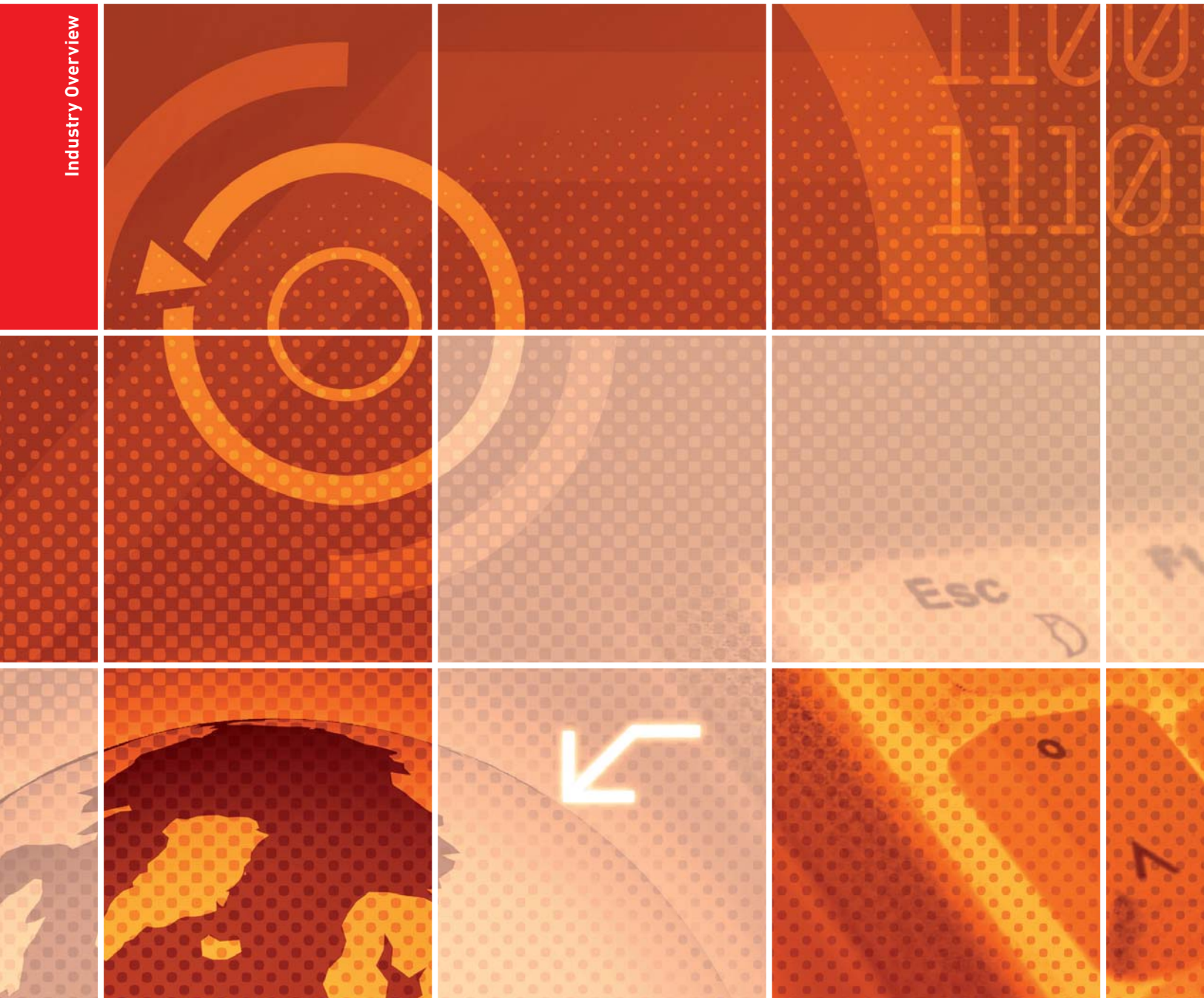


# The Information and Communications Technology Industry in Germany

Issue 2011

Industry Overview



GERMANY  
TRADE & INVEST

## Shaping Europe's Digital Future

Germany's highly diversified economy allowed it to weather the economic crisis of 2010 much better than many of its European neighbors. The information and communications technology (ICT) industry in particular has proven to be an important catalyst for the resurgent German economy. Several areas, including outsourcing services, online games and mobile data services, displayed consistently positive growth rates during the downturn. Around 99 percent of German companies are small and medium-sized enterprises (SMEs). This has helped create a particularly innovative

environment, with many SMEs acquiring highly specialized expertise in high-tech product development. This expertise is helping to open up a number of niche markets – catering to both traditional and new industries alike. Germany's federal government recognizes the strategic importance of the ICT industry. Alongside initiatives such as the "Broadband Strategy" (supporting the nationwide expansion of high-speed broadband access), the

German government plans to make more than EUR 15 billion in project grants available through its "High-Tech Strategy" through to 2011. More than EUR 1.5 billion has been set aside for R&D projects in the ICT industry.



Source: Financial Times; Germany Trade & Invest, February 2009

## The Industry in Numbers

### Europe's Leading Market

Germany can boast Europe's largest ICT market in terms of revenue volume (20 percent of total EU market volume) with recorded turnover of EUR 128 billion in 2009. With 5.3 percent global market share, the German ICT industry is ranked fourth worldwide after the USA (27.8 percent), Japan (8.8 percent) and China (7.1 percent).

The German IT industry is forecast to increase its market value by 4.3 percent in 2011 - with the ICT market as a whole recording two percent growth. The ICT gross value added market share amounts to 3.8 percent; further emphasizing the importance of the ICT industry for the German economy.

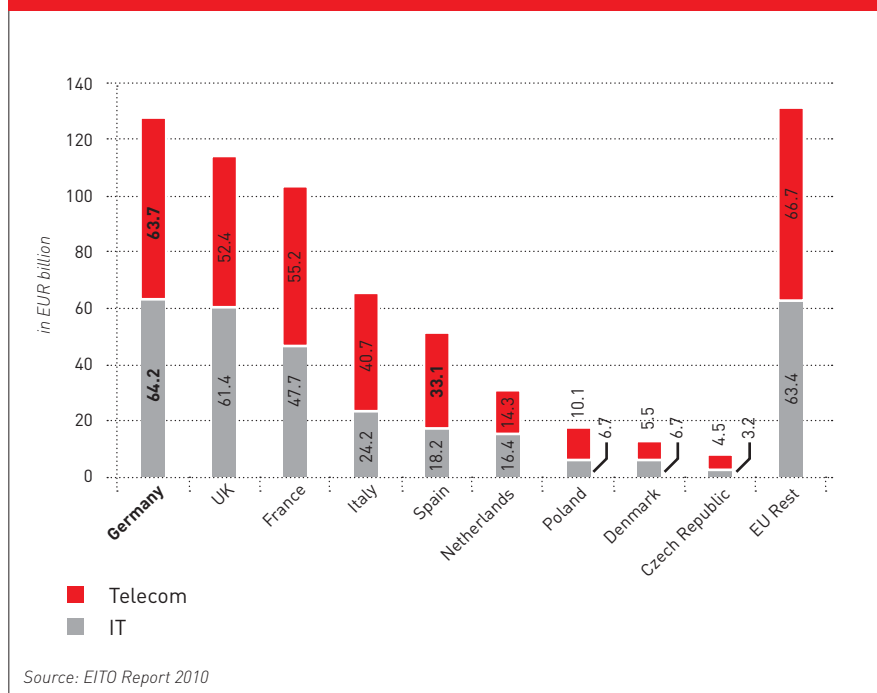
### Innovation

Around 24 percent of all German patent applications made at the European Patent Office in 2009 were ICT-related developments. Somewhere in the region of 80 percent of all innovations rely on ICT technologies in some form - allowing Germany to lead the way in shaping Europe's digital future.

### Growing Workforce

In 2009, the German ICT industry was home to more than 75,000 ICT companies; providing employment to an 820 thousand plus workforce. Around 70,000 of these companies are active in the software and IT services sector. Despite the economic crisis, the number of ICT companies actually increased for the period 2008 to 2009.

The European ICT Market 2009



### Exports

Germany is Europe's largest exporter of ICT products. In total, ICT hardware worth EUR 20.3 billion and ICT services worth EUR 12.8 billion were exported in 2009. Forecasts project a constant growth of German ICT exports.

### Internet Activity

With 70 percent of Germans online in 2009, Germany has the most internet users in the EU - creating significant potential for e-business. Broadband coverage is close to 97 percent, with German population broadband uptake levels at 67 percent (EU average of 56 percent). The German internet provision market increased by 4.2 percent to EUR 13.8 billion in 2009. Around 10 million Germans (equivalent to 17 percent of mobile phone users) use their mobile phones to go online.

### Industry Trends

Four global trends are influencing the industry and providing significant market opportunities for investors. The first of these is convergence, which refers to the integration of technological platforms such as fixed and mobile networks. At the same time, boundaries between producers and distributors of content are fast disappearing. The second global trend is the increase in flexible integration and separation of resources and processes along the stakeholder value chain. Ubiquity as a third trend refers to objects becoming "smart" and "connected" as a result of radio frequency identification (RFID) technologies. Finally, as the amount of data dramatically increases, data usability becomes exponentially important.

## Embedded Systems

Embedded systems as a cross-sectional technology are major innovation drivers in most industry sectors and have strategic importance for the economy - not only in Germany.

Embedded systems market volume in Germany is forecast to be more than EUR 19 billion in 2010, which makes the German embedded systems market the third largest in the world behind the US and Japan. Although the international economic framework has been tricky of late, the market has recorded growth of up to 8.5 percent in recent years. Annual turnover should reach the EUR 42.6 billion mark by 2020. Most of the sales in embedded systems today are visible as hardware sales, but software and services are rapidly growing in importance.

With 40,000 people directly employed in the embedded systems industry and a further 250,000 employees in companies that implement embedded systems as an integrated part of electronic and other equipment, the embedded systems sector is an employment growth area. More than 50 percent of embedded systems companies planned to recruit additional personnel in 2010.

Embedded systems are available in commercial off-the-shelf and individual technology platform formats. System integrators and application suppliers on different levels of the value chain rely on these trusted solutions. Within Germany, the main user industries are engineering, automation and automotive industries and energy technologies. ICT and electronic industries, as well as the medical technology and security sectors, are other important

embedded systems users. Industry experts have identified the automotive industry and intelligent devices for industrial automation as future market fields with significant growth potential. The integration of embedded systems into cyber-physical systems (CPS) will be a key enabler for the economic development.

The government has implemented a national embedded systems roadmap defining six major R&D areas and providing generous financial support. The annual Embedded World Exhibition and Conference in Nuremberg is globally renowned as the leading industry trade event.

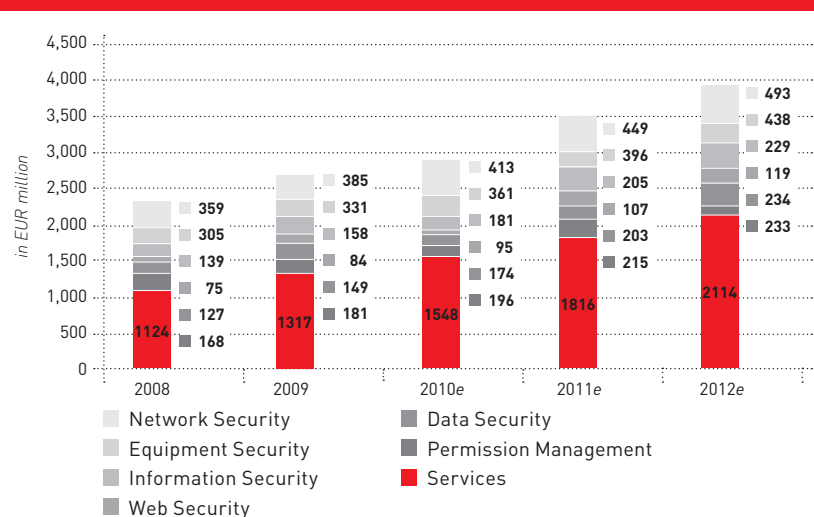
## IT Security

The civil security technology market can be subdivided into eight distinct segments. A number of these segments are expected to record significant increases in the immediate future, with IT security in particular expected to double in terms of market potential.

The IT security segment consists of IT products and services designed to ensure the confidentiality, availability and integrity of data. This includes the fields of anti-virus software (malware), content and spam filtering, firewall and intrusion prevention, mobile security, remote access, e-mail encryption, identity management, and other security technologies and applications.

The IT security field also presents many opportunities for consultancy service providers specializing in IT security management systems and training, preventive measures, incident response, and open source monitoring. The overall market accounted for EUR 4.7 billion in 2008, and it is forecast that the market will generate EUR 10.6 billion by 2015. The main reason for this forecast growth is the ongoing increase in security risks.

German IT Security Market Sales by Segment



Source: IDC, Worldwide IT Security Software, Hardware, and Services 2009

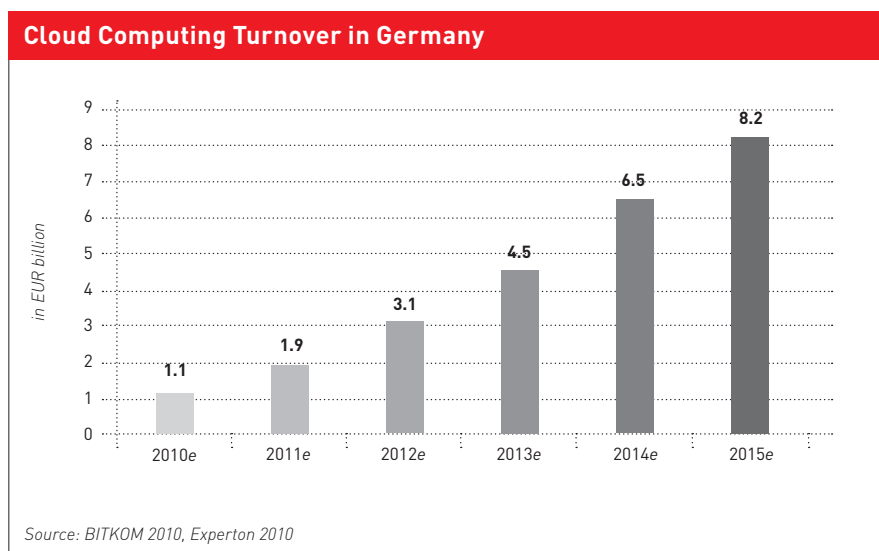
The German industry landscape is largely constituted of smaller companies (< EUR 100 million turnover) in highly specialized fields (e.g. biometrics). Cryptography – the key technology for IT security – research in Germany is internationally renowned. As such, Germany is accordingly acknowledged as an encryption technology market leader.

The predicted average growth rate for the overall IT security market in the coming years is 10 percent. Customer segments include private households (around six percent market share), professional companies, mainly telecommunications, financial services (around 75 percent), and public sector organizations (19 percent). The latter with maximum security requests shows growth expectations of 16 percent annually.

## Cloud Computing

Growing demand for secure and cost-effective cloud solutions and services in the German market will manifest itself in extremely high growth rates over the next five years. This is of real significance for all sectors of the German economy and the public sector. Around 10 percent of total IT spending will be in cloud computing technologies in 2015.

Almost half of all turnover will be created through cloud services. As the most important sector, software as a service (SaaS) products are expected to grow from a 2010 market revenue level of EUR 550 million to approximately EUR 4.8 billion in 2015. One third of the total amount (EUR 400 million in 2010 and EUR 2.6 billion in 2015) will go into the expansion of cloud infrastructures (primarily data centers). A growing



number of businesses, mainly large companies, are expected to build their own large “private clouds.” Cloud enabling services (including consulting services) have a current market volume of around EUR 200 million. This is forecast to reach EUR 800 million in 2015.

Both German and international clients alike – including those from sectors beyond the normal areas of insurance, banking and the public sector – require the highest technological innovation and data security standards. German products and services are known across the world for complying with or exceeding standards in terms of reliability, safety and data protection compliance regulations. “Trusted Cloud” Made in Germany is synonymous with economic success.

At present, great potential is seen within the area of cloud solutions specifically designed for German market needs. The market is defined by the large number of cost-sensitive small and medium-sized companies. A recent study illustrates that companies with 100-500

employees are particularly dynamic in terms of their use of this technology and associated services. To date, collaboration, storage, CRM applications, and finance and accounting solutions have been the main cloud computing services fields. As a result of expanding IT workloads and costs, many companies are now looking into cloud infrastructure and cloud platforms as development tools towards integrated, managed and secured services.

## Internet Business

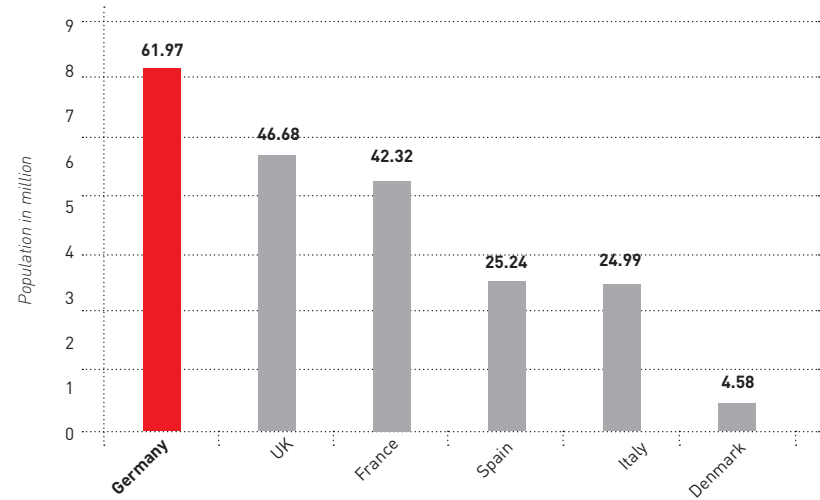
Germany has the highest number of internet users in Europe. The number continues to grow, and the amount of media consumption time spent online is expected to increase to nearly 20 percent in 2012 (equivalent to 80 minutes per day on average). Between 200,000 and 250,000 workers are estimated to be active in the internet business field, with the biggest portion in the e-commerce segment.

The highest growth rates through 2012 are expected in the e-commerce, transaction services, online platforms and online advertising segments.

Around 56 percent of the German population and 44 percent of German companies buy products and services online - significantly more than the EU averages of 37 and 27 percent respectively. Ninety percent of the EUR 637 billion 2009 market volume is attributed to B2B commerce, which accounts for more than 10 percent of the global market. The EUR 75 billion worth of B2C-traded goods amounts to an average per capita spending level of EUR 913. This surpasses respective US and Japan figures of EUR 906 and EUR 681 average per capita spending. The most popular products in B2C commerce are recreation-oriented products and leisure wear followed by books, clothes and accessories and computer and electronic equipment.

Relatively low entrance barriers, the enforcement of proven concepts such as mass customization, live shopping and shopping clubs, and the further deployment of transaction services are important growth drivers for this major internet

European Internet Users by Country 2009



Source: OECD 2010

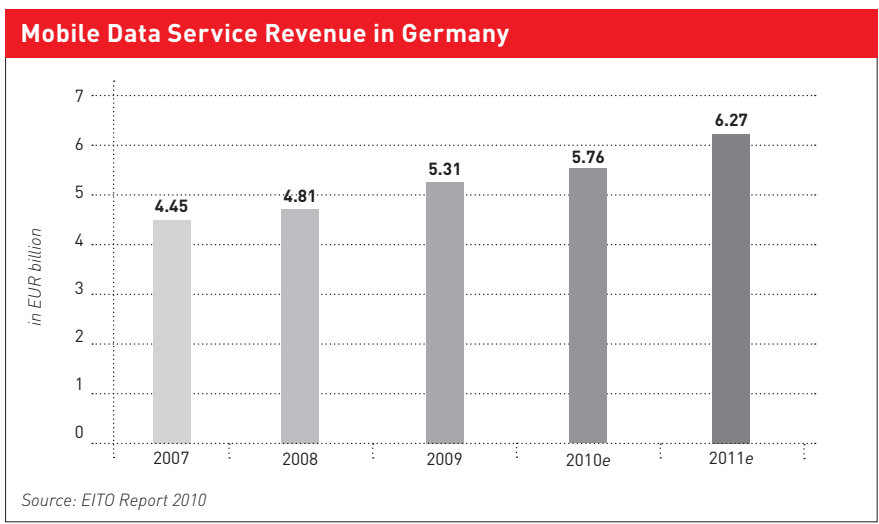
business segment. Online platforms such as social networks, web portals and search engines are drawing a growing amount of users in Germany. Around 30 million Germans are already members of online communities - platforms which are becoming increasingly popular for both private and professional activities.

While traditional media continue to suffer from shrinking advertising budgets, the online advertising sector goes from strength to strength. Online advertisers spent approximately EUR 4.1 billion in 2009 (EUR 2.1 billion on website banners; EUR 1.7 billion in keyword marketing; and EUR 0.3 billion on affiliate marketing). The market is expected to grow by 14 percent to EUR 4.7 billion in 2010. At present, specific focus is placed on location based advertising, advertising within online communities and differing video format applications.

## Games

With over 21 million gamers in Germany and 62 million internet users, the German market remains Europe's largest and most attractive. Developments in the online gaming segment, especially the growing popularity of social gaming on social networking sites such as Facebook as well as recent demographic developments indicate an industry-wide shift.

Over the past five years, the German gaming industry (PC, console, online, and mobile gaming) has witnessed a number of significant developments. Posting growth rates as high as 47 percent in some industry segments in recent years, the gaming industry set a new record with revenue of EUR 2.7 billion in 2008. The industry as a whole posted a slight drop in revenues to EUR 2.4 billion in 2009.



However, a number of segments remained immensely popular - online gaming in particular. Increasing participation in gaming on social networking sites is anticipated to create further growth potential and stimulate innovation in the coming years.

Several international gaming companies have already established a presence in Germany, with branch offices or subsidiaries located across the country. A number of parent company operations are based in the USA (e.g. Electronic Arts subsidiary EA Phenomics). Asian companies are also making their presence felt in the German market. Japanese game developer Konami Digital Entertainment, for example, has a German branch office in Frankfurt (Main). Market entry conditions remain highly attractive for new developers and publishers alike, as the German market remains fragmented - not being dominated by large companies. The structure of the industry here is characterized by small and medium-sized enterprises. Of the 200 or so game developer studios in Germany, just 25 have more than 50 employees.

## Mobile Data Services

With a projected growth rate of over eight percent for 2011 and beyond and a market volume expected to surpass EUR 6 billion in 2011, mobile data services remain the fastest-growing segment within the German telecommunications market.

In 2010, the mobile phone penetration rate in Germany reached 130 percent. Around 8.5 million Germans owned a smart phone - almost 50 percent growth compared to the previous year's ownership levels. This figure is expected to rise to 33 million by 2014. Simultaneously, falling data transmission costs are driving 3G's increased mass market popularity and pushing more data services to the mobile internet. In 2010, in the region of 17 percent of German internet users were using mobile devices to go online. This is a 22 percent increase on 2009 levels, and the number continues to grow exponentially. Forecasts predict that from 2015 onward a higher number of Germans will go online using mobile devices than those using stationary computers.

Social networks and communities are among the most popular mobile applications, driving around 40 percent of mobile internet traffic. Mobile commerce accounts for an increasing portion of the B2C e-commerce market, and is expected to reach EUR 1.5 billion in 2014. The mobile enterprise solutions market is also picking up, with new possibilities of enterprise communication and business process optimizations.

The importance of mobile devices for advertisers in Germany is increasing significantly - mobile advertising revenue is forecast to triple to nearly EUR 300 million by 2012 (compared with just EUR 96.9 million in 2008).

Data services are the main driver of the mobile internet. Mobile entertainment (including advertising, video, games, and music) alone is expected to reach a market volume of EUR 740 million by 2012. Mobile music downloads remain one of the most popular products in this area with continuous growth rates of over 10 percent.

## Stable Investment Base

### Open and Transparent Markets

The German market is open for investment in practically all industry sectors, with business activities free from regulations restricting day-to-day business. German law makes no distinction between Germans and foreign nationals regarding investments, available incentives or the establishment of companies. The legal framework for foreign direct investment in Germany favors the principle of freedom of foreign trade and payment. There are no restrictions or barriers to capital transactions or currency transfers, real estate purchases, repatriation of profits, or access to foreign exchanges.

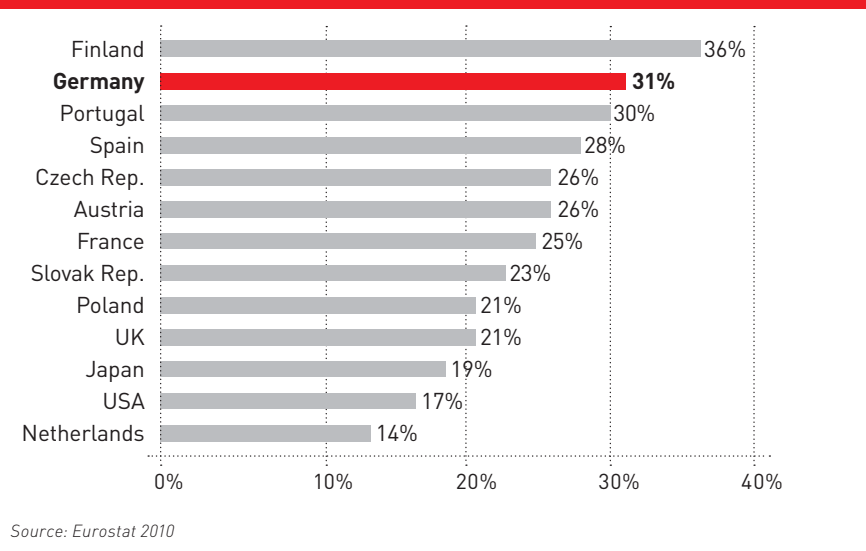
### Business-friendly Tax Conditions

Germany has developed one of the most competitive tax systems in the world. Significant company taxation reforms made in 2008 have resulted in a decrease of the corporate tax burden by around 25 percent. The overall average corporate tax burden has sunk to just below 30 percent, with a number of federal states providing even more competitive tax rates. Standard corporate income tax has also been reduced by ten percent to just 15 percent on all corporate taxable earnings.

### Competitive Labor Costs

Germany experienced a major increase in productivity over the past decade, which has led to falling unit labor costs. In marked contrast to other European countries which have experienced an overall increase in unit labor costs, Germany's unit labor costs decreased by a yearly average of 0.2 percent for the period 2005 to 2009. Highly flexible working practices such as fixed-

### University Students in Maths, Sciences, IT, and Engineering Programs 2008



term contracts, shift systems, and 24/7 operating permits contribute to enhance Germany's international competitiveness as a suitable investment location for internationally active businesses.

### Incentives for New ICT Businesses

New ICT businesses in Germany can count on various incentives for different type of costs. For investment-related costs, such as the setting-up of production facilities, non-repayable cash grants are available. The incentives level varies from region to region subject to level of regional economic development. Grants of up to 50 percent of related costs are available in some instances subject to the size of the investing company, investment volume and investment project location. Labor-related incentive programs play a significant role in reducing the personnel costs incurred by new businesses. There are programs offering recruitment and employee training support as well as wage subsidies. Innovative ICT R&D projects can also receive financial support in the form of grants. The German federal govern-

ment offers programs granting support of up to 50 percent of relevant R&D project costs (as do the individual federal states).

### Engineering Excellence

Highly skilled and specialized employees are a key feature of the German labor market. According to OECD statistics, Germany has one of the highest rates of graduates with a doctoral degree. With 315 PhD graduates per million inhabitants, it ranks second in a comparison of OECD countries.

### Competitive Infrastructure and Logistics

The 2009-2010 Global Competitiveness Report of the WEF ranked Germany first for infrastructure; singling out Germany's extensive and efficient infrastructure for highly efficient transportation of goods and passengers for special praise. Accumulated in this score for Germany are high marks for the quality of roads and air transport, excellent railroads and port infrastructure, as well as its communications and energy infrastructure.

### ThoughtWorks

ThoughtWorks, Inc. is a global IT consultancy providing agile-based systems development, consulting, and transformation services to global 1000 companies. ThoughtWorks employs 1,500 professionals to serve clients from offices in Australia, Brazil, Canada, China, India, the United Kingdom, the United States, and – since 2010 – Germany.

To meet the increasing demand from German-based clients, ThoughtWorks decided to open an office in mainland Europe. To this end, *Germany Trade & Invest's* ICT project team was approached in late 2009 to explain and present the German ICT industry, the market and real estate conditions in Germany's larger cities, possible site locations, corporate, tax and immigration laws as well as the German labor market.

By the first half of 2010, *Germany Trade & Invest* had successfully organized several site visits with the aid of federal state economic development agencies. These visits introduced ThoughtWorks' representatives to a vital network of legal, finance, banking, tax, real estate and personnel specialists that additionally helped facilitate ThoughtWorks' entry into the German market. Because of its outstanding infrastructure, its closeness to the UK and the importance placed on the local ICT industry, the city of Hamburg was identified in Q3 of 2010 as the location for ThoughtWorks newest international subsidiary. A planned 100 jobs will be created over a period of three years.

#### OnNet Investment Project Milestones

<b>August 2009</b>	Initial contact with <i>Germany Trade &amp; Invest's</i> San Francisco office and introductory meeting.
<b>August 2009</b>	Investor visit to Berlin to discuss company formation procedure, tax questions, financial incentives, site visits, and networking opportunities.
<b>January 2010</b>	Decision phase: <i>Germany Trade &amp; Invest</i> supported in posting the first job offer.
<b>February 2010</b>	Investor visit to Berlin in order to begin company formation proceedings, manage banking arrangements and set up of temporary office premises.
<b>October 2010</b>	Ongoing support provided through to official office opening of new premises in October.

### OnNet

Korean game developer OnNet Co. Ltd. publishes games worldwide through partnerships and its direct operations in Germany (OnNet Europe GmbH), USA, and Japan. OnNet Europe GmbH provides downloadable internet games, playable on the PC, and game content via its website portal. The company chose Berlin to serve as its new European headquarters. Its first games localized to the German-speaking market have been available since fall 2010.

With over 21 million gamers in Germany and 62 million internet users, the German market remains Europe's largest and most attractive. OnNet's decision to base its European office in Germany is a testament to the market's appeal. The company will provide its game services in German, French and Spanish to serve each of these language markets from its new headquarters.

*"Locally serving Germany's gaming market is essential for us to continue to grow in Europe. At the same time, Berlin provides the ideal base to reach gamers across the continent. Germany's high-tech communications infrastructure is one of the world's best and its pool of highly skilled workers is first class."*

**David Chang**  
CEO of OnNet Europe GmbH

*Germany Trade & Invest* started working with OnNet in the third quarter of 2009. The ICT team in Berlin supported the company in shortlisting possible sites in order to make the first visit to Germany in August 2009 a success. The company decided on Berlin and began operating as a company in January 2010.

## Our Investment Project Consultancy Services

### Germany Trade & Invest Helps You

*Germany Trade & Invest's* teams of industry experts will assist you in setting up your operations in Germany. We support your project management activities from the earliest stages of your expansion strategy.

We provide you with all of the industry information you need – covering everything from key markets and related supply and application sectors to the R&D landscape. Foreign companies profit from our rich ex-

perience in identifying the business locations which best meet their specific investment criteria. We help turn your requirements into concrete investment site proposals; providing consulting services to ensure you make the right location decision. We coordinate site visits, meetings with potential partners, universities, and other institutes active in the industry.

Our team of consultants is at hand to provide you with the relevant background information on Germany's tax and legal system, industry regulations, and the domestic labor market.

*Germany Trade & Invest's* experts help you create the appropriate financial package for your investment and put you in contact with suitable financial partners. Incentives specialists provide you with detailed information about available incentives, support you with the application process, and arrange contacts with local economic development corporations.

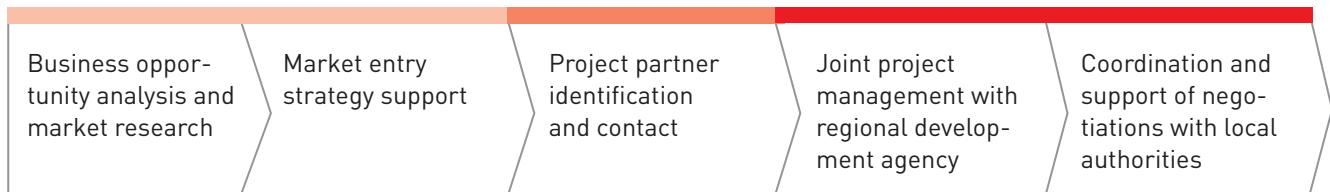
All of our investor-related services are treated with the utmost confidentiality and provided free of charge.

#### Strategy

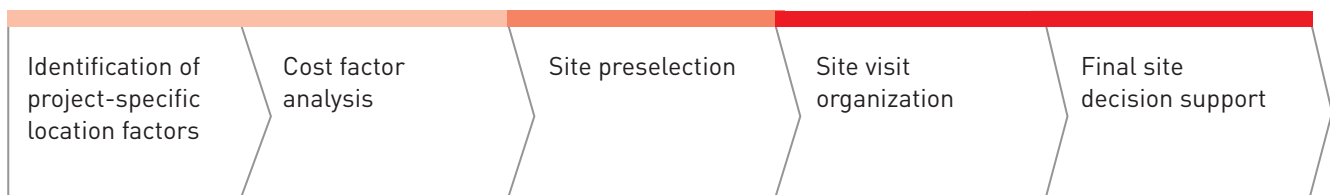
#### Evaluation

#### Decision & Investment

#### Project Management Assistance



#### Location Consulting /Site Evaluation



#### Support Services



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## About Us

*Germany Trade & Invest is the foreign trade and inward investment agency of the Federal Republic of Germany. The organization advises and supports foreign companies seeking to expand into the German market, and assists companies established in Germany looking to enter foreign markets.*

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