The Digital CFO

**A survey study on the
digitisation of the finance function**

March 2022

"Digitisation is high on the agenda of most companies, and CFOs."

Structure

Digitisation is widely acknowledged to be the key driver of corporate transformation.

Finance functions, particularly, face the challenges of digital transformation. The finance function traditionally has the task of collecting and storing data on the firm's transactions and other relevant events and reporting this information to internal and external decision-makers. Information technology has, of course, supported these processes for many years. However, with modern technologies, including artificial intelligence, finance function processes can be digitised more comprehensively, and data can be analysed more deeply and systematically than in the past. Thus, it is often argued that CFOs and their teams need to develop their data management and analysis competencies to become true 'business partners' to the CEOs.

Despite the importance of digitisation, there is not much concrete evidence from academic research on how digital firms already are, what drives digitisation, and what the main obstacles are. We address these questions in this study. During the year 2021, in cooperation with the WHU – Otto Beisheim School of Management, we surveyed CFOs of stock-listed and non-listed firms worldwide to examine, among other things, the current state of digitisation of the firms' finance functions and their use of digital technologies. We also investigated:

- the objectives and the performance of digitisation initiatives
- the barriers to digitisation
- the impact digitisation has on the finance function workforce and, ultimately, on the role of the CFO

1. Executive Summary

Our report is based on responses from 522 CFOs of firms in Europe, North and South America, Asia, and Africa. For most questions, the CFOs gave their responses on Likert scales ranging from one to seven, where a one meant, for example, 'do not agree at all' and a seven meant 'fully agree'. In our discussion of the findings, we usually aggregate the CFOs' responses to mean response ratings and, where applicable, analyse the means by firm size, industry, and geographical region. The study's methodology and further information on the sample companies are presented in the appendix.

Our main findings are summarised as follows:

- **Chapter 2, Digitisation strategy and priorities:** Digitisation is high on the agenda of most companies and CFOs. However, digitisation strategies and implementation roadmaps are more highly developed on the company level than on the finance function level. Also, according to the CFOs' responses many firms' finance digitisation projects are not coordinated closely with their company's overall digitisation strategy.

- **Chapter 3, Objectives and success of digitisation projects:** Digitisation projects in finance functions can be motivated by two goals: reducing costs and improving decision-making. While both goals are highly important, CFOs put more emphasis on improving decision-making than on reducing costs. Most survey participants report high satisfaction with the success of digitisation projects in their finance functions. However, cost reduction appears to be somewhat more elusive in digitisation projects than the goal of improving decision-making.

67 %

of all companies use management reporting dashboards extensively

- **Chapter 4, The current state of digitisation:** When asked to assess the current level of digitisation of their firms and finance functions in relation to their competitors, the average response of the CFOs on the 7-point-scale was 4.50 (firm-level digitisation) and 4.53 (finance function digitisation). More detailed questions regarding the degree of data standardisation and aggregation and the level of digitisation in functional areas (accounting / financial reporting, controlling / managerial accounting, and financial management and treasury) produced similar average ratings, ranging from 4.30 to 4.58. Depending on one's point of view, one could conclude that the glass is half-full or half-empty. Firms' finance functions have achieved moderate levels of digitisation in recent years, but there is potential for deeper digitisation in most cases.

- **Chapter 5, The use of digital technologies:** The potential for deeper digitisation in the coming years becomes even more apparent in the next section of the survey, which indicates that, so far, only a few firms have made extensive use of digital technologies in their finance functions. Only about a third of all CFOs stated that they used robotic process automation extensively (= responses 5, 6 or 7 on our 7-point response scale), and only about a quarter did so for process mining. For artificial intelligence and chatbots, the respective proportions are between 10 % and 20 %, and blockchain technology, while garnering a lot of public attention, is applied extensively in only about 5 % of the firms. An exception is dashboarding in management reporting, which is used extensively by around two-thirds of the firms participating in our survey.

1. Executive Summary

- **Chapter 6, Obstacles to digitisation:** We gave the CFOs a list of twelve factors that could impede the development and implementation of their finance functions' digitisation projects and asked them to rate their importance. Generally, the response ratings on these items were relatively low, suggesting that most CFOs do not feel strongly affected by these obstacles. The most important obstacle is the lack of employee know-how and capabilities, followed by employees' reluctance or resistance and company managements' lack of know-how and capabilities. The lack of financial and technical resources turns out to be the least important in our list of potential obstacles.

- **Chapter 7, Digitisation and the workforce:** Most CFOs agree that it is very difficult to attract qualified employees with the necessary IT and digitisation capabilities. The average firm in our sample has 184 employees (full-time equivalent) in its finance function (median: 38). On average, six finance function employees have a specific background in IT, digitisation, or data science. Behind these averages is a broad variation, as we explain in more detail in the report.

- **Chapter 8, Digitisation and the future role of the CFO:** What does the trend towards digitisation mean for the role of the CFO and firms' finance functions? Two very different developments are possible. CFOs and their finance functions could fall victim to digitisation, especially if their focus is primarily on administrative and regulative processes that are likely to be taken over by computers in the coming years (if this has not happened already). Alternatively, CFOs and finance functions may gain in importance, particularly if they use digital technologies to release themselves of administrative tasks and develop new analytical capabilities that enable them to support the CEO in developing and implementing successful business strategies.

Which development do the CFOs expect themselves?

A clear majority of our survey participants expect that the importance of the CFO will increase in their respective firms over the coming years. Most CFOs also expect that their finance functions' digitisation budgets will increase over the next years. The expected development for the finance functions' workforce is not as clear-cut. About half of the CFOs indicated that they expected the number of employees in their respective firms to remain largely unchanged; around a third expect an increase and about 20 % a decrease.

As mentioned, throughout our report we analyse the CFO responses by region, industry, and firm size. In particular, we find pronounced size differences. Specifically, the responses of the CFOs of very large companies, i.e., firms with revenues larger than € 10 billion, differ clearly and consistently from the responses of all other CFOs. For example, taking the CFOs' survey responses at face value, very large companies give more priority to digitisation and have more clearly defined strategies and implementation roadmaps. Their implementations are more successful and achieve higher levels of digitisation with extensive use of digital technologies.

Interestingly, for most survey items there does not appear to be a general size effect, that is the CFO responses do not change monotonically with firm size. Instead, the CFO responses from very large firms, with revenues of more than € 10 billion, differ from the responses of all other CFOs. Instead, the CFO responses from firms with revenues of more than € 10 billion differ from all other CFOs. In other words, very large firms appear to be a 'class to themselves'. We do not have a ready explanation for this observation and suggest that it is an interesting issue for further research.

2. Digitisation strategy and priorities
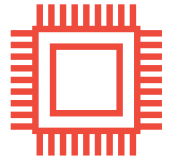
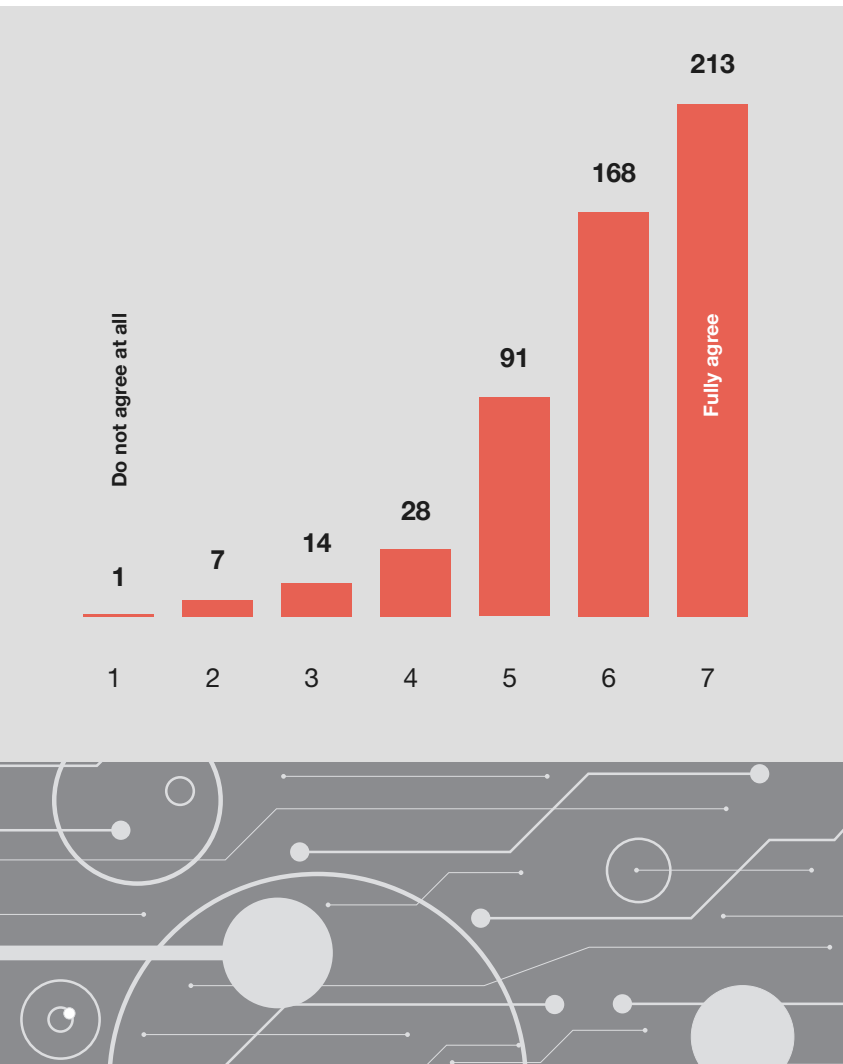## Digitisation is high on the agenda of most companies and CFOs.

Figure 1:
Priority of digitisation for firms' finance functions

Note: The figure presents the survey participants' responses to the statement:

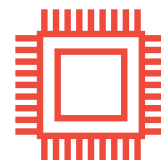### "Digitisation is a high priority within my finance function"

1: do not agree at all
7: fully agree

We asked the participating CFOs to assess the priority of digitisation for their firms' finance functions by indicating their level of agreement with the statement, 'Digitisation is a high priority within my Finance function.' A Likert scale ranging from one ('Do not agree at all') to seven ('Fully agree') was presented to the CFOs. The mean response to this question is 5.98, indicating a strong support overall. As shown in Figure 1, the overwhelming majority of CFOs (381, or 73.0 %) responded with Likert ratings of six or seven to the statement, indicating that they strongly agree that digitisation is a high priority within their firms' finance functions.

Interestingly, a few CFOs do not give high priority to digitisation. One CFO responded with a one, that is, she/he did 'not at all' agree with the statement that digitisation is a high priority within the finance function of their firm. Twentyone CFOs responded with a two or three, indicating low levels of agreement with the statement. For the main part, these firms are small unlisted manufacturing firms, presumably driven mainly by concerns about technology and engineering and, at least so far, do not feel tremendous pressure to digitise.

We also asked the CFOs to assess how important digitisation is for their firms in general. The corresponding questionnaire item stated, 'Digitisation is a high priority within my company', and the CFOs could again respond on a 7-point Likert scale. The mean response is 5.01, which is markedly lower than the response to the first question. In other words, digitisation has a distinctly higher priority for CFOs within their finance functions than for their companies in general. The difference between the two mean responses is statistically significant (t = 18.68; p < 0.000).

The first part of our questionnaire also comprised several questions regarding the firms' digitisation strategies. We asked whether the finance functions and their companies, in general, have clear digitisation strategies and roadmaps for their implementation. We also asked whether finance functions' digitisation projects are closely coordinated with the company-wide digitisation strategies and if firms' emerging digital business models are an important driver of the finance functions' digitisation efforts.

2. Digitisation strategy and priorities

Digitisation is a high priority within my finance function.

Total	5,98
S	6,01
M	5,74
L	6,05
XL	6,32

Digitisation is a high priority within my company.

Total	5,01
S	5,01
M	4,80
L	4,99
XL	5,58

My finance function has a clear digitisation strategy and a 'roadmap' for its implementation.

Total	4,94
S	4,91
M	4,81
L	4,99
XL	5,47

My company has a clear digitisation strategy and a 'roadmap' for its implementation.

Total	5,73
S	5,64
M	5,65
L	5,92
XL	6,29

The digitisation projects in my finance function are closely coordinated with a company-wide digitization strategy.

Total	4,49
S	4,46
M	4,39
L	4,48
XL	4,97

The emergence of digital business models within my company is an important driver of the digitisation efforts within my finance function.

Total	4,77
S	4,78
M	4,60
L	4,60
XL	5,53

1   2   3   4   5   6   7

■ Total   S   M   L   XL

Figure 2:
Digitisation strategies, by firm size

Note: The figure summarises the survey participants' responses to the indicated questionnaire items:

1: do not agree at all
7: fully agree

The bar charts present mean response rates for different size groups, i.e., small, medium-sized, large, and very large companies (see appendix for details).

Figure 2 presents the survey respondents' answers by size group. We distinguish four size classes:
- **Small firms** with revenues of up to €100 million
- **Medium-sized firms** with revenues between €100 million and €1 billion
- **Large firms** with revenues between €1 billion and €10 billion and
- **Very large firms** with revenues over €10 billion
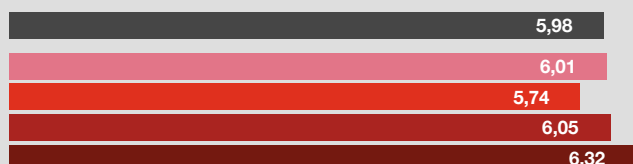(for details see appendix)

Figure 2 offers several interesting insights.

First, according to the CFOs' responses, digitisation strategies and roadmaps for their implementation are more highly developed on the company-level (mean response: 5.73) than on the finance function level (mean response: 4.94).[1] This is somewhat surprising, given the high level of priority most CFOs ascribe to the digitisation of their finance functions and given that they themselves appear to be responsible for developing such a strategy and roadmap.
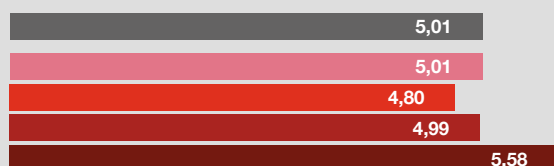
On the question of whether their finance functions' digitisation projects are closely coordinated with their companies' overall digitisation strategies, the CFOs are somewhat reluctant. Here, the mean response is 4.69, the lowest mean response in this question set. It is noteworthy that 147 CFOs (28.0 %) respond with values of one, two and three, indicating that they do not, or do not at all, agree to this statement.

1 | This difference is statistically
        highly significant (t = 14.82; p < 0.000).
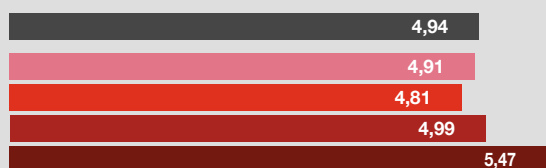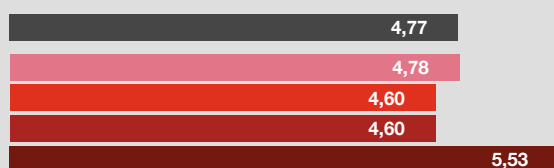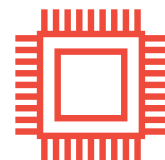
2. Digitisation strategy and priorities

The question of whether the emergence of digital business models is driving the digitisation efforts within the firms' finance functions was received with similarly reserved responses; the mean response is 4.77. Interestingly, we find a positive correlation between the response to this question and the priority given to the digitisation of the finance function. CFOs of firms with a strong emphasis on digital business models are more likely to prioritise the digitisation of their finance functions.

Interestingly, we also observe that CFOs of small firms tend to respond to the questions with somewhat higher response rates than CFOs of medium-sized firms, suggesting a U-shaped relation between size and the responses regarding digitisation priorities and strategies. However, we acknowledge that one needs to interpret this finding cautiously because our analysis is purely univariate.

Figure 2 also reveals interesting differences in the responses across the size groups. The CFOs of very large companies consistently respond with higher response rates to all questions, indicating that:

- strategies and roadmaps are more clearly formulated
- projects are more closely coordinated within the companies
- digital business models are more influential in firms with revenues beyond €10 billion than in firms belonging to the other size categories [2]

2 | The same holds true for the earlier questions about the priority given to digitisation. Very large firms respond to these items with distinctly higher mean ratings than firms in other size categories. More precisely, the mean response to the statement that digitisation has a high priority in the finance function received a mean response rating of 6.32 among CFOs or very large firms, compared to 5.98 for the total sample. Analogously, the statement about the priority of digitisation for the companies, in general, received a mean response rating of 5.58 among CFOs of very large firms and a mean rating of 5.01 in the sample as a whole.
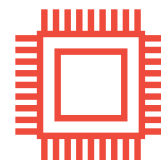
2. Digitisation strategy and priorities
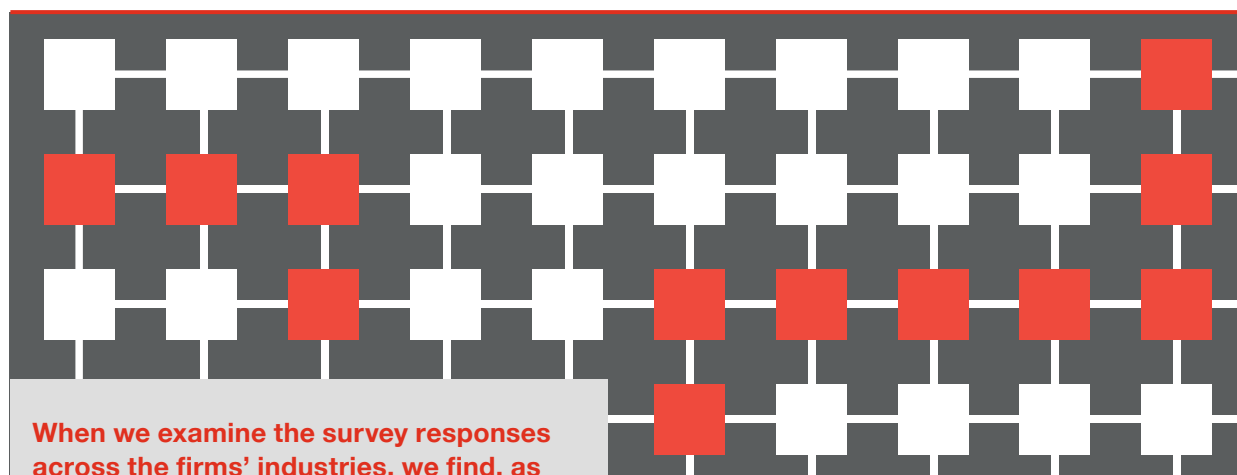
When we examine the survey responses across the firms' industries, we find, as one would expect, that CFOs from the IT sector attach markedly higher ratings to all questions in this section than CFOs from other industries. According to their responses, IT firms are also more likely to have roadmaps for the implementation of digitisation strategies than firms in other sectors of the economy, and digital business models play a more important role for IT firms in this context.[3]

We also asked the CFOs participating in the survey who primarily initiates and coordinates digitisation efforts within their firms:

- the Chief Executive Officers (CEOs)
- the Chief Financial Officers (CFOs) themselves
- the Chief Information Officer (CIO)/ Chief Technology Officer (CTO)
- the Chief Strategy Officer (CSO)
- the Chief Operating Officer (COO),
- or another executive

The CFOs could again respond with a 7-scale Likert scale to indicate the importance of the different executives.

The picture that emerges is not clear-cut. Especially in large companies, the CIO/CTO appears to be the most important person driving digitisation projects (mean response rate: 5.54). Several companies added that they have specifically created Chief Digital Officer or Chief Transformation Officer positions. However, the CFOs themselves (mean response rate: 5.36) and, slightly less so, CEOs (mean response rate: 4.93) are also perceived as being important promoters of digitisation.[4]

Numerous survey participants attached the same response rating to two or more executive positions, indicating that digitisation is a joint top management team effort and not the sole responsibility of one specific executive. In line with this, several survey participants added comments, indicating that digitisation was developed by the 'Board', the 'Management/Leadership Team', 'Senior Management (not C-Suite)' or specific committees. Other survey participants pointed out that digitisation efforts are initiated in a decentralised manner in some companies, by 'Employees', or by 'Divisions', 'Business Units', or 'Functions'.[5]

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3 | We also observe that European companies tend to respond with lower response rates to the survey items on digitisation priorities and strategies than American and Asian companies. For example, when asked about the priority digitisation has for their companies, the mean response of European CFOs is 4.8, whereas the mean response of American and Asian CFOs is 5.7. However, we are reluctant to draw strong conclusions from regional differences in our survey study because the companies within our sample are quite unevenly distributed across regions, with a clear majority of companies coming from Europe and, within Europe, from the DACH region.

4 | The role of CFOs and CEOs for digitisation initiatives appears to be particularly important in very large firms.

5 | In some companies, digitisation is also the responsibility of the heads of human resources, sales/marketing, group accounting, controlling, or research and development (R&D).

3. Objectives and success of digitisation projects

Firms can initiate digitisation projects to pursue different objectives. Traditionally, an important objective of using information technology was to reduce costs by standardising and automating labour-intensive processes. Ideally, automation also improves the reliability of processes and reduces errors, which again improves efficiency because error detection and correction are often very costly.[6]

More recently, it is often pointed out that digitisation allows the CFO and their team to relieve themselves of routine tasks such as collecting, processing and reporting data. Digitisation enables them to concentrate on projects that aim at more profound and complex analyses, such as projects involving machine learning or other forms of artificial intelligence.

In our survey study, we asked the participating CFOs about the main motivation of digitisation projects in their finance functions. More specifically, we asked them how important the goals of reducing costs and improving decision-making are. We summarise the responses in Figure 3. Not surprisingly, both goals are important in practice. However, CFOs put even more emphasis on improving decision-making (mean response rate: 6.05) than reducing cost (mean response rate: 5.22). The difference between the two sets of responses is statistically significant ($t = 10.97$; $p < 0.000$).

We also enquired about the success of digitisation projects with the finance functions. We asked whether projects had been:

- generally successful
- successful in meeting cost reduction goals
- successful in meeting goals of improving decision-making

90 %

of all companies are trying to improve decision making via digitisation initiatives

We summarise the results in Figure 4. With a mean response rating of 4.98, the participating CFOs report a rather high satisfaction with the general success of digitisation projects in their finance functions. More precisely, 190 CFOs (37 %) responded that their firms generally are successful or very successful with their digitisation projects (response ratings of six and seven). However, the responses to the two more differentiated questions indicate that the goal of cost reduction proves somewhat more elusive in practice than the goal of improving decision-making with the help of digitisation projects. That is, to the statement that digitisation projects over the past years have been successful in meeting the firms' goals of improving decision-making, the CFOs responded with a mean response rating of 4.95.

In contrast, the statement that digitisation projects have been successful in meeting the firms' goals of reducing costs was met with a mean response rating of only 4.56 (the difference between these two sets of responses is statistically significant, with $t = 6.50$; $p < 0.000$).

U-shaped relation between size and success

Small and, in particular, very large firms report, on average, higher success rates for digitisation projects than medium-sized and larger firms. Possible reasons for this U-shaped relation between size and success is smaller firms' lower level of complexity, and the substantially greater resources very large firms can invest in digitisation projects. Finally, there are no pronounced differences in how CFOs of different industries perceive the success of digitisation projects within their firms.
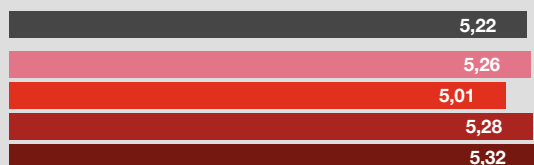
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6 | It is of course also possible that automation leads to (more) errors, for example, when exceptional cases in complex processes are not fully anticipated, or when mistakes are made in the programming of machines.
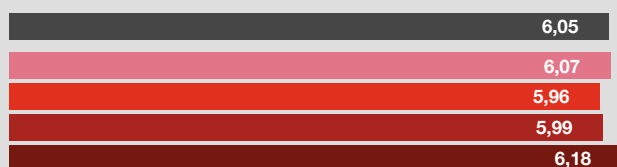
3. Objectives and success of digitisation projects

The main motivation for investments in digitisation projects within my finance function is …

… to reduce costs.

Total	5,22	
S	5,26	
M	5,01	
L	5,28	
XL	5,32	

… to improve decision-making.

Total	6,05	
S	6,07	
M	5,96	
L	5,99	
XL	6,18	

Scale: 1 2 3 4 5 6 7

Figure 3:
Motivation for investments in digitisation projects

Note: The figure summarises the survey participants' responses to the indicated questionnaire items:
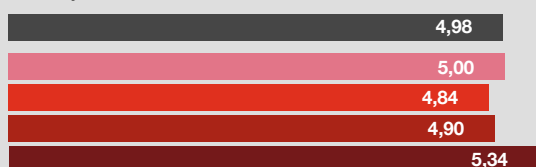
1: do not agree at all
7: fully agree

The bar charts present mean response rates for different size groups, i.e., small, medium-sized, large, and very large companies (see appendix for details).

Over the last few years, the digitization projects within my finance function …

… have generally been very successful.

Total	4,98	
S	5,00	
M	4,84	
L	4,90	
XL	5,34	

… have been successful in meeting our cost reduction goals.

Total	4,56	
S	4,57	
M	4,35	
L	4,53	
XL	5,05	

… have been successful in meeting our goals of improving decision-making.

Total	4,95	
S	4,99	
M	4,84	
L	4,82	
XL	5,16	

Scale: 1 2 3 4 5 6 7
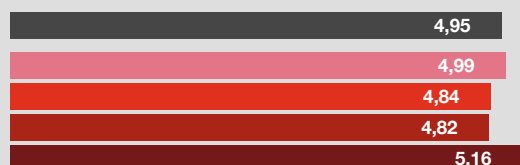
■ Total ■ S ■ M ■ L ■ XL

Figure 4:
Success of digitisation projects

Note: The figure summarises the survey participants' responses to the indicated questionnaire items:

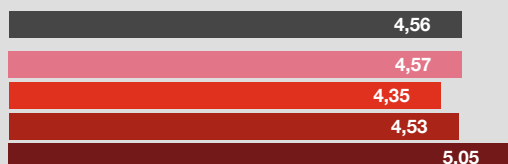**1:** do not agree at all
7: fully agree

The bar charts present mean response rates for different size groups, i.e., small, medium-sized, large, and very large companies (see appendix for details).

4. The current state of digitisation

An important objective of our study is describing and measuring the current state of firms' digitisation, particularly in their finance functions.

Accordingly, we asked those participating to assess their firms' overall level of digitisation and the digitisation of their finance functions compared to their most important competitors. We presented the CFOs with seven-point Likert scales, where one equalled 'very low' and seven equalled 'very high'.

For a more comprehensive picture, we also requested the CFOs to assess the level of data standardisation and aggregation within their firms' finance functions, a prerequisite for applying digital technologies. We asked them to determine the level of digitisation in the most critical functional areas of finance: accounting/financial reporting, controlling/managerial accounting, and financial management and treasury.

For these questions, we again used seven-point Likert scales. To give more meaning to the scales, we gave descriptions for each endpoint. For example, about the level of data standardisation and aggregation within firms' finance functions, we explained that 'one = very low' implies that data is 'very unstandardised and heterogeneous', that there are 'different IT systems', 'no central data management', as well as 'different definitions'. We also explained that the other endpoint of the scale, 'seven = very high', meant that data is 'very standardised and homogeneous', and there is 'central data management', a 'single IT system', and 'clearly defined definitions'.

Our characterisations of the other dimensions were as follows:

level of digitisation of accounting and financial reporting function:
- very low = manual data processing, different systems and processes, heterogenous definitions, low level of integration
- very high = mainly automatic data processing, usage of robotic process automation (RPA), fully integrated systems, manual intervention only in exceptional cases

level of digitisation of controlling/managerial accounting function:
- very low = heterogeneous steering models and KPIs, no standardised planning and reporting, focus on monthly or quarterly management reports, no usage of predictive analytics
- very high = homogenous steering model with standard KPIs, standardised and automated planning and reporting, reports focus on forward-looking information, flexible individual dashboard functions, usage of predictive analytics

level of digitisation of financial management and treasury function:
- very low = multiple platforms to access bank accounts, manual processing of bank information, wide use of Excel spreadsheets, no automated process in financial planning or risk management
- very high = integrated cash management dashboard, real-time information from all bank accounts, integration with ERP, automated liquidity and FX exposure calculation, automated group-internal hedging, cash forecasting supported by predictive models.

4. The current state of digitisation

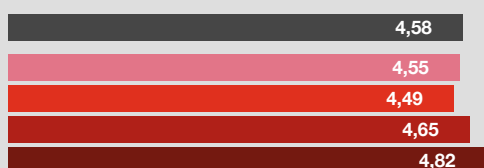How would you assess the
level of digitisation in …

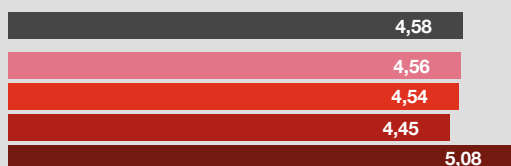… your company overall, compared to
   your most important competitors?

Total	4,50
S	4,37
M	4,56
L	4,54
XL	5,24
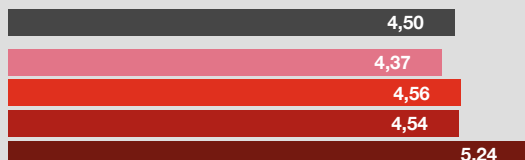
… your finance function specifically, compared
   to your most important competitors?

Total	4,53
S	4,52
M	4,45
L	4,45
XL	5,05

… Data Aggregation and Standardisation?

Total	4,58
S	4,55
M	4,49
L	4,65
XL	4,82

… Accounting and Financial Reporting?

Total	4,58
S	4,56
M	4,54
L	4,45
XL	5,08

… Controlling and Management Accounting?

Total	4,49
S	4,55
M	4,40
L	4,25
XL	4,74

… Financial Management and Treasury?

Total	4,30
S	4,21
M	4,38
L	4,27
XL	4,87
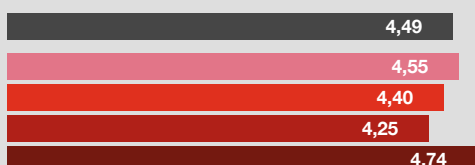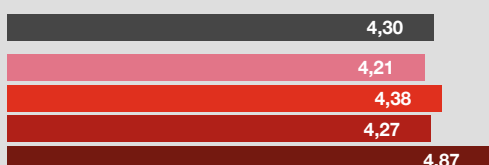
1   2   3   4   5   6   7

■ Total   S   M   L   XL

Figure 5:
Current state of digitisation

Note: The figure summarises the survey participants'
responses to the indicated questionnaire items:

1: very low
7: very high

The bar charts present mean response rates for different
size groups, i.e., small, medium-sized, large, and very
large companies (see appendix for details).

Figure 5 summarises our findings. The mean response
ratings for the total sample are between 4.58 and 4.30
for all six questions. About 20 % of the CFOs responded
with values of one, two or three, indicating that their
firms, or their finance functions, had low, or very low,
levels of digitisation. Conversely, over 50 % of the CFOs
responded with values of five, six, or seven, indicating
high or, in rather few cases, very high levels of digitisation.

The perceived levels of digitisation for the firm and the
finance function are very similar, with mean response
ratings of 4.50 and 4.53, respectively. The responses
are also on a similar level for data standardisation and
aggregation and two of the functional areas, accounting/
financial reporting and controlling/managerial accounting.
The response ratings are somewhat lower for the third
functional area, financial management and treasury. The
mean response rating of 4.30 is the lowest in this question
set, and here 27.5 % of the survey participants chose
values of one, two or three, indicating low or very low
levels of digitisation.

Looking at Figure 5, it is also evident that very large
companies have achieved higher levels of digitisation
than other companies if we take the self-assessment of
the CFOs at face value. For all six questions, the mean
response ratings of the CFOs of very large firms are
markedly higher than those of all other CFOs. Interestingly,
there does not appear to be a general size effect; that is,
we do not observe systematic differences between the
responses of small, medium-sized and large firms. In other
words, based on the CFOs' answers, the level of digitisa-
tion in firms' finance functions is no different for firms with
revenues of less than € 100 million on the one side and up
to € 10 billion on the other side. Only very large firms with
revenues of more than € 10 billion appear to be 'a class to
themselves'. We do not have a ready explanation for this
observation, and we suggest that it is an interesting issue
for further research.

4. The current state of digitisation

Finally, we examined whether the level of digitisation for the firm or the finance function differs across industry sectors.

We find, perhaps not surprisingly, that firms in the IT sector have higher levels of digitisation in general. The mean response rating for this questionnaire item is 5.39 for IT firms, compared to 4.50 for the sample as a whole. The difference is less pronounced for the digitisation in the firms' finance functions (IT firms: 4.93; total sample: 4.53). Moreover, when it comes to data standardisation and aggregation and the functional areas within finance, the self-assessments of the CFOs of IT firms differ only marginally from those of their colleagues in other sectors. Conversely, CFOs in utility and construction firms report somewhat lower overall digitisation levels (mean response rating: 4.26) but slightly higher levels in their finance functions than other industries.

We also asked the CFOs how many people were currently engaged in finance function digitisation projects and how much of their own time is spent on digitisation initiatives.

Within the sample firms, a total of 40 people on average were engaged in digitisation projects at the time of the survey.[7] In most firms, projects are staffed mainly by finance function employees and employees from the firms' IT departments, but in some firms, in-house consultants and other in-house experts also play a significant role. On average, 16.9 % of the workforce engaged in digitisation projects are external consultants.

Finally, on average, the CFOs participating in our study invest 18.5 % of their own time on digitisation projects. Again, there is wide variation. At the lower end, 77 CFOs indicated that they invested only five per cent or less of their time on digitisation initiatives. In fact, two CFOs stated that they did not engage at all in digitisation initiatives (0 %), and two others spent only one per cent of their time on digitisation. (Interestingly, one of these respondents is the CFO of a very large firm.) On the other end, 37 CFOs responded that they spent 50 % or more of their time on digitisation initiatives. For CFOs of very large firms, the mean response to this question was 20.3 %.

CFOs invest

18.5 %

of their own time on digitisation projects

---

7 | There are 20 firms where not a single person is engaged in digitisation projects. Most of these firms are small, but there is also one very large firm. On the other side, there are 39 firms with more than 100 people engaged in digitisation projects within the finance functions, and six firms with more than 500.
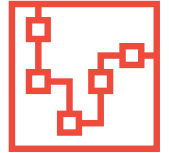
5. The use of digital technologies

Figure 6 presents our findings regarding the use of digital technologies by our sample companies. We gave the CFOs a list of technologies that are currently widely discussed, for example, in practice-oriented journals or publications by consulting firms, and asked them how extensively their finance functions use these technologies (one = not at all; seven = very extensively).

Digital management reporting / dashboarding

We found that 'Digital management reporting / dash-boarding' is the only technology currently widely applied in practice, including outside large or very large firms. The mean response rating for this technology is 4.89, and there are only marginal differences in the responses across size groups.

Robotic process automation (RPA)

The next widely used technology is robotic process automation (RPA), with a mean response rating of 3.26. However, 29.9 % of the CFOs participating in the survey responded that RPA is 'not at all' (= one) used in their firms, and 25.1 % responded with ratings of two and three, also indicating low usage levels. Conversely, only 5.7 % said they used RPA extensively (= seven), and 25.5 % responded with ratings of five and six, indicating relatively high usage levels. As is evident from Figure 6, the use of RPA is clearly a function of firm size, with very large and large firms using it much more extensively than smaller or medium-sized firms, with mean response ratings of 5.18 and 4.12, respectively.

Process mining

Process mining has a mean response rating of 3.02. In 32.6 % of the firms, their CFOs said they do not use process mining at all (= one), and 23.4 % responded with ratings of two and three, indicating low usage levels. Conversely, only 3.4 % of the CFOs said they use process mining extensively (= seven), and 22.2 % gave a five or six.

## Chatbots and artificial intelligence

Chatbots and artificial intelligence, both in planning or process automation, receive low mean ratings between 2.02 and 2.57. Regarding artificial intelligence, most CFOs see a high potential for the future use of this technology in planning and forecasting (mean response rating: 5.16). However, only about a third of the CFOs indicate that their firms are likely to apply AI in the next two years in planning and forecasting (response ratings of five, six, or seven), and only five per cent of the CFOs indicate that they plan to use it 'very extensively' (= seven).[8]

Blockchain

Blockchain, a technology that receives a lot of media attention, is rated, on average, with 1.53, a very low mean rating. Three-quarters of all CFOs, 75 %, indicated that their firms did not use blockchain at all (= one). Conversely, only three CFOs (0.6 %) said that their firms used block-chain technology extensively.
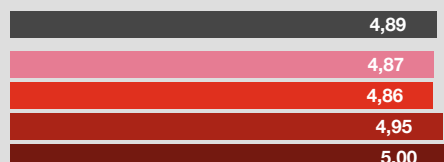
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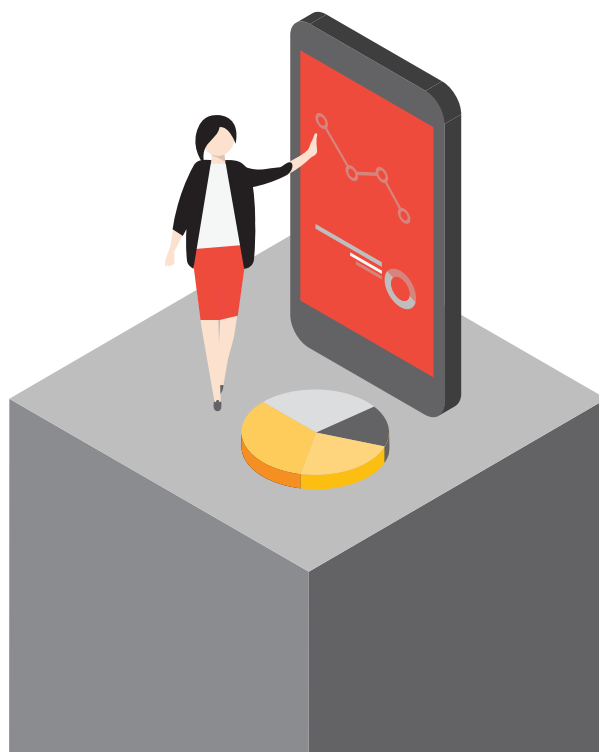
8 | The intensity of the planned usage of AI correlates with firm size; the mean response rating for this questionnaire item is 4.43 for very large firms, compared to 3.60 for the total sample.
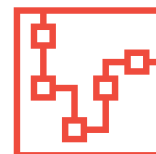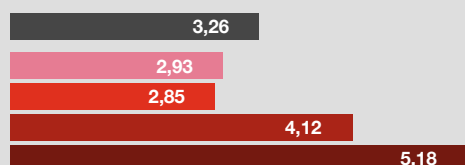
5. The use of digital technologies

How extensively do you use the following technologies in your finance function?
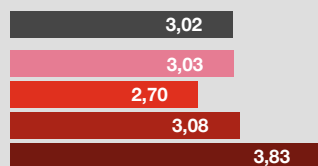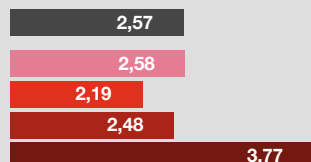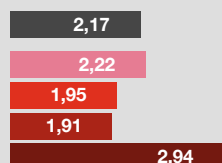
Dashboarding

Total	4,89
S	4,87
M	4,86
L	4,95
XL	5,00

Robotic process automation

Total	3,26
S	2,93
M	2,85
L	4,12
XL	5,18

Process minig

Total	3,02
S	3,03
M	2,70
L	3,08
XL	3,83

AI in process automation

Total	2,57
S	2,58
M	2,19
L	2,48
XL	3,77

AI in planning

Total	2,17
S	2,22
M	1,95
L	1,91
XL	2,94

Chatbots

Total	2,02
S	2,01
M	1,72
L	1,97
XL	3,03

Blockchain

Total	1,53
S	1,59
M	1,45
L	1,34
XL	1,66

■ Total ■ S ■ M ■ L ■ XL
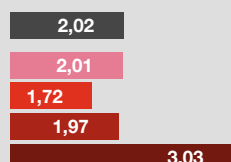
1 2 3 4 5 6 7

Figure 6:
Use of digital technologies

Note: The figure summarises the survey participants' responses to the indicated questionnaire items:

1: not at all
7: very extensively

The bar charts present mean response rates for different size groups, i.e., small, medium-sized, large, and very large companies (see appendix for details).

Figure 6 again demonstrates the special role of very large companies, i.e., companies with over €10 billion revenues. The figure reveals that most digital technologies are applied much more intensively in very large firms than in others. This holds true especially for process mining, chatbots, and artificial intelligence technologies. RPA also appears to be used somewhat more widely in the following size category of large firms, i.e., firms with revenues between €1 billion and €10 billion. However, the mean rating of very large firms (5.18) is more than a whole point higher than for large firms (4.12). The two only technologies where very large firms do not dominate the usage are 'Digital management reporting/dashboarding' technology, which is applied broadly in companies of all sizes, and blockchain technology, which is rarely used, irrespective of firm size.

Finally, CFOs in IT firms report high use of digital technologies, especially for chatbots and artificial intelligence in planning. In contrast, utility and construction companies report relatively low levels of digital technology use. Another specific observation is that the application of 'Digital management reporting/dashboarding' is quite elevated in service firms, with a mean response rating of 5.34, compared to the total sample mean of 4.89. The use of blockchain technology is negligible across all industries.

6. Obstacles to digitisation
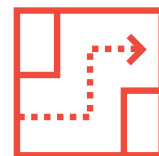
We devoted one section of our survey to the potential obstacles to digitisation. We listed twelve potential factors and asked the CFOs whether they agreed that they were obstacles to developing and implementing digitisation projects in their finance functions. The CFOs could again respond on a 7-point scale, where one meant 'do not agree at all' and seven meant 'fully agree'.

The potential factors included a missing or poor digitisation strategy, lack of financial resources, technical obstacles, lack of support from the management or the supervisory board, lack of know-how and capabilities, or reluctance and resistance to change by management or employees.

We summarise the CFOs' responses in Figure 7. The figure presents the different items according to the CFOs' mean response ratings and their relevance as obstacles to digitisation.

Lack of employee know-how and capabilities

We can take from Figure 7 that the mean response ratings are generally relatively low, suggesting that the CFOs of most firms feel that the obstacles to digitising their finance functions in practice are not extremely high or severe. With a mean rating of 4.20, the single most important obstacle is the lack of employee know-how and capabilities. Interestingly, the second most critical factor is also related to the employees; employee reluctance or resistance to change. However, with a mean rating of 3.91, this seems to be markedly less problematic than their lack of know-how and capabilities.[9]

The next important factors are a lack of know-how and capabilities among company management (mean response rating: 3.91), organisational obstacles (e.g., unclear or decentralised decision structures; mean rating: 3.83), and management reluctance or resistance to change (mean rating: 3.79). Further factors with relatively similar mean response ratings are legal obstacles (mean rating: 3.71), missing or poor strategy on the level of the firm (mean rating: 3.71) or the finance function (mean rating: 3.65), and lack of support from the management or the supervisory board (mean rating: 3.51).

Interestingly, from the CFOs' viewpoint, the least relevant factors, by a considerable distance, that hinder the development and implementation of digitisation projects in their finance functions are technical or financial resources, with mean ratings of 3.20 and 3.09, respectively.
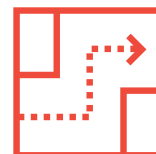
As Figure 7 illustrates, there are no material size differences for some of the potential obstacles to digitisation. For example, employee and management reluctance or resistance to change and organisational and legal obstacles have more or less the same relevance for all firms, irrespective of their size.

Other barriers to digitisation appear to be the less problematic, the larger the firm.

This holds, in particular, for financial obstacles. The mean response rating for this item decreases monotonically across the size categories, from a mean of 3.16 for small firms to a mean of 2.84 for very large firms. However, even for the small firms, the rather low mean of 3.16 suggests that funding digitisation projects is not a serious issue for most firms.

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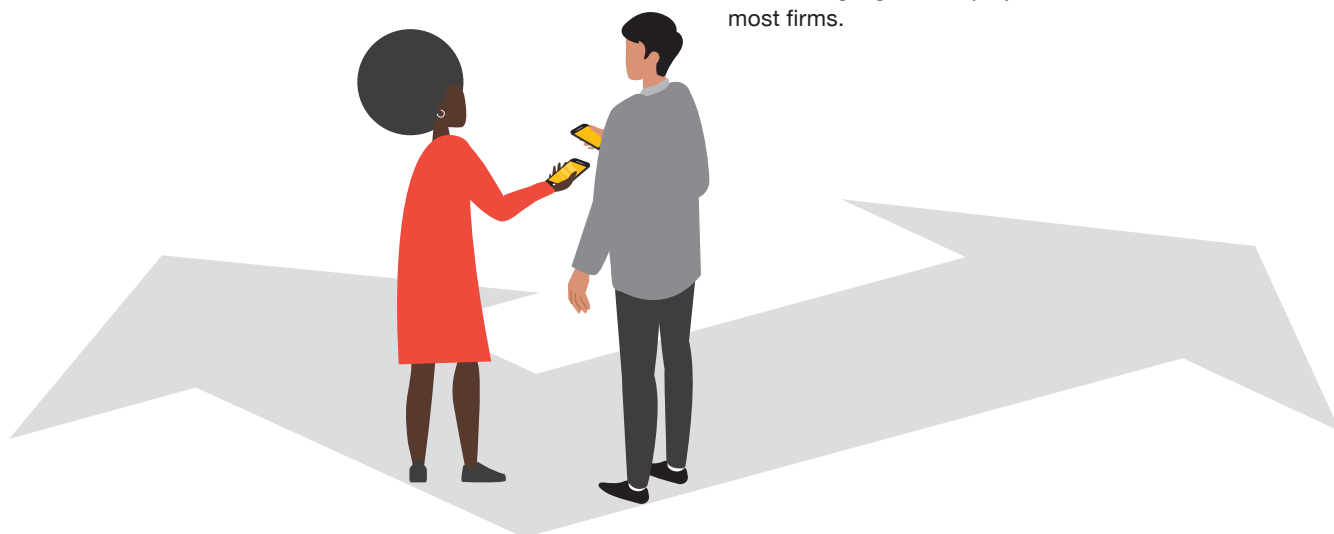
9 | The difference in the mean responses between the first most important factor (lack of employee know-how and capabilities) and the second most important factor (employee reluctance or resistance to change) is statistically significant, $t = 4.48$; $p < 0.000$.

6. Obstacles to digitisation

Lack of employee know-how and capabilities

Total	4,20
S	4,19
M	4,32
L	4,29
XL	3,74

Employee reluctance or resistance to change

Total	3,91
S	3,91
M	4,05
L	3,77
XL	3,84

Lack of management know-how and capabilities

Total	3,91
S	3,94
M	3,92
L	3,91
XL	3,63

Organizational obstacles (e.g. unclear or decentralized decision structures)
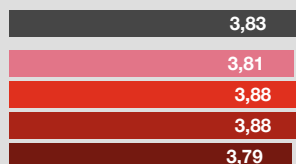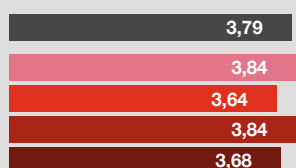
Total	3,83
S	3,81
M	3,88
L	3,88
XL	3,79

Management reluctance or resistance to change

Total	3,79
S	3,84
M	3,64
L	3,84
XL	3,68

Legal obstacles (e.g. strict data protection regulations)

Total	3,71
S	3,68
M	3,85
L	3,65
XL	3,68
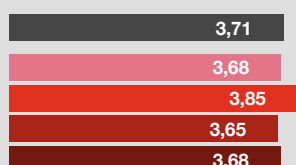
Missing or poor digitization strategy at the corporate level

Total	3,71
S	3,82
M	3,84
L	3,53
XL	2,89
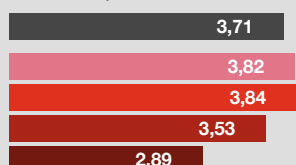
Missing or poor digitization strategy within the finance function

Total	3,65
S	3,63
M	3,87
L	3,56
XL	3,39
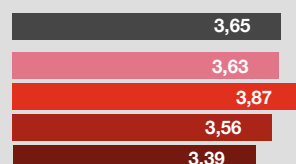
Lack of support from management board or corporate (supervisory) board

Total	3,51
S	3,44
M	3,61
L	3,45
XL	3,97
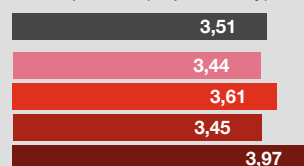
Technical obstacles (e.g. lack of adequate IT infrastructure)

Total	3,20
S	3,20
M	3,25
L	3,28
XL	2,89
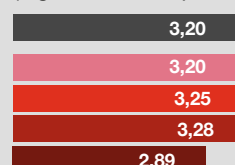
Financial obstacles (e.g. lack of resources)

Total	3,09
S	3,16
M	3,12
L	2,91
XL	2,84

Legend: Total | S | M | L | XL

Figure 7:
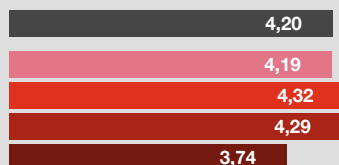**Obstacles to the digitisation of the finance function**

Note: The figure summarises the survey participants' responses to the indicated questionnaire items:
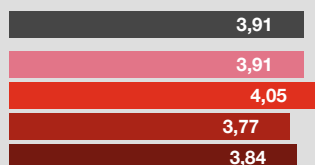
1: do not agree at all
7: fully agree

The bar charts present mean response rates for different size groups, i.e., small, medium-sized, large, and very large companies (see appendix for details).
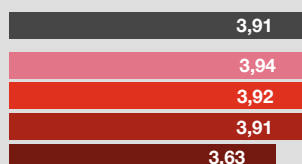
6. Obstacles to digitisation

In other cases, we again encounter the phenomenon that very large firms are different from all other firms. In particular, it appears that employee and management know-how and capabilities, missing or poor strategies, or technical issues are less problematic for very large firms than for all other firms.

As is evident from Figure 7, one obstacle afflicts very large firms not less but more than other firms, namely the lack of support from the management board or the corporate (supervisory) board. The mean rating of 3.97 for very large firms is markedly higher than the means of the other three size categories, which are between 3.44 and 3.61. Interestingly, the mean rating of 3.97 is the highest mean rating for very large firms in this question set. If we interpret the mean ratings as indicators of the importance of the obstacles, from the CFOs' viewpoint, the board's lack of support is the most important obstacle to digitisation projects in very large firms.

We do not observe major and consistent differences in the relevance of the potential obstacles across industries.

For example, the mean response ratings for the most important obstacle, lack of employee know-how and capabilities, are between 4.09 (services) and 4.30 (trade) for our six industry groups, and, at the low end, the six mean ratings are between 2.95 (transportation) and 3.34 (utilities and construction) for financial obstacles.

Similarly, there are no marked differences across the major regions for most of the items. As exceptions, we note that CFOs of firms in the Americas attached somewhat higher mean ratings to the importance of technical obstacles to digitisation projects than CFOs in other world regions (mean rating: 3.98 vs 3.20 for the total sample). Conversely, with a mean response rating of only 3.01, American CFOs generally perceive legal obstacles (e.g., strict data protection regulations) as less problematic than non-American CFOs (mean: 3.89) and CFOs in Europe in particular (mean rating: 3.92).
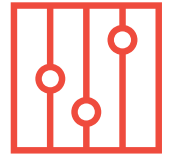
7. Digitisation and the workforce

In the previous section of this report, we showed that, from the CFOs' viewpoint, the most important obstacles to the digitisation of finance functions relate to the finance function employees, i.e., their lack of know-how and capabilities and their reluctance or resistance to change.

Digitisation has profound implications for firms' employees. One central aspect of the digitisation of firms' finance functions is that data-related processes that used to be handled by employees are now automated and performed by machines. In other words, with digitisation, the number of jobs within firms' finance functions is likely to decrease. This holds especially for traditional tasks of an administrative or regulatory nature, such as accounting, reporting, or the processing of payments, which can relatively easily be standardised and digitised. The fear of losing their employment or, at the least, relevance and status may partly explain why finance function employees may be reluctant to welcome digitisation projects and the changes they bring.

At the same time, digitisation also creates new work opportunities, particularly for specialists in information technology, data management and analysis, applied statistics and artificial intelligence.

In the coming years, one of the major questions will be how firms, and employees, accomplish the transition to the digital world. That is, how will firms attract and retain the talent needed for this transformation? And what will happen to the employees whose tasks are taken over by intelligent systems? Will they lose their employment? Or will they still be needed, perhaps to supervise the automated processes? Or will they be able to retrain ('upskill') and take over other positions, possibly some of the new, technologically demanding roles in the digital environment?

40 %

of all CFOs consider the level of IT and digitisation knowledge of their employees as low

Our questionnaire included questions that address these issues. We asked the CFOs how many people they employ within their finance functions and how they are distributed over the different areas:

- accounting and financial reporting
- controlling and management reporting
- corporate finance and treasury
- others

Not surprisingly, the responses are very varied. According to the responses received[10], the firms participating in our survey employ, on average, 184 employees (full-time equivalents) in their finance functions. The median is 38, and the substantial difference between the mean and the median indicates that some firms have very high numbers of finance function employees. Indeed, 19 firms in our sample employ 1,000 or more people in their finance functions. Three of these firms employ more 5,000 or more, and one firm employs more than 10,000 people in its finance function.
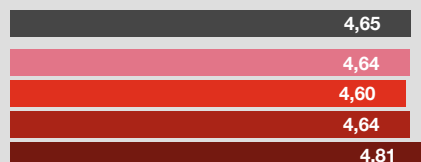
10 | Of the 522 survey participants, 505 reported the number of full-time equivalents (FTEs) employed in total in their firms' finance functions, and 465 participants gave a breakdown of the total number of employees across the functional areas.
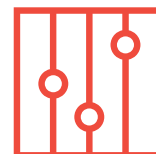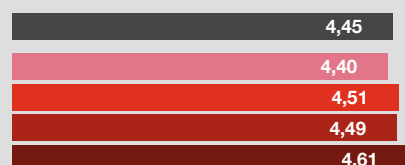
7. Digitisation and the workforce

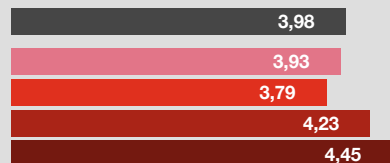How would you assess the level
of knowledge in IT and digitization of …

… yourself, the CFO?

Total	4,65
S	4,64
M	4,60
L	4,64
XL	4,81

… your direct reports within the finance function?

Total	4,45
S	4,40
M	4,51
L	4,49
XL	4,61

… your finance function employees?

Total	3,98
S	3,93
M	3,79
L	4,23
XL	4,45

1 2 3 4 5 6 7

■ Total ■ S ■ M ■ L ■ XL

Figure 8:
**CFOs, their direct reports, and employees:
knowledge of IT and digitisation**

Note: The figure summarises the survey participants'
responses to the indicated questionnaire items:

1: very low
7: very high

The bar charts present mean response rates for different
size groups, i.e., small, medium-sized, large, and very
large companies (see appendix for details).

We also requested the CFOs participating in our survey
to assess their personal level of knowledge in IT and
digitisation, their 'direct reports', i.e., the finance function
leadership team, and that of finance function employees in
general. Figure 8 presents the findings for these questions.
The graph shows that the CFOs generally assign them-
selves slightly higher levels of knowledge (average rating:
4.65) than their direct reports (average rating: 4.45), and
considerably higher levels than employees in general
(average rating: 3.98). Fourteen of the CFOs rated their
own knowledge in IT and digitisation with a seven (= very
high), and 297 CFOs rated their knowledge with either a
six or a seven.

Figure 8 also reveals that size again plays a role. If we
take the CFOs self-assessments at face value, the level
of expertise in IT and digitisation of the CFO, of the CFOs'
direct reports, and, in particular, of finance function
employees in general, is higher in very large companies
than in firms belonging to other size categories.

On average, about half of the employees in finance
functions work in accounting and financial reporting, a
quarter work in controlling and management reporting,
and 12 % in corporate finance and treasury.[11] Behind
these averages is a broad variation. For example, in over
a third of the companies, the controlling department is as
large or larger than the financial accounting department,
and in about 15 % of the companies, more employees
work in areas other than accounting or controlling.[12]

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11 | About half of the CFOs indicated that their firms also have 'other'
functional areas, and in these firms, about a quarter of the finance
function employees work in such other areas.

12 | Many factors can influence the number of employees working in
firms' finance functions and how these employees are distributed
across the main functional areas, among them size, industry,
diversification and internationalisation. Another factor that may
also play a role is the degree to which the firms use outsourcing.
We asked the CFOs about this. Almost half of the respondents
(n = 249) indicated that their firms make no or only little use of
outsourcing in the finance function (response ratings of one or
two). On the other side, about ten per cent of the CFOs (n = 51)
indicated that their firms extensively use outsourcing (response
ratings of six or seven).
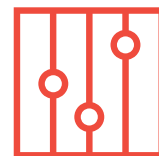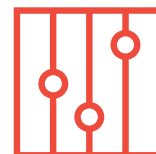
7. Digitisation and the workforce

We also asked the CFOs how many employees in their finance functions have a specific background in IT, digitisation, or data science. The mean response to this question is 5.86.[13] However, the average again masks a wide variation in the responses. No less than 153 CFOs responded that not one of their employees has a specific background in IT, digitisation, or data science.

Most of these CFOs come from small or medium-sized firms. But in a few cases, CFOs from large (n = 8) or even very large firms (n = 4) indicated that none of their finance function employees has special expertise in IT, digitisation, or data science. On the other side of the spectrum, 65 firms employ ten or more specialists in IT, digitisation, and data science, and six firms employ more than 100. As expected, the number of experts correlates with firm size.[14] It is noteworthy that a rather high number of CFOs (n = 68) did not respond to this question. Most of these CFOs belong to small firms.

Finally, we asked the CFOs to respond to three statements regarding the effects of digitisation on the finance function workforce. The first statement said, 'It is very difficult to attract qualified employees with the necessary IT and digitisation capabilities', the second posited, 'Over the past few years, we have been very successful in upskilling our employees with regard to IT and digitisation capabilities', and the third was, 'Managing mixed teams of finance experts and digitisation experts is difficult because of their different personalities and working cultures'.

13 | If we set the responses to this question in relation to the total number of employees working in the firms' finance functions, on average 6.9 % of the finance function employees have a background in IT, digitisation, or data science.

14 | At small firms, the average number of IT, digitisation, and data science specialists is 3.7; it is 3.2 at medium-size firms, 7.5 at large firms, and 28.5 at very large firms.

7. Digitisation and the workforce

It is very difficult to attract qualified employees with the necessary IT and digitization capabilities.

Total	4,67
S	4,67
M	4,71
L	4,67
XL	4,58

Over the past few years, we have been very successful in upskilling our employees with regard to IT and digitization capabilities.

Total	4,15
S	4,16
M	3,91
L	4,09
XL	4,84

Managing mixed teams of finance experts and digitization experts is difficult because of their different personalities and working cultures.
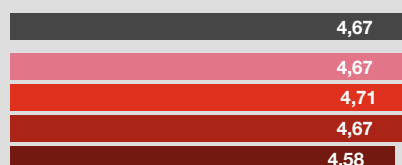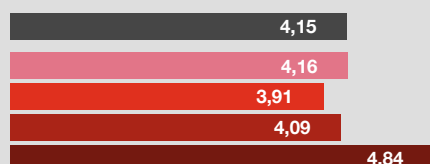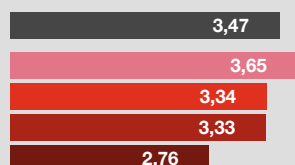
Total	3,47
S	3,65
M	3,34
L	3,33
XL	2,76

1   2   3   4   5   6   7

Total   S   M   L   XL

Figure 9:
Digitisation and the finance workforce: attracting talent, upskilling employees, and managing diverse teams

Note: The figure summarises the survey participants' responses to the indicated questionnaire items:

1: do not agree at all
7: fully agree

The bar charts present mean response rates for different size groups, i.e., small, medium-sized, large, and very large companies (see appendix for details).

Figure 9 summarises the CFOs' responses to the three statements. The first statement meets with broad agreement. The overwhelming majority of CFOs (n=409) respond with a rating of four or higher, and the mean response rate is 4.67. It is noteworthy that the responses do not differ much across the size classes. It seems to be almost as difficult for large and very large companies to attract employees with IT and digitisation capabilities as for smaller companies.

The statement that the firms had been 'very successful' in upskilling their finance function employees concerning IT and digitisation capabilities achieved a mean response rate of 4.15, markedly lower than the response rate for the first question. For this statement, we see a marked influence of firm size again – the mean response rate of very large companies is 4.84, much higher than that of the other size categories.

The last statement posed that managing mixed teams of finance experts and digitisation experts is difficult because of their different personalities and working cultures.

Most of our survey participants received this statement with scepticism, with a mean response rate of 3.47. Again, we see a marked size effect. The CFOs of very large firms generally do not agree with this statement; within this size category, the mean response rate is only 2.76. The level of agreement is somewhat higher among large and medium-sized firms (mean response rates of 3.33 and 3.34, respectively) and markedly higher at 3.65 for small firms. Here and for the previous question, the responses of the CFOs of very large firms are statistically significantly different from the responses of the CFOs in the other three size categories (t=10.97, p<0.000).

8. Digitisation and the future role of the CFO

For most firms, the trend towards digitisation appears inevitable. It is an interesting question what this trend means for the role of the CFO and firms' finance functions. Two very different developments are possible.

Firstly, CFOs and their finance functions could become victims of digitisation. This is a plausible outcome for companies where the CFOs and their team focus primarily on administrative and regulative processes. A large part of the 'classical' tasks of firms' finance functions – external reporting, traditional internal planning and control, payment processes, the monitoring of credit limits and other risks – are based on rules and regulations. This means they can be standardised quite easily.

Consequently, computers will probably take over these tasks in the coming years, if this has not happened already. It seems likely that the finance functions in such firms will lose some importance. In this scenario, the CFOs become mere administrators of automated processes, and over time their role may be taken over by the firms' CIOs (Chief Information Officers).

In an alternative scenario, the trend towards digitisation will add importance to the CFO role and finance functions. This can be the case if the CFO and their team use digital technologies to release themselves from routine administrative tasks and develop improved and new analytical and forecasting capabilities to support the CEO in developing and implementing successful business strategies.

The final part of our survey addressed these future developments. In particular, we asked the CFOs how they expected the importance of their role within their company to change as a consequence of digitisation and how they expected their budgets for digitisation projects and the number of employees in their finance functions to change.

We summarise the responses to the first of these three questions in Figure 10. Most CFOs expect that the importance of their role within their respective companies will increase over the next five years due to digitisation. In fact, 87 CFOs (16.7 %) expect that their role will become 'much more important' (= +3), and a further 302 CFOs believe their role will become somewhat more important (+1 or +2). Ninety-eight CFOs expect that the importance of the CFO role will not change, and only 34 CFOs (6.5 %) expect the importance to decline (-1, -2, -3). The mean response to the question is 1.26, which is statistically significantly larger than zero.


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            -3    -2    -1     0    +1    +2    +3
            4     18    12    98   151   151    87
```

-3 = become much less important
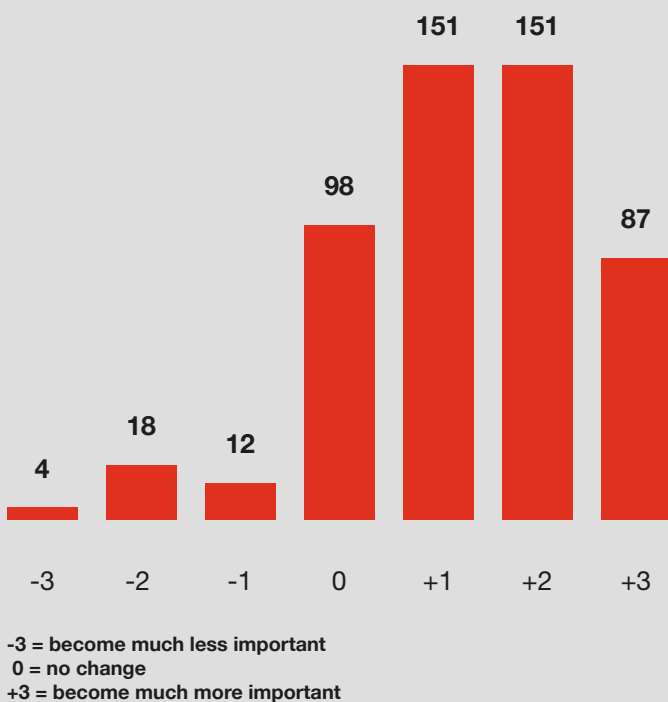0 = no change
+3 = become much more important

Figure 10:
Digitisation – how will the importance of the CFO role change?

Note: The figure presents the survey participants' responses to the question:

"How will the importance of the CFO role change within your company over the next five years as a consequence of digitisation?"

8. Digitisation and the future role of the CFO

We also enquired about the firms' current budgets for digitisation initiatives within the finance functions and how the CFOs expected this budget to change in the coming three years. At the time of the survey, at half of the firms (n = 264) the yearly budget for digitisation initiatives was below €0.5 million, and in about 90 % of all firms (n = 456) it is below €5 million. On the other side of the spectrum, in 22 firms the yearly budget exceeds €20 million. As one would expect, these firms are mostly very large according to our size categories, that is, firms with revenues beyond €10 billion.

As shown in Figure 11 below, most CFOs expect that their finance function budgets for digitisation projects will increase over the following years. Almost half of the responding CFOs (229, 44.2 %) indicated that they expected their budgets for digitisation projects to increase by between 10% and 25 %. Seventy-five CFOs (14.5 %) expect increases between 25 % and 50 %, and 26 CFOs (5.0 %) expect their digitisation project budgets to grow by more than 50 %.

While 151 CFOs expect their digitisation budgets to stay more or less constant (changes between -10.0 % and +10.0 %), only 12 CFOs expect their digitisation budgets to shrink by up to 50 %. Interestingly, a group of 25 CFOs indicated that they expect their budgets for digitisation projects to decrease by more than 50 %. This group is comprised almost entirely of small companies.
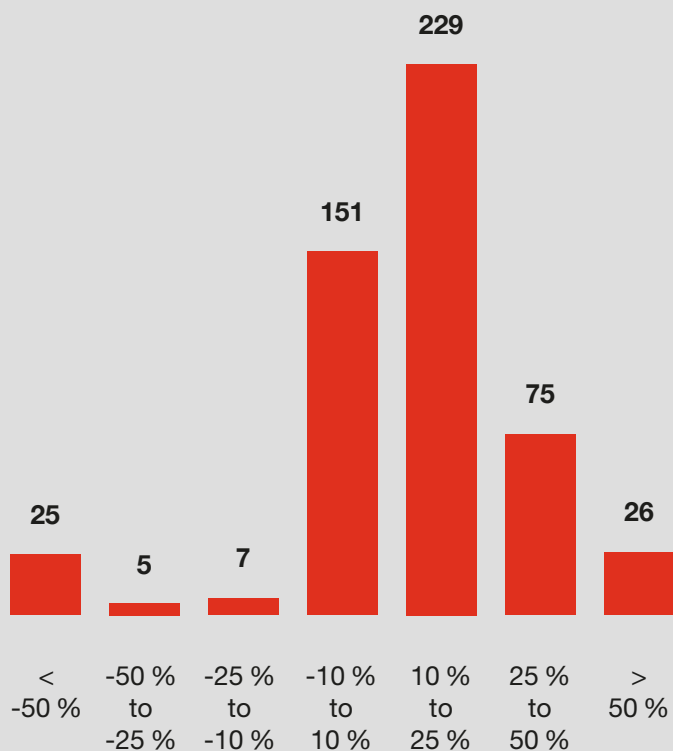

Figure 11:
How will the budget for digitisation projects within the finance function develop?

Note: The figure presents the survey participants' responses to the question:

"How do you expect your Finance function digitisation budget to develop over the next three years?"

Response	Count
< -50 %	25
-50 % to -25 %	5
-25 % to -10 %	7
-10 % to 10 %	151
10 % to 25 %	229
25 % to 50 %	75
> 50 %	26

8. Digitisation and the future role of the CFO

Finally, regarding the number of employees working in firms' finance functions, it is quite clear that the number of jobs that deal with administrative and regulative tasks will decrease over the coming years as these tasks become more and more automated.

However, digitisation also creates new job opportunities, for example, in data management, forecasting, and other analytical processes aided by artificial intelligence. Thus, it is not entirely clear which overall effect digitisation will have on the number of employees in firms' finance functions.

Almost half of the participating CFOs (237, 45.4 %) indicated that they expected the number of employees in their respective firms to remain more or less unchanged (-10.0 % to +10.0 % change) over the next five years. In total, 175 CFOs (33.5 %) expected the number of employees in their finance functions to increase. A total of 108 CFOs (20.7 %) expected the opposite; that is, they predicted that the number of employees in their finance function would decrease.

Interestingly, we find a negative correlation between firm size and the expected change in the number of finance function employees. While CFOs in small and medium-sized firms mostly expect an increase in the finance function workforce, CFOs of large firms, on average, do not expect the number of their finance function employees to change at all. CFOs of very large firms overwhelmingly expect the number of finance function employees in their firms to decrease.
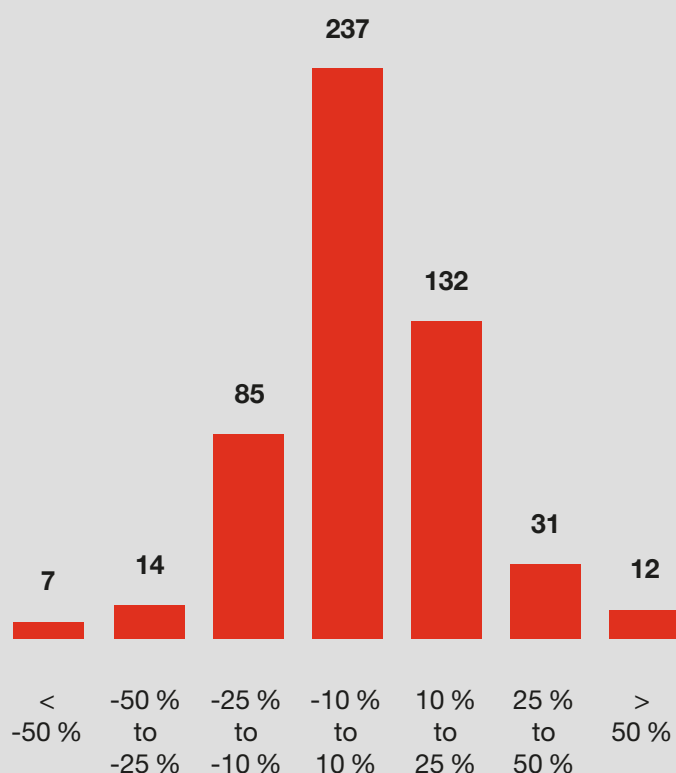

Range	Value
< -50 %	7
-50 % to -25 %	14
-25 % to -10 %	85
-10 % to 10 %	237
10 % to 25 %	132
25 % to 50 %	31
> 50 %	12

Figure 12:
How will the number of employees in the finance function develop?

Note: The figure presents the survey participants' responses to the question:

"How do you expect overall FTE count in your Finance function to develop over the next five years?"

"A clear majority of our survey participants expect that the importance of the CFO will increase in their respective firms over the coming years."

Appendix: methodology and sample description

Panel A: Country		
Europe	384	74.1 %
Americas	106	20.3 %
Asia	26	5.0 %
Africa	3	0.6 %
Total	522	100 %

Panel B: Industry		
Manufacturing	249	47.7 %
Utilities and Construction	58	11.1 %
Services	65	12.5 %
Information Technology	28	5.4 %
Trade	85	16.3 %
Transportation	37	7.1 %
Total	522	100 %

Panel C: Exchange listed vs privately held firms		
exchange-listed firms	158	30.3 %
privately held firms	364	69.7 %
Total	522	100 %

Panel D: Firm size		
small firms	302	57.9 %
medium-sized firms	105	20.1 %
large firms	77	14.8 %
very large firms	38	7.3 %
Total	522	100 %

We addressed our survey to CFOs of companies in major European and overseas markets. We excluded banks, insurance companies, and other financial service providers from the study. The invitations to participate were sent via email to the Chief Financial Officers by the PwC partners responsible for the relationship with the respective companies. The CFOs could access the online questionnaire through a link provided in the email, using a company-specific code. We guaranteed the CFOs that we would treat their responses with strict confidentiality. We received a total of 815 responses. After eliminating responses from subsidiaries of larger firms and some small firms that we could not clearly identify in conventional databases, our final sample comprises 522 firms. The sample firms are further described in Table A1.

As shown in Panel A, 384 (74.1 %) of the participating firms are from Europe, 106 (20.3 %) are from North and South America, 26 (5.0 %) from Asia and three (0.6 %) from Africa. Given that we initiated the survey in Germany, it is not surprising that most of the responding CFOs and their firms are domiciled in Europe. In fact, 261 (50.0 %) are from the DACH region, 155 firms from Germany, 78 from Switzerland, and 28 from Austria.

Panel B of Table A1 presents the industry distribution of the firms participating in the survey. As shown in Panel C of Table A1, 158 survey participants (30.3 %) represent stock-listed firms, and 364 firms (69.7 %) are non-stock-listed, privately held firms.

Finally, Panel D presents a breakdown of our sample according to firm size. In our analysis, we distinguish four size classes:

- small firms with revenues of up to € 100 million
- medium-sized firms with revenues between € 100 million and € 1 billion
- large firms with revenues between € 1 billion and € 10 billion
- very large firms with revenues over € 10 billion

As the descriptive statistics in the table show, most of the survey participants are from small firms (302, 57.9 %), 105 firms are medium-sized (20.1 %), 77 are large (14.8 %), and 38 are very large (7.3 %).

Authors

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