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GROWTH.
PROSPERITY.

Nationaler IT Gipfel
Essen 2012

Monitoring-Report Digital Economy 2012

Added Value for Germany

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Text and editing
TNS Infratest Business Intelligence, ZEW

Overall Responsibility:
Dr Sabine Graumann, Prof Dr Irene Bertschek

Project Management: Tobias Weber
With the collaboration of: Dr Jörg Ohnemus, Dr Christian Rammer, Sebastian Herdtweck, Daniel Höwer, Thomas Niebel, Patrick Schulte, Anselm Speich, Steffen Viete, Michael Weinzierl, Silja Maria Wiedeking, Eva-Christin Liebl, Maren Schuster

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Contents

Welcome

The Digital Economy is the key to Germany's future as a location for industry. The rapid development of information and communication technologies (ICT) as well as the Internet economy is creating growth and jobs, increasing our competitiveness and opening up completely new opportunities for both the general economy and society. The results of the new Monitoring Report Digital Economy 2012 demonstrate the great importance of the Digital Economy, i. e. the ICT sector and the Internet economy.

Hans-Joachim Otto,
MdB, Parliamentary State Secretary for the
Federal Ministry of Economics and Technology

This study builds on the expertise gained in recent years through consistently and extensively analysing the international competitiveness of the German ICT sector. For the first time, the Monitoring Report 2012 provides a comprehensive assessment of the Internet economy in Germany. As a result, it makes clear just how important the Internet is for Germany as a business location.

The German ICT sector employs 843,000 people and therefore more than the automotive engineering sector. Indeed, it accounts for 4.5 per cent of all commercial value creation in the country. The Internet economy, i. e. the money that companies and private end consumers spend on digital services and products, contributes 2.9 per cent of German gross domestic product.

A look at Europe, the United States and the Asian nations reveals that, in terms of its performance, Germany is in a respectable sixth place in the ranking of the 15 most important IT nations. While we are pleased with this achievement, we would of course like to become even better.

The Internet is the central component holding together the entire Digital Economy. Its role not only in economic processes and value creation networks but also in people's private lives continues to grow.

As the Ministry of Economics, we must focus even more than before on tomorrow's growth areas in years to come. Specifically supporting innovations in fields such as cloud computing or big data forms an important part of our ICT policy. We must also make even greater efforts to incorporate Internet-based technologies into our traditional industries. With the "AUTONOMIK für Industrie 4.0" technology programme, we are supporting this process. I also believe that our new start-ups as well as our medium-sized user businesses offer considerable opportunities. We will therefore continue to improve the conditions to ensure that these companies are able to grow.

I am confident that we together with all the players from the fields of politics, industry and science taking part on the National IT Summit 2012 in Essen will be able to agree on further steps and specific measures for strengthening Germany's role as an ICT location. I look forward to holding discussions with all those involved.

Yours sincerely,

Hans-Joachim Otto

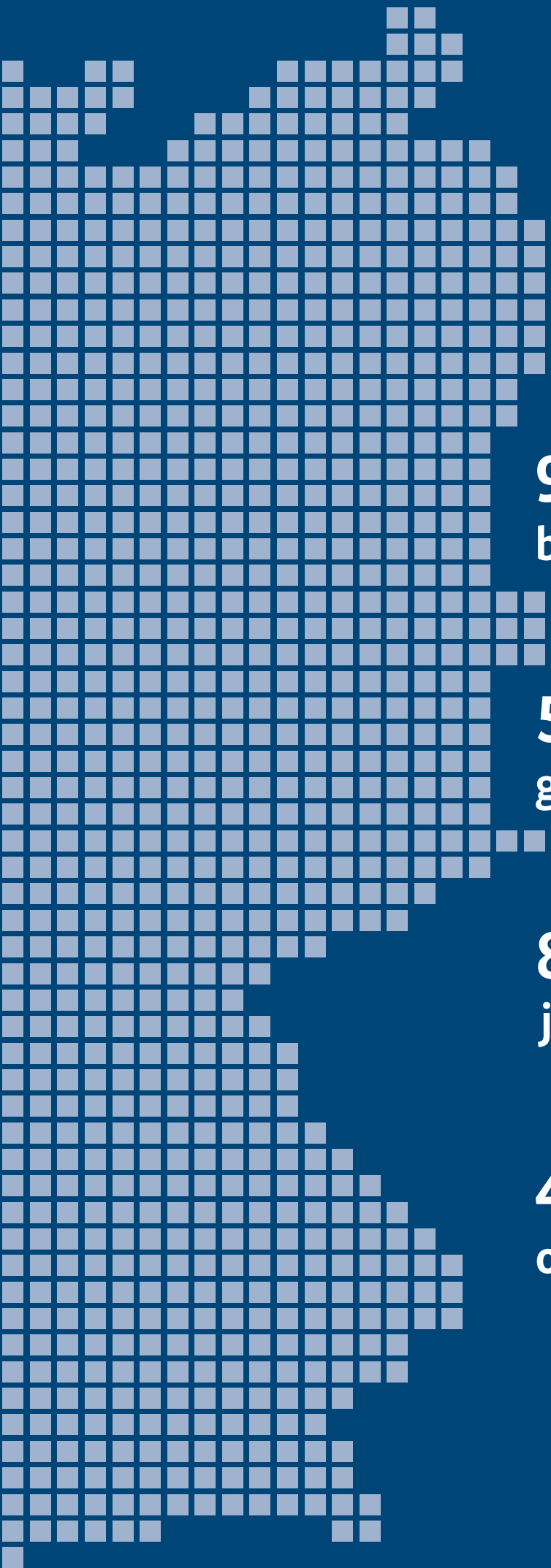
Management Summary

€222 billion ICT sector
turnover

€75 billion ICT Internet economy
turnover

€30.8 billion through the Internet
added value

6th place for
global performance



9,000 p. a. in the ICT sector
business start-ups

5 % of
global ICT turnover

843,000 in the ICT sector
jobs

4,5 % through the ICT sector
of value creation

Management Summary

Digital Economy creates added value

Germany boasts a high-performance Digital Economy. The information and communication sector (ICT) along with the Internet economy make a significant contribution to Germany's success as a business location. The new "Monitoring Report Digital Economy" shows the sector as a valuable economic factor which provides important stimuli and helps to secure prosperity and growth in Germany.

Working on behalf of the German Federal Ministry of Economics and Technology (BMWi), TNS Infratest Business Intelligence – the specialist for global market analyses within the TNS Group – along with the Mannheim-based Centre for European Economic Research (ZEW) has collected the central key figures concerning the performance of the German Digital Economy.

Central results

The ICT sector in Germany has an annual turnover of €222 billion. It creates more value than the German automotive engineering sector and generates a higher turnover than the traditional mechanical engineering industry. As revealed by the section of the report that compares the various sectors, employees in the ICT sector achieve the highest per capita value creation. Each one of the almost 850,000 employees generates more than €91,000.

Information and communication technologies are cross-sector technologies and thus create added value for other sectors too. Investments in ICT are responsible for over a fifth of productivity growth throughout the economy. The German ICT economy also helps to secure 350,000 jobs in non-ICT sectors.

Nevertheless, the Digital Economy is more than just the ICT sector. The Internet economy now generates a turnover of €75 billion – more than the electrical engineering sector. The Internet itself is worth 5.6 times more to the Germans than it costs them.

Ranked alongside other nations, Germany as a business location lies in the upper middle range and is even in the top third when it comes to infrastructure. In terms of turnover, the German ICT economy is the fourth-largest in the world.

The ICT economy: a strong sector for Germany

In order to be able to measure the importance of the Digital Economy, we analyse selected key economic figures for the ICT sector. We then compare the results with the key figures from other economically significant sectors such as automotive engineering or retail.

Value creation: The ICT sector accounts for just under 4.5 per cent of commercial value creation in Germany – more than the traditional automotive and mechanical engineering sectors which each account for just under four per cent. Out of all the sectors compared in the report, only retail contributes more to value creation.

Turnover: The ICT sector accounts for 4.4 per cent of all turnover generated via the commercial economy in Germany. It therefore lies in third place in our comparison of sectors after retail with 10.2 per cent and automotive engineering with 6.4 per cent.

Jobs: The ICT sector provides work for more people than the automotive engineering or the media sector. Around 843,000 people work for ICT companies. The sector therefore accounts for 3.1 per cent of all commercial employment in Germany.

Gross fixed capital investments: ICT companies invested €11.7 billion in capital equipment that they either acquired or produced themselves. This equates to 3.7 per cent of all gross fixed capital investments for the commercial economy in Germany. They are followed by automotive engineering with €10.4 billion, retail with €6.2 billion and mechanical engineering with €4.8 billion.

Effects on other sectors: ICT as cross-sector technologies

Companies from all sectors of the economy use information and communication technologies in order to increase their productivity. We have therefore looked into how investments in ICT affect the increase in work productivity throughout the economy and what links exist between the ICT sector and the other sectors. Given the lack of current data, analysing the cross-sector effects is methodically demanding. We have therefore analysed effects which, according to experience, are highly stable over time. These include links between economic input and output.

Contribution to productivity: ICT investments are responsible for 22.4 per cent of the increase in work productivity throughout the economy between 1995 and 2007. The remaining increase in work productivity can be attributed to investments in tangible and intangible assets as well as general technological progress and increased efficiency owing to better organisation or more innovative products and services.

Links between ICT and other sectors: The ICT sector helps to secure around 350,000 jobs in non-ICT sectors in Germany. An additional final demand for ICT products and services worth €1,000 results in increased production worth €737 in other sectors.

Start-ups and innovations within the ICT sector

Start-ups: Since 2009, just under 9,000 ICT companies have been established each year in Germany. In 2011, the start-up rate within the ICT sector was 15 per cent above the figure for 1995 and thus higher than in the German economy as a whole.

Innovations: In 2012, the ICT sector in Germany will spend a total of €14.5 billion on innovation projects. This equates to 12 per cent of all spending on innovations throughout the German economy. The innovator quota (the proportion of innovative companies) in the ICT sector is just under 77 per cent – higher than in the automotive or mechanical engineering sector.

Turnover from the Internet economy and value of the Internet

In order to assess the entire Digital Economy, we have included the effects of the Internet and the Internet economy in our study for the first time this year.

Internet economy: In 2011, turnover from the Internet economy, i.e. turnover generated with or via the Internet, amounted to just over €75 billion. Although B2B E commerce remains somewhat of a side issue in the public eye, a considerable transaction volume is generated in this field of business.

The added value of the Internet: The Internet creates an added value for users of €30.8 billion per year. The net is therefore worth 5.6 times more to German Internet users than it costs them.

Use and potential of the Internet in Germany from a company perspective

The companies surveyed for this report regard the Internet as a highly important factor in the success of their business both now and in the future (until the end of 2014). Companies in the ICT sector as well as those from the automotive and retail sectors surveyed by way of comparison assume that the Internet will increase their efficiency in the future too. They expect that the Internet will facilitate working with customers and partners, increase efficiency when it comes to handling knowledge and information and allow business processes and transactions to be carried out more quickly.

Germany as a business location in comparison with other nations

In the second part of the report, we have looked at the performance of Germany as a business location and the German Digital Economy. In order to do this, we identified and collected data on 33 key indicators which illustrate the market strength of the Digital Economy, the infrastructure-related conditions and the extent to which applications and technologies are used. These quantitative data were then indexed, aggregated and weighted in order to present the global performance of the locations in a figure which would allow an international comparison.

Global performance: In terms of performance, Germany's Digital Economy ranks sixth compared to other nations. With 53 out of 100 points, Germany lies in the upper middle range and has moved up a place compared to the previous year. The clear leader in the 15-nation ranking is the USA with 76 points, followed by South Korea in second place with 64 points. From third place onwards, the field is tightly packed. Indeed, only six points separate Japan in third place and France and China in joint ninth place. In 2011, China increased its score by four points and thus joined the middle range group for the first time.

Challenges for Germany as a business location:
Compared to other nations, the Digital Economy in Germany is growing too slowly. For this reason, the country only managed seventh place in the "Market" category. Countries such as Brazil, India or China were above Germany primarily because their growth rates are much higher. As far as infrastructure is concerned, continuously developing its networks is the key challenge if Germany is to hold on to its respectable fifth place in this area. This includes, in particular, expanding its high-speed networks and the mobile Internet. New applications and technologies tend to become established slowly in Germany when compared to the benchmark nations. This is why Germany has dropped back a place to eighth position in the "Use" category since last year.

Bundle of measures

Encouraging growth

Decision-makers from the fields of economics, politics and science need to use the opportunities on offer in Germany and minimise the country's weaknesses.
To ensure that the Digital Economy can grow more quickly, we need to achieve leading positions in attractive growth fields. We recommend implementing the following measures in the user sectors:

- Channelling state subsidies into strategic growth areas as these are highly relevant to the user sectors. Promising cross-sector growth fields such as cloud computing, embedded systems and big data should be developed further on a targeted basis.

- Focusing on the four ICT-based industrial convergence fields: energy, transport / mobility, health and the environment.

- Promoting value creation networks which transcend all traditional sector boundaries, both national and international. The "Business Web" should become the central organisational platform for companies and administration. Mobile terminals, new technologies and online services should provide the basis for lasting value creation chains on the net.

- Politicians should offer permanent support for clusters on a national level, particularly those involved with key technologies such as microelectronics.

With its focus on innovation, the Digital Economy offers excellent opportunities not only for start-ups and young companies but also for Germany's medium-sized company sector which enjoys an excellent reputation in the international arena.

On a central level, this means:

- Supporting young companies on a targeted basis;

- Providing incentives for venture capital investments;

- Supporting the internationalisation of Digital Economy companies and

- Providing sector-specific and individual solutions ("customising"), in particular through the highly innovative medium-sized ICT company sector.

Research and development is one of the key requirements for an innovative Digital Economy. Indeed, increasing one's own capacity for innovation must be in the interests of every businessperson. According to international comparative studies, tax concessions for research activities are the most effective tool when it comes to encouraging companies to invest more in R & D. The options available therefore include:

- Addressing Germany's competitive disadvantage by introducing tax concessions for R & D expenditure. According to experts, the net increase in prosperity would be 15 per cent of the financing volume used;

- Putting in place support measures to ensure that innovations are made available (quickly) on the market.

Continuously developing infrastructures

The opportunities for growth resulting from the Digital Economy depend to a large extent on the overall conditions in the location. A further key factor in Germany's competitiveness are highly trained specialists:

- A controlled immigration policy, especially for highly qualified foreign workers, should be put in place in order to combat the structure-related lack of specialist workers. The introduction of the "Blue Card" is a step in the right direction.

- The education system must be adapted to the Digital Economy in order to unlock the potential available in Germany.

- Innovations come about as a result of people having good ideas and the courage to pursue them. It is therefore extremely important to encourage a pioneering spirit and entrepreneurship while people are still in the education system.

The Internet is a key requirement when it comes to new business models for the Digital Economy. However, the infrastructures must undergo continuous further development in order to be able to take advantage of these opportunities for Germany as a business location. We therefore recommend:

- Developing a high-speed broadband network which provides the necessary basis for successfully tapping into economic growth potential and successfully rolling out innovative business models. In recent years, clear progress has been made in terms of achieving basic provision on a nationwide level. What is now needed is competition-based development of broadband high-speed networks which will provide the basis for intelligent, innovative products and applications in all areas of the economy and society.

Making greater use of new technologies and applications

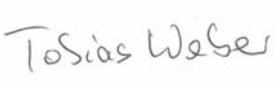
In the Digital Economy, more and more people access information, online media content, entertainment and education via the net. Although consumers' demand for digital content is growing, the appropriate business models are often not yet in place. The industry therefore needs to develop user-friendly services. In order to encourage use of the net, we also recommend the following measures:

- Communicating new technologies in a positive manner;
- Increasing people's trust in online and information security;
- Eliminating barriers to use, especially the digital divides;
- Establishing standardised technical solutions for processes which satisfy data protection requirements and are user-friendly;
- Adapting copyright and data protection legislation to meet the needs of the digital age and harmonising the relevant laws on a European or international level;
- Ensuring that the state sets an example by making specific use of innovative applications.

Outlook

If Germany wants to reach the top of the ranking, it is the commitment of each individual company, each individual administrative unit and each individual citizen that will count. The aim must be to bring together all the ideas and concepts mentioned in each section and utilise them to successfully position the Digital Economy vis-à-vis the global competition. This report shows how the Digital Economy has developed to date. The snapshot and assessment should form the basis for an on-going dialogue between government, industry and science. All of the experts who contributed to this study during workshops were of the same opinion. We would like to take this opportunity to thank them for their assistance.

Dr. Sabine Graumann,
Senior Director,
Business Intelligence,
TNS Infratest Forschung GmbH



Tobias Weber,
Project Manager,
Business Intelligence,
TNS Infratest Forschung GmbH

Added value from the Digital Economy

4,5 % through the ICT sector
of value creation

843,000 in the ICT sector
jobs

€222 billion ICT sector
turnover

€30.8 billion through the Internet
added value

€75 billion ICT Internet economy
turnover

The added value of the Digital Economy

Germany is digital!

What added value does the Digital Economy, i. e. the ICT sector and the Internet economy, create for Germany? This question is answered in the first part of the new Monitoring Report Digital Economy from TNS Infratest Business Intelligence and the ZEW Mannheim.

4.5 per cent of all commercial value creation can be attributed to the ICT sector

The ICT sector contributes €76.9 billion more to commercial value creation than the traditional automotive and mechanical engineering sectors. ICT companies generate 4.4 per cent of all commercial turnover in Germany. They therefore lie in third place in the sector ranking after retail with 10.2 per cent and automotive engineering with 6.4 per cent. The German mechanical engineering sector only manages fourth place.

When it comes to investments, the ICT sector is well ahead of the other sectors compared in the study. In 2010, €11.7 billion was invested. This equates to 3.7 per cent of total gross fixed capital investments for the commercial economy. Around 843,000 people work in the ICT sector. The ICT sector therefore accounts for 3.1 per cent of total employment. This means that the ICT sector provides work for more people than automotive engineering or the media sector.

Demand for ICT goods and services helps to secure 350,000 jobs in the other sectors in Germany. For every 1,000 jobs created in the ICT sector, another 881 jobs are created in the sectors upstream. Every employee in the ICT sector contributes an average of €91,269 to gross value creation in Germany. This contribution is higher than in all of the other sectors considered. Jobs in the ICT sector are therefore particularly important for Germany as a location for industry.

Internet economy accounts for 2.9 per cent of GDP

In 2011, the Internet economy generated a turnover exceeding €75 billion. This figure equates to 2.9 per cent of gross domestic product. Between 2009 and 2011, the value of the Internet economy as well as its contribution to GDP grew continuously.

The net is worth 5.6 times more to German Internet users than it costs them

On average, the Germans would be prepared to pay 5.6 times more for their Internet access than they currently do. This means that the added value of the Internet for German Internet users is equal to €30.8 billion per year.

How important is the Digital Economy for Germany?

Nowadays, hardly any companies are able to do without ICT or the Internet. The economy and economic processes are becoming increasingly digital. Investments in ICT are a key growth driver for the economy as a whole.

How important is the ICT sector?

The German ICT sector is a high-performance, dynamic and innovative sector which need not fear comparison with sectors such as automotive engineering and mechanical engineering. Its innovations are also finding their way into other sectors, where they are helping to increase efficiency and develop new products and business processes.

Prof. Dr. Irene Bertschek, ZEW Mannheim

What role does the Internet economy play?

The amount of money that companies and private end consumers spend on digital services and products has grown continuously in the past three years. At the moment, smartphones and mobile services in particular are the key drivers behind this growth.

The Digital Economy in the international comparison

6th place for global performance

7th place in the Market category

5th place in the Infrastructure category

8th place in the Usage category

Digital Economies: international comparision

Location assessment: Market, Infrastructure, Usage – Germany in sixth place

The success of the Digital Economy, i. e. the ICT sector and the Internet economy, is based on three pillars: the strength of the market, the infrastructure in place and the use of technologies and applications.

In order to be able to estimate the performance of the locations, this study first of all analyses the market in terms of supply and demand, turnover and exports.

To produce a comprehensive location assessment, however, the infrastructure must also be taken into account. In the Digital Economy in particular, this is an important requirement for a well-functioning market, for innovations and a key factor for the sustainability of the location. Only with modern, reliable infrastructures and general conditions can the new applications and business models for the digital age be developed and implemented.

Users play a key role in any location assessment for the Digital Economy. Only enlightened users with an affinity for technology will enable to market to develop further. And investments will only be worthwhile if there are enough users who are sufficiently receptive towards technological innovations.

In this report, the performance of the 15 most important locations for the Digital Economy is analysed using 33 key indicators. In order to present the results in a manner which allows an international comparison, the best location in the 15-nation ranking is given 100 index points. The other nations are then positioned in relation to the best in each class. With these key figures, the 15 nations in the benchmark can be compared with each other.

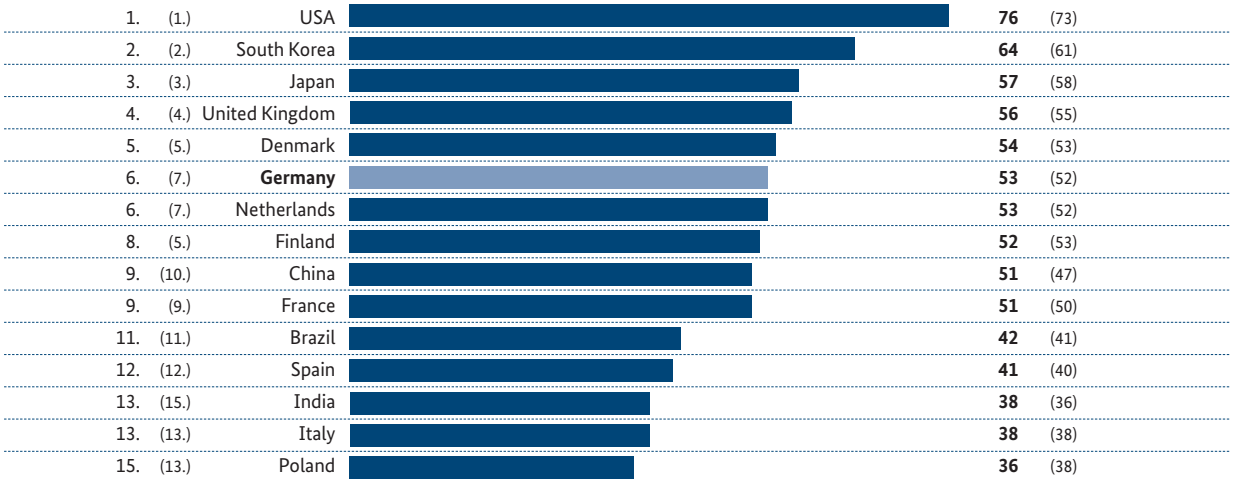
This year, the focus of the long-term study was expanded. As a result, it now looks not only at the ICT sector alone but also at the Digital Economy as a whole. Additional indicators relating to the Internet economy have therefore been included. We have also changed the set of countries and for the first time have looked at the performance of the CeBIT partner countries Poland and Brazil.

Germany in sixth place in the 15-nation ranking

For the performance of its Digital Economy, Germany ranked sixth with 53 points, placing it in the upper middle range. This means it has moved up one place in the ranking since last year.

The clear leader in the 15-nation ranking is the USA with 76 points, followed by South Korea in second place with 64 points. From third place onwards, the field is tightly packed. Indeed, only six points separate Japan in third place and France and China in joint ninth place. In 2011, China increased its score by four points and thus joined the middle range group for the first time.

Global performance, 2011



Source: TNS Infratest, 2012; Previous year's figures in brackets

Market

7th place in the Market category

5 % of global ICT turnover

€1,500 per capita expenditure on ICT

24 % of total advertising turnover online

Market

ICT sector in Germany strong, Internet economy with room to grow

Two segments are particularly important for the Digital Economy in the 15 countries: the strength of the market, i. e. the turnover generated, and the attractiveness of the market, i. e. expenditure on ICT and the Internet economy in the various locations.

USA at the top, Germany in seventh place

The USA is the clear leader with 74 index points. China and South Korea are in joint second place, albeit well behind the USA, with just 40 points each. Germany made it into seventh place. This means it has moved up one place in the ranking since last year.

ICT turnover in Germany at a high level

In terms of overall ICT turnover, Germany accounts for 5.0 per cent of the world market. This makes Germany the fourth-biggest market in the 15-nation ranking. In spite of the slowdown in the global economy in 2011, the German ICT sector still performed well, particularly when it comes to growth rates. While most industrial nations experienced a decline in economic activity, German TC turnover remained stable and IT turnover actually increased by 2.6 per cent.

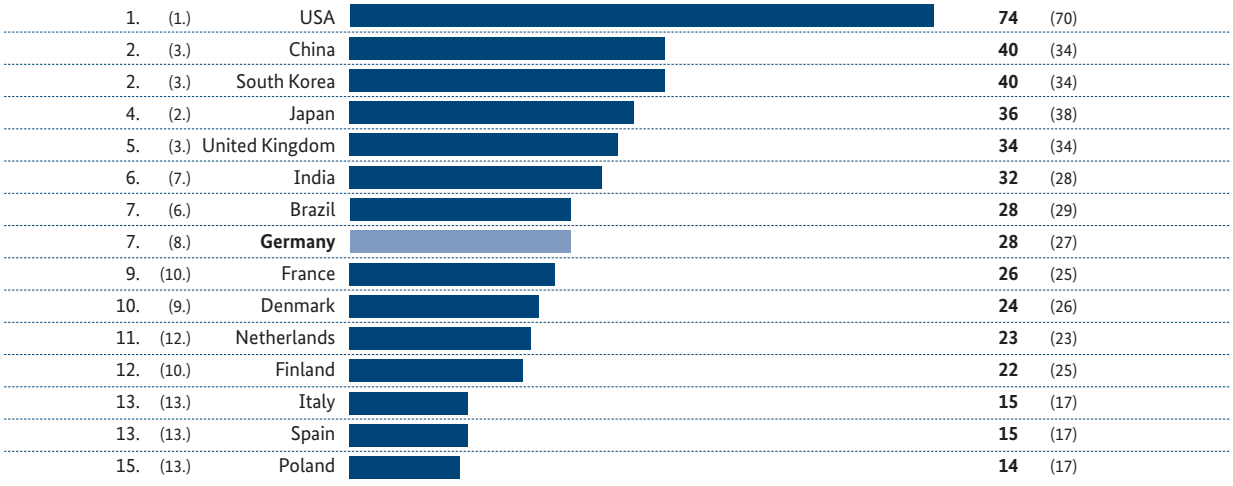
Turnover on the net could be higher, Internet advertising strong

On average, Germans spent just €9.31 per year on media content from the net. Services financed through advertising therefore dominate online media. However, this also means that Germany performed accordingly well when it comes to Internet advertising turnover, generating 24 per cent of total advertising turnover on the net. This means fifth place in the 15-nation ranking. However, the case of South Korea shows that the paid content and advertising financing models are not mutually exclusive. Indeed, the country ranked first for expenditure on online content and second for Internet advertising turnover.

Innovative products and business models needed

The German B2C Internet economy in particular still has some catching up to do. Digitalisation will lead to further radical changes in journalism and publishing and will change the world of film and television on a long-term basis. In this case, it is important to develop business models which take into account the conditions of the net as a distribution channel. Continuous innovation and addressing new markets and growth fields play a central role in the development of the ICT sector. In the consumer web, the market shares are spread out to the greatest possible extent. In the B2B sector, however, new fields of business are coming into being as a result of technological innovations which offer German ICT companies opportunities for growth.

Average performance in the Market category, 2011



Source: TNS Infratest, 2012; Previous year's figures in brackets

Infrastructure

5th place in the Infrastructure category

3rd for the spread of computers

45% own a smartphone

6 % of all start-ups in ICT

Infrastructure

Infrastructures and basic conditions must be further developed on an on-going basis

Technical infrastructure is a key driver for growth and innovation. However, the other basic conditions must also be considered when analysing the performance of locations of the basis of comparisons.

Legal regulations are just as important for the development of the Digital Economy as the provision of initial and further training for specialists or market conditions such as the availability of venture capital.

Finland in first place, Germany fifth

With 85 index points, Finland did best in the Infrastructure category of the 15-nation ranking. Second place goes to the Netherlands, while South Korea is third. Germany scored 75 index points and thus remains fifth in the ranking. India was in last place with just 28 points.

Networks in Germany must become faster

Germany does well in the Infrastructure category because hardware such as computers, mobile phones or smartphones is widespread here. When it comes to networks, however, Germany's performance is not so good. Although the Internet and broadband are becoming more widespread, this is happening more slowly than in most of the other countries considered. In particular, the capacities for downloading and uploading are crucial for growth markets such as cloud computing or mobile data services. The development of fibre optic connections or the better use of cable networks can ensure the availability of the necessary bandwidth. According to the OECD, however, Germany has a great deal of catching up to do in this area and is not competitive on an international level.

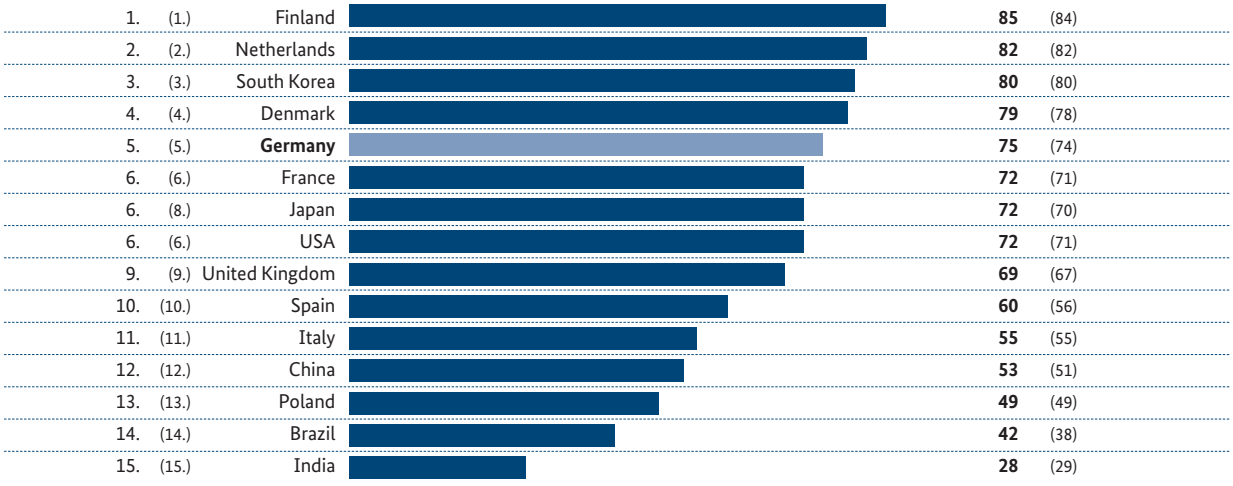
Encouraging innovations and growth

New ideas are the engine of the Digital Economy. Encouraging these ideas must therefore play a central role in economic policy. Support for the formation of clusters, incentives for R & D spending, e. g. making expenditure tax-deductible, and, above all, a sound, practical education in a relevant technical field are important requirements in order to bring about innovations in the Digital Economy.

New company start-ups offer particular growth potential for the Internet economy. In view of this fact, encouraging start-ups is rightly a key area at this year's IT Summit. Support when setting up new companies, networking and the provision of venture capital are the central issues on which politicians and industry ought to focus.

A strong European domestic market encourages growth. Harmonising the basic legal conditions, particularly when it comes to copyright and data protection, should be a matter of urgency.

Average performance in the Infrastructure category, 2011



Source: TNS Infratest, 2012; Previous year's figures in brackets

Usage

8th place in the
Usage category

5th for the
public's Internet use

5th for the
Internet use in companies

34 %
mobile Internet use

Usage

Germany falling back when it comes to using new technologies and applications

Whether and how companies, private users and the public sector use new technologies and applications is a central issue when assessing a location. Only if new technologies are heavily used do new markets form. And only then can the Digital Economy actually realise its cross-sector benefits throughout the economy. The report therefore focuses on three user groups: private users, companies and the public sector.

Germany drops a place

With a score of 79 points in the Use category, Germany fell back a place in 2011, coming in eighth position in the 15-nation ranking. Although the Germans are now using mobile and stationary networks more frequently, the user figures are growing relatively slowly compared to other nations. As in the previous year, South Korea is in first place with 97 points, followed by Denmark and Japan.

Germans shopping less on the net

In 2011, fewer people in Germany shopped on the net. Both the number of e-commerce users and the number of people downloading online media content fell. These figures for use reflect the results of the market analysis which indicate that Germany has a great deal of catching up to do when it comes to business models on the Internet.

Use within companies stagnant

The use of the Internet within companies has not grown significantly in 2011. As in the previous year, Germany is in ninth place in the ranking. As far as the use of new technologies within companies is concerned, Germany actually fell back two positions to fifth place.

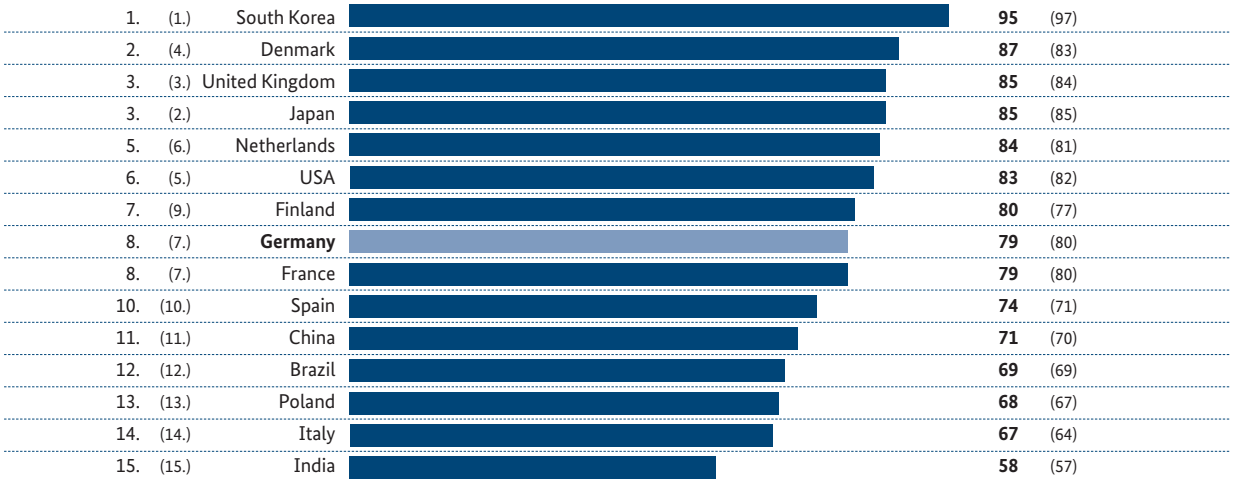
Public sector in a position of responsibility

The public sector is particularly important for Germany as a business location. After all, it creates demand for ICT and can take on a leading role when it comes to using innovative solutions and efficient, citizen-friendly technologies. Nevertheless, Germany is still well behind other countries when it comes to the quality of e-government (eighth place) and the use of ICT and administration efficiency (tenth place).

Internet increasingly important for company success

The Internet will play a greater role in the success of businesses in the future. The results of the survey conducted for this report confirm this. The importance of the Internet for company success will continue to grow (quickly) until 2014. This was the view stated by 68 per cent of the ICT firms, 54 per cent of the automotive companies and 45 per cent of the retailers that took part in the survey.

Average performance in the Use category, 2011



Source: TNS Infratest, 2012; Previous year's figures in brackets

Start-ups and innovations in the ICT sector

9,000 in the ICT sector
business start-ups p. a.

€14 billion in the ICT sector
spent on innovation projects

29 % in the ICT sector
of turnover with innovation projects

77 % in the ICT sector
innovator quota

Start-ups and innovations within the ICT sector

ICT sector innovative and dynamic

The ICT sector is one of the most dynamic and innovative sectors of the German economy. A high start-up rate provides the basis for developing new ideas and business models. Innovations within the ICT sector also provide stimuli in other areas of the economy.

High start-up rate among ICT service providers

Since 2009, just under 9,000 ICT companies have been established each year. In 2011, the level of start-up activity within the ICT sector was 15 per cent higher than the figure for 1995 and thus higher than in the German economy as a whole. This means that the ICT sector has a higher start-up rate than other research and knowledge-intensive sectors such as automotive engineering, mechanical engineering and technical service providers.

ICT service providers (including software) are driving forward company start-ups, accounting for over 95 per cent of all start-ups in the ICT sector over the past five years. New legal frameworks which, for example, allow low-cost start-ups have further encouraged the above-average start-up rate. In contrast, hardware is responsible for only a small proportion of start-up activity in the entire ICT sector, accounting for just over four per cent of start-ups.

Significant innovation in the field of ICT hardware

In 2010, the ICT sector in Germany spent a total of €14 billion on innovation projects. In 2012, the figure will be €14.5 billion. This equates to 12 per cent of all spending on innovations throughout the German economy.

With an innovator quota of just under 77 per cent, there are more innovative companies in the ICT sector than in the automotive or mechanical engineering sector. In 2010, the ICT sector generated 29 per cent of its turnover through product innovations. The figure for hardware was even higher, with product innovations accounting for virtually 50 per cent of turnover. Only the automotive sector surpasses this figure with 52 per cent.

Just under a third (29 per cent) of ICT companies and half of all hardware manufacturers launched new products on the market in 2010. Hardware therefore ranks top in comparison to other innovative sectors. Through process innovations, the ICT sector was able to reduce its costs by 7.4 per cent and increase its turnover by 3.1 per cent in 2010.

Use and potential of the Internet in Germany

48 % of employees in the ICT sector
with mobile Internet

86 % of ICT service providers believe the
Internet is necessary for the success of their business

43 % of ICT companies are convinced that the
Internet offers great potential for innovations

71 % of ICT service providers expect to
make greater use of cloud computing

Use and potential of the Internet in Germany from a company perspective

Internet important for communication and collaboration

As part of this study, an up-to-date, representative survey was carried out in order to determine the reasons why companies use the Internet and how they assess its potential for ensuring business success.

The companies were also asked which technologies and applications they use and how they use them. The company survey was carried out in September 2012. It covers the areas of ICT (ICT hardware and ICT service providers), media service providers, knowledge-intensive service providers, the automotive industry and retail. The survey is based on the ZEW Information Economy Survey which collects representative data on a quarterly basis. In total, more than 1,300 companies took part in the survey.

Potential of the Internet, particularly in terms of increasing efficiency

The companies surveyed regard the Internet as a highly important factor in the success of their businesses both now and in the future (until the end of 2014). Companies in the ICT sector as well as those from the automotive and retail sectors surveyed by way of comparison assume that the Internet will help to increase their efficiency in the future. They expect that the Internet will facilitate working with customers and partners, increase efficiency when it comes to handling knowledge and information and allow business processes and transactions to be carried out more quickly.

Clear sector differences as regards the way the Internet contributes to business success

However, the survey results also reveal considerable differences not only between the service sectors but also between the processing industry and retail sectors. In the automotive and retail sectors, the contribution to business success made by the Internet is limited primarily to supportive business areas such as purchasing and sales (including marketing and advertising). In contrast, the Internet plays a major role in business success in a wide range of areas for ICT sector companies and the other service sectors.

Although experts frequently claim that the boundary between online and offline commerce is increasingly disappearing, far fewer than half of retailers in Germany currently operate online shops. Although retailers will become increasingly receptive towards the digital sales channel in years to come, it can be assumed that few of them will have an equally strong online and offline presence.

Workshop: Digital Economy added value for Germany

Results of the workshop

Value creation chains will develop into value creation networks

As part of the long-term "Monitoring Digital Economy 2012-2014 – Added Value for Germany" project, TNS Infratest Business Intelligence held an expert workshop at the Federal Ministry of Economics and Technology on 29 August 2012. During the workshop chaired by Bernd-Wolfgang Weismann from the Federal Ministry of Economics and Technology (BMWi), 32 representatives from the information and communication technology, automotive and commerce sectors took part in a lively, critical discussion regarding the preliminary results of the report. One of the key topics during the workshop was the way in which new, innovative technologies and applications are affecting the German economy.

Key results:

Innovative applications and technology have changed value creation chains

Those taking part in the workshop agreed that Internet-based innovations would ensure that traditional value creation chains develop into value creation networks.

The experts identified three key points:

- Individual value creation stages – such as stationary retail – will come under increasing pressure.
- Value creation is shifting, for example from production to design.
- Cooperative value creation models such as those which are now customary in the app economy will become increasingly established.

The experts also believe that processes within companies will increasingly take place in networked modules. This is due to Internet-based applications and technologies simplifying cooperative and decentralised processes. Easy-to-use applications with obvious benefits for users will be particularly successful here.

Future issues for the Digital Economy

According to the experts, the merging of online and offline, new services resulting from personalisation and localisation as well as the growth fields big data and cloud computing will be the key future issues for the Digital Economy.

Those taking part in the workshop identified mobile payment as a current key trend which is set to quickly gain in importance owing to the rapid spread of smartphones and mobile Internet. According to the experts, mobile payments could replace credit and customer cards in the short to medium term if it proves possible to win the trust of users. As previously, the challenge here is to establish and communicate security standards in order to encourage acceptance of these new technologies.

Study profile

Study profile

The Monitoring Report Digital Economy 2012 analyses what added value the Digital Economy creates for Germany as a business location and how this rates in comparison with other nations.

In this report, TNS Infratest Business Intelligence – the specialist for global market analyses within the TNS Group – along with the ZEW Mannheim answer the following questions:

- What contribution does the Digital Economy make to the success of the German economy?
- How competitive is the Digital Economy in Germany compared to other nations?
- How start-up-oriented and innovative is the German ICT sector?
- To what extent do German companies use digital applications and technologies?

Digital Economy

Compared to previous years, the focus of the analysis for this report has been considerably extended. In addition to the ICT sector, the Internet economy too has been taken into account for the first time. As a result, we have been able to examine the entire Digital Economy.

Added value analysis

In the first part of the report, we analyse what added value the Digital Economy creates for Germany. To do this, we first measure what the ICT sector contributes to the German economy and its effects on other sectors. We have also calculated the turnover of the Internet economy and quantified what it contributes to the economy as a whole. The third step involves determining the value of the Internet for the Germans.

International benchmark

In the second part of the report, we compare the performance of the German Digital Economy with that of 14 other locations. In order to allow comparisons, the performance of the locations is assessed with the help of 33 key indicators. We also calculate international competitiveness in the categories Market, Infrastructure and Use.

Start-ups and innovations

In the third part of the report, we focus on start-ups and innovations in the German ICT sector. The first step involves quantifying ICT start-up activity. The degree of innovation in the German ICT sector is also assessed in detail.

Use and potential of the Internet in Germany from a company perspective

For the fourth and final part of the report, we surveyed companies regarding their use of new (Internet-based) applications and technologies and determine the extent to which they are spreading and influencing value creation and business success. In addition to this representative company survey, we held an expert workshop which looked at the topic of the survey in greater detail on 29.08.2012.

In order to improve the clarity and legibility of this report, the masculine grammatical form has been used on a general basis. This form covers both female and male persons and naturally addresses both groups on an equal basis.

Contact

Tobias Weber

Project Manager “Monitoring Report Digital Economy”

TNS Infratest Business Intelligence
Email: tobias.weber@tns-infratest.com
Phon: 089 5600 1760

Downloads and more informationen: www.tns-infratest.com/bmwi

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