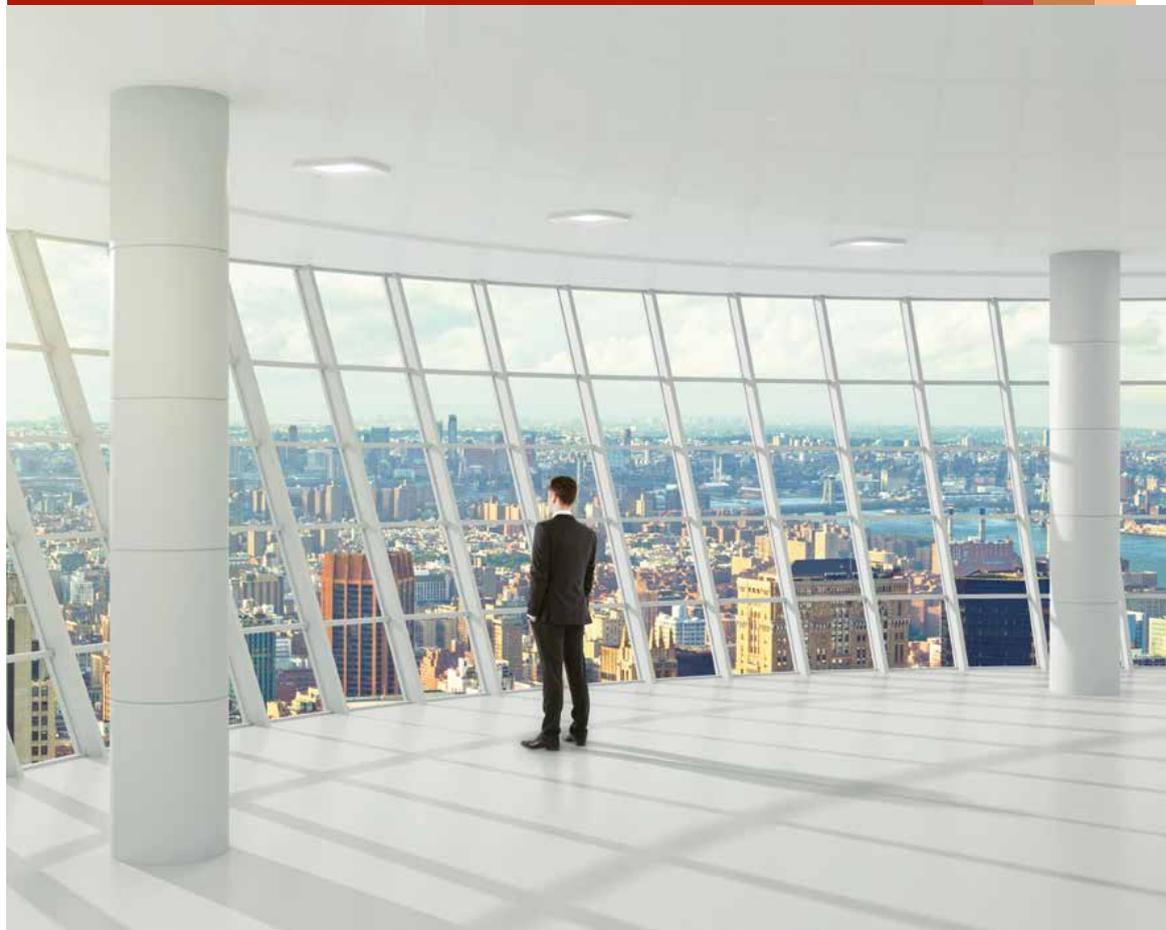


Digital Audits of Financial Statements

*Study on the use of
technology in finance and
accounting.*



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By Petra Justenhoven, Jörg Sechser and Dr. Rüdiger Loitz

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Preface

For many observers, auditing and technology appeared in the past to have little in common at first glance. Technology is associated with companies like Google and Apple which offer widely used new products like iPhones and apps. Auditing financial statements, however, dates back to the 1930s. It is associated with expert knowledge of accounting, and the details of the process are rarely discussed outside of the discipline.

But the auditing of financial statements is now undergoing a complete transformation, driven by new regulatory requirements, such as the mandatory rotation of auditing firms and new standards for the auditor's opinion, which call for more of an auditor's report that must describe the key audit findings in individual detail. Moreover, pressure on audits of financial statements is also mounting owing to the availability of mass data – something the auditor must manage.

Consequently, the use of technology in auditing will become significantly more important in the years ahead. We too are working together with the Fraunhofer Institute to develop artificial intelligence systems that will shape the “new” auditing of financial statements in the future.

In this world of change, we have conducted a survey of companies in Germany to gauge both the status quo and expectations for technology and auditing.

We sincerely thank the companies that have taken part in our survey.

We hope that the study provides you with useful insights and plenty of food for thought with respect to your own work.

Düsseldorf, March 10th 2017



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A Executive summary

The majority of the companies surveyed describe a largely homogeneous system landscape characterised by the use of fully integrated solutions. For accounting, the companies mainly use standard products with a low level of customisation. This indicates that they currently tend to rely on the developments coming from ERP vendors and providers of standard software and are holding back on progressively expanding finance and accounting. They also do not wish to change their current ERP systems, although they do plan to expand their ERP systems with new technologies.

With respect to artificial intelligence (AI), the first companies are venturing ahead. One in four companies is already using AI in accounting, and a further 25% plans to do so shortly.

The companies surveyed have a similar assessment of the use of technology in auditing, and in accounting and finance as a whole. The responses indicate that auditors use technology particularly for typical task areas such as general and subledger analysis and system settings.

Factors that were considered to limit the use of technologies in auditing were chiefly a low level of acceptance in the accounting or IT departments of the company being audited, high standards for data protection and security, and long development cycles to reach market maturity.

It also appears that personal communication with the auditor cannot be replaced by technology. The majority of respondents continue to believe that audits of financial statements will still mainly be conducted on site in five years' time.

More than half of the respondents allowed auditors to copy data for analysis purposes. Respondents were also open to auditors testing new processes and technologies at their company. In the future, this fact

could help to promote the use of new technologies in finance and accounting for audits of financial statements and overcome any alleged obstacles.

Technologies such as data analytics for financial data and business process data, cloud solutions and data analytics in connection with big data analytics (benchmarks) are viewed as major short- to medium-term trends. These technologies are for the most part already in use, and as such they are part of the status quo.

On the other hand, technological trends like natural language processing, blockchain and robotics were seen as being of only minor significance in the short and medium terms, even though these topics are already being discussed in specialist circles today.

“The findings of our survey indicate that financial functions are gradually opening up to digital technologies like artificial intelligence.”

Petra Justenhoven, Member of the Management Board of PwC

B Participating companies

The survey focused on the digitalisation of financial statement audits. The respondents were senior executives in finance and accounting.

A total of 98 companies based in Germany participated, of which 40% are listed. The survey was conducted in the form of a written questionnaire between October and December 2016.

The survey covers the following areas:

- ▶ Organisation of finance and accounting
- ▶ Digitalisation in finance and accounting
- ▶ Digital audits of financial statements
- ▶ Influence of digitalisation on auditor-client collaboration
- ▶ Technological trends in finance and accounting



C Organisation of finance and accounting

What is the status quo? Only a little over a third of the companies surveyed have a single central location for computing technology. By contrast, a further third have up to five data centres – and 18% have more than 10. This shows that finance and accounting departments are operating in an extremely complex IT environment, particularly at larger companies.

This is also indicated by the fact that more than half of the companies surveyed, mainly larger business, use shared service centres (SSCs). In addition, nearly a third also use SSCs at locations abroad, not only in Germany.

Fig. 1 Number of data centres

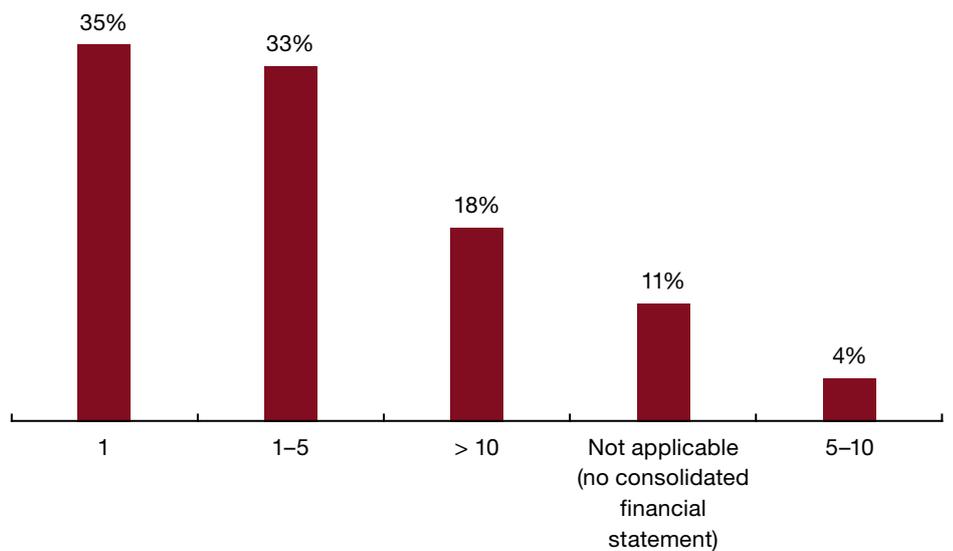
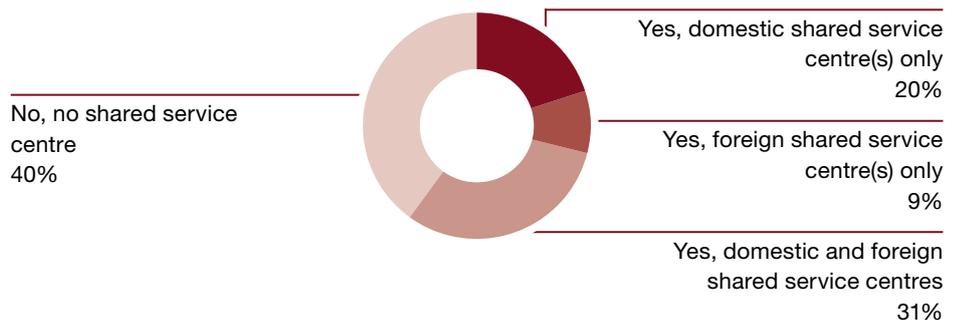


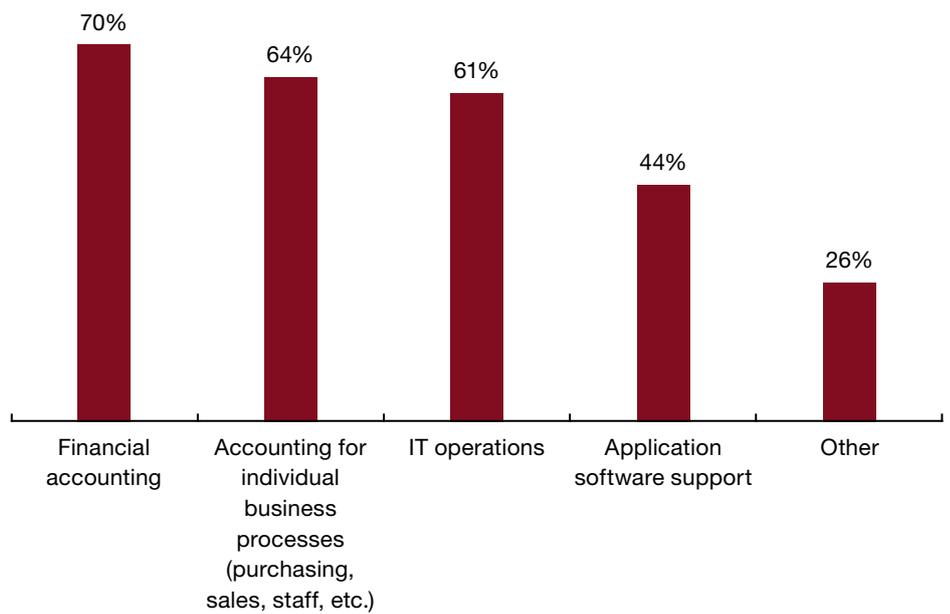
Fig. 2 Use of shared service centres



The companies that use SSCs have mainly outsourced financial accounting, accounting for individual business processes and IT operations.

The complexity of the IT environment, especially at larger companies, requires a correspondingly sophisticated digitalisation strategy. All outsourcing processes – especially those related to an SSC – must be underpinned with technology.

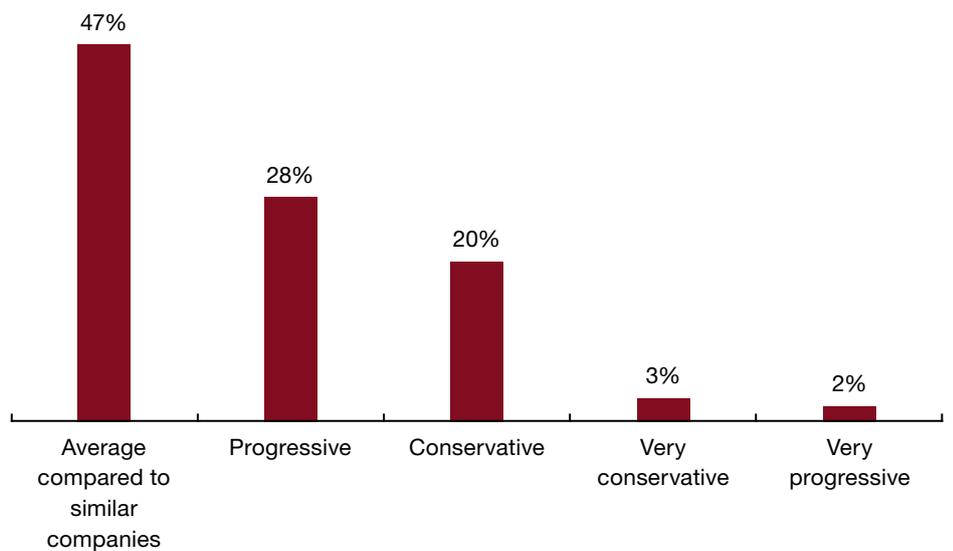
Fig. 3 Shared service centre functions



D Digitalisation in finance and accounting

How far have companies already come in digitalising their financial and accounting systems? It is notable that only 28% of respondents describe their own company as “progressive”, and just 2% as “very progressive”. On the other hand, however, only a quarter of the companies surveyed consider themselves to be behind in terms of technology. Most respondents see themselves as being on par with the competition.

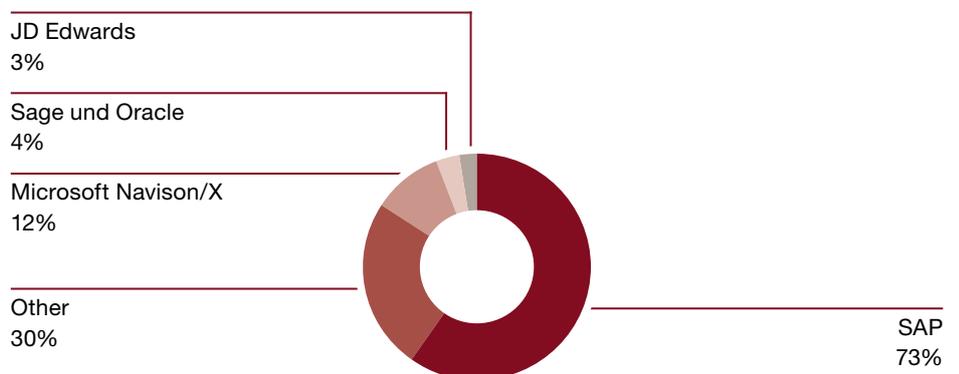
Fig. 4 Use of technology in finance and accounting



We were particularly interested in which system landscapes companies are using. The results showed that more than half of the companies surveyed

used SAP as an ERP system for finance and accounting. Only around a third use other systems, such as a proprietary software solution.

Fig. 5 ERP systems for finance and accounting (multiple answers possible)

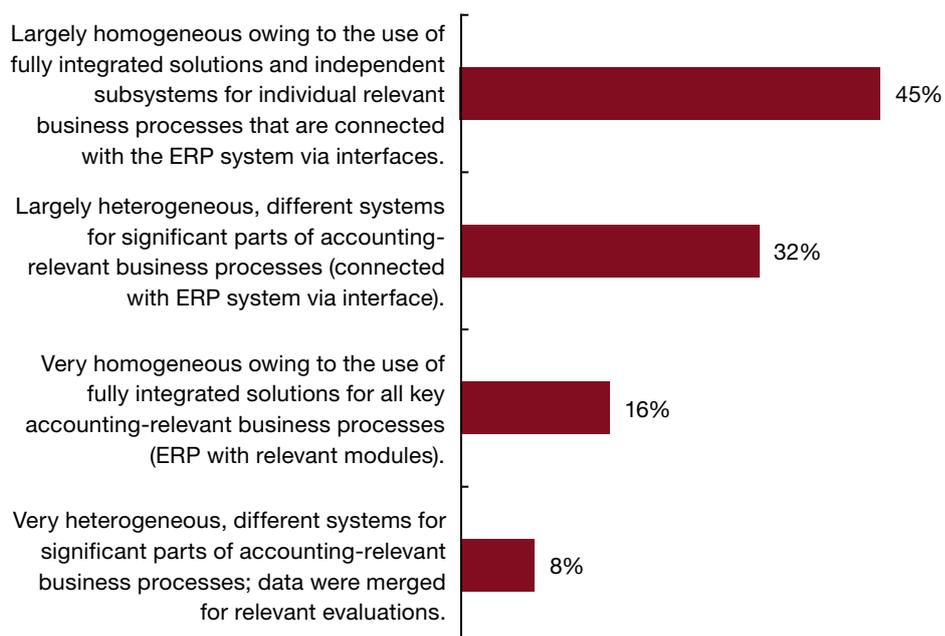


Nearly half of respondents describe their current finance and accounting system landscape as being largely homogeneous thanks to the use of fully integrated solutions. This means that the companies have independent subsystems for individual relevant business processes which are connected to the ERP system via interfaces.

In addition to financial accounting software, more than half of respondents use further technologies such as Business Warehouse, WW or IBM Cognos to generate accounting information.

The majority of the companies generally believe that the IT systems currently used in finance and accounting have a high degree of standardisation. Mostly standard products with little customisation are used, and proprietary developments tend to be rare.

Fig. 6 Current system landscape



Companies (still) rely on standard IT products in finance and accounting.

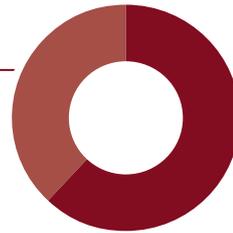


1 out of **4** companies is already using artificial intelligence in accounting.



Fig. 7 Use of shared service centres

Fairly low, as many developments are used.
38%



Fairly high, as standard products are used with little customisation.
62%

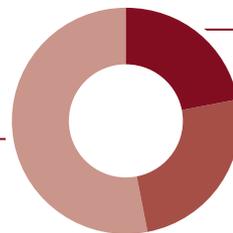
The high level of integration and homogeneity of the systems used, together with the widespread distribution of standardised IT systems, permits a cautious conclusion: it seems that most companies are reluctant to digitalise their financial and accounting systems. Instead, they prefer to wait for their ERP and standard software providers to develop new products.

Given this context, it is noteworthy that the first companies are venturing forth with artificial intelligence (AI) – one of the core findings of this study.

For example, just under a quarter of respondents already use AI in accounting. And another quarter is planning to implement the use of AI. This result is in line with the high potential that PwC ascribes to this technology, even if a slight majority of respondents have yet to engage with the topic. We expect that at least the financial functions of large and medium-sized companies will, as a matter of course, make use of systems with AI in the foreseeable future for automatic contract or document recognition, to name just a few examples.

Fig. 8 Use of artificial intelligence

We are not currently planning to use AI.
53%



We already use AI.
22%

We are planning to use AI.
25%

E Effects of digitalisation on finance and accounting

Even though the vast majority of the companies surveyed wish to keep their familiar ERP system, every second company is already planning to expand its ERP system as digitalisation advances. This shows that more and more decision makers in finance and accounting are rising to the challenge that technological change brings with it.

Fig. 9 Plans to change the ERP system

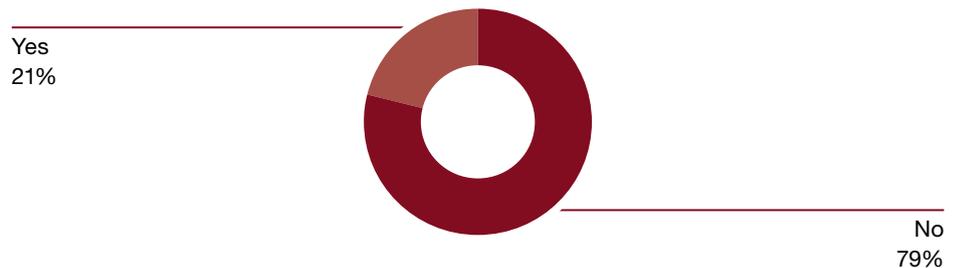
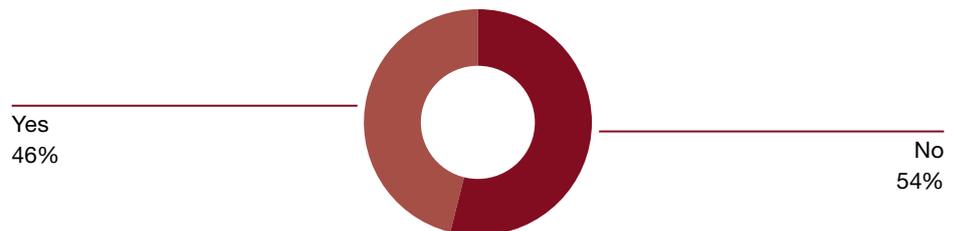


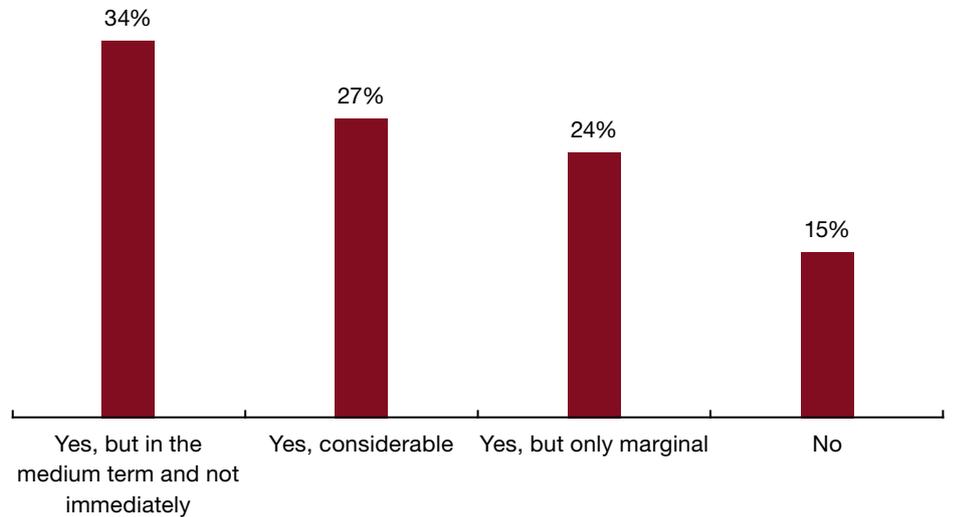
Fig. 10 Plans to expand the ERP system



In view of the drastic changes caused by digitalisation, it is surprising that many companies are expecting the consequences for their own workforce to be relatively easy to manage over the next few years. Only 27% of the companies surveyed expect major job

losses in finance and accounting. On the other hand, 2% said the short-term effects would be one-offs. A further 34% also expect technology-related job losses – but in the medium term. And 15% even say that digitalisation will not affect the size of the workforce at all.

Fig. 11 Technology-related reduction in staff numbers in accounting



It is only possible to speculate as to why the number of employees will not fall more sharply. One reason could be that many routine activities have already been outsourced or replaced by other procedures – i.e. that capacities have

long since decreased. This is suggested by a further survey result. The majority of decision makers surveyed argue that manual activities in their finance and accounting are already strongly influenced by technology.

46% plan to use technological components to expand their ERP systems.

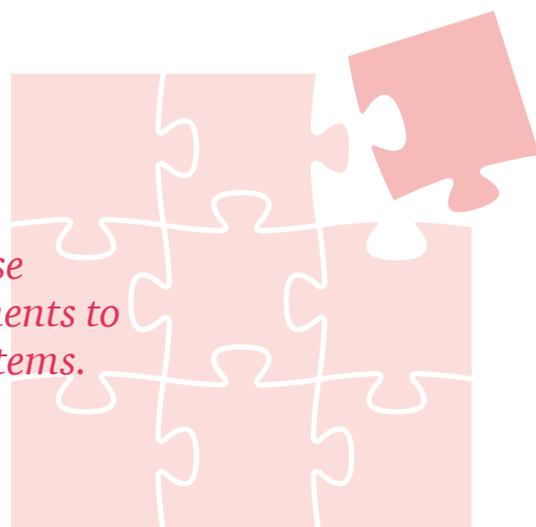
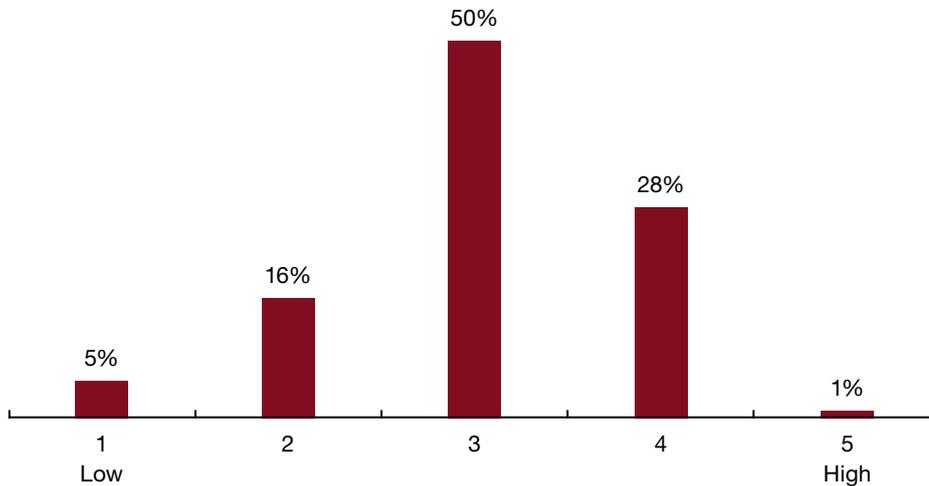
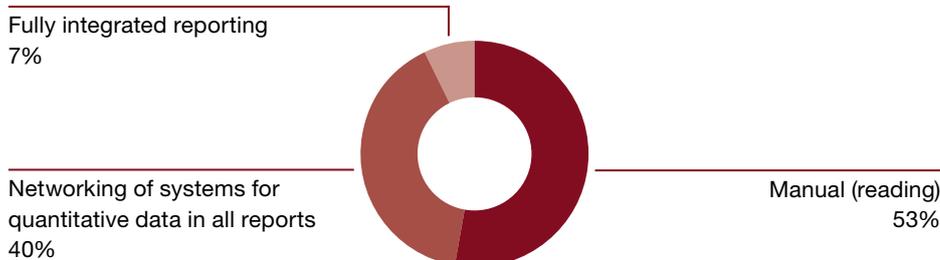


Fig. 12 Impact of technology on manual activities

What nonetheless stands out here is that more than half of those surveyed are still analysing the consistency of their own reporting manually – in other words: by reading it. The IT solutions required for a more comprehensive analysis of reporting are apparently not yet in use.

The differentiated picture emerging from these statements confirms at times our previous hypothesis that while companies are not rejecting the use of technology in finance and accounting, the prevailing attitudes to the use of new technologies remain rather conservative overall.

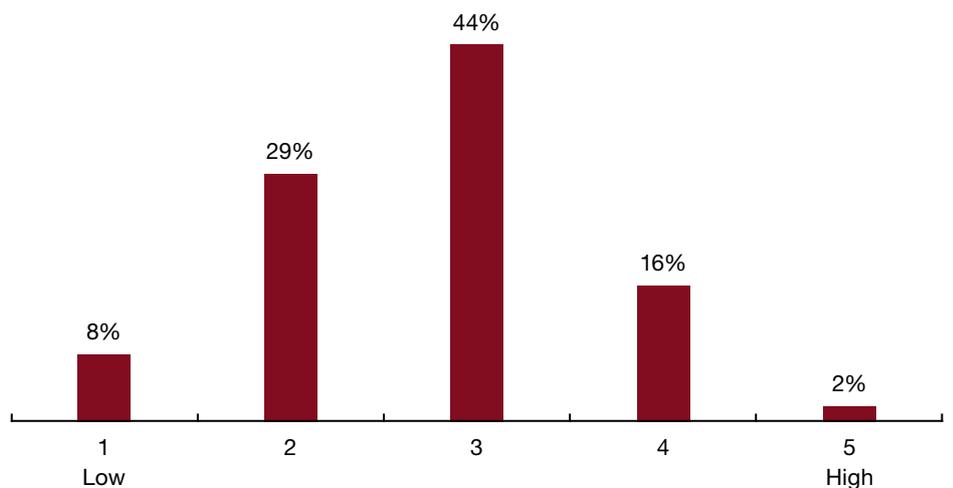
Moreover, despite the many discussions and forums dedicated to integrated reporting, the concept does not appear to have gained traction among the companies yet.

Fig. 13 Type of analysis used for reporting

F Attitudes towards digital audits of financial statements

In general, companies see the use of technology for audits of financial statements much like they see the use of technology for finance and accounting. It is therefore not surprising that opinions are divided on whether or not their auditors are innovative. Nevertheless, the results indicate a requirement for the profession.

Fig. 14 Extent to which technology is used in auditing



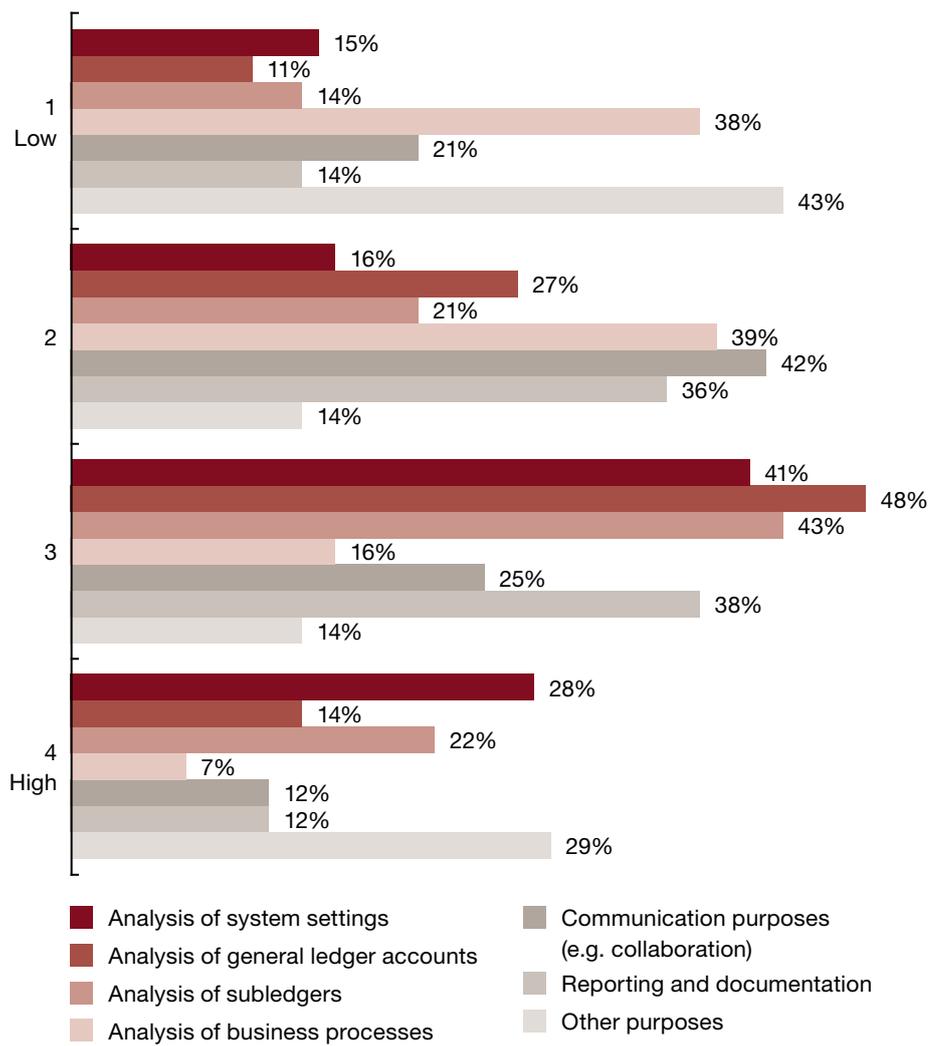
According to respondents, auditors use technology particularly in the classic task areas such as general and subledger analysis and system settings.

The increasingly important analysis of business processes and the collaboration with the auditor are seen as generally less reliant on technology.

The analysis of system settings is also an area where technology is widely applied at companies that generally see themselves as using a high degree of technology.

Technology is primarily used in traditional task areas in financial statement audits.

Fig. 15 Tasks for which technology is used in financial statement audits



G Effects of digitalisation on audits of financial statements

According to the companies surveyed, the technological revolution will affect the individual areas of finance and accounting to varying degrees of intensity. The biggest changes are expected in audits of IT systems, historical financial information and business processes. However, forecasts as to the degree of automation in the next five years vary. The companies surveyed expect minor changes in communication with the auditor.

Fig. 16 Expected level of technology-led change

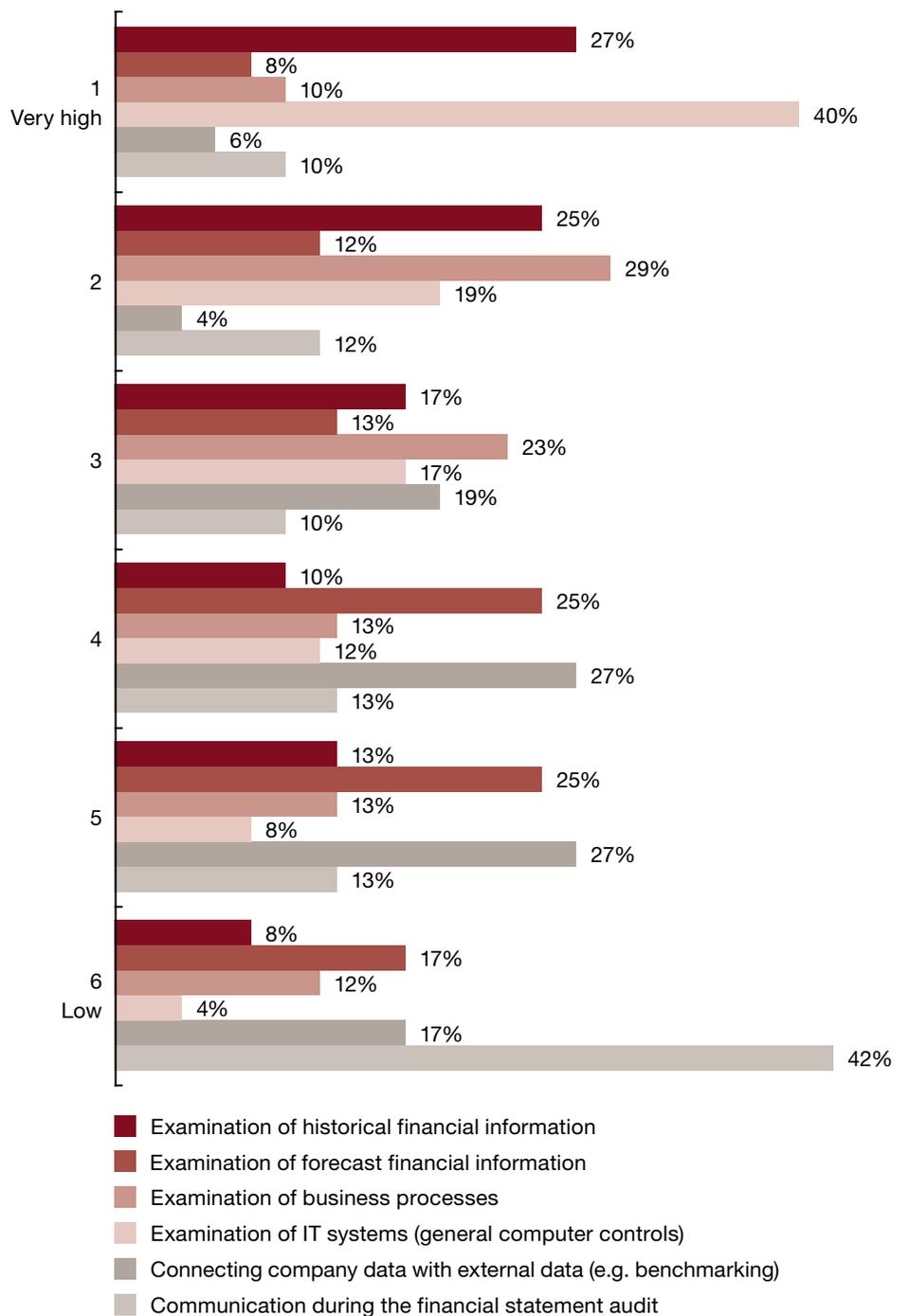
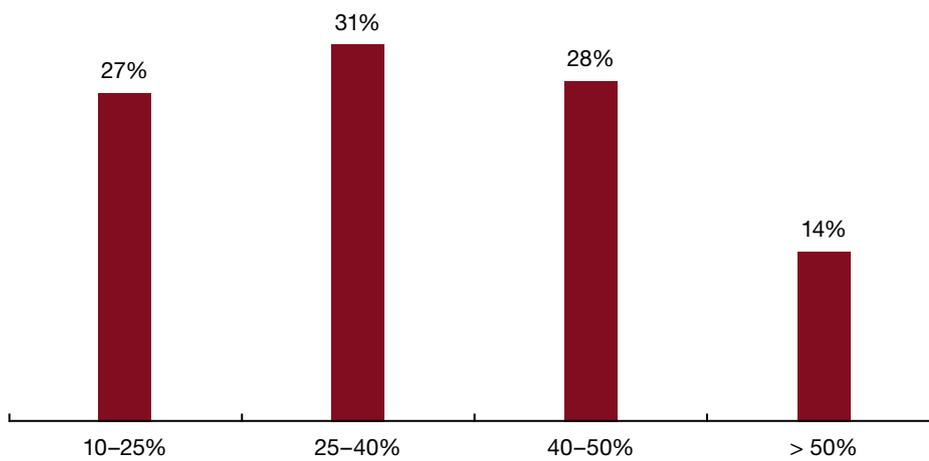


Fig. 17 Expected degree of automation

While it is true that the vast majority of respondents expect to receive significantly more information about their own company as a result of digitalising audits of financial statements, they do not expect this information to be of great added value. This may explain why decision makers do not wish to simply give auditors access to all of the company's data.

In particular, companies expect to see new information on assurance for business processes (including fraud prevention), on the potential for improvement in IT system utilisation and on errors in historical financial information.

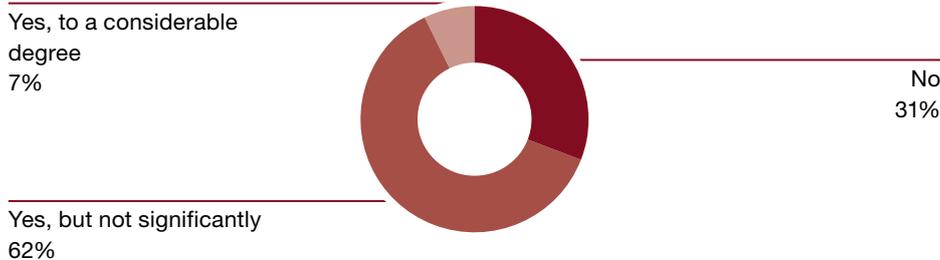
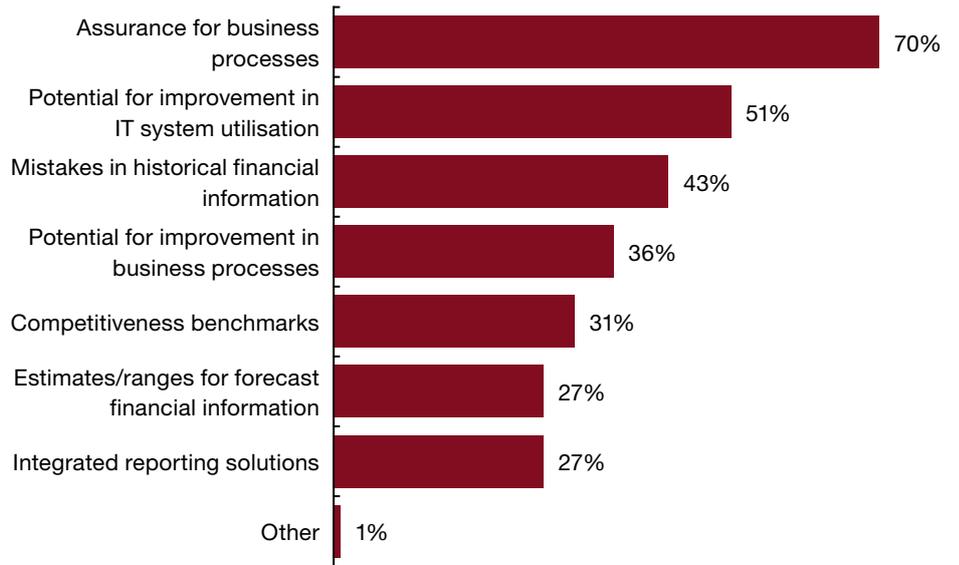
Fig. 18 Expectations regarding the digitalisation of financial statement audits

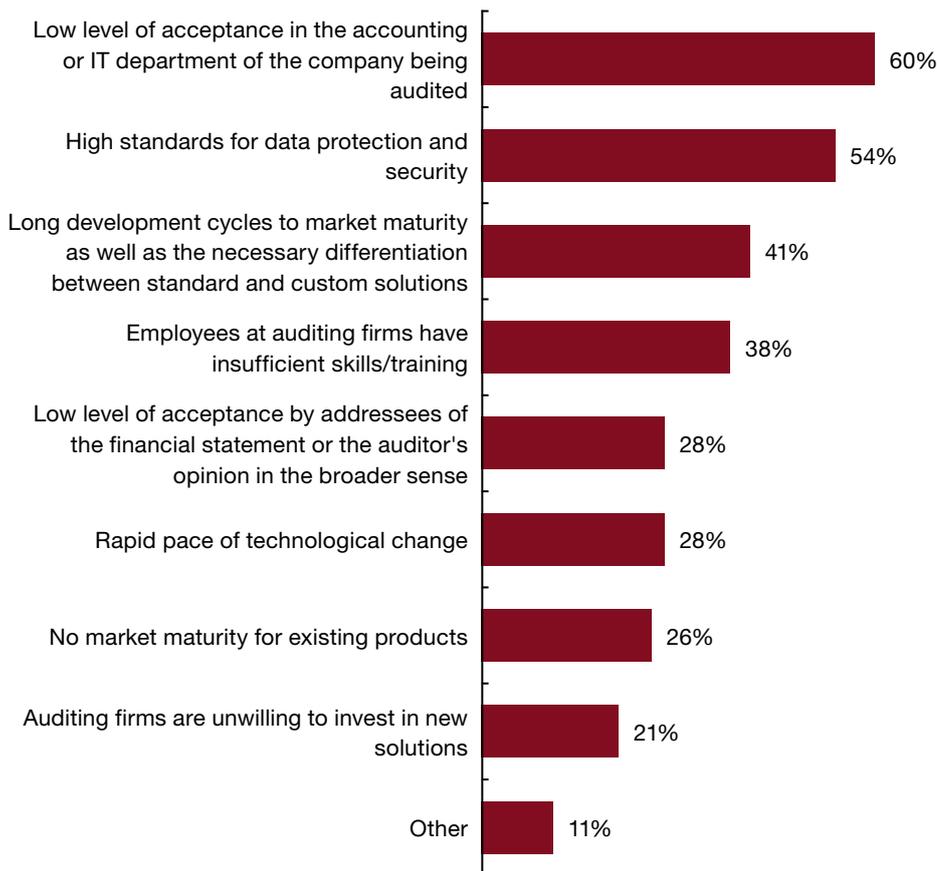
Fig. 19 Expectations regarding unknown information in specific areas



The expectations regarding information on the potential to improve business processes or competitive benchmarks, on the other hand, are more reserved. This is surprising because it is precisely the information concerning analyses and statements that is significant for business development and optimisation.

In response to the question of why the expectations for digital audits of financial statements are relatively low, companies cited low acceptance in accounting departments, high standards of data protection and long development cycles up to market maturity.

This indicates the importance of aspects such as easy-to-use software solutions (in terms of user interface and user experience), agile development methods and adequate change management with the client for the use of new technologies, including technologies used by auditors. In addition, the possibilities offered by data protection and security law should be analysed and used more efficiently.

Fig. 20 Limiting factors for the use of technology in financial statement audits

Easy-to-use software solutions, agile development methods and adequate change management are the factors that spell success for the use of new technologies.

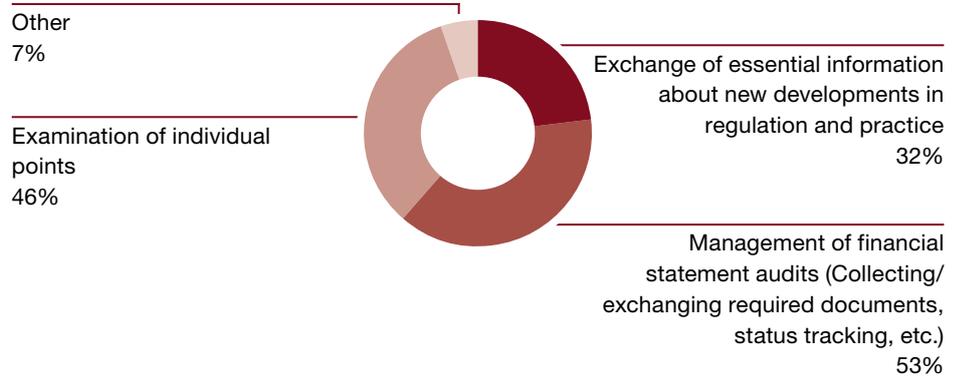
H What digitalisation means for auditor-client collaboration

More than half of respondents report that they do not use any special technologies for communication or other forms of collaboration with the auditor – apart from e-mail. In particular, the management of financial statement audits and the examination of individual points are not considered to be state of the art when it comes to the use of technology.

The majority of respondents believe that financial statement audits will continue to be conducted on site in five years' time. This could indicate that companies do not believe that personal communication with the auditor can be replaced by technology.

The respondents' earlier statement that communications and collaboration with the auditor will only see minor changes due to technological change is once again confirmed here.

Fig. 21 Areas of collaboration in which the use of technology is not yet state of the art



More than half of those surveyed allow the auditor to make copies of data for the purpose of analysis with few or no restrictions. The use of data copies for benchmarking purposes is a different matter entirely: for data protection reasons, two-thirds would fundamentally not permit this. However, benchmarking would open the door to highly informative and new information for optimising business. The auditor could play an important role here as the “trustee” of the data provided.

A large majority of those surveyed are expressly open with regard to the acceptance of testing new processes and technologies from the auditor at their companies. With a view to the future, this fact could help encourage the use of new technologies in finance and accounting in the auditing of financial statements. It could also help overcome apparent barriers to using such technologies.



Widespread acceptance regarding the testing of new processes and technologies.

Fig. 22 Auditor access to accounting databases

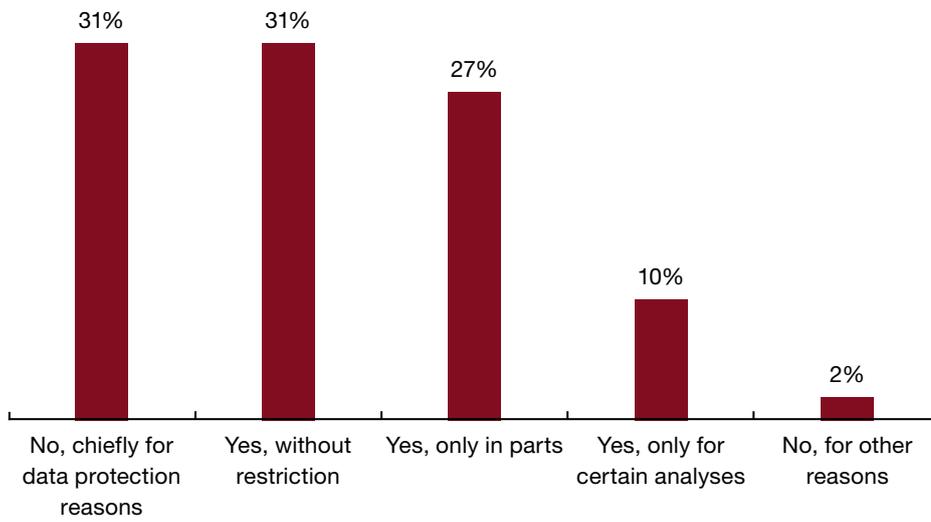
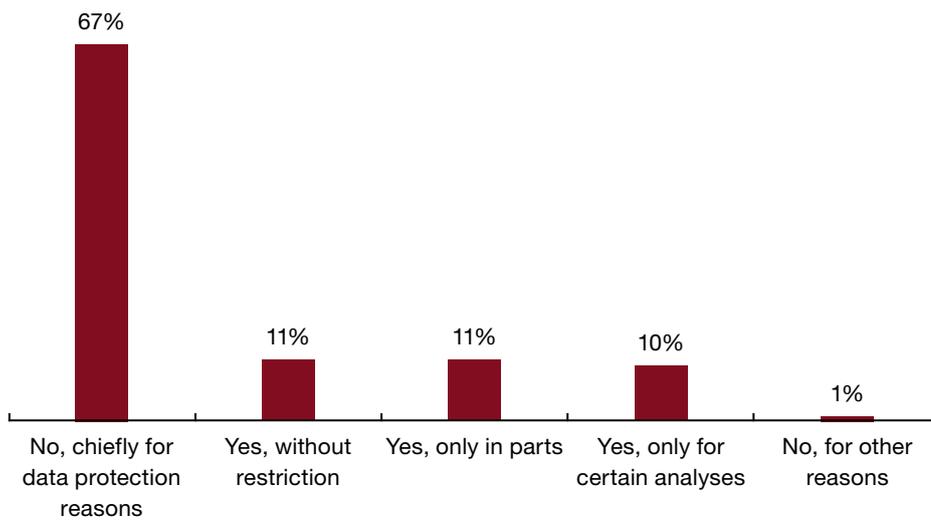


Fig. 23 Access to accounting databases for benchmarking purposes



I *Technology trends in finance and accounting*

Technologies such as data analytics for financial data and business process data, cloud solutions and data analytics in connection with big data analytics (benchmarks) are considered to be major short- to medium-term trends. These technologies are predominantly already in use, and so they are part of the status quo.

In contrast, technological trends such as natural language processing, blockchain and robotics were all seen as having little influence in the short to medium term. With respect to mainstream adoption,

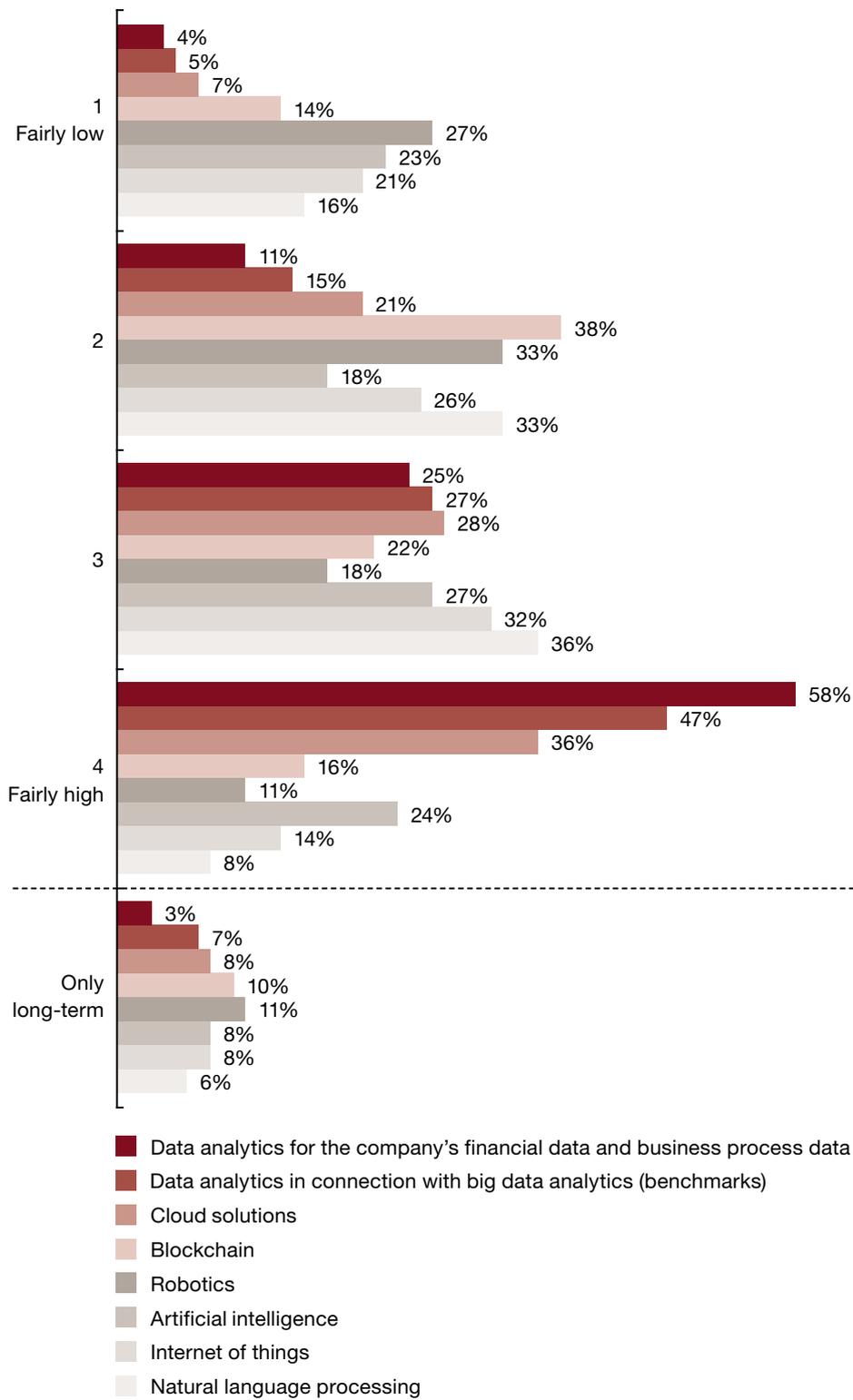
this assessment is shared by Gartner,¹ despite the massive hype that currently surrounds blockchain in particular. The crucial point, however, is that these topics are already being discussed in specialist circles, and finance and accounting should engage more intensively with these issues as well.

Around 60% of respondents believe that the impact of AI will be fairly large in the short to medium term. This correlates with the finding that almost half of the respondents either already use or plan to use AI.



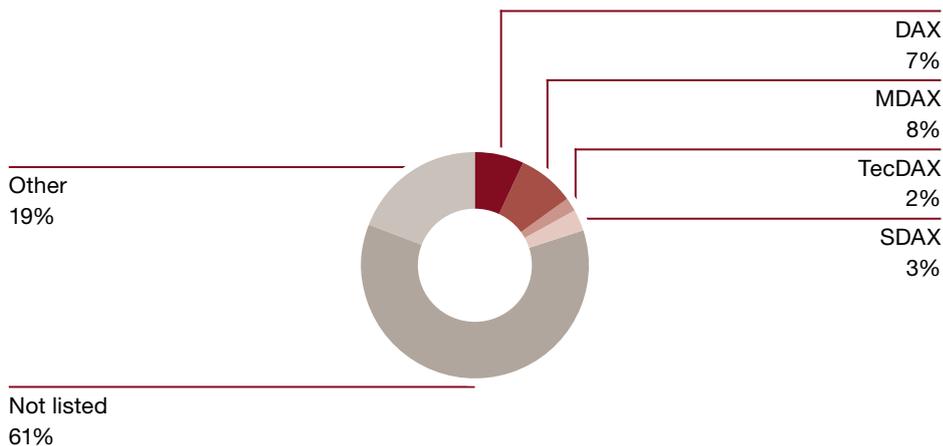
¹ Cf. www.forbes.com/sites/louiscolumbus/2016/08/21/gartner-hype-cycle-for-emerging-technologies-2016-adds-blockchain-machine-learning-for-firsttime/#2403ee711ef2 (accessed 27th January 2017).

Fig. 24 Short- to medium-term influence of technological trends



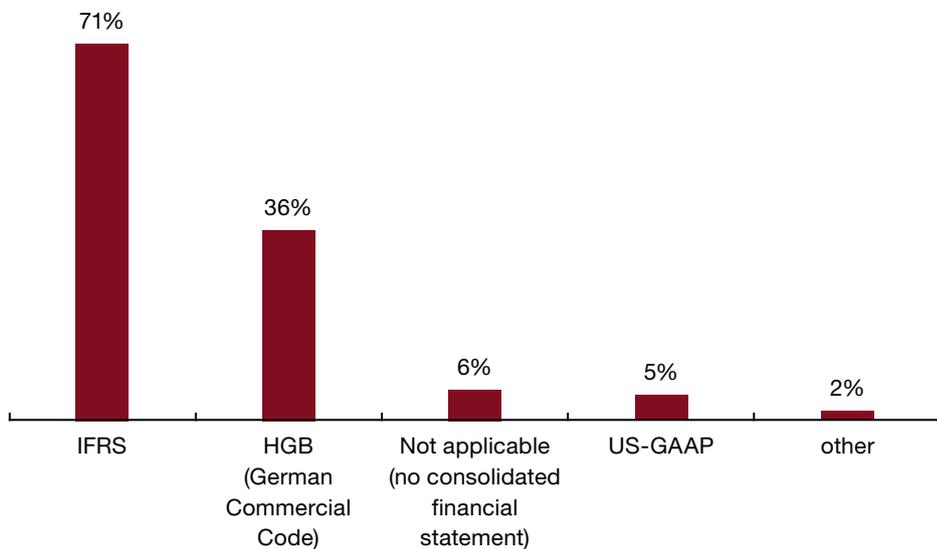
Appendix: Information on the companies surveyed

Fig. 25 Where participating companies are listed



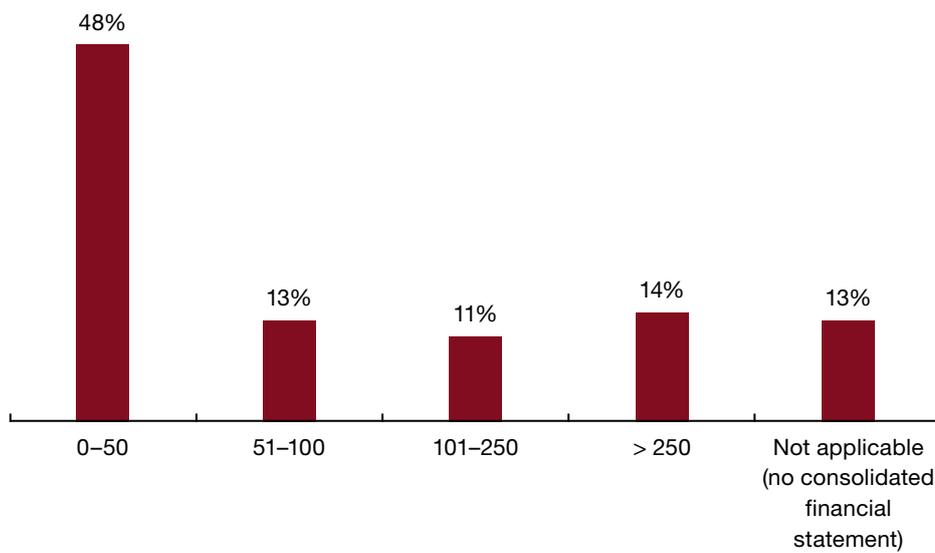
The clear majority of respondents use IFRS for their consolidated financial statement, followed by the German Commercial Code (HGB).

Fig. 26 Accounting standard for the consolidated financial statement



Almost half of all respondents have consolidated financial statements with up to 50 group companies, almost half of which are located in more than 10 countries.

Fig. 27 Group companies in the consolidated financial statement



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