Finance Transformation in the Digital Era

Acquiring new skills to drive the digital transformation

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Introduction

We live in a digital era, and technology is increasingly shaping the way we live, work and do business. Technology not only provides organizations with new opportunities to conquer new markets and redesign business models, it also holds the promise of increasing the effectiveness and efficiency of existing processes. All these advances challenge Finance to adapt to a new reality. Answering this challenge will require new competencies and capabilities. Technology is already redefining the way Finance operates and it is likely to have a radical impact on the time spent on traditional Finance department roles like bookkeeping, reporting, planning & control, governance, risk & compliance and business partnering while freeing up time for new roles, tasks and activities. In other words, in addition to its involvement in the digital transformation of the organization's operations, Finance is also involved in a digital transformation of its own.

Despite the far-reaching impact of these technological developments on organizations, we have little insight in the actual challenges faced by Finance departments and Finance professionals. This dearth of information inspired the University of Amsterdam, Workday, PLUC! and Finance Transformation Forum to initiate a joint research project to collect data from CFOs and Finance professionals. In various Round Table settings and interviews we received input from over 75 CFOs and Finance Executives. In addition, our survey was filled out by 101 Finance professionals, ranging from CFOs to senior Finance professionals in several organizations. Our research focuses primarily on the current status of the digital Finance Transformation and the real-life impact of digital technology on the Finance department.

This research paper addresses the following questions:

- How much attention do organizations devote to transformative digital strategies, and is the Finance department involved in these digital strategic initiatives?
- Which technologies are finding their way to the Finance department?
- How important are specific competencies for Finance professionals? Are these competencies likely to change over the next couple of years?
- What are the challenges presented by this Finance transformation? What are organizations doing to handle these challenges, and how are they preparing their Finance department employees for the future?

Digital transformation in organizations

Michael Wade, Professor of Innovation and Strategy at IMD and the Cisco Chair in Digital Business Transformation, defines digital advancement as: “the convergence of multiple technology innovations enabled by connectivity. These innovations evolve over time. They currently include big data and analytics; cloud computing; cybersecurity; the Internet of Things (IoT); machine learning; mobility and location-based services; social media and collaborative applications; video; artificial intelligence; and virtual / augmented reality”[1]. These technological innovations, in turn, lead to new operating models and business models.

We have seen a vast number of publications in recent years on the importance of digital technology and digital strategies for organizations. Because of the huge impact digital is expected to have on business models, organizations face the threat of being challenged by digital-born newcomers who know what their customers want and are tech-savvy enough to scale fast. Despite that, we have little insight on how digital strategy affects the Finance department. So the objective of our research was to find out:

a) what strategic priorities organizations focus on when responding to external trends;
b) whether the Finance department is involved in their organization’s digital strategy and if so, to what extent; and
c) how dedicated the Finance staff is to new technology compared to other departments in the organization.

Strategic focus of organizations

To answer the first question, we asked respondents to indicate the focus areas of their own organizations.

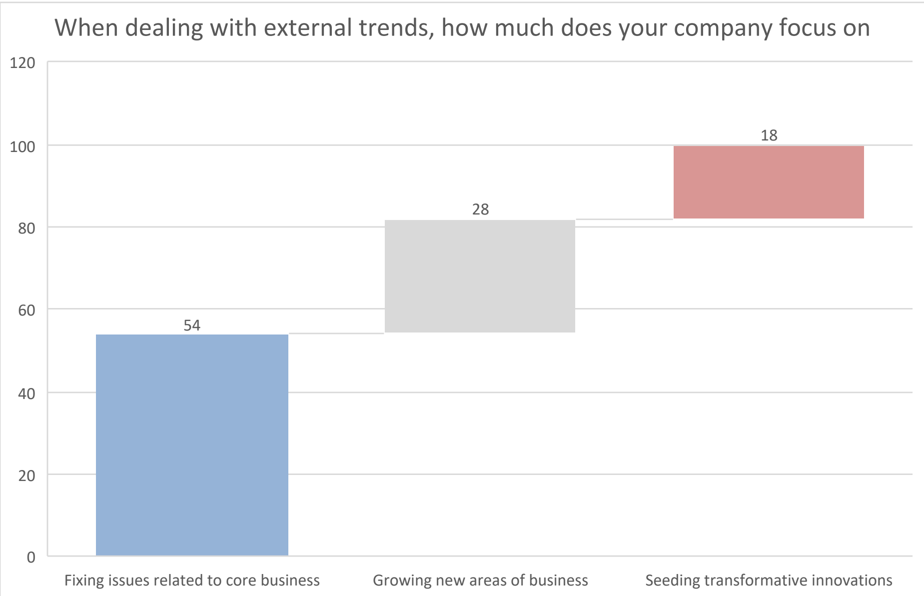


Figure 1: Strategic focus of organizations

[1] Defining The Digital Vortex: Terminology of the Global Center for Digital Business Transformation, 2015

Our results indicate that, on average, organizations focus on fixing issues related to core business (54%), followed by growing new areas of business (28%) and seeding transformative innovations (18%). We found that there are substantial differences across organizations: some organizations fully focus on fixing issues related to the core business, while others focus on growing the business (maximum score of 80%) or seeding transformative innovations (maximum score of 60%). However, we found no differences for industry or ownership, suggesting that these strategic priorities are set by the top management of the organization rather than being 'mandated' by industry developments or other external forces.

Next, we subdivided the organizations into two categories:

1. those that allocate more than 35% of their resources to seeding transformative innovations (transformative organizations); and
2. those that allocate less than 10% of their resources to seeding transformative innovations (exploitative organizations).

We discovered that 14% of the respondents could be labeled transformative organizations, i.e. companies that focus a significant part of their resources on seeding transformative innovations. On the other hand, 43% of the organizations could be labeled exploitative organizations, i.e., companies that focus on fixing issues related to core business and growing new areas of business. We found no difference in terms of size (sales) or revenue growth for these strategic priorities. The previous results suggest that many organizations hardly allocate resources to transformative innovations. The question is whether these organizations really understand the opportunities offered by digital strategies.

The CFO of one of the organizations that completely transformed itself from a 'machine manufacturer' to a 'data-driven firm' pointed out that such a transformation requires drastic steps:

> *"We decided to divest a large part of our core business to free up time and resources to develop new digital business models"*

Finance involvement in digital strategy initiatives

Next, in order to determine the level of Finance involvement in digital strategy initiatives, we asked the respondents to indicate to what extent they agreed that their Finance department is involved in digital strategic initiatives. While Finance started out as a strictly administrative discipline, it has evolved into a function that helps organizations drive performance, measure progress, and achieve the organization's strategic ambition with ever more actionable information. In its desire to add further value to the organization, Finance has been working hard since the 90s to establish itself as a business partner. So, considering this ambition and the fact that the Finance department is responsible for the current and future performance of the firm, we expect the Finance department to be involved in such strategic initiatives. Figure 2 provides our findings.

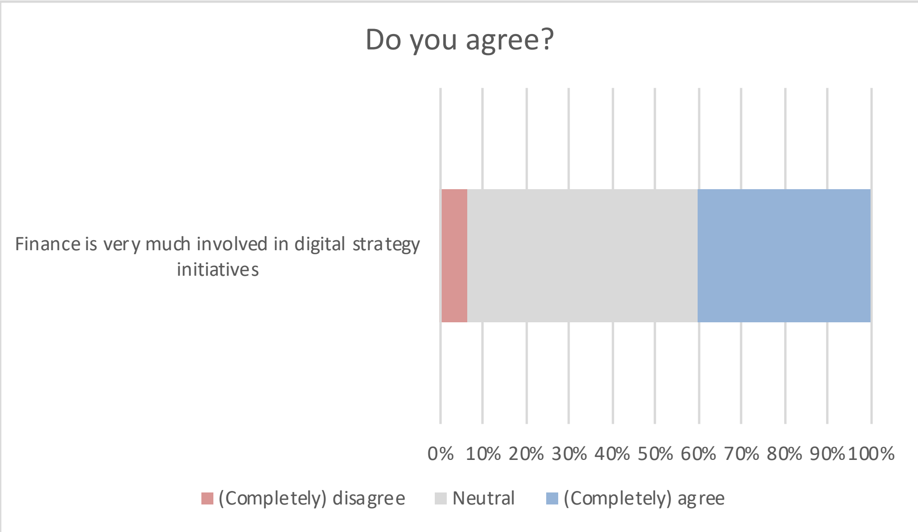


Figure 2: Finance involvement in digital strategy initiatives

Our results show that 6% of the respondents disagreed, suggesting that their Finance department is not involved in digital strategy initiatives. Another 54% of the respondents were neutral (ranging from 'somewhat disagree' to 'neither agree nor disagree' or 'somewhat agree'). These answers indicate that in more than half of the organizations, Finance is not (fully) involved in digital strategy initiatives. This raises important questions like why the involvement of Finance is so limited, and whether Finance can afford to continue this minimal involvement without suffering consequences in the long run. In addition, whether these results are different for millennials (as some suggested in our round table discussions) is an area that can be explored further. A full 40% of the respondents agreed with the statement that Finance is involved in digital strategy initiatives in their organizations.

Workforce dedicated to new digital strategy

Our third question concerned the involvement of the Finance department compared to other departments like Marketing and Supply Chain Management. Previous research by McKinsey[2] suggests that most of the value relating to digital strategy can be captured by departments other than the Finance department. This suggests that most of the digital strategy value is captured in the business units, so we would expect a larger percentage of the workforce in those departments to be involved in new digital strategy initiatives compared to the Finance department. We asked the respondents to indicate the level of involvement of their Finance department and other departments in the organization's digital strategy initiatives.

[2] Notes from the AI frontier: Applications and value of deep learning, McKinsey, 2018

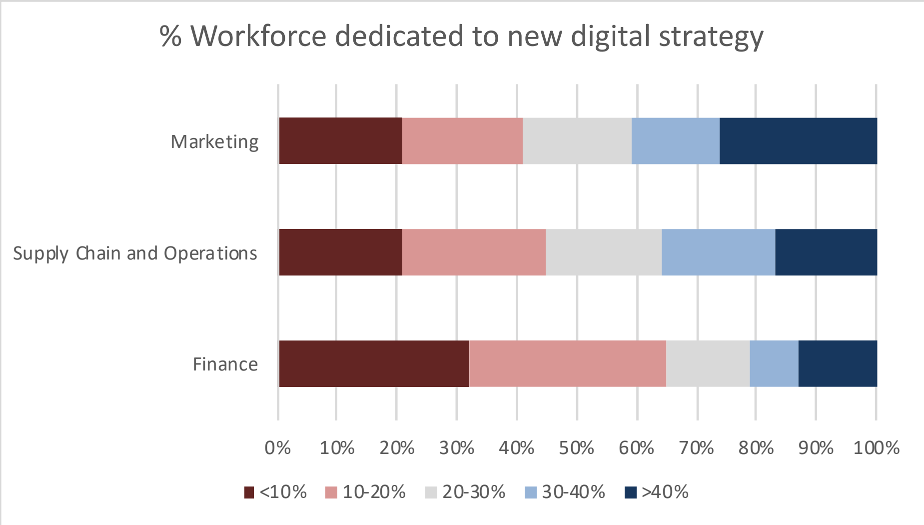


Figure 3: % of Workforce dedicated to new digital strategy

The results do confirm that Marketing, and to a lesser extent Supply Chain and Operations, are more involved in new digital strategy initiatives than Finance. For example, the respondents indicate that on average, more than 40% of the Marketing workforce and 35% of the Supply Chain & Operations workforce is significantly involved in new digital strategies, compared to 20% of the Finance department. This finding confirms our expectation that significant value is captured through digital strategies at these other departments first. This raises a further question: would the organization benefit from dedicating a higher percentage of the Finance department to new digital strategy initiatives? The participants at our Round Table discussions suggested that this would be the case if Finance is involved early in the process.

It is not surprising that organizations that focus to on seeding digital initiatives (i.e. transformative organizations) devote a higher percentage of their workforce in all departments (Finance, Supply Chain and Operations and Marketing) to new digital strategies. On the other hand, organizations that focus primarily on exploitation (i.e. on fixing issues related to the core business) devote a lower percentage of their workforce to new digital strategies. This suggests that top management teams with a clear vision on digital strategy initiatives are more likely to allocate more resources to the digital transformation of the firm.

Insights from the round tables: Finance involvement

If the Finance department does not get involved at an early stage, they may find themselves picking up the pieces after Marketing or Supply Chain & Operations have set up their operational systems. Fixing an inadequate system is generally more expensive and time-consuming than doing it right in the first place, so it pays to have these systems “compliant and consistent by design”. One CFO indicated that the involvement of Finance in an early stage is key for risk management and compliance:

> *“If we (=Finance) do not set up an adequate system of internal controls for these new digital initiatives, who will?”*

An important aspect of being involved in early stages of digital technology is that other departments actually recognize the value of this involvement from Finance. But for that to happen, Finance may need to change its attitude towards the rest of the organization as well, as one CFO acknowledges:

> *“We were known as the ‘No-department’. As a result, nobody asked us for input because we would raise issues instead of providing solutions. This attitude has changed completely, in part because we hired a number of new people to get involved with and help the business”*

Technologies applied in Finance

Adoption of technology

In addition to shaping digital strategy, Finance departments also have to deal with new technologies that affect Finance operations directly. CFOs generally have great ambitions for the digital transformation of their Finance department. In a study conducted by EY, 65% of the responding CFOs said that "standardizing and automating processes and building agility and quality into processes will be a significant priority for tomorrow's finance function". And 58% of the respondents stated that "combining state-of-the-art technology with process improvement will be a major focus for the future finance function"[3].

The digital technology push provides plenty of new opportunities for organizations to improve their internal communication and interaction with customers, to improve the quality of operations, and to make key processes more efficient and effective. Similar opportunities exist in the Finance department where developments like robotization (Robotic process automation, RPA), artificial intelligence, blockchain, process mining, data visualization hold great promise, but it can be difficult to see the forest for the trees as Finance departments struggle to determine which technologies should be adopted now and which ones can wait until later. After all, resources are scarce and funds are limited, while the benefits of using new technology are not guaranteed. As a result, many organizations end up with (sometimes uncoordinated) experiments in the Finance department which are difficult to scale while they try to figure out what value these initiatives might add in the long run.

To find out what digital technologies are actually being used in Finance departments, we asked respondents to indicate:

a) what technologies have been considered or are currently being considered;
b) what technologies are currently being implemented;
c) what technologies are currently being used;
d) whether there have been any technologies that were implemented and subsequently abandoned.

Figure 4 shows the results.

[3] "Is the future of finance new technology or new people", EY, 2016

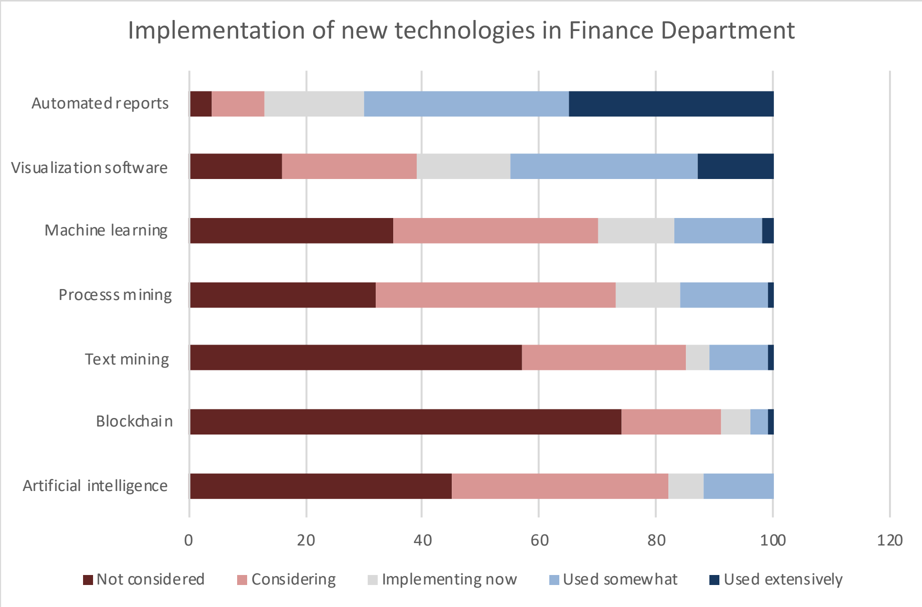


Figure 4: Implementation of new technologies

Our results indicate that automated reports (used in 70% of the organizations) and visualization software (45%) are used most intensively across organizations; in fact, it would be safe to consider these 'established new technologies'. On the other end of the spectrum we find blockchain (4%) and artificial intelligence (12%), which are used least often in Finance departments. While blockchain is rarely considered in organizations, several organizations are considering using artificial intelligence (37%). Other technologies that are being considered are process mining (41%) and machine learning (35%). Not many organizations have implemented and subsequently abandoned new technologies (3% implemented and abandoned visualization software, 2% implemented and abandoned automated reports). No respondents mentioned that they implemented and abandoned any of the other technologies, suggesting that many organizations are still experimenting with new technologies to see which problems they might solve. We found that transformative organizations use more visualization software, more automated reports and more artificial intelligence in the Finance department. This suggests that organizations that invest in digital strategy initiatives also use new technologies more often; whether these new technologies drive the implementation of new digital strategies or whether these technologies follow from new digital strategies is open for discussion.

Insights from round tables: finding a balance between legacy and new technology

One reason for the relatively low acceptance of some technologies may be related to the legacy systems in (incumbent) organizations. We found that in addition to implementing new technologies, the Finance department at many larger organizations is also expected to navigate the continuous challenges presented by their often scattered legacy IT landscape. This legacy landscape hinders progress, especially for incumbent organizations, as ERP landscapes need to be reshuffled, aligned with underlying processes and often transitioned to the cloud.

While new ERP solutions often include elements from separate software packages (e.g. visualization software, RPA, machine learning, etc.), these solutions may also render previously developed technology solutions worthless. This triggers a fear of investing in technology that will turn obsolete before it pays off. Upgrading ERP software packages may also require significant resources in terms of purchasing costs and implementation efforts. As one Finance Transformation officer mentioned:

"The IT resources required by ERP upgrades are diverted from other Finance Digital initiatives, so we risk moving slower in those areas."

Many Finance departments realize they will have to take a 'both ... and' approach if they are to succeed in their Finance Transformation. In other words, Finance departments have to find a delicate balance between using the available resources to optimize the legacy landscape as well as to embrace new digital technology. One major pitfall in maintaining this balance is trying to get the basics perfect before being willing to make changes. Nothing is certain except for death, taxes, and change, and innovation does not wait for companies to get their ducks in row. The conclusion from our round table discussions was that organizations usually have to crawl before they can walk instead of leapfrogging, but you should be prepared and set up to experiment, try and fail fast, and finally succeed. The specific decisions on resource allocation that are made in the Finance department depend on factors such as the complexity of the organization, the ability to standardize administrative processes across different departments, the volume of transactions that can be automated, the purchasing and implementation costs of new technology (e.g. RPA, new ERP license) and the available IT resources.

Automation and robotization (RPA)
In our research we zoomed in on automation and robotization, because these are considered crucial developments that will free up time for Finance to spend on more value-adding activities. In addition, they are expected to have a big impact on decisions regarding the use of Shared Service Centers (SSCs) and Business Process Outsourcing (BPO) partners. SSCs have been part of the Finance operating model at many larger and midsized organizations for quite some time now. In those organizations, transactional Finance activities have been clustered and centralized in regional or global Finance SSCs that operate at arm's length. Some of these organizations have also transferred these transactional Finance activities to BPO partners. This centralization trend has continued in recent years, encompassing additional Finance activities like reporting. Ongoing digital advances have already made standardized Finance operations more efficient, and recent developments provide organizations with even more new options and new choices to be made. Automation and RPA also reduce labor costs significantly, completely changing the dynamics in the business case for outsourcing. At the same time, BPO partners form an additional layer of complexity in effectively dealing with a changing landscape of regulatory reporting and compliance. As a result, various organizations are reconsidering their Finance operating model and are evaluating whether bringing back ('reshoring') previously outsourced activities is an option.

We asked the respondents to indicate to what extent specific activities in their Finance departments are automated and robotized, and to what extent these activities will be automated or robotized in the near future (within the next 3 years). Figure 5 shows the results.

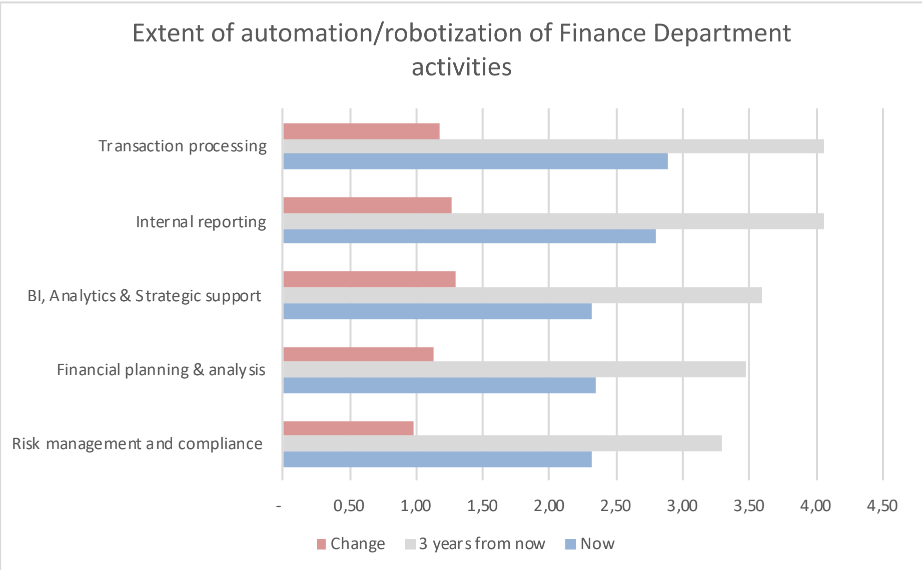


Figure 5: Extent of Automation/Robotization of Finance Department Activities

Response scale:
1= Not at all (0%), 2= Barely (<25%), 3= Somewhat (25-50%),
4= To a large extent (50-75%), 5= (Almost) complete (>75%)

[5] Unlocking success in digital transformations, McKinsey, 2018

Our results show that Transaction Processing is currently the most automated/robotized activity (average score 2.88; 24% of the organizations have automated more than half of their activities in this area), followed closely by Internal Reporting (2.79; 20% of the organizations have automated more than half of the activities in this area). These activities are also likely to be further automated or robotized in the near future (Transaction Processing: 80% expect that more than half of the activities in this area will be automated or robotized within the next 3 years; Internal Reporting: 74% expect more than half of the activities to be automated). The largest increase in the degree of automation/robotization is expected in the area of Business Intelligence (BI), Analytics and Strategy Support (from approximately 10% to 50% for more than half of the Finance department activities). Our data show that CFOs have higher expectations for the automation/robotization of Transaction processing and BI, Analytics & Strategic support than other respondents. This may indicate that other Finance department employees are not always aware of the automation and robotization initiatives in the Finance department.

It should be noted that most people overestimate the impact of technology on work processes in the short run. For example, Gartner[4] recognizes a 'peak of inflated expectations' (where the impact of technology tends to be overestimated), a 'through of disillusionment' (where people are disappointed with a specific technology), and a 'slope of enlightenment' followed by a 'plateau of productivity, where the technology is effectively employed. Time will tell whether or when this 'plateau of productivity' for robotization or automation will actually be achieved.

Insights from round tables

The majority of the round table participants indicated that they are currently involved in experiments with RPA or have already successfully proven the business case for RPA. We found that organizations follow different approaches to look at RPA. Most participants said they experiment with RPA in highly standardized processes, based on a "standardize first, robotize later" approach. Others see RPA as an excellent opportunity to overcome inefficiencies in processes, without the need for further standardization. As one CFO indicated:

> *"The inefficient processes will benefit the most from using RPA. In those processes people waste time on tasks that add no value"*

[4] https://www.gartner.com/smarterwithgartner/5-trends-appear-on-the-gartner-hype-cycle-for-emerging-technologies-2019/, downloaded on October 8, 2019.

Finance professionals competencies

The ongoing digital transformation may require new competencies for Finance professionals. Some of the traditional Finance activities will become less important while new value-adding roles and activities are emerging. What specific competencies should Finance professionals develop in this new digital era? And how can organizations ensure that their Finance people have the skills they need to face the challenges ahead?

Changes in required competencies

Besides familiarity with digital technology (tech-savviness), there is a clear demand for analytical skills and capabilities that will further equip Finance for a business-supporting role. CFOs are being asked to add strategic, operational and HR knowledge and competencies to their own skill set so they can actively manage the organization and oversee and the development of their Finance departments. We asked the respondents to indicate whether they think specific Finance competencies will increase or decrease in importance over the next 3 years. Figure 6 shows the results.

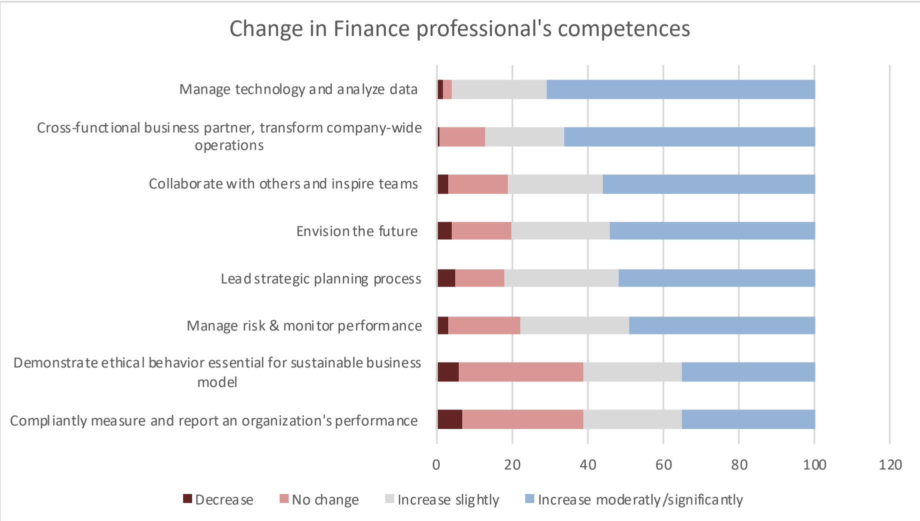


Figure 6: Expected changes in Finance professionals' competencies

The respondents think that the competencies 'Manage technology and analyze data' (71% expected a significant increase), 'Cross-functional business partner and transform company-wide operations' (66%) and 'Collaborate and work with others' (56%) will become more important over the next couple of years. However, it should be noted that even the competency that is least likely to increase significantly in importance ('Measure and report an organization's performance in compliance with regulations') is still expected to become more important by 35% of the respondents. Overall, this suggests that there will be increased demands on Finance professionals: they need to enhance their partnership with the business, increase their soft skills, manage risks, guard the reliability of data, ensure compliance with regulation, etc. etc.

Insights from round tables: finding the right people

Most participants in the round tables mentioned that Finance needs to develop digital capabilities and more in-depth analytical and modelling skills. They also see significant value in becoming more proficient in Agile and Lean and applying those principles to a multi-functional team setting. Collaboration, storytelling and change/project management are seen as important complementary skills as well. The lack of digital skills is likely to hinder the digital transformation in Finance. One of the participants predicted that:

> *"The lack of tech-savviness in Finance will slow down the Finance Transformation; having the right digital capabilities is a key enabler for a successful transformation"*

While everyone agrees that new capabilities and competencies need to be added to the Finance department, there is no consensus yet on how to go about it. Old-guard accountants have excellent core accounting skills but may be resistant to new technologies, while younger hires are more tech-savvy but tend to be weaker on the fundamentals. The challenge for many organizations is to attract new professionals with different skill sets and train them in core accounting skills, while at the same time encouraging more established Finance professionals to add new technological capabilities to their skill set.

A noteworthy finding is that some organizations don't see the lack of basic finance and accounting skills as a significant problem when looking for new Finance employees. They figure that if a newly hired employee has the right attitude, the finance skills can be taught on the job, as one CFO explained:

> *"We hire new employees based on attitude first and teach finance skills on the job"*

However, other organizations are finding it harder to overcome the lack of basic finance skills, when they discover that these new hires are not much use in terms of support for specific financial decisions. As one CFO lamented:

> *"New hires lack accounting skills, especially with regard to the balance sheet"*

Most of the organizations that participated in our research still see solid accounting skills as an important requirement for Finance professionals. They argue that competencies such as 'Envisioning the future' (e.g. foreseeing the impact of current decisions on the future P&L and balance sheet) and 'Compliantly measuring and reporting the organization's performance' are as relevant as ever and that accounting skills will therefore remain important.

Whether organizations choose to hire new people or develop their own employees, it's not just about current skills and capabilities; what matters most to all of them is whether the person is willing and able to learn in order to remain 'future-proof'. Given the pace of technological developments, the skills and capabilities of Finance professionals may become outdated quickly. Finance professionals should therefore be ready for life-long learning; companies see this as a key skill. As another CFO explained:

"It's all about having people that are eager to learn. Capabilities that make a difference now may be irrelevant in a couple of years"

Acquiring new skills and knowledge in the Finance department

Developing new capabilities and skills may well be one of the biggest challenges the Finance department is facing. CFOs will have to build a Finance department with additional technological and analytical abilities while maintaining their service levels to the business. While capabilities may be acquired by attracting new talent, replacing finance employees every couple of years is not likely to be feasible. CFOs will therefore have to make sure that they provide their employees with opportunities to acquire new skills and knowledge in order to keep up with the digital transformation.

We asked the respondents to indicate how Finance professionals stay abreast of developments in the digital transformation (see Figure 7).

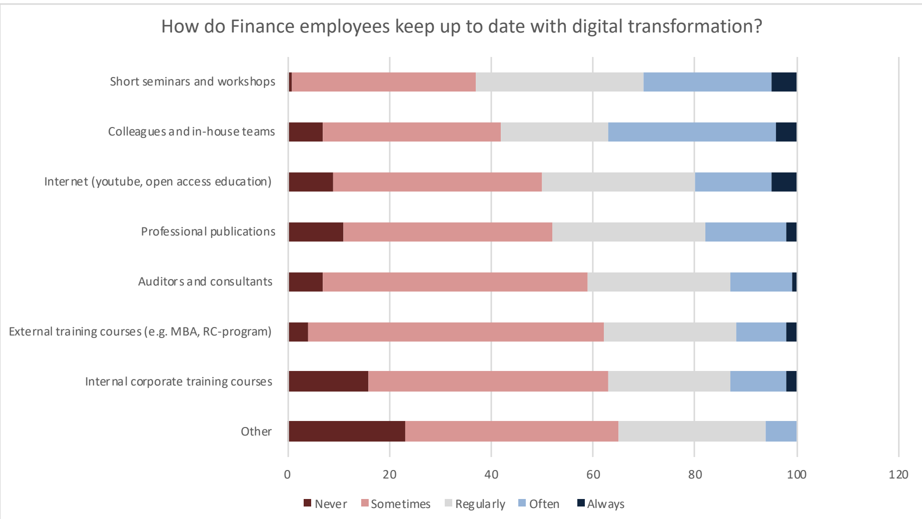


Figure 7: How do Finance employees keep up to date with digital transformation?

Our results show that Finance employees most frequently use short seminars and workshops (63% answering regularly, often or always), colleagues and in-house teams (58%) and the Internet (YouTube, open-access education such as Coursera; 50%) to keep up with digital transformation.

Internal corporate training courses (37%) and external training courses (MBA, RC program; 38%) are used less often to keep up to date with new technological developments. This suggests that there is a lack of structural investment in Finance department professionals to keep them up to speed in this digital era; training appears to be rather ad hoc (short seminars, colleagues, internet) and fragmented.

Insights from round tables: A skilled Finance department
Our discussions with CFOs and senior finance managers suggest that Finance professionals need to prepare for lifelong learning. While round table participants recognize the need for established Finance professionals to acquire new skills and knowledge, most CFOs seemed to lean towards hiring new talent. As one CFO revealed:

> *"I have replaced 35% of my staff in the Finance department in the last two years"*

While recruiting new talent and replacing Finance department employees who are unwilling or unable to make the change is one way to acquire skills and competencies quickly, it is not likely to be a viable long-term strategy; few organizations can afford to replace one third of their Finance department every two years. Several CFOs said they are trying to provide learning opportunities within their departments to make sure that their current staff can be developed and retained. As one CFO explained:

> *"I have arranged for external training for two of my Finance department employees. They now understand the data much better; in fact, they understand it so well that other Finance department employees and marketing employees have asked to take the training as well, as they can see that it provides value to the business. I have arranged in-company training for several employees. We'll have to pay for two days for several people plus the cost of the training, but it will likely provide additional value for the firm: better understanding of data and more collaboration across departments."*

It is clear that the development and retention of Finance professionals is going to be a key issue for CFOs in the near future. Which (again) begs the question: is it realistic to hang the future of Finance on the organization's ability to either find or develop enough 'new' Finance professionals (i.e. those rare individuals who combine business acumen with technical know-how)?

Several participants in the round tables stressed that they thought the Finance transformation can only succeed if it is a team effort. Rather than trying to find 'superstar Finance employees' by requiring each individual in the team to possess all the skills and competencies described above, it is probably more feasible and effective to select a variety of individuals with diverse capabilities and skill sets to build a 'superstar team'. This means that the CFO will have to lead and actively manage the change process in the Finance department.

Finance Transformation challenges

Key challenges

What are the main challenges faced by organizations when implementing digital transformation in their Finance Department? A recent research study conducted by McKinsey suggests that digital transformations are tough: only 16% of respondents said that their digital transformation had successfully and sustainably improved the performance of the organization[5]. For our research, we asked respondents what they thought were the main challenges faced by Finance in its digital transformation. Figure 8 shows the results.

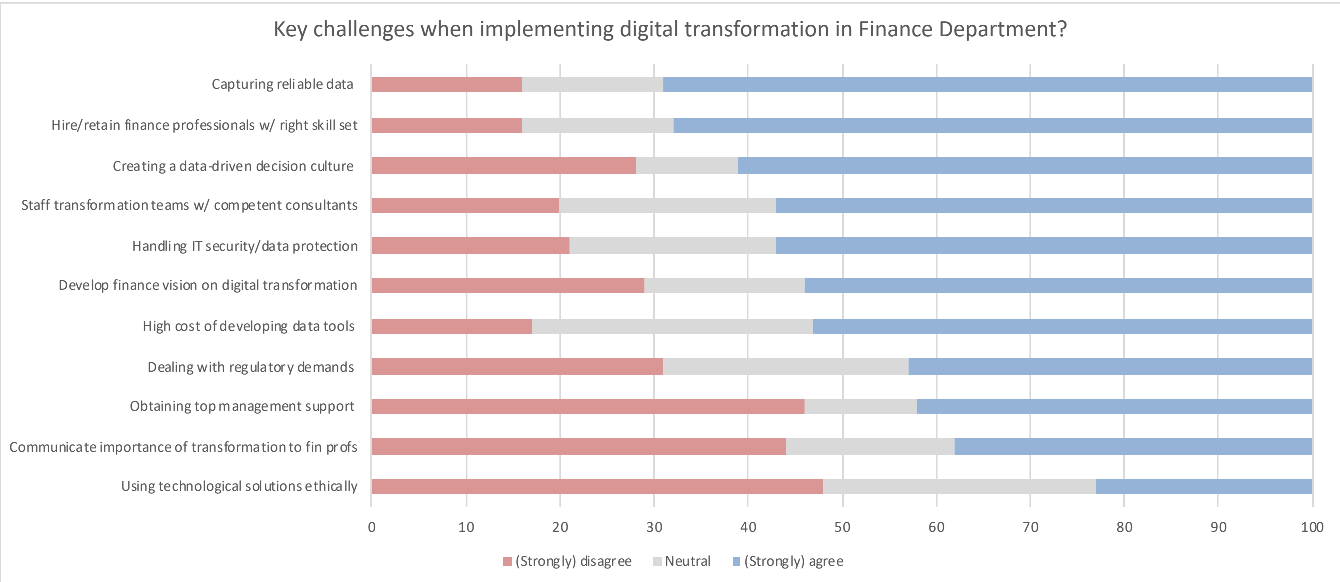


Figure 8 - Challenges when implementing digital transformation in the Finance Department

Figure 8 indicates that capturing reliable data (problematic in 69% of the organizations), hiring and retaining finance professionals with the right skill set (68%), and — probably as a result of the previous two issues — creating a data-driven decision culture (61%) are considered key challenges for the digital transformation of Finance in organizations. Using technical solutions ethically (problematic in 23% of the organizations), communicating the importance of digital transformation to the Finance department (38%) and (lack of) top management support (42%) are seen as less of an issue. This suggests that most Finance employees and their managers understand the importance of digital Finance Transformation, and communication and top management support are not considered an issue. This is a change from about 5 years ago, when top management support for digital transformation in the Finance department was lacking and digital transformation was seen as 'an IT thing'. At this point the transformation appears to be held back mainly by practical and operational challenges such as a lack of reliable data and a lack of skilled finance professionals.

[5] Unlocking success in digital transformations, McKinsey, 2018

This suggests that most organizations are still focusing on 'getting the basics right' in order to get the reliable insights they need. One CFO elaborated on what he meant by getting the basics right:

> *"One source, one definition, one truth. We need to unify the landscape and make sure it all adds up"*

Insights from round tables: different approach, same goal
We found that organizations differ in their overall approach to the digital Finance Transformation. Some of the larger organizations see it as a program; they define a vision for their digital transformation and design a roadmap with milestones to measure progress. This roadmap shows what needs to be done, and when, in order to meet the overall goals.

Other large organizations and most smaller organizations prefer to look at digital Finance transformation as an organic process without a set end date. That is, digital Finance transformation is likely to continue for the foreseeable future. As one of the transformation officers explained:

> *"We stopped calling it a program. The digital Finance transformation is a continuous journey"*

Although their approaches to digital Finance transformation differ, all the organizations that participated in this research project recognize the importance of digital technology for the Finance department and intend to embed digital technology in their work procedures and processes.

Future roles in Finance departments
During the interviews and round table discussions we discussed how CFOs and their Finance departments plan to tackle their transformation and realize the full potential of digital technology. Several participants indicated that a number of new roles are emerging in their organization as they attempt to deal with the challenges ahead. These new roles are based on human-oriented skills on the one hand and digital-oriented skills on the other. The roles we identified in our discussions are decision shaper, agile change enabler, and information architect. These roles are in addition to the fiduciary role of the Finance department (i.e. risk management and compliance, regulatory reporting).

A. *Finance as decision shaper*
Finance has had a role in supporting decisions in organizations for decades now. Information is a traditional Finance domain, and the new digital technology will enable Finance to further support the organization in making better decisions. In order to facilitate the digital Finance transformation, CFOs and senior Finance managers need to be able to translate the purpose, mission and strategy of their organization into facts if they want to effectively shepherd their Finance department team through the transition to become future-ready.

As decision shapers they will need strong storytelling skills to translate the purpose of the organization into performance measures and decision rules for measuring long-term success. They also need business acumen and HR skills to bring the vision forward and establish a data-driven decision culture, inspired by the goals of the company. One CFO stated:

“I emphasize in every meeting: act on data, not on opinion”

Another important part of digital transformation is (big) data analytics and the use of AI and machine learning to further support decision-making. Data analytics allows organizations to embrace more data-driven methods, resulting in better informed, more fact-based decision-making. The use of large amounts of data and the combination of internal and external data add more and new dimensions, potentially leading to brand-new insights. Decision support has traditionally been an important focus for Finance, and data-driven decision support may well be a huge opportunity for the Finance department. Finance is poised to become a decision shaper if it can successfully combine large amounts of data and learn how to ask the right questions to generate new insights. One CFO elaborated on this role:

“We are moving beyond business partnering: as Finance brings data-based insights to the table that are new to the business, it is becoming a decision shaper”

B. *Finance as agile change enabler*

Michael Wade shared his thoughts on how organizations should respond to today’s dynamic environment: “Today’s organizations have to respond continually to rapid (digital) developments in an increasingly uncertain business environment, and (digital) agility has become a pre-requisite to remain relevant. Such an organization requires capabilities such as hyper-awareness, informed decision-making and fast execution”[6]. The ‘new’ Finance department should support these capabilities by serving as an agile change enabler.

Agile organizations work bottom-up and provide freedom to lower-level employees, which may contradict the top-down, command & control way of working which has traditionally dominated Finance departments. The agile change enabler supports agile organizations by finding ways to shorten planning cycles, constantly scanning the business environment, and increasing execution speed by breaking through the traditional silos that are so prevalent in many organizations. One CFO described the change in the way Finance supports the dynamic business environment:

“PowerPoint is being replaced by dialogue, i.e. conversations to understand what is going on instead of telling us how things should work”

[6] “Disruption and the CFO”, Keynote presented by Michael Wade, Professor Innovation and Strategy IMD, Cisco Chair in Digital Business Transformation Finance on a Mission, 2018

LEAN as a philosophy has increased the efficiency of many processes in organizations. The agile change enabler uses technology like process mining and RPA to optimize these processes even further, using a cross-functional end-to-end approach to detect and tackle inefficiencies in the organization's core processes and to increase the overall execution speed of the organization. One CFO underlined this principle of the end-to-end approach:

"Finance is now focusing on end-to-end processes and supports multifunctional teamwork. The effectiveness of Finance has increased as a result"

C. *Finance as information architect*

More data-driven ways of working present organizations with yet another challenge: the quality of (master) data. When organizations grow, be it organically or through mergers & acquisitions, the various types of data in the organization grow as well. Finance has an important role in making sure that the information flows are under control. One CFO mentioned that:

"Information is easy to create and spread, but hard to trust and control"

Organizations do see the benefit of having clear definitions and single versions of the truth, but the reality is that the data landscape is often scattered, especially outside the Finance domain. In most organizations there is an urgent need to improve data quality organization-wide in order to leverage the data analytics opportunities. This is the domain of the information architect. As one CFO stated:

"You need one source, one truth, one standard"

The Finance department is uniquely equipped to unify definitions and to coordinate the process of improving data quality. Just as the Finance department has a general ledger to record the organization's financial transactions, it should have a central oversight function for all data to ensure proper governance and to make sure the data is reliable. If the reliability of data cannot be guaranteed, it becomes very difficult to make sound decisions. One CFO defined what Finance has to offer:

"Finance is increasingly involved in IT development and architecture. Finance brings compliance to the table".

Being an information architect does not mean that Finance 'owns' the data; ownership belongs to the different departments of the firm. However, Finance should step up and claim a place at the decision-making table by ensuring that the data are sound and can be trusted for informed decision-making. A CFO stated:

"Data can be maintained at various departments in the organization, yet data definitions and data governance is a key role for Finance"

Building tomorrow's Finance organization

The digital transformation is challenging the very identity of the Finance function, and Finance organizations will have to reinvent themselves if they are to remain relevant. If Finance is going to successfully claim new value-adding roles, it will have to develop new capabilities, new skills and new (personal) leadership. In addition, the borders between Finance and other domains are becoming increasingly blurred, so CFOs will also have to expand their knowledge of domains like HR and IT, while at the same time maintaining their business acumen and core financial skills.

Summary and conclusions

Despite the far-reaching impact of technological developments on organizations, we have little insight in the actual challenges faced by Finance departments and Finance professionals. This dearth of information inspired the University of Amsterdam, Workday, Transformation Forums and PLUC! to initiate a joint research project to collect data from CFOs and Finance professionals. In various Round Table settings and interviews, we received input from over 75 CFOs and Finance Executives. In addition, our survey was filled out by 101 Finance professionals, ranging from CFOs to senior Finance professionals from several organizations. Our research focused primarily on the current status of the Finance Transformation and the real-life impact of digital technology on the Finance department.

The data we collected on the role of Finance transformation in the digital era have yielded the following conclusions:

- **How much time and effort do organizations devote to transformative digital strategies, and is the Finance department involved in these digital strategic initiatives?**
  We found that organizations still devote a relatively large amount of time and effort to fixing issues in the core business, possibly at the expense of seeding transformative innovations. Finance employees should be aware of the trade-offs that are made (i.e. fixing issues in the core business versus seeding transformative innovations) and should caution against excessively myopic decisions within the firm to maximize long-term value. This means that the Finance department will need to be involved in new digital strategy initiatives in order to remain relevant in the future.

- **Which technologies are finding their way to the Finance department?**
  Some technologies that have been hyped in practitioner literature (e.g. blockchain, artificial intelligence) have not been implemented (yet) on a large scale. Others, like automated reporting and visualization software, have become standard technologies. Finance professionals indicate that their organization is currently considering investing in process mining, artificial intelligence and machine learning. Most activities in the Finance department are likely to become automated or robotized to a much greater extent in the near future, although actual progress may fall short of current expectations. Organizations need to strike a balance between upgrading current legacy systems and adopting new technologies.

- **How important are specific competencies for Finance professionals? Are these competencies likely to change over the next couple of years?**
  While new skills and competencies are becoming more important (e.g. managing technology and analyzing data; operating as cross-functional business partners and transforming organization-wide operations; collaborating and working with others), the ‘regular’ finance and accounting skills (measuring and reporting performance in compliance with regulations; demonstrating professional values and ethical conduct) remain important as well.

- **What are the challenges presented by this digital transformation in Finance? What are organizations doing to handle these challenges, and how are they preparing their Finance department employees for the future?**
  Key challenges in the digital Finance transformation are capturing reliable data, hiring and retaining finance professionals with the right skill set and creating a data-driven decision culture. These challenges appear to be related: governance and the extraction and interpretation of data are hindered by poor data skills on the part of finance professionals. As a result, managers do not trust the data and a data-driven culture cannot be developed.
  In some organizations we see several new roles evolving in the Finance department with regard to the management, exploration and exploitation of data. While organizations recognize that new skills and competencies are required, most have focused on the acquisition of new talent. This strategy is unlikely to be sustainable for the longer term, so CFOs would be wise to provide their current Finance employees with opportunities for professional development. A more effective long-term approach might be to adopt a team-based approach rather than requiring every finance professional to possess all skills and competencies. Connectivity, interdependence, and cross-functional interaction are hallmarks of the digital age, after all. Organizations are more likely to remain relevant if they build a team of individuals who together have all the requisite skills instead of trying to find individuals who are all good at everything.

Overall, we found that although all Finance departments are in the process of adapting digital technology, the pace of this adaptation varies across organizations. And while all Finance departments are working hard to stay relevant in the digital era, our results indicate that for most incumbents it is not so much a revolution as an evolution, with incremental changes that taking into account their legacy systems and established work force. Digital-born newcomers tend to implement more 'revolutionary ways of working' as they have more freedom to design and implement technology from scratch.

Based on our analysis, we offer the following conclusions and recommendations for the Finance department in this digital era:

- **Drive digital strategy initiatives**
  Many organizations still focus on fixing issues related to the core business, causing them to potentially miss out on transformative innovations. Instead of always playing the part of 'the No-department', the Finance department should actively engage in digital strategy initiatives, as these are likely to affect the long term viability of the organization. That is, the Finance department should be aware of the balance between short-term profit and long-term value creation, and it should be prepared to challenge the business to invest sufficiently in innovation. In order to succeed, the company will have to 'play chords, not keys': all departments should be involved in digital strategy initiatives in order to align innovative activities across the organization. This will require Finance departments to understand the market, and to be able to think creatively and persuade people in multi-functional teams.

- **Focus on value-adding technologies**
  Improving legacy systems as well as new digital technologies requires significant organizational resources. Most of the new technologies (e.g. RPA software) have dropped significantly in price over the past few years, but even so, focusing on RPA may come at the expense of improving ERP systems. In addition, scaling up appears to be a tall order for some of these technologies. Organizations should set clear goals for technological solutions, balance their investments in legacy systems and new technologies, and select technology projects that bring the most value to the firm. While this may sound easy, it requires clear decision criteria on how to successfully select and adopt or stop and discard technologies. Relevant criteria include the value-adding insights of specific technology solutions (better decisions, cost reduction), the process stability, the scalability of technology, supplier support for technology, the involvement of key personnel, etc.

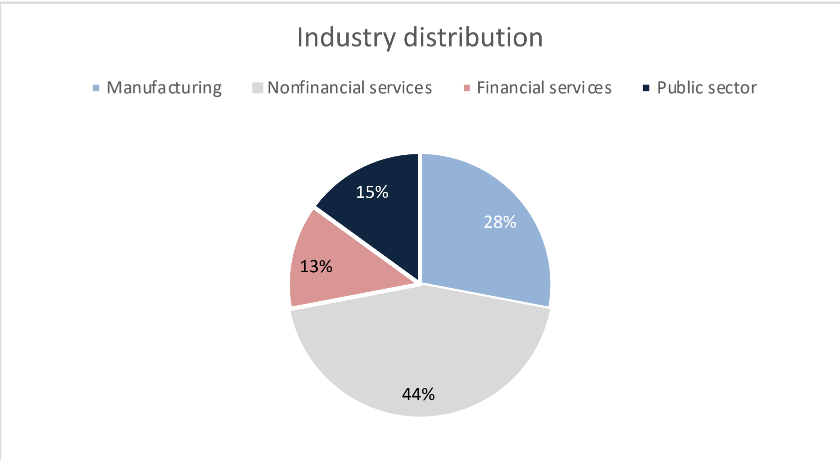
- **Accelerate in closing the skill gap**
  So far, most organizations appear to have focused on new hires in order to acquire new skill sets; this strategy is unlikely to be successful over a longer period of time. CFOs should adopt a team-based approach for their Finance department, and make sure that the team as a whole rather than each individual is future-proof; this will require developing a structural training program for (specific) Finance department employees as well as succession planning for specific functions in the Finance department. This approach may require all Finance professionals to have a basic skill set in several areas (e.g. data management, Agile/Lean/Scrum, data science, core accounting skills, etc.) so these employees will be comfortable speaking the languages of data, business and finance & accounting, both with each other and to the business units and data scientists. Finally, it means that new roles and responsibilities will have to be established in the Finance department; this may change the job descriptions of several finance professionals.

- **Develop a data-driven decision culture**
  In a data-driven culture, the key question in solving a problem is “what do we know?”, not “what do we think?”. The good news is that the top management in many organizations (including the CFOs) recognizes the importance of digital transformation. Nevertheless, practical and operational problems (capturing reliable data, hiring/retaining finance professionals with the right skill set) need to be solved before a data-driven decision culture can be achieved. CFOs and senior Finance professionals can promote such a culture by challenging controllers as well as the business on the basis of data and insights rather than opinions. Finance is in an excellent position to fulfill this role, as it has a complete overview of the organization.

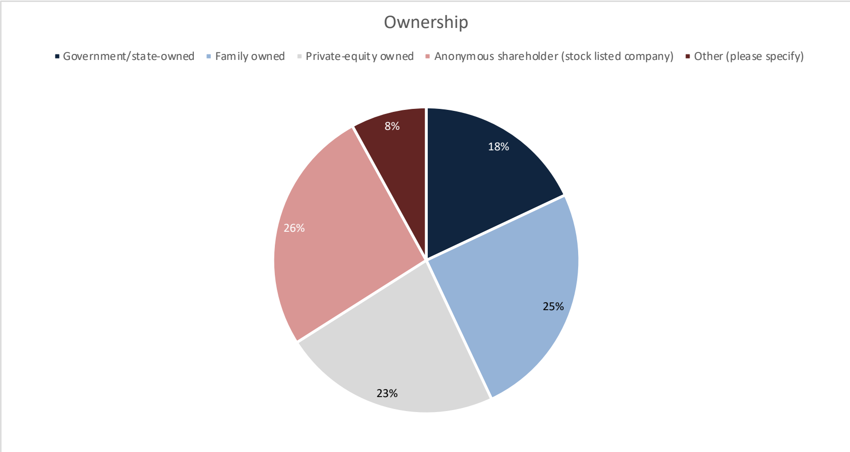
A few notes on methodology and participant profile

We used a number of different methodologies to assess the impact of digital on the Finance department. First we gathered input from over 75 CFOs and Finance executives during various Round Tables and interviews. We then used this input to identify key issues related to the topic and to develop and fine-tune our survey. This survey was filled out by 101 Finance professionals, ranging from CFOs to senior Finance professionals from several organizations. Our research focused primarily on the current status of the Finance Transformation and the real-life impact of digital technology on the Finance department.

For our survey, we relied on data obtained from CFOs, senior financial managers and other financial professionals. Our survey respondents represent various industries: manufacturing (28%), nonfinancial services (44%), financial services (13%) and public sector (15%).

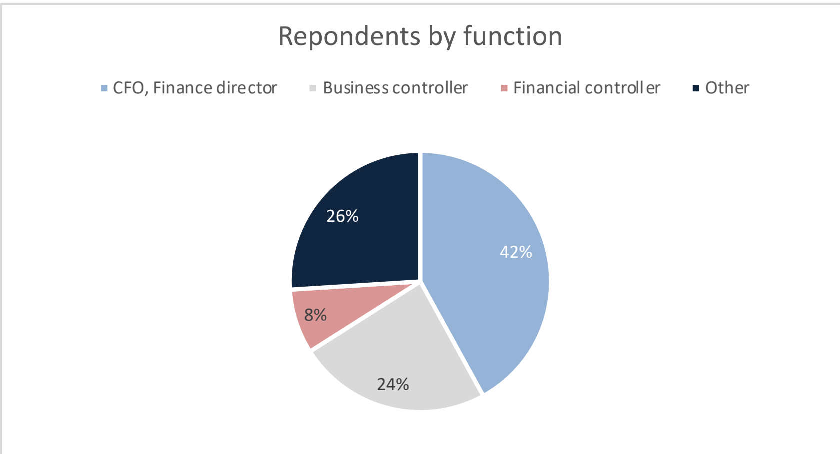


The respondents work at organizations with different types of ownership; 18% is state- or government owned (including health care organizations and non-profit foundations), 25% is family- or founder-owned, 23% is private equity owned, 26% is stock listed, and 8% has other owners (including cooperatives and pension fund owned companies).



Almost 90% of the respondents have seen organic revenue growth over the past 3 years. The respondents' organizations vary in size: approximately 40% have less than 500 million euros in revenue, and about 30% have more than 1 billion euros in sales.

In addition, our respondents have various functions, including CFOs (42%), business controllers (24%), financial controllers (8%) and other functions such as Finance manager (8%), Finance transformation manager (6%), group controller or concern controller (3%).



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