



# Germany in the next decade: Ambition and potential

March 9, 2021

## Authors

Marion Mühlberger  
+49 69 910-31815  
marion.muehlberger@db.com

Barbara Boettcher  
+49 69 910-31787  
barbara.boettcher@db.com

Ursula Walther  
ursula.walther@db.com

## Editor

Stefan Schneider

Deutsche Bank AG  
Deutsche Bank Research  
Frankfurt am Main  
Germany  
E-mail: marketing.dbr@db.com  
Fax: +49 69 910-31877

[www.dbresearch.com](http://www.dbresearch.com)

DB Research Management  
Stefan Schneider

Germany/the EU's role as geopolitical player is not expected to advance markedly. At the onset of this decisive election year, Germany finds itself confronted with an increasingly multipolar world, a weakened liberal, rule-based world order and rapid technological change. Germany's future political role will to a large extent be defined by the EU's global role, while at the same time Germany will be instrumental in shaping the latter. Despite its recent push for strategic autonomy the EU's balancing act in the China-US rivalry might become untenable.

**How to future-proof Germany's economic model – insights from our SWOT analysis.** Against this challenging global backdrop, the next government has to be well aware of how to improve Germany's strengths and work on its weaknesses: (i) deepening of the EU (digital) single market, (ii) wisely using its fiscal space, (iii) keeping the competitive edge in advanced manufacturing and (iv) safeguarding social cohesion. While at the same time, it is crucial to improve the digital infrastructure, raise potential growth and further develop VC markets. Key threats stem from rising economic nationalism and an accelerated Green-tech/AI race.

**A revival of multilateralism seems rather unlikely to materialize** given continued strategic and systemic power rivalries between China and the US. The EU is set to remain a champion for multilateralism. However, it will continue to step up its defenses with respect to trade and investment policies. Global tech standards, the free flow of data and a supranational regulatory framework for climate policies (path to a global CO<sub>2</sub> price range) remain wishful thinking. Moreover, a certain degree of decoupling between the US and China is likely to continue.

**Germany is falling behind as a research and innovation power house.** With respect to Green-tech, Germany is well positioned to keep technological leadership and reap the benefits of adopting the technologies by exporting competitive products. An important outlier is the evolution of foreign regulatory frameworks and industrial policy initiatives. In terms of big data and AI, the picture looks less rosy. Germany (and the EU) are unlikely to catch up in the AI race. They struggle, in particular, to transfer AI research into viable business models and applications.

**Complacency or reactive policies are no options for the new government – "High-Tech Made in Germany" might turn out to be an upside scenario.** Strong reform effort of both the government and corporate sector is needed in order to secure Germany's place in the "best-of-all-worlds" scenario. This requires a proper allocation of R&D investments, reaping the benefits of industrial data and an accelerated diffusion of cross-sectoral technologies like AI.



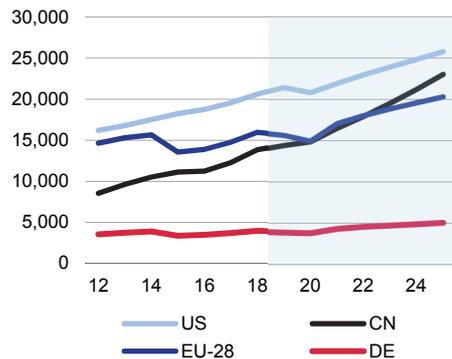
Germany in the next decade: Ambition and potential

## Which role might Germany play in an increasingly multipolar world?

Shift of economic power accelerated by the pandemic

1

GDP, current prices, bn USD



Source : IMF WEO

At the onset of this decisive election year, Germany finds itself confronted with an increasingly multipolar world, a (permanently) weakened liberal, rule-based world order and rapid technological change. The global shift in economic power has been accelerated by the COVID-19 pandemic. China will have overtaken the EU and UK in terms of economic size in the course of the next two years (see Chart 1). However, how global power will be distributed by the end of this decade cannot be answered by solely extrapolating potential real GDP growth rates. It also depends on the mix (and interplay) of the main players' technological supremacy (AI and Green-tech), regulatory power of setting standards, leverage over critical infrastructure and commodities, military capabilities, domestic stability and financial leadership (e.g. currency status) (see Chart 2). Against the background of a likely continued power rivalry between the US and China<sup>1</sup> and rapid technological change, we aim at kicking off a debate about possible trajectories for the German economy in the post-Merkel era. Which role might Germany play in such a multipolar world? What are the means to actively shape this role? What are the strengths and weaknesses of its current economic model and how can Germany prepare for threats and opportunities arising from this backdrop?

### An increasingly multipolar world

2

	GDP, bn USD current prices 2020F	Defense expenditure, bn USD current prices 2020e	Reserve currency status, in % of global FX reserves	AI capabilities score 2021
<b>US</b>	20.807	785	60	45
<b>EU</b>	14.927	205	21*	23
<b>DE</b>	3.781	56	21	NA
<b>CN</b>	14.861	178	2	32

\* Note: Referring only to the euro.

Sources: GDP: IMF WEO; Defense: NATO and Reuters; FX reserves: IMF; AI: Center for Data Innovation, 2021, Who is winning the AI Race: China, the EU, or the United States?

Germany ranking third in terms of soft power

3

Country	Rank
France	1
UK	2
Germany	3
USA	5
Japan	8
South Korea	19
Brazil	26
China	27
Turkey	29
Russia	30

Source : Soft Power Index Portland

The list of labels that have been attributed to Germany with respect to its role on the global stage is long and well-known: "Europe's sleeping giant", "Status quo power", "Principled pragmatist", "Reliable partner" and "Europe's reluctant leader" to name only a few. These labels are either point-in-time assessments of the situation in Germany or reflect changing perceptions and more so expectations of foreign partners on Germany. It is impossible to forecast how Germany's role by the end of this decade will exactly look like. However, it is a relatively safe bet to say that Germany's global role will, to a large extent, be defined by the EU's global role, while at the same time Germany will be instrumental in shaping the latter.

<sup>1</sup> Lippert, Barbara and Volker Perthes (2020). Strategic Rivalry between United States and China. SWP. 2020



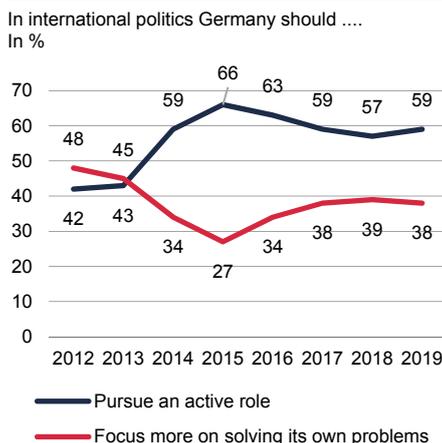
## Germany in the next decade: Ambition and potential

### Munich consensus revisited – Germany's international role 4



Sources : Munich Security Conference, Deutsche Bank

### A majority of Germans support an internationally more active role 5



Sources: ZMSBw, 2019, Sicherheits- und verteidigungspolitisches Meinungsbild der Bundesrepublik Deutschland

### Germany and the EU: Lots of soft power, but little geopolitical sway

**Germany:** In the most recent soft power ranking, Germany continues to rank third globally, only surpassed by France and the UK (see Chart 3). According to Joseph Nye, who coined the term in the 1980s, soft power essentially reflects a country's ability to attract and persuade arising from a country's culture, political ideals and policies.<sup>2</sup> A lot of Germany's soft power stems from its political values, credible institutions, commitment to global development goals, appeal of its engineering prowess and not least Angela Merkel's political gravitas and leadership style.

Zooming in from soft power to the question of Germany's geopolitical role, we first assess trends in Germany's foreign policy stance and then in the EU's. As the key contemporary global challenges (climate change, digitalisation, geopolitical power race, and migration) can only be tackled together with its European partners, the two are closely interlinked.

The 50<sup>th</sup> Munich Security Conference in 2014 marks an important shift in German foreign policy with assuming "more international responsibility" having become a key foreign policy goal (see opening speech of former Federal President Gauck on Jan 31, 2014). And indeed, over the last six years, Germany contributed to different efforts of conflict resolution, started several initiatives on the EU and global level (see Chart 4) and increased its defense spending by about 21% according to NATO estimates. Seen from the outside, Germany has not fundamentally increased its geopolitical role. It still falls short of the expectations of many partners and observers, especially in terms of defense and a more strategic policy stance.<sup>3</sup>

Germany's reservations with respect to a more active geopolitical role are linked to its history, which is still reflected in policymakers' reluctance with respect to a stronger leadership role and the public's pronounced scepticism towards the use of military force.<sup>4</sup> Yet, the public attitude seems to be changing with a majority of the public supporting Germany's striving for a more active international (but not necessarily military) role (see Chart 5). This assumption might be tested in the upcoming federal election if diverging positions between the conservative CDU and a potential Green coalition partner move center stage in the election campaign.

### The EU's push for strategic autonomy is not yet feasible

In 2016, the EU's High Representative for Foreign Affairs and Security Policy Federica Mogherini's Global Strategy marked the shift away from the EU's civilian-power-only identity and introduced the aspiration of "strategic autonomy for the EU". The interpretation of this concept with respect to security is vague and support still varies greatly within the different member states – while France strongly supports strategic autonomy, Germany and Poland emphasize the strategic alliance with the US. Indeed, over the last couple of years the EU's defense capabilities have been somewhat strengthened: Defense cooperation has been enhanced and the EUR 5 bn European Peace Facility adds more "hard power" (FT, Dec 18, 2020). However, the US security umbrella is still indispensable in guaranteeing the EU's national security or as Timothy Garton Ash puts it: "European sovereignty without America is a chimera."

<sup>2</sup> Joseph Nye, Soft Power, 2014

<sup>3</sup> Munich Security Conference, Zeitenwende, Wendezeiten, 2020

<sup>4</sup> Munich Security Conference, Zeitenwende, Wendezeiten, 2020

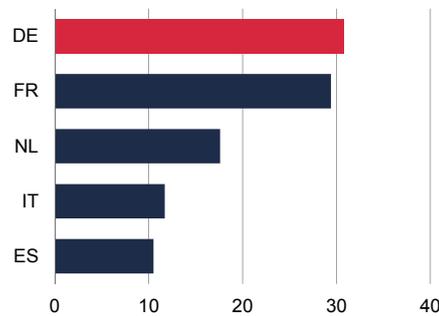


## Germany in the next decade: Ambition and potential

Germany – most influential country in EU policymaking

6

% of total votes



Source: ECFR - eucoalitionexplorer

Moreover, national foreign policies and Union-wide policies will continue to coexist for the foreseeable future. The establishment of an EU security council, as proposed by Merkel and Macron in 2016 (see FE, June 30, 2017) could “offer a framework in which national policies and collective action could complement each other more effectively”.<sup>5</sup> In addition, the “coalition of the willing” format could be used more often in case a Union-wide consensus is not attainable (e.g. Normandy Format like in the Ukraine/Russia peace process). But as long as the 27 members must unanimously decide on foreign and security policy issues, the EU’s role as a geopolitical player is not expected to advance markedly.

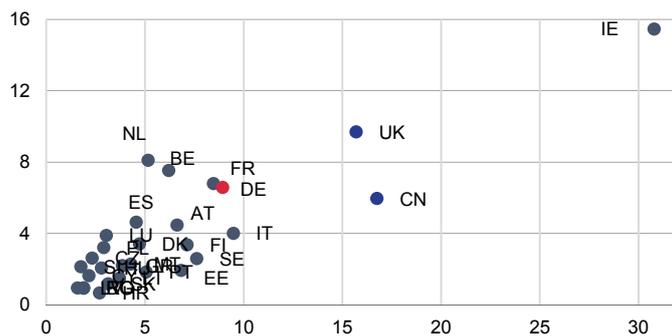
### Germany and the EU: Future economic and regulatory leverage hinges on the depth and size of the single market

The strategic and systemic rivalry between China and the US is mainly fought in the geo-economic arena. Thus, it will be increasingly difficult for Germany and the EU to separate trade and investment policies from foreign policy.

German trade links with the US do not stand out compared to other EU members

7

x-axis: share of exports to the US, in %  
y-axis: share of imports from the US, in %

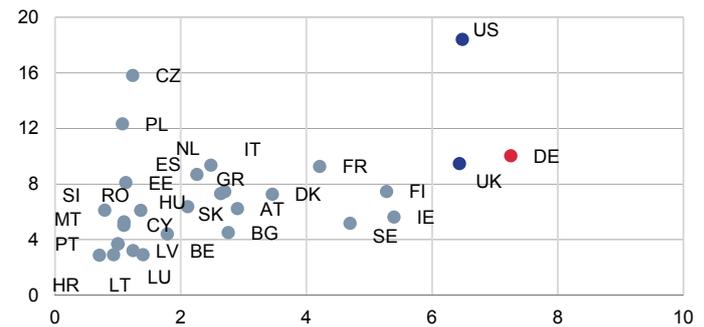


Source: Comtrade, 2019 data

Germany's China trade relations strongest compared to other EU members

8

x-axis: share of exports to China, in %  
y-axis: share of imports from China, in %



Source: Comtrade, 2019 data

The EU’s sovereignty agenda already reflects that it is multifaceted and also has an economic, digital, health and climate angle.<sup>6</sup> While the EU is set to remain a champion for multilateralism, it has started to step up its defenses with respect to trade and investment policies (e.g. Investment Screening Mechanism; [updated EU trade strategy from Feb 22](#)). The single market is by far the EU’s biggest asset, notwithstanding its remaining shortcomings e.g. challenges to cross-border e-commerce, national rules still restricting the free movement of goods and services.<sup>7</sup> Its size and depth determine the EU’s (and thus Germany’s) leverage in trade and investment deals. In addition, the EU (and thus Germany) derives regulatory power from the single market, what has been coined the “Brussels effect” by Anu Bradford. In his paper from 2012, he emphasized that the “EU is currently the only jurisdiction that can wield unilateral influence across a number of areas of law – ranging from antitrust and privacy to health and environmental regulation.” However, eight years later, he questioned whether this ability to shape global rules would extend to the digital economy as well – despite the first mover advantage the EU experienced with the GDPR.<sup>8</sup>

<sup>5</sup> Carnegie Europe, How the EU can survive in a geopolitical age, February 2020

<sup>6</sup> ECFR, Sovereign Europe, Dangerous World, November 2020

<sup>7</sup> European Parliament, Legal obstacles in Member States to Single Market rules, November 2020

<sup>8</sup> CER, Ditchley conference report: COVID-19, the global economy and the return of power politics, December 2020



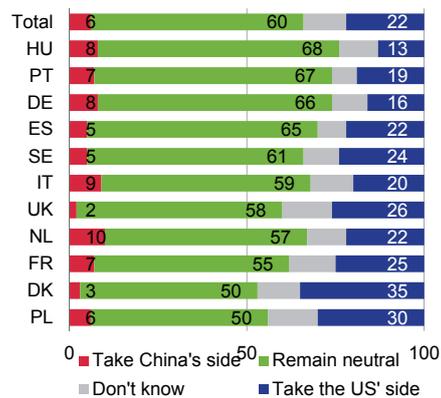
## Germany in the next decade: Ambition and potential

Thus, strengthening and deepening the single market (especially the digital single market) is essential for the EU and Germany to retain leverage in trade and investment policies. With the UK exiting the Union, Germany lost a free-market proponent tilting the balance towards those members more inclined towards state interventionism. By discussing how and when to exit huge pandemic-induced fiscal stimulus and (industrial) policy interventions, Germany now has internalized a debate that has been taking place on the EU level since the rise of China.

### Majority of Europeans prefer not to take side

9

If there was a disagreement between the US and China, what would you like your country to do? In %



Source: ECFR, Jan 2021, The crisis of American power: How Europeans see Biden's America

### Merkel's departure to leave a void in EU leadership

Germany's role in the world is strongly linked to the role it plays within the EU. Chancellor Angela Merkel will be stepping down as the EU's most experienced crisis manager after Germany's federal elections this September leaving an impressive legacy (including the EUR 750 bn Recovery Fund with more than EUR 300 bn in grants). But, she is also leaving behind a political vacuum as Merkel's successor might be more occupied with domestic politics and coalition management. The so-called German-French engine has powered many of the recent landmark EU initiatives, but it remains to be seen whether French President Macron can become the EU's global face in the next decade. After all it was Macron who developed the vision of "strategic autonomy" for the EU. But, he might not be sufficiently integrative to combine the diverging interests in an EU-27. More importantly, Macron is running for re-election in 2022. This adds uncertainty to German-French cooperation and might imply that Europe cannot rely on an effective leadership for the nearer future – which in turn would have an impact on Germany's geopolitical role (see Chart 6).

### Relationship to both China and the US is under considerable flux

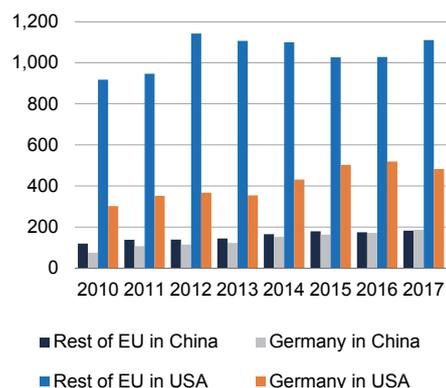
**US under Biden:** It is far from certain that the rule-based multilateral (trade) order, which is critical for the success of Germany's economic model (see Chart 7), will be restored under a Biden presidency. Shortly after its inauguration, the Biden administration has re-joined the Paris Climate Agreement and the World Health Organization. But, the primary goal of the new administration clearly is healing deep domestic divisions. It has been a sobering moment for EU leaders when President Biden declared he would continue the "Made in America" policy (speech from January 25) of his predecessor and called for a "foreign policy for the middle class". The reform of the WTO's appellate body (after appointing a US trade representative) and the US position towards carbon pricing policies at federal level<sup>9</sup> will be a key test to Biden's commitment to multilateralism. Overall, rebooting the transatlantic relationship does not seem to be a primary policy goal in itself for the new administration, as the US focus is increasingly geared towards Asia-Pacific.<sup>10</sup>

**Germany / the EU's China strategy.** EU-China relations are under considerable flux as well. In its 2019 'Strategic Outlook' the EU described China as "a systemic rival promoting alternative models of governance", but also called it "a cooperation partner with whom the EU has closely aligned objectives". Given China's lucrative domestic market, economic interdependencies in terms of trade and investment are likely to grow. The turnover of EU foreign subsidiaries in China has almost doubled from EUR 193 bn in 2010 to EUR 368 bn in 2017 (see Chart 10). However, the EU is poised to reduce asymmetric trade dependencies, e.g. with respect to rare earths (see FT, Oct 19). Germany is likely to play an active role in shaping the future relationship with China as its trade and investment dependencies are strongest in the EU (see Chart 8). At the very end of

### EU foreign subsidiaries still far more active in the US than in China

10

Turnover (industry, construction & services), EUR bn



Sources : Eurostat (FATS), Deutsche Bank

<sup>9</sup> The German Marshall Fund of the United States, Biden's pivot to Europe, February 2021

<sup>10</sup> Carnegie, Working with the Biden administration – opportunities for the EU, January 2021



## Germany in the next decade: Ambition and potential

### SWOT analysis

11

#### Strengths

- Sound macro framework and policies
- Part of the EU's single market
- Relatively low inequality
- Strong industrial base
- Research & innovation powerhouse

#### Weaknesses

- High dependence on foreign demand
- Rapidly ageing population
- Relatively weak digital infrastructure
- Persistently low potential GDP growth
- Relatively weak funding infrastructure (VC)

#### Threats

- Shift of manufacturing value-added towards Asia
- Loss in AI race
- "Sandwich position" in China/US tech and trade war
- Loss of social cohesion / rising instability

#### Opportunities

- Green-tech leadership
- Reaping the benefits of the Fourth Industrial Revolution (IoT)
- Creation of EU digital single market
- Reglobalisation & strengthening of multilateral rule-based order

Source: Deutsche Bank

Germany's EU presidency, the 7-year negotiations for an EU-China Investment Agreement (CAI) were finally concluded, but will only be signed under the French presidency in 2022. While this contract seems rather vague in terms of committing to China, it has certainly not helped with respect to having a fresh start with the new US administration.

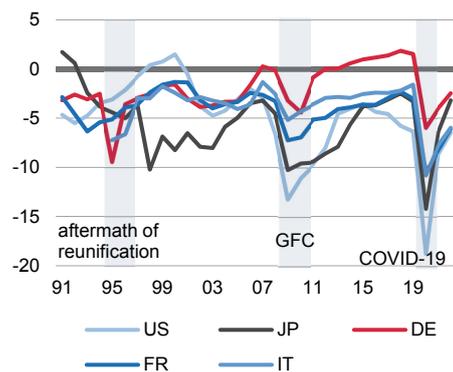
### How to future-proof Germany's economic model – insights from our SWOT analysis

After having provided a broad-brush overview of the geopolitical and geo-economic global backdrop, we now aim to kick-off a debate about possible trajectories for the German economy in the post-Merkel era. Political stability in these past decades has to a certain extent come at the expense of economic reforms. Thus, the new government starts with a handicap in the marathon of making the German economic model fit for the next decades. Applying the concept of a SWOT analysis (see Chart 11), we first highlight Germany's current strengths and weaknesses as stylized facts. As uncertainty with respect to the evolution of the international economic order and Germany's position in the AI/Green-tech race is huge, we then develop four scenarios based on different specifications of those two parameters.

### Public finances are resilient to shocks

12

Budget balance (gen. gov.), % GDP



Note: DE, FR, IT: Financial balance according to Maastricht definition. US, JP: Financial balance according to IMF definition.

Sources: IMF WEO, AMECO, Deutsche Bank Research

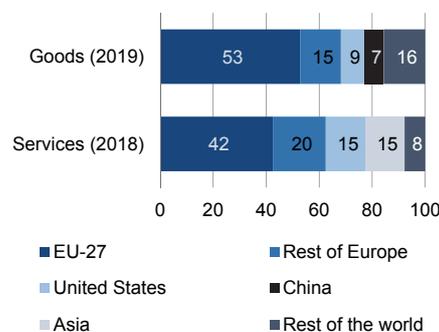
### Strengths

**Sound macro framework – plenty of fiscal space.** Germany has demonstrated several times (reunification, financial crisis, corona pandemic) that it is able to overcome severe shocks without compromising the stability of its public finances (see Chart 12). Strong investor confidence in its creditworthiness together with plenty of fiscal space – thanks to relatively solid pre-crisis public finances – is the key basis for pursuing substantial counter-cyclical policies during periods of stress. The institutional federal debt brake, limiting structural borrowing to 0.35% of GDP, had effectively ensured that the buffers lost after the global crisis were refilled in the pre-pandemic years.

### EU-27 as Germany's top export destination

13

Share of total exports in %



Note: Goods exports account for about 80% and service exports for about 20% of the total exports from Germany.

Sources: Federal Statistical Office, OECD

**The Single Market is tripling Germany's home market.** By being part of the EU's single market, German corporates have relatively frictionless access to the world's second largest internal market. Resulting cost advantages (e.g. via economies of scale and low transaction costs incl. elimination of FX risks) increase the competitiveness of German companies vis-à-vis global competitors. Moreover, "size matters" with respect to leverage in global trade and investment deals and regulatory power in setting global standards. In addition, the prospect of gaining market access to the whole internal market increases Germany's attractiveness as investment location for non-EU corporates. The price tag of a hypothetical "undoing of Europe" in pure trade terms (unilateral doubling of non-tariff barriers by Germany vis-à-vis the EU) shows a 10% loss in welfare and a 9% loss in production in real terms.<sup>11</sup>

**Relatively low level of inequality.** Measured by the Gini coefficient, Germany ranks in the top third of OECD countries with the lowest inequality – reflecting the well-developed social and redistribution system. Access to the education is largely free, from school to academic education. There are support programs for socially-disadvantaged pupils and students. Social participation and equal living conditions enjoy a high priority in political decisions. Nevertheless, social inequality or the unequal distribution of wealth in Germany is increasingly featuring in the public debate. Rising valuations of real estate and financial assets are viewed critically, as is the establishment of a low-wage sector.

<sup>11</sup> IfW, Lieferketten in der Zeit nach Corona, November 2020

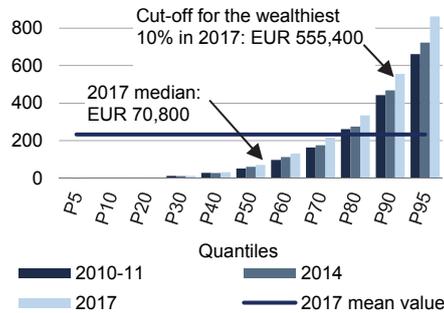


## Germany in the next decade: Ambition and potential

### Rising wealth inequality

14

Distribution of German households' net wealth, in EUR thousands, current prices



Source: Deutsche Bundesbank, Survey "Private Haushalte und ihre Finanzen"

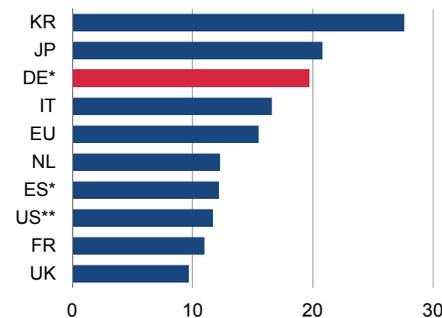
Nevertheless, the latter development has contributed to higher labour force participation.

**Germany remains an industrial powerhouse.** Germany is one of only a few large advanced countries that have been able to maintain a strong industrial base (see Chart 15). It is well-known as a producer of high-end capital goods (automotive products, mechanical and electrical engineering). But, in addition, the complete industrial value chain is located domestically ranging from high-quality metal or chemical products to plastics, technical textiles or electrical equipment. But why could such a strong bias towards the "old economy" possibly be a strength? German manufacturing companies – often SMEs – develop and produce innovative and customized industrial goods for global clients. Demand for such products is expected to increase even if the shift towards the service economy continues. Moreover, the German manufacturing industry is a key client for local corporate services such as development and technical services, research institutes or logistics. Thus, a competitive "old economy" industrial base reinforces the development of a closely linked service sector.

### Germany has a strong industrial base

15

Share of manufacturing in total gross value added, 2019, %



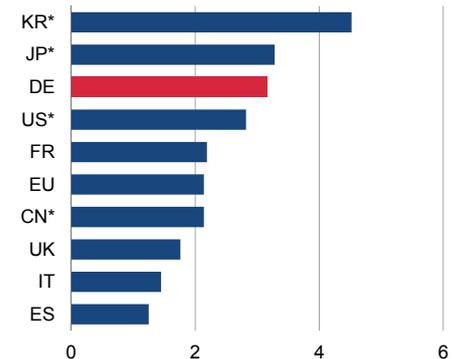
\* 2020  
\*\* 2018

Sources: Eurostat, OECD

### Big spender with respect to R&D

16

Share of R&D spending in GDP, 2019, %



Note: \*2018

Source: Eurostat

**The manufacturing sector is a key driver of innovation.** Over the last few decades manufacturing companies have established a close regional and scientific cooperation. Specialized R&D institutes at universities or renowned research facilities such as Max Planck or Fraunhofer Institutes back this up. Largely driven by the manufacturing sector (accounting for roughly 87% of total internal and external R&D spending), German R&D intensity increased over the last couple of years, reaching 3.2% in 2019. R&D intensity is thus higher than in the EU, the US or China (see Chart 16), albeit with a strong concentration on the automotive sector. With respect to next generation technologies, Germany has been losing ground over the last decade. According to a study screening world class patents in 58 technologies Germany is falling behind in terms of technology leadership (semiconductors, nanotechnology, and synthetic biology). While it still was among the top 3 countries in 47 technologies in 2000, this is the case for only 22 technologies in 2019.<sup>12</sup>

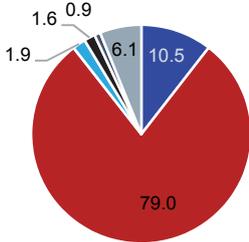
<sup>12</sup> Bertelsmann Stiftung, Weltklassepatente in Zukunftstechnologien, 2020



## Germany in the next decade: Ambition and potential

German exports entail 10% value added from the EU and 10% from the rest of the world **17**

Origin in value added in German gross exports, in %

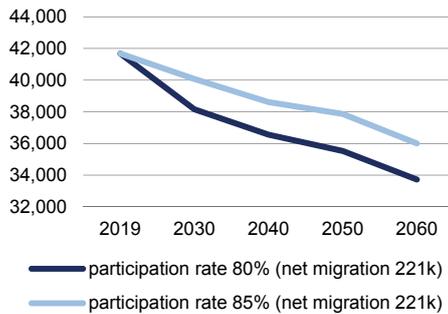


■ EU-28 (ex DE) ■ DE ■ US ■ CN ■ RU ■ RoW

Sources: OECD TiVA, Deutsche Bank

Demographic change points to a significant decline in the labour force **18**

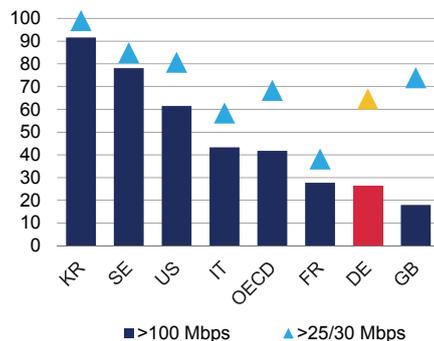
Demographic projection of the German labour force (people aged 20 - 65 years), '000



Source: Federal Statistical Office

Germany lagging in terms of high-speed broadband subscriptions **19**

Fixed broadband subscriptions with contracted speed faster than 25/30 Mbps and 100 Mbps, December 2019, in %



Source: OECD

### Weaknesses

**High dependence on foreign demand.** Germany's export-dependent growth model and high trade and investment openness served the country well during the last couple of decades. However, high openness also renders Germany vulnerable to exogenous shocks – be they economic or geopolitical in nature or with respect to the architecture of global trade and investment. While German exports are mainly geared towards the EU-27, individual sectors are more dependent on extra-EU trade linkages (e.g. automotive industry and electrical engineering with respect to China, machinery and equipment with respect to the US). In addition, global value chains for key components span across even more geographies (semiconductors, chips). Moreover, the turnover in foreign subsidiaries of German companies in the US and China is increasing steadily.

**Rapidly ageing population.** Demographic change will become most apparent at the end of the 2020s, when the so-called baby boomers (those born in the 1950s and 1960s) move out of working life into old-age retirement. Without increased immigration or an increase in labour force participation, the labour force potential will decrease noticeably. In turn, the number of pension recipients will increase significantly, thus intensifying the challenges for the social system including old age care. The retirement of many experienced workers requires an efficiently designed transfer of institutional and enterprise-specific expertise to younger employees in order to ensure competitiveness. Since the age structure varies greatly from region to region, some areas in Germany will feel the effects of demographic change earlier and more strongly than others. This is an additional potential source of tension for economic and social policy at the federal level.

**Relatively weak digital infrastructure.** While Germany scores well with respect to its physical infrastructure, the assessment of its digital infrastructure is mixed. Germany is lagging and further losing ground in terms of fixed high-speed broadband subscriptions (Chart 19). This is a clear negative as gigabit connectivity for business via broadband or fibre will be a key precondition for retaining global competitiveness. However, Germany has caught up with respect to mobile high capacity broadband connectivity infrastructure (like 5G). 5G is a major enabler for future digital services like IoT for machines, mobile robots in manufacturing or autonomous driving. Parallel to official 5G networks (available for more than 20m inhabitants) private industrial 5G networks are being set up (e.g. from Siemens). This enables the companies to fully exploit the potential of this key technology.

**Persistently low potential GDP growth.** Labour, as an input factor, is suffering from the ageing and shrinking of the population. The capital stock is currently growing at a subdued clip and investment activity is moderate. The contribution of total factor productivity (TFP) has – as in many other countries – recently declined, possibly because the benefits of specialization are shrinking and because input factors have been reallocated less efficiently. This is reflected in the disproportionate expansion of the German services sector, with its mostly low labour productivity. In addition, the growth of manufacturing depth has slowed. While the economy had experienced an upswing before COVID-19, the discussion about the structural slowdown in growth had faded since then. The pandemic has radically exposed the deficits in the digitalisation of the German education system and in the efficiency and effectiveness of public administration. Fostering the diffusion of cross-sectional digital technologies in the SME sector, but also in the education system and public administration will be key to increase TFP.

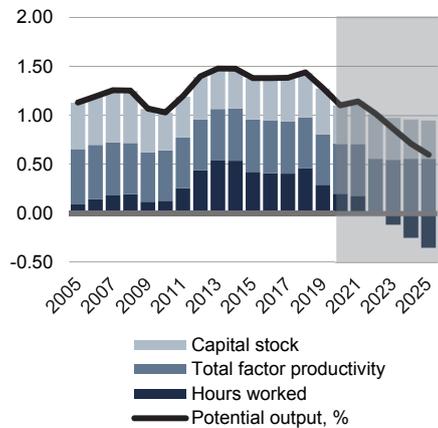
**Weak financial system.** Germany's bank-based financial system is strictly segregated into three different pillars, but open to foreign players which have a sizeable market share. Plain-vanilla lending to private and corporate customers works well due to intense competition. However, the system suffers from structural sclerosis, persistently low efficiency and poor profitability, aggravated by strong



## Germany in the next decade: Ambition and potential

### Potential GDP growth might fall below 1% 20

Components of potential output (modified EU method), pp



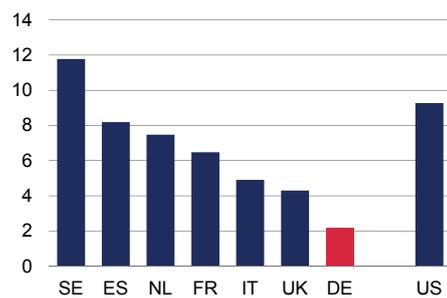
Source: Federal Statistical Office; calculations and projections of the Joint Economic Forecast (Gemeinschaftsdiagnose)

reliance on interest income which is ever more under pressure from the ECB's negative rates. These are also a great burden on Germany's traditionally strong insurance industry and its deposit- and insurance-focused private savings. Capital markets (particularly equities) and venture capital are underdeveloped by international standards, due to an unfavourable legal framework and a risk-averse, status quo-oriented society.

**What next?** Analysing a country via the lens of a strategic management tool, the policy advice boils down to the following essence: keep your strengths, work on your weaknesses and never lose sight of opportunities and threats. Summing up the findings from our SWOT analysis yields the following to-dos for Germany: (i) further deepening the size of the EU (digital) single market, (ii) wisely using/maintaining its fiscal space, (iii) keeping the competitive edge in advanced manufacturing and (iv) safeguarding a high level of social cohesion. While at the same time it is key to improve digital infrastructure, raise potential growth by fostering the diffusion of cross-sectoral technologies and further develop venture capital markets. This might sound like stating the obvious, but we are only half-way through the analysis. Sketching the key threats and opportunities facing the German economic model will provide clues as to where action is most needed depending on how the future will play out.

### Worst in class: Post-tax ROE of German banks 21

%, 2003-2019 median



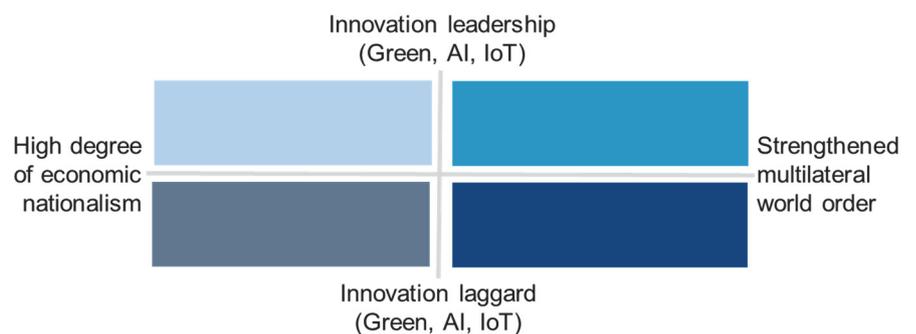
Source: ECB, FDIC, Deutsche Bank

## Moving from SWOT analysis to scenario creation

Germany's "business model" (export-driven with a strong innovative industrial base) is threatened most by a) a continued erosion of the liberal rule-based trading and investment order and b) by falling behind in the global tech race with respect to Green-tech, AI and IoT.

Thus, we pick these two threats and plot the first one on a horizontal axis, the second one on a vertical axis (see Chart 22). Now, we identify key drivers that will define Germany's position on these axes. We focus on the drivers presented in Charts 23 & 26 and assess their impact with respect to the potential direction of travel on each of the two axes.

### Step 1 - the axes of our scenario analysis 22



Source: Deutsche Bank

### Multilateralism – key drivers to watch (x-axis) 23

- WTO reform progress
- Bilateral EU trade & investment deals
- Alternative forms of international governance
- Non-tariff barriers vis-à-vis the EU
- Supranational climate policy framework
- Global Tech standards
- Degree of US/China decoupling
- Success of nationalist/populist parties

Source: Deutsche Bank

**Slight improvement in the liberal world order: Momentum slightly geared towards the right on the x-axis**

### Positive developments

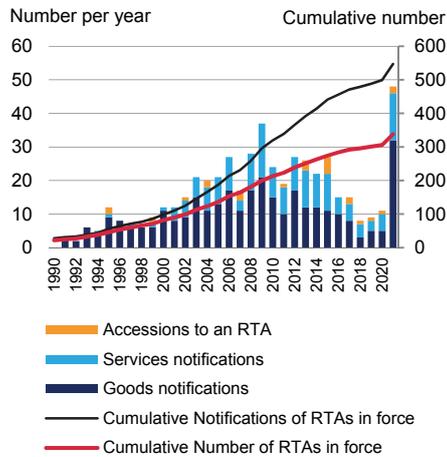
**CAI driving incremental improvements to the WTO?** The US will primarily focus on domestic issues and China will continue to foster its parallel institutions (like the Belt & Road initiative or the 17+1 format). Still, after the first few weeks of the new



## Germany in the next decade: Ambition and potential

Growth of regional trade agreements distorted by post-Brexit deals

24



Note on 2020: Most of the notifications concern bilateral trade agreements of the UK and other states.

Source: WTO

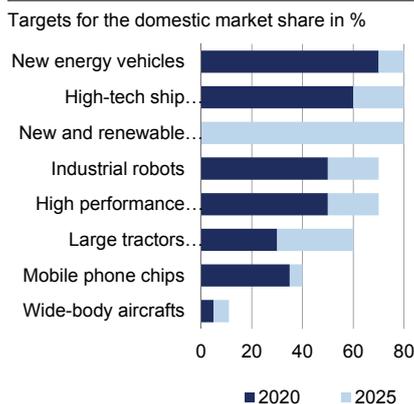
US administration, there are signs of modest improvements with respect to the functioning of the WTO (appointment of its Director General, next step would be the reform of the appellate body). Moreover, the recently concluded EU Investment Agreement with China (CAI) could be symptomatic of a new era of bilateral agreements, which are also incremental improvements to the global order. While not formalized and terms and conditions yet to be published, the CAI could potentially improve transparency on issues like SOEs and subsidies. At the same time it could be a signal to China that it cannot take the current advantages of its WTO status for granted.<sup>13</sup> Key questions remain around the enforceability of the agreement.

**Number of regional trade agreements is growing** – the second-best solution to a revival in multilateralism (see Chart 24). The EU has recently struck trade deals with Japan, Vietnam, and Singapore and is currently negotiating with Indonesia (see EU-Asia connectivity strategy).

**Alternative forms of international governance are emerging.** Club governance formats such as the G7, G20 (albeit with a mixed track record) or the recently established Alliance for Multilateralism come to mind.

Made in China 2025

25



Source: MERCIS

### Negative developments

**Non-tariff barriers continue to increase** and national regulation such as the imposition of carbon border adjustment mechanisms (see the EU's Green Deal) might be a new source of disruption to the global trading system. Even if a **clash of trade and climate policies** can be avoided, it will still rewrite the terms of competitive advantage, largely to the detriment of emerging markets with a high carbon footprint.<sup>14</sup> Geopolitical repercussions of climate policies add a new layer of unpredictability to the strategic planning of German exporting (and importing) companies.

**Global tech standards, the free flow of data and a supranational regulatory framework for climate policies (path to a global CO<sub>2</sub> price range) remain wishful thinking.** These are overlapping drivers, which will be discussed in the next section dealing with the y-axis.

**A certain degree of decoupling between the US and China is likely to continue.** There are no signs of "weaponisation" of economic (inter)dependence, but the US will continue with "targeted export restrictions" and selective blacklisting of Chinese companies (FAZ, Jan 11). China will continue to pursue a selective/conditional coupling in those sectors in which it needs the technologies or competition (see Chart 25). Thus, European/German corporates might be faced with further supply chain risks (critical inputs) and have to cope with digital decoupling (differing data governance, standards and tech equipment requiring dual systems or flexible architecture by exports and investors).<sup>15</sup>

**Popularity of nationalist parties is waning in Germany – but not everywhere.** The EU's and Germany's ability to actively safeguard the multilateral world order or foster any second-best solution might be impaired by rising populism at a national level. Currently polls suggest that the number of people viewing international cooperation as a zero-sum game and expect the EU to be a protection shield against (perceived) unfair competition from abroad is in slight decline. Still, with respect to the upcoming elections French president Macron might be under pressure from Le Pen to foster the concept of a "Europe that protects".

Innovation – key drivers to watch (y-axis)

26

- Size & allocation of R&D spending
- Climate regulation (national & foreign)
- Industrial policy initiatives (national & foreign)
- European data spaces
- Ownership of industrial data/digital twins
- Global Tech standards as 21st century DIN norms
- Antitrust action in the US/EU (BigTech)
- Attraction of global talent

Source: Deutsche Bank

<sup>13</sup> PIIE, Conference Statement by Sabine Weyand, February 2021

<sup>14</sup> BCG, How an EU Carbon Border Tax could jolt world trade, 2020

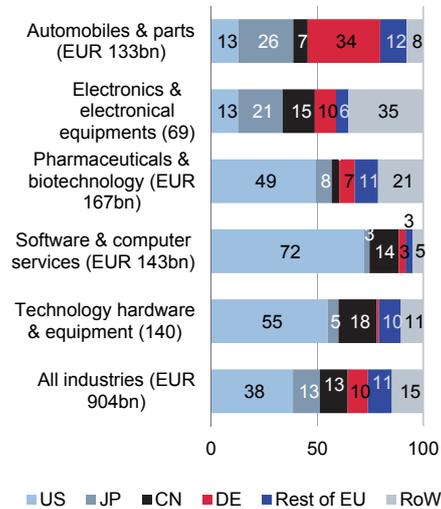
<sup>15</sup> Merics/EU Chamber of Commerce in China, Decoupling-Severed Ties and Patchwork Globalisation, 2021



## Germany in the next decade: Ambition and potential

### Putting all eggs in one basket: R&D concentrated on automotive industry 27

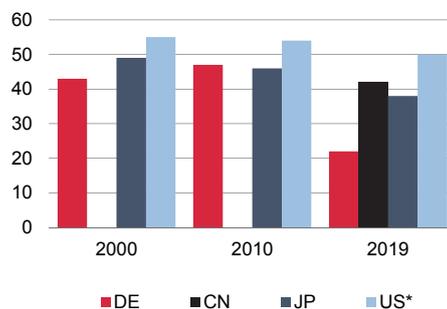
Top 2,500 companies with respect to R&D investments, % of total within industry



Source: European Commission, The 2020 EU Industrial Investment Scoreboard

### Falling behind in technological leadership 28

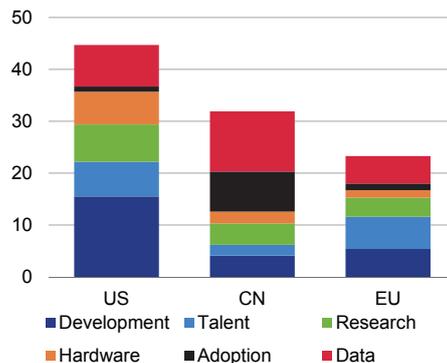
cumulative number of top 3 patent ranking (covering 58 technologies)



Note: \*For US: top 1 patent ranking  
Source: Bertelsmann Stiftung, 2019, Weltklassepatente in Zukunftstechnologien

### US still holds a substantial lead in AI 29

Weighted scores, 100=total



Source: Center for Data Innovation, January 2021

## Loss in innovation leadership, but still strong in technology adoption: Slight shift upwards on the y-axis

### Positive developments

**Rising R&D spending with slightly more diversification.** The manufacturing sector remains the key driver of innovation, propelling Germany's R&D intensity above the levels of the rest of the EU, US or China. However, R&D expenditure of large companies is heavily concentrated on the automotive industry (see Chart 27), while it is machinery and equipment, electrical engineering or pharmaceuticals for the SME sector. With respect to next generation technologies Germany has been losing ground over the last decade (semiconductors, nanotechnology, and synthetic biology) (see Chart 28). On a positive note, public R&D expenditure is becoming more targeted towards disruptive innovation (e.g. Federal Agency for disruptive innovation founded in 2019 following the example of the US Darpa).

**Climate regulation is the key driver with respect to a continuation of the Green-tech success story.** Germany is likely to keep technological leadership in key areas and reap the benefits of adopting the technologies by exporting competitive products. Strict climate and environmental regulation in conjunction with subsidies has helped establish companies with a focus on traditional green technologies.<sup>16</sup> Moreover, they accelerated innovation with respect to new green technologies (e.g. electric mobility driven by CO<sub>2</sub> limits for passenger cars). However, an important outlier here is the country-specific evolution of the future regulatory framework, especially the level of subsidies (e.g. renewables, electric cars), environmental regulation (e.g. bans on certain products or quotas) and industrial policy initiatives (e.g. China's manufacturing 2025 initiative). Demand for German Green-tech exports will mostly be generated in those importing countries willing and able to afford a strict regulatory framework. Thus, regulatory change abroad will be a key factor to watch.

**The concept of Industry 4.0 originated in Germany in 2010 – adoption is accelerating.** German companies have started to integrate the respective technologies into their industrial production processes as well as products (e.g. machine-to-machine communication, batch-size 1 production, remote maintenance, connected driving and many more). They will continue to focus on accelerating adoption, while front-running innovation also regarding the software backbone is out of scope. Companies are also gradually making inroads with respect to building digital twins of manufacturing processes (Industrial Digital Twin Association founded by 20 German companies in September 2020). These digital twins allow digital design, virtual R&D and full control over operations in real-time.

### Negative developments

**Falling behind with respect to AI and big data.** Germany (and the EU) are unlikely to close the tech race with respect to AI. They struggle to transfer AI research to viable business models and applications (EU Monitor March 18, 2020). But with these technologies being the most important next generation cross-sectoral technologies, what does that mean for Germany's manufacturing sector? After German/European companies lost out in the consumer space, the key questions will be, (i) who will own industrial data and the tools to analyze them and (ii) who will set the standards and terminology akin to the DIN norms in the 19<sup>th</sup> century? Access to and knowledge of how to reap the benefits of big data/digital twins will be the key source of profits. Hence, if the EU succeeds in the creation of a common European

<sup>16</sup> Filtration systems for air and water pollutants, water technologies, energy efficiency, parts of renewable energies, sewage and waste-disposal technologies, etc.

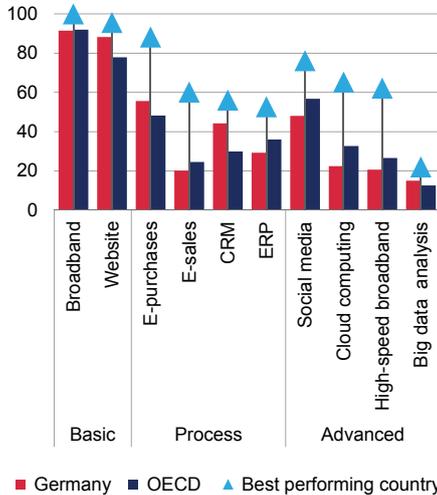


## Germany in the next decade: Ambition and potential

German firms lagging in the adoption of advanced ITC tools

30

% of all firms adopting advanced ICT tools and activities, 2019 or latest available year



Note: Firms with 10 or more employees, excluding financial sector. ERP stands for enterprise resource planning, CRM for customer relationship management; high-speed broadband are subscriptions with 100+ Mbps.

Source: OECD ICT Access and Usage by Businesses database

data space for sectors like industrial manufacturing or mobility, German manufacturing companies will be better equipped to benefit from necessary economies of scale.

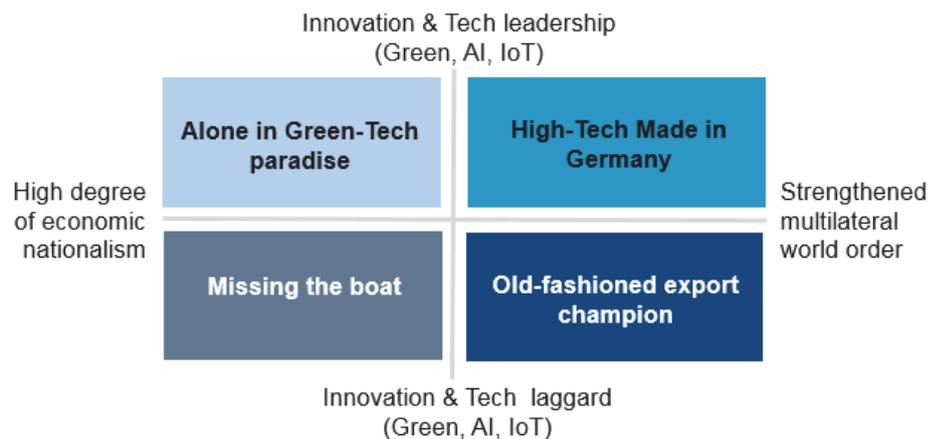
**Skill set of the labour force is adjusting too slowly.** Education and attraction of global talent are key enablers for innovation and technology adoption. A shortage of STEM, ICT and data specialists is already slowing down technological change right now, especially with respect to the use of advanced ICT tools (see Chart 30). The share of ICT specialists in relation to the total labour force has grown less in Germany than in other European countries.<sup>17</sup>

### Sneak Preview Germany 2030: Cast unknown, four different plots on offer

Following the discussion of the two dimensions we have identified as key determinants for Germany's future and their ex ante uncertain direction, we can use opposite specifications to derive a two-by-two matrix with possible scenarios (see Chart 31). We deliberately apply somewhat more extreme specifications to generate clearly separated scenarios. This should also help the reader to more easily identify key implications.

Step 2: A glimpse into the crystal ball – four scenarios how the future might play out ...

31



Source: Deutsche Bank

**High-Tech Made in Germany:** Huge R&D investments pay off and Germany (and the EU) are leading the technology cycle with respect to Green-tech, smart robotics and IoT. The increasing diffusion and use of digital technologies, also among SMEs and the public sector, and re-skilling of the labour force has lifted Germany's potential growth rate. Successfully revived multilateral cooperation leads to a convergence of global tech standards, free flow data and a supranational regulatory framework for climate policies (path to a global CO<sub>2</sub> price range).

**Old-fashioned export champion – distancing itself further from the technological frontier:** Germany and the EU operate in a strengthened and revamped global order that also regulates the digital and green sphere. There is similar speed in global climate regulation, the WTO is reformed and functional. However, as German innovation investments were misallocated (i.e. lack of integration of digital services into capital goods), the country is lagging with respect to the digital transformation. Still, cooperation between German industrial companies and US tech firms results

<sup>17</sup> CWS/DZHW/SOFI, Bildung und Qualifikation als Grundlage der technologischen Leistungsfähigkeit Deutschlands 2021



## Germany in the next decade: Ambition and potential

---

in traditional capital goods being increasingly enhanced by digital technologies or AI solutions – at the expense of German profit margins and value added of the Germany industry.

**Alone in Green-tech paradise.** Germany/the EU partially succeed in the Green-tech race coupled with a strong push for strategic autonomy. US/China decoupling dynamics intensify with respect to standards, data governance and critical inputs. Given the increasing use of economic coercion, the move towards continental value chains is being pursued actively. Rising tariff and non-tariff barriers lead to an increasing fragmentation of markets. German multinationals pursue the strategy of localization of production abroad, with production being shaped by foreign national regulation and demand.

**Missing the boat – technological decline in a fragmented world:** The liberal rule-based world order erodes further, it is undermined by unilateral action, de-globalization intensifies and US/China decoupling accelerates. Germany underspent on R&D and/or invested into the wrong technologies. As US tech giants dominate not only the B2C but also the B2B market, the German manufacturing industry eventually loses control over its products. It is severely disrupted as the Tech giants end up with a broader and deeper knowledge of the products, production processes and customer requirements (via digital twins).

### Outlook: Know your strengths and weaknesses and choose wisely!

A lot is at stake when Germany goes to the polls in autumn. Complacency and reactive policies are not an option for the next government as our SWOT analysis and our four scenarios narratives show. The pandemic has been a catalyst in exposing weaknesses and amplified threats. The evolution of the international trade and investment order (horizontal scenario axis) is largely beyond the control of political and corporate actors in Germany (probably less so for European actors). The momentum on the innovation & technology axis can definitely be influenced by German political and corporate actors. Germany needs to use the available options in combination with other parameters to prepare the country for a successful future, ideally in both a world of more economic nationalism or revived multilateralism. Strong reform effort of both, the government and corporate sector, is needed in order to secure Germany's place in the "High-Tech Made in Germany" scenario. This requires (i) a proper allocation of R&D investments (private & public), (ii) keeping the upper hand with respect to ownership of industrial data and digital twins of manufacturing processes, (iii) an accelerated diffusion of cross-sectoral technologies like AI and (iv) improving the skill set of the labour force (STEM graduates, programming skills). Otherwise, the "High-Tech Made in Germany" scenario might quickly turn out to be an unrealistic upside scenario.



## Germany in the next decade: Ambition and potential

---

This paper is the start of a DB series accompanying this year's German federal election. The following papers will be looking in more detail into the key policy areas identified here. However, in a complex and interdependent world important policy areas cannot be analyzed in isolation. In the same vein, the new government will need to design its policies in a holistic fashion. This can only be done against the backdrop of realistic scenarios, highlighting developments where Germany is largely a "taker", while at the same time identifying those parameters German/EU politicians can determine or at least influence.

Marion Mühlberger (+49 69 910-31815, [marion.muehlberger@db.com](mailto:marion.muehlberger@db.com))

Barbara Böttcher (+49 69 910-31787, [barbara.boettcher@db.com](mailto:barbara.boettcher@db.com))

Ursula Walther ([ursula.walther@db.com](mailto:ursula.walther@db.com))

### Contributions from

Sebastian Becker (+49 69 910-21548, [sebastian-b.becker@db.com](mailto:sebastian-b.becker@db.com))

Eric Heymann (+49 69 910-31730, [eric.heyman@db.com](mailto:eric.heyman@db.com))

Jochen Möbert (+49 69 910-31727, [jochen.moebert@db.com](mailto:jochen.moebert@db.com))

Marc Schattenberg (+49 69 910-31875, [marc.schattenberg@db.com](mailto:marc.schattenberg@db.com))

Jan Schildbach (+49 69 910-31717, [jan.schildbach@db.com](mailto:jan.schildbach@db.com))

Stefan Schneider (+49 69 910-31790, [stefan-b.schneider@db.com](mailto:stefan-b.schneider@db.com))



## Germany in the next decade: Ambition and potential

---



## Germany Monitor

In the "Germany Monitor" series we address political and structural issues which have great significance for Germany. These include commentaries on elections and political decisions, as well as technology and industry issues, and macro-economic topics which go beyond the business cycle matters addressed in "Focus Germany".

Our publications can be accessed, free of charge, on our website [www.dbresearch.com](http://www.dbresearch.com). You can also register there to receive our publications regularly by E-mail.

Ordering address for the print version:  
Deutsche Bank Research  
Marketing  
60262 Frankfurt am Main  
Fax: +49 69 910-31877  
E-mail: [marketing.dbr@db.com](mailto:marketing.dbr@db.com)

Available faster by E-mail:  
[marketing.dbr@db.com](mailto:marketing.dbr@db.com)

- ▶ Germany in the next decade:  
Ambition and potential ..... March 9, 2021
- ▶ Germany's future as a carmaking location:  
Greetings from Detroit ..... January 28, 2021
- ▶ Work from home has come to stay ..... January 25, 2021
- ▶ Federal budget 2021: Will the credit high  
be followed by a debt hangover? ..... December 7, 2020
- ▶ Dax reform: Reasonable,  
but won't cure German stock market's illness ..... December 4, 2020
- ▶ Surge in corporate insolvencies hitting  
German banks ..... November 6, 2020
- ▶ Working from home:  
Be careful what you wish for ..... September 9, 2020

© Copyright 2021. Deutsche Bank AG, Deutsche Bank Research, 60262 Frankfurt am Main, Germany. All rights reserved. When quoting please cite "Deutsche Bank Research".

The above information does not constitute the provision of investment, legal or tax advice. Any views expressed reflect the current views of the author, which do not necessarily correspond to the opinions of Deutsche Bank AG or its affiliates. Opinions expressed may change without notice. Opinions expressed may differ from views set out in other documents, including research, published by Deutsche Bank. The above information is provided for informational purposes only and without any obligation, whether contractual or otherwise. No warranty or representation is made as to the correctness, completeness and accuracy of the information given or the assessments made.

In Germany this information is approved and/or communicated by Deutsche Bank AG Frankfurt, licensed to carry on banking business and to provide financial services under the supervision of the European Central Bank (ECB) and the German Federal Financial Supervisory Authority (BaFin). In the United Kingdom this information is approved and/or communicated by Deutsche Bank AG, London Branch, a member of the London Stock Exchange, authorized by UK's Prudential Regulation Authority (PRA) and subject to limited regulation by the UK's Financial Conduct Authority (FCA) (under number 150018) and by the PRA. This information is distributed in Hong Kong by Deutsche Bank AG, Hong Kong Branch, in Korea by Deutsche Securities Korea Co. and in Singapore by Deutsche Bank AG, Singapore Branch. In Japan this information is approved and/or distributed by Deutsche Securities Inc. In Australia, retail clients should obtain a copy of a Product Disclosure Statement (PDS) relating to any financial product referred to in this report and consider the PDS before making any decision about whether to acquire the product.

Printed by: HST Offsetdruck Schadt & Tetzlaff GbR, Dieburg

ISSN (Print): 2511-8552