

# DIGITAL ARCHITECTURE MANAGEMENT STUDY 2019





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# 1

## MANAGEMENT SUMMARY

In the 2019 Capgemini Invent study “Digital Architecture Management in the digital era” 63 participants revealed their view on Enterprise Architecture Management (EAM), which role it plays in their organizations and if this capability is rather perceived as an IT, Business or cross-organizational practice. We wanted to understand if and how Enterprise Architecture Management and Enterprise Architects need to become more agile in order to deliver the value which business and IT stakeholders expect and require in today’s rapidly changing environment.

The top findings of our Digital Architecture Management study are the following:

- Enterprise Architecture Management is an established function in 68% of all organizations that participated in our study. Nevertheless, according to 66% of the respondents Enterprise Architecture Management capabilities are mainly related to IT activities and the implementation of IT strategies. The involvement of Enterprise Architects in group-wide transformations falls short.
- Our study reveals that the perception of Enterprise Architecture Management and its importance in IT and Business transformations differs significantly among the participants. 95% of Enterprise Architects stated that their department is delivering innovative and value-adding solutions in transformations. Nevertheless, every third Business and IT decision maker says that Enterprise Architects do not yet contribute to the successful design and implementation of new technologies.
- However, the outlook is promising. 67% of participants outlined that Enterprise Architecture Management is already a powerful practice in their organization to facilitate cross-organizational collaboration in their company. 63% stated that this already accelerated technology adoption to increase time-to-market and innovative solution design.
- Heavy investments are currently made to scale up new capabilities in Enterprise Architecture departments. On top of the Enterprise Architecture Management agenda are improvements to deliver the following value propositions: IT efficiency (68%), cross-organizational collaboration (67%), transparency (65%), technology adoption (63%) and standardization of IT processes (55%).
- Surprising is the finding that the design of flexible and agile IT landscapes is only important to every third respondent of our study. On the one hand established companies see the high potential of Enterprise Architecture Management in transforming organizations and IT departments into the spearhead of innovation. But on the other hand, traditional ways of working in Enterprise Architecture departments are still present and not adopted to today’s need in digital capabilities and flexible IT architectures. This results in the necessity that Enterprise Architects need to become digital leaders – innovative and agile capabilities need to be part of the DNA of every Enterprise Architect. There is no digital business without digital architecture management.





# PURPOSE OF THIS STUDY AND KEY RESEARCH QUESTIONS

Digitization has become increasingly important for the future competitiveness of companies over the years. Nevertheless, the challenges are becoming more and more complex, especially for established companies.

Enterprise Architecture Management is known as a common instrument to systematically manage Business, IT, Data and Infrastructure landscapes across organizational units. In recent years especially with the increasing hype around “Digital Transformations”, it has been heavily discussed how Enterprise Architecture Management can be applied to overcome the challenges of adopting new technologies. Over the past decade, researchers, universities, and organizations such as The Open Group have been discussing the increasing importance of Enterprise Architecture Management in IT and Business transformations. Much has been said about Enterprise Architectures and their management but how do our clients and proven experts perceive the role of Enterprise Architecture Management in their organizations? Is Enterprise Architecture Management a core capability to enable the rapid and systematic implementation of new technology solutions or are Enterprise Architects rather perceived to be gatekeepers of old-fashioned standards and principles than innovators?

To us, Enterprise Architecture Management is defined as the practice of designing, managing and continuously improving the overall application and infrastructure landscape in alignment with business and customer needs. When Capgemini Invent refers to the term Digital Architecture Management, we talk about the traditional concept of Enterprise Architecture Management enhanced by agile principles and ways of working that enable Enterprise Architects to deliver innovative solution designs in the digital era.

This research study aims to understand how the role of Enterprise Architecture Management is changing within the ongoing digitization and the technological progress. Structured into three main parts, this report answers the following key questions:

- How is the role of Enterprise Architecture Management perceived within organizations?
- Is Enterprise Architecture Management perceived as an enabler for the rapid and systematic adoption of new technologies?
- How can agile principles and ways of working be incorporated into Enterprise Architecture Management to speed up the design and delivery of solution architectures in IT and Business transformations?

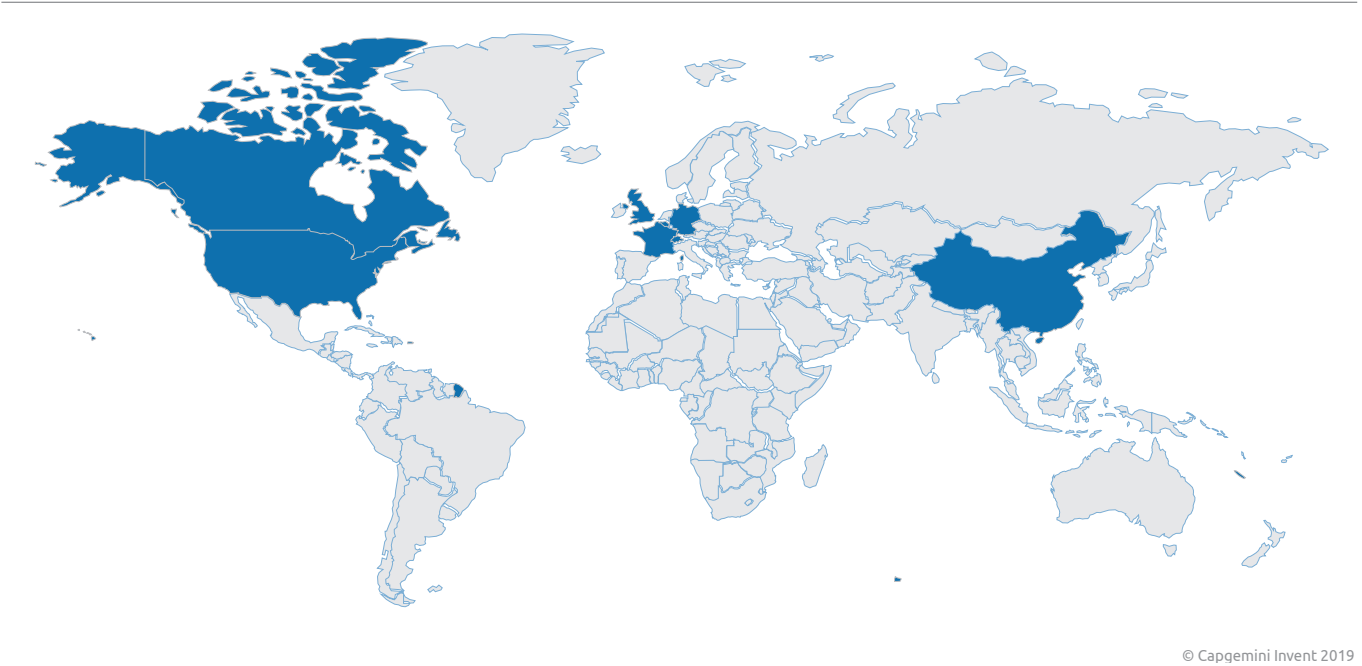
A questionnaire of 30 questions was developed and provided to Business and IT experts and managing Enterprise Architects of our clients. The following chapter will briefly outline the company size and industry of the participants of this survey.

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# PARTICIPANTS OF THIS STUDY

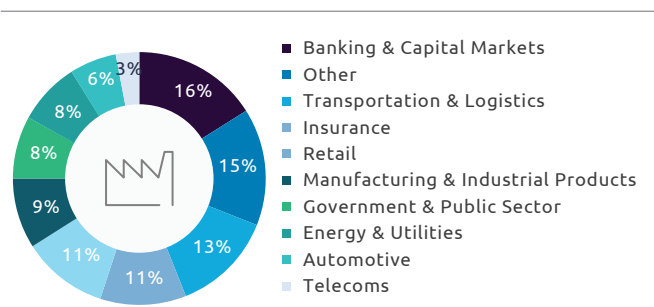
The findings of this study are based on the statements of 63 participants from industry leaders and technology companies located in Europe, North America and Asia. Since the study was conducted anonymously the following section gives an overview of the characteristics of the participants.

Figure 1: Participants' global distribution



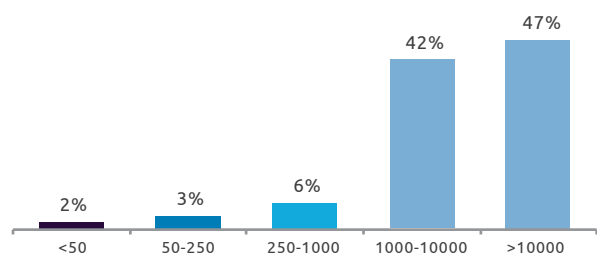
The participants came from a broad field of industry sectors and are mainly located in Central Europe. The largest group of the represented companies operated in the sector of Banking & Capital Markets (16%), followed by Transportation and Logistics (13%) as well as Retail and Insurance companies (each 11%).

Figure 2: Participants' working area



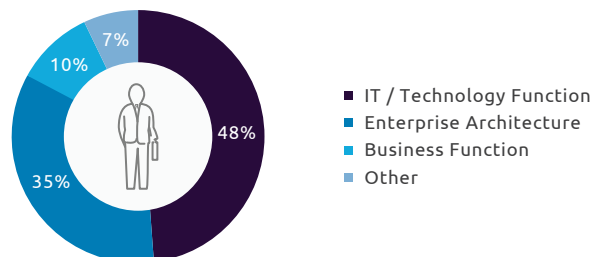
The study focused on large companies or groups of companies on a global level from various industries as shown in Figure 3. 89% of the represented companies had at least 1000 employees, out of which 47% employ more than 10.000 people.

**Figure 3: Organizations' size in % (number of employees)**



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**Figure 4: Participants' working area**



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Most of the participants (90%) considered digital and technologic trends to be of special importance for their company. The following chapters will provide relevant insights to understand what role Enterprise Architecture Management can play within the digital transformation to make it a success story.

**Figure 5: Perceived importance of new digital technology adoption**



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## 4

# THE PERCEIVED ROLE OF ENTERPRISE ARCHITECTURE MANAGEMENT IN PRACTICE

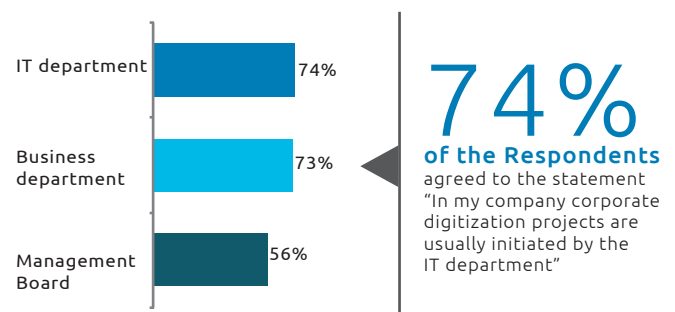
To understand the role of Enterprise Architecture Management in the eyes of practitioners, we will briefly outline how the theoretical role of Enterprise Architecture Management is described:

- The Open Group states that Enterprise Architecture Management is in charge of ensuring the completeness and the integrity of the corporate architecture. This includes adequately addressing all stakeholder concerns by fostering their collaboration. It aims to resolve conflicting concerns and to find and promote trade-offs between the different point of views (The Open Group, 2018)<sup>1</sup>.
- Ilse Hanschke describes Enterprise Architecture Management rather as the foundation for planning and controlling IT. In Enterprise Architecture, the essential business and IT structures of an enterprise are collected in a roughly granular way and are put into relation with each other. On this basis, the diverse information needs of the various stakeholder groups can be satisfied and well-founded input for decisions can be provided (Hanschke, 2016)<sup>2</sup>.

However, this theoretical construction of Enterprise Architecture Management and its role might change when applied in practice. In today's digital economy, capabilities of established corporate functions need to change in order to cope with the increasing pace of digitization and changing customer needs. Innovation cycles are becoming shorter and the need to implement new IT systems and technologies within weeks or months increases dramatically. 74% of the study participants stated that digitization initiatives are proactively

pushed by corporate IT departments (Figure 7). Only 6% outlined that Business departments are the only driver of transformation projects in the digital era. This already indicates that digitization initiatives are not only driven top down by strategic business initiatives. Corporate transformations are increasingly initiated and driven by Technology Departments. But which role do Enterprise Architects play and are they the ones driving innovations and transformations?

**Figure 6: Corporate digitization project initiators**



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<sup>1</sup>The Open Group (2018). *The Open Group Standard - The TOGAF® Standard, Version 9.2*

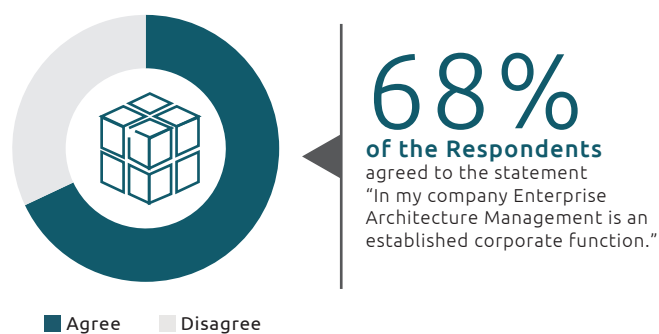
<sup>2</sup>Hanschke, I. (2016). *Enterprise Architecture Management - einfach und effektiv*.

The study revealed that 68% of the contributing companies have established an Enterprise Architecture Management function. In most of the companies, which do not have an Enterprise Architecture Management function established yet, the Enterprise Architecture abilities were decentralized, and a dedicated business capability was planned to be built in future. This underlined the trend of investing in Enterprise Architecture Management capabilities through ramping up new departments and centralizing those corporate functions to bundle know-how and skills.

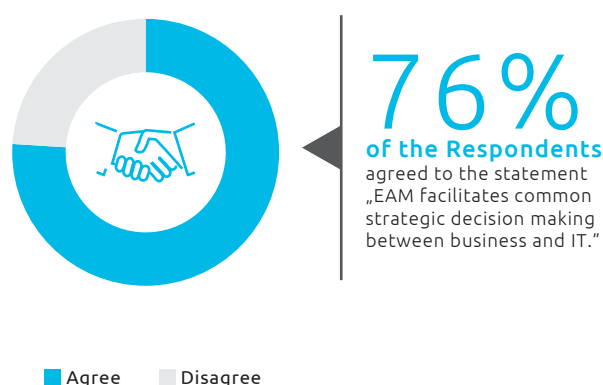
When it comes to common strategic decision-making in an IT related context (e.g. Outsourcing, Implementation of new technologies, IT-security and quality management) the majority of participants (76%) underlined the role of Enterprise Architecture Management as a significant facilitator (Figure 8). However, the opinion differs depending on the role of the participant.

90% of the Enterprise Architects among the participants see Enterprise Architecture Management as a facilitator of strategic decision making, while only 76% of IT related contributors agree to the same statement. However, this figure drops to only 40% of participants, who count themselves to Business departments within their company. This highlights the different perception of Enterprise Architecture Management by different corporate functions (Figure 9).

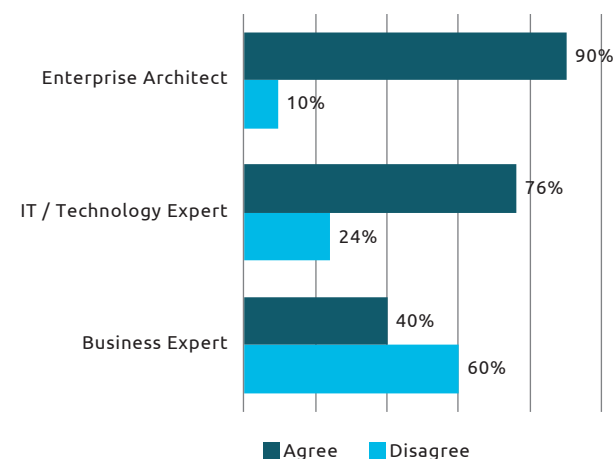
**Figure 7: EAM as an established corporate function**



**Figure 8: EAM as an facilitator for common strategic decision making**



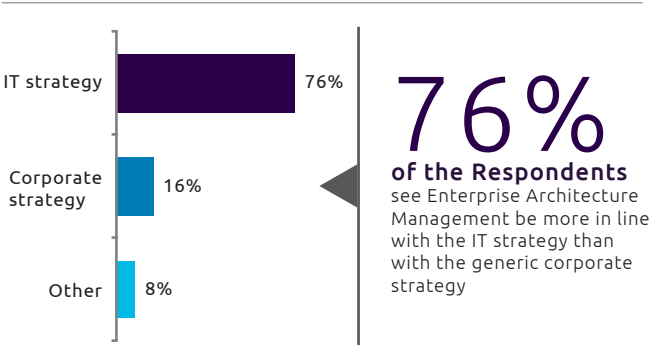
**Figure 9: EAM as an facilitator for common strategic decision making per respondents' role**



Another key finding in this context is that even though Enterprise Architecture Management is perceived as an important instrument in IT and Business alignment, still about every third participant states that Enterprise Architects are not perceived as key stakeholders and solution providers in digitization initiatives (see chapter 5). This shows that Enterprise Architecture Management is not always perceived as a key enabler for Digital Transformations in organizations. However, the need for Enterprise Architecture Management as an enabler for the adoption of new technologies is given as shown in the following chapters.

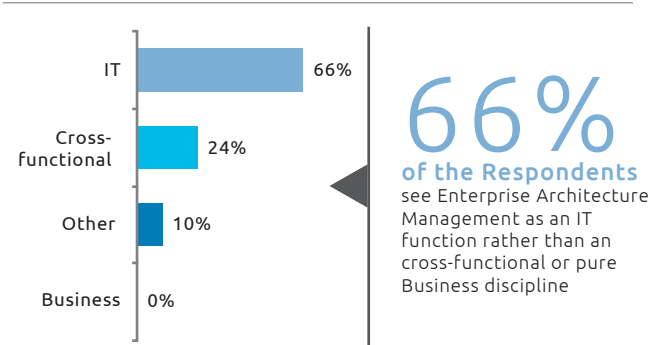
Enterprise Architecture Management is more in line with the IT strategy and not necessarily perceived as a driver of digitization initiatives (Figure 10). 66% of the participants stated that Enterprise Architecture Management is a pure IT function and capability in their company, while only 24% revealed that in their eyes Enterprise Architects are cross-functional and focus on both, IT and Business initiatives (Figure 11). Respondents also specified that due to historical reasons Enterprise Architecture Management has been rather performed in silos and did not sufficiently provide cross-organizational solutions to Business and IT stakeholders in transformation projects. However, major investments are taken to further develop and centralize the Enterprise Architecture function to address this challenge.

Figure 10: The alignment of EAM with IT and corporate strategy



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Figure 11: Perception of EAM as IT, business or cross-functional function



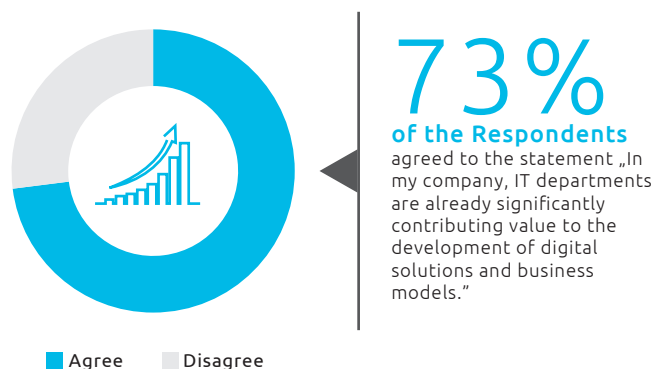
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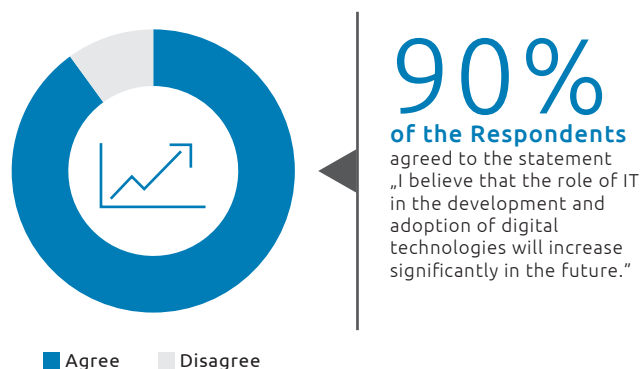
In conclusion organizations continue to face the challenge that enterprise architects do not yet focus on business strategy execution but rather on more operative tasks related to the implementation of strategic IT goals. Enterprise Architects are not perceived as innovative and customer-focused solution designers in digital transformations and they rather focus on delivering IT services and solutions. But the outlook is compromising: As shown in Figure 13, 90% of the respondents are convinced that the importance of IT and

Enterprise Architects in designing and developing innovative IT solutions for Business stakeholders and customers will increase dramatically in the future. The maturity of Digital Architecture Management capabilities is currently still low in most organizations. It needs to be understood, in which areas and Enterprise Architecture capabilities investments need to be made in order to systematically become a trusted business advisor and to deliver customer centric technology and IT solutions.

**Figure 12: Value contribution of the IT department**



**Figure 13: The role of the IT department in the future**



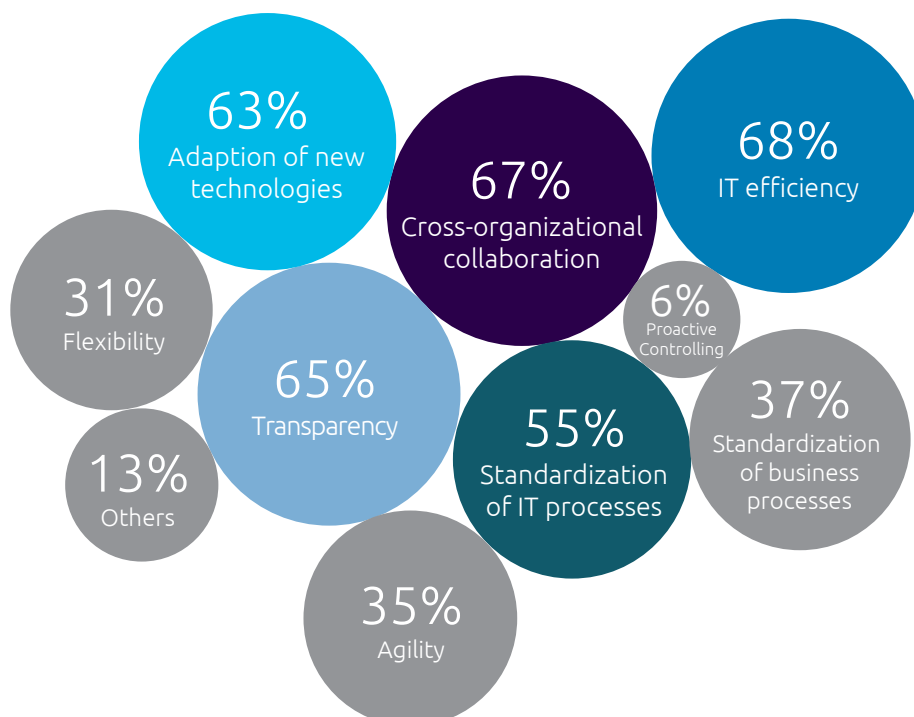
## 5

# ENTERPRISE ARCHITECTURE MANAGEMENT AS AN DIGITAL ENABLER

The need to adopt digital technologies put high pressure on well-established companies. The Capgemini IT Trend Study 2018 highlights the most important technology and methodic trends like Privacy by Design, Predictive Analytics or Cloud Transformations. Not adopting digital technologies may result in losing competitive advantages. In contrast, the adoption of digital technologies is risky and associated with cost-intensive investments and uncertain returns (Capgemini Deutschland GmbH, 2018). This study takes up this topic and relates it to Enterprise Architecture Management to find out how it can contribute to the successful adoption of trend technologies. The study examines which topics are promoted and fostered by Enterprise Architecture Management within companies

(Figure 14). Enterprise Architecture Management was associated with its traditional main tasks like fostering IT-efficiency (68%) and reducing IT complexity by making IT landscapes more transparent (65%). As already stated in the previous chapter, also the moderation and facilitation of cross-organizational collaboration within the company is considered as an important task by 67% of the participants. The dissolution of sector-specific silo formation through stronger cooperation between company divisions is conducive to benefit from synergies and thus, to achieve IT efficiency.

**Figure 14: Perceived benefits enabled by EAM**



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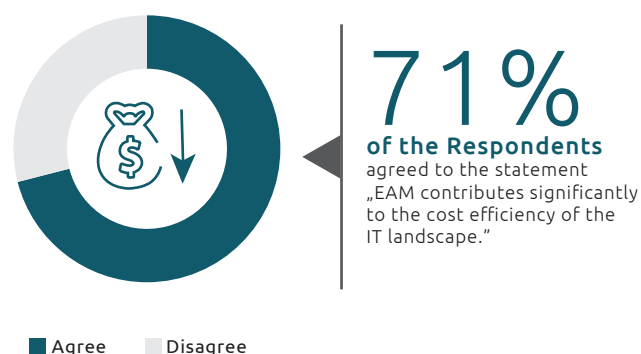
<sup>3</sup>Capgemini Deutschland GmbH (2018). Studie IT-Trends 2018



The established Enterprise Architecture Management functions meet the expectations of the participants with regards to providing recommendations to improve IT efficiency. 71% of the contributors stated that Enterprise Architecture Management contributes significantly to cut total cost of ownership of the IT landscape, e.g. by identifying IT applications or service providers to be consolidated (Figure 15). However, only the half of the 29% remaining would have expected an increase in IT efficiency, which has not been fulfilled. This underlines the positive perception of the contribution of Enterprise Architecture Management to IT efficiency.

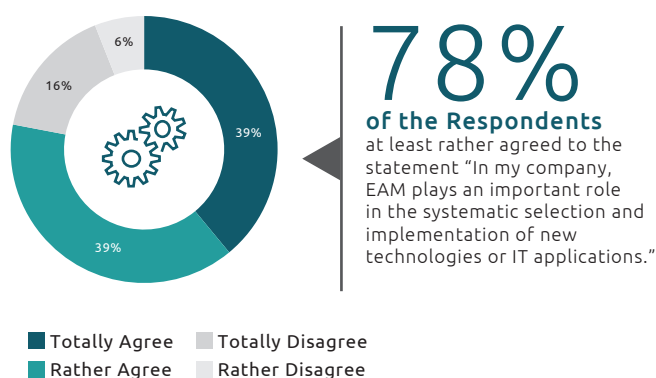
However, the task range of Enterprise Architecture Management expands as the need to establish it as an enabler to adopt new technologies rapidly is confirmed by the survey results. As previously pointed out in Figure 14, 63% of the participants named the systematic "Adoption of new technologies" through selected methods and tools as one of the main tasks of Enterprise Architecture Management. In the eyes of the majority of respondents Enterprise Architecture Management fulfills this responsibility. 78% of the participants rather or totally agree that Enterprise Architecture Management plays an important role in the systematic selection and implementation of new technologies or IT applications (Figure 16).

**Figure 15: Contribution of EAM to the cost efficiency of the IT landscape**



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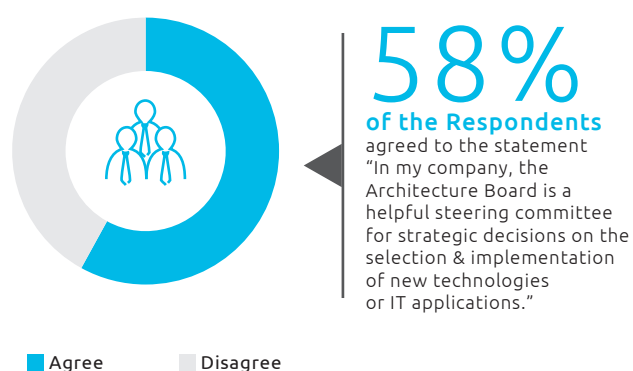
**Figure 16: The role of EAM in the selection of new technologies or IT applications**



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As stated in the previous chapter, Enterprise Architecture Management is perceived as an important facilitator in IT strategic decisions making. However, only 58% of the participants see the Architecture Board as a helpful steering committee for strategic decisions on the selection and implementation of new technologies or IT applications, as shown in Figure 17. This contradiction shows that there is a gap between the perception of the Enterprise Architecture Management function as an important companion of the IT strategy process and the appropriate implementation of the Enterprise Architecture Management processes and committees in the strategic decision-making process.

**Figure 17: The role of the architecture board for strategic decisions**



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In conclusion, the study results imply that although Enterprise Architecture Management is playing an important role in selecting and implementing new technologies, the contribution of Enterprise Architects to actively shape the corporate digitization strategy with innovative IT solution designs has potential for improvement. Or in other words: Enterprise Architecture Management is rather seen as an operative than a strategic instrument for adopting new technologies or IT applications.

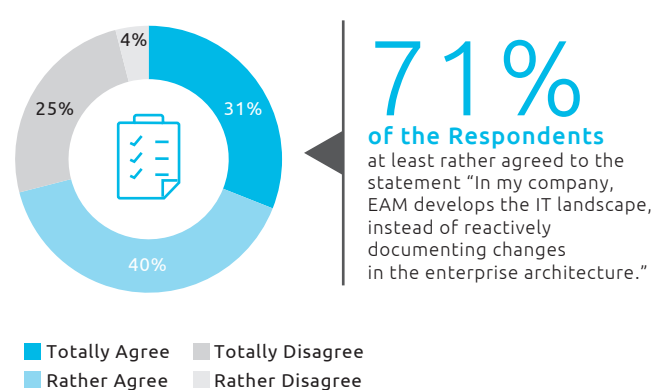


# THE IMPORTANCE OF AGILE PRINCIPLES AND METHODS

The Capgemini IT Trend Study 2018 revealed that around 84% of CIOs want to expand the use of agile methods in the future. IT release and deployment cycles are becoming shorter and shorter. More than every seventh company releases weekly and almost every fourth company monthly improvements of their individual applications (Capgemini Deutschland GmbH, 2018)<sup>4</sup>. But is Enterprise Architecture Management already on the way of becoming agile and are agile architecture principles already implemented as guidelines to ensure highly flexible IT architectures in today's digital economy?

In the past, Enterprise Architecture Management has been criticized for spending a lot of effort on detailed documentation and developing a rigid construction of rules and principles instead of actively driving change and fostering agility. Our study reveals that this perception of Enterprise Architecture Management has changed. With 71% of the participants the majority rather or totally agrees that Enterprise Architecture Management proactively further develops the IT landscape, instead of reactively documenting changes in the enterprise architecture (Figure 18). To further accelerate Enterprise Architecture Management related activities the need to adopt agile working methods constantly rises. This section will show how agile methods are used within companies in IT departments and in Enterprise Architecture Management.

**Figure 18: The role of EAM: landscape developer vs. change documenter**

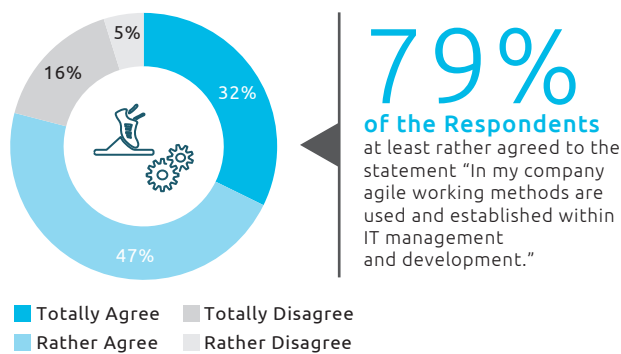


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<sup>4</sup>Capgemini Deutschland GmbH (2018). Studie IT-Trends 2018

This study reveals that there are still a lot of improvement potentials regarding agility in Enterprise Architecture Management. Only 31% of the participants saw Enterprise Architecture Management as enabler to achieve the required flexibility of IT landscapes which is needed for shortened release times and faster time-to-market. Furthermore, only 35% perceive Enterprise Architecture Management as a promotor for agility as previously shown in Figure 14.

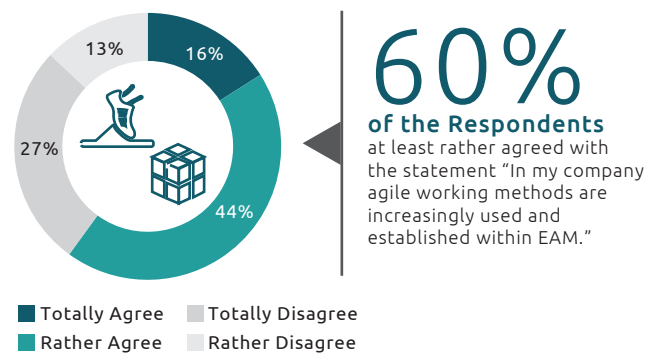
**Figure 19: The use of agile working methods within IT management and development**



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While 79% of the participants rather or totally agreed that the IT management and development use agile methods, only 60% think that this is also true for Enterprise Architecture Management (Figure 19 & 20). This implies that Enterprise Architects need to further develop their traditional skill set and need to adopt agile working methods more actively to increase their position as an enabler for dynamic and flexible developments.

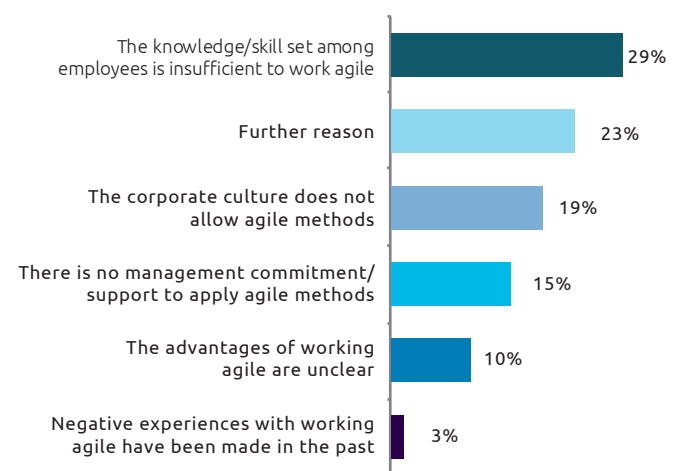
**Figure 21: The use of agile working methods within EAM**



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But what are the reasons for an insufficient use of agile methods? 29% of the participants stated that the knowledge/skill set among employees is insufficient to work agile. About 19% of the participants stated that the corporate culture does not allow agile ways of working. This goes along with a lack of management commitment, which leads in the eyes of 15% of the participants to an insufficient use of agile methods (Figure 21). Many participants state that a shift to agile principles is in progress or would at least welcome a change of the mindset throughout their company. This implies room for improvement in two ways: The management must establish a corporate culture which enables and fosters working in an agile way. Additionally, it needs to be ensured that the employees are enabled sufficiently to apply agile principles.

**Figure 21: Reasons for the insufficient use of agile working methods**

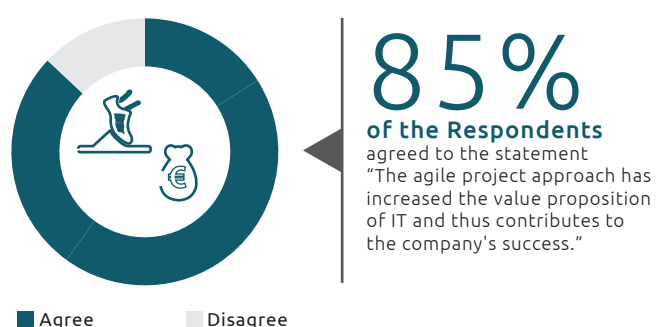


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Agile methods are a success story for companies and there is a strong trend towards promoting agile principles and methodologies in practice. Only 3% saw “negative experiences in the past” as a reason for not applying agile methods (Figure 21). In contrast 85% of the participants stating that agile project approaches have increased the value proposition of IT and thus

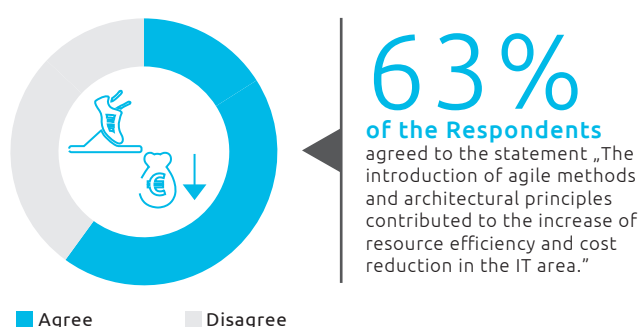
contributes to the company’s success (Figure 22). In the eyes of 63% of the participants this can be achieved by introducing agile working methods and architectural principles, which contribute significantly to the increase of resource efficiency and to the reduction of IT costs (Figure 23).

**Figure 22: Contribution of agile project approaches to company’s success**



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**Figure 23: Value contribution of agile methods and architectural principles**



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In conclusion, companies are convinced of the benefits of working agile. Enterprise Architecture Management needs to use the potentials of working agile more intensively. It must further develop its abilities and adapt agile methods to its specific needs to make them compatible with the architectural mission of giving structure, stability, standards

and guidelines to the joint development of IT and business functions. Enterprise Architecture Management needs to take the chance to further establish itself as a managerial function by adopting agile methods and foster their application within in the company.



## 7

# CONCLUSION AND OUTLOOK

Our study indicates that the importance of Enterprise Architecture Management as an established corporate function increases. In most cases it is rather perceived as an IT function than being truly cross-functional. It is seen as an important moderator between IT and business functions but does usually not have the position to shape strategic decision making.

Even though, IT efficiency improvements remain to be one of the major tasks of Enterprise Architecture Management, the need to become a facilitator for the digital transformation and an enabler for new technologies is steadily increasing. The study shows that due to the lack of really contributing to and shaping corporate strategies Enterprise Architecture Management does yet not develop its full potential as key instrument in digital transformations.

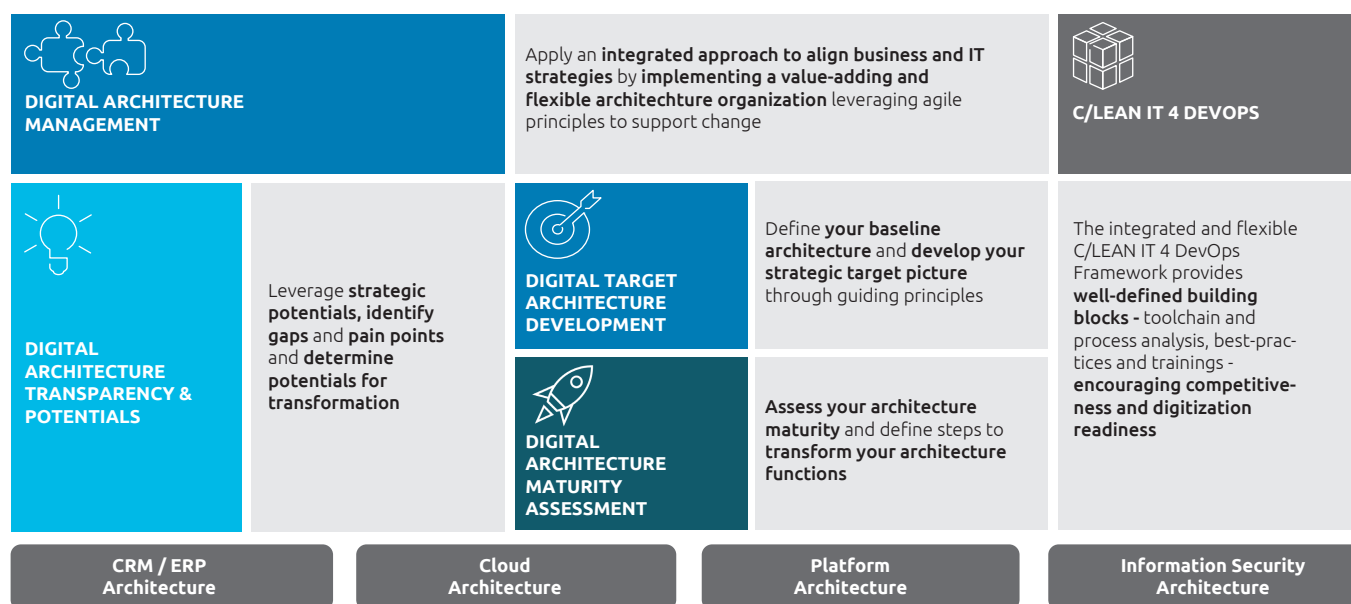
Generally, digital transformations go hand in hand with a shift to more flexibility and agility. The study reveals that the adoption of agile principles is in most of the cases a success for companies. Participants have stated that the value proposition of IT and its contributes to a company's success is positively influenced by applying agile working methods. However, Enterprise Architecture Management has still a lot of improvement potentials regarding agility which is required to facilitate digital solution design. Main reasons for a lack in agility are missing skill sets and a culture characterized by working in silos. Enterprise Architecture organizations need to overcome these challenges by investing in agile and dynamic skill sets to become a trusted enabler in digital transformations.



# CAPGEMINI DIGITAL ARCHITECTURE MANAGEMENT PORTFOLIO

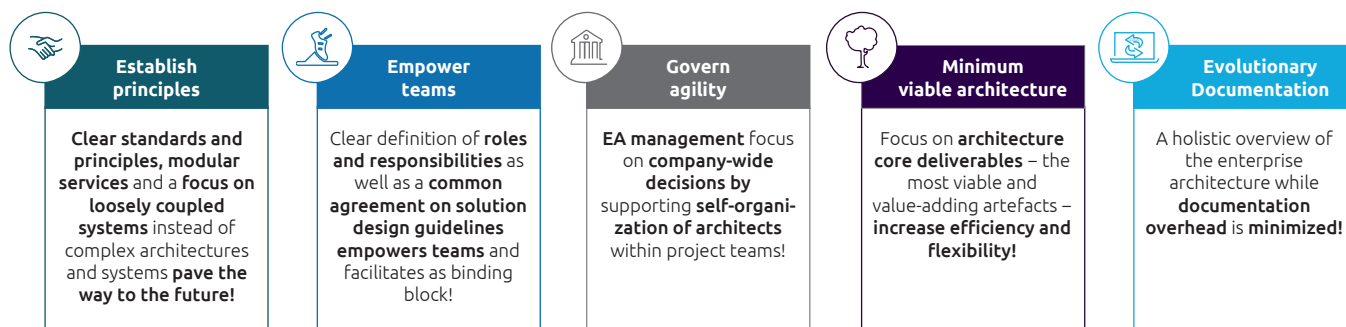
The Capgemini Invent Digital Architecture Management practice delivers various services to our clients, from establishing agile and innovative Enterprise Architecture Management departments to providing the right tools and methodologies to design flexible and capability driven system landscapes in IT and Business transformations. Our approach is based on five key

disciplines that aim to reposition established EA departments. The goal is to maximize value added activities of Enterprise Architects by acting as a trusted Business advisor rather than documenting and maintaining legacy systems.



Based on numerous projects that have been delivered by Capgemini Invent in the field of Enterprise Architecture Management, we implemented five key design principles in our approaches and services. The overarching message to our clients is that agile ways of working and business

specific knowledge need to be part of the DNA of every digital Enterprise Architect. This practice needs to become the spear part of innovations, delivering innovative solution designs and building blocks that foster agility and flexibility of IT landscapes.



## 9

# CAPGEMINI INVENT PROFILE

Capgemini Invent combines strategy, technology, data science and creative design to solve the most complex business and technology challenges.

Disruption is not new, but the pace of change is. The fourth industrial revolution is forcing businesses to rethink everything they know. Leading organizations behave as living entities, constantly adapting to change. With invention at their core, they continuously redesign their business to generate new sources of value. Winning is about fostering inventive thinking to create what comes next.

Therefore we have created Capgemini Invent, Capgemini's new digital innovation, consulting and transformation global business line. Our multi-disciplinary team helps business leaders find new sources of value. We accelerate the process of turning ideas into prototypes and scalable real-world solutions; leveraging the full business and technology expertise of the Capgemini Group to implement at speed and scale. The result is a coordinated approach to transformation, enabling businesses to create the products, services, customer experiences, and business models of the future.



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# ABOUT CAPGEMINI INVENT

As the digital innovation, consulting and transformation brand of the Capgemini Group, Capgemini Invent helps CxOs envision and build what's next for their organizations. Located in more than 30 offices and 22 creative studios around the world, its 6,000+ strong team combines strategy, technology, data science and creative design with deep industry expertise and insights, to develop new digital solutions and business models of the future.

Capgemini Invent is an integral part of Capgemini, a global leader in consulting, technology services and digital transformation. The Group is at the forefront of innovation to address the entire breadth of clients' opportunities in the evolving world of cloud, digital and platforms. Building on its strong 50-year heritage and deep industry-specific expertise, Capgemini enables organizations to realize their business ambitions through an array of services from strategy to operations. Capgemini is driven by the conviction that the business value of technology comes from and through people. It is a multicultural company of over 200,000 team members in more than 40 countries. The Group reported 2018 global revenues of EUR 13.2 billion. People matter, results count.

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