

Designing IT Setups in the Digital Age

Digitalization is at the top of every CEO agenda, yet only a future-proof IT setup enables companies to move to the forefront of the digital (r)evolution.



Executive Summary

Emerging technologies and the omnipresent hype around digitalization compel companies to rethink their IT setups if they are to thrive in a fast-moving, opportunity-rich digital economy. In the digital age, IT setups must be not only cost-efficient but also scalable, flexible, innovative, and business-oriented to react quickly to new requirements.

To gain an in-depth understanding of IT setups in the digital age, we interviewed executives from companies around the world in business-to-consumer and business-to-business markets, including financial services, retail, consumer goods, automotive, and information and communication and incorporated our project experience. The result is a comprehensive view of the market-driven and internal challenges that are forcing companies to transform their current IT setups, the key features of ideal IT setups, and the challenges of tackling the transformation.

Companies **lack the means to fight off ruthless competitors.** In fact, 87 percent do not even monitor their environment for incumbent and potential competitors systematically.

Virtually every board member (CxO) acknowledges the need to react to digitalization to secure existing business and unleash untapped business potential, and most companies already have a digital agenda. Surprisingly, however, implementation of the agendas is slow because of uncertainty surrounding what the enabling IT setup should look like and, in many cases, because of large and complex legacy IT landscapes. In addition, there is a gap between promoting a new philosophy of “converging toward a moving target” and its broader adoption, along with a push toward greater collaboration within the company and with ecosystem partners.

Following are the most significant highlights of our study:

- Companies lack the means to fight off ruthless competitors. In fact, 87 percent do not even monitor their environment for incumbent and potential competitors systematically.
- Many design a digital agenda but do not implement it. Forty percent are “digital beginners,” and 27 percent are “digital deniers.”
- Success in the digital economy requires integrated collaboration and operating models. Sixty-six percent of top executives have lost trust in externalized labs, and 77 percent see joint business and IT responsibility as essential.
- Success also means engaging in ecosystems. Forty-four percent of top executives and business managers and 28 percent of IT managers see this as a top priority.
- Managers and employees need to radically enhance their competencies and adapt their attitudes. Seventy percent see a need for training across all levels, and 67 percent have faith in their managers to succeed in this realignment.

- Trying to tackle a digital transformation on your own is not a good idea. Eighty percent do not believe in in-house development alone, and 67 percent believe opening up to others will not harm speed or flexibility.
- Digital transformation requires converging toward a moving target. Eighty-five percent see continuous change and innovation as central, and 77 percent struggle with legacy IT landscapes, structures, and processes.

Implementation of digital agendas is often slow because of uncertainty surrounding what the enabling IT setup should look like.

Digital is here to stay, and attention must shift to designing an IT setup to ride the digital wave and propel a company to the forefront of the digital (r)evolution. Our study shows that, even though digitalization is a moving target, forward-thinking companies know that now is the time to act—both within the company and with relevant external partners. The potential results are simply too powerful to ignore.

Digitalization: Practical and Concrete

Digitalization has been a relevant CEO topic for some time, but the early hype has matured, and practical digital aspects are becoming more relevant. The questions about whether digitalization is only a trend, whether it is relevant, or whether a digital agenda is needed have all been answered. Now, the questions are about the why (why exactly is my company being affected?), the what (what does the optimal IT setup look like for my company?), and the how (how do we get there?). Our study analyzes just that: the why, what, and how of optimal IT setups in the digital age (see sidebar: About the Study).

About the Study

A.T. Kearney and the Project Group Business & Information Systems Engineering of Fraunhofer FIT conducted a joint study to understand the why, what, and how of IT setups in the digital age. The study included executive interviews, an online survey, and insights from our projects.

Participating companies are from various industries in both

business-to-consumer and business-to-business markets, including financial services, retail, consumer goods, automotive, and information and communication. Company size ranges from fewer than 250 employees to more than 50,000. Interviews were conducted with more than 10 C-level executives from international companies, and survey respondents included 140 executives from Germany,

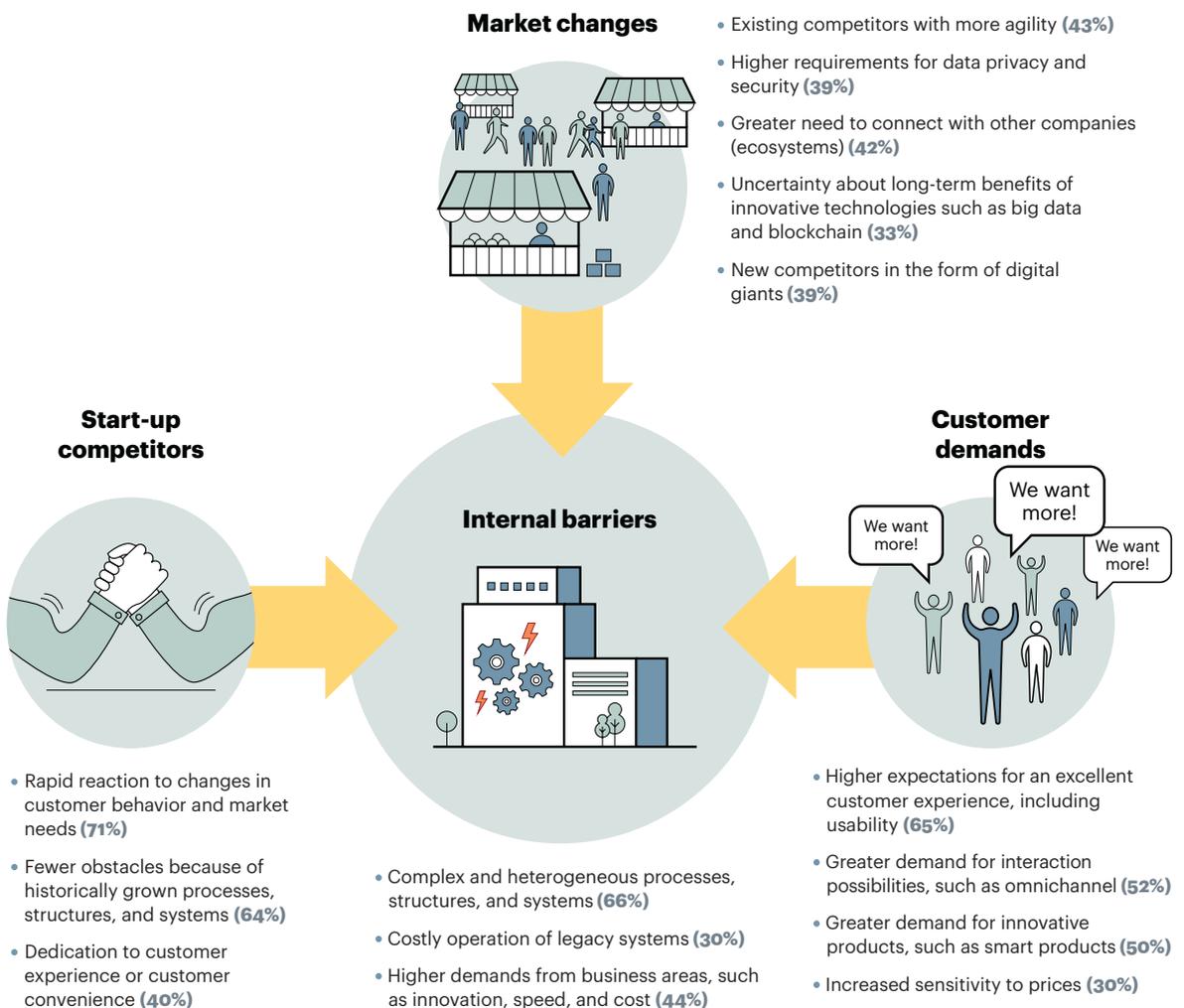
Austria, Switzerland, and other countries around the world. Most were C-level executives, IT managers, or business area managers. About half had an IT background. On average, survey participants had more than 20 years of professional experience. Interviews and the survey focused on companies in which IT plays a central role for the core business.

Why: Challenges for Existing IT Setups

The global hype about digitalization has reached the boardrooms of every company, even in traditional brick-and-mortar industries such as chemicals. Although they hear the amorphous call for action, many executives have a hard time understanding exactly what compels them to act. To shed light on this, our study examined four categories of challenges (see figure 1).

Customer demands. Today, products and services are expected to leverage the latest technology and the convenience it brings. And demand for these will only increase as consumers expect every product and service to be as digital as those used in their personal lives. From smart, interconnected products and wearables to real-time market access, the list of digital technologies is long. Also, penetration of technology along the product and service lifetime is changing, giving rise to seamless and constant over-the-air updates and offers for new features. Customers want it all, and they want it now. Almost half of our study's participants see this as one of the top factors

Figure 1
Optimizing an IT setup brings four types of challenges



Note: Percentages indicate how many respondents chose the area as a challenge among the three most important challenges per category.

Source: Joint study by A.T. Kearney and the Project Group BISE of Fraunhofer FIT

driving the need for change in their IT setups. Most struggle to keep pace with demand. However, there is no way to delight today's customers without digital products and services: 84 percent of participants are convinced IT plays a central role in their core business. Customers also expect rich interactions. Multichannel has long been overtaken by omnichannel as customers want to use all channels at the same time—with seamless interactions and integrated touch points. Consequently, IT setups must address not only data privacy and security issues but also the need to engage with others in digital ecosystems.

Start-up competitors. In addition to demand-side challenges, new threats are emerging on the supply side, including agile start-ups with creative, unconventional, and often disruptive business ideas. These new competitors are especially dangerous because of their ability to react quickly to changes in customer behavior and market needs. Seventy percent of participants count this among the primary challenges for their IT setup. They are well aware that these new competitors succeed because of their agility, lean structures, and processes as well as uncompromising dedication to customer convenience. They are a real threat to challenge and disrupt traditional business models. And yet the incumbents do not systematically monitor their competitive environment or initiate countermeasures (see sidebar: Comfortably Numb: Companies Lack Measures to Fight Ruthless Competitors).

Market changes. Digital giants such as Google, Facebook, and Amazon are changing the competitive landscape. Who would have guessed a few years back that Google would offer a smartphone operating system and autonomous car software or provide its own mobile payment services? These competitors have a great deal of agility, lean structures, and processes as well as a dedication to customer experience. However, 70 percent of participants wrestle with uncertainty about the long-term benefits of new technologies such as big data and blockchain.

Internal barriers. Companies still suffer from the burdens of the past. Two-thirds of participants believe their complex, heterogeneous processes and structures handicap their ability to quickly react to—not to mention predict—environmental changes and to keep up with competitors.

Comfortably Numb: Companies Lack Measures to Fight Ruthless Competitors

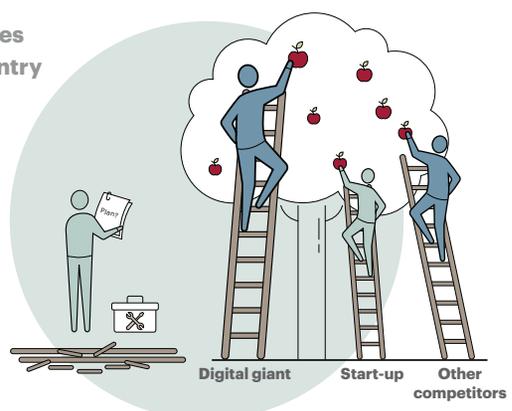
Companies are well aware of the dangers emerging from old and new competitors. “The aggressiveness of attacks on business models is growing with every day,” said Dr. Eberhard Kurz, CIO of Deutsche Bahn AG. “They become more massive, more systematic, and more international.” Nevertheless, many companies are in the dark when it comes to counteractions:

- 31 percent say new competition in the form of start-ups is a top challenge.
- 39 percent say new competition from digital giants is a top challenge.

- 43 percent fear known competitors that have increased their disruptive power.
- Less than 13 percent continuously monitor their competitive environment.

As digitalization advances and barriers to market entry disappear, companies are exposed to more severe competition—be it from start-ups, digital giants, or companies from other industries. However, most neither have nor have developed

capabilities in areas where their competitors excel. The most pressing areas are agility, customer orientation, and lean structures and processes.



Legacy systems are burning through already-thin budgets and severely constraining the launch of innovative revenue-creating products and services. In addition, companies are lagging in the adoption of innovative technologies, and 43 percent say business departments pass on the pressure for fast and innovative solutions to IT departments.

In essence, companies are exposed to what may seem like insurmountable complexity and inertia from the inside and increasing dynamics from the outside. With almost two-thirds of participants operating in turbulent environments, the gap between IT capabilities and external requirements is huge. In fact, only a third are happy with their setups. Even though 72 percent say their companies are working on a digital transformation, about 60 percent of them say their IT setup is not fit for competition (see sidebar: Companies Design a Digital Agenda but Do Not Implement It).

Companies Design a Digital Agenda but Do Not Implement It

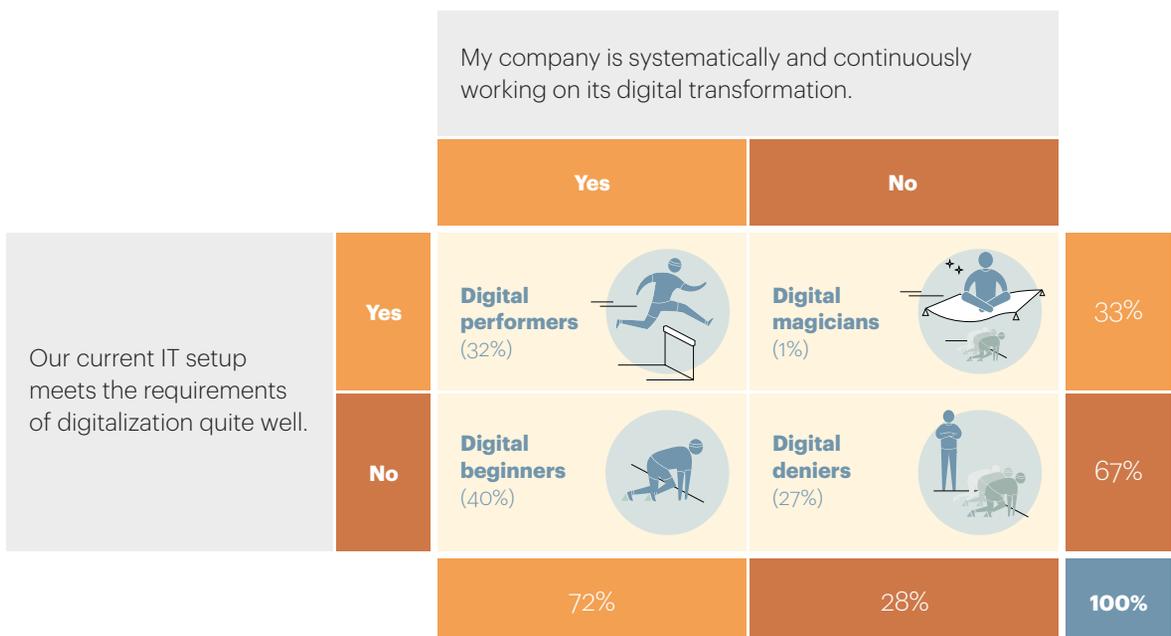
Many firms have not begun to make a change even though they know their IT setups do not meet the requirements of the digital economy (see figure):

- Two-thirds say their IT setups do not meet the requirements of the digital economy.

- 40 percent are not working systematically on a digital transformation.
- 60 percent of firms that are working on a digital transformation know that their IT setups are not fit for competition.

While digital performers must invest to defend or extend their leap, digital beginners need help managing their transformation. Digital deniers must first recognize the need for change and then rethink their strategy.

Figure
Many firms design a digital agenda but do not implement it



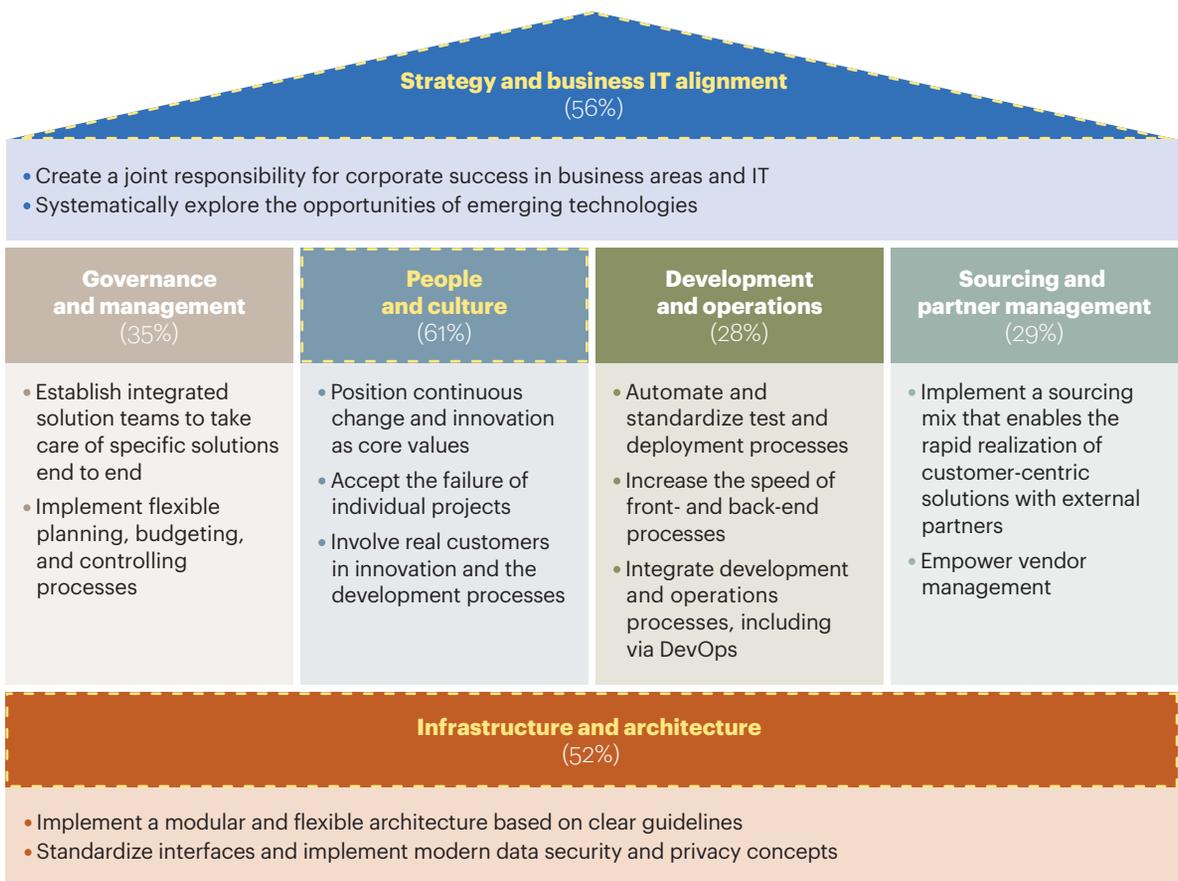
Source: Joint study by A.T. Kearney and the Project Group BISE of Fraunhofer FIT

What: Characteristics of IT Setups for the Digital Age

To identify recommendations for designing IT setups in the digital age, we investigated six areas (see figure 2). Participants voted for those where they see the greatest need for action. The results show clear priorities: people and culture; alignment of strategy, business, and IT; and infrastructure and architecture. They form the strategic, cultural, and technical foundations for the other areas. However, this by no means implies the core areas should be addressed sequentially. Digital transformation should focus on all areas simultaneously but with varying degrees of intensity.

Strategy and business IT alignment. In optimal IT setups, business and IT departments work in integrated teams and take responsibility for corporate success. Almost 80 percent of participants propose that business and IT departments have shared goals and a comprehensive strategy and argue against separated or loosely coupled business, IT, and digital strategies. Consequently, people from all departments collaborate to master the challenges of the digital economy. Also, IT moves into an enabler role for new business models. Seventy-seven percent of participants believe systematic exploration of opportunities associated with emerging

Figure 2
Optimizing IT setups requires focusing on six areas



Note: Percentages reflect participants' opinions on the areas in the greatest need of action. DevOps is software development and information technology operations.

Source: Joint study by A.T. Kearney and the Project Group BISE of Fraunhofer FIT

technologies is a vital contribution of IT departments. Along the same lines, 68 percent expect IT departments to promote ideas for digital business models.

Governance and management. Governance must become much leaner, more flexible, more business oriented, and more practical. Roughly 70 percent of participants require planning and budgeting to be adjusted multiple times during the year or on demand. In the digital age, IT setups require new forms of collaboration between business and IT. Integrated solution teams are becoming more common. Equipped with decision-making power about solutions, these teams consist of both business and IT experts and account for specific solutions along the life cycle. Previously hyped accelerators and corporate labs are no longer the preferred option to gain long-lasting speed and flexibility (see sidebar: Labs and Bimodal are Dead: Success Requires Integrated Models).

People and culture. Digital-ready IT setups require substantial changes from both people and the corporate culture, not only with respect to new skills but also new attitudes. More than 70 percent of participants want their companies to involve real customers in developing solutions. Close to 85 percent say they must embrace continuous change and innovation as central values. Companies must also accept the failure of individual projects to gain new experiences and get acquainted with emerging technologies. About three-quarters are convinced that business and IT must perceive themselves as equals, eventually overcoming the traditional divide between business and IT. Otherwise, integrated solution teams are doomed to fail. Interestingly, participants say co-location has been overhyped. Only a third believe all project team members need to work at the same location.

Labs and Bimodal are Dead: Success Requires Integrated Models

Disintegrated models such as labs and bimodal IT did not prove successful. Instead, integrated operation and collaboration models will be essential:

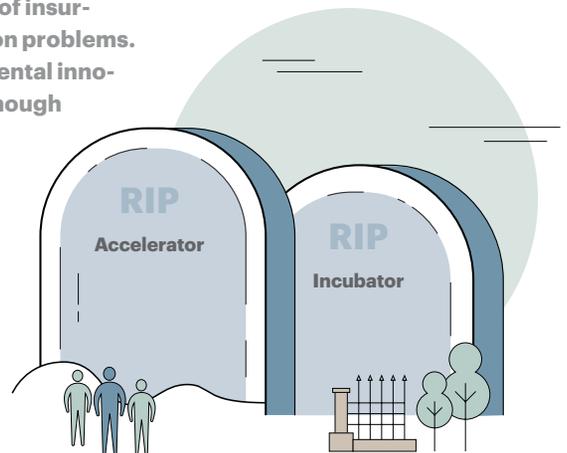
- 66 percent of top-level management is no longer convinced by accelerators or incubators.
- 63 percent of managers do not trust bimodal IT.
- 90 percent say cross-functional solution teams and DevOps setups are most suitable.
- 77 percent say IT and business must jointly accept the responsibility for corporate success.

In the digital age, IT setups require integrated operating and collaboration models with flexible governance. "It is necessary to avoid a two-class

society within IT," said Dr. Thomas Rodewis, head of digitalization at Versicherungskammer Bayern. "There is no good or bad IT, but only one IT."

Integration is required between business and IT as well as development and operations. Labs and bimodal IT have not brought the success they were advertising because of insurmountable integration problems. Labs used for incremental innovation cannot gain enough momentum to turn around the entire organization and are only sensible for disruptive innovation with a long time to market. Instead, teams composed of both business and IT people need to be

organized in a solution-centric—not a project-centric—manner. These integrated solution teams must take end-to-end responsibility for dedicated solutions, building on appropriate decision rights as well as highly automated testing and deployment processes such as those promoted in DevOps models.



Development and operations. Speed is required both at the front end and at the back end, say 70 percent of participants. This requires highly automated, standardized testing and deployment as well as integrated development and operations. Concepts such as DevOps will become more relevant.¹ More projects, especially the ones that are closer to the customer, will be executed using agile methods: highly iterative approaches with evolving specifications and evolving products. However, less than half of participants believe agile methods will replace traditional methods that rely more on up-front planning. Although not a strict rule, projects close to the infrastructure and central components such as enterprise resource planning systems will still require up-front planning exercises. Nevertheless, projects following more rigidly planned patterns must speed up.

Sourcing and partner management. Sourcing will be an essential component of IT setups. Our study reveals that vendor management is a key capability that helps rebalance sourcing mixes. Services that can be standardized—infrastructure but especially applications—are outsourced using cloud technologies. In contrast, because of digitalization, IT is again becoming a strong differentiator, and IT management is a core competence. This leads to back-sourcing of once-outsourced activities such as solution development. Only a fifth of participants see an advantage in decreasing the value-add of in-house IT to gain flexibility and speed, but almost 80 percent believe sourcing mixes must enable developing and operating customer-oriented solutions efficiently with external partners.

Infrastructure and architecture. Modular infrastructure and architecture will be essential. More than 70 percent of participants say these IT features enable a company to engage with

Lone Heroes Belong to the Past: Success Means Engaging in Ecosystems

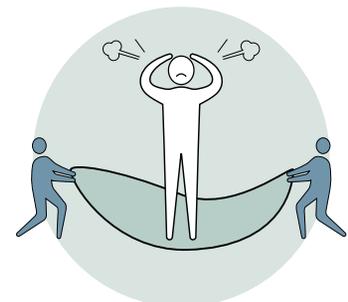
IT departments must realize what has long been understood by strategists: offering a competitive value proposition in the digital economy requires engaging in digital ecosystems. “It is not about building business and IT kingdoms,” said René W. Keller, CIO for Private, Wealth & Commercial Clients, Deutsche Bank AG. “It is about working jointly together, including external partners and even clients to deliver innovative products and new services.”

- 44 percent of top management and business participants but only 28 percent of IT participants see ecosystem integration as a top priority.
- 72 percent say IT is an enabler for collaboration with external partners.

- 71 percent say a central platform with clear privacy and security standards is essential for cooperation.

In a digital transformation, ecosystems are a central aspect of healthy business models and value propositions. In digital ecosystems, incumbents, digital giants, and start-ups join forces to compile competitive value propositions for customers. “We must think in ecosystems

and place ourselves at the right spots within this ecosystem,” said Robert Fritz, Group CIO of Raiffeisenbank International. IT capabilities such as central platforms, application program interfaces, and clear privacy and security standards will be crucial. In the past, IT departments agonized over implementing digital ecosystems. Thriving in the digital economy will require overcoming these problems.



¹ DevOps is software development and information technology operations.

digital ecosystems via standardized interfaces such as application program interfaces as well as modern data privacy and security concepts. This is especially important since, in the digital age, being on your own is not a good idea (see sidebar: Lone Heroes Belong to the Past: Success Means Engaging in Ecosystems on page 8). To serve as enablers, infrastructures and architectures need clear guidelines, including degrees of freedom and areas where no compromises will be made.

How: Challenges for Transforming IT Setups

Understanding the characteristics of optimal IT setups is only half the story. Getting there—the transformation process—is no less tricky than designing the target state. Our study sheds light on what it takes to get to an optimal IT setup and to rapidly fix the legacy.

New skills are useless without new attitudes

Seven out of 10 participants say a digital transformation requires substantial skill development. An overwhelming 90 percent say this will be required not only for employees, but also for middle and senior managers (see sidebar: Consensus Across the Board: Managers and Employees Must Enhance Competencies and Adapt Attitudes). However, developing new skills is only half the battle. Attitudes, beliefs, and traditional practices must also change to gradually shift the company culture (see figure 3 on page 10). Six out of 10 respondents say cultural change is crucial because companies do not succeed in a digital transformation by mastering technology alone. What makes the difference is the ability to capitalize on ideas spread across the company. In addition, three-quarters of participants call for external

Consensus Across the Board: Managers and Employees Must Enhance Competencies and Adapt Attitudes

Employees and managers lack the skills needed for a digital transformation. The purposeful development of digital skills and a new mind-set are both a must:

- **70 percent believe there is a strong need for comprehensive employee training.**
- **70 percent say business departments must develop IT skills.**
- **90 percent say managers must also develop their skills.**
- **67 percent trust their managers' ability to master digital transformation.**

Although employees trust their managers' general abilities to master digital transformation, both managers and employees

must develop essential digital skills. Moreover, they must develop a digital mind-set, embracing the opportunities of emerging technologies and striving for continuous change. Thus, retraining and reskilling are in high demand, sometimes also associated with creating a new employee structure. "Ten to 20 percent of jobs have to be filled with new people," said Dr. Olaf Zeitnitz, managing director of VisualVest. "This does include the management level." This needs to be accompanied by proper change management.

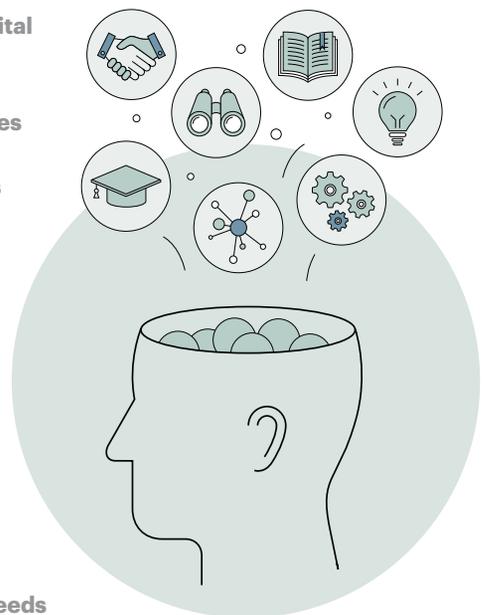
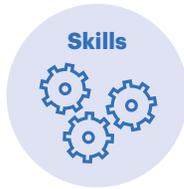


Figure 3

Attitudes, beliefs, and traditional practices must change to shift a company culture



Quick knowledge acquisition about new technologies	47%	Commitment to continuous change	58%
IT competence in business areas	40%	Willingness to involve real customers	56%
Networking in digital ecosystems	40%	Commitment to collaborate across all organizational entities	40%
Flexible planning, budgeting, and controlling	38%	Willingness to overcome sensitivities between business and IT	35%
IT architecture management	32%	Cultivation of flat hierarchies and decentral decisions	32%

Note: Percentages indicate how many respondents chose a challenge from among the three most important challenges per category.
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Mastering the Digital Transformation on Your Own? Not a Good Idea

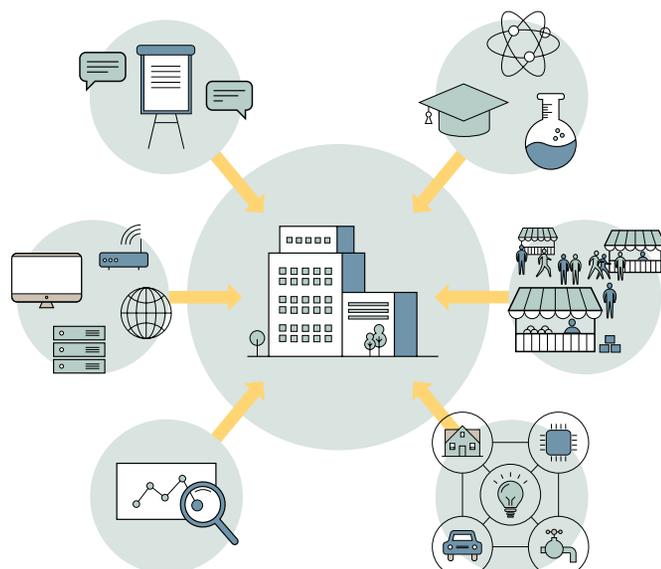
External input brings fresh ideas and momentum during the transformation. “The purposeful reduction of the depth of added value is a necessity,” said Dr. Roger Kehl, CIO of Festo. “Change is simply happening too fast to keep up with it on your own.”

- 76 percent want more external sources.
- 80 percent do not trust pure in-house development.
- 67 percent doubt that integrating external partners constrains speed and flexibility.
- 50 percent believe IT’s internal depth of added value should not be too shallow.
- Only 12 percent fear a hostile takeover by external partners and suppliers.

Collaboration is essential, not only in terms of ecosystem

engagement, but also in the form of external partners with innovative ideas and implementation skills. This is particularly important since employees and managers lack essential digital skills.

Companies must find the right sourcing mix, including outsourcing traditional in-house activities and back-sourcing currently outsourced activities that enable flexibility and speed.



sources to gain fresh ideas and transformational know-how (see sidebar: Mastering the Digital Transformation on Your Own? Not a Good Idea on page 10).

Digital transformation requires mobilizing the whole company cross-functionally

Almost 90 percent of participants are convinced that listening to and involving all departments is a success factor of digital transformation. Initiatives restricted to single departments—be it business or IT departments—are doomed to fail. Our study participants agree: more than 90 percent say a digital transformation will never succeed if it is driven by the IT department alone.

Digital leadership is crucial but doesn't depend on a chief digital officer

Another challenge is determining who will lead the transformation. Almost all respondents—98 percent—say C-level support is essential. While 46 percent and 19 percent see the chief executive officer and chief information officer respectively as drivers of digital transformation, only 17 percent believe this responsibility should be assigned to a chief digital officer. A chief digital officer may boost the digital transformation and help reconcile departmental strategies and initiatives. But about two-thirds of participants believe this is a temporary role that should be filled by someone whose foremost duty is to make the job obsolete. No matter who is in charge, nearly 80 percent of participants agree that a digital transformation is not a one-time initiative but requires converging toward a moving target because of the short time to market of emerging technologies as well as the ever-increasing market- and customer-driven challenges (see sidebar: Digital Transformation Means Converging Toward a Moving Target).

Digital Transformation Means Converging Toward a Moving Target

A digital transformation entails balancing incremental and radical initiatives. The fast rise of new technological opportunities requires continuous scrutinizing of the digital agenda.

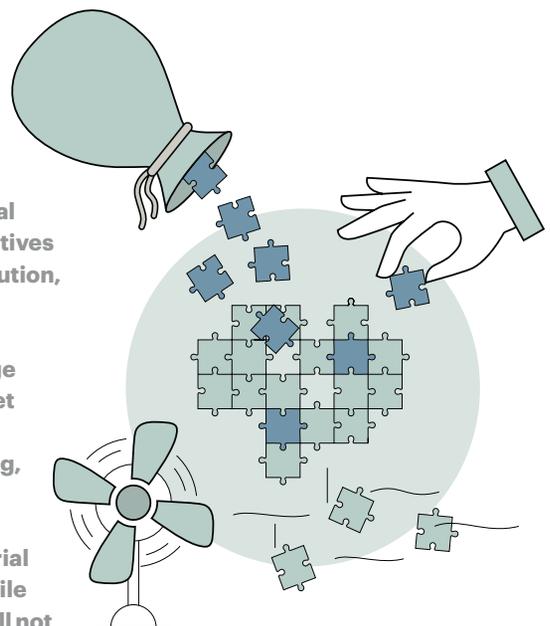
- 77 percent wrestle with legacy systems, structures, and processes.
- 66 percent are exposed to complex and heterogeneous structures.
- 79 percent see digital transformation as the convergence toward a moving target.
- 85 percent acknowledge continuous change and innovation as central values.

Because of fast-moving technological developments and environmental changes, digital transformation is not a one-time initiative. Companies must continuously scrutinize their

digital agenda, value propositions, and operating model, including the IT setup. In an opportunity-rich, fast-moving world, resilience and agility are vital.

In our study, neither incremental nor radical transformation strategies gained a majority vote. Companies will need to balance radical and incremental initiatives to avoid stuck-in-evolution, lost-in-greenfield, or paralysis-by-analysis situations. To converge toward a moving target and get the digital transformation moving, companies must be willing to learn from failure and embrace trial and error as well as agile methods. IT setups will not

be transformed in a plan-driven waterfall mode. "Failure must be allowed to create new experiences," said Melanie Kehr, CIO of BayernLB. "Such a culture must be supported by management."



High Time to Move

Having come to terms with the fact that digital is here to stay, CEO attention has now shifted to finding the best way toward an IT setup that can move a company to the forefront of the digital evolution. Most companies have kept their digital agenda on a shelf, failing to kick off a transformation because of uncertainty about the right IT setup. While digitalization remains a moving target, our study results draw a clear picture: Now is the time to act—both within the company and with relevant external partners. The potential results are simply too powerful to ignore.

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About A.T. Kearney

A.T. Kearney is a leading global management consulting firm with offices in more than 40 countries. Since 1926, we have been trusted advisors to the world's foremost organizations. A.T. Kearney is a partner-owned firm, committed to helping clients achieve immediate impact and growing advantage on their most mission-critical issues. For more information, visit www.atkearney.com.

About the Project Group Business & Information Systems Engineering of Fraunhofer FIT

Located at the Universities of Augsburg and Bayreuth, the Project Group Business & Information Systems Engineering (BISE) helps industry partners shape the future by capitalizing on disruptive technologies, inventing new business models, and mastering digital transformation. In interdisciplinary research and industry collaborations, the Project Group BISE works on challenging and visionary projects in the following areas: customer relationship management, innovation management, business process management, social collaboration, strategic IT management, IT security and privacy, digital finance as well as energy and critical infrastructures. The Project Group BISE works closely with the Research Center Finance & Information Management at the University of Augsburg.