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WHY

DIGITAL ARCHITECTS

ARE HARD TO FIND BUT CREATE THE
IMPACT YOU NEED!

HOW THE ROLE OF DIGITAL ARCHITECTS AND
THEIR ORGANIZATIONAL FUNCTION CHANGES

Digital Architecture Study | **2023**

CONTENTS

01.

MANAGEMENT SUMMARY

Organizations must adapt to today's rapidly changing business environment, characterized by globalization, digitalization, global crises such as the war in Ukraine, supply chain dependencies or unpredictable events as for example COVID-19. This constant need to adapt highlights the crucial role of Digital Architects as guides for digital transformations. But what is expected from Digital Architects? How should Digital Architects position themselves in the future? How is the Enterprise Architecture function influenced by an employee shortage in the IT sector? Will there be a change of the Enterprise Architecture function within organizations due to increasing functional requirements?

In practice, a well-implemented Enterprise Architecture Management (EAM) enables companies to overcome the challenges towards a future-proof IT. The Capgemini Invent Digital Architecture Study 2023 examines the future of Digital Architects and their organizational function. Our key findings can be summarized into the following four outcome statements:

- **Digital Architects play an essential role in digitization and strategic coordination between business and IT:**

  Digital Architects are the drivers of digital transformation and therefore should be employed in all three types (Enterprise Architects, Domain Architects, and Solution Architects). This ensures that different strategic and operational requirements within an organization are covered. By enabling the business IT collaboration and provisioning of company-wide principles, Digital Architects contribute to an advanced and well-founded decision-making.

- **Digital Architects require a flexible skillset to link strategic and operational demands to IT systems:**

  The three different types of Digital Architects (Enterprise Architects, Domain Architects, and Solution Architects) need to constantly adapt their skillset in a fast-paced and changing environment. Digital Architects must be more business oriented, customer driven and show greater communication skills in the future. They need to understand the business process demands and translate between business and IT. Additionally, they should have knowledge about current architecture trends within their area of expertise.

- **Limited availability of Digital Architects has a major impact on companies in the development of their Enterprise Architecture:**

  In a fast-paced world, it is alarming that the average time taken to hire Digital Architects is three times longer than other IT personnel. If vacant positions cannot be filled with suitable applicants, this can result in technical debt as insufficiently skilled personnel may be forced to make important architectural decisions. Taking care of these decisions is important to prevent slowing down strategic and operational processes that align business requirements and IT systems. Therefore, companies must take action to upskill existing employees or to hire external Digital Architects, both leading to other challenges and benefits that must be considered.

- **Enterprise Architecture functions still show a tendency towards a centralized orientation, missing the opportunity to better support the business in a more flexible way:**

  The shift from central to federal Enterprise Architecture functions promotes their role as link between business and IT. Nevertheless, companies not transforming towards a federal governance could hinder strategic steering due to missing proximity to functional domains. Additionally, it is important to improve the proactive involvement of architects that belong to the EA function into digitization projects. It will be relevant to integrate EA more into strategic decision-making as data provided by Enterprise Architecture brings added value and provides a strong foundation for reliable decision-making.

02.

PURPOSE AND CONTENT OF THIS STUDY

In our fast-paced, globalized, and digitized business world, organizations must be able to quickly react to environmental change. This need for constant adaption in a changing environment emphasizes the importance of Enterprise Architects as the navigators of digital transformations. We observe that teams of Enterprise Architects need to pay more attention to emerging and disruptive technologies to prepare IT organizations for upcoming changes. Having a common vocabulary between business, IT employees and its management fosters a common understanding regarding the effects disruptions will have on business models.

On the one hand, there are constantly increasing expectations regarding the delivery of new IT products and their time to market. The IT organizations are asked to be faster and deliver in a more agile and iterative way. On the other hand, the application landscape tends to get more fragmented and complex. 20 years ago, most organizations had only few monolith core systems in place and strived towards standardized processes. Nowadays, complexity grows rapidly as Enterprise Architects are challenged to manage thousands of trifles to deliver in a modern fashion.[1] This requires a new skillset and a more collaborative way of working between business and IT.

Our Digital Architecture Study 2022[2] revealed that the crucial limiting factor in the introduction of emerging technologies is a shortage of skill and knowledge, e.g. in the field of IoT or Machine Learning. Due to the increasing willingness to adopt new technologies it is likely that there will be a tougher battle for architects in the near future on the labor market. It is expected that by 2023 more than 60% of companies require Enterprise Architects to guide their digital transformation plans.[3]

This is supported by the fact that Enterprise Architects are within the top 10 ranked jobs when it comes to vacant positions in the US in 2022 (14.021) and ranked 11th in the UK job market (1.328).[4] A recent Gartner study revealed that beside the competencies and skills of an Enterprise Architecture team also the prioritization of time and energy are essential pieces in the setup of a successful EA practice

to retain Digital Architects and keep existing knowledge within the company.[5]

Facing challenges like architect shortages, shortages on the labor market, disruption through new business models and increased complexity in the IT architecture, we hypothesize that the Enterprise Architecture function will realign towards a more integrated and collaborative unit. The job of modern Digital Architects will change from reducing IT complexity towards creating a digitally enabled business strategy that leverages new and innovative technologies. Additionally, current research shows that architects witness a shift from a more general to a more enterprise-function-specific skillset.[6]

Therefore, the goal of this study is to analyze the change impact for the Enterprise Architecture function and to point out which skills will be relevant for architects to survive in the fast-changing environment. We take a closer look at the following questions to determine how Digital Architects can optimally deal with future challenges and create maximum value for the enterprise:

- How should Digital Architects position themselves within the organization in the future?

- What will be expected from Digital Architects on what to deliver or how to add value?

- What is the impact of employee shortage on the operational capability of the EA function?

- Will there be a shift of the Enterprise Architecture function within organizations that changes the way how it is perceived or realized?

Our questionnaire was developed by and provided to IT top executives and business- and IT experts, managing Digital Architects. The following chapter will briefly outline the company size and industry distribution of participants in our survey.

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[1] Enterprise Architecture: Best and Worst Practices, Architecture & Governance magazine, 2022.
[2] How Scaling Technologies Challenge Digital Architecture, Capgemini, 2022.
[3] Enterprise Architecture Enables Digital Innovation, Gartner, 2021.
[4] Best Jobs in America 2022, Glassdoor, 2022. Best Jobs in the UK for 2022, Glassdoor, 2022.
[5] Leadership vision for Enterprise Architecture leaders, Gartner, 2022.
[6] Why Enterprise Architecture has emerged as a top IT job, RedHat, 2022.

03.

PARTICIPANTS OF THIS STUDY

All results of this year's Capgemini Invent Global Digital Architecture Study base on the contribution of participating companies and their experts from 9 different countries, located in Europe, Asia, North America and Australia. In total there are 60 responses from business & IT experts managing Enterprise Architects and IT top executives.
The participants represent various industries, markets, and company sizes. In the following section, the described participants of the anonymized study are based on their characteristics.

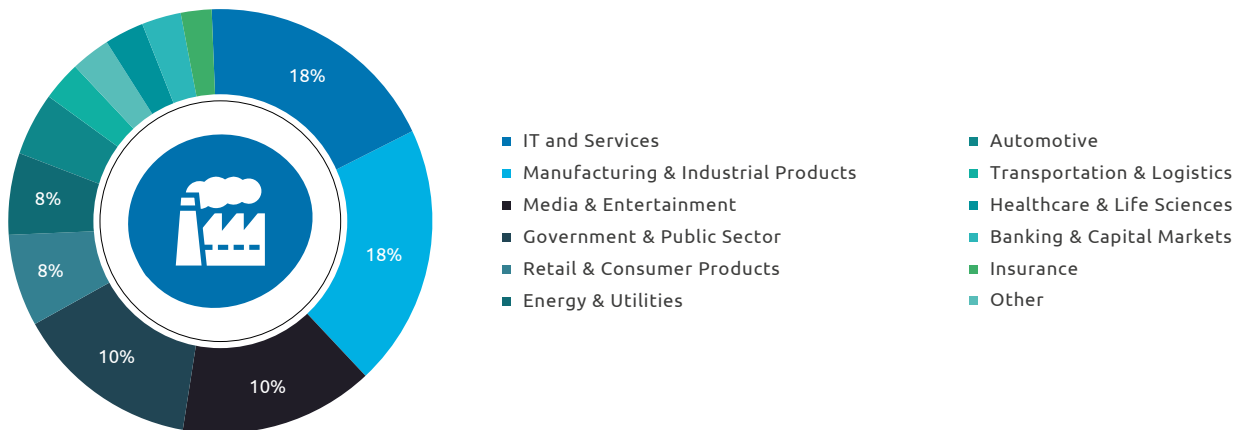| Figure 1	Participants' global distribution
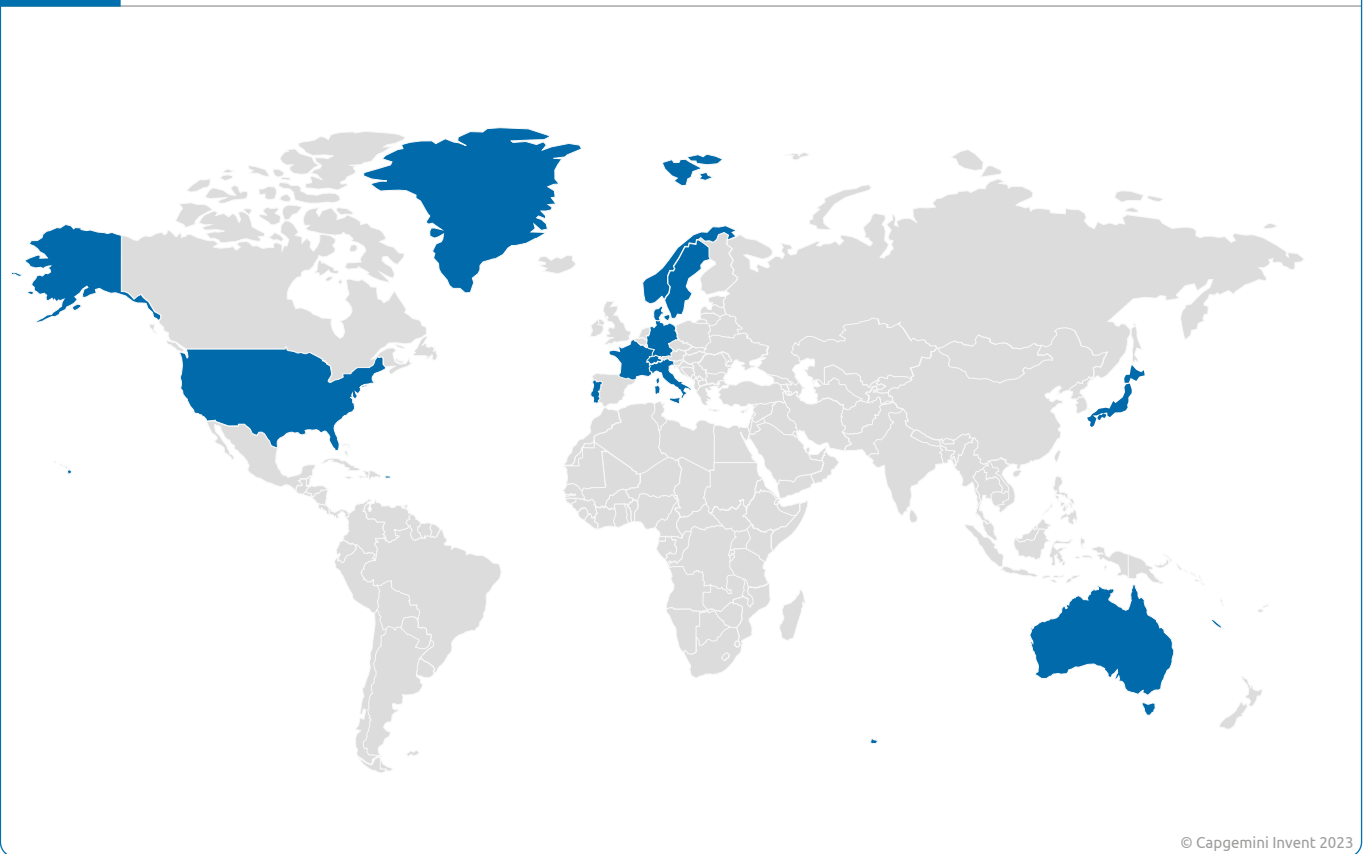
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The participants are from a broad range of industries, while the top 3 are: IT and Services (18%), Manufacturing & Industrial products (18%) and Media & Entertainment (10%) (Figure 2).

Figure 2 | **Participants' industry sectors**

- IT and Services
- Manufacturing & Industrial Products
- Media & Entertainment
- Government & Public Sector
- Retail & Consumer Products
- Energy & Utilities
- Automotive
- Transportation & Logistics
- Healthcare & Life Sciences
- Banking & Capital Markets
- Insurance
- Other

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The study is based on companies with a wide range of business models and revenue categories. Most of the participants (91%) are 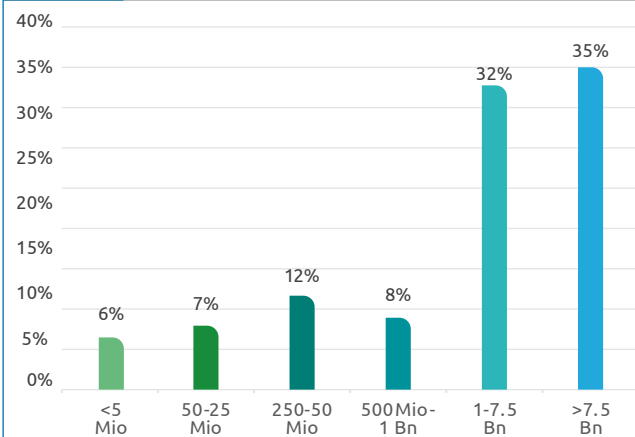employed by companies with more than 1,000 employees (Figure 3). More than two thirds of the participants (67%) work for a company with more than 1 billion euro in revenue as shown in Figure 4.

Figure 3 | **Size of organizations**

Number of Employees
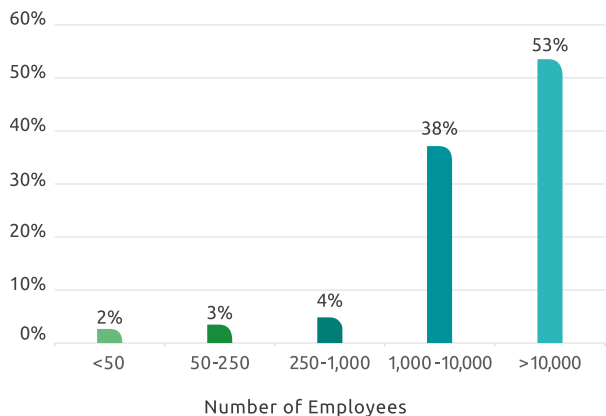
© Capgemini Invent 2023

Figure 4 | **Revenue distribution of organizations**
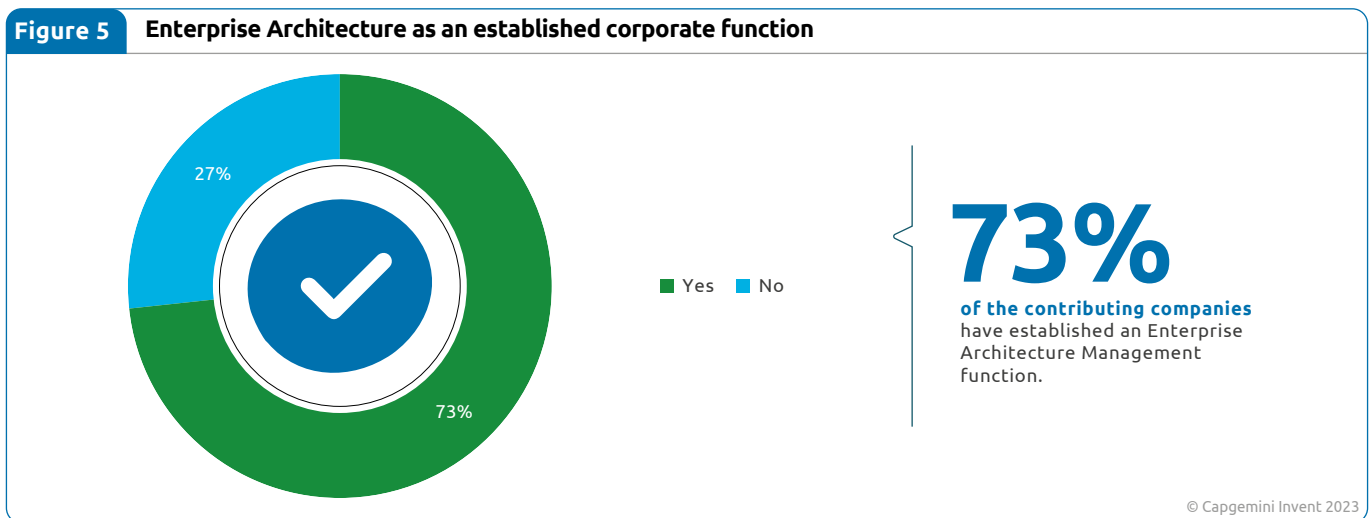

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04.

CURRENT STATE OF ENTERPRISE ARCHITECTURE MANAGEMENT

Enterprise Architecture Management (EAM) is a management function for the structured and holistic design and development of Enterprise Architecture (EA) to facilitate the implementation of the vision and strategy of the business. EAM provides guidelines, strategy, principles, governance, and practical design tools for the IT landscape to ensure sustainable business success. Among other goals, an important one is the reduction of the complexity of the IT landscape as well as its strategic, business-oriented development to further bridge the gap between business and IT. Furthermore, EAM provides recommendations for aligning policies and projects to achieve targeted business outcomes to business and IT leaders. This promotes decentralized decision-making and guidance through Enterprise Architects for architecture topics at the operational level. Nevertheless, corporate practice often differs from theoretical design, so it is necessary to take a deeper look into the corporate reality of EAM.
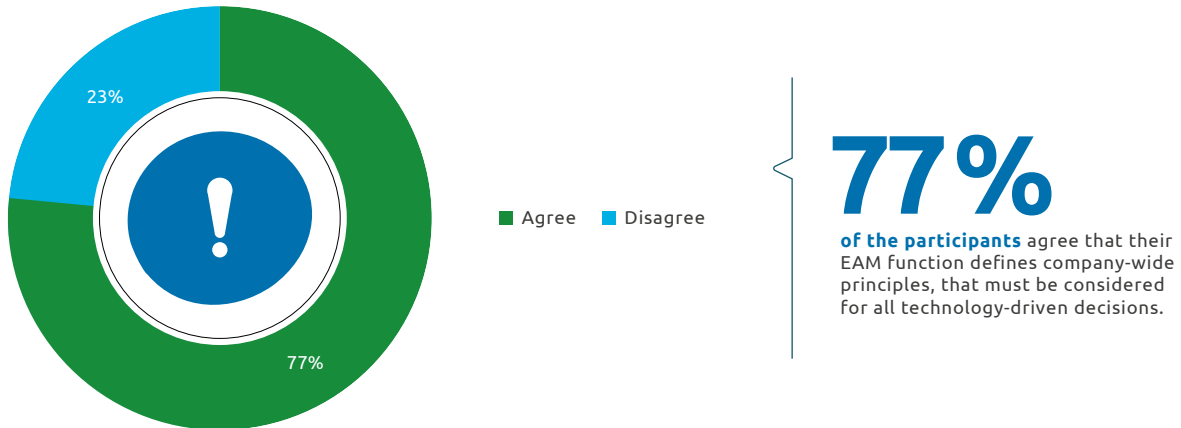

Figure 5   **Enterprise Architecture as an established corporate function**

27%

73%

■ Yes   ■ No

73%
of the contributing companies have established an Enterprise Architecture Management function.

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The establishment of Enterprise Architecture as a corporate function, which applies to two thirds of the study participants (Figure 5), does not necessarily correlate with its effective operation within an organization in a positive way. It can be assumed that the maturity levels of EAM functions typically span between a low and medium level, which is also confirmed by the previous year's Digital Architecture study results. A further drill-down into this year's results reveals that companies, that do not have EAM as an established corporate function, are rather small (<1,000 employees). Assumingly those companies have probably not yet recognized the need to manage their IT landscape in a structured and efficient manner or their IT is rather simple to manage. With an increasing company size, the role of EAM gets more important, which can be confirmed by the study results, indicating that larger companies (> 1,000 employees) have a dedicated EA function. Typically, there can significant variances be observed across different industries and company sizes. The telecommunications industry for example prominently utilized architectural frameworks over a decade ago to facilitate its transformation. This led to the emergence of comprehensive reference models, including application architecture, process mapping, and standard data/information models.

Figure 6   EAM function defines company-wide principles for all technology-driven decisions

23%

77%

■ Agree   ■ Disagree

77%

of the participants agree that their EAM function defines company-wide principles, that must be considered for all technology-driven decisions.
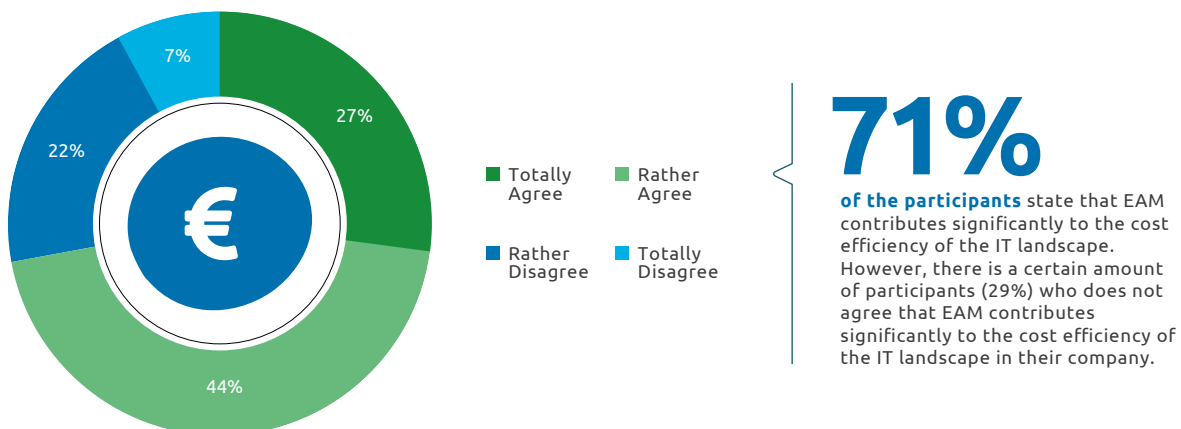
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Architecture governance is of great significance for sophisticated and well-grounded decision-making. Without clear guidance, central architecture repositories and principles being applied, Enterprise Architecture has not the impact promised by theory in large organizations. An emerging trend has been identified whereby the use of principles is increasingly prevalent. In contrast to past trends, where principles were adopted yet remained unused, it is now evident that companies with high EA maturity levels are progressively harnessing EA principles effectively as an EA governance tool, even those with a decentralized EAM function. Results show that for over 77% of the participants the EAM function establishes company-wide principles for all technology-drive decision (Figure 6). Despite these advancements, there remains room for growth in terms of adherence to established EA principles.

It has been observed that guiding principles either do not exist or are not adequately utilized by a third of the participating companies. As those decisions are getting more relevant for the business success, from experience this is a reason for many companies to reduce the gap between business and IT, which is especially persistent in small and medium sized companies.

With growing business requirement complexity, the IT costs are constantly increasing. Companies with an established EAM function typically have more transparency and can use cost management instruments more efficiently as a result. This is confirmed by the results, as for 71% EAM contributes to the cost efficiency of the IT landscape, e.g. by identifying IT applications or service providers to be consolidated (Figure 7).

Figure 7   EAM contributes significantly to the cost efficiency

7%

22%

27%

44%

■ Totally Agree   ■ Rather Agree

■ Rather Disagree   ■ Totally Disagree

71%

of the participants state that EAM contributes significantly to the cost efficiency of the IT landscape. However, there is a certain amount of participants (29%) who does not agree that EAM contributes significantly to the cost efficiency of the IT landscape in their company.
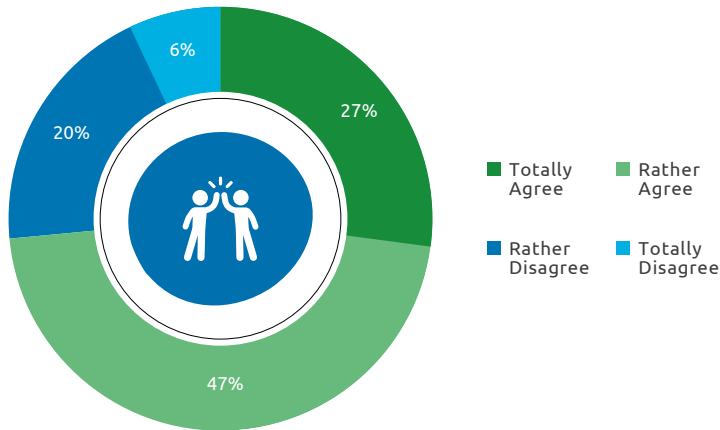
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EAM is a crucial factor in digitalization projects and is increasingly seen as an enabler in business-IT collaboration. Two thirds of the participating companies report that EAM enables collaboration between business and IT by

facilitating strategic decision-making. Therefore, EAM can be seen as an important key function for strategic collaboration (Figure 8).

Figure 8 | **EAM facilitates strategic decision-making between business and IT**

- Totally Agree
- Rather Agree
- Rather Disagree
- Totally Disagree

27%
6%
20%
47%

74%

of the participating companies agree that EAM facilitates strategic decision making between business and IT. Therefore, it can be seen as a key function for digital projects.

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In practice, it can be observed that the EAM function is evolving from just documenting Enterprise Architecture towards empowering decision-makers. This positively contributes to the function's own added value, that typically is hard to quantify. For example, the integration of the EAM function into the annual budget allocation process gave a company the opportunity to allocate project budget based on strategy analysis and business capability-based planning.

This way, the most promising initiatives have been planned prior to architectural changes. In line with the results presented so far, 92% of the participants agree that IT organizations will play an important role in the development and the adaptation of digital technologies (Figure 9). This further underlines the statement that business and IT are converging and will continue to do so in the future.

Figure 9 | **The role of IT in the development and adaptation of digital technologies is increasing**

- Totally Agree
- Rather Agree
- Rather Disagree
- Totally Disagree

8%
25%
67%

92%
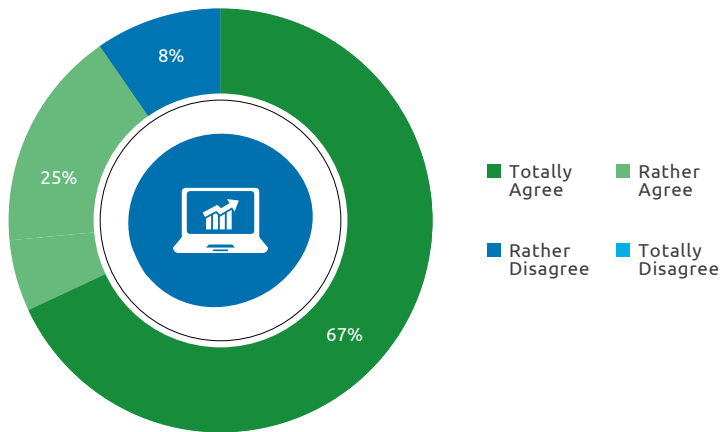
of the participants agree that the role of IT in developing and adopting digital technologies will significantly increase in the future.

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Key takeaways about the current state and importance of Enterprise Architecture Management:

- A focus on an increased EAM is beneficial to improve cost efficiency of IT landscapes.

- 73% of participating companies have an established Enterprise Architecture function, whereas its importance increases with company size. However, the establishment of an EA function does not necessarily correlate positively with its effective operation.

- The rising significance of strategic collaboration and alignment between business and IT departments is crucial for 74% of the participants. The support by an established Enterprise Architecture function, not only documenting Enterprise Architecture but empowering decision makers, is beneficial to ensure informed decision-making and the adoption of upcoming digital technologies which fit into the enterprise IT landscape.

- Companies with high EA maturity levels are progressively harnessing EA principles effectively as an EA governance tool. 77% of participating companies recognize that EAM majorly influences company-wide architecture principles driven by technology. Nevertheless, there remains room for growth in terms of adherence to established EAM principles.

05.

THE FUTURE OF ARCHITECTS AND THEIR ORGANIZATIONAL FUNCTION

As organizations strive towards an increased customer centricity, the mandate for Enterprise Architecture (EA) becomes even more relevant and complex. To see how the work of EA will evolve within the next five years, it is necessary to look at the status quo of EA practices today. This chapter describes how the EA functions continue to shift their value proposition, increase collaboration, and focus on architectures that enable their organizations to be fit for the future.
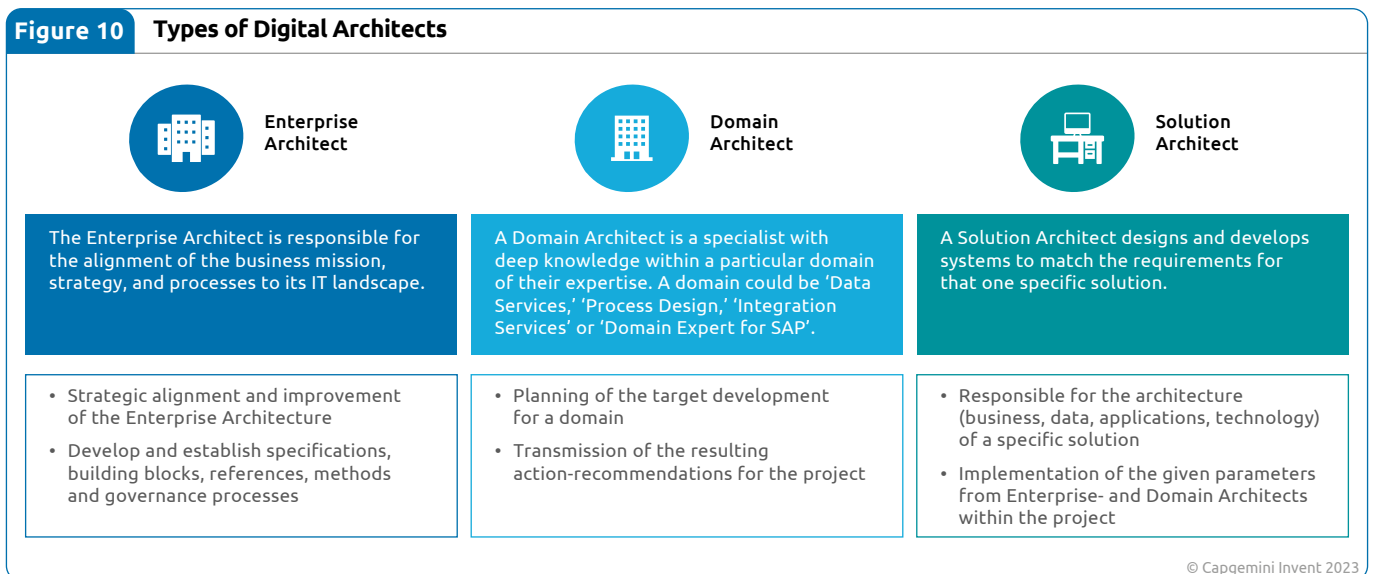
05.1

FUTURE OF ARCHITECTS

Not long ago, Gartner introduced the role of the Vanguard Architect [7], which describes individuals who lead the adoption and implementation of new and innovative technologies in organizations. We observe that this definition does not reflect our perception of how EA is facing digitalization and thus we see that term as too narrow. Therefore, we use the term Digital Architect that includes Enterprise Architects, Domain Architects and

Solution Architects. These roles, described in figure 10, are essential for every organization to shape the digital transformation and to ensure the strategic and operational fit of business demands and IT systems. They take different roles on various organizational levels – from designing the big picture of the entire enterprise to addressing individual demands on a specific solution.

Figure 10	Types of Digital Architects

Enterprise Architect	Domain Architect	Solution Architect
The Enterprise Architect is responsible for the alignment of the business mission, strategy, and processes to its IT landscape.	A Domain Architect is a specialist with deep knowledge within a particular domain of their expertise. A domain could be 'Data Services,' 'Process Design,' 'Integration Services' or 'Domain Expert for SAP'.	A Solution Architect designs and develops systems to match the requirements for that one specific solution.
• Strategic alignment and improvement of the Enterprise Architecture • Develop and establish specifications, building blocks, references, methods and governance processes	• Planning of the target development for a domain • Transmission of the resulting action-recommendations for the project	• Responsible for the architecture (business, data, applications, technology) of a specific solution • Implementation of the given parameters from Enterprise- and Domain Architects within the project

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Digital Architects work in a fast-paced and changing environment. They need the necessary orientation and skills. That is why we asked this years' participants of the

Digital Architecture Study about the current situation of their Digital Architects and what they expect from them in the near future.

[7] How Vanguard Enterprise Architects Lead Technology Innovation, Gartner, 2016.

USAGE OF DIGITAL ARCHITECTS IN ORGANIZATIONS

In general, it is recommended to have all three types of Digital Architects in a company, in order to take advantage of the benefits for the organization. Depending on the size of the organization, it can be reasonable to omit the role of the Domain Architects (e.g. in smaller organizations). But as soon as the organization is domain-oriented, it is recommended to have Domain Architects in place.

Figure 11 — **Combinations of Digital Architect types in participants' companies**

EA: Enterprise Architect;   DA: Domain Architect;   SA: Solution Architect
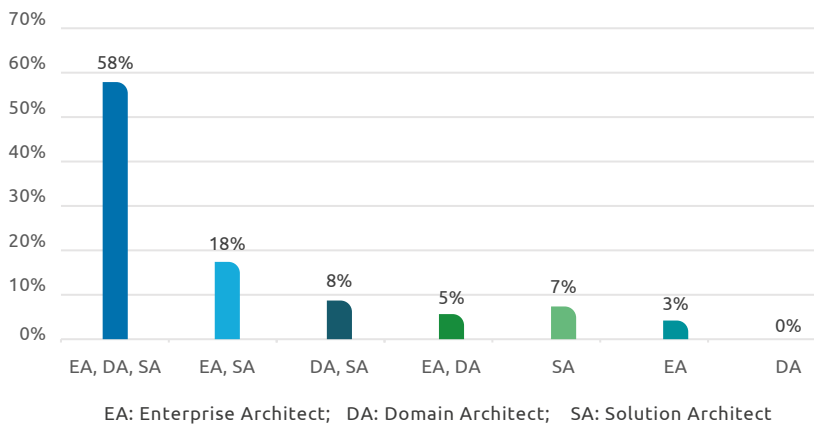
58%
of surveyed companies employ all three types of Digital Architects and an additional 23% have a combination of Enterprise Architects and Solution Architects or Domain Architects and Enterprise Architects.
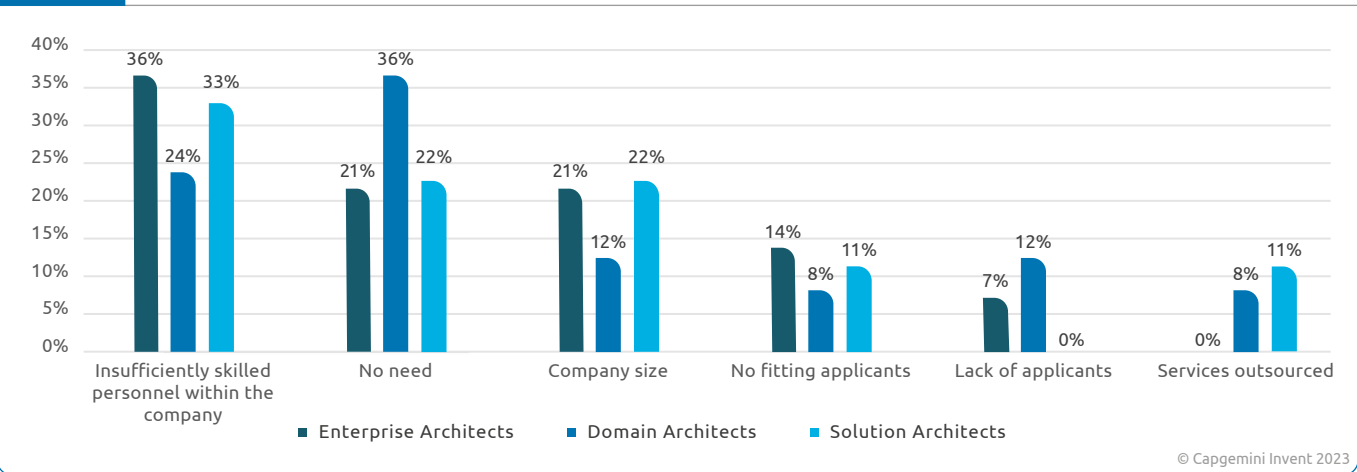
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The increasing complexity of business requirements and IT landscapes requires more than a shallow knowledge of Enterprise Architecture and implies the further specialization of the Digital Architects role into seperated Domain Architects and Solution Architects. This specialization is essential for making well-informed end-to-end architecture decisions. 58% of the surveyed companies have a combination of all three Digital Architect types. Another 18% have at least a Domain Architect, whereas 10% have a combination of Enterprise Architects and Solution Architects to cover the strategic and operational demands impacting the different architectures (Figure 11).

Establishing all three types of Digital Architect roles results in a higher distribution of knowledge throughout the organization, which requires an enhanced collaboration and governance model. Therefore it is recomended to structure the collaboration along the value chain and IT delivery processes. Furthermore, it is advisable to involve EAs in decision-making processes at an early stage and consult DAs and SAs when necessary (see chapter 5.2). In practice, the implementation of the roles also requires consideration of the used IT-delivery methods. Companies which have an established agile IT-delivery, typically set their solution architects close to the development teams and sometimes even making them also part of it.

This also highlights the increased distribution of architectural work, often referred to as democratization of Enterprise Architecture. Hence, Enterprise Architecture is not only developed in the ivory tower or within the EAM department anymore, but becomes a integrated management dicipline througout the complete organization.

Figure 12 | **Reason why respondent companies do not have a Digital Architect**

Figure 12: Reason why respondent companies do not have a Digital Architect. Categories: Insufficiently skilled personnel within the company (Enterprise Architects 36%, Domain Architects 24%, Solution Architects 33%); No need (36%, 36%, 22% — Enterprise 21%, Domain 36%, Solution 22%); Company size (21%, 12%, 22%); No fitting applicants (14%, 8%, 11%); Lack of applicants (7%, 12%, 0%); Services outsourced (0%, 8%, 11%). Legend: Enterprise Architects, Domain Architects, Solution Architects.

Most participating companies state that they do not have all 3 types of Digital Architects because of insufficiently skilled own employees (Figure 12). Combined with a lack of (fitting) applicants, this indicates that there is already a high demand of skilled architects today.

Within organizations the function of architects differ and there are varying tasks and mandates. This strongly correlates with factors such as the size or its organizational setup, as well as the corresponding technological environment and business strategy. Yet, surprisingly, the need for a specific number of architects isn't directly proportional to the organization's size. Instead, it is determined by the complexity of the holistic architecture, including elements like business model artifacts, the spectrum of applications in use, and the array of technological components deployed.

In companies with an heterogeneous business model the need to build a unique stack of Digital Architects for each business model type can be observed. Additionally in larger organizations are a higher proportion of domain-related architects, anchored in the respective specialized teams.

DIGITAL ARCHITECTS: WORKFORCE SHORTAGE

The rising complexity of the IT landscape, which requires smart management, fuels the increasing demand for specific skills of Digital Architects. Companies that do not employ Enterprise Architects and Domain Architects state, that one of the main reasons is the lack of (fitting) applicants. almost all participants (98%) agree that the availability of Enterprise Architects in the job market is very limited (Figure 13) and they are the most difficult type of Digital Architects to find (Figure 14). Historically, there was no established train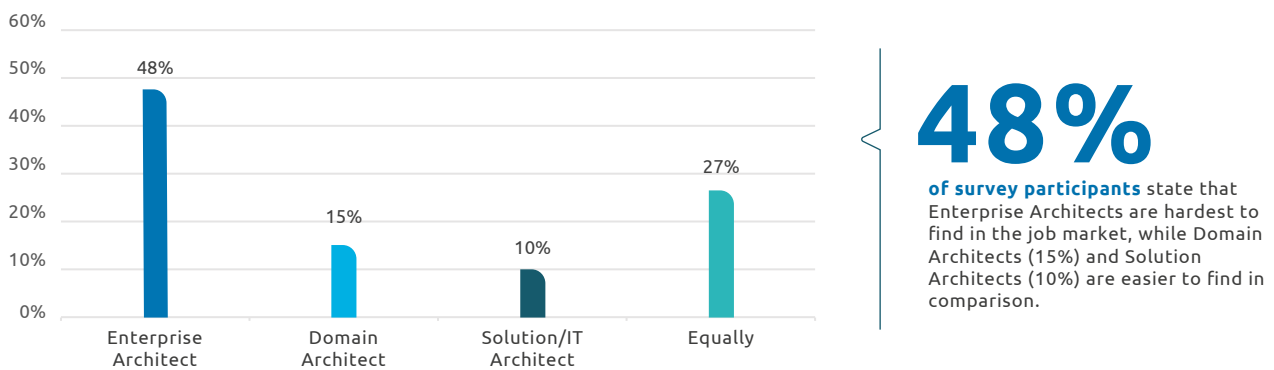ing program to become a Digital Architect. In practice the skill level was highly pronounced with the accumulated years of experience. It is striking, that today major consulting firms as well as public organizations are establishing dedicated career paths towards the different architecture roles. However, unless they plan to train a substantial number of Digital Architects over time (recommended > 20 per year), for most companies the investment into this training is not advisable due to the high effort and cost involved.

Figure 13 The availability of Enterprise Architects in the job market is limited

- Agree
- Disagree

2%

98%

98%

of the participants agree that the availability of Enterprise Architects in the job market is limited.
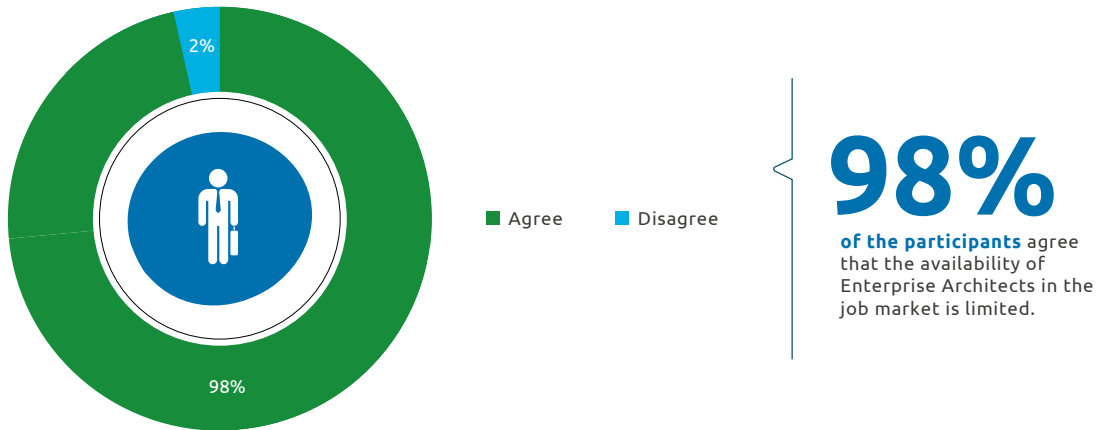
Figure 14 Different architecture roles are rarely available on the job market

48%

15%

10%

27%

Enterprise Architect

Domain Architect

Solution/IT Architect

Equally

48%

of survey participants state that Enterprise Architects are hardest to find in the job market, while Domain Architects (15%) and Solution Architects (10%) are easier to find in comparison.

An employee shortage in almost all larger organizations is obvious. Scarce resources typically lead to long time existing vacancies for highly demanded roles. Our survey clearly reveals that for the position of the Enterprise Architect. As a mitigation the usage of external personnel is often explored.

While vacancies in the IT sector are filled within a little more than 2 months (approx.44 working days) on average

(including junior and senior grades), it takes about 6 months to find a suitable Enterprise Architect (senior grade) in most of all cases (Figure 15). The average time to fill vacancies includes junior positions that usually get filled faster than senior positions.[8] However, waiting more than 6 months to fill a vacant Enterprise Architect position is quite challenging.

[8] Can you wait 49 days? Why getting hired takes so long in engineering, LinkedIn Economic Graph – Anders, 2021.

Figure 15 | **Time required to find a suitable Enterprise Architect for a vacant position (in months)**

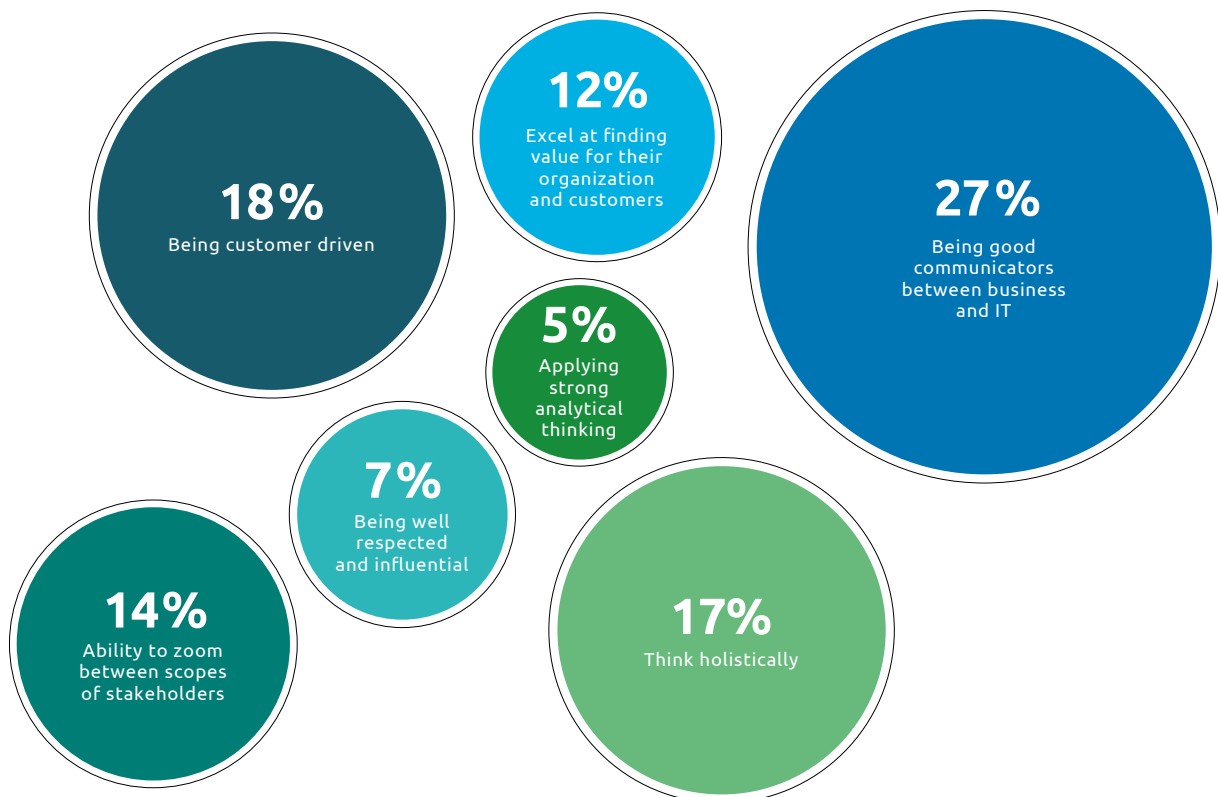| Months	%
<=1	2%
2 to 4	8%
5 to 8	52%
9 to 12	26%
13 to 18	10%
18 to 24	2%
>24	0%
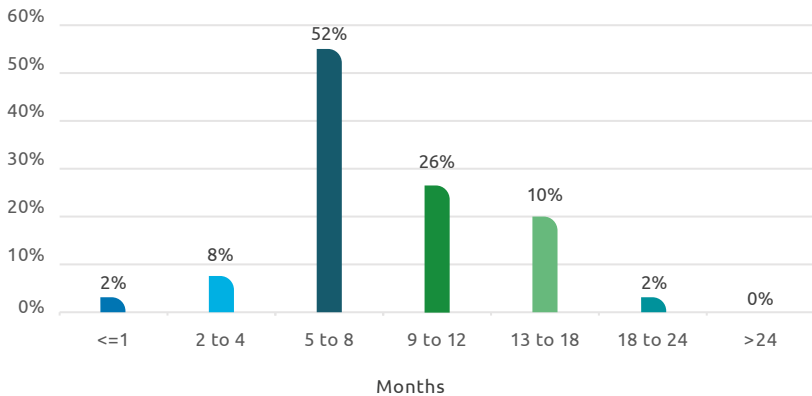
52%

of survey participants state that finding a suitable Enterprise Architect for a vacant position takes about 5-8 months. For 39 % of companies, it takes even longer.

As one reason for this shortage, we see the complexity of Enterprise Architecture requiring a very specific skillset, consisting of business and IT skills. Enterprise Architects should also have great communication skills, to successfully understand and translate between business and IT. Additionally, a customer-centric attitude and holistic thinking have also been stated as critical success factors for Digital Architects (Figure 16).

**Figure 16** | **Success factors for Digital Architects**

- **18%** Being customer driven
- **12%** Excel at finding value for their organization and customers
- **27%** Being good communicators between business and IT
- **5%** Applying strong analytical thinking
- **7%** Being well respected and influential
- **14%** Ability to zoom between scopes of stakeholders
- **17%** Think holistically

We clearly observe that Enterprise Architects serve as more than just methodological and governance advisors. Although it is often stated that EA can be seen as an industry-agnostic discipline, today we experience that they also function as valuable business collaborators. Therefore, it is required to have a deep understanding of industry specifics. That is why Enterprise Architects, when transitioning from one industry to another (for instance, from telecommunications to retail), need a period for adjustment which includes both technical and business-related familiarization. This makes it difficult for companies to find suitable profiles.

With the increasing complexity of business demands and a faster pace in changes the complexity of Enterprise Architecture behaves accordingly. This augmentation in complexity consequently influences the prerequisites for Enterprise Architects. In addition, figure 18 shows that a broad majority of the surveyed companies (92%) are convinced that the complexity of Enterprise Architecture will further increase in the upcoming years.

Figure 17 | **The complexity of Enterprise Architecture is increasing**

92%
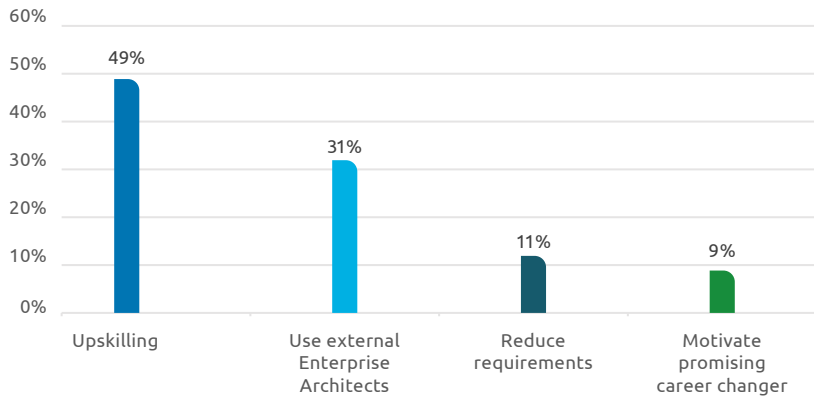**of the participants** are convinced that the complexity of Enterprise Architecture is increasing.
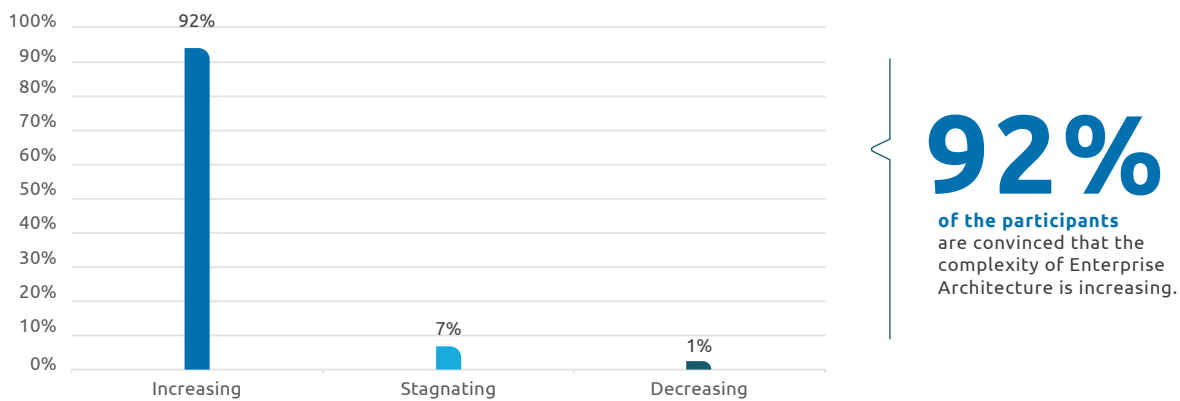
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Given the limited industry mobility due to the need for specific industry knowledge and as the increasing complexity extends the demands on Enterprise Architects, many Enterprise Architect positions stay vacant. This can become a critical risk for companies. Digital Architects should provide necessary and relevant information about the structure, dependencies and interactions of the companies' architecture to enable decision makers, to take decisions on a solid basis. The lack of Digital Architects can lead to decisions being taken on false, incomplete, or missing information or decision makers not to consider all relevant information. The challenge of filling these roles is further complicated by the need for not only methodological knowledge around architecture management, but also extensive experience in bridging technology, implementation, and strategic business development. In consequence, this can result in technical debt and an increasing complexity of the IT landscape. This leads many Digital Architects towards a more specialized role as Solution Architects or Program Managers. The challenge with the "rare breed" of Enterprise Architects is that they are positioned between tech-savvy experts who often lack a comprehensive understanding of business context and the soft skills necessary for business communication on the one side and those with this understanding and the required soft skills, such as experienced Project Managers or Scrum Masters, often lacking in-depth technical knowledge on the other side.

Figure 18 — Mostly used alternatives to fill a vacant position of an Enterprise Architect

Upskilling: 49%
Use external Enterprise Architects: 31%
Reduce requirements: 11%
Motivate promising career changer: 9%

49% of survey participants state that upskilling is the mostly used alternative to fill a vacant position, followed by the use of external Enterprise Architects (31%) and the reduction of requirements (11%).

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Due to the high difficulty in filling vacancies, companies try to upskill Enterprise Architects internally. However, this can lead to problems in technology control and manageability of complexity because the profile of Digital Architects is complex and highly specific. Consequently, strategies have been developed to mitigate these risks. The most common way to fill a vacant position in Digital Architecture teams is by upskilling existing work-force (Figure 18). This has the advantage that the new Digital Architect is already familiar with the company, its processes and strategy. However, this may result in other potentially important positions becoming vacant. Some companies (11%) reduce the requirements for the vacant position to attract more applicants. However, this can also become a long-term risk, as lowering the requirements may lead to

unsuitable candidates being hired, who will then develop the architectural landscape in an undesirable direction. Typically, many organizations hire junior colleagues with limited experience or those transitioning from different roles within or outside the company. Such an approach can risk both the economic success and the effectiveness of the Enterprise Architecture function itself. The long-term potential of the architecture function may be compromised due to this strategy, which would finally lead to expensive correction measures that are necessary at a later point in time. The third and second most stated alternative is the use of external Enterprise Architects (31%) which is an option for 77% of the participating companies, for 37% even in long-term (Figure 19).

Figure 19 — The (long-term) employment of external Digital Architects is a possible solution

Totally Agree: 10%
Rather Agree: 27%
Rather Disagree: 40%
Totally Disagree: 23%
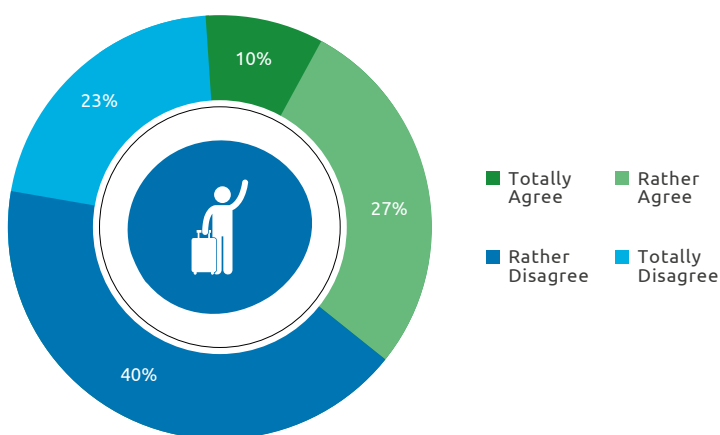
77% of survey participants do not exclude the use of external Digital Architects, 37% are willing to use them long-term.

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Engaging external architects can be perceived as a short-term fix rather than a lasting resolution to the underlying issue. Furthermore, vital knowledge could be lost when such personnel depart the company, unless a concurrent effort is made to upskill the internal architects. The clear benefit in employing external Enterprise Architects, as vacant positions can be filled very quickly with a skilled person. An additional effect is, that external architects may

have insights into other organizations purely based on their experience, which can practically lead to improvements of the architectural landscape and support the upskilling of the own employees. A drawback of hiring external architects is a potential lack of decision-power. They mostly can only make recommendations, which again must go through a decision-making process by an appropriate board. Due to this additional process, sometimes the decisions are not taken

timely and lead to technical debt. In strategic important areas such like the Enterprise Architecture function this can be a serious risk. Additionally, the long-term use of external architects could be costly but provides flexibility compared to internal resources. It is observed that numerous organizations make use of the engagement of external architects, even though they are aware of the significant risk of knowledge attrition. The urgency to navigate the prevailing complexity is typically at a critical point, making cost considerations less relevant. While this on-demand approach might be expedient, it lacks sustainability.

DIGITAL ARCHITECTS: GENERALISTS OR SPECIALISTS?

Given its evolution into a role, mainly driven by methodology, the Enterprise Architect holds paramount significance within a company. They adopt a broad and encompassing viewpoint, whereas the specialized Domain and Solution Architects have a deeper knowledge within specific areas. For decision-making based on concrete facts, the rudimentary methodology knowledge of the Enterprise Architects alone isn't adequate. Instead, increased collaboration with the Domain and Solution Architects, harnessing their specific expertise, is crucial. This point warrants explicit emphasis.

The various job roles require either generalists or specialists. Generalists have a very broad knowledge and understanding of their area of responsibility, can communicate with various specialists and translate between them if necessary. They serve as a link between specialists of different kind and often bring in a holistic perspective. Specialists have a very profound expert knowledge in one or more areas. They are mainly focused on achieving the best possible result in that area, but also have a rough understanding of the broad view with interrelationships in other areas to partly recognize the consequences, even though they do not always understand them to full extent. Both concepts can be applied to Digital Architects. For each of the three types of Digital Architects there are benefits that make it preferable to either have generalists or specialists (Figure 20).

Figure 20	Overview of generalists and specialists for different Digital Architecture types

Generalist

Enterprise Architect
- Holistic view, which leads to a broad understanding of the organization and its various functions
- Improved alignment lead to achieving technology and business goals as well as ensuring that technology investments align with the overall objectives of organization
- Broad understanding of the enterprise, they can identify and eliminate duplications and inefficiencies across the organization

Domain Architect
- Enhanced innovation due to a broader view of the organization, they are more likely to identify opportunities for innovation across multiple domains
- Better equipped to facilitate communication and collaboration between domains, improving cross-functional teamwork and driving better business outcomes

Solution Architect
- Identify opportunities for innovation across multiple functions
- Improved solutions while adding to an increased efficiency through their understanding across the organization

Specialist

Enterprise Architect
- Improved decision-making through their specialized knowledge and expertise of the relevant technology
- More familiar with latest trends in their area of expertise, allowing them to identify and bring new and innovative solutions to organizations

Domain Architect
- Comprehensive expertise, with a deep understanding within the organization, allowing them to provide in-depth knowledge and guidance to domains or provide domain-specific solutions
- Present domain-specific solutions, tailored to the specific requirements and constraints of their domains
- Focused attention on a specific domain, allowing them to drive more value and impact in one area

Solution Architect
- Ensuring that the implementation is delivered in a timely and effective manner even in complex situations through their detailed knowledge
- Improved decision-making, adding value to ensure that technology and solution decisions are based on a solid understanding of the relevant technology and business requirements

Overall, there is a clear trend towards generalist Enterprise Architects and specialized Domain and Solution Architects without any intention to change that in the near future. This also confirms the different responsibilities of the architects as stated at the beginning of this chapter. Enterprise Architects should have a holistic overview of the entire Enterprise Architecture landscape, including a rough understanding of all domains and solutions. Domain Architects have a narrower scope and are responsible for one dedicated domain and its solution. Solution Architects are focused on one or a few applications within the entire landscape. The focus has shifted away from rigid governance and towards direct collaboration. As a result, hierarchical structures no longer bear the primary influence;

instead, social skills take precedence, and these cannot be acquired merely through practical experience. Therefore, the different generalist and specialist orientations are necessary and reasonable for the three types of Digital Architects as they complement each other. Some companies draw a distinction within the role of the Enterprise Architect, differentiating between those focused on technology and those oriented towards specific domains. The domain-oriented Enterprise Architects maintain a generalist approach, but also undertake many tasks typically assigned to Domain Architects. Regrettably, contemporary concepts for cross-organizational collaboration, such as guilds or specialist groups, infrequently yield satisfactory results.

Figure 21 Current state of orientation for Digital Architect types and the corresponding orientation for the future

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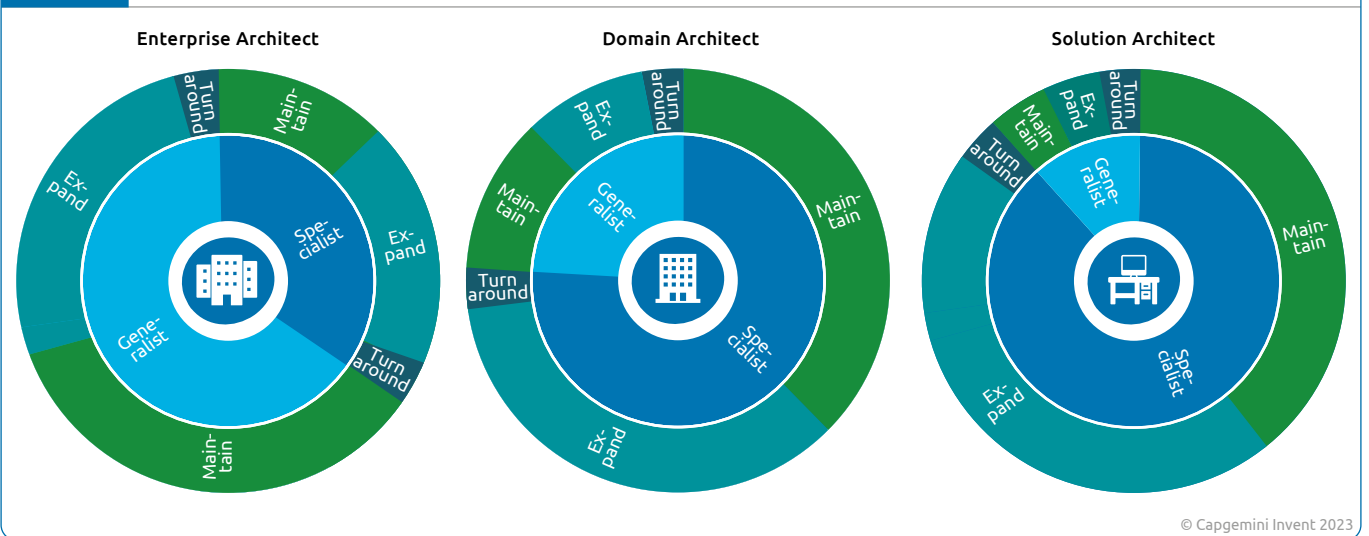
In the survey, most participants state that their Enterprise Architects have a generalist orientation (73%), which they want to maintain (49%) or expand (47%). Only 4% want to turn their orientation around and are aiming for more specialized Enterprise Architects. For the Domain Architects, most participants state that they have a

specialist orientation (79%) which they also want to maintain (51%) or expand (47%). Similar applies to Solution Architects that are also mostly described as specialists (89%) with the goal to maintain (45%) or expand (47%) their orientation (Figure 21).
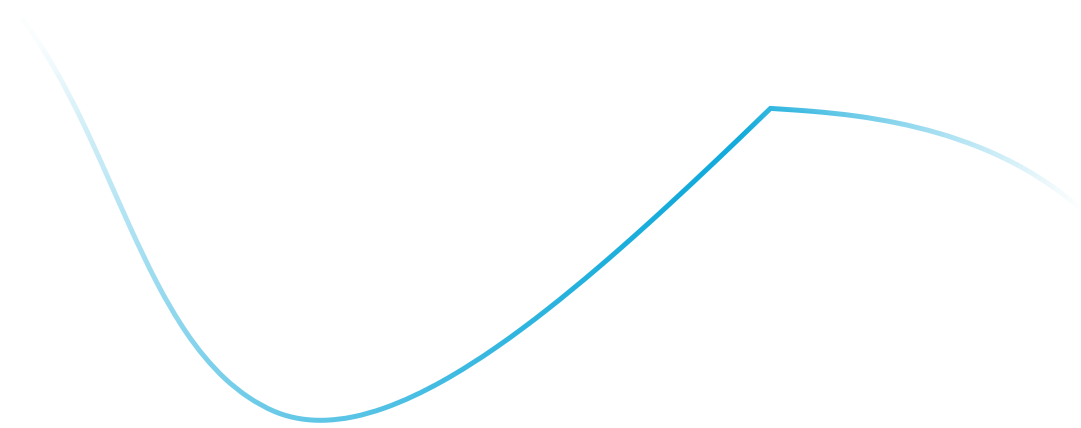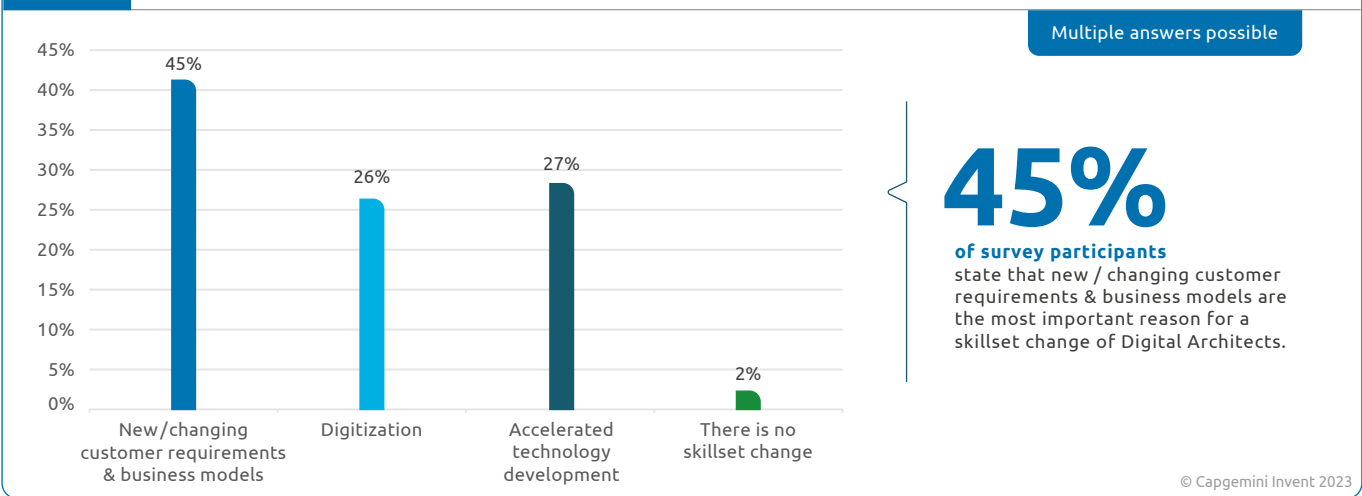
DIGITAL ARCHITECTS: SKILLSET FOR SUCCESS

The rapid pace of changing business requirements amplifies the complexity of an organization and its IT architecture. Furthermore, Digital Architects must have a comprehensive understanding of the industry and be equipped to adapt to these rapidly shifting requirements.

Disruptive technologies and business models, the trend towards a stronger customer orientation and the digitalization, require a consequent change in the skillset of almost all working people. This also applies for Digital Architects as the participants of this study confirm. Especially the new and changing customer requirements & business models have been stated as the primary reason (Figure 22).

Figure 22 | **Reasons of skillset change for Digital Architects**

Multiple answers possible

45%
of survey participants
state that new / changing customer requirements & business models are the most important reason for a skillset change of Digital Architects.

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Additionally, the participants see that business-oriented thinking has become more important than ever before (Figure 23). This observation is not solely restricted to Enterprise Architecture projects. There is a clear trend that business capabilities are leveraged across different projects and IT initiatives. A central Enterprise Architecture function could offer substantial benefits in this context. By assisting in the standardization of diverse business capabilities into a uniform structure, this unit could function as both a repository of knowledge and a facilitator for capability-based planning.

Figure 23 | **Business-oriented thinking is as important as never before**

■ Totally Agree ■ Rather Agree

100%
of survey participants agree that business-oriented thinking capabilities are more important than they have been before.

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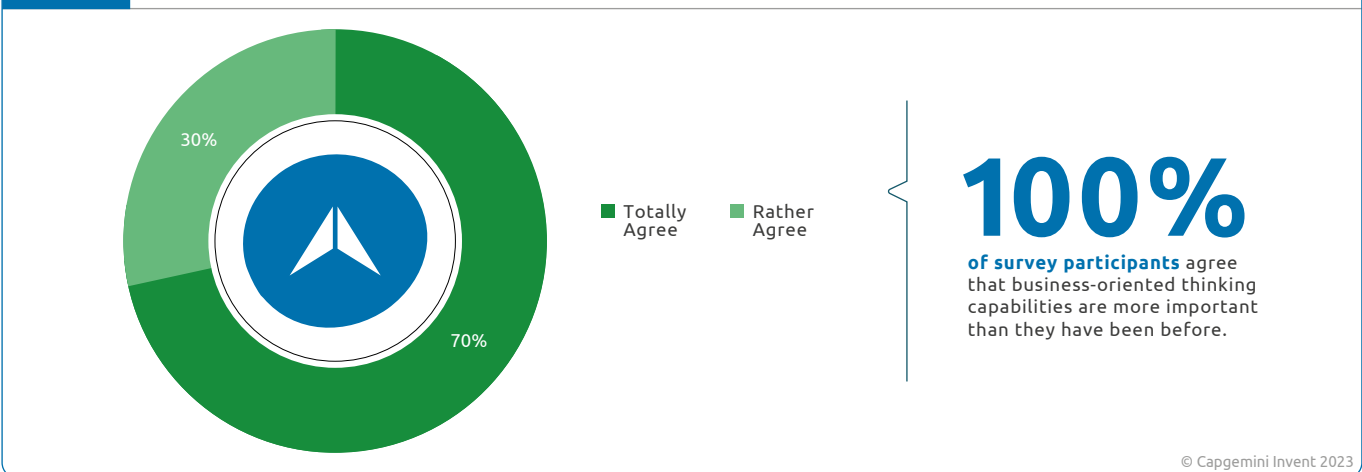
This supports the converges of business and IT, especially through the link provided by Digital Architects, and the importance of this role for companies in the future. Although the business orientation is clearly a focus topic, only 5% of Digital Architects have a business background and 17% bring experiences and competencies from both the technical and business side (Figure 24). Digital Architecture, particularly Enterprise Architecture, is a discipline that receives limited attention within university, resulting in a substantial reliance on practical experience for architects to develop their expertise. Solution Architects, benefiting from a computer science background, encounter fewer challenges in acquiring this knowledge compared to their business counterparts. Consequently, the scarcity of Digital Architects is amplified by this educational gap, necessitating proactive measures to address the skill-shortage and foster a more robust talent pool in the industry. Additionally, it can often be observed that experienced Enterprise Architects frequently pursue other opportunities in appealing fields such as organizational or business development. Consequently, the resulting gaps become more difficult to be filled.

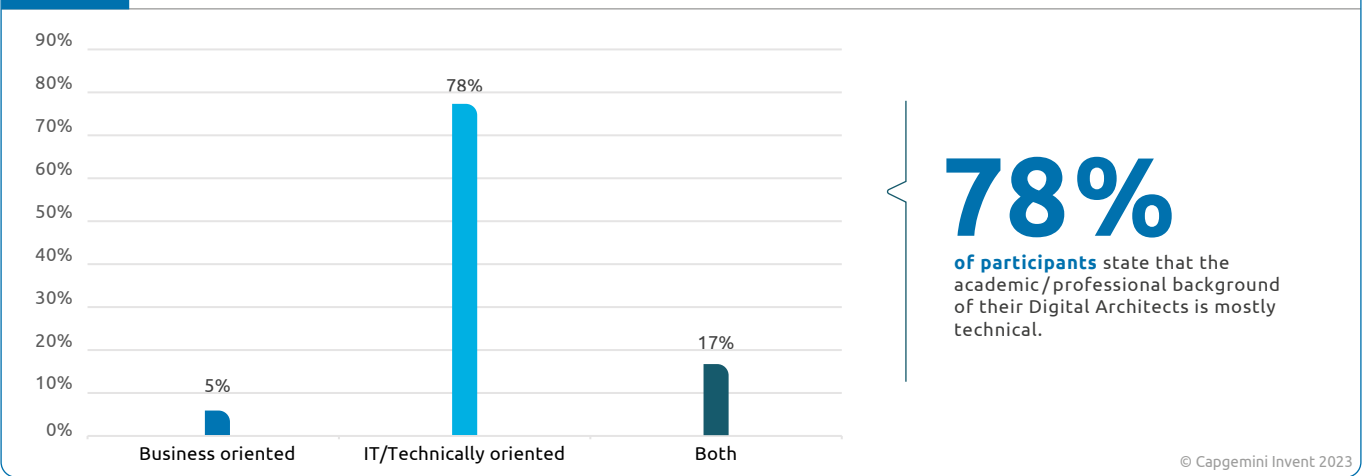**Figure 24** **Academic / Professional background of Digital Architects**

78% of participants state that the academic/professional background of their Digital Architects is mostly technical.

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Figure 25 **Change of technical skills of Enterprise Architects (over the last 10 years)**

65% of the participants state that within 10 years the level of tech-skills in general of Enterprise Architects increased.

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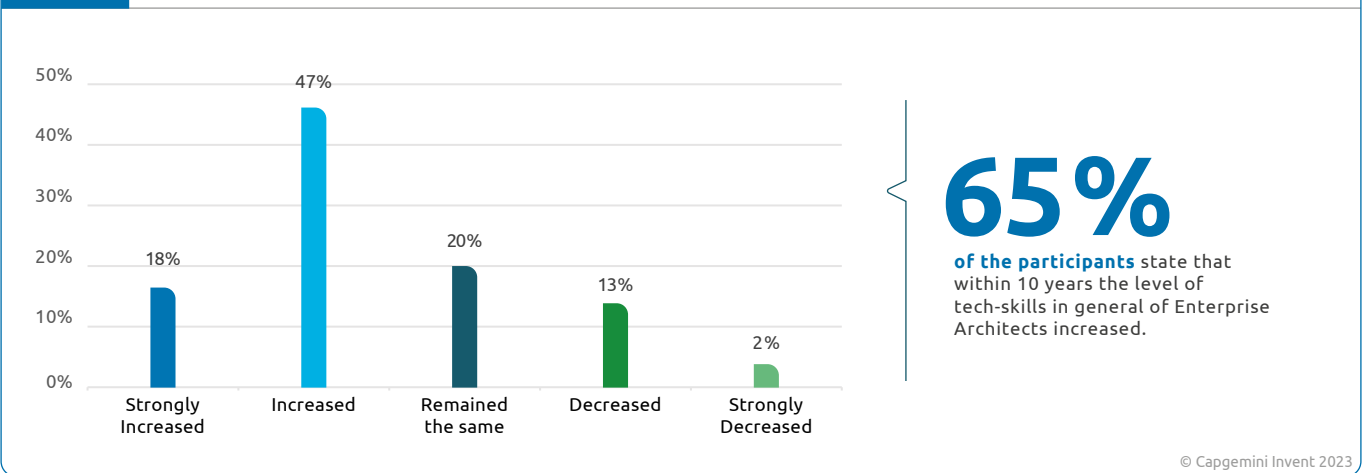
Most participants agree that the Enterprise Architects' tech-skill level increased over the last 10 years (Figure 25), which confirms their strong technical orientation. In addition, there is a higher demand for Digital Architects to understand the business demands and the business perspective. While technical expertise remains valuable, the ability to navigate diverse stakeholder interests through effective soft skills assumes greater significance. Nevertheless, it is vital to acknowledge the importance of providing architects with a solid foundation of knowledge. We consider this as a distinct prerequisite for success, empowering architects to proactively engage with emerging trends and adapt autonomously.

Both technology-related and business-related trainings are offered to Digital Architects. Nevertheless, technology-related trainings (e.g. technology, methods, and Enterprise Architecture trends) are slightly more often than business-related trainings (e.g. company's strategy, business knowledge) (Figure 26). Even though it should be vice versa to compete with the increasing demands coming from the business.

Figure 26 Training offerings in participants' companies for Digital Architects

Multiple answers possible

- technology / technical-related trainings: 60%
- business-related tranings: 40%

60%
of the participants state that they offer technology-related trainings for their Digital Architects.
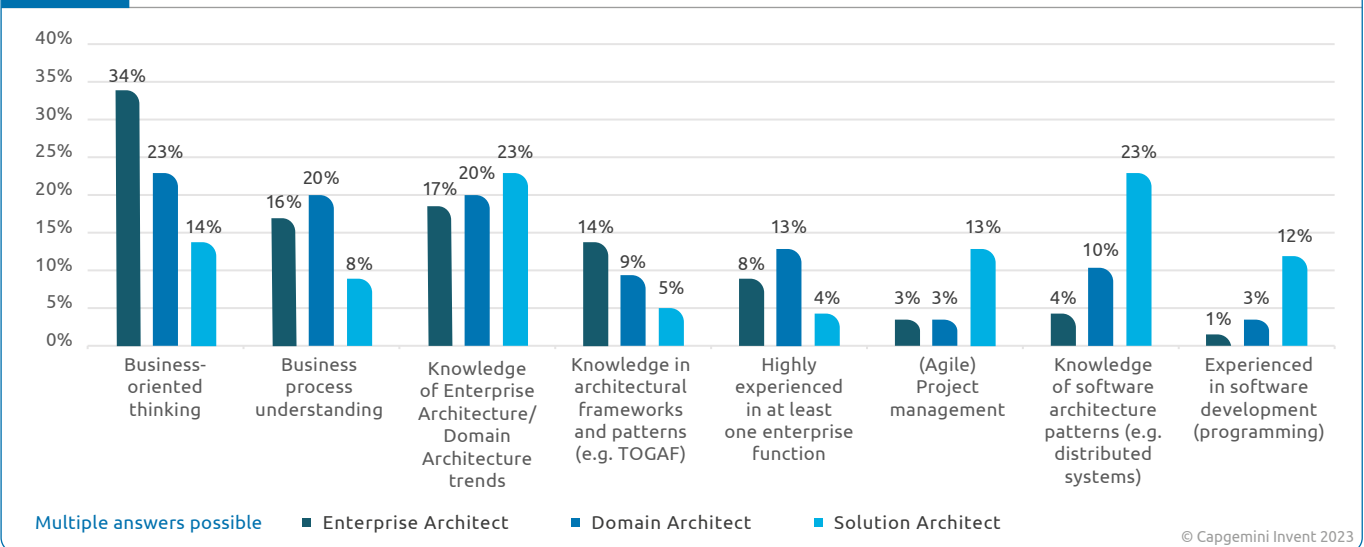
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When it comes to the preferable skillset of Digital Architects a strong business-oriented thinking is particularly important for Enterprise (34%) and Domain Architects (23%). This strong business orientation is also reflected in the preference of a high business process understanding for Enterprise (16%) and Domain Architects (20%). Additionally, patterns and frameworks are of high importance for the skillset of these two types of Digital Architects.

Solution Architects on the other hand should have a higher technical orientation. Especially knowledge regarding

current trends in a respective domain architecture (20%) and software architecture patterns (23%) are the most important skills for this type of Digital Architect (Figure 27). This indicates the need for action, highlighting an increasing mismatch between available architects, who possess the necessary skills for future requirements, and the projected demand for architects in the future. We anticipate a widening gap in the future, underscoring the urgent need for immediate attention to address this pressing issue.

Figure 27 Most important skills for Digital Architects in the future

Skill	Enterprise Architect	Domain Architect	Solution Architect
Business-oriented thinking	34%	23%	14%
Business process understanding	16%	20%	8%
Knowledge of Enterprise Architecture/ Domain Architecture trends	17%	20%	23%
Knowledge in architectural frameworks and patterns (e.g. TOGAF)	14%	9%	5%
Highly experienced in at least one enterprise function	8%	13%	4%
(Agile) Project management	3%	3%	13%
Knowledge of software architecture patterns (e.g. distributed systems)	4%	10%	23%
Experienced in software development (programming)	1%	3%	12%

Multiple answers possible   ■ Enterprise Architect   ■ Domain Architect   ■ Solution Architect

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In addition to the skills in figure 27, we see that making use of appropriate tools is also important to ensure success, as architecture work is mostly method driven. For Enterprise Architects the two most important tools are collaboration (31%) and visualization tools (29%). Hence collaboration between Digital Architects and business is of increasing importance. Thus, it is crucial that they are supported more by these tools. To make architecture and its complexity more tangible and manageable, it is necessary to have vastly improved and user-focused visualization.

So, they can support Enterprise Architects when it comes to documentation or development of architecture from a conceptual to a process level (Figure 28). Collaborative Enterprise Architecture tools are assuming greater prominence and widespread adoption among our clients. We anticipate that the user-friendly interface is emerging as the pivotal determinant for the sustained effectiveness of these solutions, directly influencing the success of architects.

Figure 28 Most important tools for Enterprise Architects

Collaboration tools 31%, Visualization tools 29%, Own analytical thinking 17%, Reporting tools 12%, Simulation tools 6%, Project management tools 3%, Testing tools 2%
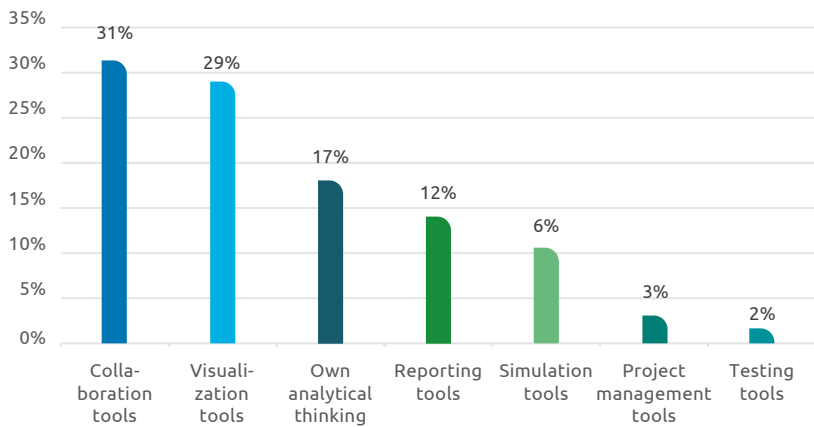
~1/3

of participants stated that collaboration and visualization tools are most used and most important ones for Enterprise Architects.

Multiple answers possible

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Key takeaways

about the future of Digital Architects:

- 59% of respondents agree, that all three types of Digital Architects (Enterprise Architect, Domain Architect, and Solution Architect) should be employed to cover different strategic and operational requirements. Yet, the need for a specific number of architects isn't directly proportional to the size of an organization. Instead, it is determined by the complexity of the holistic architecture. Companies with heterogeneous business models tend to build up a unique stack of Digital Architects for each business model type.

- There is a limited availability of skilled Digital Architects, as the rising complexity of the IT landscape fuels the demand for skilled personnel. The challenge of filling these roles is further complicated by the need for not only methodological knowledge but also experience in the respective industry and strategic business development.

- 37% of participants believe that using external Digital Architects as a long-term solution for vacant positions is an appropriate mean. Alternatively, employees are trained to make architectural decisions. Without this, the duration of the process for digital transformation would be increasing even more.

- Roles and areas of responsibility for the different types of architects are established. Enterprise Architects are rather generalists with a holistic approach, who serve as more than just methodological advisors, but also as valuable business collaborators requiring deep understanding of the specific industry. Domain and Solution Architects remain more specialized with an in-depth knowledge of their area of expertise.

- The primary driver for a change in the skillset of a Digital Architect is the change in customer business models and requirements. Digital Architects must adapt their skills to meet those needs to be effective in their roles.

- Using collaboration and visualization tools is a crucial success factor for effective communication between business and IT. Enterprise Architects, who have a professional IT background, need to have a stronger business orientation to meet the demands of the business department. The IT skill level among Enterprise Architects increased due to technology-oriented trainings. Nevertheless business-oriented thinking is still important. Therefore, it is necessary for Enterprise Architects to focus more on developing business skills in the future.

05.2

THE CHANGING ROLE OF ENTERPRISE ARCHITECTURE IN THE ORGANIZATION

The role of IT, and with it the role of the Enterprise Architecture function, has evolved over the last years. Due to the growing complexity of the corporate IT landscape, the Enterprise Architecture function is perceived as a key contributor to business enablement. As such, it is responsible to prepare the IT to adapt faster to change with minimal disruptions and costs in the future. The integration of new and innovative technologies to the existing IT landscape further expands the responsibilities of the Enterprise Architecture function, but also provides opportunities to contribute to the success of an organization.
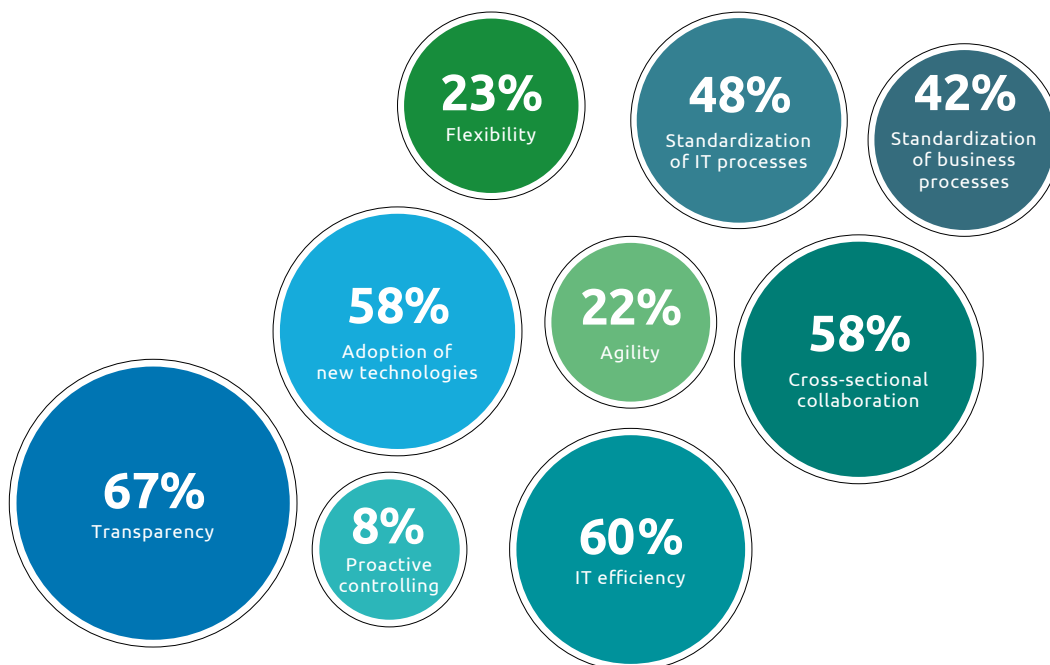
67% of participants state that their Enterprise Architecture function promotes transparency in their organization, while

60% see an increase of IT efficiency due to their Enterprise Architecture function. Additionally, topics like the adoption of new technologies (58%), cross-sectional collaboration (58%) as well as the standardization of business (42%) and IT (48%) processes have been frequently named as promoting aspects for Enterprise Architecture Management (Figure 29).

The most frequently named topics promoted by Enterprise Architecture Management, aim at reducing costs and increasing efficiency. Increased transparency over an Enterprise Architecture, for example, is a major lever to initiate projects to reduce complexity and consequently costs. Furthermore, an improved cross-sectional collaboration helps to make information easily accessible and thereby reduces coordination effort between teams.

Figure 29 | **Promoted aspects by Enterprise Architecture Management**

Multiple answers possible

23% Flexibility

48% Standardization of IT processes

42% Standardization of business processes

58% Adoption of new technologies

22% Agility

58% Cross-sectional collaboration
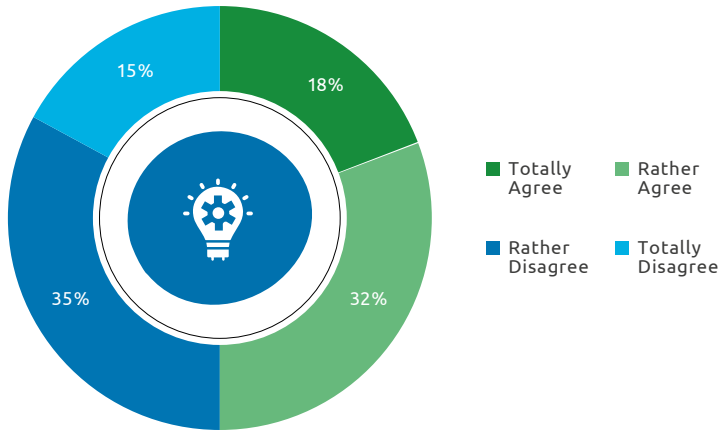
67% Transparency

8% Proactive controlling

60% IT efficiency

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INTEGRATION OF ENTERPRISE ARCHITECTCURE INTO STRATEGIC DECISION-MAKING

Figure 30 | **In my company, the EA function plays an important role in the development of the future business strategy**

Totally Agree: 18%
Rather Agree: 32%
Rather Disagree: 35%
Totally Disagree: 15%

50%
of the companies surveyed for this study state that their Enterprise Architecture function plays an important role in the development of the future business strategy.
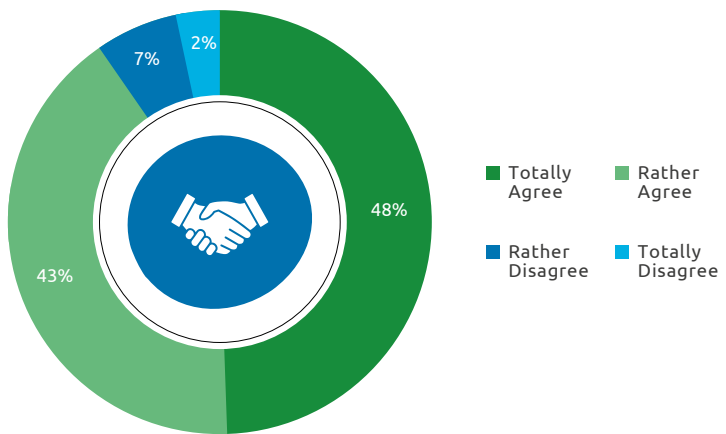
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As previously outlined, the requirements of customer and business demands are increasing. Consequently, not just the role of Enterprise Architects, but the overall role of the Enterprise Architecture function is gaining prominence for the formulation of both business and IT strategies. However, this is only the case for half of the participating companies. This leads to a gap between ambition and established practice (Figure 30). Consequently, companies have a great deal of work ahead of them to firstly establish an Enterprise Architecture function, if they do not currently have one, and secondly better integrate this EA function into their strategy definition process.

Business and IT are becoming increasingly interconnected, blurring the once clear boundaries between them. This change underscores the crucial role of the Enterprise

Architecture function as an integrative entity overseeing the entire IT landscape, aiding strategic decision-making within the organization. Nearly all respondents (91%) agree that this results in stronger synergies, improved decision-making, and sustainable change (Figure 31). Comparing this with responses to the preceding question reveals that at least 40% of the organizations that agreed with this statement are not yet practicing it. This discrepancy between ambition and actual practice signals an urgent need for these gaps to be bridged.

Most organizations will depend on the role of Enterprise Architecture to lead the business approach to a successful digital innovation. A result also stated by the Gartner research institute. [9]

Figure 31 | **Integrating the EA function into the strategy definition results in improved decision-making**

Totally Agree: 48%
Rather Agree: 43%
Rather Disagree: 7%
Totally Disagree: 2%

91%
of companies agree that integrating EA into the strategy definition, results in strong synergies improved decision making and sustainable strategic change.

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[9] Enterprise Architecture Enables Digital Innovation, Gartner, 2021.

Figure 32 Strategic decision-making in my company is based on EA information

- Totally Agree
- Rather Agree
- Rather Disagree
- Totally Disagree

17%
41%
32%
10%
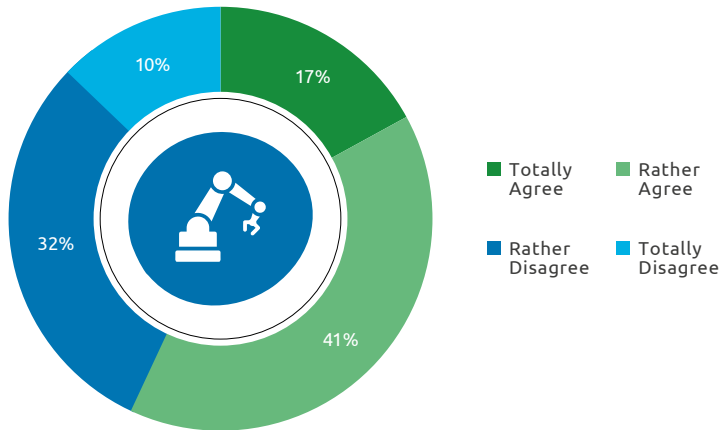
59%

of the participants agree that strategic decision-making is based on Enterprise Architecture information and takes the disruptive forces of new technologies and increasing architectural complexity into account.

Most companies (59%) agree that their strategic decision- making is, among other, based on Enterprise Architecture information and takes disruptive forces of new technologies and increasing architecture complexity into account. In contrast to this, a third still makes strategic decisions without considering information from Enterprise Architecture (Figure 32).

# COLLABORATION BETWEEN ENTERPRISE ARCHITECTURE AND BUSINESS UNITS

The importance of business-oriented thinking has been stated previously. It is crucial to foster collaboration between business and IT, as it enables business stakeholders and architects to engage in discourse on the same level. An Enterprise Architecture function promotes the cross-sectional collaboration in 58% of the surveyed companies (Figure 33), which means that business and IT units move closer together in their daily work. Additionally, 78% of the surveyed companies state that their EA function is integrated into digitization initiatives and is considered essential to enable collaboration between business and IT units (Figure 33). It can be observed that artifacts like a business capability map gain significant relevance due to their ability to enhance comprehension and foster communication between business and IT.

Figure 33 — The EA function is essential to enable collaboration between IT and business units

- Totally Agree
- Rather Agree
- Rather Disagree
- Totally Disagree

35% 19% 3% 43%

78%
of the participants state that their EA function is integrated into digitalization initiatives and is considered essential to enable collaboration between IT and business units.
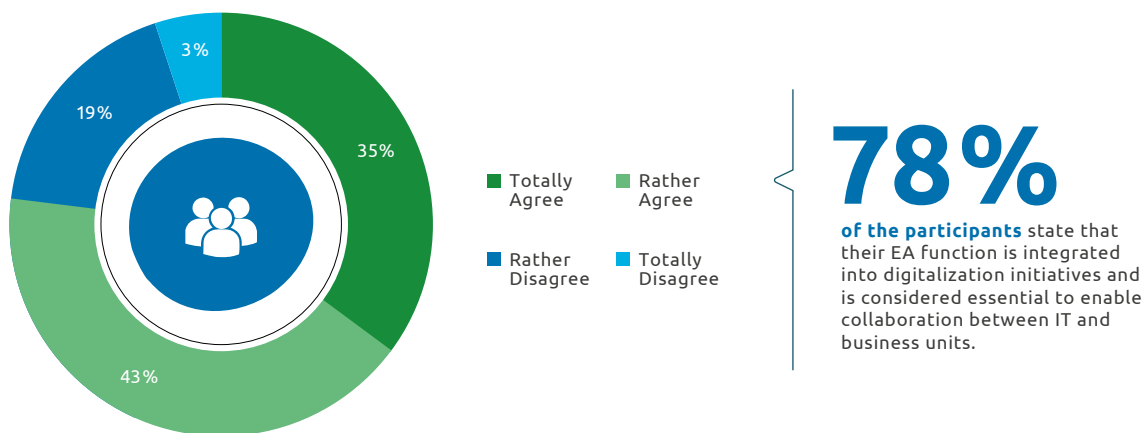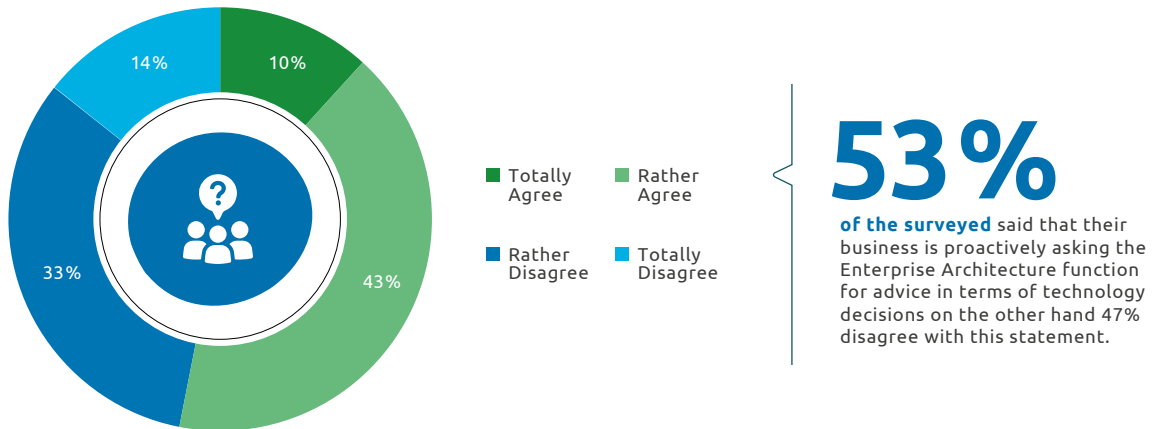
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53% of respondents state that their business organization is proactively asking their Enterprise Architecture function for advice regarding technology decisions (Figure 34).

In contrast, for 43% of the surveyed companies the involvement of Enterprise Architecture in strategic decision-making relating to complex architecture is prevented, as the Enterprise Architecture function is only involved in projects when they are already running or even finished (Figure 35). This shows the discrepancy between the fundamental appreciation of Enterprise Architecture Management value, the present resources and skills, and the reality that business units are not maximizing the potential benefits of architecture management in strategic decisions and support. It indicates a call to action concerning organizational change, effective communication, and process integration of architecture, contingent on corporate culture and the resources allocated to the EA function. Additionally, having data for decision-making support is imperative alongside methodological knowledge.
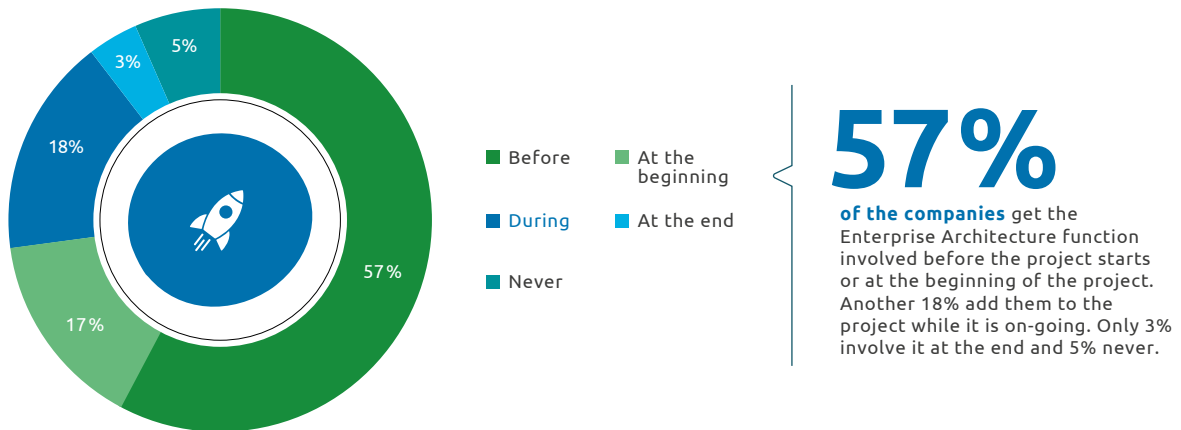
In practical scenarios, the early integration of the Enterprise Architecture Management function in digitization projects is not yet functioning optimally. However, this is essential for improved project implementation. To achieve this, it necessitates not only a theoretical definition of integration but also training of the mindset in this direction.

Figure 34 The business proactively asks the EA function for advice in terms of technology decisions

- Totally Agree
- Rather Agree
- Rather Disagree
- Totally Disagree

10%
14%
33%
43%

53%

of the surveyed said that their business is proactively asking the Enterprise Architecture function for advice in terms of technology decisions on the other hand 47% disagree with this statement.

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Figure 35 EA gets already involved even before the project beeing officialy kicked-off

- Before
- At the beginning
- During
- At the end
- Never

5%
3%
18%
17%
57%

57%

of the companies get the Enterprise Architecture function involved before the project starts or at the beginning of the project. Another 18% add them to the project while it is on-going. Only 3% involve it at the end and 5% never.

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This illustrates that almost 40% of businesses struggle with the fact that the EA function is incorporated too late into decision-making and architectural changes, thereby significantly increasing the risk of accumulating technical debt. It underlines the necessity for an increasingly closer collaboration between business and IT, where the Enterprise Architecture function acts as the connective and moderating link between the two. However, the collaboration between business and IT is still mostly demand-driven. The active involvement of the Enterprise Architecture function in relevant and strategic business decisions is still far away from the ideal

value. Consequently, established EA functions can still not reach their full potential and impact. This leads to a vicious cycle as the impact is considered too low to involve Enterprise Architecture at the beginning of the strategy development. In figure 35, the observations from various businesses reveal that architecture is not inherently given its rightful place. This perception often stems from the notion that it is 'merely IT' and business decisions should be exclusively handled by business units. However, the potential ramifications of any decision may not be fully comprehended unless IT is involved from the beginning.

EAM GOVERNANCE IN PRACTICE

There are three ways to set up an Enterprise Architecture Management function (EAM): central, federal, or decentral (Figure 36).

In a *central EAM*, architecture roles are centrally allocated within the same organizational unit leading to a strong central coordination, but little organizational proximity to architecture stakeholders in functional areas and IT.

A *federal EAM* consists of central Enterprise Architects supported by decentral architecture experts, who are organizationally close to stakeholders in their respective architecture domains.

In a *decentral EAM*, expert architects are close to stakeholders in their architecture domain. They only align with each other in an informal expert network.

In theory, most organizations with a modern EAM should be built on the federal model as a reasonable trade-off between central governance and decentral autonomy, because it allows a strategic steering by Enterprise Architects while ensuring the proximity to functional domains.

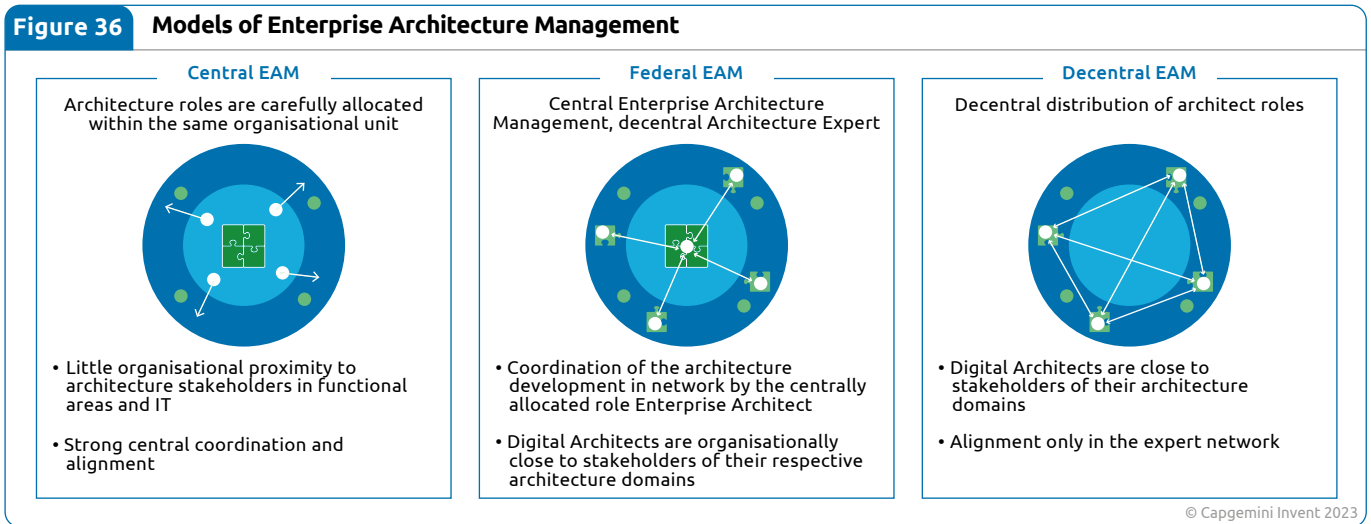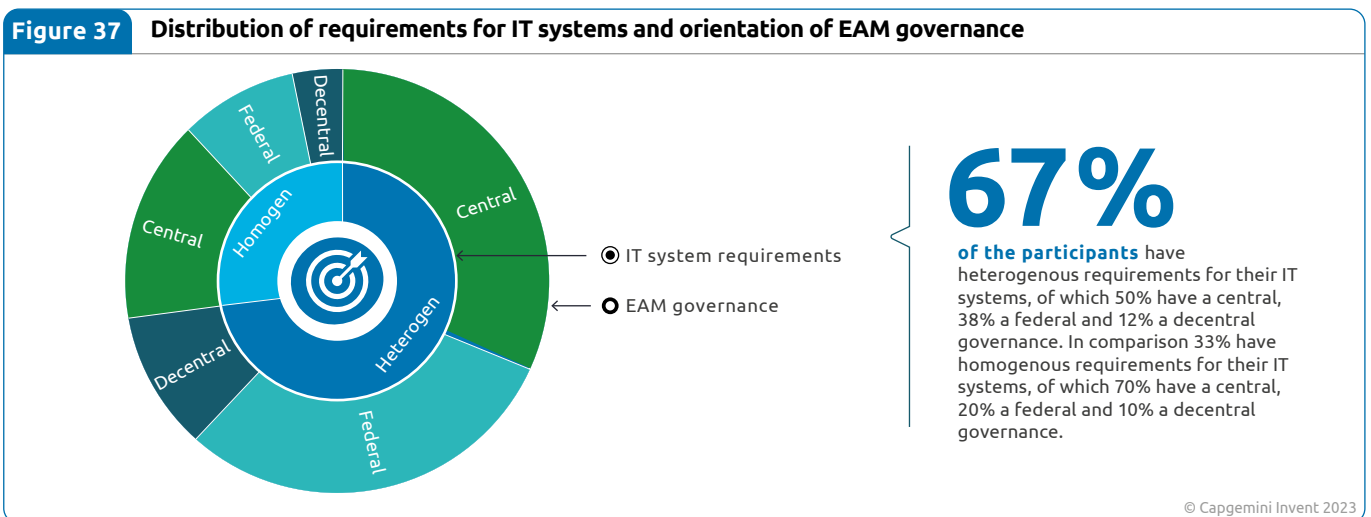**Figure 36** | **Models of Enterprise Architecture Management**

Central EAM

Architecture roles are carefully allocated within the same organisational unit

- Little organisational proximity to architecture stakeholders in functional areas and IT
- Strong central coordination and alignment

Federal EAM

Central Enterprise Architecture Management, decentral Architecture Expert

- Coordination of the architecture development in network by the centrally allocated role Enterprise Architect
- Digital Architects are organisationally close to stakeholders of their respective architecture domains

Decentral EAM

Decentral distribution of architect roles

- Digital Architects are close to stakeholders of their architecture domains
- Alignment only in the expert network

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Figure 37 | **Distribution of requirements for IT systems and orientation of EAM governance**

- IT system requirements
- EAM governance

67%

of the participants have heterogenous requirements for their IT systems, of which 50% have a central, 38% a federal and 12% a decentral governance. In comparison 33% have homogenous requirements for their IT systems, of which 70% have a central, 20% a federal and 10% a decentral governance.
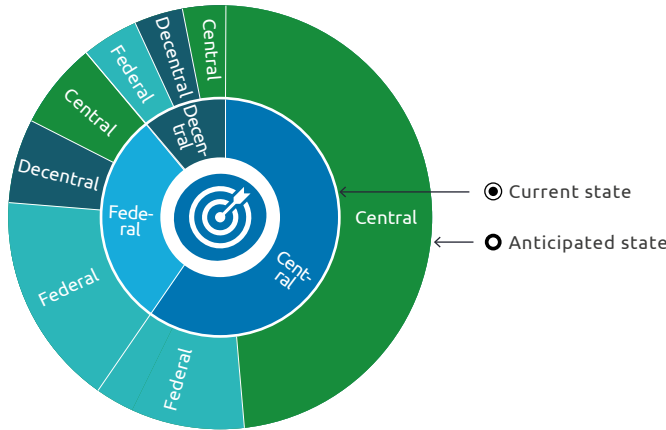
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A diverse IT environment necessitates a federal or decentralized configuration of the Enterprise Architecture Management (EAM) function. This approach ensures that the distinct needs of various departments or applications are served appropriately.

The EA function within an organization is responsible for defining and maintaining the Enterprise Architecture, which provides a blueprint for the organization's technology and business goals. EAM plays a key role in aligning technology and business objectives, ensuring that technology solutions support the overall business strategy. The demands for the business model, whether homogenous or heterogenous, influence the way that the EA function operates and supports the organization.

Although organizations see value in moving towards a federal or central EA function, only a few (21%) are willing or able to change their existing structures. In addition, organizations that already have a federal or decentral governance are proportionally those that are mostly willing to change this orientation. In fact, 14% anticipate to move

off a central EAM governance, 31% want to move off a federal EAM governance and 71% off a decentral EAM governance. This indicates that many organizations have yet not recognized the added value of using such an orientation for their EA function, which is usually more flexible and adaptable. Many of them (56%) want to keep the existing model [central to central] or probably have not been able to take full advantage of the added value and want to switch back [federal to central; decentral to central] (Figure 38). Therefore, we see in practice, that the theoretical added value of federal EAM governance described above, has only been reflected to a limited extent in the orientation of the companies' EAM governance. It can be assumed that many companies have not yet fully made the leap to a modern EAM. Remaining in a central Enterprise Architecture function increases the risk of doing EAM in an "ivory tower" and not meeting requirements of functional domains. A more flexible and adaptable EA function, provided through a central or federal model, on the other side is key to support the different and fast changing business requirements best.

Figure 38 Development of companies EAM Governance
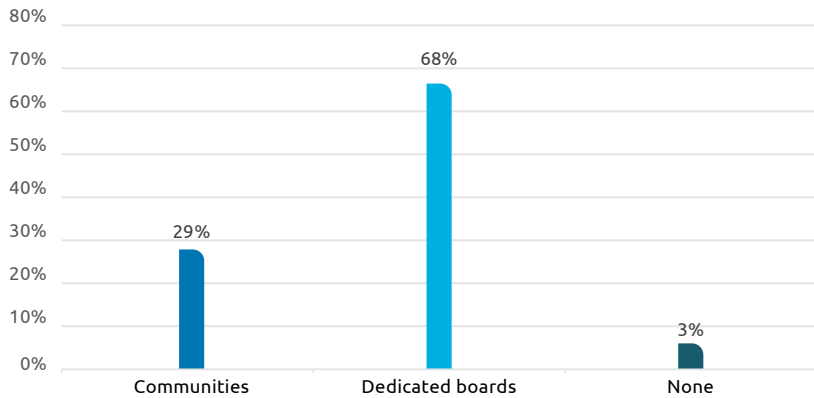
Current state
Anticipated state

56%

of the companies have a central Enterprise Architecture Management governance, followed by 32% with a federal one. Only a minority (12%) has a rather decentral Enterprise Architecture Management governance.

**Most companies have architecture boards and communities of interest**

97%

of participants companies
have at least architecture boards or
communities. The three most
common are: Community of Practice/
Architecture Guild (20%), Enterprise
Architecture Board (20%) and IT
Architecture Board (22%).

Multiple answers possible

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The architecture board is a helpful steering committee for strategic decisions
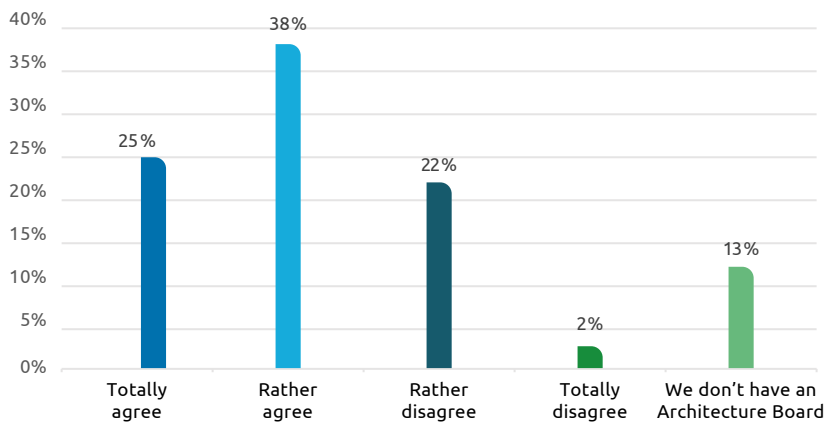
63%

of the respondents
mostly agreed with the statement
„In my company, the Architecture
Board is a helpful steering
committee for strategic decisions on
the selection and implementation of
new technologies or IT applications."

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The formation of cooperative communities and decision-making entities represents a crucial and necessary progression towards a federal Enterprise Architecture function. Independently from their EAM governance model, most surveyed companies have dedicated architecture boards (68%) to formalize architecture decision making and communities (29%) to enhance the collaboration between Digital Architects (Figure 39). Within client organizations, it is observed that a variety of communities, meetings, and boards exist among and within the diverse architecture roles for discussing and making decisions on relevant topics. It is important to achieve an appropriate balance to maintain an operable, agile, and efficient architecture

structure. Furthermore, 63% of respondents agree that an architecture board is a helpful steering committee for strategic decisions (Figure 40), e.g., on the selection and implementation of new technologies or IT applications. This supports the agreed view in practice that an architecture board improves decision making by adhering to clear standards, protocols, and guidelines to make well-informed and transparent decisions.[10] They should function as platforms for dialogue, rather than merely routine gatherings where outcomes are predecided and basically no decisions are taken. The influence of such boards needs to be established and entrenched within the governance framework.

Key takeaways

about the changing role of Enterprise Architecture in the organization:

- The collaboration between business and IT organizations is getting closer, blurring the once clear boundaries between them, and further aligning both units. Yet, the proactive involvement of the Enterprise Architecture function in relevant key business decisions can still be improved.

- It is broadly recognized that synergies and improved decision making are beneficial results of the integration of the Enterprise Architecture function into the strategy definition. However, in only half of the companies this plays an important role. This shows the discrepancy between the fundamental appreciation of EAM value and the reality that business units are not maximizing the potential benefits of architecture management. Therefore, a future, proactive involvement of the EA function is recommended to improve the progressive merge of business and IT organizations.

- The early integration of the EA function in digitization projects is not yet functioning optimally. However, this is essential for improved project implementation. Almost 40% of businesses struggle to incorporate the EA function early in decision-making and thereby significantly increase the risk of accumulating technical debt.

- 92% of participants are convinced that the complexity of Enterprise Architecture is still increasing but only 59% include it into their strategic decision making. Therefore, Enterprise Architecture information requires greater consideration to have a decisive positive impact.

- Most Enterprise Architecture functions are organized centrally, not following the recommended practice of a federal organization. However, this more flexible orientation would allow them to better fulfil their role as link between business and IT. In practice, we observe that companies not transforming towards a federal governance could hinder strategic steering while ensuring the proximity of functional domains.

- The EA function is a key contributor to business enablement. It prepares the IT to adapt faster to changes with minimal disruptions and costs for the organization. Additionally, it contributes to complexity reduction within the companies.

06.

CONCLUSION AND OUTLOOK

Enterprise Architecture Management is a discipline that helps organizations to align their business processes, information systems, operational demands, and technology infrastructure to support their business goals. It involves establishing governance processes to ensure that changes to the architecture are made in a controlled and targeted manner. This study investigates the current state of EAM.

EAM is an established corporate function in 68% of the contributing companies, and particularly relevant for larger companies with more than 1,000 employees. The study reveals the rising significance of EAM promoting strategic decision-making and collaboration with proactive involvement between business and IT departments. Alignment of these departments becomes particularly important for the successful adaptation of future digital technologies.

Companies with high EA maturity levels are progressively harnessing company-wide architecture-principles as effective governance tool for all technology-related decisions. Nevertheless, there remains room for growth in terms of adherence to established EAM principles.

To cover all different strategic and operational requirements, it is necessary to employ all three types of Digital Architects – Enterprise Architects, Domain Architects, and Solution Architects. Enterprise Architects are rather generalists with a holistic approach, who serve as more than just methodological advisors, but also as valuable business collaborators requiring deep understanding of the specific industry. Domain Architects

 and Solution Architects remain more specialized with an in-depth knowledge of their area of expertise.

The rising complexity of the IT landscape fuels the demand for skilled personnel which limits the availability of Digital Architects in the job market. This poses a critical challenge for companies in finding sufficiently skilled personnel. For most companies, it takes 5 to 12 months to fill a vacant position but there is a variety of solutions. Inadequately trained workers can be upskilled to get the necessary qualifications. Additionally, 39% of the study-participants would use external architects as a long-term solution for vacant positions to ensure their digital transformation process does not get hampered.

The main driver for a skillset change of Digital Architects is the change in business models and requirements. It can be observed that relevant success factors include collaboration and visualization for the more customer centric approach. Moreover, business-oriented thinking is of most importance for Enterprise Architects, while Solution Architects are expected to have a technical focus.

As organizations strive towards increased customer centricity, the mandate for the EA function becomes increasingly complex. The role of Digital Architects is not entirely limited to specific categories and responsibilities. Heterogenous requirements result in a federal governance model which is beneficial for strategic steering while ensuring proximity to functional teams.

The early integration of EA functions in digitization projects is essential for a successful project implementation, but not yet functioning optimally. Incorporating the EA function late in the decision-making process significantly increases the risk of accumulating technical debt.

Overall, the Digital Architecture Study 2023 highlights the importance of EAM in aligning an organization's goals, business processes, information systems and technology infrastructure to support the establishment of guiding principles and the contribution to cost efficiency. In addition, the rise of AI usage in businesses is further transforming entire industries. Working with this technology will become part in daily routines but integrating it seamlessly into the existing landscape presents a significant challenge. With the increasing emphasis on digital transformation, a collaboration between business and IT is necessary and adaptation to new technologies crucial.

07.

CAPGEMINI INVENT'S CONTRIBUTION TO ENTERPRISE ARCHITECTURE

Our Digital Architecture Portfolio delivers a range of 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. Key architecture principles must be defined for each company and should cover areas like agility, customer experience, regulation, and security. Our approach is based on the following five architectural core components that aim to optimize value contribution of established Enterprise Architecture departments.

Architectural Core Components

A **fully agile solution development** in Enterprise Architecture is the only possible answer	The ideal **IT & architecture strategy** leverages business strategy	**Enterprise Platform-based solutions are** paramount for future technologies	**Next generation data architecture management** is the key to accelerate the business	**EA Governance & Compliance** need to be improved to meet stricter regulations

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The goal is to maximize value-adding activities of Enterprise Architecture by acting as a trusted advisor rather than documenting and maintaining legacy systems. Our key offerings, structured in the following three core domains, enable digital architecture transformations on all five core components.

Architecture Strategy & Governance	Provide snapshots **for trends and strategic drivers** that influence best-practice architecture decision	Define **clear governance** structures, align and enable IT–strategy, process and portfolio management	Evaluate the **maturity** of your Enterprise Architecture and identify future potentials in digitalization
Enterprise Architecture	Develop a **business capability** map to align your strategy and future business goals	Establish a transparent overview of your EA and create a **target architecture** that support your business strategy	Perform a capability driven **vendor and software selection** to reinforce a holistic EA transformation
Enterprise Platforms	Perform inside-out and outside-in analysis of your current **enterprise platforms** to assess demand for action	Derive design principles for reshaping your **enterprise platform strategy**	Leverage our enterprise platform technology library to design your future **enterprise platform service portfolio**

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08.

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