PUBLIC CLOUD ON THE RISE
THE STATUS QUO OF PUBLIC CLOUD USAGE IN ENTERPRISES
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More and more companies use the public cloud as part of their IT infrastructure – even for critical workloads and applications like SAP software.

Cloud computing technology has disrupted several businesses and changed how companies handle IT, by giving them the ability to scale their services and applications to current demand, increasing their flexibility and output.

This report looks at cloud computing from different perspectives, combining the results of current surveys and reports. Learn more about the consideration criteria IT decision makers value when looking for a cloud provider, the average spend for cloud services and the usage of SAP solutions in the public cloud.

We wish you an enjoyable read.
**CLOUD PRIORITIES**

Nearly a third of companies with more than 1,000 employees see public cloud services as their top priority, while a combined 45 percent prioritize hybrid clouds or a balanced approach between public and private cloud. Compared to hybrid or public clouds, private clouds are used by relatively few companies. Less than one in ten enterprises focus their resources on a private cloud that is hosted on-site and only 6 percent see their top priority in a private cloud hosted by a third-party provider. More than half of all larger companies in the European Union already use cloud computing, while only 25 percent of small and medium-sized companies do. In 2018, European companies tended to use public rather than private cloud services.
Most companies in Germany (73%) used cloud computing in 2018. 16 percent of those preferred to work with several public cloud providers instead of just one.

Only 6 percent of those companies use multi-cloud to reduce costs — more than half (55%) utilize specific services of different providers. The other main reasons for multi-cloud concern security: 20 percent utilize multiple providers to safeguard against server outages.

24 percent of companies use multi-cloud to distribute cloud resources during peak workloads, ensuring a stable operation.

Why do you choose multiple public cloud providers?

- To use specific services with specific public cloud providers: 55%
- To distribute resources at full capacity: 24%
- To avoid outages and failures: 20%
- For economic reasons or to reduce costs: 6%
- There is no specific reason / No answer / Don’t know: 12%

Note: Germany, 2019; Companies that use several public cloud providers (n = 44), multiple answers possible
Source(s): bitkom, KPMG
PUBLIC CLOUD SERVICES

Public cloud providers offer an ever-growing number of services to their customers. The adoption of these services differs, but Databank-as-a-Service has the highest rate of adoption with 60 percent of companies with more than 1,000 employees utilizing it already. Container-as-a-Service, Serverless or Feature-as-a-Service, the big data tool Hadoop and machine learning are the services with the biggest potential. Nearly 1 in 3 companies is experimenting with machine learning in the public cloud. German companies expect a drastic increase in cloud-based IoT services, estimating it to account for 23 percent of the public cloud workload in 2020.

Public Cloud Services Used – Enterprise

<table>
<thead>
<tr>
<th>Service</th>
<th>Currently use</th>
<th>Experimenting</th>
<th>Plan to use</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBaaS (Relational)</td>
<td>60%</td>
<td></td>
<td>15%</td>
</tr>
<tr>
<td>Push notifications</td>
<td>50%</td>
<td>13%</td>
<td>15%</td>
</tr>
<tr>
<td>Data Warehouse</td>
<td>50%</td>
<td>17%</td>
<td>16%</td>
</tr>
<tr>
<td>DBaaS (NoSQL)</td>
<td>48%</td>
<td>13%</td>
<td>13%</td>
</tr>
<tr>
<td>Container-as-a-service</td>
<td>48%</td>
<td>25%</td>
<td>10%</td>
</tr>
<tr>
<td>Queueing</td>
<td>48%</td>
<td>13%</td>
<td>14%</td>
</tr>
<tr>
<td>Batch processing</td>
<td>47%</td>
<td>13%</td>
<td>12%</td>
</tr>
<tr>
<td>Search</td>
<td>47%</td>
<td>15%</td>
<td>12%</td>
</tr>
<tr>
<td>Mobile Services</td>
<td>45%</td>
<td>15%</td>
<td>13%</td>
</tr>
<tr>
<td>Caching</td>
<td>45%</td>
<td>16%</td>
<td>12%</td>
</tr>
<tr>
<td>Serverless</td>
<td>43%</td>
<td>18%</td>
<td>17%</td>
</tr>
<tr>
<td>Hadoop</td>
<td>42%</td>
<td>22%</td>
<td>13%</td>
</tr>
<tr>
<td>Stream processing</td>
<td>39%</td>
<td>17%</td>
<td>16%</td>
</tr>
<tr>
<td>DRaaS (NoSQL)</td>
<td>39%</td>
<td>19%</td>
<td>15%</td>
</tr>
<tr>
<td>Machine learning</td>
<td>35%</td>
<td>29%</td>
<td>19%</td>
</tr>
<tr>
<td>IoT</td>
<td>35%</td>
<td></td>
<td>19%</td>
</tr>
</tbody>
</table>

Notes: Global data; Enterprises: > 1,000 employees
Source: RightScale

Distribution of public cloud workloads from 2015 to 2020

<table>
<thead>
<tr>
<th>Workload Type</th>
<th>2015 Distribution</th>
<th>2020 Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobile Applications</td>
<td>3%</td>
<td>12%</td>
</tr>
<tr>
<td>Media Streaming</td>
<td>12%</td>
<td>23%</td>
</tr>
<tr>
<td>Internet of things</td>
<td>42%</td>
<td>15%</td>
</tr>
<tr>
<td>Analytics</td>
<td>22%</td>
<td>15%</td>
</tr>
<tr>
<td>Enterprise Applications</td>
<td>17%</td>
<td>20%</td>
</tr>
</tbody>
</table>

Notes: Germany, n=206
Source: Crisp Research
CONSIDERATION FACTORS FOR PUBLIC CLOUD PROVIDERS

CHOOSING A PROVIDER

Several factors play a role for IT departments when looking for a public cloud provider. First and foremost, companies are interested in stability and security: maximum uptime (73%) and data security (53%) are considered very important by the vast majority of decision-makers.

Less relevant consideration factors include cutting-edge technology and hyper-scalable offerings that only a minority of decision-makers view as very important.

German companies value data privacy above all, with 90 percent of respondents considering conformity with the GDPR as very important. 72 percent also put high value on a data center located in Germany, with its stringent data privacy laws.

Consideration factors for public cloud providers

- Maximum uptime: 72% Very important, 24% Important, 2% Nice to have, 1% Does not matter
- Best in class data security: 53% Very important, 37% Important, 9% Nice to have, 1% Does not matter
- Compatible with existing measures: 46% Very important, 44% Important, 9% Nice to have, 1% Does not matter
- Great value for money: 37% Very important, 53% Important, 9% Nice to have, 1% Does not matter
- Trusted partner: 35% Very important, 49% Important, 15% Nice to have, 1% Does not matter
- Exceptional customer support: 31% Very important, 52% Important, 16% Nice to have, 1% Does not matter
- Simple to manage: 24% Very important, 58% Important, 18% Nice to have, 2% Does not matter
- Optimal data center locations: 16% Very important, 42% Important, 35% Nice to have, 7% Does not matter
- Hyper-scalable offerings: 9% Very important, 42% Important, 40% Nice to have, 9% Does not matter
- Innovative/cutting edge: 5% Very important, 32% Important, 54% Nice to have, 9% Does not matter

Where does your company stand with regard to the operation of SAP workloads in the public cloud (IaaS / PaaS)?

- Conformity with the GDPR applicable from May 2018: 90% Very important, 7% Important, 3% No answer
- Special requirements: 83% Very important, 16% Important, 2% No answer
- Transparent security architecture and controls: 79% Very important, 21% Important, 0% No answer

Notes: Global data, 2019; n=452 respondents Source: Spiceworks

Source: bitkom, KPMG
PUBLIC CLOUD SPENDING
While public cloud usage grows ever bigger, so too does public cloud spend and its share of the IT budget.
49 percent of companies with 1,000 employees or more spend more than $1.2M per year on such services, while 14 percent spend more than $12M.
They also plan to spend more on public cloud services in the future, with 24 percent planned growth on average. 38 percent of companies in Germany expect public cloud spending to account for 15 to 20 percent of their IT budgets in 2020. In 2018, a third of respondents had a public cloud share of 6 to 10 percent of their IT budget, while only 1 in 10 respondents expects this for 2020.

Annual Public Cloud Spend of Enterprises

How high is the percentage of public cloud expenses including personnel costs in your company’s total IT budget? How high do you estimate them in 2020?

- 2018
- 2020*

<table>
<thead>
<tr>
<th>Range</th>
<th>2018</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to $120K</td>
<td>13%</td>
<td>14%</td>
</tr>
<tr>
<td>$120K to $600K</td>
<td>22%</td>
<td>27%</td>
</tr>
<tr>
<td>$600K to $1.2M</td>
<td>13%</td>
<td>23%</td>
</tr>
<tr>
<td>$1.2M to $2.4M</td>
<td>12%</td>
<td>38%</td>
</tr>
<tr>
<td>More than $2.4M</td>
<td>9%</td>
<td>18%</td>
</tr>
<tr>
<td>More than $12M</td>
<td>7%</td>
<td>4%</td>
</tr>
<tr>
<td>More than 30%</td>
<td>8%</td>
<td>4%</td>
</tr>
</tbody>
</table>

Notes: Global data, n=786 respondents, Enterprises: > 1,000 employees
Source: RightScale

Notes: Germany, Share (weighted) as a percentage of companies using public cloud solutions, n = 226; Answers „under 5%“ and „no answer“ excluded | * Prognosis
Sources: bitkom, KPMG
**USAGE OF SAP IN THE PUBLIC CLOUD**

The technological maturity and rising rate of adoption make the application of public cloud services for critical applications and workloads increasingly attractive to companies. Most of the enterprise applications used by German companies are made by SAP. Therefore, the combination of SAP and cloud services is increasingly relevant to the German market. A survey of IT decision-makers shows that the use of SAP services in the cloud is already standard for most German companies, especially SAP’s Software-as-a-Service portfolio. Around 35 percent of companies already use external hosting or outsource their SAP services.

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**In which company areas do you use SAP solutions and / or cloud services?**

- **SaaS**
- **Hosting/Cloud**
- **On-Premise**
- **no SAP in use**

**Human Resources**

- 33.3%
- 18.9%
- 15.6%
- 32.2%

**IoT/Digital Supply Chain**

- 30.0%
- 17.8%
- 31.1%
- 21.1%

**Customer Engagement/Commerce**

- 35.6%
- 19.4%
- 25.6%
- 19.4%

**Business Intelligence/Analytics**

- 32.8%
- 20.0%
- 23.3%
- 23.9%

**Procurement/Supplier Management**

- 31.7%
- 17.8%
- 25.0%
- 25.6%

**Finance/Accounting/Travel Management**

- 32.2%
- 19.4%
- 12.2%
- 36.1%

**Big Data/Data Warehousing/SAP HANA**

- 40.0%
- 20.0%
- 18.3%
- 21.7%

**ERP**

- 33.3%
- 13.9%
- 17.2%
- 35.6%

Notes: Germany, n=180
Source: Crisp Research

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**Where does your company stand with regard to the operation of SAP workloads in the public cloud (IaaS / PaaS)?**

- **14%** Expansion in the direction of public cloud operation of the SAP core systems
- **20%** use cases and cloud platforms
- **28%** Operation of selected SAP workloads
- **32%** Planning and migration of the first workloads
- **6%** No answer

Notes: Germany, n=159
Source: Crisp Research
Most German IT decision-makers are planning to migrate their SAP systems to the cloud. More than two-thirds of German companies expect to run their SAP solutions in a hybrid cloud, with some of the services hosted on a public cloud which are then tightly integrated into the existing infrastructure. Another 13 percent of respondents are planning to migrate their SAP systems to the public cloud. While highly individualized SAP systems used to be the norm, an increasing number of companies are satisfied with the more standardized SaaS version: 15 percent expect to purchase their SAP systems as Software-as-a-Service in the future.

What are your expectations for the future operation of SAP workloads?

- **Pure Public Cloud – Complete migration and operation of SAP systems in the public cloud**: 12.7%
- **SaaS-First - SAP systems will in future be purchased as "Software as a Service"**: 15.3%
- **Hybrid cloud – parts of the SAP system in the public cloud, tight integration with existing systems**: 64.7%
- **Don’t know / No answer**: 7.3%

Notes: Germany, n=150
Source: Crisp Research
The advantages of operating SAP in the public cloud

Operating SAP systems in the public cloud offers several benefits to companies. As seen in chapter “Usage of SAP in the public cloud”, SAP is at the core of the IT infrastructure in most German companies. Operating it in the public cloud can therefore drastically increase the innovation speed and agility of corporate IT departments, an assessment that is shared by 41 percent of respondents. In today's global economy, the public cloud offers the distinct advantage of an IT infrastructure that is available all around the globe. A valued benefit for 40 percent of respondents. The ability of public cloud services to mitigate temporary peaks is the least valued advantage, selected by only a quarter of respondents.

### The opportunities and benefits of operating SAP solutions on IaaS / PaaS platforms in the public cloud

- Flexible selection / exchange of instances, infrastructure and platform services: 31.7%
- On-demand availability for temporary peak loads: 23.9%
- Better availability and performance (especially for mobile and digital use cases): 28.9%
- More automation in SAP operations (SAP as Code): 37.8%
- Global availability of the IT infrastructure: 40.0%
- Higher agility & innovation speed in corporate IT: 41.1%
- Faster implementation of digital transformation in the entire company: 37.8%

Notes: Germany, n=150, multiple answers possible
Source: Crisp Research
**THE CHALLENGES OF OPERATING SAP IN THE PUBLIC CLOUD**

While there are a multitude of useful benefits to operating SAP solutions in the public cloud, there remain distinct challenges that German IT departments are aware of. The migration of complex SAP systems to the cloud is an obstacle recognized by 34 percent of the respondents. One third of IT decision-makers see a lack of internal know-how and skills as a potential bottleneck that stands in the way of their SAP solutions operating on the public cloud. 22 percent see ensuring a 24/7 uptime of SAP systems in the public cloud as a potential issue. These challenges can be overcome by working with an experienced managed services provider —Syntax has been providing comprehensive technology solutions to businesses of all sizes since 1972. Today, Syntax is a leading managed cloud provider for critical business applications.

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**The challenges of operating SAP solutions on IaaS/PaaS platforms in the public cloud (selection)**

- **Ensure 24/7 SAP operations in the public cloud**: 22.2%
- **Coping with cloud migration**: 33.9%
- **Not enough internal know-how/skills in the context of public cloud**: 33.3%

*Notes: Germany, n=180, multiple answers possible*  
*Source: Crisp Research*
Choosing the right cloud provider is no easy task, especially regarding the cloud-based operation of SAP solutions. German IT decision-makers have a multitude of requirements that providers must address to fall into the list of potential partners. One of the main consideration factors for respondents is a strategic partnership between the provider and SAP that guarantees a steady long-term workflow and a well-integrated SAP service portfolio. 37 percent expect the provider to offer their own SAP support, while 25 percent place value on pre-configured test versions and systems. Amazon Web services is the most used cloud platform in the world, with more than 175 services offered. AWS began running SAP workloads in 2011, earlier than any other cloud provider and has created an extensive toolkit to support the migration to the cloud.
SOURCES & REPORTS

**SOURCES**
- RightScale
- Eurostat
- bitkom Research
- KPMG
- Crisp Research
- Spiceworks

**REPORTS**
- RightScale - State of the Cloud Report from Flexera
- Crisp RESEARCH AG - SAP-Betrieb in der Cloud
- bitkom Research, KPMG – Cloud-Monitor 2019

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