

A professional video recording studio with a cameraman and a subject. The cameraman is on the left, sitting on a wooden ledge, operating a camera on a tripod. The subject is on the right, sitting on a chair on a raised platform. A large window in the background shows a cityscape. A studio light is visible on the left.

NO PRESSURE GERMANY, BUT THE WORLD IS WATCHING

*Ulrich Hottel considers how
Europe's 'efficient Teutonic machine'
will cope in the digital future*



LEFLOID

The YouTube star and student at Berlin's Humboldt University hit the big time in 2015 when he interviewed Chancellor Angela Merkel. LeFloid (aka Florian Mundt) is one of the many new faces (see overleaf) who are helping to shape modern Germany.

“German engineering for your hair.” The TV ad slogan for Alpecin, a caffeinated shampoo, says a lot about how the rest of the world sees Germany, and about what many of the country’s businesses regard as their USP. This is the land of *vorsprung durch technik* – the Audi slogan that can plausibly be translated as ‘progress through technology’ – and of the ‘efficient Teutonic machine’, a cliché football commentators use whenever the national team, the very epitome of organised, long-term thinking, is winning.

That image endures despite the revelation that Volkswagen was focusing too much on the short term when it circumvented emissions tests, although it has since emerged that many other manufacturers had been guilty of ‘gaming’ regulations. Even so, Germany probably isn’t making as much *vorsprung* with the *technik* as the country’s leaders would like.

Three years ago, Chancellor Angela Merkel was mocked when she said: “The internet is new territory for all of us.” But with the German economy entering the age of Industry 4.0, as the Internet of Things is known there, her words have proved largely true. The digital age is probably the most profound challenge that the nation – and its businesses – has faced since the miraculous rebuilding of the country’s economy in the 1950s.

Germany braces itself to address this threat – and opportunity – from a good starting point. Its economic statistics are impressive: the country is the fourth largest economy in the world, it is enjoying record-high levels of employment and it has one of the best economic growth rates in the EU. Even so, digitisation is a serious, possibly destiny-defining, issue for business and society. The fourth industrial revolution is especially critical for the country’s manufacturing industry – mechanical engineering and car manufacturing are as important to the German economy as finance is to the UK’s, and the success, or failure, of the transformation of these sectors will help to determine its social and economic wellbeing.

Many experts and government officials have warned that German businesses, especially small to medium-sized enterprises (SMEs), are too reliant on models that have served them well in the past and may be caught slumbering by the advent of Industry 4.0. A survey by the Centre for European Economic Research (ZEW) suggests that only 18 per cent of 4,500 German companies have even heard of the term. Worse still, only 4 per cent are carrying out projects for Industry 4.0 or have plans to do so in the short term.

“Germany is not making enough of the opportunity provided by digitisation. This puts success at risk, especially among small companies,” says Hans-Jürgen Völz, chief economist at the BVMW, the German SME association. The advent of digitisation could even create a clear divide – a ZEW study shows that, while almost half

of enterprises with more than 500 employees already use cloud computing, less than a quarter of smaller businesses do. SMEs, which still make up 99 per cent of all companies in Germany and are the backbone of the economy, also rely less on big data.

Despite the gloomy statistics, awareness of Industry 4.0 is rising steadily and organisations that compete globally are thinking particularly hard about how to adapt. “Large corporations are always the early adopters of new technologies. They digitise their whole value-added chains,” says Professor Irene Bertschek, head of research on ICT at ZEW. “But for many smaller companies, isolated solutions make more sense when it comes down to a cost-benefit analysis.”

Traditionally, in mechanical engineering, speed has been less important than quality and a long life-cycle. Digitisation is changing that, but this is an industry that is well-prepared, says Andrea Veerkamp-Walz, who is responsible for personnel policy and management at the Association of German Mechanical Engineering and Plant Manufacturing. “The government promotes this fast-developing topic through programmes,” she says. One in seven mechanical engineering companies are running projects to explore Industry 4.0 or plan to do so soon, and Germany has led Europe in investment in, and the use of, industrial robots, while managing to keep unemployment at a historic low of 4.7 per cent.

The fourth industrial revolution will, without question, change the working lives of engineers, technicians and HR. The production processes of the future will lead to culture changes that will require intelligent management. Companies will need to discuss digital transformation and rethink the way they view working time. The decentralisation of hierarchies, the creation of flexible structures around certain projects, the need to look for broader skills and the speed of decision-making in this new world will challenge the way many large firms have been run. But despite the foreign perception of German business as the epitome of efficiency, one managing director of a large media group was honest enough to reveal to a British journalist: “You will have been told that German companies are efficient. They are not. They are organised. There is a difference.”

Such a root and branch transformation has led industry analysts to talk of ‘Work 4.0’. It’s not a change that will happen overnight, but most well-qualified employees in Germany already use information and communication technologies. “Human beings can do Industry 4.0. One just has to involve them and let them do it,” says Professor Sabine Pfeiffer, work and industry sociologist at the University of Hohenheim and author of the study *Industry 4.0 – Qualification 2025*. “The need for systematic thinking and interdisciplinary cooperation will surely increase. Not everybody has to be capable of programming and modelling, but more employees will need to understand IT, data structures, data protection and privacy without giving up their know-how in production technologies.” →

DIE NEUEN KIDS

THOMAS TUCHEL

The next big thing in football management. While England swoons over Jürgen Klopp, his successor at Borussia Dortmund is quietly outshining him – even if it has proved impossible to overhaul FC Bayern Munich this season.

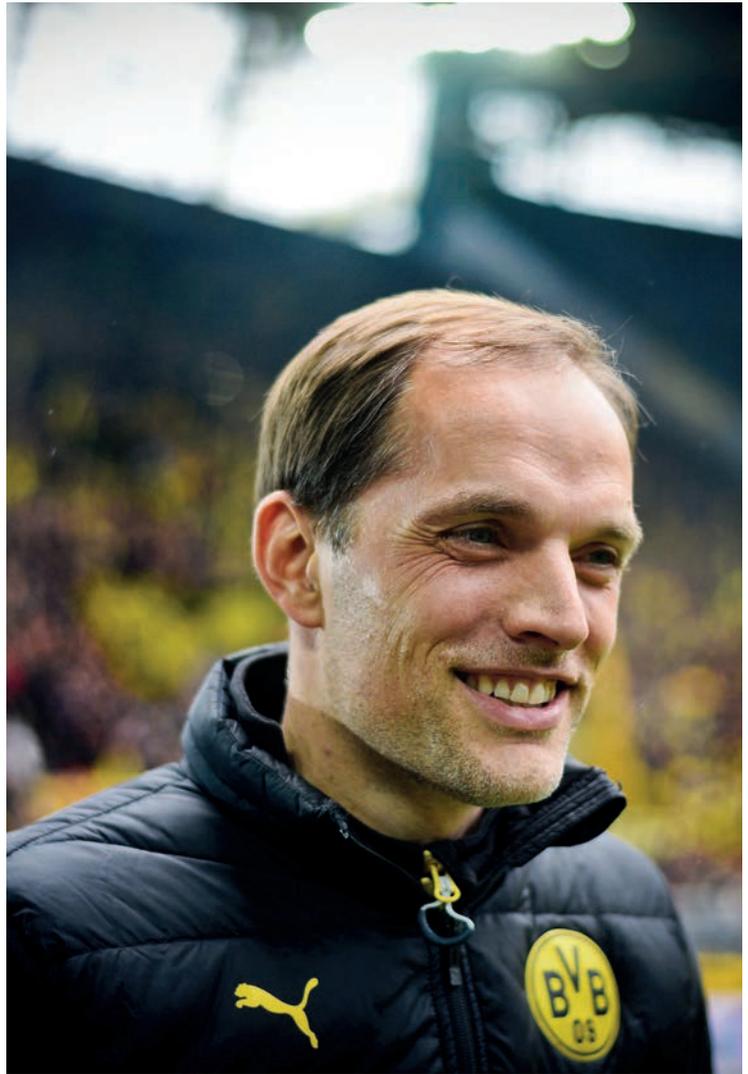


TANIT KOCH

At the start of the year, aged 38, she became the first female editor of *Bild*, Germany's only national tabloid and the top-selling daily newspaper in Europe.

PALINA ROJINSKI

The former rhythmic gymnast made a name for herself as an MTV presenter. The 31-year-old has now added actress, model, DJ and rapper to an already impressive CV.





ALINA BRONSKY

The Russian-born German author of four novels, all translated into English. Her latest, the Chernobyl-themed *Baba Dunja's Last Love*, was long-listed for Germany's main literature prize.



DANIEL BRÜHL

The German-Spanish actor (*Good Bye, Lenin!*; *Inglourious Basterds*) has just hit the Hollywood big-time with his role as Baron Zemo in Marvel's *Captain America: Civil War*.



JAN BÖHMERMANN

Controversial satirist and presenter who tested 'freedom of art' by deliberately insulting Turkish president Recep Tayyip Erdogan. In doing so, he broke an obscure German law that forbids offending foreign heads of state. Erdogan has requested that he be prosecuted.



BRITTA THIE

The 29-year-old Berlin artist is the brains behind hit internet series *Translantics*, described by *Spiegel* as a cross between traditional video art and Lena Dunham's comedy-drama, *Girls*.

YASSIN

An alternative hip-hopper whose hazy rhymes have seduced Germany. His latest album, *Normaler Samt*, with rap partner Audio88, has propelled him into the mainstream charts.



Gaby Gerster/LAIF - Camera Press London, Robert Winter



OLIVER SAMWER

Along with his brothers Marc and Alexander, Samwer founded Berlin-based start-up studio Rocket Internet. The trio's 2014 IPO saw their company valued at €6.5bn.

MORITZ BÖHRINGER

The German gridiron wide receiver was the first NFL draft pick never to have played in North America. The 22-year-old currently plays for the Minnesota Vikings.



AGNIESZKA BRUGGER

The youngest MP to win a seat in the Bundestag in 2009, she is now defence spokeswoman for the Green Party. She recently dismissed plans to increase the size of the German army as "completely utopian".

The education system provides a good foundation for the world of Work 4.0: two out of three employees have at least dual-vocational training. Training on the job with employers, while simultaneously being educated at vocational schools over a period of two to three years, gives apprentices both practical skills and theoretical knowledge. It's a model that has become one of the country's most influential exports. Many other countries have implemented, at least partly, the German approach and having such a well-qualified workforce has attracted many foreign investors.

"Apple's CEO, Tim Cook, and Google's executive chairman, Eric Schmidt, told me that education and training are the strengths of Germany as a business location. This is why they bought start-ups here," says Peter Altmaier, head of the government's federal chancellery. Rivals, such as the US and China, can't match the spread of such skills. New apprenticeships like 'mechatronic technician' and 'production technologist' have been established in anticipation of the production processes of the future. Veerkamp-Walz says: "We need to give apprentices a better understanding of processes, entrepreneurship, energy efficiency and internationalisation."

Although there is an immediate, pressing need for skilled trade workers to get to grips with IT, the biggest current challenge is far more basic. "Skill levels in calculating, writing and reading have declined, and employers are being forced to make up for these deficits," says Völz. His belief that first-time employees lack key skills is shared by many experts and businesses.

The German labour market is also facing a shortage of the kind of well-qualified professionals sought by industrial companies. With an oversupply of graduates in non-technical and non-economic studies, employers have experienced difficulty in attracting good apprentices and have resorted to advertising dual-vocational training to fill the gap.

Another area of concern for some within the German labour market is its Nordic corporate model, in which employees play a part in decision-making through works councils. This has been in place for decades and clashes of interests are more likely to be resolved by committee than by strikes. But while there is recognition that German unions have practised wage restraint since the end of the 1990s, chastened by the threat of low-cost manufacturing in Eastern Europe, many managers feel works councils block or delay decisions. Even though union membership has fallen in recent years and individual company agreements have replaced collective agreements, HR experts still tend to recommend the use of works councils to communicate with staff, facilitate discussions and build trust.

Compounding these workplace issues, the biggest unknown facing the German labour market is the impact of what the media routinely calls the 'migration crisis'. Confronted with a humanitarian emergency in September 2015, Merkel opened the German borders to

thousands of refugees stranded in Hungary. At that time, her determination to grant human and asylum rights codified by the German constitution even won the respect of political opponents.

Yet, by the end of 2015, more than 1.1 million refugees had taken the Balkan route to Germany. At the same time, Merkel's government failed to win the support from other EU member states it had hoped for. Some enraged German citizens turned to radical-right parties and even moderate voters were sceptical of the government's ability to manage such an influx. Under fierce pressure, Merkel struck a controversial deal with Turkey designed to ensure refugees were halted at the EU's external borders.

The economic effects of migration are hard to predict. Much depends on how quickly refugees can be integrated into the jobs market and what kind of roles they take on. A ZEW study in April estimated that, in the long term, the best-case scenario would lead to additional public revenue of £16bn, while if the worst happens it could cost the public purse £322bn. Another expert assessment estimated that refugees could add 0.1 per cent to economic growth this year – and possibly as much as 0.5 per cent by 2020. To find jobs, and integrate into society, refugees will need to learn German. This year, hundreds of thousands of refugees will attend official courses teaching them the language, culture and history of their new country. In one way, the crisis offers testament to one of Germany's strengths: the situation has been eased by thousands of volunteers across the country who have helped refugees.

While the economic impact has, so far, been marginal, the crisis has had a more corrosive effect on political debate. The furore over the refugee policy has been so intense that it has divided families, couples and friends. It remains to be seen if this will affect the German psyche. Since this measurement can't be found in orthodox economic data, it's worth checking the UN's *World Happiness Report*, first published in 2012. The variables measured by this study of the world's state of mind include real GDP per capita, social support, life expectancy, freedom to make life choices, generosity and perceptions of corruption. Out of 157 countries, Germany ranks sixteenth this year (up from 26th in 2014). The top three are Denmark, Switzerland and Iceland.

Another analysis, the OECD *Better Life Index*, does not rank countries, but compares them in 11 aspects of material living conditions and quality of life. Germany ranks above average in all topics except civic engagement. A third comparison, the *Happy Planet Index* (HPI) from the New Economics Foundation, is less encouraging. The HPI measures the extent to which countries deliver long, happy and sustainable lives for their people, drawing on global data concerning life expectancy, experienced wellbeing and ecological footprint. While Germany does well in the first two, it ranks 118th out of 151 countries with its eco-footprint, leading to a ranking of 46 overall. →



FLYING HIGH

Germany's world rankings

1st

Germany is the best country in the world – according to the first annual survey by *US News World & Report*, compiled with BAV Consulting and the Wharton Foundation. The ranking was based on a range of metrics including entrepreneurialism, infrastructure, education and innovation.

2nd

The country's women's football team is the second best in the world, according to the latest FIFA rankings, just behind the US. As of May 2016, football's governing body ranked the German men's team fifth in the world.

3rd

Germany has produced 80 Nobel laureates. Only the UK (94) and the US (257) have nurtured more. The country also finishes third in the all-time Olympic medals table, with 1,305 medals, behind the US (2,406) and Russia (1,528).

4th

It is the world's fourth largest economy, as measured by GDP, valued at \$3,868bn by the World Bank. The largest economy is the US, followed by China and Japan. Germany is also the world's fourth largest manufacturer.

5th

Germany is the fifth biggest market for industrial robots. In 2014, it bought 20,100 of them – with China (57,096) and Japan (29,300) investing the most in this technology.

7th

The World Economic Forum ranks Germany seventh for the quality of its infrastructure. Hong Kong is rated as having the best.

9th

In terms of foreign aid as a percentage of GDP, Germany ranks ninth with 0.52 per cent, compared with the UK in sixth place with 0.71 per cent, and Sweden (1.4 per cent), which is the most generous nation by this measure.

10th

Germany is the joint tenth most successful nation in the *Eurovision Song Contest*, having won it twice – in 1982 and 2010.

16th

It is the sixteenth happiest country in the world – according to the latest *World Happiness Index*. The happiest is its neighbour, Denmark.

33rd

Germany ranks 33rd in terms of debt as a percentage of GDP. Its debts amount to 71.2 per cent of GDP compared with 229.2 per cent for Japan, which tops this index.

94th

WHO statistics show it is the 94th most obese country – with 20.1 per cent of its adult population seriously overweight. The UK was 33rd, with 28.1 per cent.

Such indices, however, are influenced heavily by the criteria chosen. Because of its economic strength, Germany scores well when it comes to wealth, finance and economics, while its environmental consumption is, as is the case in many other industrialised nations, unsustainable in the long run. The question of wellbeing also depends on individual politics. For some, equality is the litmus test. For others, it is wealth creation. Whatever the rankings and statistics, the reality is that most Germans tend to be pessimistic, emphasising the risks more than the opportunities presented by technologies, developments and projects. This is one reason that Merkel's famous statement – “We can do this,” describing the challenge presented by the migration of refugees – was met with incredulity, scepticism and disbelief.

For those optimistic enough to believe that German business will be able to meet the challenge posed by digitisation, develop new ways of working and look to the happiness of their employees as a sustainable source of success, Deutsche Telekom has become a role model, similar to the way Google has in the US. The German telecommunications provider has won a number of HR awards, recognising several innovative initiatives it has introduced to promote a family-friendly work-life balance and gender equality.

“We were the first corporation with a voluntary 30 per cent quota of women in leadership positions,” says Andrea Vey, Telekom's HR spokesperson. Set in 2010, a time when the company had hardly any women on its board, something it had in common with Germany's other top 30 corporations, significant progress has been made – at the end of 2015, there were seven women on its 20-strong supervisory board.

The firm is extending its parental-leave models, flexible-working time and childcare provisions. Seminars alert employees to the danger of unconscious bias and foster diversity; it has started a leadership programme enabling managers to job share; and the company's network of fathers initiated a ‘BlackBerry policy’, calling on bosses to respect their subordinates' leisure time and to accept that mobile phones will be turned off. On the website *kununu.com*, a platform where staff assess their employers, Telekom scored 3.7 out of 5. The average score for companies is 3.2. Almost 2,000 employees participated.

Like a number of other organisations, Telekom has revamped some of its buildings, including its Bonn headquarters, to adapt to new ways of working, which favour mobile working, rather than individual desk spaces, and the use of home offices. Susanne Steffes, assistant professor and deputy head of the department of labour markets, HR and social policy at ZEW, says this is a growing trend.

“There is a strong tendency towards mobile work with home offices but, at the same time, companies such as Google have learned from experience that it is also important to spend time together in the office for a better exchange of information,” she says. With smartphones



The economic effects of migration are hard to predict and have proved a divisive political issue for German Chancellor Angela Merkel, pictured above at a government meeting with representatives of refugee support groups in Berlin in April

making employees available 24/7, there is also a danger that firms could break the legally prescribed non-intermittent 11-hour rest period and alienate first-time workers. “Young people want to find the right work-life balance and be given flexibility,” says Steffes.

However, German millennials are motivated by more than flexibility and a work-life balance – they are also attracted by autonomy and glamour. For many, the ideal first job is at a start-up. Berlin has emerged as a leading start-up hub in Europe – just behind, but competing with, London and Tel Aviv. Most start-ups are based in the creative sector, IT and biotech, with 31 per cent in the German capital, followed by Munich with 11.5 per cent, the Rhine-Ruhr region with 10.3 per cent and Hamburg with 8.3 per cent.

Trade associations criticise the fact that Germany is one of the few OECD countries that doesn’t offer tax incentives for research and development. They also lament the lack of a law to promote venture capital. There was agreement between the parties in the governing coalition in 2013 but the various ministries involved failed to find common ground. But, says Professor Bertschek: “Conditions for these companies are favourable. Infrastructure such as offices and IT equipment, promotion programmes and venture capital have improved.”

In truth, start-ups remain a risk too far in the eyes of older German workers. Unlike many Americans, Germans tend to prefer a ‘safe’ job as an employee. The enduring success of the industrial machine we might call ‘Made in Germany’ has encouraged such conservatism. One of the challenges for Made in Germany, however, is its strong dependency on exports. This has substantially contributed to the country’s economic success and wealth, but is a risk when the global economy is not doing well.

The sanctions on Russia, zero growth in southern EU countries, the recession in Brazil and lower growth in China – the world’s second largest economy – pose big problems for many exporters in Germany. That said, the latest forecasts from leading German economic research institutes for GDP growth are cautiously optimistic: 1.6 per cent for 2016 and 1.5 for 2017.

Despite widely held concerns, Germany is well-placed to face the digital challenges of the future. Its economy is strong, most of its workforce is well-trained and its social climate is healthier than in most countries. Companies just need to strike the right balance between caution and audacity, and to remember the old German saying: “*Wer rastet, der rostet* (who rests, gets rusty).” 

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