KPMG
cutting through complexity

In cooperation with
Bitkom Research GmbH

Study

TECHNOLOGY

Cloud Monitor 2015

Cloud computing in Germany – status quo and perspectives

Contents

Introduction

Use of the cloud grows, security concerns thwart growth

Now in its fourth year, Cloud Monitor 2015 is available and once again provides an extensive picture of cloud use in German companies. As in previous years, the current status and the perspectives of use are being examined. Particular attention is given to the presentation of results over the course of time. This enables the identification of different trends according to company size and industry.

The Cloud Monitor 2015 was developed by Bitkom Research GmbH for KPMG AG Wirtschaftsprüfungsgesellschaft. The representative study provides a differentiated analysis of the demand for public and private cloud services along with the objectives and experience associated with use of the cloud. An additional focus in this year is placed on the topics data security and compliance.

The current Monitor confirms the continuous growth of the German cloud market. The number of cloud users has risen further in 2014. Almost half of the companies in Germany now use cloud services. The greatest obstacle here is security concerns, which discourage the (more intensive) use of the cloud. The response from suppliers is, for example, the construction of data centres in Germany. We expect the business case in favour of cloud computing to emerge more strongly in the future in combination with other megatrends like Big Data and Mobility. This will set the stage to further grow the market.

We wish you a stimulating read.

Peter Heidkamp
Partner,
Head of Technology & Business Services,
KPMG AG Wirtschaftsprüfungsgesellschaft

Dr. Axel Pols
Managing Director,
Bitkom Research GmbH

Methodology

- A representative business survey analyses the current and planned use of different forms of cloud computing.
- The study was conducted yearly for the years from 2011 to 2014. This enables an analysis of developments and changes over the course of time.
- This year's survey was conducted as a Computer Aided Telephone Interview (CATI) during the period from November to December 2014. The sampling includes 458 people in German companies with a minimum of 20 employees. Survey participants are exclusively managers with tasks in the information technology (IT) organisation sector or members of the management board.
- Representation of a sufficient number of companies of varying size from a wide range of industries is ensured by stratifying the random sampling, therefore enabling statistical analyses. The statements by the survey participants are weighted, to provide results with a representative picture of all companies in Germany with 20 and more employees.

1 An Overview of the Key Facts

44%

of the companies in Germany use cloud computing, an additional 24 percent are planning or discussing the use.

85%

of IT attacks reported by companies are not related to the use of cloud solutions.

74%

of the companies expect improved access to IT resources with private cloud use; three quarters of the users confirm that this target has been met.

78%

of private cloud users and 73 percent of public cloud users rate their previous experiences as positive.

56%

of the companies are concerned that cloud computing places fulfilment of compliance requirements at risk.

8%

of cloud users report compliance incidents related to use of the cloud.

60%

of the companies that are planning or discussing the private use of the cloud are afraid that it could result in unauthorised access of sensitive company data.

83%

of the customers expect cloud suppliers to operate computer centres only located in Germany.

Cloud use in German companies rose further in 2014. This means that the market for cloud computing in Germany also experienced positive development in the fourth year of our survey. The growth rates are moderate and are somewhat thwarted by the continuing security debates, but the overall growth of the market is stable and steady.

In comparison to the figures from other countries, however, cloud use in Germany lags behind. By international comparison, there are obviously more German companies that have reservations about using cloud computing.

Approach to Cloud Computing and User Behaviour

2

2.1 More cloud supporters than sceptics for the first time ever

The interest in cloud computing is continuously growing. Still, a relatively large number of companies have yet to form an opinion about this topic.

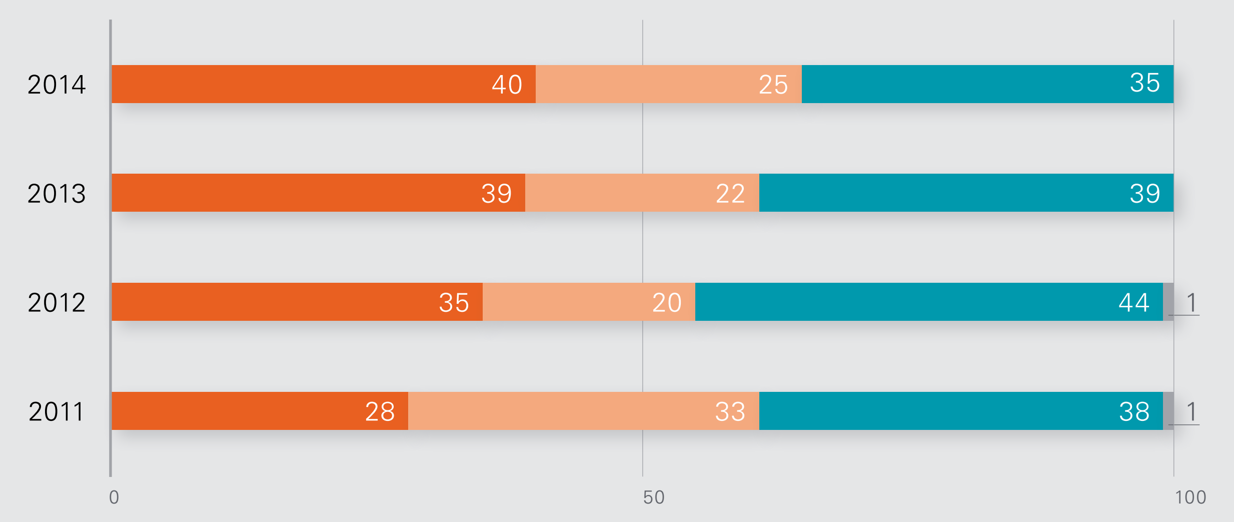
For the first time ever, the number of companies that is open towards cloud computing is greater than the number of companies with a negative attitude. The number of cloud computing supporters has continuously increased since 2011.

In the long term, the share of sceptics has significantly decreased and, at 35 percent, it is at the lowest level since the first survey in 2011. A surprisingly high 25 percent of the companies surveyed still don't have a clear position on cloud computing.

1 / Figure

General attitude towards the topic of cloud computing

Share (weighted) of companies in percent; n = 458/403/436/411



- Tendency open and interested
- Undecided
- Tendency critical and rejecting
- No opinion/No answer

Source: KPMG

2.2 Use of the cloud continues to grow

In the meantime about half of all companies in Germany use cloud services. Users continue to prefer private cloud solutions over public cloud solutions.

The percentage of cloud users rose 4 percentage points to 44 percent during the course of 2014. The moderate growth of the previous year therefore continues. The percentage of companies that find cloud computing irrelevant remains fairly constant, at about one third.

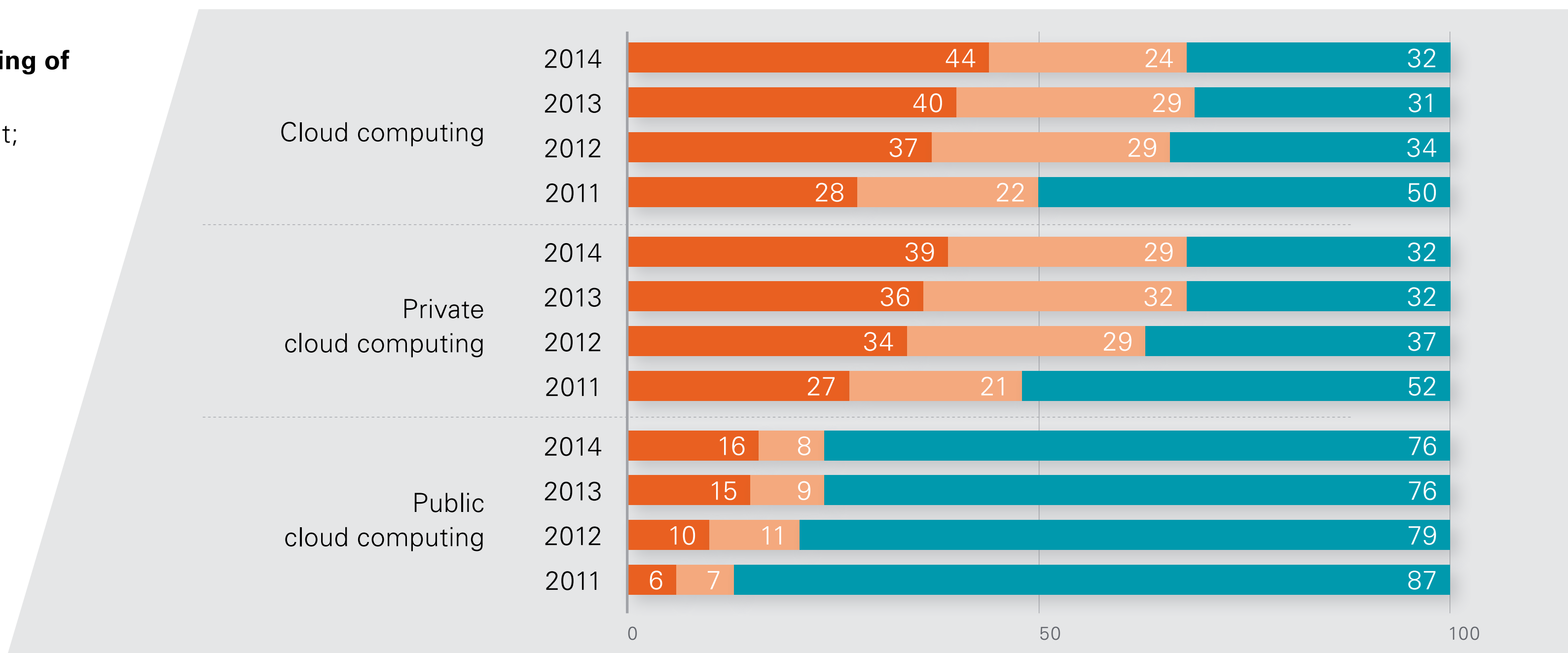
But cloud use has significantly increased during the entire survey period. Between 2011 and 2014 the percentage of cloud users grew a total of 16 percentage points. This indicates solid and robust long-term growth. The further market development depends on if and how quickly those companies in the planning phase will decide in favour of a cloud solution.

Private clouds continue to be the model of choice. The majority of companies already using cloud services has chosen this variety. Public cloud computing continues to be a niche business in the B2B segment.

2 / Figure

Time comparison of the use and planning of cloud computing

Share (weighted) of companies in percent; n = 458/403/436/411



Users
Planners and debaters
Not relevant

Source: KPMG

2.3 Large enterprises still lead, smaller ones are catching up

Cloud computing is becoming increasingly relevant for all companies – whatever their size.

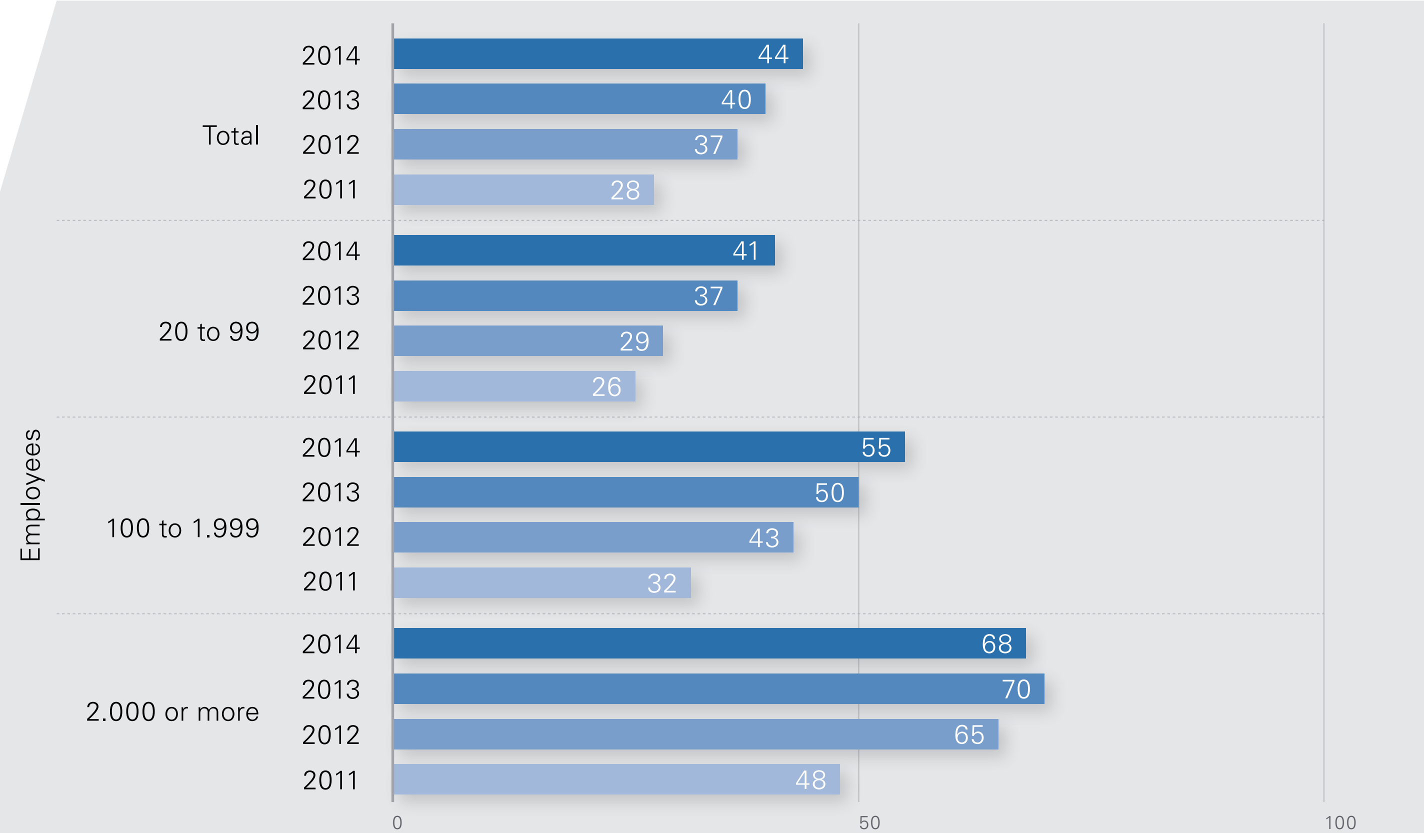
For a long time, cloud computing was especially relevant for group companies and large enterprises. They still lead in regard to use of cloud services. More than two-thirds of companies with more than 2,000 employees worked with cloud solutions in 2014.

But small and medium-sized businesses have been catching up. The percentage of companies with fewer than 100 employees that use cloud solutions was 41 percent in 2014. That is a considerable growth of 15 percentage points in comparison with 2011. In that same period, companies with 100 to 1,999 employees increased their share at 23 percentage points to currently 55 percent.

3 / Figure

Use of cloud computing according to company size

Share (weighted) of companies in percent; n = 458/403/436/411



Note: Due to the low number of cases in the public cloud computing segment, and for reasons of comparing the results between private and public cloud computing, the two middle size classes (100–499 and 500–1,999 employees) will be compiled for evaluation.

Source: KPMG

2.4 Polarisation of the economy

Cloud computing is used by a continuously growing number of industries. However, polarisation of the German economy in pro-cloud and anti-cloud industries is also evident.

The use of the cloud in companies with a focus on information and communication technology (ICT) is more widespread than in all other industries analysed. This result is hardly surprising, due to the high affinity to technology found in the ICT segment.

It is also interesting to observe the different trends in other industries. Use of the cloud in the automotive industry, the logistics sector and the chemical and pharmaceutical industries has grown strongly over the past year and has reached a relatively high level of use in the meantime.

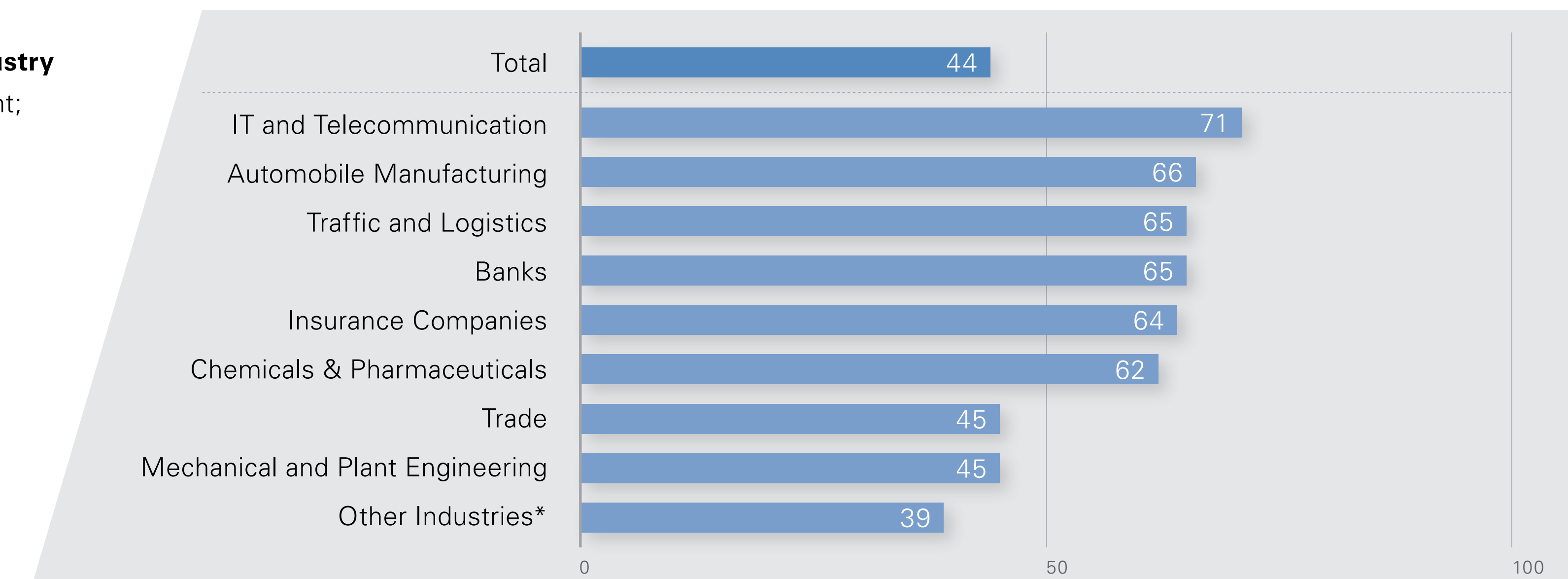
In contrast, there is low growth in the trade and mechanical and plant engineering industries. Cloud users are still in the minority in these segments. This is quite a surprising result, considering the increasing data volume and the rising level of digitalisation within these industries.

The findings of our survey in this year thereby indicate rising polarisation between pro-cloud, networking solution-friendly industries and anti-cloud, traditional internal solution-friendly industries across the German economic landscape.

4 / Figure

Use of cloud computing based on industry

Share (weighted) of companies in percent; n = 458



* Other industries excluding public administration

Source: KPMG

Peter Heidkamp
Partner,
Head of Technology
& Business Services

KPMG STATEMENT

Cloud Use in Germany

Germany has arrived in the cloud – this is confirmed by the stable number of users and the mostly positive experiences, particularly with private clouds. Potential for growth is still available for the public cloud, whose use is held back by concerns regarding IT compliance, data protection and information security.

Specifically in those markets with strict regulations, where customer trust plays a significant role, the lack of clarity surrounding the correct approach to cloud computing still hasn't been eliminated. Extensive IT compliance management can be of assistance here. The frequently not realised cost targets in the private cloud will drive the public cloud. The rapid increase in cloud outsourcing indicates that companies in Germany are forging ahead.

The use of public clouds has hardly changed in comparison with the previous year. Public cloud computing is still not a relevant topic for three-quarters of companies in Germany. Public cloud services are still experiencing a niche existence even in the fourth year of our survey. With the predominantly positive user experiences registered, the reserved attitude towards public cloud computing is not justified.

3 Use of Public Cloud Computing

3.1 Public cloud remains a niche market

The rate of use of public clouds has hardly changed in comparison to the previous year. But public clouds still play a secondary role when compared to private clouds.

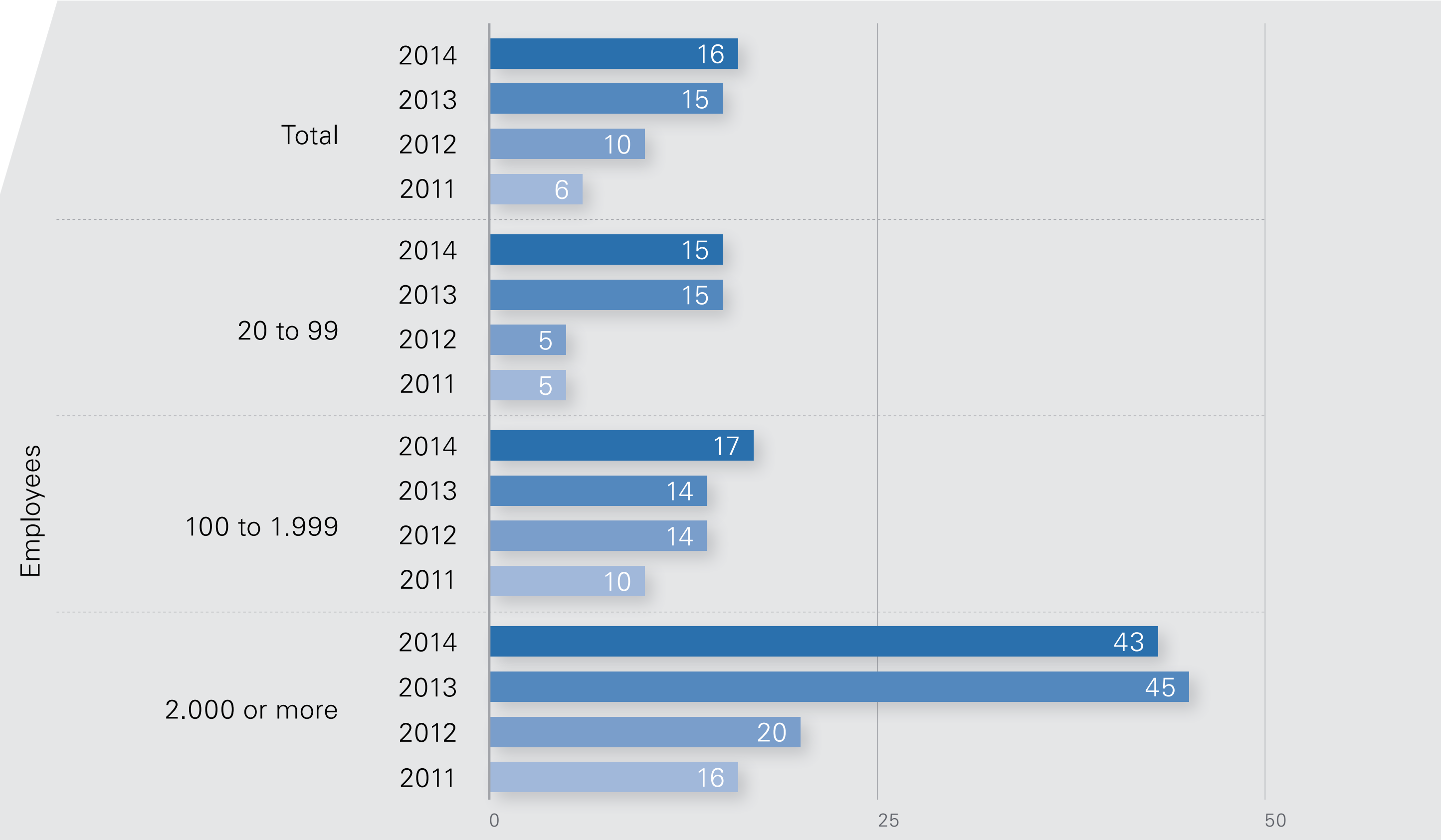
The share of public cloud users in 2014 was 15 percent, and therefore at almost the same level of the previous year. Current indications do not show strong growth, as only 8 percent are discussing or planning the use of public cloud computing. This value is significantly higher for the private cloud, at 29 percent (see Page 8).

Even in the fourth year of our survey, public cloud services are only used by very few German companies. Great hesitance is shown particularly in small and medium-sized companies with fewer than 2,000 employees. Public clouds are primarily a B2C business and, for the moment, will remain a niche market in the B2B segment.

5 / Figure

Use of cloud computing over time and based on company size

Share (weighted) of companies in percent; n = 458/403/436/411



Note: Due to the low number of cases in the public cloud computing segment, and for reasons of comparing the results between private and public cloud computing, the two middle size classes (100 – 499 and 500 – 1,999 employees) will be compiled for evaluation.

Source: KPMG

3.2 ICT industry asserts leading role in public cloud use

Companies in the ICT segment still lead in the use of public cloud services. There is a wide gap between the industries.

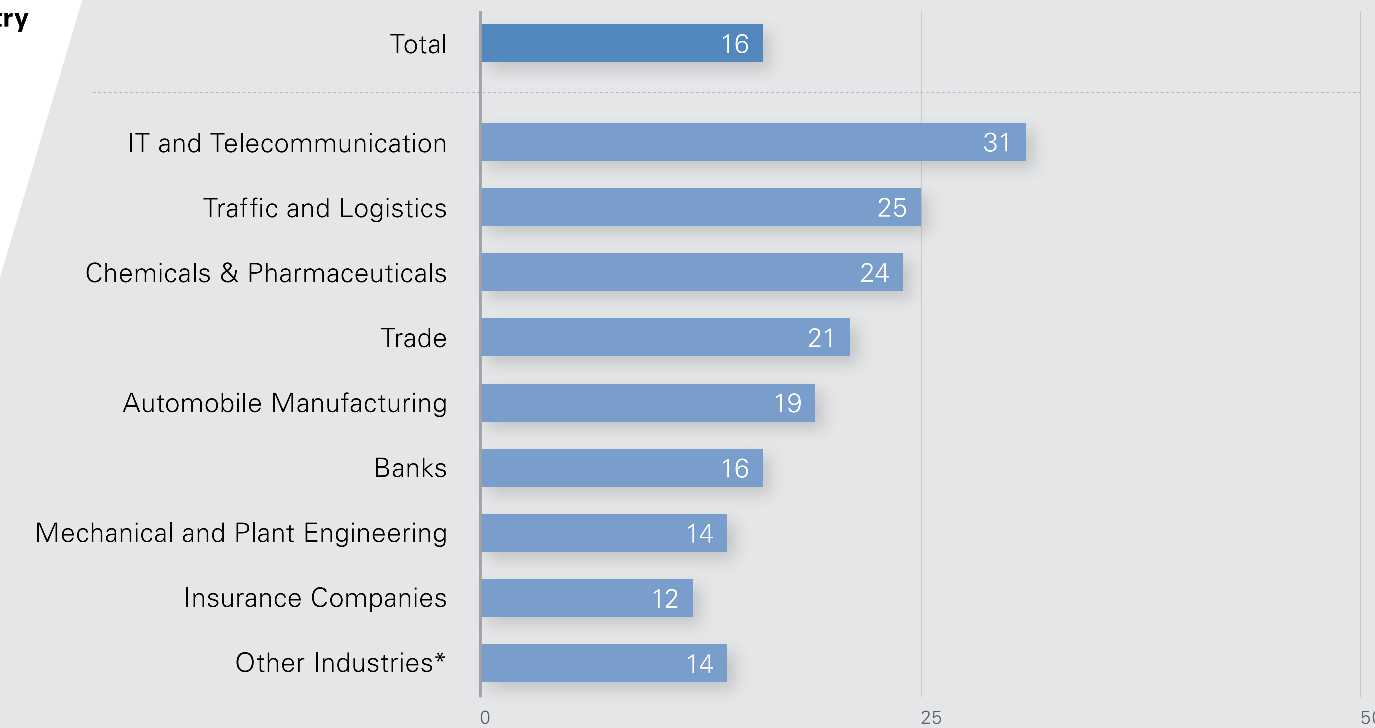
The greatest growth in public cloud use can be seen in the traffic and logistics industry, the chemical and pharmaceutical industries, automobile manufacturing and the bank and insurance segments. Together with the ICT segment, these industries currently achieve the highest user rates.

The lowest user rates are presented in machine and plant engineering (14 percent) and in the insurance segment (12 percent). While private clouds in the insurance segment have a strong above average market coverage, public clouds are only rarely used.

6 / Figure

Use of public cloud computing based on industry

Share (weighted) of companies in percent;
n = 458



* Other industries excluding public administration

Source: KPMG

3.3 Public SaaS and public IaaS have established themselves

Software and infrastructure solutions are presently experiencing increased use in the public cloud. Their use has significantly grown over the past two years.

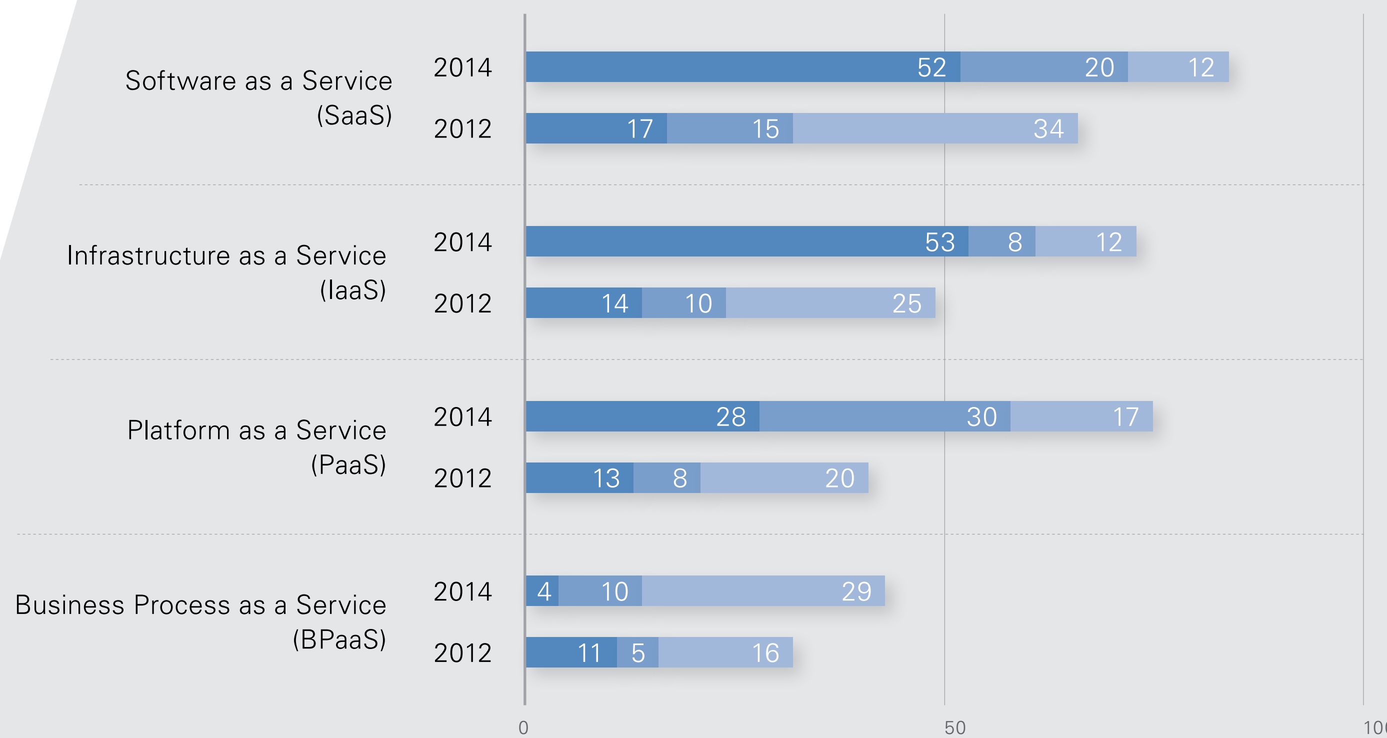
In the meantime, half of all companies that work with the public cloud rely on Software as a Service (SaaS) or Infrastructure as a Service (IaaS) from the Internet. Platform as a Service (PaaS) models are less popular and only used by 28 percent of companies.

There are, however, relatively high planning numbers (30 percent) that signalise future growth in platform services from the public cloud. Business Process as a Service (BPaaS) via the Internet is currently not relevant for the majority of companies.

7 / Figure

Current and planned use of public cloud computing concepts

Share (weighted) in percent of companies that are using, planning to use or discussing public cloud solutions; n = 146/102



Source: KPMG

3.4 Groupware and CRM drive the public cloud

Until now, public SaaS solutions have been applied primarily for relatively basic business processes, where the benefits of the cloud are easily realised.

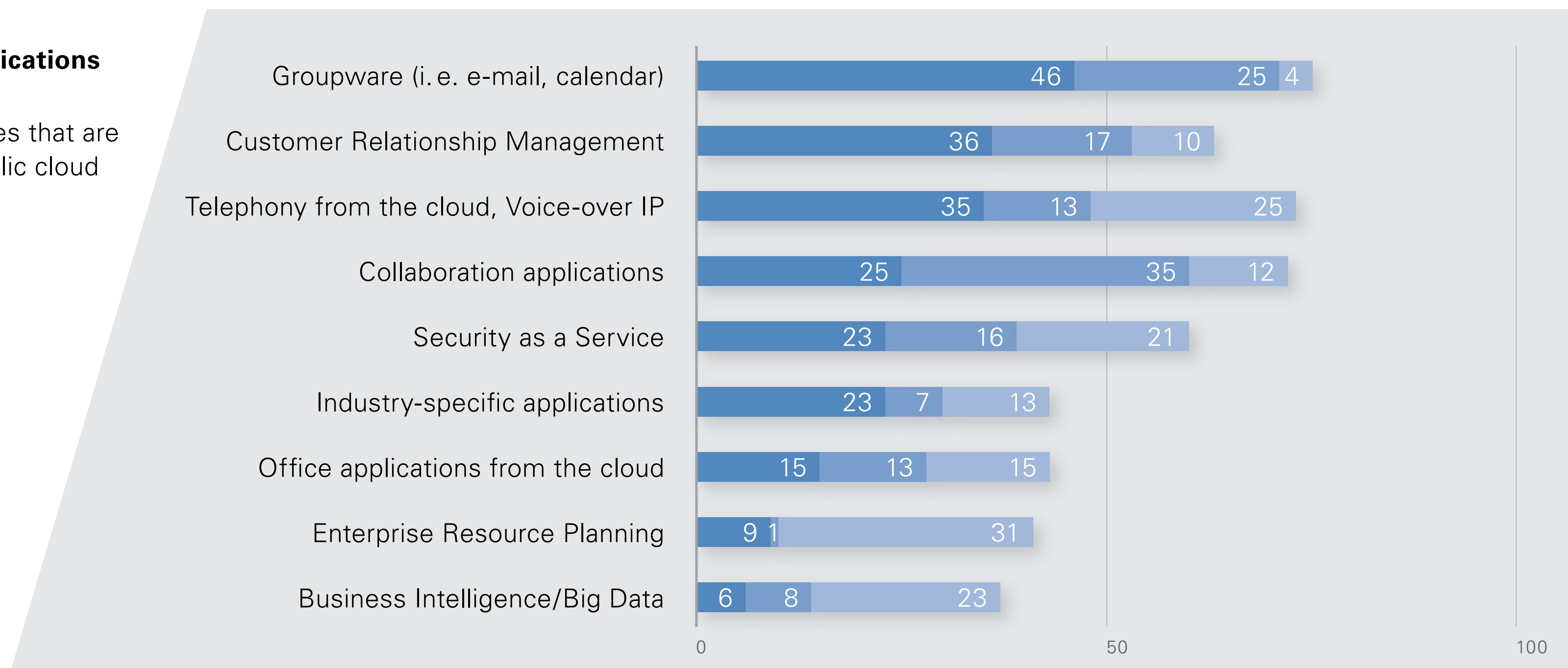
Heading the use of specific applications from the public cloud are groupware solutions, Customer Relationship Management (CRM) and telephony. Surprisingly, CRM applications in the public cloud are clearly more frequently used than in the private cloud (19 percent, see Page 24).

Planning and discussions are primarily in regard to collaborative solutions (47 percent), telephony from the cloud (38 percent) and Security as a Service (37 percent). It can therefore be expected that these public cloud applications will gain significance in the future in the SaaS model.

8 / Figure

Current and planned use of SaaS applications in the public cloud

Share (weighted) in percent of companies that are using, planning to use or discussing public cloud solutions in the SaaS model;
n = 123



- In use
- Planned
- In discussion

Source: KPMG

Sebastian Paas
Partner,
CIO Advisory

KPMG STATEMENT

Software from the (Public) Cloud

From a business perspective, the advantage of a software from the cloud (SaaS) is obvious. Many companies today are aware that their current software architecture no longer complies with the requirements of volatile markets and the increasing implementation rate of business strategies.

These companies also realise that they can't keep up with the growing implementation rate by using their own software development resources. This trend is supported by the product strategy of all relevant business and ERP solution providers. These consistently rely on SaaS.

As a result, many industries no longer essentially question the use of SaaS solutions. In fact, the question that has shifted into focus is: In which areas of the company do SaaS solutions provide the greatest competitive advantage, without losing track of the risks?

3.5 User experience speaks for the public cloud

The apprehension towards the use of public cloud computing is not justified by the predominantly positive experiences of the users.

The great majority of cloud users (73 percent) reports positive experiences; only a small minority (4 percent) express criticism. This result from 2014 confirms the survey results of the previous years. The predominantly positive experiences with public clouds have been constant since the onset of our analyses.

Actual experiences with public cloud computing contradict the sometimes critical and sceptical public discussions. The positive empirical data could serve as an important component in the efforts of public cloud providers to generate new (business) customers.

9 / Figure

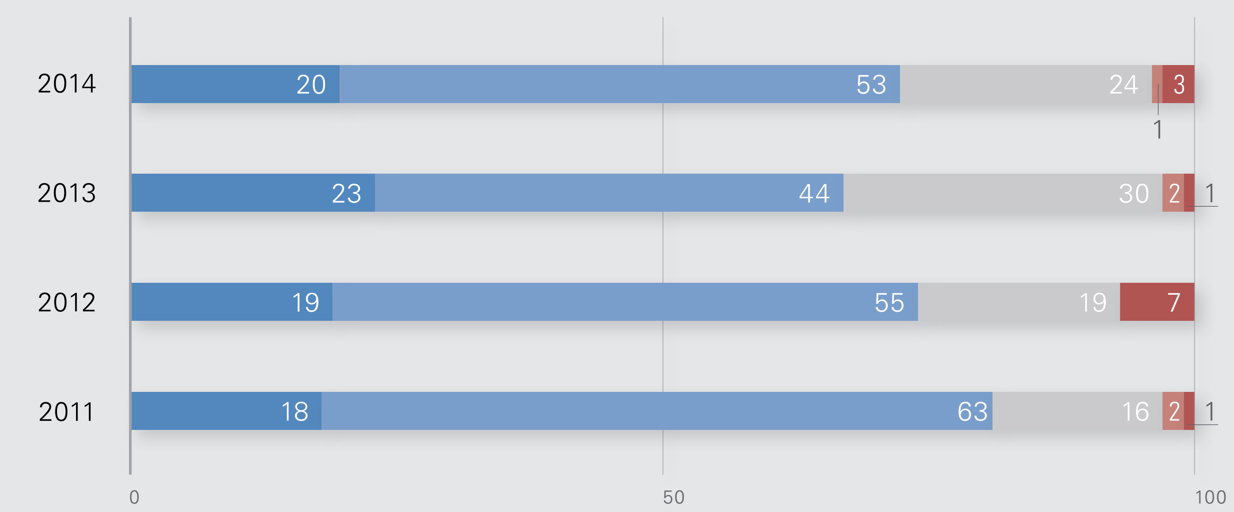
Evaluation of previous experiences with public cloud computing

Share (weighted) in percent of companies that use public cloud solutions;
n = 103/83/48/40

- Consistently positive
- Mostly positive
- Neutral
- Mostly negative
- Consistently negative

From 100. Deviating values are the result of rounding off.

Source: KPMG



The number of private cloud users experienced further growth in 2014: now nearly every fourth company in Germany uses private cloud services.

According to user assessment, the goals associated with the implementation of private cloud solutions are mainly achieved. In some areas the outlook provides a more mixed picture, for instance in regard to targeted reduction of IT costs and IT administration efforts.

Use of Private Cloud Computing

4

4.1 Four of ten companies use private clouds

Almost every fourth company in Germany now uses private cloud computing. The demand is growing slowly, but consistently.

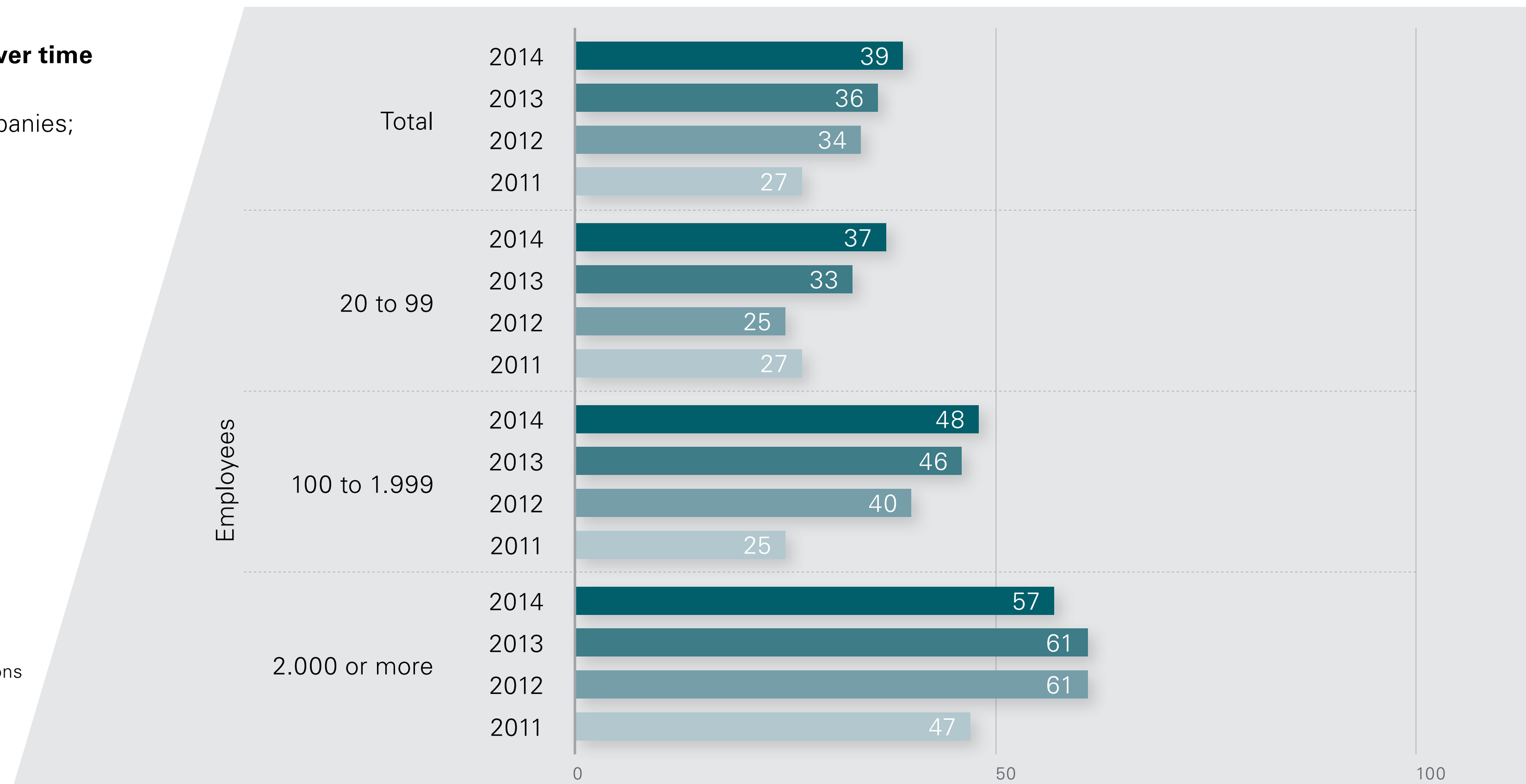
The number of companies using private cloud computing has risen from 36 to 39 percent in 2014. The size of the company is still a decisive factor for use of the cloud. Large enterprises continue to lead the use of private cloud solutions at 57 percent. However, stagnation is indicated for the user figures in this category.

The mid-sized sector, in contrast, has steadily gained ground in past years. As a result, the overall growth is currently fuelled by the small and medium-sized companies. About half (48 percent) of medium-sized companies now use private clouds. Based on 2011, the percentage of users in this group has nearly doubled.

10 / Figure

Use of private cloud computing over time and based on company size

Share (weighted) in percent of companies; n = 458/403/436/411



Note: Due to the low number of cases in the public cloud computing segment, and for reasons of comparing the results between private and public cloud computing, the two middle size classes (100 – 499 and 500 – 1,999 employees) will be compiled for evaluation.

Source: KPMG

4.2 ICT industry still leads in private cloud use

Cloud use in the ICT industry is most widespread even in the fourth year of our survey. However, some other industries have almost caught up.

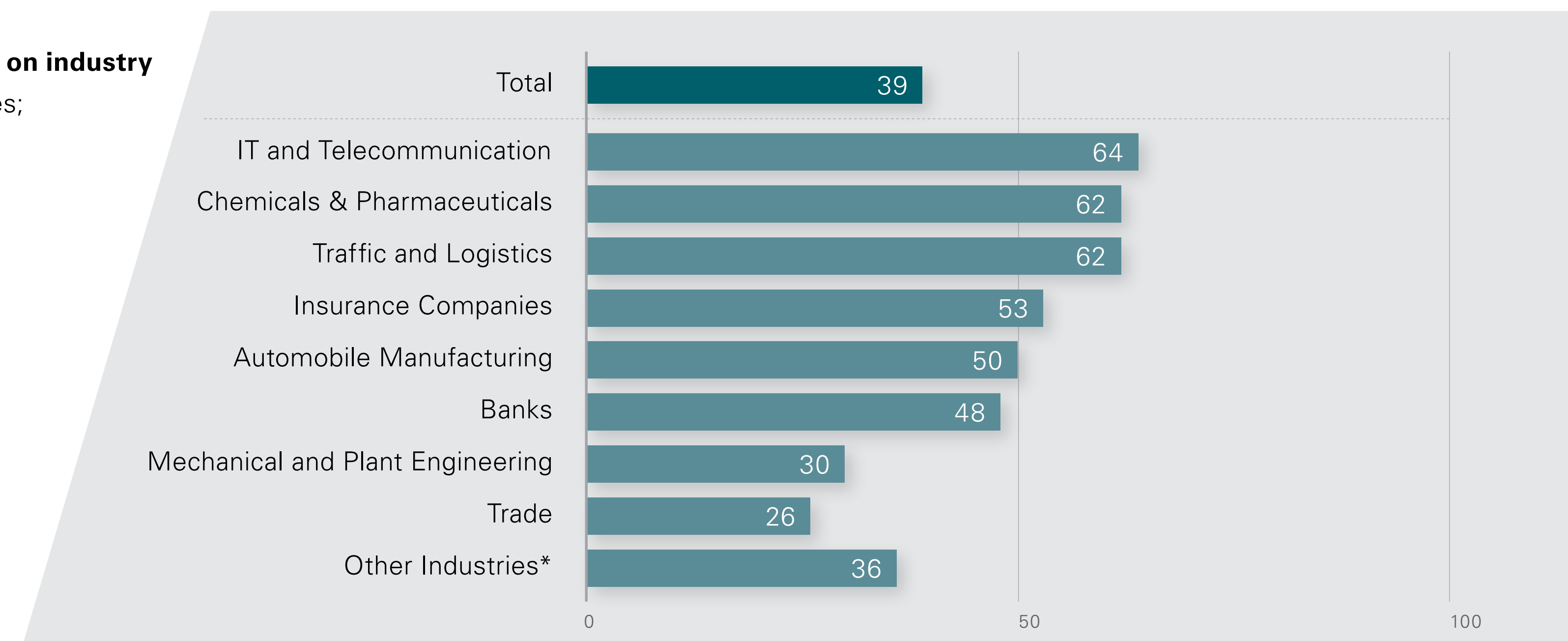
Companies in the ICT industry are still the market leaders in the use of private cloud applications at 64 percent. They are followed by the chemical and pharmaceutical industries and traffic and logistics (each with 62 percent). The highest growth in comparison to the previous year has been identified within these two segments.

Below average user rates are listed in the mechanical and plant engineering segment (30 percent) along with trade (26 percent). Simultaneously, these two industries plus the finance and insurance sectors display the lowest growth rates in private computing use for 2014. For the most part, this confirms the picture of increasing polarisation in pro-cloud and anti-cloud industries for the German economy.

11 / Figure

Use of private cloud computing based on industry

Share (weighted) in percent of companies; n = 458



* Other industries excluding public administration

Source: KPMG

4.3 Outsourcing gains increasing importance

German companies still tend to select internal private clouds. There is, however, a clear trend towards the use of hosted and managed cloud models.

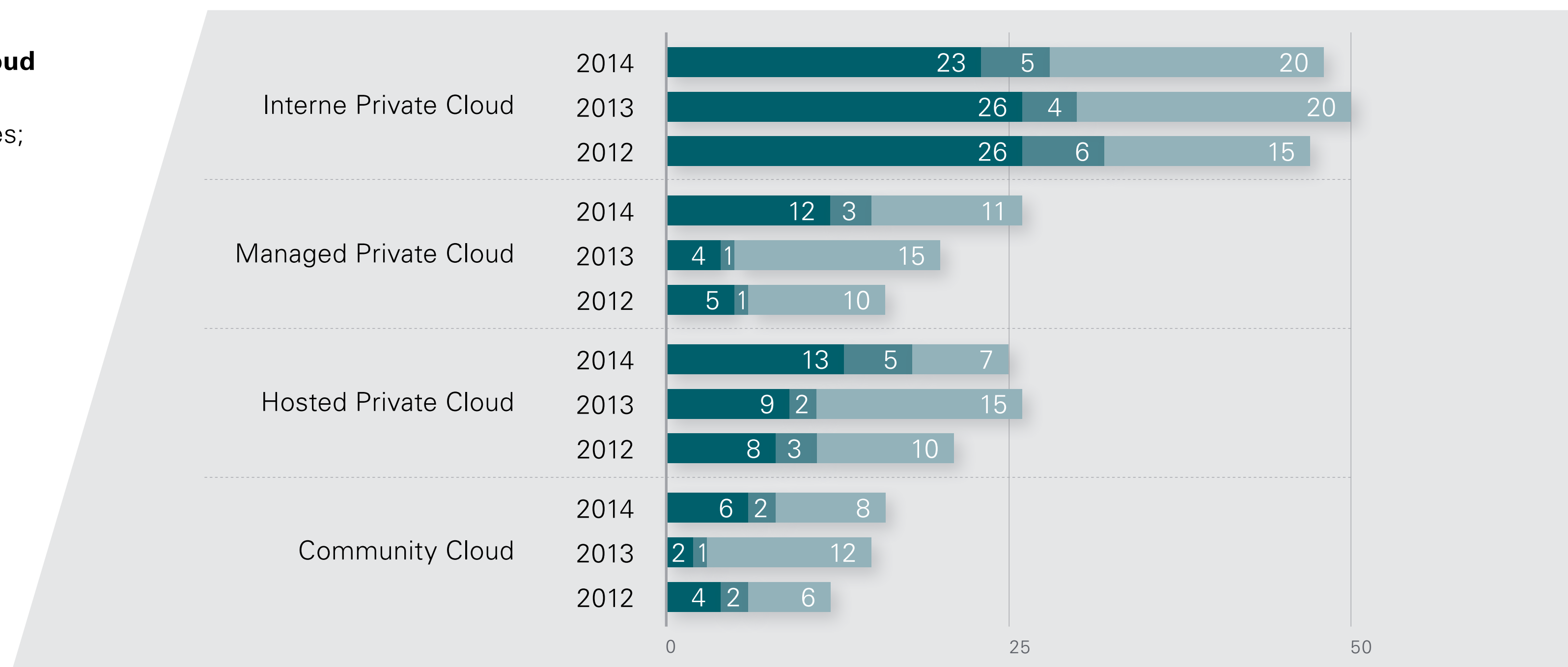
Just under one-fourth of the companies (23 percent) operates an internal private cloud and therefore prefers a solution, which exclusively relies on in-house IT resources. In comparison to the previous year, the user rate has decreased slightly, but there is a consistently high percentage of companies (20 percent) that are discussing a corresponding solution.

Clear growth is displayed in the use of private cloud solutions, which are hosted or managed by an external service provider. A total of 13 percent of companies currently rely on hosted private clouds, where the infrastructure is operated by the provider in a computer centre. The percentage of companies that use managed private clouds has tripled in comparison to the previous year, growing from 4 to 12 percent.

12 / Figure

Current and planned use of private cloud computing concepts

Share (weighted) in percent of companies; n = 458/403/436



In use
Planned
In discussion

Source: KPMG

4.4 Software as a Service dominates the private cloud

Software as a Service is enjoying significant gains and remains the most popular service in the private cloud. Infrastructure as a Service and Platform as a Service are also experiencing more frequent use than in the previous year.

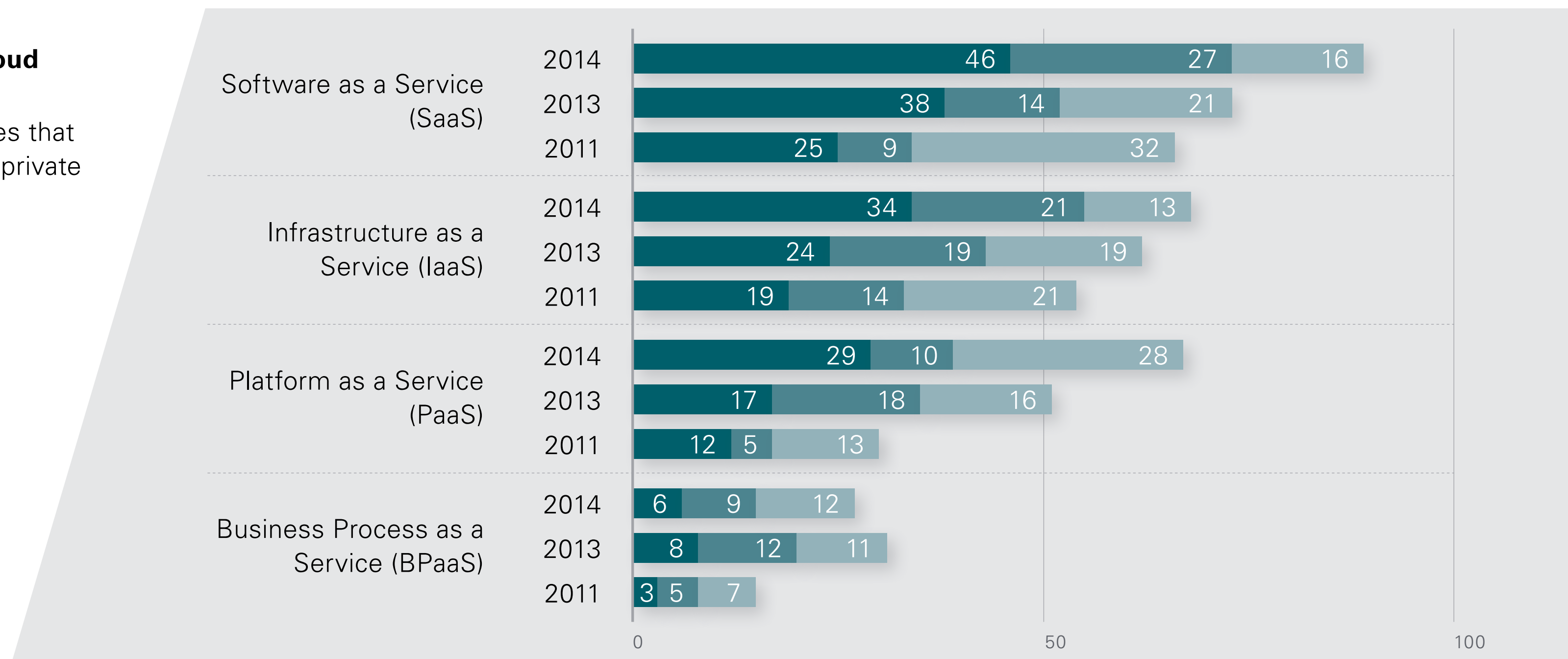
The use of private clouds is particularly prevalent to access software (SaaS). Almost half of the companies surveyed (46 percent) obtained software services from the cloud in 2014. A sharp increase is also indicated for infrastructure services (IaaS) and platform services (PaaS) from the private cloud.

The growth perspectives for software and infrastructure services are quite promising: 27 percent of those companies interested in private clouds plan the concrete use of SaaS in the next twelve months and no fewer than 21 percent have plans to use IaaS solutions.

13 / Figure

Current and planned use of private cloud computing services

Share (weighted) in percent of companies that are using, planning to use or discussing private or community cloud;
n = 411/333/250



In use
Planned
In discussion

Source: KPMG

4.5 Broad application scope in the SaaS model

Companies are interested in a variety of SaaS applications. The focus is on solutions for groupware, telephony, Enterprise Resource Planning and collaboration.

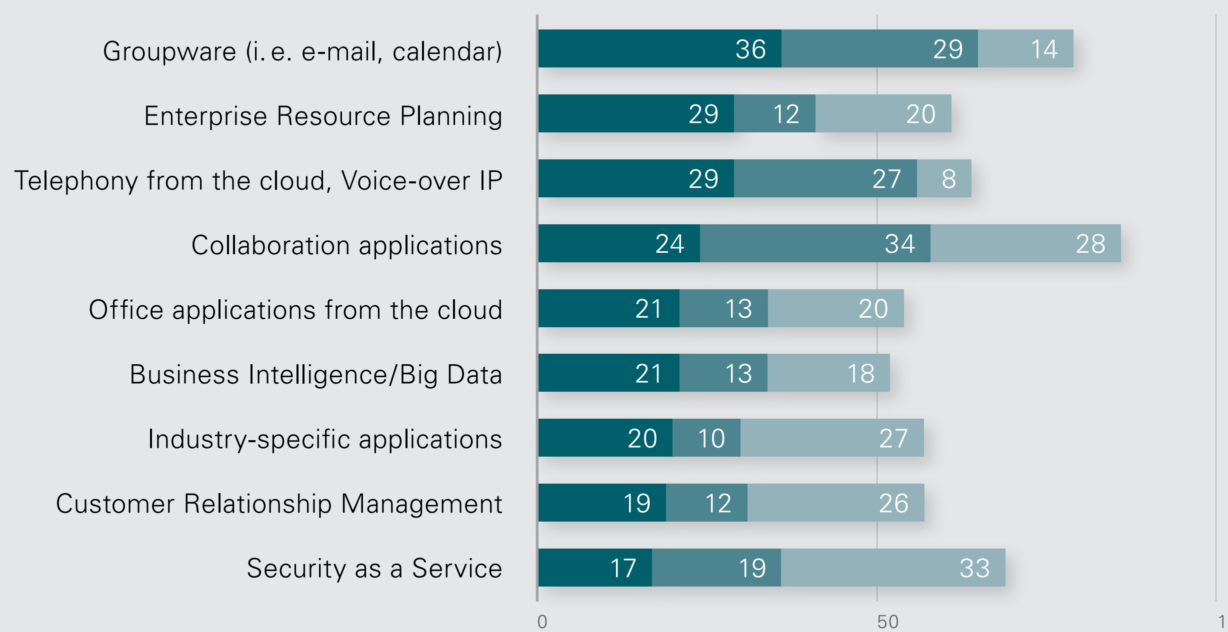
There are three applications, which are either already being used/are planned for use within the next twelve months by more than half the companies interested in the SaaS model: solutions for office services like e-mail or calendar (groupware), telephony and project work (collaboration). Another equally frequently used SaaS application are solutions for Enterprise Resource Planning (ERP).

The least widespread are security and Customer Relationship Management (CRM) solutions from the private cloud. However, there are a relatively large number of companies that are planning or discussing their use. These scopes of application may therefore soon experience a growth spurt.

14 / Figure

Current and planned use of SaaS applications

Share (weighted) in percent of companies that are using, planning to use or discussing SaaS; n = 379



In use
Planned
In discussion

Source: KPMG

Carsten Schiewe
Partner, Solution & Alliance Management

KPMG STATEMENT

Software Solutions by KPMG from the Cloud

Our clients expect our software solutions to be available in the cloud. We therefore also provide our innovative tools as Software as a Service solutions. Particularly software, which is intended for use by different teams and regions within a company, can take full advantage of the benefits of the cloud – like availability and flexibility.

This particularly applies for the KPMG "Cash Flow Manager" or for "TrAction". We also note that our customers place great emphasis on the topic of data protection in the private cloud. In our efforts to make the accumulated knowledge and expertise of KPMG available via the most advanced technology, we count on cloud solutions operated in Germany.

4.6 Consistently positive experiences

The majority of private cloud computing experiences continues to be positive.

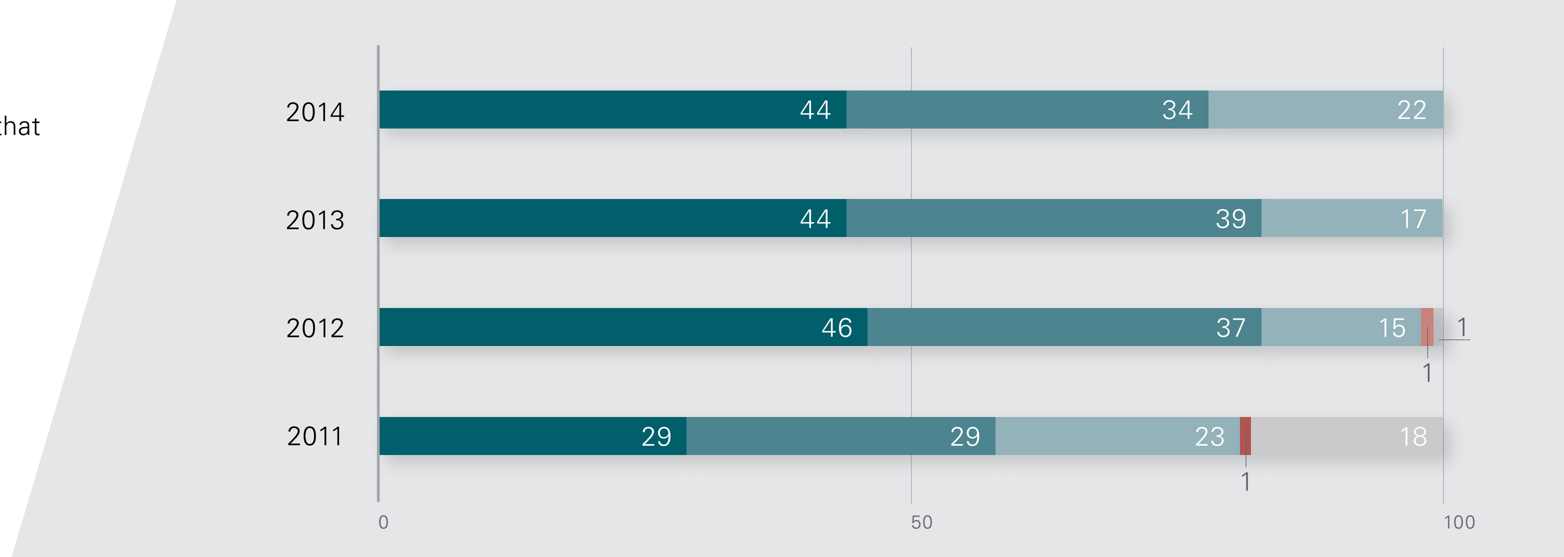
Reports from the vast majority of private cloud users indicate positive experiences: in our current survey, 78 percent describe their experiences as "consistently positive" or "mostly positive", the remaining 22 percent as neutral. Not one of the companies questioned expressed negative criticism. In the fourth year of our survey, this shows an impressive continuity in the positive assessment of cloud usage.

The consistent positive empirical values are particularly remarkable, especially in view of the growing diversity of services used and the trend towards increasing sensitivity in regard to data protection or data security.

15 / Figure

Previous experiences with private cloud computing

Share (weighted) in percent of companies that use private cloud solutions;
n = 234/189/177/127



- Consistently positive
- Mostly positive
- Neutral
- Mostly negative
- Consistently negative
- Don't know/No answer

Source: KPMG

4.7 Cost reduction is not the key goal

Companies hope for a wide range of improvements by using the private cloud. The key goals are better access to IT resources, increased flexibility and reduced administrative efforts in IT.

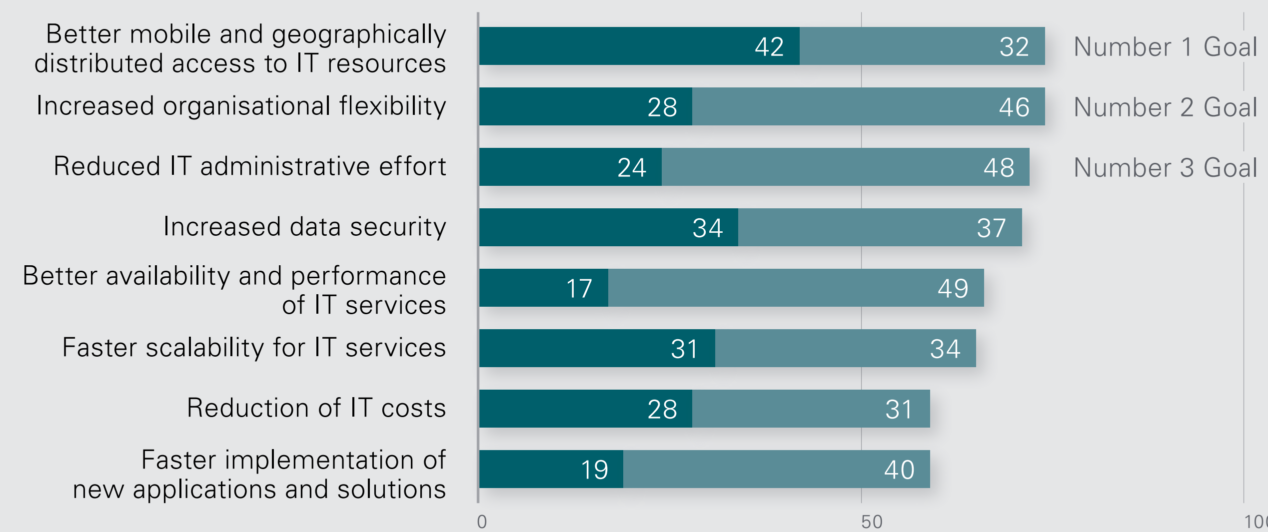
The implementation of (private) cloud computing is not purely a matter of cost. The most frequently stated goals, which should be achieved by implementing cloud computing, deal primarily with the optimisation of structures and processes: improved access to IT resources, increased organisational flexibility and more efficient IT structures. A further objective is the improvement of data protection. Many users associate the use of cloud computing as a contribution towards the improvement of IT security.

In comparison to the previous year, it is apparent that the curve for the evaluation of various goals has dropped. The result is that even the goal at the end of the list, the reduction of implementation time, is assessed as being important by about 60 percent of the companies. The expectations of cloud users or those interested in the cloud are not only high, but also highly complex. Improved access of IT resources made the biggest upward leap in the goal ranking (from fourth to first place), while faster scalability went from the number 1 goal in the previous year to currently sixth place.

16 / Figure

Goals of use or implementation of private cloud solutions in companies

Share (weighted) in percent of companies that are using, planning to use or discussing private or community cloud solutions;
n = 411



Very important
Quite important

Source: KPMG

4.8 User goals are frequently reached

Cloud computing usually delivers what it promises. User goals are frequently reached. But there is still the need for optimisation in some areas.

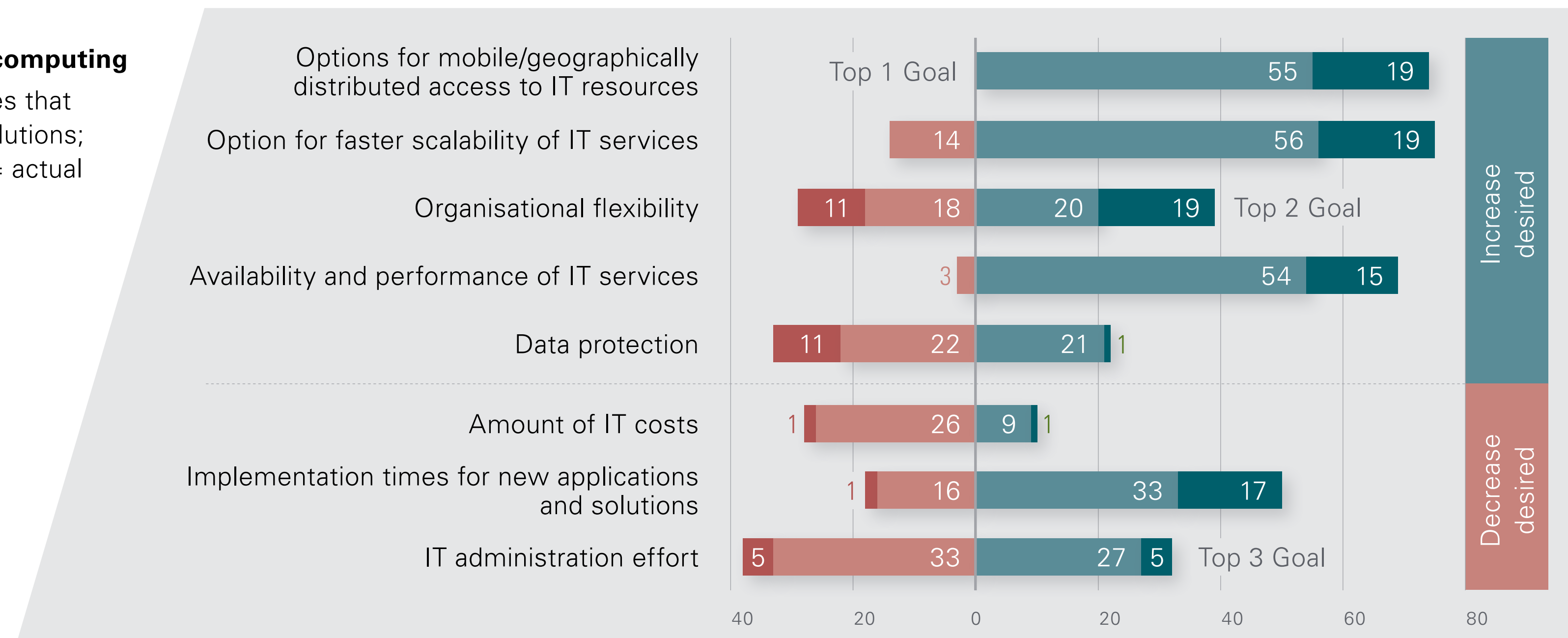
Most companies hope for improved access to IT resources with implementation of the cloud. This top goal is usually achieved: 74 percent of private cloud users report improved access, no company has reported a decline. Similarly positive are the results for the goals "faster scalability" and "better availability or performance" of IT services. Even the organisational flexibility – another top goal – indicates more increase than decrease.

The evaluation of goal achievement for other important targets is somewhat mixed, for instance regarding improvements in IT administration efforts, flexibility and data security. There are even more users who see a decrease rather than an improvement with cloud use in regard to the topic of data security. There is also the need for optimisation in regard to implementation time for new applications. For about half the cloud users, these have risen instead of dropped.

17 / Figure

Actual effects of use of private cloud computing

Share (weighted) in percent of companies that are using private or community cloud solutions; n = 234; Missing values to 100 percent = actual remains unchanged



- Has significantly decreased
- Has decreased
- Has increased
- Has significantly increased

Source: KPMG

4.9 Security concerns are still the biggest obstacle

Security concerns are still the biggest obstacle, which are discouraging the increased use of the cloud. A relatively large number of companies are also unsettled about legal ambiguities.

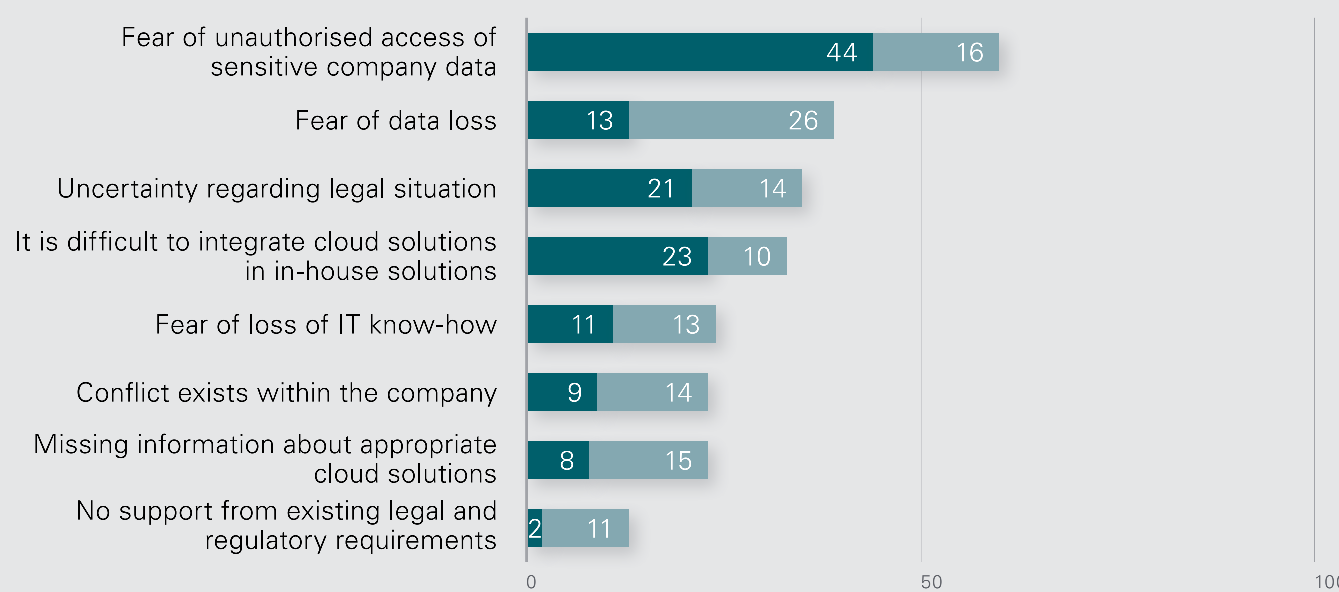
As in the previous year, the fear of data loss and unauthorised data access are still the biggest concerns, which worry companies regarding the issue of cloud use. However, the results have dropped slightly in comparison to last year. This applies to almost all of the aspects questioned. Over the course of time, this indicates a trend towards the reduction of concern and uncertainty regarding (private) cloud computing.

Legal ambiguities and uncertainty have risen on our "obstacle ranking" from fifth place in the previous year to third place in the current survey. While cloud computing has continuously grown during the past years and has advanced to a certain level of market maturity, many companies still have legal concerns. This is a surprising imbalance. In regard to the legal parameters, a central issue is to provide the necessary clarity to increase the acceptance of (private) cloud computing.

18 / Figure

Obstacles for companies that are planning to use or discussing private cloud computing

Share (weighted) in percent of companies that are planning to use or discussing the use of private or community cloud solutions;
n = 141



Always applies
Generally applies

Source: KPMG

Olaf Köppe
Partner,
IT Advisory

KPMG STATEMENT

Advantages of the Private Cloud

The development in recent years indicates that companies are on their way to the cloud. This causes a rise in the level of maturity of network solutions. The private cloud becomes the cornerstone for the more extensive use of cloud-based services, which subsequently leads to the development of hybrid clouds.

The technical aspects of cloud transformation are clarified to a great extent by the use of private clouds. The focus of many companies now lies in the transformation of company processes, to actually become cloud-enabled.

The use of private clouds raises compliance issues, particularly if – as in classical outsourcing – there is integration of external service providers. Compliance, however, does not represent a great obstacle. It prepares an organisation for the previously mentioned extension of use of cloud resources. It's an exciting path for everyone involved.

The requirements placed on cloud providers have shifted due to the NSA incident: now the great majority of customers expect their cloud providers to operate their computer centres and have their headquarters in Germany, or at least in the European Union. Before the NSA incident, the location was much less of an issue.

Many questions about IT compliance and data protection still remain unanswered. But neither IT security nor the fulfilment of compliance requirements are particularly at risk as the result of cloud computing.

Requirements for Cloud Providers and Data Security

5

5.1 Location preferences impact the requirement profile

As in the previous year, customers prefer cloud providers with computer centres and headquarters in Germany or in the EU.

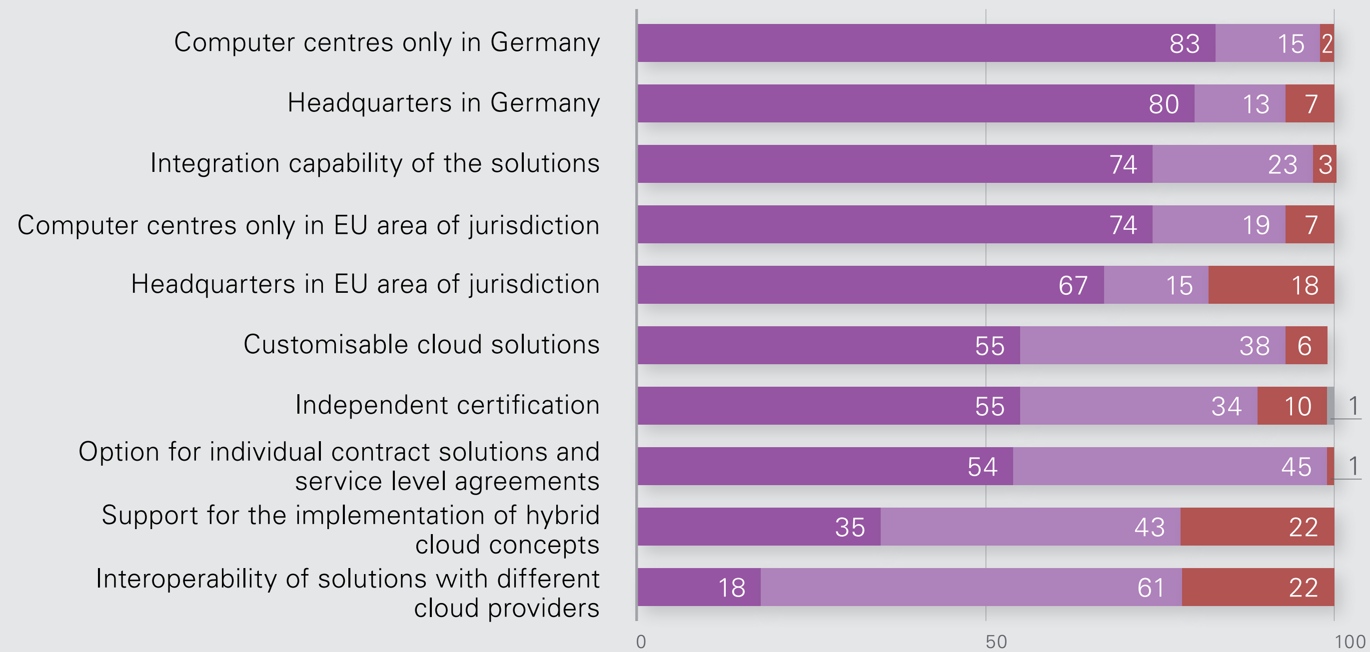
More than three quarters of customers expect their cloud provider to have computer centres and their headquarters in Germany. The issue regarding location has become increasingly important in the aftermath of the NSA incident: in 2012 only about one third of those questioned said that it was mandatory for cloud providers to operate out of Germany.

Integration capability of cloud solutions in existing IT structures is again in the fourth year of our survey a key requirement for cloud providers for the majority of those questioned. The majority also thinks that it is essential to be able to customise cloud services to individual needs, that providers are certified by independent authorities and that cloud solutions and service level agreements can be tailored to individual preferences. Our results display an overall complex requirement profile for cloud providers.

19 / Figure

Requirements for cloud providers

Share (weighted) in percent of companies that are using, planning to use or discussing private or public cloud solutions; n = 424



- Must-have
- Nice-to-have
- Not important
- Don't know/No answer

From 100. Deviating values are the result of rounding off.

Source: KPMG

5.2 Majority of IT attacks not related to cloud solutions

Only a small number of attacks on IT systems is related to the implemented cloud solutions.

Around every tenth company surveyed had registered attacks on their IT systems in the four weeks prior to the survey; just as many expressed a related suspicion. Large enterprises with more than 2,000 employees view themselves as more susceptible to attacks than smaller companies.

The majority of IT attacks (85 percent) is not related to the use of a cloud solution. Therefore, the use of cloud computing does not pose a particular security risk. Our results regarding IT attacks thereby only reflect registered incidents and reasonable suspicions. But it is possible that there are a high number of unreported cases, meaning attacks that have not even been noticed by the victimised companies. It is not possible to issue a general clearance for risk factors as a result of this survey data.

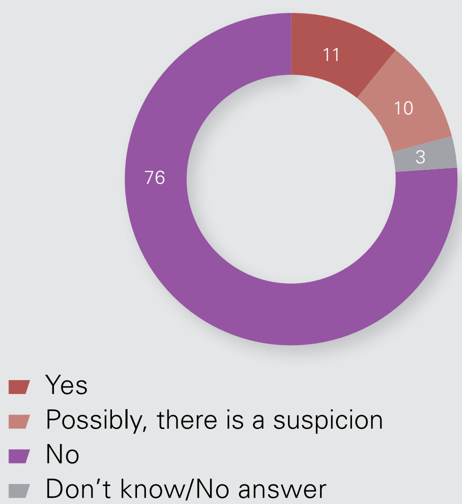
20 / Figure

Attacks on IT systems

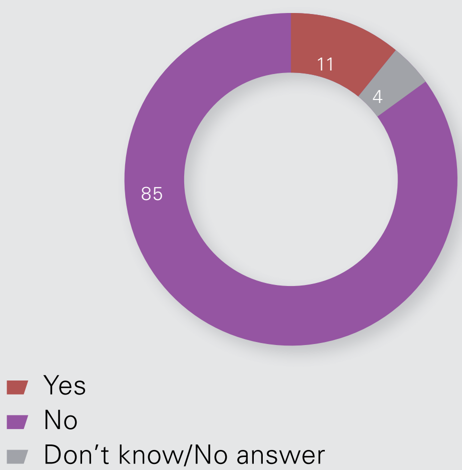
20a / Share (weighted) in percent of companies; n = 458

20b / Share (weighted) in percent of companies that (probably) experienced an attack and use cloud solutions; n = 63

20a / Did your company experience an attack on their IT systems in the past four weeks?



20b / Were these attacks related to your use of cloud solutions?



Source: KPMG

5.3 Compliance concerns are widespread, but often unfounded

More than half of all companies surveyed are concerned that cloud computing compromises the fulfilment of compliance requirements. But this concern is not supported by hard evidence.

More than every second company is worried that the use of cloud services could compromise the fulfilment of compliance requirements – for instance in the area of data protection, data security or audit rights. In view of the number of actual compliance incidents related to cloud computing, this concern is often unfounded: only 8 percent of companies report related experiences.

Many questions about IT compliance and data protection have still not been answered satisfactorily – but neither the fulfilment of compliance requirements nor the IT security are at particular risk as a result of the use of cloud computing. Up until now, just the opposite may be the case: due to the increased professionalism of specialised providers, cloud computing may even increase data and system security.

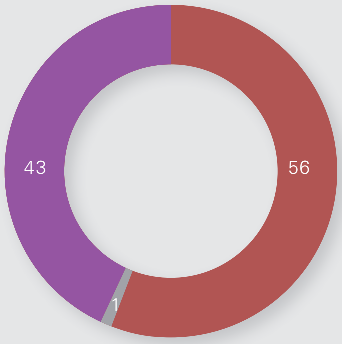
21 / Figure

Breach of compliance requirements due to cloud solutions

21a / Share (weighted) in percent of companies; n = 458

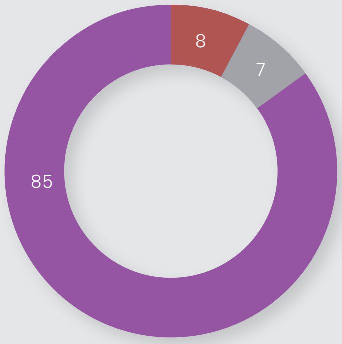
21b / Share (weighted) in percent of companies that use cloud solutions; n = 293

21a / Is your company concerned that the use of cloud solutions will compromise fulfilment of compliance requirements (for example in the area of data protection)?



- Yes
- No
- Don't know/No answer

21b / Did your company experience any related compliance incidents related to your use of cloud solutions?



- Yes
- No
- Don't know/No answer

Source: KPMG

Alexander Geschonneck
Partner,
Head of Forensic

KPMG STATEMENT

Real Dangers in the Cloud

The Cloud Monitor findings in regard to registered IT attacks are only part of the truth. Many cyber attacks are never discovered. Detailed analyses on the topic of IT security demonstrate that there is still a high potential threat. The results of the current KPMG study on computer crime in Germany confirm that the danger of becoming a victim of e-crime was never greater than it is today and it continues to grow.*

Companies sense that new threats arise particularly as the result of innovative technologies. They fear that vulnerabilities in those technologies will be exploited, since there are no satisfactory protective mechanisms available yet. Particularly cloud computing is perceived of by many companies as a gateway for new modes of attack.

The danger of becoming a victim of cybercrime grows with a growing technology environment. Cloud computing can thereby present companies with particular challenges. This makes it even more important to develop methods to thwart such attacks.

* This link will take you to the KPMG study "e-Crime. Cybercrime in German Industry 2015".

The number of cloud users has steadily increased over the past four years. Now almost half of German companies use cloud services. Cloud computing has thereby become a basic technology for many companies. The greatest obstacle here is security concerns, which discourage the (more intensive) use of the cloud.

We expect the business case in favour of cloud computing to emerge more strongly in the future in combination with other megatrends like Big Data and Mobility. This will set the stage to further grow the market.

6 Conclusion and Outlook

6 Conclusion and Outlook

The cloud market continues to grow

We have observed cloud usage by German companies over a period of four years using the Cloud Monitor. Based on our findings, we are able to make a substantiated market assessment. One of the central conclusions of the four survey rounds is: cloud computing is and will remain a growing market. Critics may object that the use of the cloud in Germany is only slowly increasing, medium-sized businesses are lagging behind and particularly the public cloud is scarcely making any headway. By contrast, a more realistic interpretation of the numbers draws attention to the fact that the growth trend in the past years has been consistent despite the NSA incident; medium-sized businesses were able to gain considerable ground in the previous year and the diversity of services and applications used particularly in the private cloud have significantly increased. In other words, not only are a growing number of companies using the cloud, the number of specific services that are being used is also increasing. Another reason for optimism is the further insight gained after four years of Cloud Monitor: the great majority of cloud users positively assess the use of the cloud.

Affinity towards the cloud varies according to industry

Again in the fourth year of our survey, cloud usage in the ICT industry is most widespread. But some other industries have just about caught up in the meantime. This is the case, for instance, for automobile manufacturers, for the chemical and pharmaceutical industries as well as for traffic and logistics. Below average user rates are presented in mechanical and plant engineering as well as in trade. The overall picture confirms an increased polarisation of the German industry in pro-cloud and anti-cloud or somewhat reluctant segments.

Outsourcing is gaining significance

While the distribution of the public cloud displays little upward movement, usage of the private cloud is growing. For cloud service providers, private cloud computing remains the market with the strongest growth prospects, at least for the short- to medium-term and in comparison to public cloud computing. But even hybrid cloud models, which combine both worlds, are experiencing increased usage. There is a clear trend towards outsourcing models for the private cloud. Users increasingly choose managed or hosted cloud models, where the responsibility is carried by professional service providers. The concept of outsourcing is thereby gaining significance, while the use of internal private clouds is declining.

Four Years Cloud Monitor: four central insights from the user perspective

- Cloud usage in the German industry is increasing slowly but consistently.
- Private clouds are the preferred model. Public clouds remain a niche business in the B2B segment.
- The experiences with cloud computing are predominantly positive. The key goals, which correspond to the implementation of the cloud, are achieved in most cases.
- Security concerns and legal ambiguities slow down the market dynamics. There is often a gap between the sense of threat and actual threat.

Security and compliance as challenge – and opportunity

Security concerns are still the biggest obstacle, which is discouraging the (more intensive) use of the cloud. Simultaneously, many companies link cloud use with the goal to increase data security. But according to our survey results, this goal is not always achieved. Security aspects thereby remain a key topic for cloud providers and a decisive factor for future market dynamics.

At least every second company is also concerned that the fulfilment of compliance requirements is at risk due to the use of cloud services. The number of actual compliance incidents related to cloud computing, however, indicates that this concern is usually unfounded.

The reservations of the customers can also represent an opportunity for cloud providers. This is particularly the case for providers who are able to eliminate uncertainties and build trust. Key success factors here are information, clarification and transparency, the creation of clear contractual agreements and the operation of computer centres in the EU or preferably in Germany.

Outlook

Cloud use in Germany will continue to increase in the coming years. However, it remains to be seen whether the cloud computing market will continue to grow at a moderate rate or if its growth will be boosted by changing conditions. There are indications that the latter will occur. Cloud providers are increasingly adjusting to the requirements of (potential) users. This can be seen, for example, in the investments made to establish computer centres in Germany. In addition, the potential provided by the cloud in connection to other megatrends, especially like Big Data, Mobility and Social Business, is becoming ever more apparent. And finally, in the face of progressive digitalisation, the pressure is increasing for those companies who still don't have a strategy for the digital world. Under consideration of these factors, the persuasive power for the business case in favour of cloud computing will become increasingly stronger in the future – and the German cloud market can thereby develop additional momentum.

Four Years Cloud Monitor: four central insights for providers

- Security, trust and transparency are key success factors.
- Cloud providers with computer centres in Germany have a clear location advantage.
- Cloud solutions must be tailored to meet individual customer needs. The smooth integration in existing IT structures is hereby important.
- There is still a need for information regarding data security, threat scenarios, legal and compliance requirements.

Contact Partner

The study was prepared by Bitkom Research GmbH for KPMG AG Wirtschaftsprüfungsgesellschaft.

KPMG AG Wirtschaftsprüfungsgesellschaft

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Bitkom Research GmbH

Bitkom Research provides market research from a single source – from consulting and concept through to conducting field studies and further to effective public marketing of the results. We supply data and analyses, to support ICT providers and users in decision-making processes, to grow their business and for the implementation of marketing and PR measures.

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