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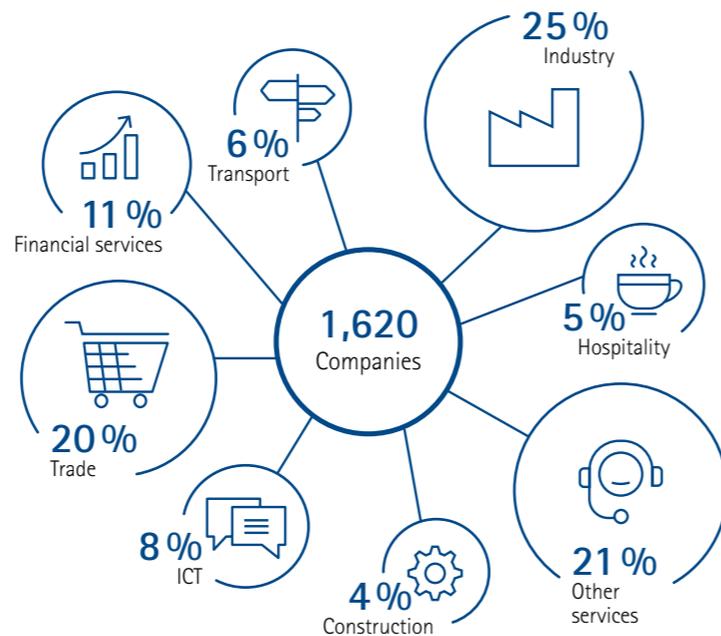
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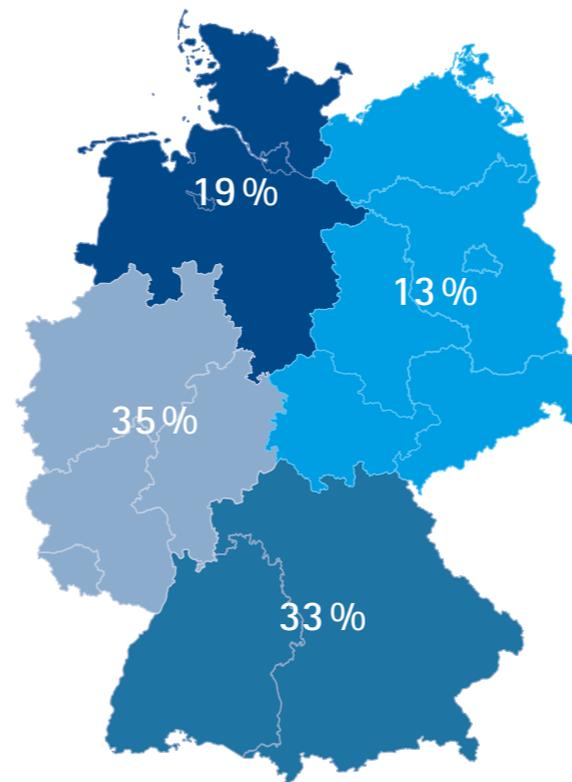


Results of an online survey of German businesses. The survey was conducted from 16 to 24 March 2016.



**Sectoral breakdown**

The responses of 1,620 companies from 8 different economic sectors formed the basis for the analysis.



**Regional breakdown**

Responses came from the North, East, South and West of Germany.

German Chambers of Commerce and Industry business survey on digitalisation



# Digital economy: Perspectives identified, first steps taken

## Key points for digitalisation

To support digitalisation in the economy, the German federal government should ...

### ... formulate a clear long-term infrastructure objective for broadband expansion.

Fibre optic connections are today fundamental to business applications. Many industrial applications will in the future function based on low latency mobile networks (5G). They are indispensable for digitalisation to add value also in rural areas and counteract the shortage of skilled labour. Companies and industrial zones – as well as other key sectors of society and the economy – should be provided with fibre optic connections as a priority.

### ... more actively coordinate initiatives for cybersecurity and improve the interaction between state and business.

Companies consider data and information security as a primary obstacle in the digital world. Though many state initiatives have been taken to promote awareness and security, these need to be coordinated more effectively between the ministries. For cybersecurity emergencies, government and businesses must jointly develop and institutionalise workable structures to improve reaction times and be able to warn other companies.

### ... ensure the teaching of basic digital skills in schools and teacher training programs.

Technological understanding and interdisciplinary approaches need to be conveyed in the early stages of education, because companies not only require highly-qualified IT specialists, but creative, innovative employees with general digital skills. Primary schools, vocational schools and universities should be rapidly modernised for this purpose. They require better digital infrastructure with WLANs, high-speed Internet, laptops, tablets, interactive whiteboards, livestreams, and qualified and secure IT support. The education and further training of teachers, vocational school instructors and university lecturers is a prerequisite for the effective use of this digital infrastructure and teaching of digital skills. To train enough IT specialists in Germany, teachers should draw more attention towards the opportunities and employment possibilities associated with the digital economy when students are choosing their professions.

### ... intensify and better coordinate the digitalisation of public administration.

German public administration is key to Germany's position as a popular business location. Yet e-government is a vast patchwork of initiatives, and the lack of progress compared to other countries has a negative impact on the overall economy. The state needs to keep in mind the practical requirements of companies when it develops digital solutions. For example, companies can save on time and money by using electronic information and notification systems.

### ... team up with research institutions to support the collaboration of companies via digital platforms.

The collection and analysis of data will drive key innovations in the coming years. Big data could strengthen the trend towards large companies, if small and medium-sized enterprises (SMEs) cannot work together along the value-chain and reach agreements on the exchange and use of data. Speed is key to developing competitive platforms. The state should support the precompetitive processes that lead to the development of platform-ecosystems in markets where platforms are developing. If this support runs contrary to EU competition law or national anti-trust law, these laws could be adjusted to enable SMEs to access these solutions.

### ... commit more strongly to the enforcement of European standardisation and certification solutions.

The German reference IT architecture model RAMI 4.0, which has been developed within the framework of Germany's Industry 4.0 platform, should become a critical component of European standards for Industry 4.0. This would provide crucial support to the leading position of German industry in this sector. It would be a key step towards strengthening the digital sovereignty of Germany and Europe, and improving the framework conditions for digitalisation in Europe.

### ... promote company creation, growth and financing.

The lack of tax transparency of venture capital funds and the partial or even full decline of loss carry forward due to the entry of new investors (to discourage "corporate shell purchases") are major obstacles that politicians have to confront. According to the plans of the "Bundesrat" investors are to be taxed on gains from shareholdings up to 10% ownership, creating an additional source of insecurity. The Venture Capital Act announced in the 2013 German government coalition agreement is therefore urgently needed. It is positive that the government has started to address these issues.

### ... commit to clarity on rights for the use of data.

Companies do business on the basis of contracts for exchange and use of data. At European level, it is rightly being debated whether a clear definition of who "owns" the data is necessary. Cross-border clarity is crucial for companies with such business models. If there are new regulations, the potential effects on information exchange must be analysed.



# Key insights at a glance

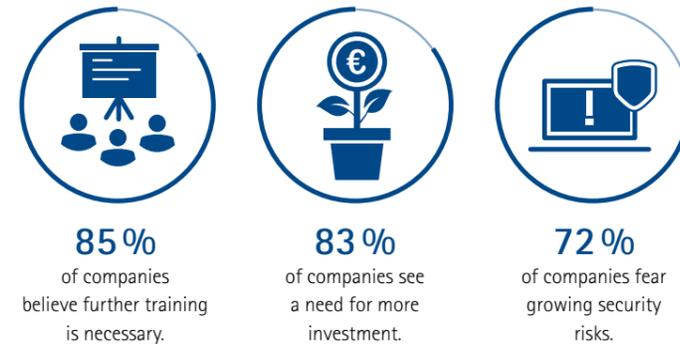
Results of the online survey on digitalisation



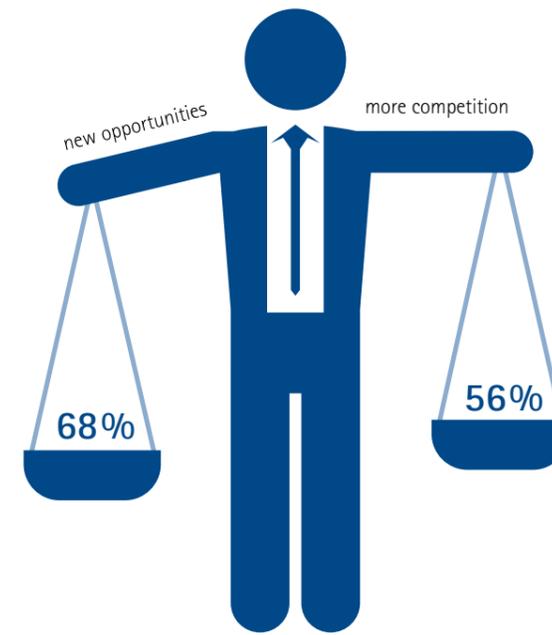
Digitalisation is becoming an ever larger driver of economic growth. Many business owners can increase their revenues through digitalisation (41%). Only 6% have seen their revenues decrease (53% see no change). Companies are more confident compared with the previous survey in 2014/15.

## What effects does digitalisation have on companies?

Cybersecurity, further education and investment are the top challenges for companies. This applies across all sectors and company sizes.



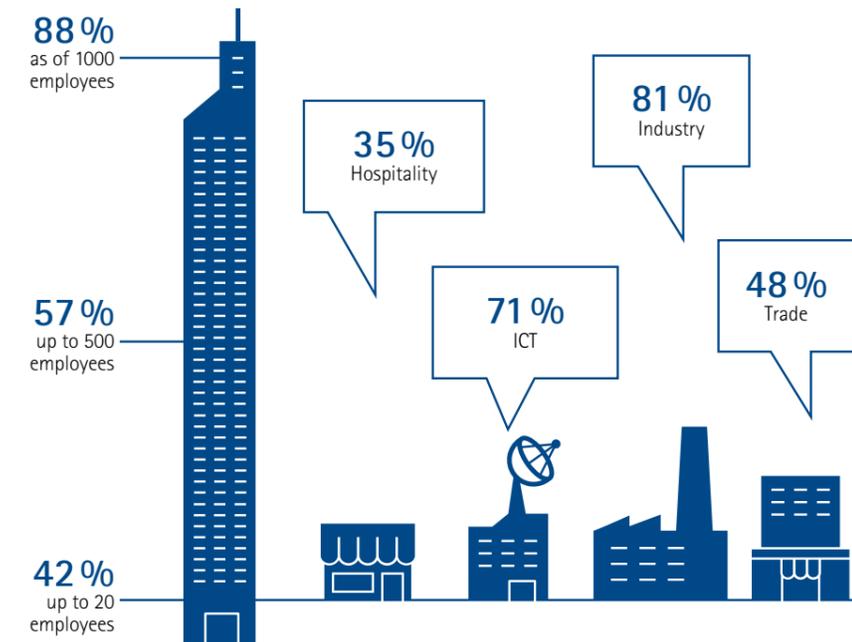
In the course of digitalisation, companies anticipate ...



## More than two out of three

companies see opportunities in new business models. At the same time, these increase the competitive pressure for over half of them. Businesses are especially confronted with new business models based on digital platforms.

## Use of new technologies



## 61% of companies digitally link their processes and products

28% of companies see the need for investment as an obstacle, 24% have concerns about cybersecurity and 22% consider employee qualifications a barrier.

## How far has digitalisation already been integrated into the everyday life of companies?

### CASE STUDY: INDUSTRY

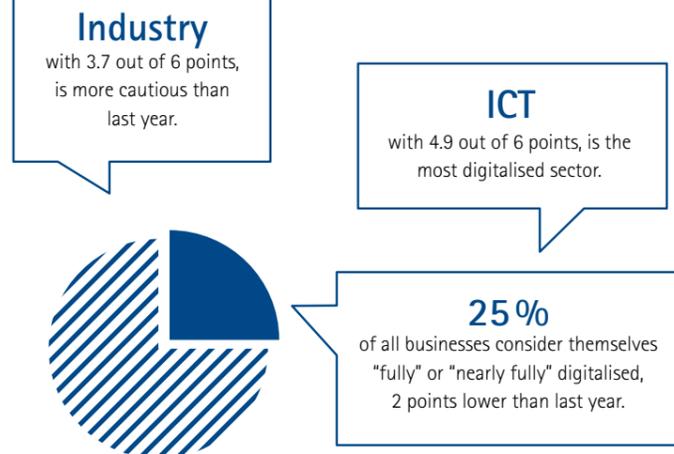
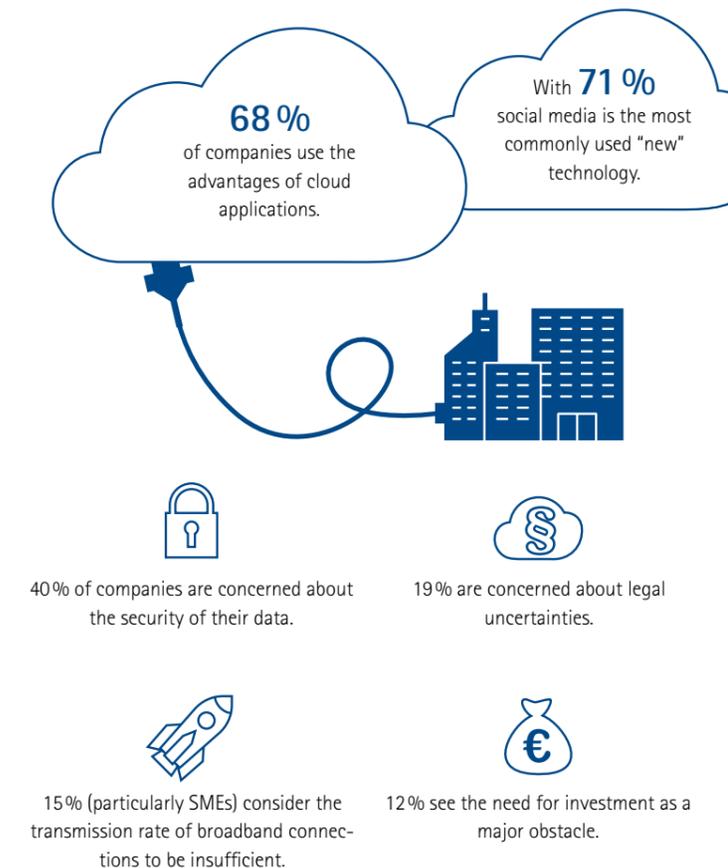
Many companies have already taken their first steps into the digital world, focusing on technologies that deliver the clearest direct benefits to them.



The three most significant hurdles for companies on the road to full digitalisation are:



## Use of cloud applications



As it progresses digitalisation is becoming more complex and businesses are engaging with it more intensively. Greater awareness of the challenges is leading to a more realistic assessment of the situation: Currently, one-quarter of companies feel themselves very well equipped for digitalisation measured in terms of broadband access, IT equipment, range of applications, openness and competence of key staff.