



SYSTEM FIRM 4.0

System Firms and System Integrators in the Digital Transformation

A strategy paper

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EXECUTIVE SUMMARY

- **Companies under competitive pressure.** Digitalization is a fixture of the strategy agendas of companies, and presents them with major challenges. The imminent transformation is primarily a means to an end, namely ensuring long-term competitiveness in a digital economy.
- **No business without the public cloud.** The right IT is a keystone of all successful digitalization. 79 percent of German companies have recognized this, and will be using globally available public-cloud environments in the future. When planning, setting up and operating the hybrid- and multi-cloud environments, they rely on external partners that can put complex structures in place easily and cost-effectively. As a result, IT service providers need to adapt their range of services in order to be able to respond to their customers' increased requirements and provide transparency and scalability with the right cloud provider.
- **System firms put to the test.** Conventional system firms and system integrators are increasingly contending with declining revenue and falling demand in their core business. In some cases, this is due to their rigid project business and lack of cloud expertise. There are good opportunities here for them to transform themselves into modern, high-growth managed public-cloud providers through customer proximity and partnerships with the relevant cloud-infrastructure providers.
- **Trailblazing managed public-cloud providers.** Managed public-cloud providers (MPCP) are regarded by their customers as vital sparring partners in their cloud transformation. Key success factors of an MPCP are a broad skill set and technology expertise. They therefore make a particularly sought-after added-value contribution, worth up to 30 percent higher daily rates to many companies.
- **Choosing a cloud partner.** To evaluate and select the right partner from the plethora of IaaS and PaaS providers, decision-makers at system firms should pay attention to the following aspects: cloud platform (services, prices, APIs), design of partner programs and essential certifications of the data centers, direct contacts, support services and German data-protection legislation and data-protection responsibility.

CONTENTS

EXECUTIVE SUMMARY2

DIGITALIZATION IS GAINING PACE4

SYSTEM FIRMS ARE CHANGING – FROM IT INSTALLERS TO SERVICE PROVIDERS 12

SYSTEM FIRM 4.0 – STRATEGY, PORTFOLIO AND PARTNER SELECTION 16

RECOMMENDATIONS FOR IT SERVICE PROVIDERS22

ABOUT 1&1 IONOS24

AUTHORS.....25

ABOUT CRISP RESEARCH.....26

CONTACT27

COPYRIGHT27

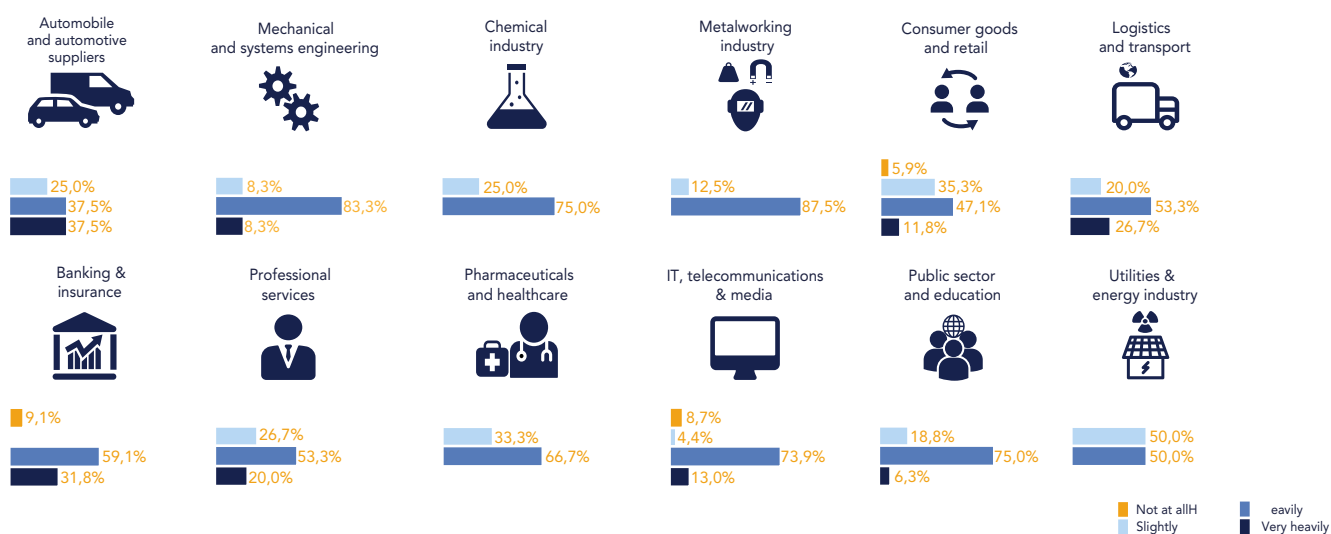
DIGITALIZATION IS GAINING PACE

85 PERCENT OF COMPANIES ARE
ACTIVELY LOOKING INTO THE TOPIC
OF THE CLOUD COMPUTING.

Digital transformation and the associated change are now established in the minds of company decision-makers. Digitalization is a fixture of the strategy agendas of companies, and presents them with major challenges. The digital age, in which no type of company can escape digitalization, is gaining pace. Key German industries such as metalworking, mechanical engineering, systems engineering and the automobile industry are feeling the pressure to act in order to remain competitive.

The imminent transformation is primarily a means to an end, namely standing out as a shaper and innovator in the digital age. The realignment of IT architectures and IT operating concepts is unavoidable as short release cycles and new, digital workloads come into play. Otherwise, new value-added potential, digital organizations and business models cannot become a reality.

How much are the various industries affected by the digital transformation?



Source: Crisp Research AG, study - Disruption in the Data Center, 2016

n=155
Single response

German company decision-makers have already recognized that cloud computing is one of the essential ingredients in the success of digitalization. According to a recent study by Crisp Research, more than 85 percent of respondents see the cloud as a key driver of digitalization, and have already integrated, recently implemented or definitively decided to use cloud computing as a fixed component of their IT strategy and in their operations.

Cloud services (e.g. Big-Data analyses, file sharing with Dropbox, etc. or collaboration using Slack) are already embedded in many day-to-day applications. In the medium term, hardly any companies will get away with using no cloud services, chiefly because the majority of established technology suppliers also use the cloud. For instance, SMEs in particular can also benefit from the agile and hugely diverse range of potential uses. It is clear that a cloud-only strategy is not suitable for every company and every value chain.

Yet there are numerous opportunities for companies to attain cost savings, flexibility, agility or the possibility of digital employee and customer interaction through targeted use of cloud computing.

Company decision-makers are now under pressure to keep up with the lat-

est technologies in the long term in the context of digitalization, and are keen to make their companies cloud-ready.

PUBLIC CLOUD AS A MAIN INGREDIENT OF THE „DIGITAL INFRASTRUCTURE PLATFORM“

To handle the digital transformation successfully, along with a strategic and organizational “digital foundation”, companies need value-adding digitalization measures with regard to structuring of their digital products, processes and customer relationships: “digital value creation”¹.

¹ <https://dma.crisp-research.com/>

Digital Transformation Framework



Source:
Crisp Research AG, 2017

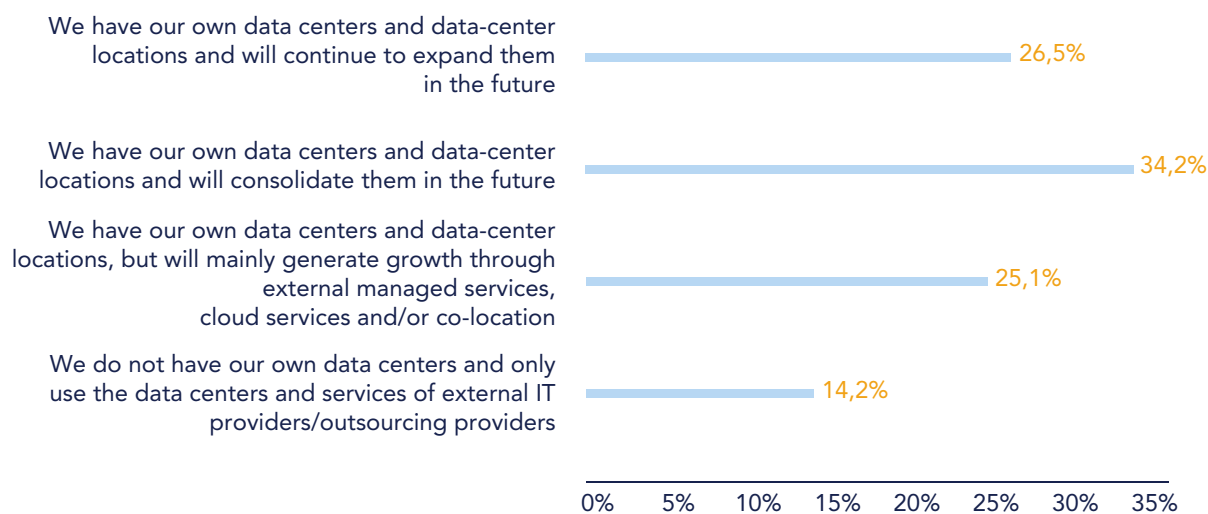
THE RIGHT IT IS A KEYSTONE OF
ALL SUCCESSFUL DIGITALIZATION.

Modern cloud-based IT infrastructures or digital infrastructure platforms are an essential precondition and feature of a successful digitalization strategy and a major part of a company's journey toward its digital transformation. As part of the "digital foundation" and a business enabler, IT must therefore be agile and flexible enough to respond quickly to new requirements and innovations. This means getting rid of waiting times for hardware or drawn-out installation processes, etc. and bringing in plug & play and autoscaling, etc. instead.

characterized by the investment and IT-architecture decisions of the past 5 to 10 years, suggests that the change toward the cloud is gaining pace.

Consequently, the challenge of creating new and flexible platforms on which hybrid multi-cloud scenarios can be mapped begins in the data center. The current IT and data-center landscape of German companies, which is naturally

How can your company's IT and data-center infrastructure strategy be best described?



Source:
Crisp Research AG, study - Disruption in the Data Center, 2016

n=155
Single response

Only a few IT managers (27 percent) still intend to expand their own data centers. The majority have recognized that future growth and innovation will only take place in the cloud. Companies are therefore showing that they aim to exploit the benefits of global availability and scalability in combination with flexible on-demand sourcing, the possibility of operating infrastructure as code and further improvements in the level of automation.

INFRASTRUCTURE AS A SERVICE IS ALREADY A MULTI- BILLION MARKET

Infrastructure as a service (IaaS) is regarded as a forerunner of cloud computing and the basis for many future-oriented and failsafe web applications and business models. IaaS platforms provide IT infrastructure resources such as

processing power, storage space and data connection that can be accessed and used via an API or a portal without the need to buy costly and maintenance-intensive IT resources first. They are regarded as an established standard for set-up and operation of a scalable and stable modern IT infrastructure.

Public-cloud providers are also adapting their support and service strategies to the needs of conventional corporate customers, thus ensuring constant growth in demand for IaaS and platform services.

A MULTI-CLOUD ENVIRONMENT

COMPRISES AN UNSPECIFIED NUMBER OF DIFFERENT CLOUD PROVIDERS OF ALL KINDS OF TYPES (IaaS, PaaS, SaaS) AND DEPLOYMENT MODELS (PUBLIC, PRIVATE MANAGED). THE RESPECTIVE CLOUD ENVIRONMENTS DO NOT NECESSARILY HAVE TO BE FULLY INTEGRATED WITH EACH OTHER IF THIS DOES NOT DELIVER ANY ADDED VALUE. INSTEAD, THEY CAN ALSO BE OPERATED INDEPENDENTLY OF EACH OTHER.

MULTI-CLOUD INSTEAD OF ON-PREMISE IT – NEW REALITIES AT GERMAN COMPANIES

A further study by Crisp Research shows that the favored cloud-deployment models of the future particularly include multi-cloud and hybrid-cloud scenarios.

As a platform for operating existing applications but also especially as a basis for setting up a new class of applications that is intended in particular for customer contact, for internal process optimization or for collaboration by employees. These architectures are constantly growing over time. For instance, individual public-cloud infrastructures are being operated in parallel and in a connected manner in a larger architecture model.

Hybrid clouds and multi-clouds, in which on-premise and private-cloud architectures are directly connected or orchestrated in parallel along with multiple public-cloud services, are increasingly the norm at companies. They create the digital connectivity of value chains and processes, thus providing the necessary freedom and flexibility to advance a digital process and business culture.

Hybrid clouds and multi-clouds are already being used by 26 percent and 13 percent of companies respectively. In the future, a third of companies aim to use hybrid cloud computing. For multi-cloud computing, the figure is 36 percent.

69 PERCENT OF GERMAN COMPANIES WILL BE USING MULTI-CLOUD AND HYBRID-CLOUD ENVIRONMENTS IN THE FUTURE.

What is your preferred cloud-deployment model (public, private, hybrid, multi) now and in the future?

		Now	In the future
	Public cloud only	27,5%	10,6 %
	Hybrid cloud Own IT infrastructure in combination with a public cloud	25,9 %	32,8 %
	Multi-cloud Management verschiedener Cloud-Umgebungen inkl. mindestens einer Public Cloud	12,7 %	36,0 %
	Private cloud Purely private cloud environment in an in-house data center	33,9 %	20,6 %

A **HYBRID CLOUD** INTEGRATES A PRIVATE CLOUD WITH THE RESOURCES OF A PUBLIC CLOUD. IN THIS CASE A COMPANY OPERATES ITS OWN CLOUD-INFRASTRUCTURE AND USES THE SCALABILITY AND ECONOMIES OF SCALE OF A PUBLIC-CLOUD PROVIDER, TO DRAW ON FURTHER RESOURCES IN THE FORM OF PROCESSING POWER, STORAGE SPACE OR OTHER SERVICES AS REQUIRED OR CONSTANTLY.

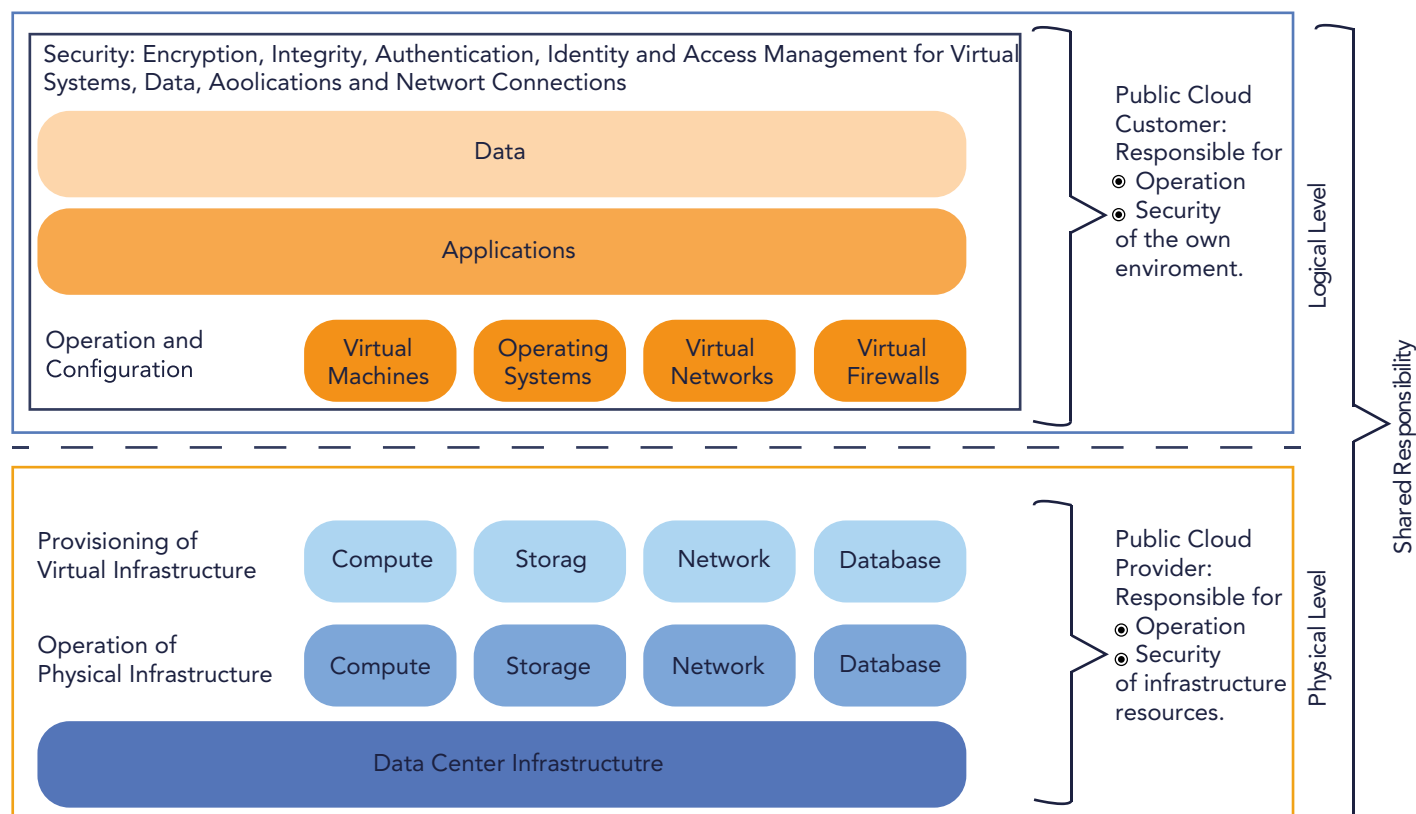
SHARED RESPONSIBILITY IN THE PUBLIC CLOUD

The difference that sets public clouds apart from other deployment variants is the self-service model. The customer is responsible for important parts of operation of its virtual environment at the public-cloud provider, which in turn promises the customer a large degree of freedom.

Public clouds provide promising opportunities, although set-up, operation and administration of the virtual infrastructure are highly complex. In addition, their multifaceted nature impacts on development and maintenance of web applications and back-end services.

The challenge here lies in the architecture of the application. It is the customer's job to make sure that the public-cloud infrastructure scales automatically as required. If a cloud-infrastructure component fails, the customer must ensure that a corresponding replacement component (e.g. virtual machine) is started up and replaces the failed unit. Failover scenarios or failsafe vertical scaling, which some IaaS cloud providers offer as a separate service, are helpful when designing high-availability infrastructures.

Shared responsibility in the public cloud (IaaS)



Source: Crisp Research AG, CVU Managed Public-Cloud Providers, 2016

IN THE DIGITAL TRANSFORMATION,
COMPANIES RELY ON EXTERNAL PART-
NERS THAT ARE WELL-VERSED IN IT.

However, under the shared-responsibility model, a public-cloud provider is only responsible for setting up and operating the data centers and physical infrastructures. Everything else is up to the customer.

The same applies to keeping up with the pace of innovation set by public-cloud infrastructure providers.

Companies that are increasingly pursuing multi-cloud and hybrid-cloud strategies in their digitalization efforts often lack the requisite knowledge and specialist staff to perform the tasks that do not fall within the remit of the public-cloud providers. Essentially, it is swings and roundabouts. After all, development opportunities are available particularly for service providers that are aware of their responsibilities and possess the required skill set. These providers can use these opportunities to assist companies.

COMPLEXITY LEADS TO DEMAND FOR CONSULTING, INTEGRATION & MANAGED SERVICES

This means that operating a solely in-house IT infrastructure (on-premise) is no longer enough for companies if they are to keep pace with the latest technologies in the context of digitalization. A fully internally hosted and managed IT environment is cost-intensive and incapable of meeting the requirements of a flexible IT landscape.

Companies that have not yet found a way into cloud computing are following suit and need to catch up as quickly as possible after a thorough evaluation. Yet companies nearly always lack the internal knowledge and in-house skills relating to the complex multi-cloud world in which new functions and services regularly arise. They demand optimum support, comprising individual consulting instead of run-of-the-mill suggestions, and flexibility instead of standard solutions.

To get into the cloud, companies need professional partners that possess the knowledge and experience to assist with planning, architecture and operation of a modern IT infrastructure. Typically, CIOs turn to nearby IT system firms and system integrators or infrastructure providers. But traditional solution providers and integrators often cannot help, as they do not have the necessary specialist knowledge and expert skills either.

There is a need for partners that understand the complete IT package and have cloud-specific integration knowledge as well as a broad understanding of technology.

To respond to the increased requirements of companies, system firms and system integrators in particular therefore need to add operation of pub-

lic-cloud infrastructures to their “old” core business, the sale and implementation of system infrastructures and software solutions. Yet what path do system firms and integrators need to embark on now? What tasks should they perform? And which cloud provider is the right one?

SYSTEM FIRMS ARE CHANGING – FROM IT INSTALLERS TO SERVICE PROVIDERS

Few companies are willing and able to implement their multi-cloud strategy without external partners. Users take a lot of time and effort to look for suitable service providers so that they ultimately have the most professional partner on board.

This presents the opportunity for IT system firms and system integrators to adapt their range of services to the needs of companies, their SME and enterprise customers, in order to get out of their unpromising situation. IT system firms and system integrators have come under growing competitive pressure in recent years. Many of them are contending with declining revenue and are just about keeping their heads above water. Increased customer requirements mean that the existing business model of IT service providers is largely obsolete. A lack of cloud expertise, the conventional eight-hour working day of support staff from 9 a.m. to 5 p.m. as well as project-related activities, i.e. a defined start and end time, are the typical causes of the crisis among system firms.

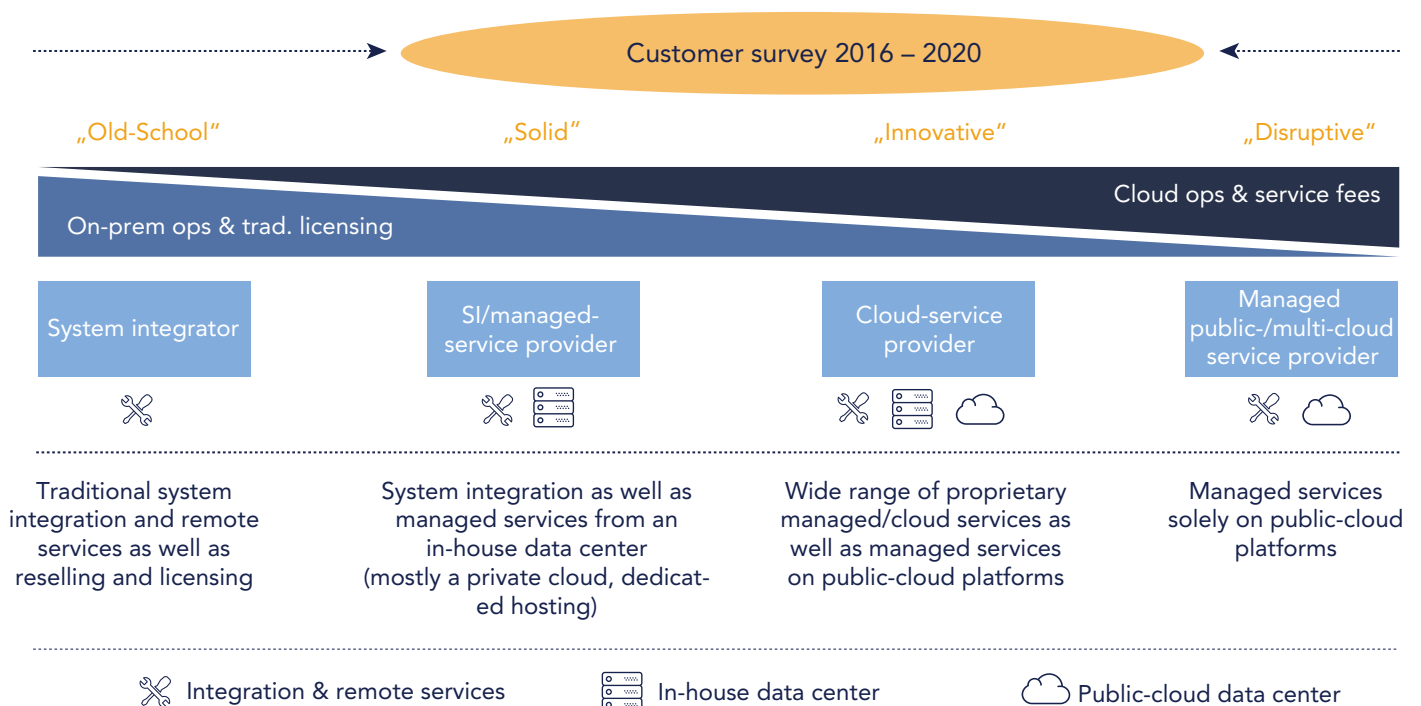
The prospects of overcoming these barriers are good, as IT system firms are usually not only geographically close to their customers, but are also highly valued as contacts with IT expertise, especially among SMEs. There is already access to IT and technology providers plus many cloud providers as well, and it can be raised to a new partnership level relatively easily. Another reason for IT system firms and system integrators to expand their conventional business model is the growing competition, which in some cases is intensified by the fact that the software industry is tapping into the core business of IT system firms and taking on direct business itself. IT system firms and system integrators that do not evolve, ignore the strong growth of cloud computing and carry on as conventional installation and implementation partners or dedicated hardware specialists will struggle more and more.

The group of managed public-cloud providers (MPCP²) has already identified these developments and taken advantage of the complexity of the public cloud, the shared-responsibility principle and the generally limited cloud knowledge. What makes MPCPs different is that they build and operate hybrid- and multi-cloud environments on behalf of their customers and continuously optimize them proactively in line with technological advances.

The high volume of cloud-native applications and the associated new opportunities have already motivated many system firms to rethink their consulting, with the result that an ever-growing number of them are now moving toward

managed services. Business units and skills are being built up with a view to taking on the bulk of cloud orchestration, integration and operations for customers. System firms are thus creating new growth potential and setting themselves apart from their slower competitors. As a result, they are emerging as important digitalization partners. The diagram below shows the current types of IT service provider and a possible development path that ends with the managed public-cloud providers.

IT service-provider typology and cloud-development path



Source:
Crisp Research AG, 2017

² Crisp Vendor Universe: Managed Public Cloud Provider, Crisp Research AG, 2016, <https://www.crisp-research.com/vendor-universe/managed-public-cloud-provider>

A HIGH LEVEL OF EXPERTISE IS
REQUIRED, AND PAYS OFF.

By definition, a *managed public-cloud provider* takes on the design, development, set-up, operation and administration of systems, applications, services and virtual environments of its customers on the public-cloud infrastructures in a managed-service model. To this end, it has in-depth methodological technological expertise as well as a close relationship with the cloud-infrastructure provider, which drives innovations and offers employee training. The more active the managed public-cloud provider, the more support there is from the innovation leaders from the cloud.

Darüber hinaus sind die folgenden Spezialkompetenzen derzeit besonders gefragt:

- Infrastructure as code
- DevOps
- Agile development
- Automation
- Scalability

The following table compares the main differences between conventional IT system firms/system integrators and managed public-cloud providers in order to supply starting points for the transformation toward a public-cloud provider.

Main differences between conventional IT system firms

IT system firm/system integrator	Managed public-cloud provider
Project business:	Business processes
9 to 5	24/7
Local data center (customers/system firm)	Global data-center platform
Manual administration	Infrastructure as code
Daily rates under pressure	High demand for experts/high daily rates
Hardware/software revenue on a one-off basis	Service revenue/continuous

Source:
Crisp Research AG, 2017

IN THE DIGITALIZATION PROCESS,
COMPANIES FACE CHALLENGES, THAT
THEY CANNOT OVERCOME WITHOUT
CLOUD PARTNERS. THEY RELY ON
MANAGED PUBLIC-CLOUD PROVIDERS
FOR PLANNING SET-UP AND OPERATIONS
OF A PUBLIC-CLOUD ENVIRONMENT.

The price range at IT service providers varies considerably depending on whether the services involved are simple or special. Due to the rise in demand in the consulting sector, the increased complexity of IT projects and the associated high level of expertise, specialists in the managed public-cloud environment are rare and hard to find. In particular, cloud architects that manage dealings between cloud providers and partners as well as providing technical expertise on software and system migration, orchestration of hybrid-cloud application scenarios, sourcing of IaaS, SaaS and PaaS providers and management of a multi-provider landscape are more in demand than ever. Assuming that the strong technical and communication skills that cloud architects should possess are in place, large amounts of revenue can be generated. Companies value the services that a managed public-cloud provider delivers on account of the high level of expertise, often paying up to 30 percent higher daily rates.

In contrast with IT system firms or system integrators, which have mainly benefited from project-based maintenance and upgrades and finished the work at the customer end after completion of a sale or implementation of an IT infrastructure or a software package, the customer retention of a managed public-cloud provider is much higher.

To assist with the transformation in a complex field of technology, responsibility is fully transferred to the hands of experts that are as familiar with the technology and the providers as with integration and hybrid operation. As a result, they take on crucial workloads, support and architecture design and need to be business enablers.

Furthermore, managed services involve complex processes that provide the customer with specific added value and cannot be readily performed by all service providers. The search for a suitable new service provider that can deliver adequate value growth has to be successful. In addition, customers that outsource business-critical and sensitive data to the cloud demand transparency and opportunities for control, which go hand in hand with short response times, 24/7 availability and service-level agreements (SLAs). Consequently, as well as looking at long-term collaboration with their partners, managed public-cloud providers can also provide valuable additional services.

SYSTEM FIRM 4.0 – STRATEGY, PORTFOLIO AND PARTNER SELECTION

In recent years, many conventional IT service providers such as system integrators, system firms and MSPs have already recognized the importance of public- and multi-cloud environments, started their own transformation and entered the market for managed public-cloud services as new service providers. Along with the above-mentioned challenges that system firms are currently contending with, another reason for this development is the interest of German companies in professional help from service providers.

Many companies see providers of managed public-cloud services as an important sparring partner in their cloud transformation. 30 percent of German companies state that they handle parts of their cloud operation and administration through self service and other parts with a managed-service provider. Over half of the companies (55 percent) aim to use the managed cloud as their main model and fully rely on a service provider for operation, set-up, integration, security, application management, etc.

How would you ideally use the public cloud?



14,7%

Self service



55,3%

Managed service



30,0%

We do some parts by self service, and a managed-service provider takes on others

PORTFOLIO AND VALUE CREATION

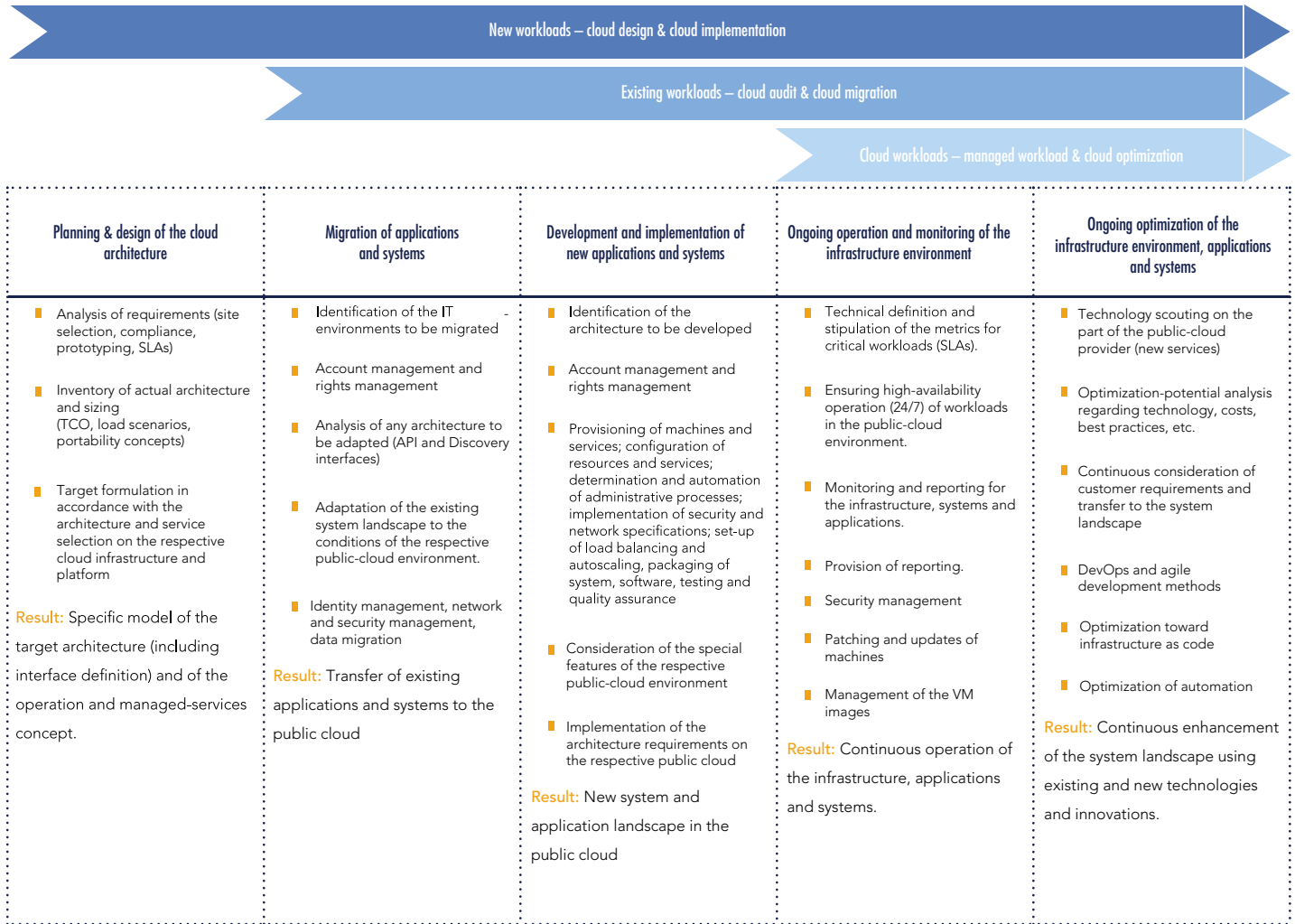
As a public-cloud professional, a managed public-cloud provider has understood how the public-cloud infrastructures work, is familiar with the IT integration environment and is able to combine the existing enterprise-IT landscape with the chosen public- and multi-cloud models. With their broad-based technology expertise, MCPCs assist their customers with the following workloads:

- Planning & design of the cloud architecture
- Migration of applications and systems
- Development and implementation of new applications and systems
- Ongoing operation and monitoring of the infrastructure environment
- Ongoing optimization of the infrastructure environment, applications and systems

Furthermore, managed public-cloud providers can stand out by virtue of a wider range of services and give their customers more extensive support.

For instance, consulting services that give still-uncertain companies clarity regarding the business potential of

cloud computing help them to understand processes and provide them with solutions are particularly important. Knowledge and skills concerning data protection, system security and compliance are especially required here in order to inform customers about the often complicated legal situation and national or international legislation. However, managed public-cloud providers can also benefit from professional consulting on a holistic IT strategy. In addition, the value chain of a managed public-cloud provider could be extended by taking on processes relating to change or transformation management. Many companies need help in choosing technology and introducing agile methods. Finally, along with management and consulting tasks, it can be valuable for MCPCs to make the employees of enterprise customers ready for digitalization. Staff training sessions, workshops and courses can be offered here. Proofs of concept, prototyping and development of new applications complete the set of tasks of a managed public-cloud provider.



Source: Crisp Research AG, CVU Managed Public-Cloud Providers, 2016

Portfolio, skills and team, strategy and revenue and *partners* are key factors in accomplishing the tasks of an MPCP productively and in giving customers long-term assistance with the digital transformation and holistic support with set-up and maintenance of a cloud strategy.

Along with development and ongoing operation of web applications on public-cloud infrastructures, enterprise workloads can be operated in a hybrid- or multi-cloud model.

Characteristic workloads for digital or web applications are e-commerce, content-management systems, mobile applications, Internet of Things and marketing. These are characterized by particularly high scalability, unforeseeable peak loads, global supply capability, agility and time-to-market as well as agile development methods and a large number of releases (high level of automation).

ERP, CRM, BI, HRM, Industry 4.0, collaboration and hybrid applications are characteristic of enterprise workloads. Typical properties of these workloads are a high degree of integration with other applications and architectures, migration of existing applications to the public cloud and operation of hybrid applications (e.g. part of the environment: dev/test in the cloud, on-premise operation).

SKILLS AND TEAM

A high proportion of developers and DevOps engineers in the team of a managed public-cloud provider is important, particularly in the development and ongoing operation of web applications on public-cloud infrastructures. Along with a high level of methodological expertise in agile development methods (e.g. Scrum), the team should possess skills for high scalability of applications and automation as well as specialist knowledge of platforms and their APIs. Furthermore, capabilities for monitoring, APM and user experience are required in order to meet the requirements for innovation support and continuity.

A team with experience of the enterprise IT environment is essential for enterprise workloads. A high headcount and knowledge of data protection and compliance round off the team, and are complemented by integration skills and knowledge of virtualization technologies.

STRATEGY AND GROWTH

Expertise and market understanding in the public-cloud sphere generally determine the strategy and, in turn, the income and success of an MPCP. For this purpose, they always keep track of the innovations and new topics of public-cloud infrastructure providers. Some MPCPs specialize in specific workloads in one or more environments, while others provide workload variety by means of a multi-provider strategy.

In this context, alignment with the enterprise environment or the digital/web environment can determine the managed-service model of service pro-

viders. A full-service IT service provider can operate workloads for customers in the public- and hybrid-cloud model or on-premise both as a service provider on the infrastructures of the public-cloud providers and on the basis of in-house infrastructure capacity. Integration with an existing on-premise model can additionally be offered.

Full-service IT service provider

	Revenue (weighted average) 2017–2020
Hardware reselling*	-5% to 3%
IT service (on-site/on-premise) ²	% to 5%
Managed service	5% to 10%
Managed cloud service	20% to 30%

*depending on the category

Source:
Crisp Research AG, 2017

CHOOSING PARTNERS

Along with the user companies as customers, the partners of a managed public-cloud provider include public-cloud providers. There are a large number of public-cloud providers, and competition is tough. Choosing the right business partner is essential and should be geared toward the strategy pursued by the MPCP. To enable coverage of as many different customer scenarios as possible, it is necessary to choose a mix of large global providers, such as AWS or Google, and German providers, such as 1&1 IONOS, that provide all cloud services. But how exactly should a public-cloud provider assist a managed public-cloud provider with its integration work? What criteria does a managed public-cloud provider apply when looking for a contracting partner?

The following points should be taken into account when choosing:

Investment and barriers to entry: How much does the system firm need to invest in advance in training/certifications so that it can set out as a partner or start up its cloud business? What do system integrators need to do to obtain partner certification/higher partner status?

GDPR: Operation of data protection-sensitive and compliance-driven workloads is better with German cloud-platform providers (the European General Data Protection Regulation came into force in May 2018). Increased data-protection responsibility due to location in Germany. Data protection under German (and European) law eases concerns regarding data-protection legislation.

Partnership on an equal footing: Interaction, straightforward onboarding, transparent partner agreements and fair/attractive commission arrangements.

Support service: Active and bespoke support with marketing and sales as well as in specific customer situations (from solution engineers/cloud architects).

RECOMMENDATIONS FOR IT SERVICE PROVIDERS

IT system firms and system integrators should recognize and understand the changed requirements of their customers in the context of digitalization. Along with infrastructure as a service, openness to public- and multi-cloud environments is a key aspect that should shape their future business model.

Even though the development of a standard IT system firm from on-premise to a managed-service provider can temporarily involve expenditure and falling revenue, it secures the future and guarantees increased revenue. In the long term, those IT service providers that can oversee, accompany and continuously optimize all major IT processes of their customers as managed public-cloud providers will be successful.

IT system firms and system integrators should realign their strategies and adapt their business model. To make a successful transition to a managed public-cloud provider, IT system firms and system integrators should bear the following steps and activities in mind:

Building up their skill set: Expertise is the vital element when it comes to going further and deeper in the consulting sector. The qualifications of an IT system firm's employees should be adapted in line with customers' increased requirements. There is a particular need for developers and architects who can handle the design, set-up and operation of highly scalable cloud architectures.

Expanding their core business: Modern and innovative topics relating to cloud computing and managed services are the best way to attract customers with new arguments and an extended range of services.

Becoming pioneers: Gaining customers' trust through knowledge and individual consulting. Guaranteeing availability and enabling transformation to the digital sphere with local cloud experts.

The law of sowing and reaping: Choosing the right innovative and future-proof IT and technology provider is essential. For the full-cloud range, national pub-

lic-cloud providers are indispensable partners in completing the multi-cloud strategy. As the number of cloud partners grows, the workloads that can be covered become ever more varied. Investment and barriers to entry and, in particular, German data-protection regulations, a partnership on an equal footing and support services are essential selection criteria here.

Becoming channel partners: Choosing the right innovative and future-proof IT and technology provider is essential. For the full-cloud range, national public-cloud providers are indispensable partners in completing the multi-cloud strategy. As the number of cloud partners grows, the workloads that can be

ABOUT 1&1 IONOS

With more than eight million customer contracts, 1&1 IONOS is the leading European provider of cloud infrastructure, cloud services, and hosting services. From VPS and bare-metal servers all the way to high-end IaaS solutions: 1&1 IONOS offers SMEs and large companies all the products they need to set up their hybrid or multi-cloud environment and is the only IaaS cloud computing provider that has its own code stack in Germany. 1&1 IONOS operates one of the world's largest and highest-quality IT infrastructures with over 90,000 servers. In the Cloud Vendor Universe from Crisp Research, 1&1 IONOS has repeatedly been named one of the leading providers of cloud platforms.

The Enterprise Cloud by 1&1 IONOS is the "Cloud – Made in Germany" with a data protection-compliant IaaS platform developed in-house for companies, system vendors/integrators, and managed service providers. It is flexibly scalable and provides free 24/7 support by qualified system administrators. During operation, the capacity of all components can be adapted to current requirements through live vertical upscaling.

1&1 IONOS was established in 2018 after the merger of 1&1 Internet and Berlin-based IaaS provider ProfitBricks and is part of the listed United Internet AG.



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ABOUT CRISP RESEARCH

Crisp Research AG is an independent IT research and consultancy firm. With a team of experienced analysts, consultants and software developers, Crisp Research assesses current and future technology and market trends. Crisp Research helps companies with the digital transformation of their IT and business processes.

The analyses and commentaries of Crisp Research are published and discussed in a host of business and IT journals and on social-media platforms. As contributing editors at leading IT publications (Computerwoche, CIO, Silicon, etc.), committed BITKOM members and sought-after keynote speakers, our analysts actively contribute to debates surrounding new technologies, standards and market trends and are influential figures in the industry.

Crisp Research was established in 2013 by Steve Janata and Dr. Carlo Velten, and focuses its research and consulting on emerging technologies such as cloud computing, analytics and digital marketing and their strategic and operational implications for CIOs and business decision-makers at companies.

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