage of subcontracting and to sectors susceptible to non-compliance with the minimum wage.
- With regard to the **evaluation of the Act on Temporary Agency Work** envisaged for 2020, consideration must also be given to the experience made by industrial companies. It is necessary to ensure that the statutory requirements of the Act on Temporary Agency Work offer sufficient scope and legal certainty for the special features of project-based work.

## Mobilising skilled workers

International comparisons reflect this time and again: the strength of German industry is largely rooted in our excellently trained skilled workers. This trump card must be retained and strengthened as the social and international environment changes.

We need a different societal mindset with a focus on **life-long and inclusive learning**, from early child education to further training right to the end of people's working lives. In addition to better financial provision for kindergartens, schools, vocational schools and universities, we also need a greater focus on skills needed in technical occupations and in a digital working environment. The Economic Affairs Ministry will be pressing for this at all levels of policy-making.

The Federal Government has presented its Skilled Labour Strategy. When it comes to tapping the domestic pool of skilled labour, the Economic Affairs Ministry is primarily focusing on dual vocational training:

- The training courses are being updated to keep pace with digitisation.
- The Alliance for Initial and Further Training has been reoriented. Working together with the partners in the alliance, we aim to encourage even more young people to take up dual vocational training, to improve the career prospects and to promote equivalence with academic qualifications.

The Centre of Excellence on securing skilled labour particularly helps SMEs to select, plan and implement tailored measures to develop their human resources. In order to enable older workers to stay in work for longer, the Economic Affairs Ministry is calling for more flexibility in the transition between working life and retirement.

In addition, the Economic Affairs Ministry is calling for an improvement in the rules governing employee shareholdings in order to make working in Germany more attractive for skilled workers. The coalition decision of 10 November 2019 envisages a raising of the maximum tax-free amount from the current level of €360 to €720. Further to this, the policy environment is being reviewed for start-ups, which are particularly reliant on employee shareholdings as a tool to recruit qualified professionals.

We need to attract more qualified professionals from abroad. A milestone in the policy on skilled workers during this legislative term is the Act on the Immigration of Skilled Workers, which will make Germany more attractive for qualified professionals from other countries and will enter into force on 1 March 2020. Access to the labour

market is being facilitated not only for graduates, but also for foreign professionals with vocational qualifications.

However, merely improving the statutory conditions governing access for qualified professionals from abroad is not enough. We need to approach foreign qualified professionals more pro-actively than in the past, and promote our country and the good career prospects in Germany. This is a task for the entire Federal Government. In particular, it involves improvements in visa procedures and the recognition of vocational qualifications obtained abroad, and German language courses in Germany and abroad.

## Keeping electricity costs competitive and preventing carbon leakage

A **secure and affordable energy supply** is an essential prerequisite for the smooth functioning of industry and for maintaining the international competitiveness of industry in Germany. At present, large sections of our SMEs in particular have to cope with high energy costs. The Economic Affairs Ministry is urging that, in future, all the energy and climate policy measures should take account of the special needs of SMEs.

The planned phase-out of coal-fired electricity generation in Germany is creating a further need to act on electricity prices. The Commission for Growth, Structural Change and Employment has therefore recommended the development of a mix of tools capable of delivering economic development and structural change in a way that is socially compatible and helps foster social cohesion whilst also mitigating climate change – and also offers prospects for forward-looking energy regions. Not least, it has developed a proposal to reduce the costs of electricity via lower grid charges. After all, the energy transition and effective climate change mitigation necessitate massive investments in the electricity grid infra-

structure which will lead to rising costs for consumers in the short or medium term. The necessary transformation of the electricity grids must not result in competitive disadvantages for German industry. Consideration must also be given to the impact on wholesale electricity prices, particularly for energy-intensive industries. The Economic Affairs Ministry is currently preparing the legal basis for an implementation of these proposals.

In the context of the ambitious German and European climate policy, it is important to develop the toolbox to avoid carbon leakage in a flexible manner with a view to a global level playing field. This is all the more the case as there is no prospect under the Paris Climate Agreement of globally equal carbon prices even in the medium term, and many industrial companies are exposed to world market prices. In order to provide effective protection against carbon leakage, the Economic Affairs Ministry is advocating the following points, amongst others, with regard to European state aid rules:

- implementation of effective protection against carbon leakage in the context of emissions trading for fuel,
- **further development of electricity price compensation** in European emissions trading, not least against the background of rising CO<sub>2</sub> prices, and
- offsetting of the additional costs in the electricity price due to the phase-out of coal-fired electricity generation via state measures which comply with state aid rules.

In the 2030 Climate Action Programme, the Federal Government has decided to work together with the European Commission on a future cross-sectoral European emissions trading system. This must be expanded in future to become a cross-border, cross-sectoral and **globally com-**

**patible carbon pricing system** in order to reduce greenhouse gas emissions in a cost-efficient manner without distortions of competition. Only such a system can achieve carbon reductions where this is cheapest on a global scale. The Paris Climate Agreement also provides for cooperation mechanisms, including a linkage of emissions trading systems.

In all of this, it is necessary to ensure that the totality of the measures to be taken are robustly designed in future, because otherwise they will be detrimental both to the interests of climate change mitigation and the strengthening of industry in Europe. In this context, it is also necessary to examine the extent to which new instruments can make a contribution.

## Expanding infrastructure

A modern, efficient and needs-oriented infrastructure is of central importance for our industrial competitiveness. In addition to our energy infrastructure, this particularly applies to our transport and digital infrastructure. The forward-looking upgrading of our **transport infrastructure** is also a top priority for our industry. This is true both of the optimisation and expansion of existing systems and of the development of new projects in the fields of road, rail, waterways and air traffic.

With a view to making use of the opportunities offered by digital innovations in road traffic, the Federal Government is working particularly hard on equipping the road traffic infrastructure with the digital technology needed for the automation and connecting of vehicles, processes and services. The Federal Government will take substantive steps to accelerate planning and construction of railway transport. It is planning to grant approval to railway transport projects by act of parliament. The integration of spatial planning and planning approval procedures is also

intended to speed up lengthy procedures. In air traffic, too, the currently overloaded air-side and ground-side capacities must be increased.

In the field of digital infrastructure, the Economic Affairs Ministry is backing the expansion of forward-looking gigabit networks across as much of the country as possible by 2025, and is aiming to speed up the roll-out. The Economic Affairs Ministry will improve the investment climate by relaxing the rules on cooperation on network expansion as part of the current revision of the Telecommunications Act. Further to this, additional funding will be required. Major fiscal decisions have already been taken in recent years, leading to a rise in the funding available for investment in the federal budget and the introduction of a special Digital Infrastructure Fund. The Digital Infrastructure Fund, which comprises some €9 billion, will be used to provide further funding, particularly for commercial zones. 70% of the Fund will go into the gigabit system roll-out, particularly in rural areas, and 30% will go into the Digital Pact for Schools.

We need to speed up the roll-out of a reliable LTE mobile communications system in all regions, and Germany must be developed into a **lead market for 5G**. The completed spectrum auction and the related coverage requirements are an important step towards this. Further effective measures will be rolled out as part of an overall mobile communications strategy. The Federal Cabinet adopted key elements of this overall strategy on 30 October 2019. Also, the Federal Network Agency, in agreement with the relevant ministries, announced on 31 October 2019 the formula determining the “moderate” spectrum fees for 5G campus networks; the Federal Network Agency launched the corresponding application procedure on 21 November 2019.

Important aims of the Economic Affairs Ministry include cost-efficient optimisation, strengthening and an accelerated **expansion of the power**

**grids**. This is because the energy transition and its anchoring in the single European market are increasing the need to transport large amounts of electricity. This is all the more true against the background of the intended accelerated expansion of renewable energy up to 2030 and the expansion of cross-border trade in electricity envisaged by the EU Electricity Market Regulation via compulsory opening up of the interconnectors.

Nation-wide access to an efficient digital infrastructure and transport infrastructure in all of Germany’s regions plays a key role in establishing equivalent standards of living. In the context of its conclusions on the outcome of the deliberations of the **Commission on equal standards of living**, the Federal Government has proposed measures to achieve effective and visible steps towards this. The forthcoming establishment of a pan-German funding system for structurally weak areas is a key outcome of this process. Not least, the Federal Government is strengthening the regional expansion of infrastructure in its draft Act on structural change in coal mining areas.

## Securing the supply of raw materials and promoting the circular economy

To a large extent, German industry is dependent on imported raw materials. The Federal Government’s policy on raw materials must help to safeguard the supply of the economy with raw materials on a long-term basis in order to strengthen our industrial output.

The Federal Government is therefore working on a continuation of the **Raw Materials Strategy**. This strategy will address mining in Germany, the challenges of obtaining raw materials from abroad and the potential for a more developed circular economy in Germany and Europe. The special focus of the continuation of the Raw

Materials Strategy will be placed on the challenges resulting from the changing demand for raw materials due to advances in technology (e.g. electric mobility, energy transition). The successful measures in the Raw Materials Strategy, such as raw materials monitoring by the German Mineral Resources Agency and backing for the funding of raw materials projects abroad, are to be enhanced by the provision of insurance against political and economic risks via untied loan guarantees.

A reliable availability of resources is also ensured by the protection, sparing use and re-use of resources. By developing and using state-of-the-art technologies, industry makes a vital contribution to the achievement of these goals and the creation of new jobs. Against the background of the global rise in raw materials consumption and the finite nature of numerous primary raw materials, an increased focus is being placed on secondary raw materials. Germany is playing a pioneering role in the development of secondary raw materials as a source of supply. In order to ensure that this remains the case in future, the Federal Government is funding innovation and investment in circular economy solutions. These important aspects of an efficient circular economy are also addressed with regard to mineral resources in the Federal Government's Raw Materials Strategy.

## Reducing red tape

The private sector needs a good policy environment entailing as little bureaucracy as possible so that it can engage in entrepreneurial activity and innovation. The third Cutting Bureaucracy Act reduces the burden on commerce by €1.1 billion. The Act makes use of the opportunities of digitisation to render much of the paperwork obsolete in many areas.

Key elements include the introduction of the electronic incapacity for work notification, improved rules for the retention of tax-related data processing systems, and digital alternatives to paper-based registration forms in hotels. However, efforts to prune bureaucracy must be permanently kept up by the entire Federal Government.

- If we are to make rapid progress on the expansion of infrastructure in all fields, we urgently need faster **planning and approval procedures**. Even though the Federal Government has already taken various steps, the Economic Affairs Ministry will review these procedures to identify additional potential for acceleration. These include streamlined approval procedures for projects in which the spatial planning procedure is integrated into the planning approval procedure in specific cases, and as shortening of the legal remedies procedures in other specific cases.
- The Economic Affairs Ministry is calling for a **revision of the General Data Protection Regulation at European level which takes particular account of the needs of SMEs. In a next step, the threshold for the appointment of an in-house data protection officer by companies should be raised to 50 employees.**
- The Economic Affairs Ministry is calling for a pruning of red tape relating to the **secondment of workers** to other EU countries. This is particularly true of the A1 certificate for business trips and secondments.
- It is necessary to review whether regulatory sandboxes can also be used to make progress on cutting red tape.

- The Economic Affairs Ministry rejects an obligation to publish sensitive corporate data due to public **country-by-country reporting** at EU level.

## Modernising competition law

A competitive industrial sector needs a modern regulatory framework which responds to the changing needs of industrial structural change, sustainability and the international business environment.

- In times of massive international competition, some of which is distorted, it is important for SMEs in particular to make use of synergies with other companies and to work together, or to be able to merge.
  - The forthcoming Digitisation Act (the 10th Amendment to the Act against Restraints of Competition) will raise the threshold from which **merger controls** are applied in order to reduce the number of mergers notified to the Federal Cartel Office and thus to reduce the burden on SMEs. We also aim to increase the supervision of abuse of dominant positions in order to give SMEs better market access in a data economy.
- The **Commission of Experts on Competition Law 4.0** has drawn up proposals on EU competition law and the challenges of digitisation. The Commission's work is also feeding into the modernisation of Germany's competition legislation. At European level, the Economic Affairs Ministry is working towards a corresponding reform of competition law (see Chapter III).

## Pillar 2: Strengthening new technologies – mobilising private capital

Technologies are a decisive agent driving structural change. The impact of the type of developments we are currently seeing in AI, biotechnology, nanotechnology, lightweighting and new materials is comparable to that of the development of the steam engine. Today, as back then, the new technologies are introducing long-term growth cycles which will dominate the economic development for decades and allow entire regions to prosper for a long time. These are game-changing technologies which are transforming economic activity. The aim for German and European companies must be not only the lead market, but also the lead provider for new, and particularly **game-changing technologies**. That is the only way to make full use of the potential to generate value offered by these technologies.

Hundreds of billions of dollars are being pumped into these technologies each year in the United States, mainly from the equity of the large technology firms. In China, the state is providing a large amount of funding. In Germany and Europe, however, much less is being invested in these technologies, and there is a great need to catch up.

At the same time, there is no lack of funding: the Economic Affairs Ministry believes that Germany itself can invest many tens of billions of euros in these forward-looking technologies. The insurance companies in Germany alone had €1.350 billion tied up in capital investments in 2017. In view of the very high availability of capital in Germany in principle, the Economic Affairs Ministry believes that the actual amounts invested in technology can be vastly increased. This is all the more the case as the prospective yields on the financial markets are very small due to the ongoing period of low interest rates.

The aim is to make investment in technology a more attractive capital investment. In many cases, obsolete regulation is impeding digital and platform-based business models in particular. Here, the regulations and actual economic circumstances need to be examined in the various branches of technology, from AI to biotechnology. This is a precondition for more privately funded investment in technology in Germany. The aim is to make progress along this market-based road.

Further to this, a **“Future Fund Germany”** is to improve technology-neutral financing possibilities for game-changing technologies. The aim here is both direct funding and a large venture capital fund. In individual cases, the potential funding should extend beyond the framework of existing venture capital funding, thereby also making large-scale investment possible. The model also offers possibilities for expansion at European level, e.g. via the involvement of the European Investment Bank.

### Developing and applying technologies

The basic policy of the Economic Affairs Ministry is always to advocate market-based and technology-neutral rules. The principle is: as much private initiative as possible – as little state support as necessary.

- The **High-Tech Strategy 2025** spotlights ways in which Germany can successfully use research and innovation to shape its future. Here, the development of new technology is going hand in hand with investment in training and the involvement of the public, in order to prepare people for forthcoming changes.
- The new **transfer initiative** is to help companies turn more ideas into marketable products.

The innovation programmes targeted at SMEs under the umbrella of “From concept to market success”, e.g. the successful Central Innovation Programme for SMEs and Industrial Collective Research, are being further improved. This includes the introduction of support for non-technical innovations via the launch of the innovation programme for business models and pioneering solutions before the end of this year.

- The **Agency for Breakthrough Innovations** is to help innovations which involve radically new technologies and which offer a high game-changing potential to make the breakthrough. The aim is that disruptive innovations should not only be conceived more frequently in Germany, but also monetised and marketed more frequently here.
- The Economic Affairs Ministry’s **Regulatory Sandboxes Strategy** aims to make digital innovations possible and develop regulation further. Companies are to be able to test and implement business models and technologies in Germany. Elements include experimentation clauses and exemptions, as well as the sharing of knowledge and networking between companies, scientists and the administration.
- To help SMEs become more involved in the development of national, European and global **standards**, the Economic Affairs Ministry provides a grant of up to €50,000 to SMEs as a first step.

### Boosting support for venture capital

Further to this, the Economic Affairs Ministry is strategically developing the financial toolbox for venture capital. Long-term, strategically oriented private investors are to be involved in the financ-

ing of forward-looking and in many cases highly capital-intensive deep tech projects in Germany. Also, the Federal Government is considering a fund model to lead institutional investors (and particularly insurance companies, foundations, etc.) to the German venture capital market in a non-subsidised and market-based way. In addition, work is being done to enable KfW Capital to become even more involved in the field of growth financing.

Alongside the provision of funding for technology, the Economic Affairs Ministry will also give greater support to the private-sector development of products, processes and services, including game-changing technologies in forward-looking areas, in Germany and Europe. Technologies with a high potential for value creation include AI and Industrie 4.0, the mobility of the future, and low-emission processes in industry.

### Digitisation: making use of the potential

In the course of digitisation, structural change in the economy will be even faster than it has been in the past. Particular mention should be made of the enormous commercial potential of AI and Industrie 4.0. It seems likely that AI systems will have enormous and far-reaching significance for virtually all sectors of the economy. A study produced on behalf of the Economic Affairs Ministry in this regard indicates a boost to gross value added of around €32 billion in the goods-producing sector alone in the next five years. This figure corresponds to a third of the growth expected to be achieved by the sector over that period. Successful technological leadership in the field of AI is therefore a key question for competitiveness, economic growth and prosperity in Germany and Europe. It is also needed so that Germany can turn its high potential in technologies like Industrie 4.0 into lasting success.

- The Federal Government's **AI strategy** aims to help companies to make maximum use of this potential. A core element is the actual transfer of findings from our well-positioned research community across to industry.
- The **SME 4.0 Centres of Excellence** are developing additional AI transfer services for SMEs, including a nation-wide network of special AI trainers. Access to data, experts and expertise is driving innovative research and development products in core areas of the German economy.

The Economic Affairs Ministry will also expand its funding to encourage more investment by SMEs in digital technologies and digital expertise.

The establishing of an autonomous and trusted **data infrastructure** in line with security standards "Made in Europe" is a major strategic pillar. After all, data autonomy and wide-ranging data availability are central factors for the success of German and European companies in a digital data-driven economy, and particularly for successful developments and applications in the field of AI.

In cooperation with European partners and the business and scientific communities, the Federal Government will press ahead with the establishment of an efficient and competitive, secure and trusted European data infrastructure (GAIA-X). This is to be open and designed in line with European values. It will safeguard digital autonomy and self-determination in the data economy, and will be attractive both for users and providers of data infrastructure. On the basis of this decentrally organised next-generation data infrastructure, large industrial companies, SMEs and start-ups can cooperate on the development of AI applications and make innovative use of the advantages of digital ecosystems. This data infrastructure will also offer advantages for the public sector in view of its wide-ranging need for secure data storage and data processing.

Germany offers good preconditions for continuing digitisation and networking of industrial production, and has positioned itself very well as a lead provider and user of **Industrie 4.0 technologies**. The Economic Affairs Ministry will continue to strengthen the successful Plattform Industrie 4.0 in order to maintain and build on this lead. In addition to this, it is also necessary to develop **global standards** for Industrie 4.0. Together with industry, the Economic Affairs Ministry will shape and control the policy environment for digital and global ecosystems in line with European values. The key principles are autonomy, interoperability and sustainability. The Federal Government's Blockchain Strategy also aims to harness its potential for driving forward the digital transformation and to tap the opportunities offered by this technology.

**Digital platforms** and new business models will play a central role in the Internet of Things. In order to convert the expertise in production and production processes into commercial success in the digital age, we therefore need to succeed in scaling up and gaining market leadership in B2B platforms aimed at commercial clients. Further to this, our industrial strength in the consumer sector must be used profitably via B2C platforms, e.g. in the fields of mobility, health and logistics. AI and big data are also creating opportunities for strong European solutions.

## Developing the mobility of the future

Germany and Europe are facing a far-reaching **shift in mobility**. Radical breakthroughs in technology with new forms of propulsion and alternative fuels, coupled with changing consumer behaviour, are resulting in a far-reaching transformation reaching across the various sectors. At the same time, digitisation is creating the basis for more autonomous and connected mobility. The Economic Affairs Ministry wants the production potential entailed by this transformation

to be developed in Germany and Europe. Here, the Economic Affairs Ministry advocates **technology-neutral mobility policies**. In the case of propulsion, this means technologies from pure electric mobility to hybrid and hydrogen fuel cell technologies, synthetic fuels and improvements in the technology of traditional internal combustion engines. All of these can play a significant role in the mobility powertrain.

Germany will not make itself strategically dependent on a single mobility technology. Nevertheless, **electric mobility** for example is indispensable and its potential embraces different sectors. Access to high-grade, state-of-the-art battery cells is also of strategic importance for the stationary storage of electricity in the context of the energy transition and for other sectors affected by electrification. A stand-alone industrial structure for battery cell manufacturing in Germany and Europe is essential for this.

- In the field of battery cell manufacturing, the Economic Affairs Ministry will be providing more than a billion euros for several innovative projects in Germany. This will lay the foundation stone for a new European industrial network of battery cell manufacturing. Also, the Economic Affairs Ministry and the Research Ministry will, from 2020, fund the establishment of an innovation-based, holistic **battery value network** in Germany and Europe – from raw materials and material production to machinery and plant construction, cell manufacturing and recycling. Closely linked to this is funding from the Research Ministry totalling €500 million for a research factory.
- The Economic Affairs Ministry's mobility policy is focused on the development of new, innovative powertrain technologies for all modes of transport. FA further boost to research and development for electrical powertrains makes an important contribution to building up new,

climate-friendly technologies and systemic expertise in Germany. The environmental bonus and the Charging Station Ordinance continue the Federal Government's efforts to bring electric mobility to the mass market. The Federal Government's Charging Infrastructure Masterplan contains a comprehensive package of measures to establish and finance a nationwide network of customer-friendly and reliable charging infrastructure for between seven and ten million electric cars in Germany by 2030. The Alliance for the Future of Rail, which consists of government, commerce and associations, aims to promote digitisation, automation and innovation. In the field of aviation, the Economic Affairs Ministry is proposing the provision of additional funding for a six-year period in the aviation research programme to promote hybrid electric flight.

In addition, hydrogen technologies and **synthetic fuels** will also play a significant role in the mobility of the future. Taking a technology-neutral approach, the Economic Affairs Ministry is supporting investment in hydrogen and synthesis technologies and is calling at EU level for more technology-neutral regulation, e.g. in the context of the EU fleet-wide carbon emission standards.

Hydrogen also offers potential applications reaching beyond mobility, such as in plant construction and **electrolysis**. The growing international activities in the field of hydrogen and electricity-based fuels offer great opportunities for German and European companies. A successful lead market improves the competitive position of German industry in the foreseeable emergence of a market for these forward-looking technologies.

Advancing digitisation is creating the possibility for highly automated and **autonomous vehicles**, and will transform the mobility of the future. The development of autonomous vehicles is an

important source of new technological applications and basic innovations. This requires the existence of internationally competitive ecosystems. The Economic Affairs Ministry aims to further improve the legal framework, to permit necessary cooperation between companies or at least to minimise the risks relating to antitrust law, and to establish international standards. In Germany, use is to be made of the possibilities for exemptions and regulatory sandboxes so that companies can test highly automated and autonomous vehicles in real road traffic.

The transformation will make mobility not just more individual, more diverse and more service-oriented in future, but also more climate-friendly.

In the context of **regulatory sandboxes for the energy transition**, the Federal Government is providing €100 million a year towards the testing of innovative hydrogen and sector coupling technologies on an industrial scale. In view of the future importance of hydrogen and synthetic fuels for the energy transition and the related opportunities for industry, the Federal Government is currently drawing up a **national hydrogen strategy**, which is to be adopted in the next few weeks.

### Supporting new technologies for low-carbon industrial production

The path towards a low-emission industrial sector requires a further decoupling of economic growth and greenhouse gas emissions. Here again, the increased use of hydrogen in industrial production can make a significant contribution. This will require even more research and development work on low-emission technologies. Going forward, we want to attain a scaling up of hydrogen-based and thus low-carbon technolo-

gies, e.g. in the steel industry. In order to support this transformation process, full financial relief arrangements are needed for climate-related and energy-related charges and surcharges, particularly where there is a danger of carbon leakage (cf. section on carbon leakage in Pillar I).

Successful technological transformation opens up a range of opportunities for commerce, innovation and jobs in Germany. It can enable Germany to build on its position as an innovative lead provider and lead market for climate-friendly technologies. On the basis of these technologies, industry can make an important contribution towards climate change mitigation around the world and also strengthen Germany's position as an exporter of cutting-edge technology.

### Bringing CCS/CCU technologies to market maturity

The bulk of process-related greenhouse gas emissions by industry is currently caused by the manufacture of mineral products, the manufacture of metal, and the manufacture of basic chemicals. Changes to processes will only be able to reduce part of these emissions. Another part will have to be addressed by **CCS/CCU technologies**, i.e. carbon capture and storage in deep geological rock formations.

Research and development work for CCS and CCU should focus on the following points: carbon capture technologies for industrial facilities, regional and European CCS/CCU infrastructure, further ways to use CO<sub>2</sub>, and a reduction of the costs of CO<sub>2</sub> avoidance. The large European offshore potential is available for the realisation of environmentally acceptable CO<sub>2</sub> storage. This will require cooperation with Norway, the Netherlands and the United Kingdom in particular.

### Measures for low-emission industry – the Federal Government’s climate decisions of 25 September 2019:

- Introduction of a national emissions trading system for the heating and transport sectors from 2021 with a view to transferring it into the existing European emissions trading system (ETS) from 2021 (Federal Government adopted draft law on 23 October 2019).
- Gradual cut in electricity costs via reduction in the EEG surcharge.
- Roughly €1 billion in funding for the establishment of battery cell manufacturing and the transformation of the automotive supplier industry.
- Expansion of the charging infrastructure for electric mobility (1 million publicly accessible charging points in 2030).
- Funding for research and development in the field of storage and use of CO<sub>2</sub>.
- Funding for the shift to electric cars and low-carbon trucks.
- Increased funding for programmes within the Investment Programme for Energy Efficiency and Process Heat from Renewable Energy in Commerce.
- Funding for the development, demonstration and market introduction of innovative low-carbon production processes in the basic materials industries.
- Drafting of a national hydrogen strategy by the end of 2019.
- Increase in the proportion of freight transported by rail and inland waterways.
- Strengthening and funding of the European development of CCS/CCU technologies.

The Economic Affairs Ministry will therefore fund the further development of various elements of these technologies, and will work towards an industrial pilot project in cooperation with European partners.

### Developing the bioeconomy

The technologies of the bioeconomy offer enormous economic and environmental potential in a

large number of sectors, such as the production of biofuels, the biological manufacture of medicines, and the production of detergents and cosmetic products. According to estimates by the European Commission, the European bioeconomy has an annual turnover of approximately €2.3 trillion, and accounts for 8.2% of jobs. The bioeconomy is thus making a vital contribution towards sustainability and the mitigation of climate change, and towards strengthening the circular economy and boosting resource efficiency.

By drawing up a national bioeconomy strategy, developing an agenda “From biology to innovation”, and setting up the Industrial Bioeconomy dialogue platform, the Federal Government is fostering the transformation of the German economy into a bioeconomy. A new Economic Affairs Ministry funding programme is to help build facilities to demonstrate the market maturity of biobased products.

### Promoting lightweighting

Lightweighting is a strong driver of innovation that has the potential to dramatically improve resource efficiency and energy efficiency and to attain the goals of electric mobility. The Economic Affairs Ministry is drawing up a **lightweighting strategy** to establish Germany as a lead market for lightweighting and new materials. The Economic Affairs Ministry has earmarked more than €4 million a year for the lightweighting technology transfer programme with a view to improving the transfer of technology and expertise throughout the value networks. Lightweight construction is to become a broad-based industrial application across the various sectors.

## Pillar 3: Maintaining technological autonomy

The guiding principles for Germany's economic policy continue to be the **Social Market Economy**, open world markets engaged in rules-based trade, and a global level playing field. This is true not only of trade in goods and services, but also of international capital movements. **Free international movement of capital** is a valuable asset. The Economic Affairs Ministry is a resolute advocate of this freedom. On the one hand, foreign investment in Germany makes a major contribution to growth, prosperity and jobs, and on the other hand numerous German firms invest all around the world. The Economic Affairs Ministry therefore pursues a liberal policy where investors from abroad wish to buy into German firms or obtain a majority shareholding.

The situation can be different in cases in which this openness is utilised by companies from third countries to pursue strategies which can endanger public security or order (covered by the provisions of the Foreign Trade and Payments Act) or Germany's or Europe's technological autonomy.

Technological autonomy is a key foundation for the functioning of our highly developed industrial society. It can only be maintained in the long term if the relevant industrial substance is available and controllable in Germany and Europe. This is particularly true of sensitive technologies, such as dual-use technologies. In particular, it is necessary to avoid losses of expertise, and to retain self-determination in key fields of technology. Viewed in this way, technological autonomy is in line with the principles of open world markets.

There is therefore an increased need for the Federal Government to screen cases in which investors from third countries wish to acquire critical infrastructure or defence technology companies. These considerations are feeding into a new strategy paper to strengthen Germany's security and defence industry, which the Federal Government

intends to produce by the end of 2019. There is also a need for more comprehensive screening in the field of sensitive technologies.

The Federal Government's toolbox to protect technological autonomy has basically proved its worth. However, it needs to be modernised in response to the rapid technological and geopolitical developments:

- Firstly: For many years, the policy has been to impose **conditions on technology transfer to third countries** when companies are to be acquired which own technology developed using federal funding. The Federal Office for Economic Affairs and Export Control scrutinises such cases on the basis of existing rules. The Economic Affairs Ministry will examine the extent to which modernisation is needed here, e.g. by altering the periods in which transfers are barred at present.
- Secondly: **Foreign trade and payments legislation** has been repeatedly modernised over the last few years, most recently via a drop in the threshold for screening of acquisitions from third countries to shareholdings of 10% (previously 25%). By October 2020, the Federal Government will undertake another revision to bring the national investment screening law into line with the revised EU legislation (the European Screening Regulation). Here, it is particularly important to set up a cooperation mechanism to involve other Member States and the European Commission in the screening process and to flesh out the details of the "public order or security" screening criterion. This will clearly define and moderately broaden the scope in which the state can act.
- Thirdly: In cases in which the transfer of sensitive or security-related technologies to third countries due to acquisitions is not covered by the narrow scope of the Foreign Trade and

Payments Act, private-sector players can act as “white knights” and acquire shareholdings in the affected companies. This procedure is appropriate if the main interest is not the state’s interest in security, but technological and innovation leadership. The state can serve as a moderator in this process.

- Fourthly: As a last resort, and only if all the other instruments do not apply, a temporary state shareholding in companies via the KfW can be considered and realised in individual cases involving sensitive or security-related technologies (“**national recourse option**”). This has already occurred in isolated cases in the past. The state grants the KfW a liability release, as is possible under the law, and the KfW refinances the transaction on the capital market. In the past, however, it has been found that such operations have to take place quickly. It is therefore necessary to put structures in place which allow the necessary decisions (by the federal cabinet) to be taken more rapidly and efficiently than has been the case. The establishment of a **National Recourse Option Standing Committee** of the Federal Government at **State Secretary level** can create a structure which meets these needs. In order to create legal certainty for companies and investors, the Federal Government is responding to a proposal from the Economic Affairs Ministry and is drawing up detailed arrangements and a legal basis for the committee, the procedure and a suitable form of involvement for the independent monitoring group (see Chapter IV).

## Improving cybersecurity

Maintaining technological autonomy also means protecting Germany’s economy against cyber attacks. Reliable digital commercial processes are a precondition for commercial success. This creates a need for secure network infrastructures and IT systems.

IT security has become a crucial factor behind commercial success and continued competitiveness. The Economic Affairs Ministry is calling for a revision of the European Programme for Critical Infrastructure Protection, not least with a view to comprehensive protection for network infrastructure to ensure a secure electricity supply.

There is a continuing great need for education and awareness-raising work regarding IT security amongst SMEs. Despite increasing digitisation, many **SMEs still lack awareness of the need for IT security**. There is still a lack of implementation.

In the context of the “**IT security in the business sector**” initiative, the Economic Affairs Ministry is funding projects to improve the expertise of SMEs in the field of IT security. The new transfer centre set up in 2019 prepares practical and targeted information, transfer and support services for SMEs, and fosters the transfer of expertise by offering mobile viewing and testing facilities. Work is continuing on identifying and developing high-quality best practice examples in implementation projects with SMEs in order to transfer expertise and to gain insights into the successful realisation of IT security.

# Elements for a European industrial policy

In view of the great achievements of the single European market and the shared industrial policy interests with our EU partners, German industrial policy needs to be designed and understood in the European context. This is because **major aspects of the policy environment for German industry are decided at European level.**



A strong industrial sector is of central importance for a healthy economic development in Europe. It offers high quality jobs and training places in manufacturing and industry-related services. Around 60 million Europeans are employed directly and indirectly in industry. Competition in the internal market and cross-border cooperation provide an effective context for German industrial companies in which they can keep improving their own efficiency. This is also true when EU companies are able to conduct research together and targeted support for this is provided by the EU and the Member States. To this end, the funding priorities in the **Horizon Europe** EU research framework programme and in the innovation promotion from the **European Regional Development Fund** – and where possible beyond that – need to be clearly focused on supporting industrial research and development in the forthcoming new programming period.

The European Commission is tasked with working together with the European Member States to draw up a **European industrial strategy** and thus to map out the future policies for competitive industry in Europe. Germany is a firm advocate of an ambitious, long-term European industrial strategy containing specific measures, and will place a focus on industrial policy in the forthcoming German EU Council Presidency.

## Developing the internal market

The internal market is an important **competitive advantage for European industry**. It provides the necessary market dimensions both for companies taking part from within the EU and for EU companies facing competition from outside, allowing them to grow in a single, rules-based economic area, to develop the necessary level of competition, and to maintain the innovative capacities of European industry, both internally and externally.

The removal of the remaining barriers to movements of goods and capital in the internal market, to industry-related services and the **deepening** of a digital **single market** are therefore key pillars for the strengthening of the policy environment for industry in the EU.

We need an ambitious follow-up strategy for the digital single market, an expansion of trade in industry-related services, and a better implementation and enforcement of internal market rules.

With regard to EU statutory instruments, the Economic Affairs Ministry pays attention to ensuring that **European law is properly implemented** and calls for **greater consideration to be given to the needs of SMEs**. This includes the full application of the Think Small First principles in all proposed EU legislation, and of the “one in, one out” principle.

## Strengthening rules-based trade

Cross-border trade in goods and services and cross-border investment contribute to growth, jobs and prosperity around the world. The future development of foreign trade relationships is of key importance for German and EU industry. The Federal Government is an advocate of **open world markets and rules-based world trade**.

- This includes resolute backing for the efforts being made by the European Commission to modernise and strengthen the **WTO**. The WTO is the most important guarantor of open and multilateral world trade. It is necessary to ensure the functioning of WTO dispute settlement and to close gaps in the rules.
- The Economic Affairs Ministry is a pro-active proponent of the reduction in trade barriers via the conclusion of ambitious bilateral and plurilateral EU trade and investment agree-

ments with strategically important partners. In view of the halting progress on multilateral cooperation over the last few years, it is right for the EU also to take the approach of **bilateral trade negotiations**.

- Together with the European Commission, the Economic Affairs Ministry calls for better access for EU companies to the procurement markets of third countries. In order to remove disadvantages suffered on third markets, the Economic Affairs Ministry would like to see a practicable sanction instrument in the field of procurement law. The **International Procurement Instrument (IPI)** is to serve as a lever to strengthen the European Commission's negotiating position with a view to opening up procurement markets in non-EU countries.

### Carefully modernising European competition law

Competition is the key for a strong economic basis in Germany and the EU. The EU's competition system has basically worked well. However, the rules on competition need to be **constantly brought in line with the changing situation** so that they can remain effective in the face of the challenges of globalisation and digitisation. The Economic Affairs Ministers from Germany, France and Poland have already presented specific proposals for the modernisation of the framework of European competition law.

- It is crucial that **cooperation between European companies** is fostered via greater legal certainty. European companies need clear guidelines for joint ventures so that they can collaborate in order to succeed on foreign markets.
- In **European merger control procedures**, a greater focus must be placed on the analysis of global competition. There is a need for a more

thorough assessment of the potential competition from companies outside the internal market. Here, special attention should be paid to competition from state-controlled or subsidised companies from third countries.

- With regard to the development of the global platform and data economy, **clear rules are needed for dominant companies**. This includes rules on data access and data portability. In the debate on the adaptation of EU competition law to digital business models, account must be taken of the recommendations by the experts of the Commission 'Competition Law 4.0' in the report entitled "A New Competition Framework for the Digital Economy".

### Updating state aid rules in an appropriate manner

An efficient state aid regime is crucial for the competitiveness of industry in the EU. In the majority of cases, the existing state aid rules have proved suitable to ensuring a level playing field. In particular, there is a need for modernisation within the ongoing review process of European state aid rules, e.g. in view of rising carbon prices in terms of electricity price compensation in European emissions trading. The scope for electricity price compensation must be expanded.

The **state aid instrument entitled "Important Projects of Common European Interest" (IPCEI)** permits exceptions under state aid rules for strategic pan-European investments. It plays an important role in strengthening strategic European value chains and in the building of greater technological autonomy – and does this much more quickly than all the other support programmes for individual projects. The instrument should be further optimised and the IPCEI Communication should be adapted in the light of the experience made so far.

European state aid rules restrict the possibilities for European Member States to back companies with financing solutions. State aid rules do not in principle pay attention to the competitors from non-European countries which back their products with extremely far-reaching state financing offers. An exception exists here in the field of export credit guarantees. In the context of the OECD consensus, the participants have agreed only to grant state backing if certain minimum standards are observed. If an export credit insurer intends to deviate from the consensus, it must inform its partners of this and give them an opportunity to comment. These can then grant their exporters comparable conditions (“matching”). It is necessary to consider expanding the scope and preconditions for these **matching clauses**.

## Promoting technologies made in Europe

In order to remain internationally competitive, Europe needs to invest far more itself in industrially relevant technological innovations.

We need a specific **European strategy for the financing of technologies** of the EU in order to keep funding the necessary investment. Also, the EU funding system should be oriented more rigorously to new technologies and should focus increasingly on industrial priorities. With this in mind, the Economic Affairs Ministry is examining various specific approaches, e.g. the instrument of a (technology) fund.

The diversity of competitive SMEs acting in value chains within the internal market is a major strength of the EU. It is up to the companies to build on this strength and to foster it in strategic areas. Industrial policy can provide support here, e.g. in the **IPCEI state aids procedure**. The findings of the Strategic Forum on IPCEI on strengthening the strategic value chains should therefore be implemented in the near future. These find-

ings can also serve as examples for specific sectoral programmes.

## Establishing structures for a successful European industrial policy

The European industrial strategy should not only contain specific objectives, measures and milestones, but also mechanisms permitting ongoing monitoring and fine-tuning. This will enable European industrial policy to respond appropriately to developments. Here, it is important that attention is paid to the interests of all stakeholders, and particularly of industry itself.

The **European Commission** plays a central role within the institutional structures implementing and monitoring the European industrial strategy. The Economic Affairs Ministry welcomes the fact that the European Commission is providing the necessary human resources for a Directorate General responsible for industrial policy.

The new distribution of portfolios between the Vice-Presidents and the relevant commissioner of the European Commission takes account of the relevance of industrial policy.

The **Competitiveness Council** is the central body for the discussion of European industrial policy amongst the Member States. It should meet at least once every six months as an “Industry Council”, focusing on an industrial policy agenda. The Member States and the Commission should make good use of the possibility to discuss and prepare the necessary industrial policy decisions. Working together with the European Commission, the Council should also play a central part in monitoring the European industrial strategy. In this way, it would be clear that Member States and the Commission have a shared responsibility (ownership) for the decisions taken and for their review.

The Economic Affairs Ministry believes that the **Indicators Dashboard** to review the competitiveness of European industry, as adopted by the Competitiveness Council in 2017, offers a helpful and empirical basis for this.

# Industrial policy dialogue and monitoring

Business, the trade unions and policy-makers have a shared responsibility for the competitiveness of German industry and the safeguarding of prosperity and jobs. All the stakeholders need to work together in a common dialogue to ensure that the policy environment in Germany and Europe is sufficient to respond to the high level of technological and commercial dynamism around the world.



# IV.

The Economic Affairs Ministry commissioned an independent and comprehensive analysis of the relevant business indicators in June 2019. Interim findings from this analysis and suggestions from the dialogue process on the Industrial Strategy 2030 have fed into this Strategy. The final report on the analysis will be available in May 2020. The findings are to be discussed in detail in 2020 at a **conference on how attractive Germany is for business** – and representatives from the European level will also take part.

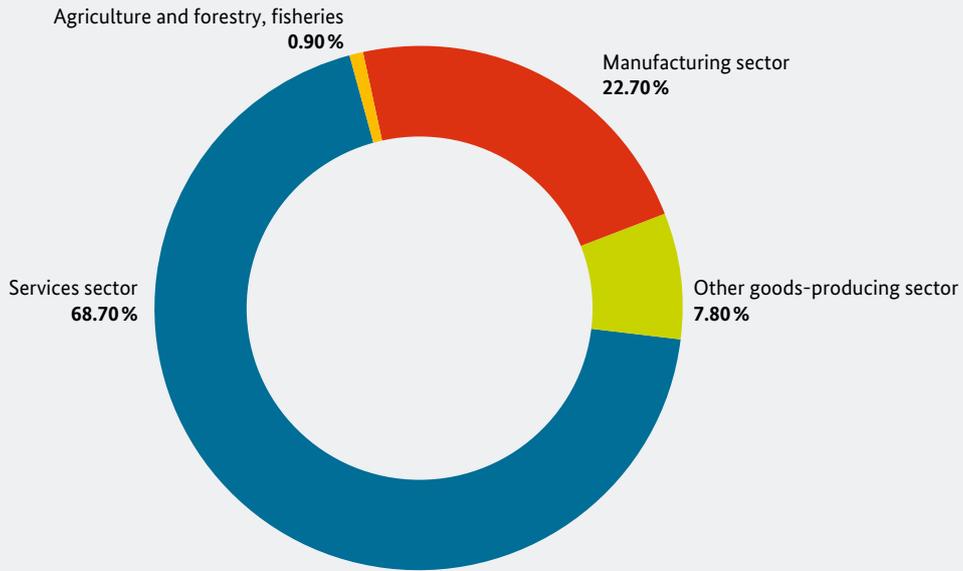
The Economic Affairs Ministry will launch and progress projects of relevance to industry within the Federal Government. The aim is to achieve a lasting improvement in the competitiveness of industrial enterprises in Germany. The Economic Affairs Ministry will monitor the implementation and progress of the measures and fine-tune them where necessary.

- In future, the Economic Affairs Ministry will commission a regular assessment of the development of industry and industrial policy measures, not least in view of specific challenges, such as the risk of carbon leakage. An independent **monitoring group** consisting of representatives from economic science, industry and employees' organisations will be set up for this purpose. One approach would be to launch a monitoring process like that of the Monitoring Commission for the energy transition.
- The **Alliance for the "Future of Industry"** with currently 17 partners from employers' representatives, business associations, trade unions and the Economic Affairs Ministry is a central dialogue forum for industrial policy issues. It deploys its social partnership-based structure to strengthen Germany's industrial base. Its aims include the fostering of public acceptance for industrial and game-changer technologies via overarching activities of business, trade unions and policy-makers in the societal dialogue. In addition, the Economic Affairs Ministry will set up a project to strengthen the regional industrial dialogue.
- The **structured dialogue**, which is being conducted in tandem with the Alliance for the "Future of Industry" is also to be continued after the publication of this Strategy.
- Further to this, the Economic Affairs Ministry will continue its **sectoral dialogues and discussions** with key sectors of industry. The sectoral dialogues serve as a special format for the specific dialogue between industry, trade unions and policy-makers.

# Annex

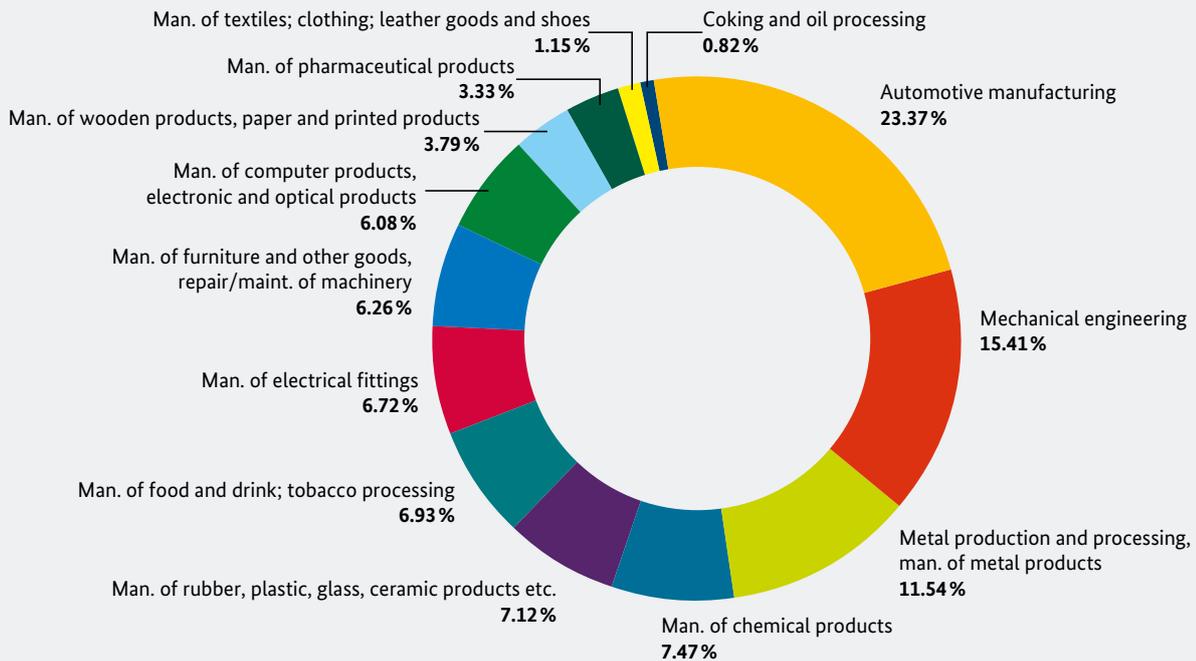
## The manufacturing industry in Germany in figures

Sectoral share of gross value added in Germany in % (2018)



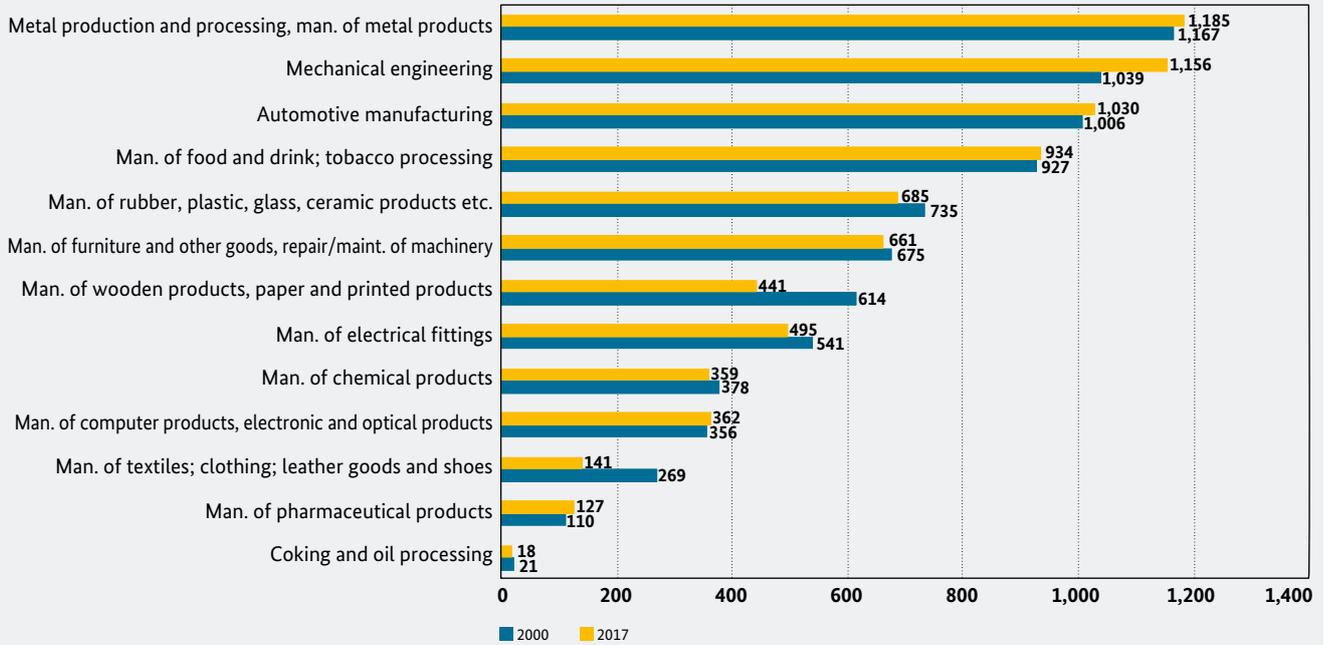
Source: Federal Statistical Office, Fachserie 18, Reihe 1.5, Table 2.1

Sectoral shares within the manufacturing sector in Germany as percentage of value added (2017)



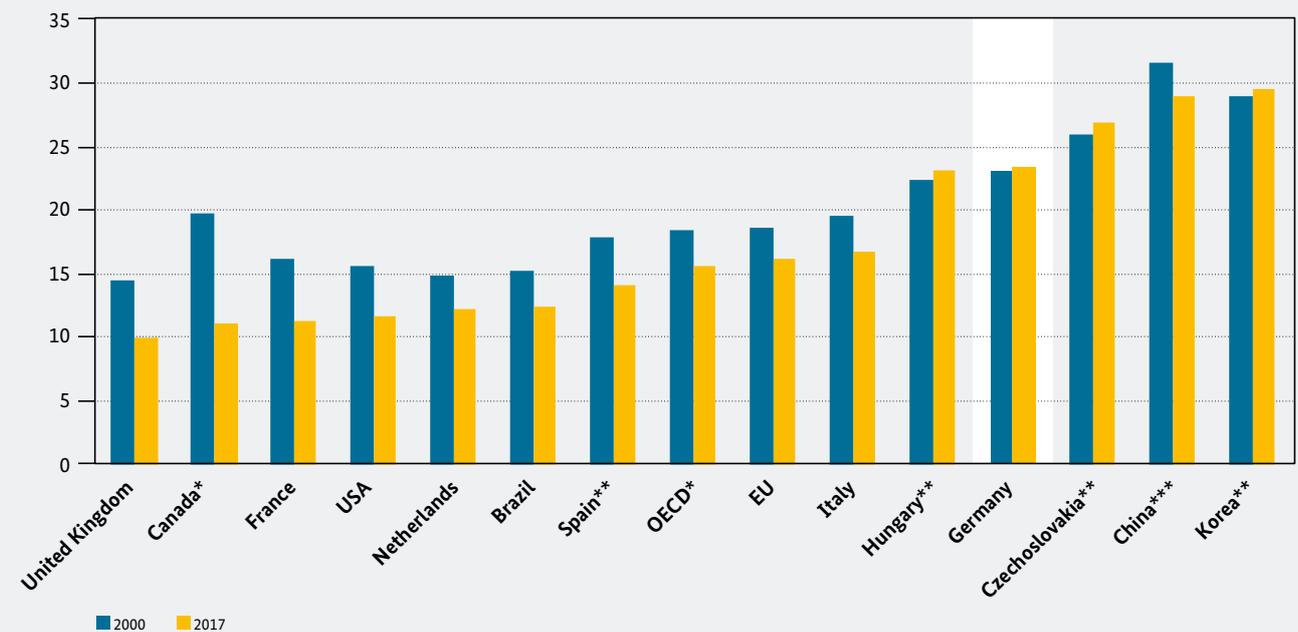
Source: Federal Statistical Office, Fachserie 18, Reihe 1.4, Table 3.2.1

**Workers in manufacturing industry sectors in Germany in 1,000s (2000 and 2017)**



Source: Federal Statistical Office, Fachserie 18, Reihe 1.4, Table 3.2.13

**Manufacturing as a percentage of gross value adds in % in the international comparison (2000 and 2017)**



\*Latest figure from 2015; \*\*Latest figure from 2016; \*\*\*Figures from 2004 und 2016

Source: OECD. Stat, Dataset 6A, Value added and its components by activity





