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FUTURE
IT REPORT 2021

IT during the rapid digital
transformation.

Contents.

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UNIVERSITÄT
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ESSEN

Offen im Denken

CS
Campana
Schott

Key statements.

When it comes to the digital transformation, customer focus now takes precedence over the company's internal requirements.

1 For the first time, **customer focus** is deemed more important than increased efficiency in IT. Nevertheless, cost reductions still play a big role. But in many cases, the expected increase in sales revenues has not materialized yet. Moreover, companies must grapple with complex infrastructure and data security/protection.

2 The digital transformation and IT departments have become more important for companies due to the pandemic. **Investment volumes** and **the willingness to invest** have increased, but the operationalization of crisis strategies is still lagging.

3 Companies are convinced that the digital transformation makes it easier to achieve **sustainability targets,** but the two are still not always examined collectively. It is time that IT organizations become aware of their role in leveraging the synergies.

4 Compared to the Future IT Report 2020, the digital transformation is making progress, particularly when it comes to increasing **customer satisfaction.** While companies are becoming better at reaching their objectives, they are also confronting increasing resistance and other challenges.

5 In terms of the Cloud and Data Analytics, companies can already draw on broad internal expertise. However, there are clearly problems when it comes to comprehensive **expertise for Cloud management** and the break-up of data silos. Artificial Intelligence is also becoming increasingly established.

6 Companies with more than 20,000 employees are more active when it comes to cooperating with external companies, and they invest more heavily in **innovative technologies.** The mid-size sector must ensure that it does not fall behind.

Introduction.

The digital transformation is long past the hype stage. It is now in full progress and also increasingly reveals its hurdles. The digital transformation has a disruptive effect on many companies and industries. The goal of the Future IT Report is to provide a meaningful overview of the current effects of the digital transformation on companies.

In the context of this report, the digital transformation has been defined as follows: The use of technological innovations that have a significant impact on strategies, products, services, business processes, structures, sales channels and the supply chains of organizations. Therefore the digital transformation leads to fundamental changes in terms of strategic, organizational, procedural and cultural aspects. As it continues to advance more broadly, these aspects become increasingly visible, as do the challenges that have to be addressed.

Many companies have now entered the growing phase of their digital innovations. But while they attempt to manage this phase, they must also lay the foundation for the spreading phase.

This report discusses the objectives, challenges and strategies that are used by companies to identify the hurdles of the growing phase of digitization and to assist them with introducing the spreading phase. Compared to the Future IT Report 2020, this report also focuses on brand-new issues: Sustainability and the impact of the COVID-19 pandemic.

This study provides specialists and managers who work on digitization with a comprehensive overview of the current status of developments in the German-speaking region. Using this information, they can position their own company on the basis of the study results. They are also able to identify initial starting points for individual strengths and weaknesses, but also for the developments that are required in their own companies.

Usually, digital transformation processes happen in three great phases:

1 Seeding: Using dedicated teams, digital innovations are designed on the basis of novel technologies and tested on a small scale. The innovative power during this phase is purposely kept within the innovation team to enable a low-risk testing process. Therefore the impact of the innovations will be limited to a very small area at this stage.

2 Growing: This is the time the innovations are first rolled out in the organization. Now, the entire company has to grapple with the innovations. Business processes and structures are adjusted so that new technologies can be anchored in the organization, and so that the innovations can be used to benefit the company. Usually, this means that many more employees are effected, which results in new and complex challenges.

3 Spreading: The entire organization must ensure that the transition of the innovations into operations is as efficient and effective as possible. The adjustment of structures and processes that started in the growing phase must now be refined and optimized. The understanding that the digital transformation is a continuous and iterative process rather than a one-time event is established in the company. In this context, the entire organization contributes to this iterative process as the innovation teams already test future innovations while the organization introduces the life cycle of the current innovations. Because the innovation of today is already the status quo of tomorrow. For employees, the rapid change resulting from the digital transformation becomes the New Normal.

"Many companies have already established sustainability targets, and the IT organization usually has its own sustainability targets. But when it comes to the digital transformation, objectives related to the transformation and sustainability are still not always examined collectively, although this would offer a lot of potential. This requires establishing a sense of awareness in the IT organization."

Sven Kreimendahl | Director Business Technology Services at Campana & Schott

"COVID-19 and the current sustainability trend have had a noticeable effect on the role of the IT organization in companies. And while a lot has happened in the last few months, we are only at the beginning of a much more long-term transformation. IT will become a key enabler of sustainable management."

Prof. Dr. Frederik Ahlemann | Chair of Information Systems and Strategic IT Management at the University of Duisburg-Essen

3.4 % Other position

4.1 % Head of Digitization (below Management Board)

5.1 % CEO (Chief Executive Officer)

16.5 % Management

2.1 % Other Management Board portfolio (e.g. CFO, COO)

15.4 % CIO (Chief IT Officer)/Chief Digitization Officer

16.8 % Other management positions

22.6 % IT Manager

14.0 % Head of IT (below Management Board)

Figure 1 – Position of survey participants in their companies

4.1 % > 100,000

1.0 % ≤ 100

7.9 % 20,001–100,000

13.7 % 101–250

16.1 % 5,001–20,000

14.7 % 251–500

20.2 % 1,001–5,000

22.3 % 501–1,000
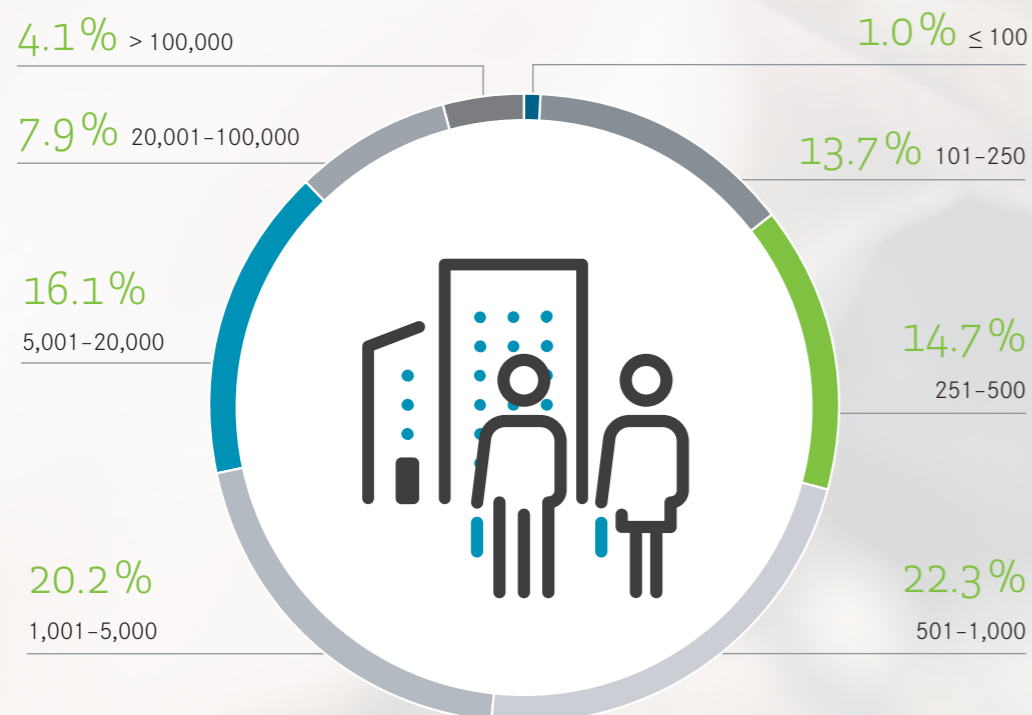
Figure 2 – Employee distribution of participating companies

Data collection and participants.

Study participants.

The data of 292 participants from different industries provides a comprehensive picture.

Employees from a variety of positions, companies and specialist fields participated in the study, although most of them were managers from the IT area. The distribution of study participants allows ideal insights into the minds of managers at large companies, but also managers in the mid-size sector and those at smaller companies. Significant differences are revealed in this context.

Most of those surveyed work in larger medium-sized companies, large companies and groups of companies: About half of the participants work at companies with more than 1,000 employees. They are distributed over different industries and fields of activity. Most of the participants work in Germany, while others work in Switzerland and Austria.

As in the study for the Future IT Report 2020, more than a third of those surveyed have already been with their current company for more than ten years (36%). Another 44% have worked at the same company for over three years. Only about every fifth participant has been at their current company for less than three years – compared to every third participant last year.

Study concept.

The enhanced questions now also cover the topics sustainability and COVID-19.

The objective of the Future IT Report is to examine the entire bandwidth of the digital transformation at mainly German companies. To this end, a team of consultants from management and technology consulting firm Campana & Schott and scientists from the University of Duisburg-Essen developed a suitable questionnaire.

The team prepared the questions in March 2021. The existing question catalog was revised and supplemented on the basis of the experience from the previous study on the digital transformation. The general categories strategy, organization/cooperation and technology have remained, while the topics sustainability in the course of the digital transformation and the impact of the COVID-19 pandemic were also examined this year.

After the design phase, the comprehensibility and consistency of the questions, as well as the time required and the structure of the questionnaire were tested using test volunteers. The questionnaire was available on the Internet from April to May 2021. Social media and e-mails were used to invite relevant specialists and managers to participate in the study. In addition, a market research agency also invited managers to participate.

In total, 292 questionnaires were used for the analysis. Differently from the previous year, questionnaires for which the response "Not known" was selected were not considered in the evaluation of one question. Therefore all comparisons with the previous year are based on a new calculation of the previous year's results under this condition. The comparison of the results from this year's survey against the results from the previous year are identified with "+x%" or "-x%", whereby the change refers to the difference from the previous year's value in percentage points (e.g. +10% means that the value in 2021 is 10 percentage points above the adjusted value of 2020).

Where the results of different participant groups (e.g. groups divided by company size) are compared for one question, that difference is also expressed in percentage points. In addition, the individual results of the groups that are compared are also provided. In this context, the percentage values always refer to the number of survey participants that belong to a group mentioned in the paragraph and that have answered the question at hand.

Finance (e.g. banks, insurance companies) 7.1%

Retail/Wholesale 8.1%

IT/Communication/Media 27.2%

Services 6.8%

Consumer Goods 2.2%

Construction/Architecture/Real Estate 2.7%

Machine Building 6.0%

Utilities (e.g. energy, water) 2.7%

Other 6.0%

Restaurants/Hotels/Tourism 2.7%

Chemicals/Pharmaceuticals 5.7%

Automotive 5.4%

Consulting/Management consulting 5.2%

Traffic/Transport/Logistics 4.9%

Electrical/Electronics 3.8%

Health/Medicine/Care/Sports 3.5%
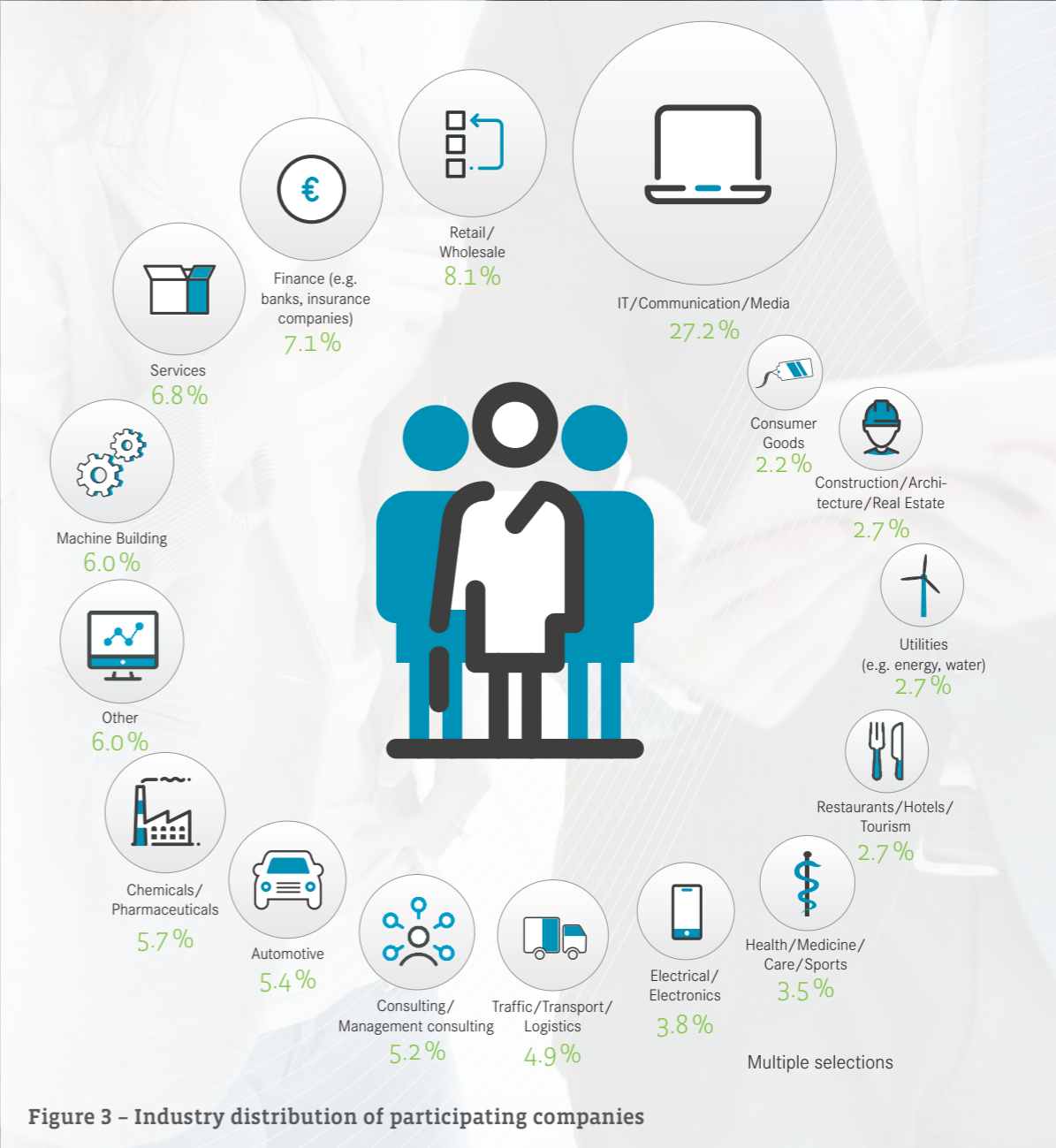
Multiple selections

Figure 3 – Industry distribution of participating companies

Strategy for the digital transformation.

Objectives of digitization initiatives.

This is the first time during the digital transformation that companies focus more on customers than on internal needs.

The objective for the digital transformation has undergone a marked change: When it comes to the digital transformation, customer focus now takes precedence over the company's internal requirements.

Now, participants state more frequently that customer satisfaction (92%) and improved quality (91%) are the objectives of their transformation. These aspects have overtaken increased efficiency, which was last year's top priority (88%). An increased customer focus is also reflected in the tasks of IT departments more generally. While their primary task continues to be the provision and continued development of IT for internal business processes, over 60% of IT departments are now involved in the development of

technology that is used directly in the product, or they develop entirely new products for the customers of the company.

Companies are also aware of the important role of employee know-how, and only 29% of participants say that they want to reduce the need for specialists.

In particular, "Increasing sales revenues" (+23%) has gained in relevance since the previous year. The development of new business models (-11%), on the other hand, is not as important for companies this year. A more detailed examination of this development can be found on page 25 of this study.

	1 Totally disagree	2	3 Neutral	4	5 Totally agree
Relief for existing employees	10.3%	12.8%	24.6%	**32.0%**	20.3%
Reduced demand for specialists	14.2%	**30.7%**	25.9%	18.2%	10.9%
Increased sales revenues	2.1%	3.5%	8.1%	36.6%	**49.6%**
Increased efficiency through process automation	1.4%	3.9%	7.1%	38.2%	**49.3%**
Improved external and/or internal collaboration	1.1%	4.6%	11.1%	**45.7%**	37.5%
Cost savings	1.1%	6.4%	10.6%	**41.8%**	40.1%
Increased customer satisfaction	0.7%	2.4%	4.9%	39.5%	**52.4%**
Increased quality	0.4%	1.8%	6.7%	37.2%	**53.9%**
Improved competitiveness	1.1%	1.1%	9.5%	35.6%	**52.8%**
Increased employee satisfaction	3.5%	6.0%	18.0%	**38.9%**	33.6%
Crisis-proof position	0.7%	8.5%	11.7%	**40.6%**	38.4%
Development of new business models	4.6%	8.8%	16.6%	**39.2%**	30.7%
Development of new customer groups	4.3%	8.2%	14.6%	**40.9%**	32.0%
Development of new or improved digital products and/or services	1.8%	6.0%	11.3%	**46.1%**	34.8%

Figure 4 – Intended objectives of digital transformation projects

Increased flexibility — 1.1% · 4.6% · 14.5% · **45.4%** · 34.4%

Increased resilience during crisis periods — 1.4% · 7.9% · 16.2% · **47.7%** · 26.7%

Lower costs — 4.7% · 15.3% · 25.9% · **36.5%** · 17.5%

Improved stability and reliability — 2.1% · 7.1% · 21.4% · **46.4%** · 22.9%

1 Totally disagree | 2 | 3 Neutral | 4 | 5 Totally agree

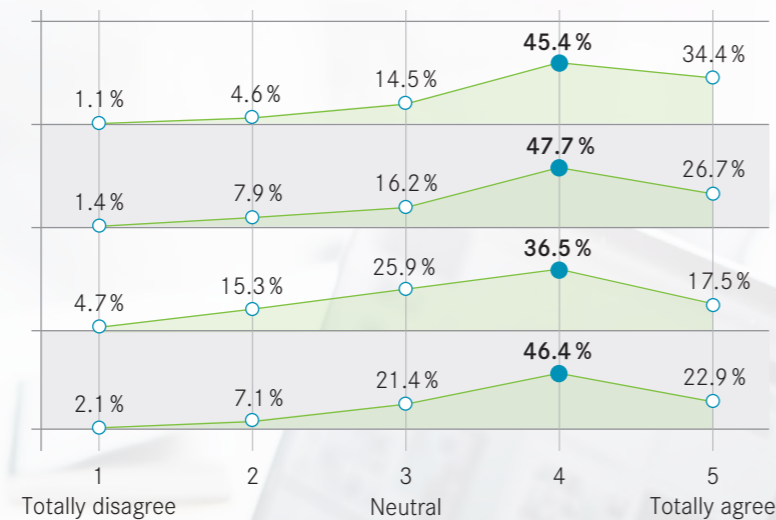**Figure 5 – Primary focus areas of the digital transformation during the COVID-19 pandemic**

Option to work from different locations — 2.8% · 7.1% · 8.5% · 36.5% · **45.0%**

More rapid implementation of measures with additional authorizations — 6.8% · 8.3% · 14.6% · **41.5%** · 28.8%

Support for a new localization of value creation in the company — 6.4% · 10.4% · 19.3% · **46.5%** · 17.3%

Option to work with different devices — 4.3% · 11.0% · 11.9% · **42.4%** · 30.5%

Involvement of external partners to manage the crisis — 4.1% · 15.3% · 19.4% · **42.3%** · 18.9%

Operation of a redundant infrastructure to ensure availability — 2.4% · 5.4% · 18.0% · **42.4%** · 31.7%

1 Totally disagree | 2 | 3 Neutral | 4 | 5 Totally agree
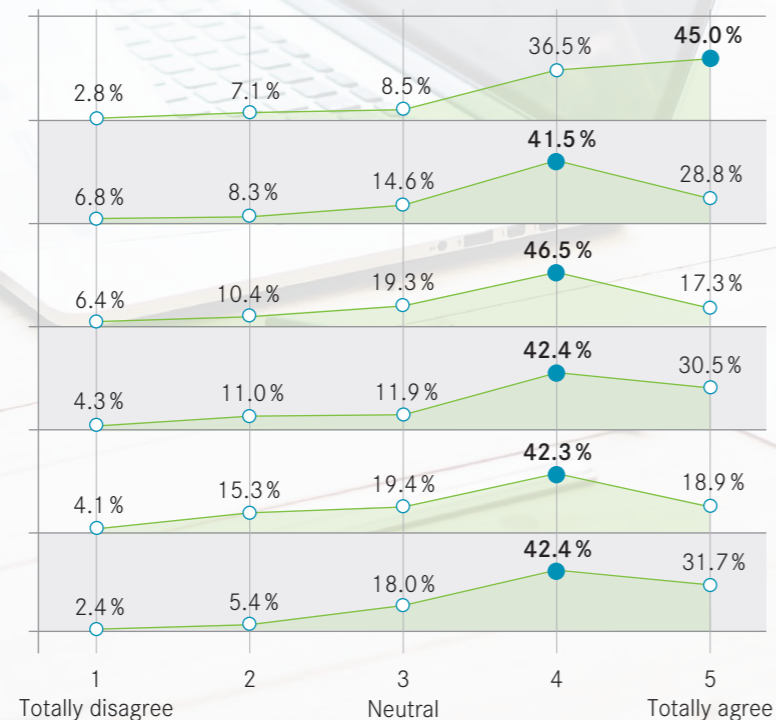
Figure 6 – Tasks of the IT departments to manage the COVID-19 pandemic

Transformation objectives and the organization during the pandemic

The digital transformation and IT departments have proven themselves during the crisis.

The past year was not just about general transformation objectives; rather, companies were also confronted by additional challenges due to the COVID-19 pandemic.

For example, 80% of companies increasingly relied on projects designed to increase flexibility. Similarly, measures to increase resilience were also intensified at 74% of companies. Because of the pandemic, more than 50% of participants also increasingly relied on cost reductions through digitization projects. Objectives that make companies more crisis-resistant also took on added meaning during the pandemic.

And the pandemic has also changed the view of the digital transformation as protection against crises and a guarantee for a viable future. In this vein, 61% of participants report higher investments in digital transformation projects in the years 2020 and 2021. And 69% report a general increase in the willingness to invest.

This is also reflected in the fact that IT departments have become more relevant for future crisis management at 74% of companies. Already now, 80% of companies developed their crisis strategies with the involvement of employees in the IT department. However, these crisis strategies are only fully operational in 68% of IT departments. Specific measures during the COVID-19 pandemic usually consisted of enabling people to work from other locations (82%), as well as ensuring business continuity and increasing resilience through the operation of redundant infrastructure (74%).

Target achievement.

Companies have made great progress in achieving their digitization objectives compared to last year.
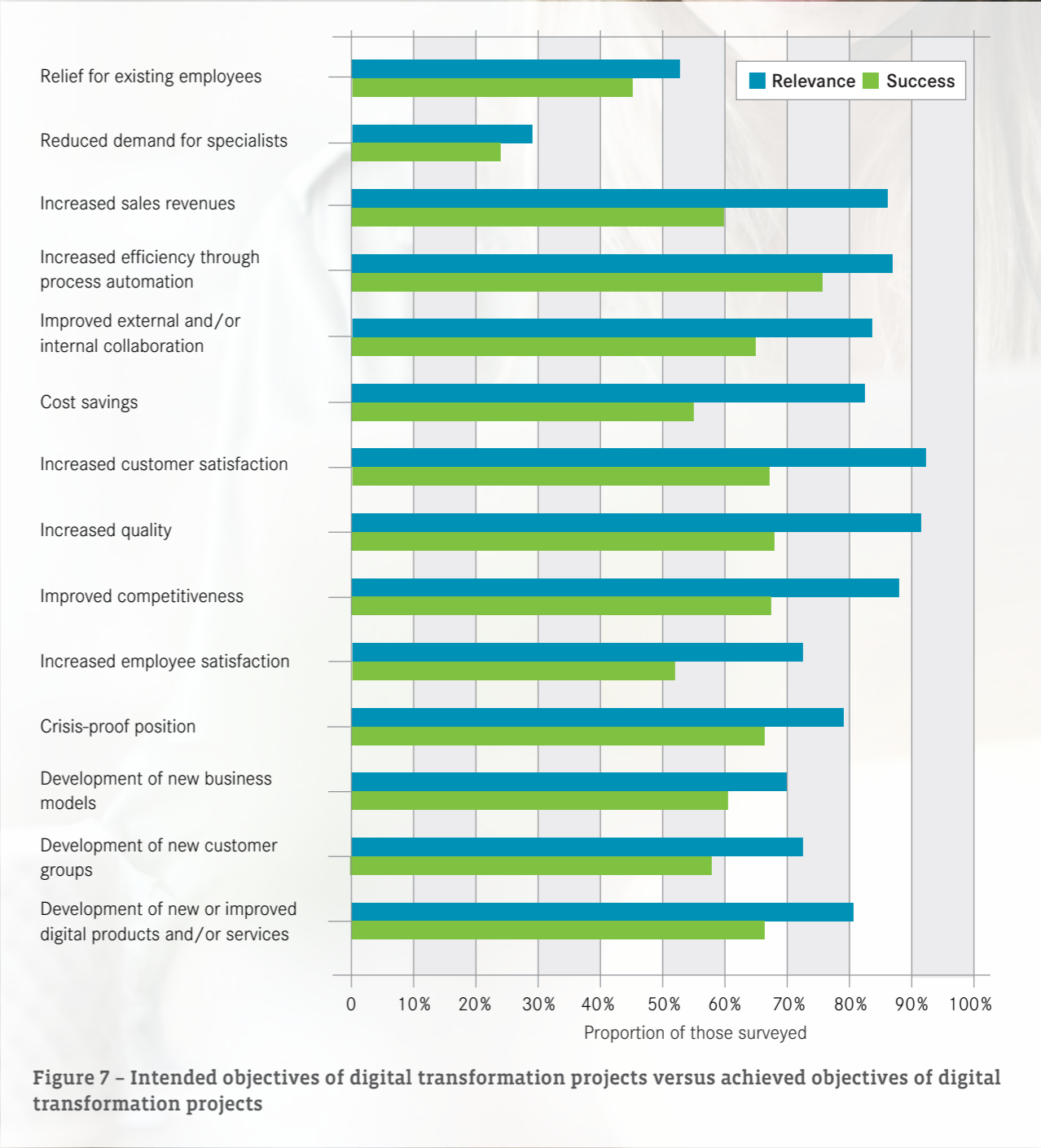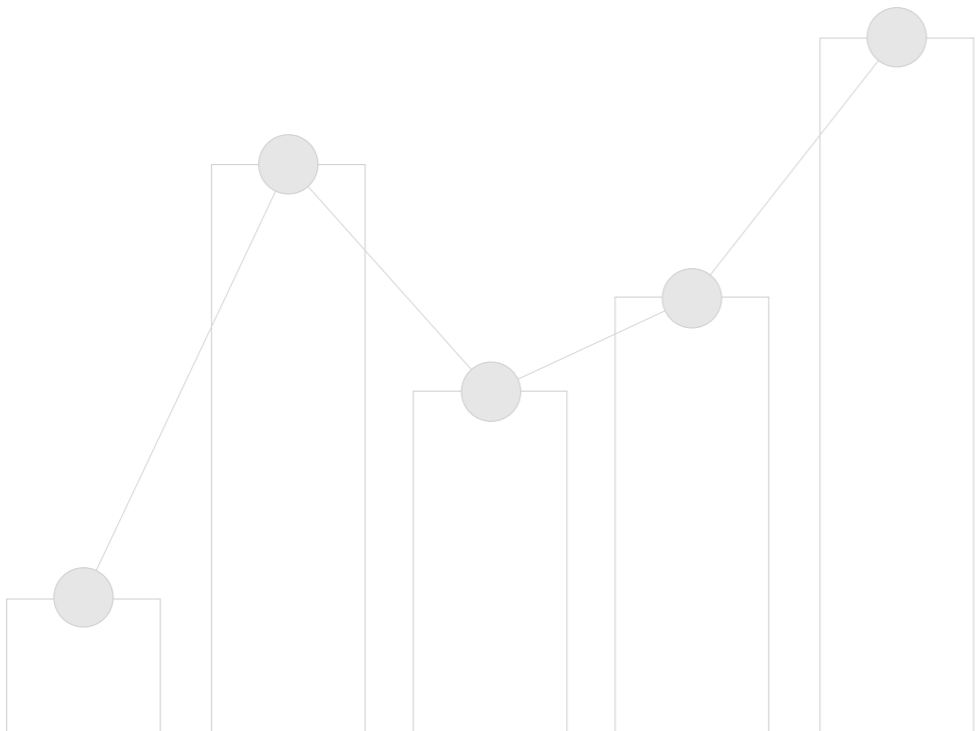
Some successful developments are already evident: Compared to last year, the number of companies that have achieved their targets has increased for almost every target.

And the effects grow stronger the more companies reach the growing phase of the digitization process. The increase customer satisfaction in particular seems to have been very successful (+17%). Similarly, the new prioritization is also evident in the objectives increasing revenues (+14%) and developing new customer groups (+12%). With regard to new digital products and services, the level has remained about the same (- 4%).

Comparisons between intended targets and target achievement must be viewed with caution, because while the assessment of targets relates to the current point in time, which is characterized by COVID-19, the achievement of targets includes all previous prioritizations – and what had an impact on prioritization and implementation in the past may no longer be of relevance today. It is possible that new prioritizations must still take effect and must be implemented in projects. Nevertheless, comparisons can be used to identify how much room there is for improvement.

There are only three targets where the discrepancy between the desired and achieved target is less than 10% - which means that these targets have almost been achieved (relief for employees, reduced need for specialists, development of new business models). The largest difference of over 20% is found for the targets increasing sales revenues, lowering costs and increasing customer satisfaction, whereby it is important to differentiate with regard to these three targets.

When it comes to increased customer satisfaction, progress has been made since last year, as the difference was reduced by 5%. The difference for reducing costs is about the same as last year. However, when it comes to increasing sales revenues, the difference increased by 9%. The latter demonstrates that the success of projects designed to increase sales revenues has not materialized yet, now that the objective has been given a higher priority. At the same time, expectations can now be met particularly with regard to increasing competitiveness – the discrepancy between the desired and achieved target decreased by 12% compared to last year.

Figure 7 – Intended objectives of digital transformation projects versus achieved objectives of digital transformation projects

Makes it easier to achieve our sustainability targets

Cannot be implemented perfectly due to statutory requirements or sustainability standards (e.g. ESG criteria)

Competes with our sustainability targets (e.g. budget, priority)

Must be accelerated due to statutory requirements or sustainability standards (e.g. ESG criteria)

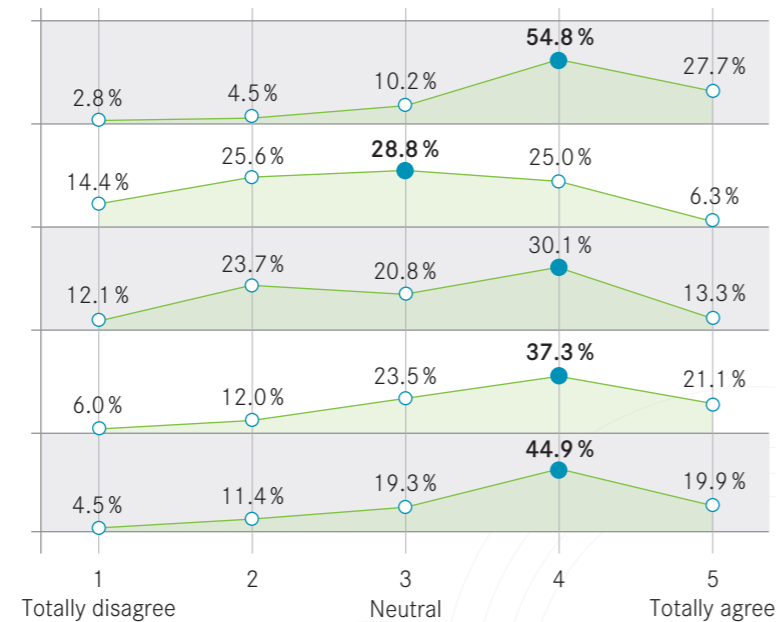Is examined independent of our sustainability targets

2.8 %   4.5 %   10.2 %   **54.8 %**   27.7 %

14.4 %   25.6 %   **28.8 %**   25.0 %   6.3 %

12.1 %   23.7 %   20.8 %   30.1 %   13.3 %

6.0 %   12.0 %   23.5 %   **37.3 %**   21.1 %

4.5 %   11.4 %   19.3 %   **44.9 %**   19.9 %

1
Totally disagree

2

3
Neutral

4

5
Totally agree

Figure 8 – Impact of the digital transformation on sustainability targets

More sustainability with the digital transformation.

Sustainability is becoming an increasingly important focus area of the digital transformation.

The issue of "sustainability" has become a part of business thinking over the past few years.

By now, 74% of companies have defined sustainability targets. Similarly, the operationalization of targets has also reached an advanced stage. For example, individual organizational units have specific sustainability targets at 63% of companies. At 59% of companies, they have even been broken down all the way to the IT department.

Large companies are better at implementing the requirement for more sustainability. Of the companies with more than 20,000 employees, 96% have already established sustainability targets at the company level, and 83% of their IT departments have also defined sustainability targets! Surely it is only a matter of time until smaller and medium-sized companies will catch up due to factors such as customer requirements, internal interest groups or regulatory

requirements, and they will define general sustainability targets as well as targets specific to the IT department. In this way, they will compete with the larger companies for their preeminent role.

This can also be explained by the fact that a majority of those surveyed (83%) are convinced that the digital transformation simplifies the achievement of sustainability targets – at least there is usually no conflict about targets, from the experts' point of view. While specific technologies such as blockchain can become a hindrance to achieving more sustainability due to high energy consumption, the general contribution of the digital transformation to achieving sustainability is very positive across all areas in the company (purchasing, production, sales, logistics etc.). Nevertheless, it raises the question of whether IT is aware of its potential – because usually sustainability targets and the digital transformation are still examined separately from each other (65%).

Expert tip:

There are three aspects to the role of IT during the course of the sustainability process:

1. Becoming more sustainable
2. Providing tools to track sustainability
3. Advancing innovations for more sustainability in business models

Challenges for the digital transformation.

Full steam ahead for the digital transformation also reveals hurdles.

The main challenges for companies in the course of the digital transformation remain the same as in the last Future IT Report: the legal requirements regarding data protection and data security (64%), the complexity of the IT infrastructure (61%) and the high investment / operating costs (60%). These values have even increased compared to last year.

At the same time, the challenges pertaining to data protection and data security are not driven solely by legal requirements, as 81% of participants also report stricter customer requirements in this area.

While companies tend to reach their targets sooner, they are also facing more challenges overall. A particularly noteworthy development is the 16% increase in cyber crime – which is reported as a hurdle by every second company. Interestingly, companies with more than 20,000 employees are 11% more likely to note this challenge than smaller companies (61% versus 50%).

Lack of employee know-how (+14%) and resistance to change (+13%) are also mentioned as challenges more often. That is understandable, since companies increasingly reach the growing phase of their digitization process, in which the process is rolled out more widely. It means that the impact is noticed not just by the innovation teams but also by a certain number of employees. Small improvements have been made in terms of the management of digital initiatives (-4%) and cultural obstacles (e.g. poor error culture, lack of entrepreneurial attitude) (-2%).

Expert tip:

- The challenges associated with the digital transformation are becoming more complex and more diverse as many companies have reached the growing phase of the digital transformation, which means that the innovations must be implemented more widely and scaled.

  Companies are doing a good job managing the general environment. But more know-how and expertise is needed to manage the new challenges. This can be done with continuing education and by promoting talent.

- During the growing phase, the digital transformation and its innovations affect more employees in the company, and increased resistance to change is becoming noticeable. It is important that not just the innovations themselves, but also the mentality and culture of the innovation team are implemented widely and scaled. This can only be done with sustained change management.

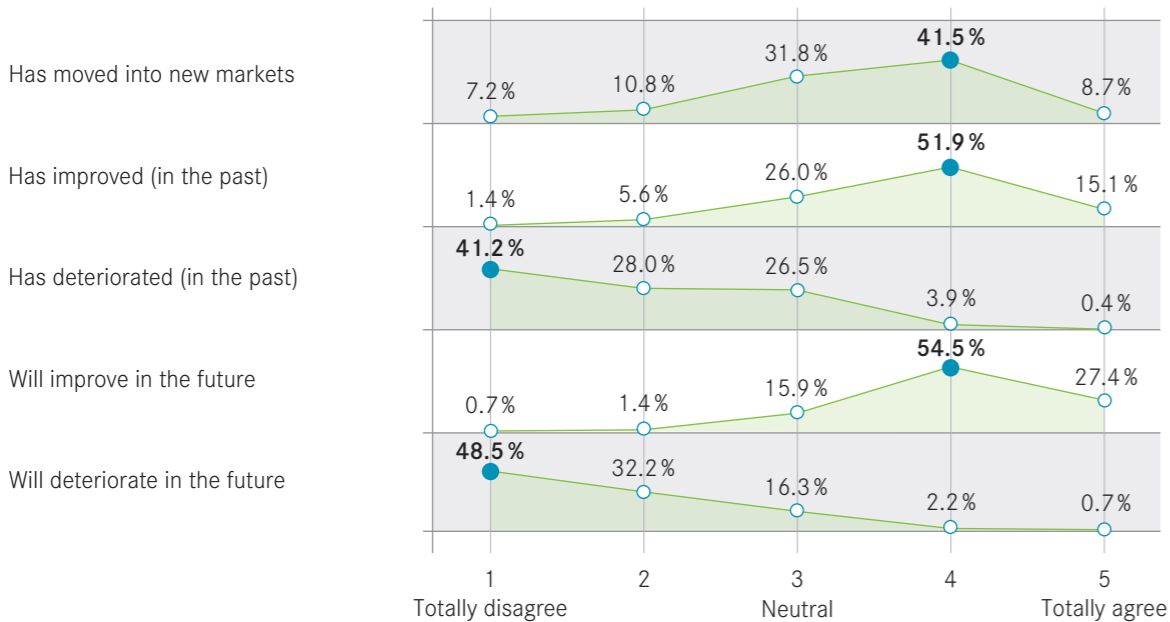Figure 9 – Challenges of the digital transformation

Figure 10 – Change in market position in the course of the digital transformation

Impact of the digital transformation on market positions and business models.

The focus on the customer is paying off! Companies no longer feel threatened; rather, they view the digital transformation as an opportunity.

Thanks to the digital transformation, more and more companies are able to position themselves in new markets and approach new customers.

For example, most participants (67%) have already been able to improve their market position in the course of the digital transformation. Even more (82%) are optimistic that the transformation will have a positive effect on their market position. The influence of the digital transformation is perceived more positively than in 2020, both in the past (+18%) and also for the future (+12%).

The uncertainty that was visible in the last study has disappeared. While previously every fifth participant believed that their business model was threatened by the digital transformation, now this view is only held by every tenth participant. This is also due to the fact that many companies (62%) were able to place their business model on a more resilient footing thanks to the digital transformation.

Moreover, there is also a clear connection to the objectives of digitization initiatives. Companies have reached a higher level of maturity in the digital transformation, and the development of new business model is at an advanced stage. Now, companies have an optimistic view of their business model and focus on other objectives of the digital transformation.

Another exciting aspect: For the majority of participants (50%), the digital transformation has resulted in a shift into new markets, which is 17% higher than in the last year's report.

Expert tip:

Companies should quickly focus on new customer groups and create offerings for the same, in order to place themselves in the new markets for the long term. One proven method in this respect may be the product-service transformation – the creation of digital services around the offered product range. This has the advantage that digital services can be developed and made available more quickly than physical products. They can also be adjusted to the needs of the new markets and customer segments and made sustainable independent of the company's own products.

Cooperations to support the digital transformation.

Stronger together: Two-thirds rely on cooperations with other companies during the digital transformation.

Last year, the Future IT Report already investigated the role of cooperations for solving the challenges of the digital transformation. There was also the question of which cooperation forms were chosen by the surveyed companies. At 66% of companies, partnerships with other companies remain the most common form of collaboration. This value is very similar to the previous year.

Other cooperation types have become much more popular within the last year: subsidiaries/spin-offs (+11%), research institutions (+13%) and other organizations (+13%). These collaborations are well suited to improve the company's own innovative capacity – an important aspect particularly in economically challenging situations.

The increased importance of collaborations is also due to the COVID-19 pandemic, as 61% of companies decided that their IT departments should drawn on external partners to manage the crisis.

Increased speed is the main reason for collaborating with external partners. This is the main reason at 84% of participants when it comes to partnerships with other companies. Access to new tech-nologies also continues to be an important reason for collaborating with other companies (81%). Access to new markets is important for 68% of participants, and 68% use the collaboration with other companies to address resource shortages. The creation of an innovative corporate culture was a motivating factor for 65% of participants. These values are approximately the same as last year.

Companies with more than 20,000 employees really stand out compared to the average: Here, 87% agree that the "transplant" of a fresh corporate culture is the most important reason to collaborate, followed by access to new technologies at 78%. It means that these companies have set their eyes firmly on the increased need to innovate. Increased speed is in third place at 73%.

Therefore companies with more than 20,000 employees also act differently with regard to collaborations: They are 21% more likely to collaborate with start-ups than smaller companies (63% versus 42%). Overall, they are also 18% more likely to cooperate with external partners than the average (66% versus 48%). This is a sign that the digital transformation has brought about a lot of change in the companies.

Expert tip:

A company's innovative capacity can be increased through intensive collaborations and partnerships, particularly with research institutions, universities as well as start-ups and consulting companies. Smaller companies can also form networks with other companies to lower the barriers of entry for the digital transformation.
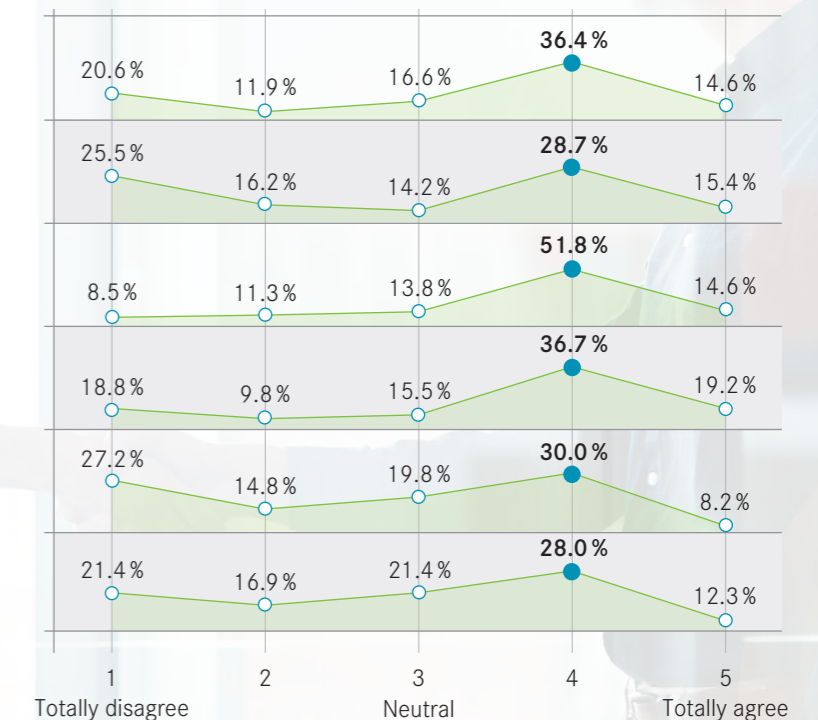
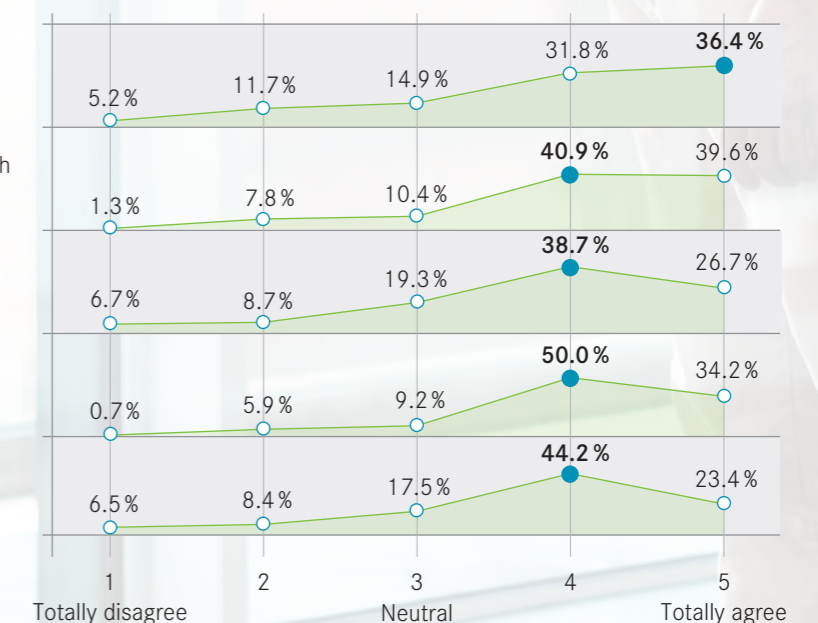**Figure 11 – Cooperation partners for the digital transformation**

Figure 12 – Cooperation motivation for partnerships with "other companies"
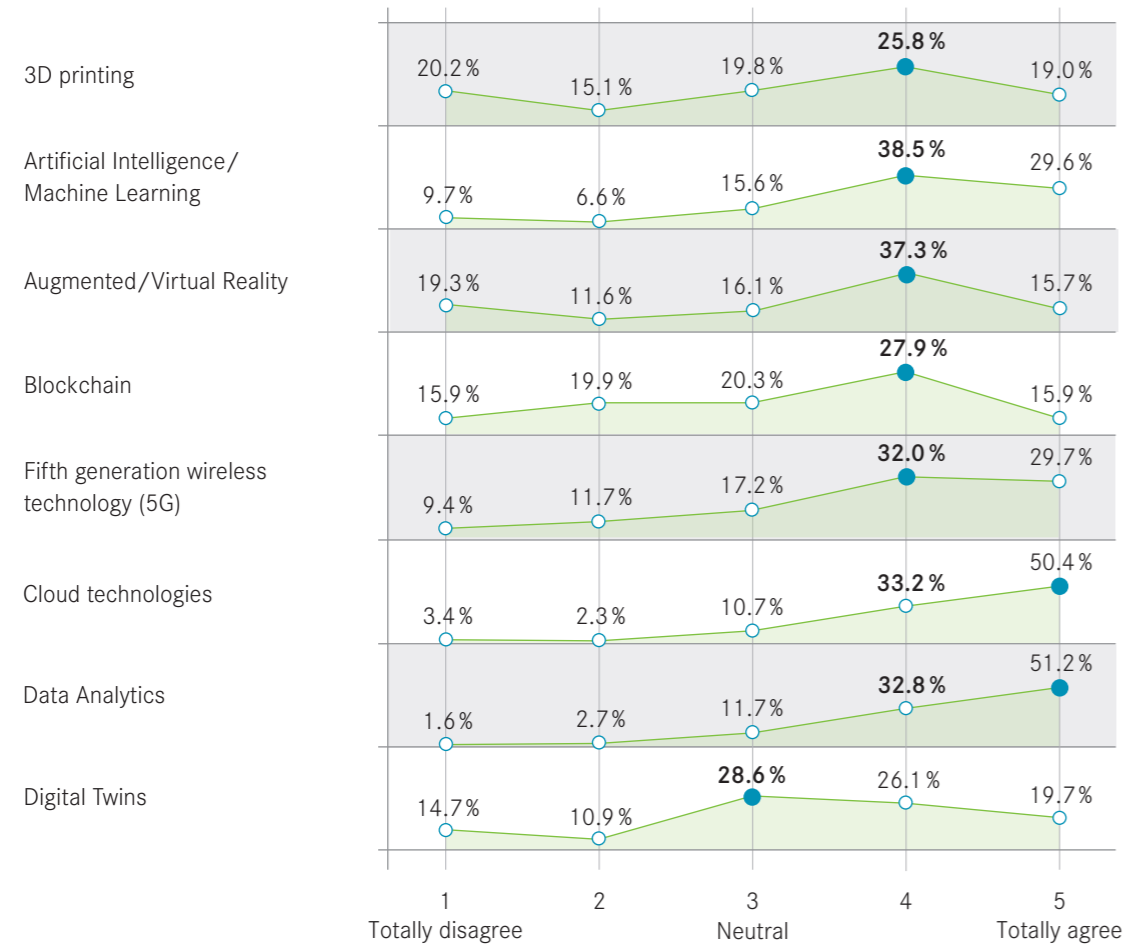
Figure 13 – Technology relevance for the digital transformation

Technologies in the focus of the digital transformation.

Relevance of different technologies.

Cloud & Data Analytics remain the main focus areas. While the euphoria surrounding AI is fading, the technology is increasingly going mainstream.

The most relevant technologies continue to be Data Analytics (84%), the Cloud (84%) and Artificial Intelligence (68%). The latter has lost 17% compared to last year, but is still among the top three technologies by relevance. New issues such as Blockchain (+8%), Augmented/Virtual Reality (+12%) and 5G (+15%) became more relevant since last year.

Cloud technologies and Data Analytics are also the technologies that are most widely used already. They are used either in pilot projects or fully in 87% of companies. 3D printing and Digital Twins

are not widely used at the moment – 41% and 42% of companies do not use them at all.

The situation is similar with regard to investments – while most of the very high and high investments go to the Cloud (59%) and Data Analytics (50%), larger investments for 3D printing and Digital Twins are only made at 22% and 24% of companies.

The situation in companies with more than 20,000 employees is once again different from the average: They are more active, and they invest more. At this time, they have implemented 38% more pilot projects for 3D printing than smaller companies (60% compared to 22%). In the case of Artificial Intelligence, large companies also make 34% more large and very large investments than smaller companies (61% compared to 27%). It appears that the initial hype around Artificial Intelligence is fading, but the high investment volumes indicate that the technology has gone mainstream.

Expert tip:

- Small companies find it much more difficult to utilize the potential of new technologies for their purposes. Often, the barriers of entry are also too high for strategic key technologies, so that they cannot be run by the company alone.
  They should therefore rely on networks and collaborations to lower the barriers to entry, consisting of costs and risks. Where this cannot be achieved through collaborations, companies should target sourcing from specialized technology partners and manage the resulting risk with sustained vendor management.

- This means that managing such a network becomes a separate task – therefore companies should plan for the relevant resources and maintain partnerships.

Technology	Not used at all	Use is investigated at this time	Initial/pilot projects in use	Full use
3D printing	40.9%	16.2%	26.0%	17.0%
Artificial Intelligence/Machine Learning	24.2%	20.0%	32.9%	22.9%
Augmented/Virtual Reality	30.5%	18.8%	35.6%	15.1%
Blockchain	36.2%	20.3%	29.3%	14.2%
Fifth generation wireless technology (5G)	26.3%	26.3%	27.9%	19.6%
Cloud technologies	3.6%	9.5%	33.7%	53.2%
Data Analytics	4.4%	8.5%	39.1%	48.0%
Digital Twins	41.7%	22.3%	21.8%	14.2%
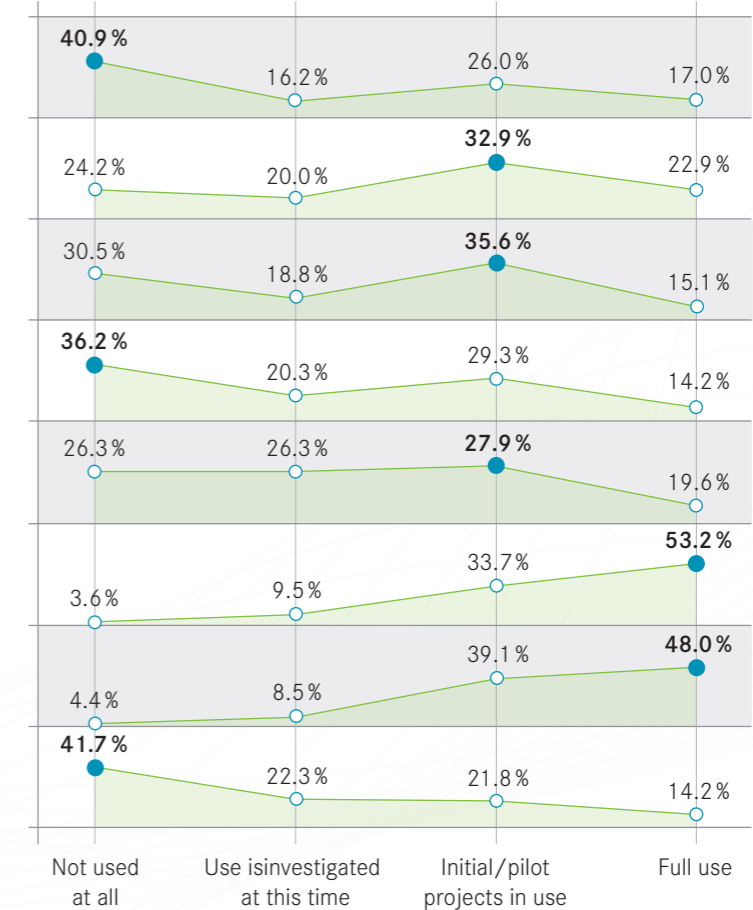
Figure 14 – Use of technology in the digital transformation

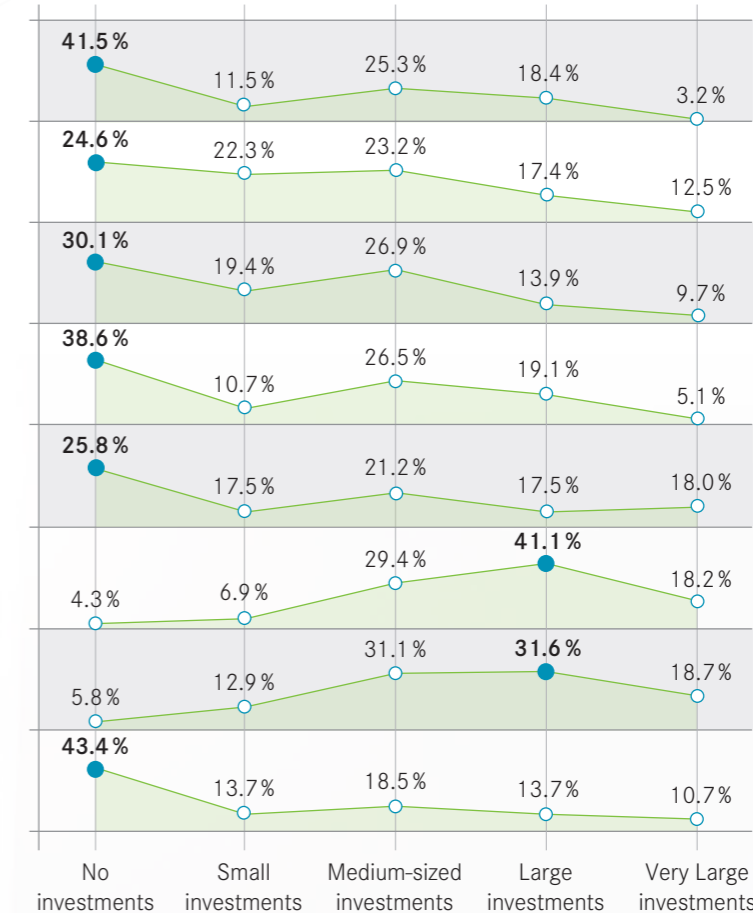| Technology	No investments	Small investments	Medium-sized investments	Large investments	Very Large investments
3D printing	41.5%	11.5%	25.3%	18.4%	3.2%
Artificial Intelligence/Machine Learning	24.6%	22.3%	23.2%	17.4%	12.5%
Augmented/Virtual Reality	30.1%	19.4%	26.9%	13.9%	9.7%
Blockchain	38.6%	10.7%	26.5%	19.1%	5.1%
Fifth generation wireless technology (5G)	25.8%	17.5%	21.2%	17.5%	18.0%
Cloud technologies	4.3%	6.9%	29.4%	41.1%	18.2%
Data Analytics	5.8%	12.9%	31.1%	31.6%	18.7%
Digital Twins	43.4%	13.7%	18.5%	13.7%	10.7%

Figure 15 – Technology investments in the digital transformation

Focus issues: Cloud and Data Analytics.

When it comes to the Cloud and Data Analytics, companies see themselves as being well-positioned, with problem areas in general technology management.

Companies that already make full use of Cloud technologies and Data Analytics already see a lot of expertise in their company. Only 23% and 20% see a lack of expertise with regard to Data Analytics and the Cloud, respectively.

With regard to the Cloud, the expertise seems to exist in general – although it is lacking at most companies when it comes to the management of the technology.

In particular, the introduction and enforcement of comprehensive Cloud Governance (66%), the integration of the Cloud into the existing IT (64%) and strategic multi-Cloud management (60%) represent key challenges in this regard. This applies to call companies regardless of their reported expertise. This explains why companies continue to invest into the Cloud even though it is already widely used: They have to invest to address the management challenges.

Despite growing problems with cyber crime and data protection, Compliance and Data Security in the Cloud are seen as the least important problems besides the expertise in the company. While they were still perceived as hurdles in past years, they seem to be sufficiently addressed at this time.

In the area of Data Analytics, companies seem to be on the right path – more than half of companies are building expertise across departments (67%), and Data Analytics is viewed as a core competence (59%). Despite this, there is still potential for the penetration of Data Analytics: 45% still have a problem with data silos – and the fact that the potential offered by Data Analytics is still not widely known (45%).

Expert tip:

- The basic expertise for Cloud technologies seems to exist at the companies. Nevertheless, these same companies also see big challenges in terms of Governance, Integration and Cloud Management, which is why it is important that these gaps are closed. A functioning Cloud Management system is the key to sustained success.

- To benefit from Data Analytics, companies should expand and continue to develop their data model beyond the traditional focus on financial accounting and controlling. They should also gradually replace legacy applications, as they are often the reason why data cannot be examined in its entirety.

Figure 16 – Challenges of the Cloud technology

Challenges of the Cloud technology (scale 1 Totally disagree – 5 Totally agree):

	1	2	3	4	5
Integration of the Cloud into the existing IT	8.0%	12.4%	15.9%	**41.3%**	22.4%
Strategic multi-Cloud management	7.6%	10.7%	21.8%	**38.6%**	21.3%
Selection of suitable Clouds	9.7%	12.6%	19.4%	**42.2%**	16.0%
Introduction and enforcement of comprehensive Cloud Governance	6.5%	11.1%	16.1%	**46.2%**	20.1%
Adherence to Compliance requirements	15.3%	16.8%	21.8%	**33.7%**	12.4%
Lack of expertise at the company	**35.8%**	28.9%	15.7%	14.7%	4.9%
Guaranteed IT security	13.2%	18.6%	17.2%	**35.8%**	15.2%
Complexity in IT operations	14.4%	13.0%	11.5%	**39.4%**	21.6%

Figure 17 – Experience with Data Analytics

Experience with Data Analytics (scale 1 Totally disagree – 5 Totally agree):

	1	2	3	4	5
Expertise is missing	**30.1%**	25.9%	20.7%	21.8%	1.6%
The potential is not well known	19.2%	19.2%	16.7%	**34.3%**	10.6%
Data Analytics is perceived as a key competence in the company	8.1%	15.7%	17.2%	**35.4%**	23.7%
Expertise is being developed across departments	3.1%	11.2%	18.9%	**50.0%**	16.8%
Use cases are selected and tracked with a portfolio process	7.6%	15.7%	20.5%	**42.7%**	13.5%
Data silos make it more difficult to access data	11.8%	23.6%	19.5%	**34.4%**	10.8%

Summary and outlook.

The Future IT Report shows that digitization continues to make advances in Germany, Austria and Switzerland. Even the COVID-19 pandemic was not able to stop this trend – in fact, the trend only gained speed due to higher demand. But companies cannot rest on these laurels. There is still much to do, particularly in the mid-size sector.

Companies in Germany, Austria and Switzerland have reached a higher level of maturity in the digital transformation, and the development of new business model is at an advanced stage. The German-speaking region is becoming more digital and as a result retains its competitiveness. Successful implementations have also raised the level of optimism across the sectors. The number of companies that see their business model under threat has been cut in half.

This is also due to companies rethinking the main pillars of their "Road to Digitization". Companies are increasingly focused on customer requirements and not just on internal requirements, which was the finding from the last survey. However, only a portion of those surveyed have been able to realize the desired increases in sales revenues. The coming months will show whether the new prioritization of this objective still has to bear fruit, whether COVID-19 is the limiting factor, or whether the companies actually failed to fully understood the real needs of their customers.

Also, companies should not rest on their laurels, as there are still hurdles to overcome. While the combination of digital innovation and existing IT increases the complexity of the IT infrastructure, companies increasingly find themselves in a position where they have to raise the security of systems and data because it is demanded by legislators or customers, or because of cyber crime. This only works if the digital innovations are implemented in the context of a more modern IT landscape. Companies may reach a critical stage if they implement the Cloud and other technologies but are not able to manage the resulting risks and the extensive management.

Companies must also act when it comes to sustainability. Many have already recognized the potential of the digital transformation, but they fail to examine these large trends collectively. It is time that IT organizations become aware of their role in leveraging these synergies, and that they internalize this role as an opportunity. To this end, companies must integrate their sustainability targets into the digital transformation, and they must formulate clear expectations for the IT organization. Designating a sustainability officer in the IT organization is an important first step in this regard.

Partnerships will also play an important role. Even now, the number of collaborations with different organizations is growing, whereby other companies remain the most popular collaboration partners. Companies have also expanded their collaboration efforts due to the COVID-19 pandemic. They have done so mostly in order to increase the speed of the digital transformation – but also to obtain access to innovative technologies and a fresh corporate culture. It is a course of action that will remain an integral part of successful strategies and measures designed to increase the company's innovative capacity, also because of the success of digitization during the crisis.

The internal development of the organization will also play an important role in addition to expanding the organization to the outside. As early as in the growing phase of the digital transformation, the mentality and culture of the innovation teams must be spread more widely through sustainable change management, because the digital transformation does not end here. The subsequent spreading phase is used to achieve a "critical mass", so that the digital transformation becomes the "New Normal" and self-sustaining. It is the only way to guarantee the sustained digital success of the company. The Future Organization Report by Campana & Schott and Universität St. Gallen provides deeper insights into the current and required mindset for the spreading phase in companies.

A forward-looking selection of technologies is required in addition to the numerous general conditions that are essential for companies during the digital transformation. New technologies continue to advance – Blockchain, Virtual Reality and 5G are becoming more widespread. While the focus still remains on Cloud technologies and Data Analytics, the typical hype-cycle process can be observed for Artificial Intelligence: While the euphoria is fading, the technology is already used widely in large companies. The technology and the expectations regarding the same have matured.

Still, Cloud technologies and Data Analytics will remain highly relevant in the German-speaking business environment. The progress made in the past also reveals challenges, particularly regarding the comprehensive management of these two trends. IT must define clear Governance directives, it must set out how the technologies of the digital transformation should be handled – and it must implement the same. Similarly, the service management organization must also be placed on a professional footing so the digital transformation can be managed, so that the opportunities related to partnerships and new technologies can be utilized, and so that the company is not falling behind the competition. The starting situation of companies is positive: The required expertise already seem to be in place and must only be applied. This is still an exciting time.

It will also be interesting to see whether the mid-size sector can catch up to the big companies with regard to the digital transformation, or if it continues to fall behind. The results of this study show: There is a big gap between resource-rich large companies and smaller companies that have less leeway and fewer resources. This applies both with respect to sustainability and the use of technologies, as well as collaborations with external partners. But it is not too late. Small and medium-sized companies should standardize marginal value-adding activities and replace legacy systems to better focus their capacities on the digital transformation.

Even large companies, which have been pioneers in terms of the digital transformation, must continue to push ahead and not rest on their achievements to date. In the growing phase, they must be able to inspire more than just a small group of digital pioneers. Now, the entire existing organization must be activated and existing work methods must be changed so that the innovations can be spread across the entire organization. Both the challenges as well as the impact of failure during the growing phase of the digital transformation are enormous – and they are also essential to future competitiveness. Companies must establish the foundation for their sustained digital success now.