Germany has set itself the ambitious goal of becoming Europe’s leading nation in terms of digital growth. The domestic information and communications technologies market is the fifth largest in the world, with growing demand for innovative software and cybersecurity solutions helping to consolidate Germany’s position as Europe’s leading software market.

Global IT Market Leader
Germany is the fifth-biggest ICT market in the world according to national digital association Bitkom, generating total market turnover of EUR 160 billion in 2017. The domestic ICT market continues to grow, with Bitkom forecasting ICT market turnover of EUR 164 billion in 2018. The country’s IT sector is the main driver of growth, with turnover of more than EUR 85 billion. According to the European IT Observatory (EITO), domestic spending on IT equipment, services and software helped the market grow faster than GDP in 2016, with a year-on-year increase of 3.4 percent. The IT Services segment – alongside software the strongest segment in company digitalization activities – grew by 2.3 percent to EUR 39 billion.

Europe’s Biggest Software Market
Germany maintained its position as western Europe’s largest software market in 2017, with EUR 23 billion turnover and year-on-year growth of more than six percent according to EITO. Domestic demand is being driven by big data analytics infrastructure optimization measures as companies seek to secure a global competitive advantage through the use of mobile apps, collaborative applications, resourcing management solutions, supply chain and operations tools, engineer applications, and CRM solutions. This is seen in system infrastructure software and application development and deployment market growth of around six percent in the respective segments. According to Bitkom, the software market continued to enjoy strong growth in 2018, with forecast volume of EUR 24.4 billion making it the single most in-demand segment in the IT sector.
MARKET OPPORTUNITIES

Big Data

Digital Transformation
Information is the most valuable commodity of the digital age. The rise of cloud computing solutions and the digital transformation of nearly all industry sectors make the efficient, real-time management of huge volumes of data a modern business imperative. Germany counts as a global leader in the adoption of data technologies, with big data solutions finding application in numerous industry sectors and across the growing number of Internet of Things (IoT) and Industrie 4.0 digitalization projects. According to an IDC study conducted for the European Commission, big data plays a special role amongst a cluster of technologies – big data, cloud computing, mobile technologies, and social media – as the enabling force for most applications and services currently being developed.

Growing Data Market
Germany is a big data growth market. According to Bitkom, turnover generated from hardware, software and services for big data applications will exceed EUR 6 billion for the first time – equivalent to a year-on-year increase rate of more than 10 percent. Software continues to generate the highest share of big data market turnover, with a forecast nine percent market growth level expected to generate revenue share of around EUR 3.1 billion. According to IDC, continued growth is forecast in Germany’s expanding big data market, with spending set to rise to more than EUR 7.6 billion in 2020, making the country continental Europe’s most important big data market. Data economy value is forecast to grow to EUR 430 billion in 2020 – with Germany accounting for more than one quarter of market volume. According to this baseline scenario, German data market share of total ICT spending will grow from a 2016 share level of 10.8 percent to at least 13.3 percent.

New Business Models
Cloud computing and IoT advances are driving increased demand for cloud-based big data solutions for data hosting, processing and analytics purposes. According to Bitkom, data management is increasingly being outsourced, with third party providers being entrusted with up to 69 percent share of data design and organization. Big data and analytics solutions that help increase revenue levels while simultaneously driving real cost optimizations are particularly in demand.

From Lab to Market
An abundance of applied research institution resources and initiatives like the Smart Data Innovation Lab help bridge the gap between innovative research and industrial big data applications. Germany’s big data environment is also well equipped for the future in terms of tomorrow’s workforce: There are currently more than 40 specialized university study programs in the field of data analytics bridging the worlds of data science and business intelligence.

R&D Institutes
1 Berlin Big Data Center
2 German Research Center for Artificial Intelligence (DFKI)
3 Smart Data Innovation Lab
4 Competence Center for Scalable Data Services and Solutions (ScaDS)
5 FZI Research Center for Information Technology
6 Helmholtz Association (Supercomputing & Big Data programme)
7 Fraunhofer IAIS
8 Hasso Plattner Institute
9 Cybernetics Lab
10 Collaborative Research Center SFB 876
11 TUM Research Cluster Data Engineering and Analytics

Companies *
German headquarters of data analytics providers (number of companies)

*Source: ISG Provider Lens Germany 2018 – Data Analytics Services & Solutions, Lünendonk Marktstichprobe Business Intelligence 2017
Cloud Computing

Cloud Service Market
Cloud computing counts – alongside big data and IoT – as a key enabling technology for the digitalization of industry and the economy. Germany belongs to the international leaders in terms of cloud service market potential. According to IDC’s Worldwide Semiannual Public Cloud Services Spending Guide, the country is set to overtake the United Kingdom to become the largest single cloud market in Europe by 2020. A forecast compound annual growth rate (CAGR) of 25 percent for the period 2016 to 2021 also marks the cloud segment out as the driving force in the domestic ICT industry. According to Bitkom, two out of every three companies in Germany use cloud computing solutions. Eighty-three percent of large companies (more than two thousand employees) make use of cloud services, with uptake in the SME sector (20 to 99 employees) hovering around the 66 percent mark. More than half of all companies surveyed by Bitkom deploy private cloud solutions, with around one third of companies active in the public cloud space. Public cloud offerings are becoming more attractive, with three out of four public cloud users confirming the benefits of location-independent access.

Data Security Business Models
Data processing power and storage limitations are also seeing more businesses make use of cloud computing solutions to host and process their data as well as for data analytics purposes. Real opportunities exist for business models that tap into the data protection, security and compliance concerns of German companies active in the data economy. According to Bitkom, data security is the top priority of cloud application users and prospective users when selecting a cloud service provider, with around 97 percent of companies surveyed insisting on conformity with the European Union (EU) General Data Protection Regulation. IT security and compliance issues are considered to be the greatest barriers to successful cloud integration in SMEs and large companies alike.

Everything as a Service Platforms
Conventional Infrastructure as a Service, Platform as a Service, and Software as a Service models are increasingly being recast as Everything as a Service platforms in the cloud, with new services including, for example, Data Intensive Computing as a Service being added to the mix thanks to big data methods. Together with big data and IoT, cloud computing is the driving force behind a number of digital platforms including blockchain, connected cars, Industrie 4.0, and smart services. Conventional software segments including enterprise resource planning are also increasingly moving to the cloud.

Projected Public Cloud Services Market in Germany in EUR billion


Public Cloud Solution Spending in 2020 in EUR billion

Cybersecurity

Rise of Cybercrime
The global economy loses around USD 600 billion – or almost one percent of GDP – to cybercrime each year according to a joint McAfee and Center for Strategic and International Studies report. Cybercrime is responsible for annual losses of around EUR 55 billion to the German economy, where "cybercrime as a service" attacks are on the increase, with a sharp uptake in malicious software such as "ransomware" and hacking services being offered on the dark net. Between 2016 and 2017, Germany recorded an over 42 percent increase in crime measured in US dollars according to Accenture, putting the country behind only the USA in terms of cybercrime related costs. The country also recorded the most costly malware attacks (23 percent) of seven countries surveyed as part of the Cost of Cybercrime Study 2017.

Digitalization and Industry Demand
Domestic demand for cybersecurity solutions continues to grow as a changing regulatory environment, increased awareness of online threats and an upsurge in digital business strategies drive global enterprise security spending increases. Germany has the second biggest security market in Europe after the UK. Forecast security spending growth is the highest in continental western Europe, with security services and software expected to record annual subsector growth of around nine percent in 2018. Many companies – and SMEs in particular – are only at the start of their digital transformation journey, which is further fueling strong domestic demand. Significant IT security potential also exists in the manufacturing sector, and the automotive sector in particular, as industrial production enters the digital realm.

Changing Digital Landscape
The European IT Observatory reports that German IT leaders are adopting a safety-first approach as architecture is restructured to meet the demands of increased mobility, platform-based business models, and the implementation of big data and other analytics tools. The ongoing digitalization of German industry, smart and autonomous driving concepts, and the secure management of data required online are also driving security demand. International data privacy and regulatory compliance considerations have also translated into increased spending in the areas of data security tools, privileged access management and security information and event management. Europe’s General Data Protection Regulation – enforceable in all EU member states – came into effect in 2018. Germany’s cybersecurity market should benefit directly from this development, with increased demand arising both domestically and internationally. Cloud security now enjoys broad acceptance in Germany, with SMEs turning to cloud solutions to increase employee mobility and reduce total cost of ownership.
Germany’s peerless cybersecurity R&D network provides the foundations for the country’s security sector. The country enjoys a reputation as continental Europe’s biggest-spending IT security nation and is making significant investment in securing a highly trained, specialist cybersecurity workforce. The newly formed CISPA-Helmholtz-Zentrum, for example, will see the creation of a world-class research environment to address the pressing cybersecurity and privacy challenges of the digital age. More than 70 universities provide IT security-related programs, with Bachelor and Master’s programs in IT security and cybersecurity available at 13 universities.

R&D Institutes for Cybersecurity
1. CISPA
2. CRISP
3. Horst Görtz Institute
4. KASTEL
5. FKIE
6. AISEC

IT Security Clusters/Hubs
1. Digital Hub Cybersecurity
2. Bavarian IT Security and Safety Cluster
3. Nrw.unITS
4. CyberForum
5. Cyber Security Cluster Bonn e.V.

The German Federal Office for Information Security (BSI)
IT Security Association Germany (TeleTrusT)

Large German IT Security companies *

Universities * with Bachelors/Masters in IT Security/Cybersecurity

* Sources: cybersecurityventures.com/cybersecurity-500/, Brainloop, Munich; ESNC, Munich; Virtual Forge, Heidelberg; Link 11, Frankfurt; Avira, Munich; DrivLock SE; Munich, Rohde & Schwarz Cybersecurity, Leipzig, studiengaenge.zeit.de, www.studi-info.de
About Us

Germany Trade & Invest (GTAI) is the foreign trade and inward investment agency of the Federal Republic of Germany. The organization advises and supports foreign companies planning to expand into the German market and assists German companies seeking to enter foreign markets.

Investment Location Germany
GTAI provides close-to-market information to international companies looking to enter German markets. Our specialist industry teams prepare all of the relevant information essential to business success in Germany. GTAI’s comprehensive range of information services includes:

- Market and industry reports
- Market entry analyses
- Business and tax law information
- Business and labor law information
- Funding and financing information

Business Location Services
GTAI supports international companies from market entry to business start-up in Germany. Expert project teams advise and assist in the business establishment phase. GTAI’s range of free services includes:

- Legal and tax-related project support
- Funding and financing advisory services
- Site visit organization
- Local partner and network matchmaking
- Public and private partner coordination

All investment-related services are provided entirely free of charge. Our specialist industry teams have hands-on experience in their respective industries and treat all investor enquiries with the utmost confidentiality.

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