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independent oracle users group

For the Complete Technology & Database Professional

MOVING DATA AT THE SPEED OF BUSINESS

2016 IOUG SURVEY ON DATA DELIVERY STRATEGIES

By Joseph McKendrick, Research Analyst
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TABLE OF CONTENTS

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EXECUTIVE SUMMARY

Is it possible to move data any faster than it now moves? There's no question that the pace of data movement has quickened dramatically in recent years. This calls for new strategies for integrating data at the speed of business. This is the challenge as companies increasingly rely on data analytics in their decision making. A majority of managers and professionals in a new survey, 57%, state their business leaders now rely heavily on analytics in their day-to-day decision making. However, about the same number complain about a lack of complete information. Plus, most organizations are not where they want to be in terms of data delivery.

The survey, covering 303 data managers and professionals and conducted by Unisphere Research, a division of Information Today, Inc., finds that organizations are employing a range of new strategies and approaches to improve the speed of data delivery and integration. The survey, among members of the Independent Oracle Users Group (IOUG), represents respondents from organizations of all sizes and across various industries. (See Figures 30–32 at the end of this report.)

The survey also uncovered new modes of data integration delivery emerging in enterprises, opting for new approaches that will reframe the data delivery discussion. Organizations are gradually moving off the extract, transform, and load model of data integration, and exploring new ways of doing business with data that will move them closer to real-time delivery—particularly cloud computing and in-memory technology.

The survey uncovered the following trends:

- In a business world that increasingly demands real-time insights, decision making continues to be inhibited by incomplete and slow-moving information. Enterprises are weighed down by inadequate performance, siloed data, and slow response times. A new data architecture and new approaches to data integration are needed.
- With the rise of cloud and big data—along with the need to deliver information at real-time speeds—organizations are looking at a range of newer options to support analytics for their enterprises. Cloud and in-memory databases—often used simultaneously—promise to bring enterprises closer to the real-time vision they seek.
- Data warehouses themselves are also undergoing dramatic changes in today's enterprises. One-third of enterprises either have data warehouse appliances employed or are using cloud-based data warehouse services. They are also taking on ever-growing volumes of data, as well as greater varieties—in line with today's big data demands.

On the following pages are more details exploring the findings of this survey.

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TODAY'S CHALLENGING DATA ISSUES

In a business world that increasingly demands real-time insights, decision making continues to be inhibited by incomplete and slow-moving information. Enterprises are weighed down by inadequate performance, siloed data, and slow response times. A new data architecture and new approaches to data integration are needed.

An inability to get at needed information is a major inhibitor to decision making in today's organizations. A majority of managers and professionals say they encounter a lack of complete information, as well as delays in getting the information they need. (Figure 1.) Accordingly, respondents indicate that, on average, they spend 25% of their time on finding data—from discovery to putting data in an appropriate place to be analyzed. These challenges reflect back on the data warehouse-dominated data delivery strategies most organizations have in place, and the outdated mechanisms associated with them. It's time for a new approach to data delivery that is aligned with today's digital realities. (See Figure 2.)

The need for faster, more effective information delivery is growing more urgent every day. Analytics is now the foundation of many high-level business strategies. A majority of data managers and professionals, 57%, report that analytics is part of the day-to-day decision making within their organizations. (See Figure 3.)

Added to the challenges of providing the right information to the right decision makers is the ability to deliver it quickly—at real time speed. Current approaches may not be enough to integrate and deliver data within minutes or seconds, as required in many of today's businesses. Fifty-seven percent state that there is now strong demand for delivery of real-time information within their organizations. (See Figure 4.)

Less than one-third, however, say they are capable of delivering most of their data in real-time mode at this time. The key inhibitors to moving data faster are database performance issues (cited by 48%) and network performance (45%). Data quality also stands out as a leading inhibitor to the faster delivery of data, cited by 45%. (See Figure 5.)

Database performance remains the greatest inhibitor to the rapid delivery of data to decision makers, the survey finds. Close to half of data managers and professionals report this is the main technical challenge they face when it comes to moving toward real-time data delivery. (See Figure 6.)

Some managers responding to the survey admit their applications were working under outdated business measures for applications. "Most benefits within existing applications were measured for a 20-year-old risk analysis system," said one respondent.

Enterprise data warehouses may still dominate the enterprise data landscape, but they tend to be fraught with issues that are impeding the flow of information to decision makers. Data warehouse queries or reports often take time to produce. Close to one-third of respondents, 31%, say the time to run these reports often will take longer than an hour. In fact, close to one in 10 says it could take longer than a business day to run a report. (See Figure 7.)

Making changes is another effort that takes up considerable time for many organizations. More than one in five managers and professionals states that the uploading or reloading of data to their data warehouses following a change in the data model will take more than one business day (eight hours). (See Figure 8.)

Overall, 29% indicate that anywhere up to 100GB of data is moved to their analytical systems on a daily basis, while 26% indicate that anywhere between 100GB and 1TB of data is moved. Another 10% move volumes of data that scale into the hundreds of terabytes. (See Figure 9.)

Relational databases are the primary sources for more than four in five organizations' data analytics applications. Interestingly, Excel spreadsheets come in second, with 37% still relying on these tools for their analytics. (See Figure 10.)

Figure 1: What factors inhibit decision making at your company?

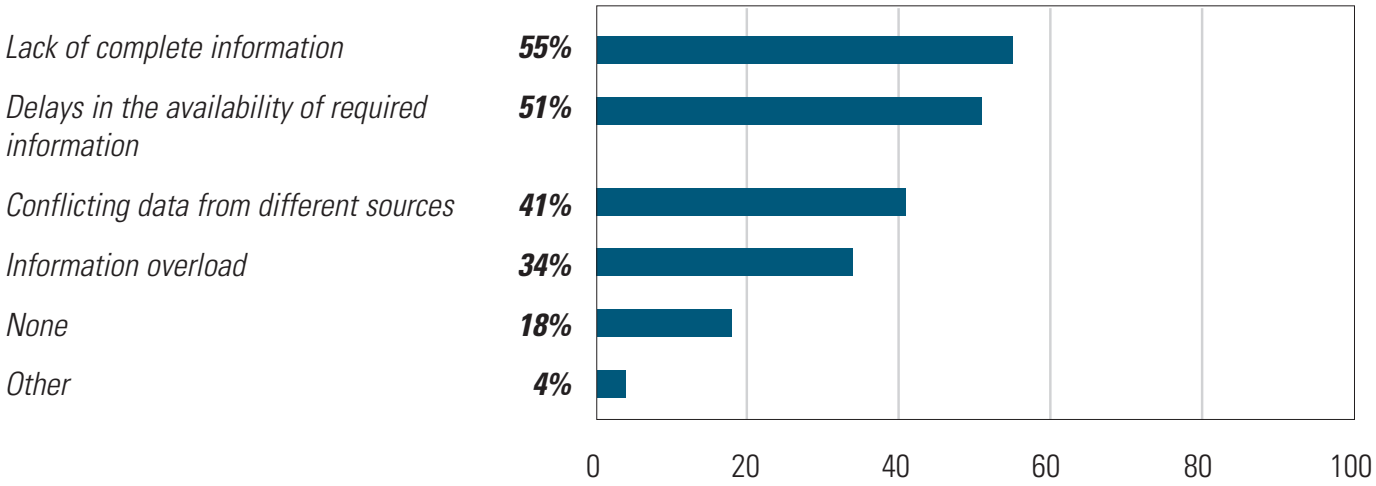

Figure 2: How much time does your organization spend on the following activities?

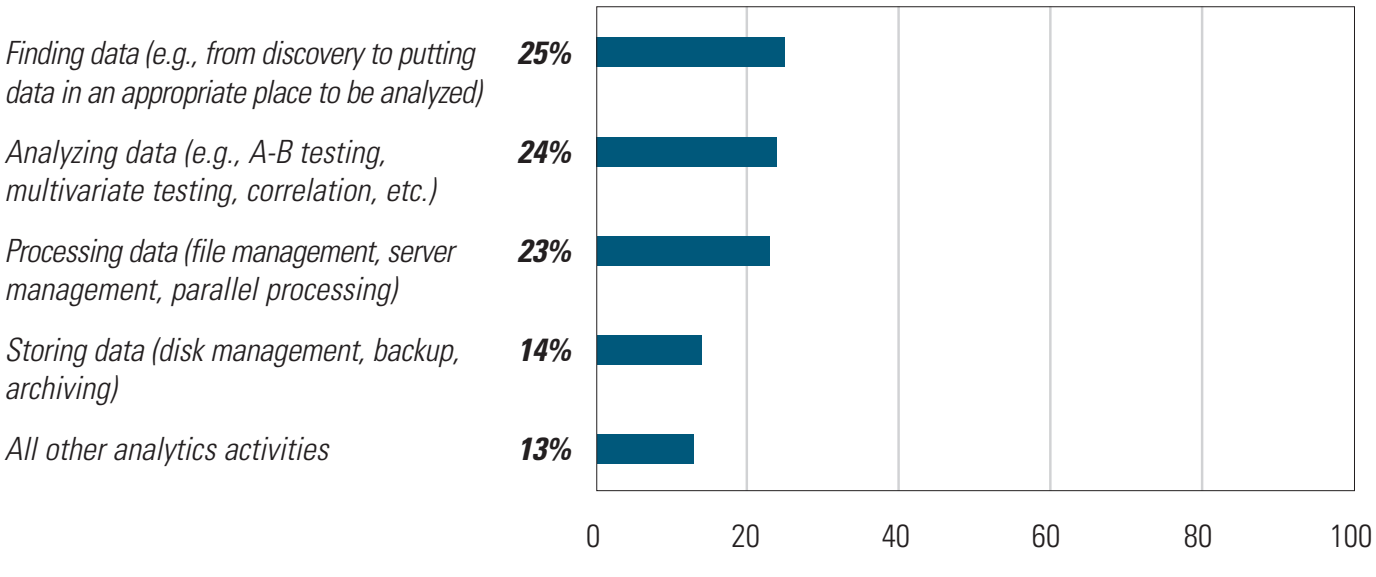

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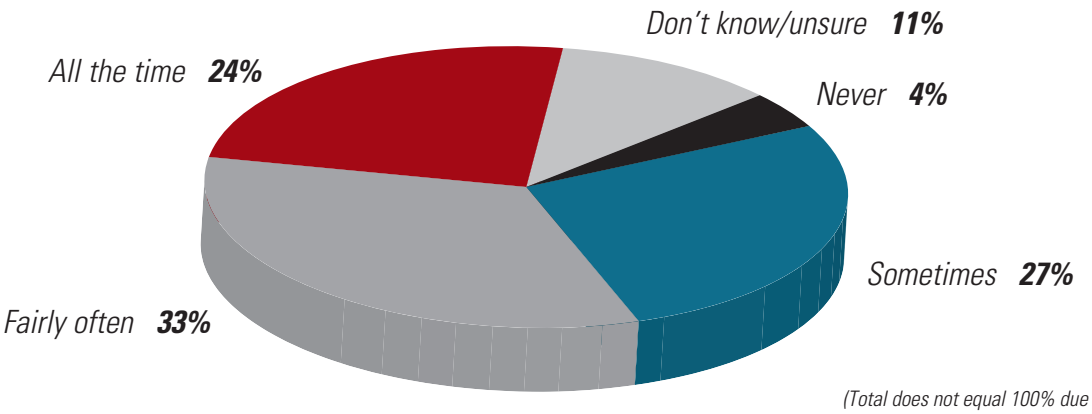
Figure 3: How widely are analytics employed in day-to-day decision making?



(Total does not equal 100% due to rounding.)

Figure 4: How pressing is the demand for real-time information at your organization?

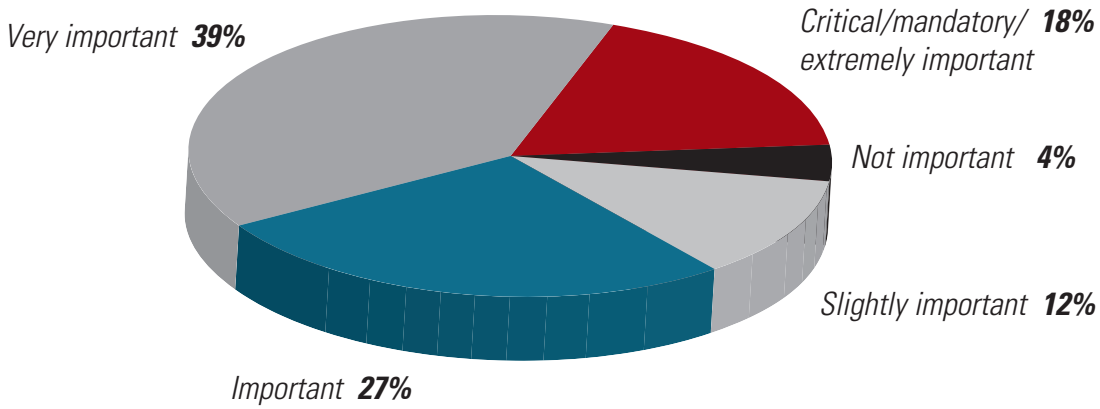


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Figure 5: How much data are you able to deliver in real time?

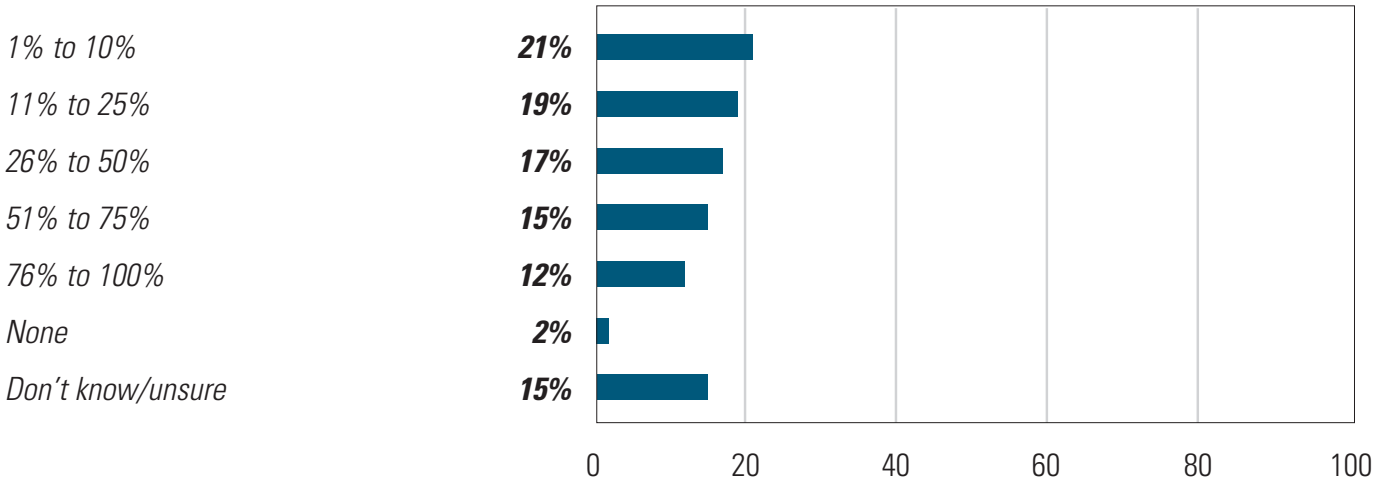

Figure 6: What are your key technical challenges to delivering data faster?

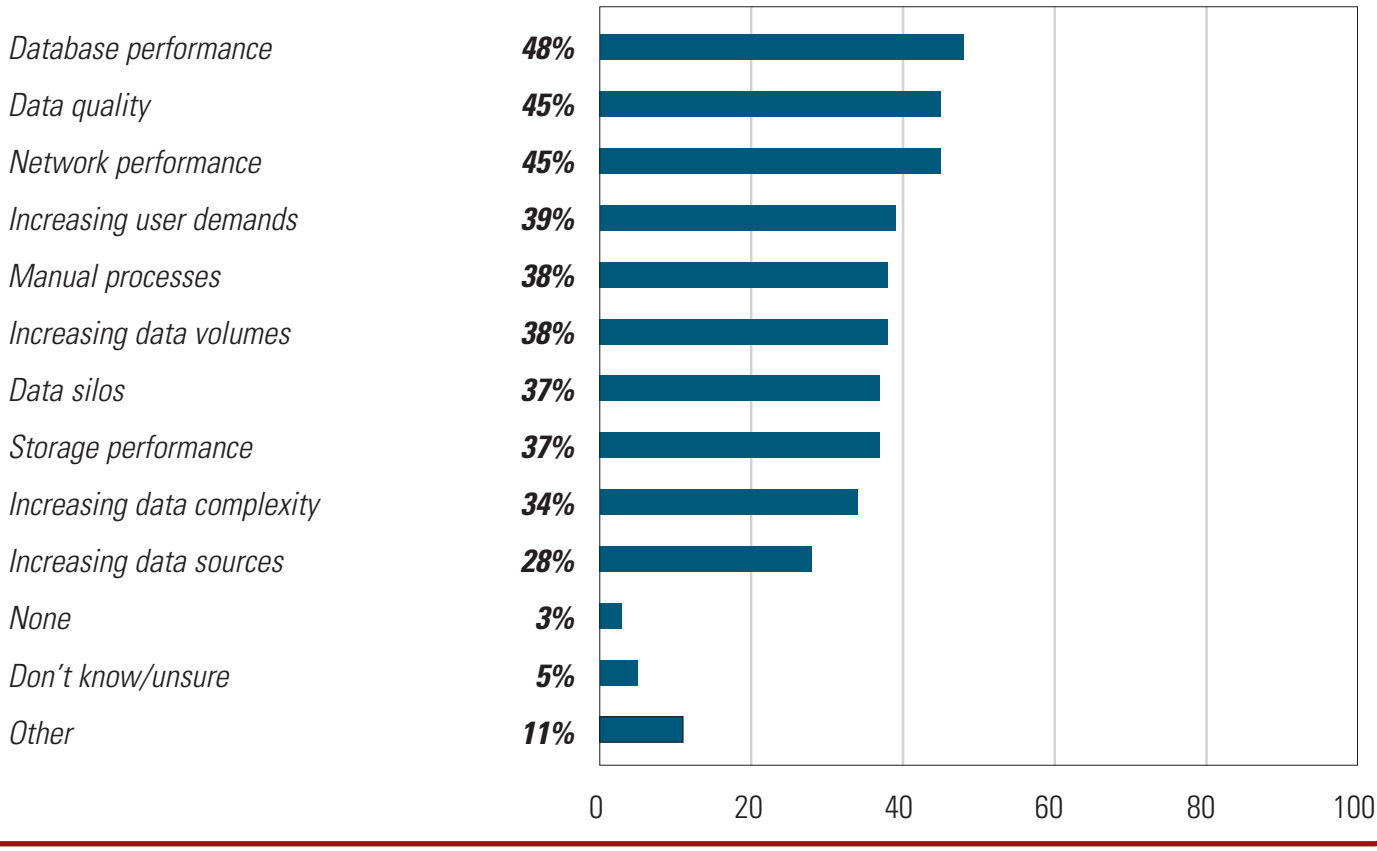

Figure 7: What is the length of time of your longest running data warehouse report or query?

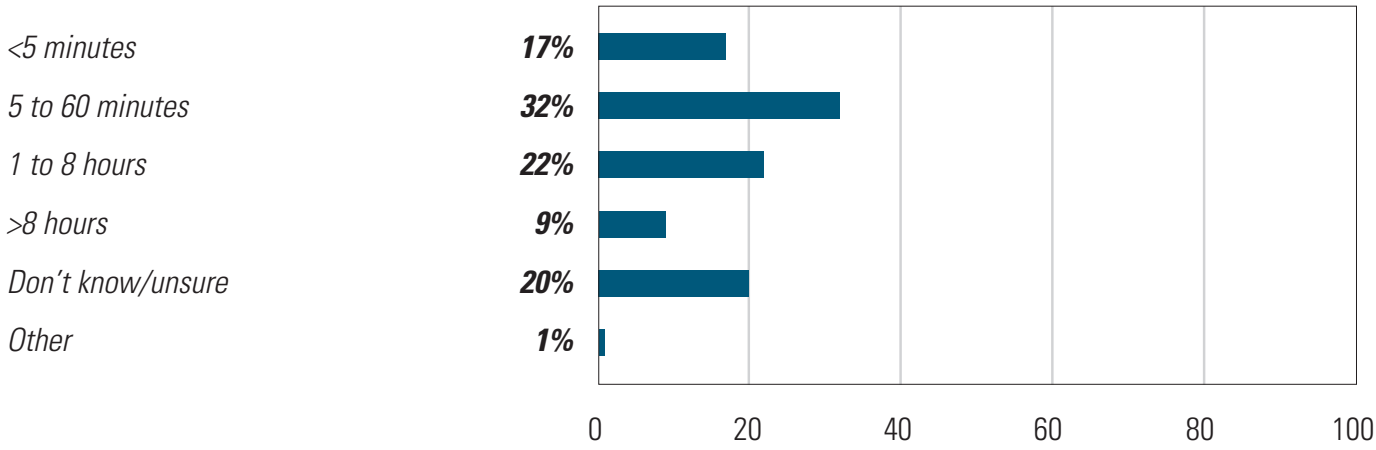

Figure 8: How long does it take you to upload/reload data after a change to your data model?

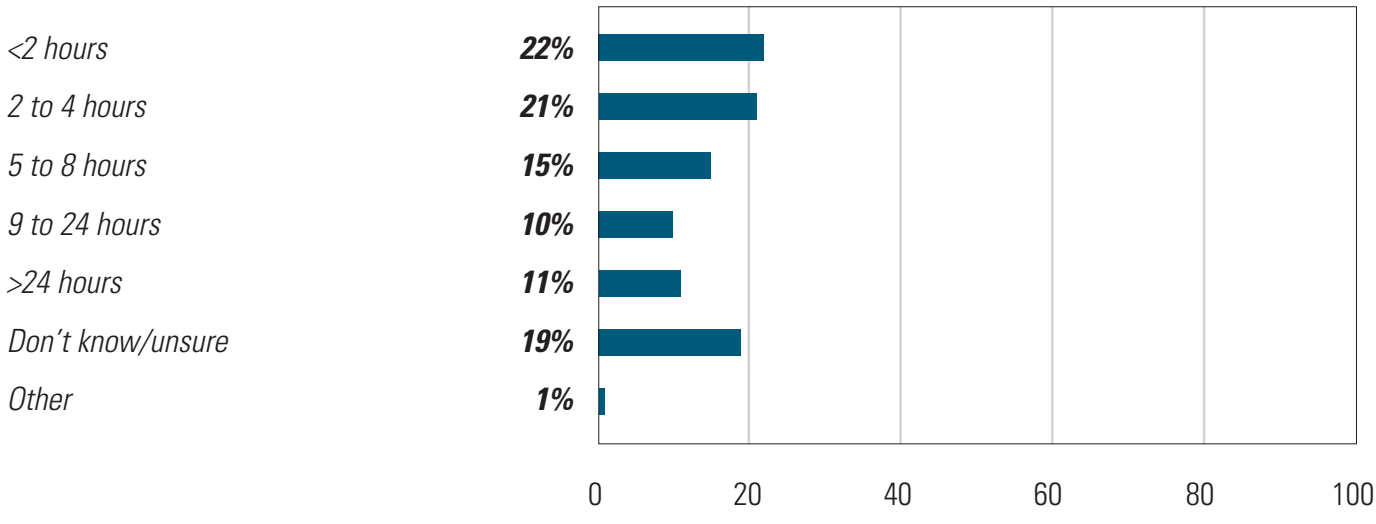

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Figure 9: How much data is moved to your business intelligence and analytical systems daily?

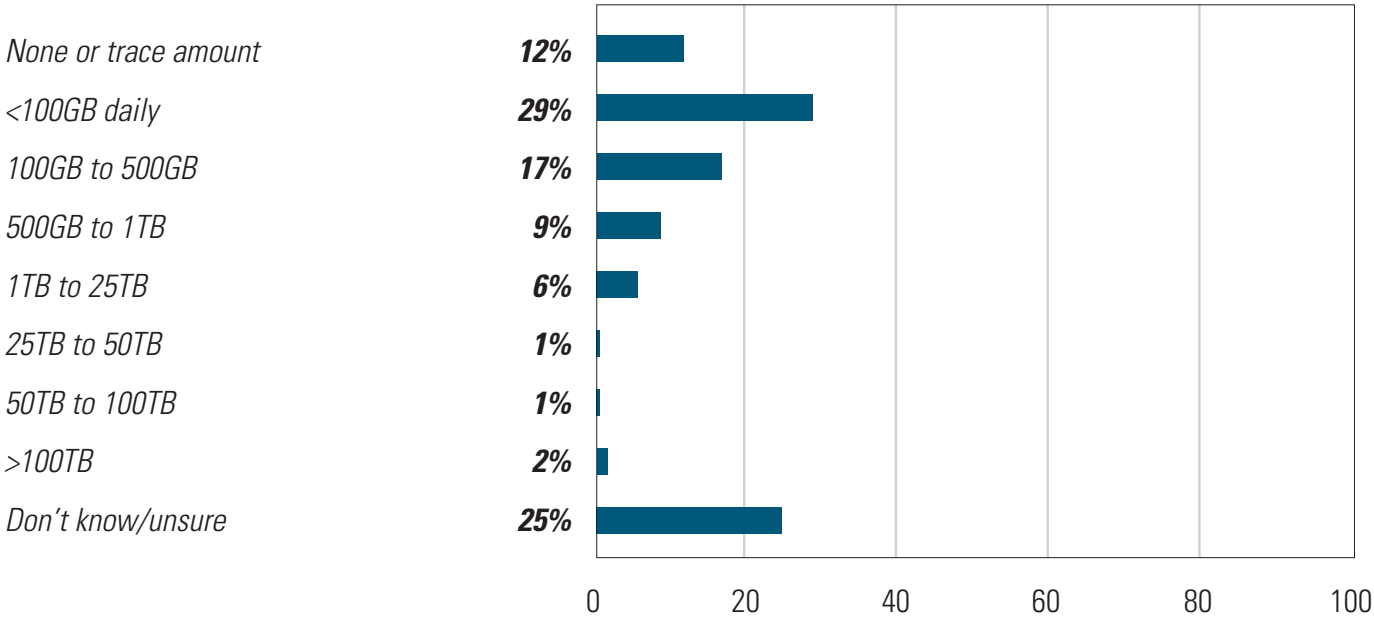

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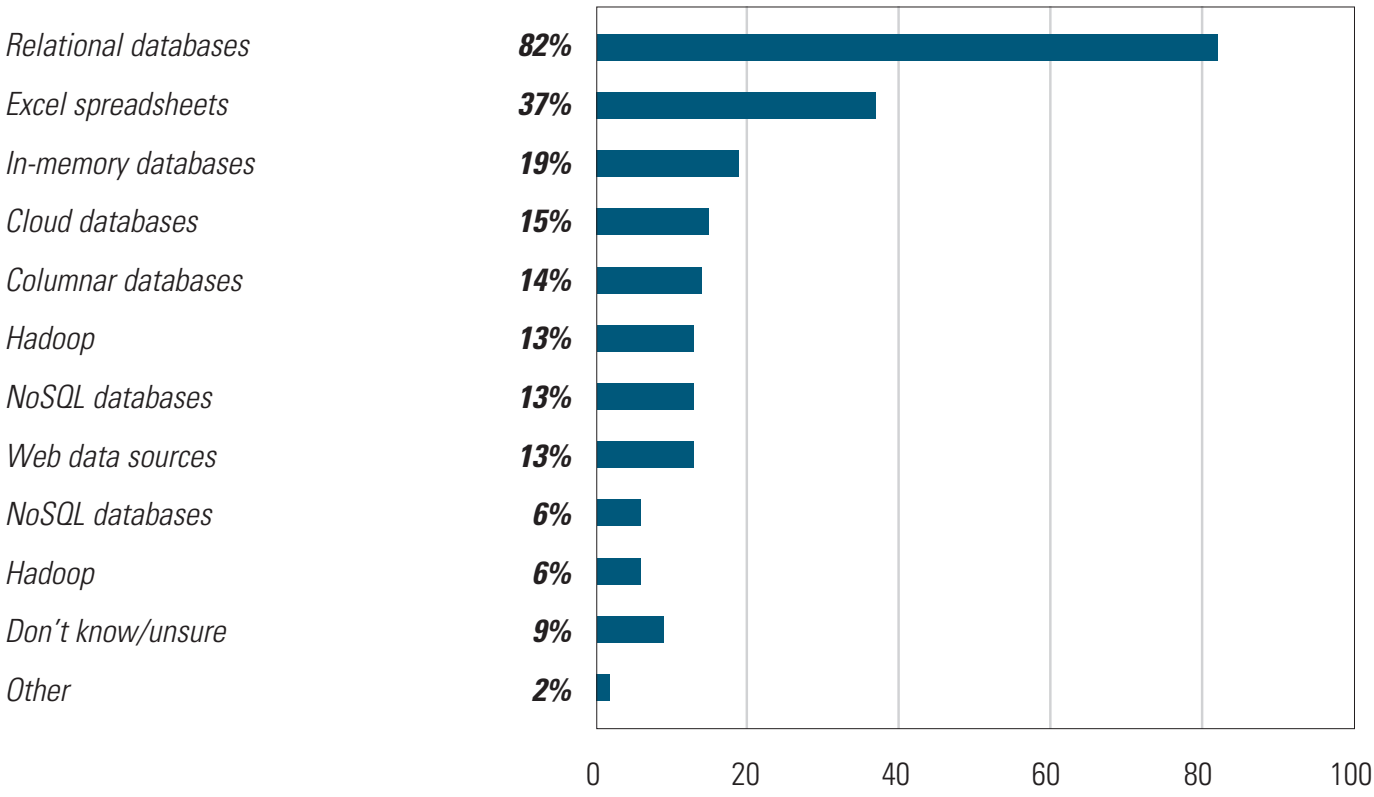
Figure 10: What are your primary data sources for BI and analytics?



THE RISE OF FASTER INFORMATION DELIVERY STRATEGIES

With the rise of cloud and big data—along with the need to deliver information at real-time speeds—organizations are looking at a range of newer options to support analytics for their enterprises. Cloud and in-memory databases—often used simultaneously—promise to bring enterprises closer to the real-time vision they seek.

While the ETL (extract, transform, and load) model still dominates data sites, it is now competing with other approaches, including a number of additional data integration technologies that are emerging. The most pervasive approach to data integration is through data replication or through networked databases. Common data storage—in which data and documents are available to all applications, independent of format or architecture—are employed at two in five organizations. (See Figure 11.)

While many enterprises are turning to cloud-based data delivery strategies, it's going to take some time until significant workloads will be moved into these environments, the survey shows. Currently, 10% of managers and professionals say they have most of their data integration workloads being handled by cloud. Overall, about half of respondents indicate that there are at least some workloads moving in this direction. (See Figure 12.)

In-memory databases and platforms offer an option to rapidly accelerate data analytics, making it a key step toward real-time integration and delivery. About 28% of organizations now employ in-memory technologies, and another 23% are piloting or evaluating the approach. (See Figure 13.) Lack of understanding may be inhibiting in-memory deployments, however, and greater industry education is called for. Close to half of data managers and professionals, 46%, admit they have only a basic, limited, or minimal understanding of the technology, and 8% say they have no knowledge at all of in-memory. (See Figure 14.)

In-memory is seen as having a vital role to play in the success of data-driven enterprises in the months and years ahead. A majority of managers and professionals, 52%, regard in-memory technologies as critical to their organization's competitiveness. (See Figure 15.) One manager responding to the survey stated that in-memory is key to his organization's big data strategy going forward. "In the future, we expect to see increased scalability and performance for very large databases (1000TB) by handling all complex data access—such as joins—in-memory."

In terms of the most prevalent applications employed within in-memory environments, 20% of sites currently apply in-memory to either analytics, reporting, or data warehouse functions. Another segment, 13%, say in-memory is used in transactional environments. (See Figure 16.) There are a range of potential applications that could benefit from in-memory. One respondent indicated that her company was applying in-memory technologies to analyze, in real time, "manufacturing data, to adjust machines, routing, or operations at the time product is being made." Still another pointed out that his company's application management team uses in-memory widely to have instant backup.

The top benefits from in-memory seen so far are improvements in query response times, accelerated access to detailed data, and the ability to eliminate performance tuning—such as aggregates, indices, and duplicate data/systems. (See Figure 17.) Some also see greater opportunities to support advanced analytics, or to even drive down IT costs.

In-memory database users tend to be more advanced in their use of new approaches to data integration and delivery. A majority of in-memory users are able to move data at real-time speeds through their systems, versus about one-third of those evaluating or not interested in the technology. (See Figure 18.) In-memory sites also are more inclined to be moving greater volumes of data into their analytics systems on a daily basis. More than one in four report delivering such capacity, versus only 6% of the non-in-memory sites. (See Figure 19.)

Forty-one percent of sites with in-memory systems in production report the majority of the data is managed in the cloud, versus only 12% of those still evaluating such approaches, and 6% of those with no intentions of using in-memory. (See Figure 20.)

Figure 11: Data Integration Approaches Currently In Use at Organizations

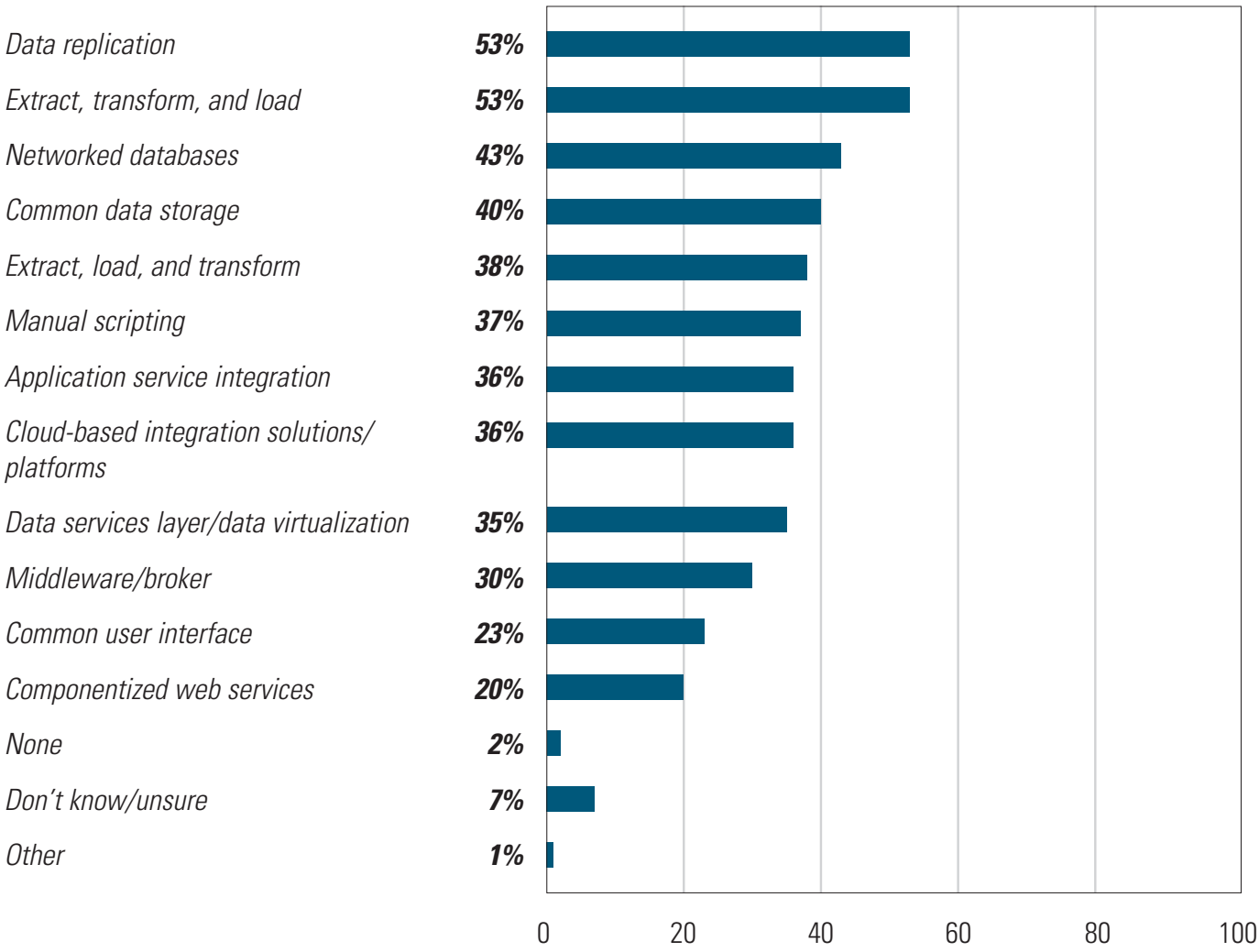


Figure 12: What percentage of these workloads are stored or managed within the cloud?

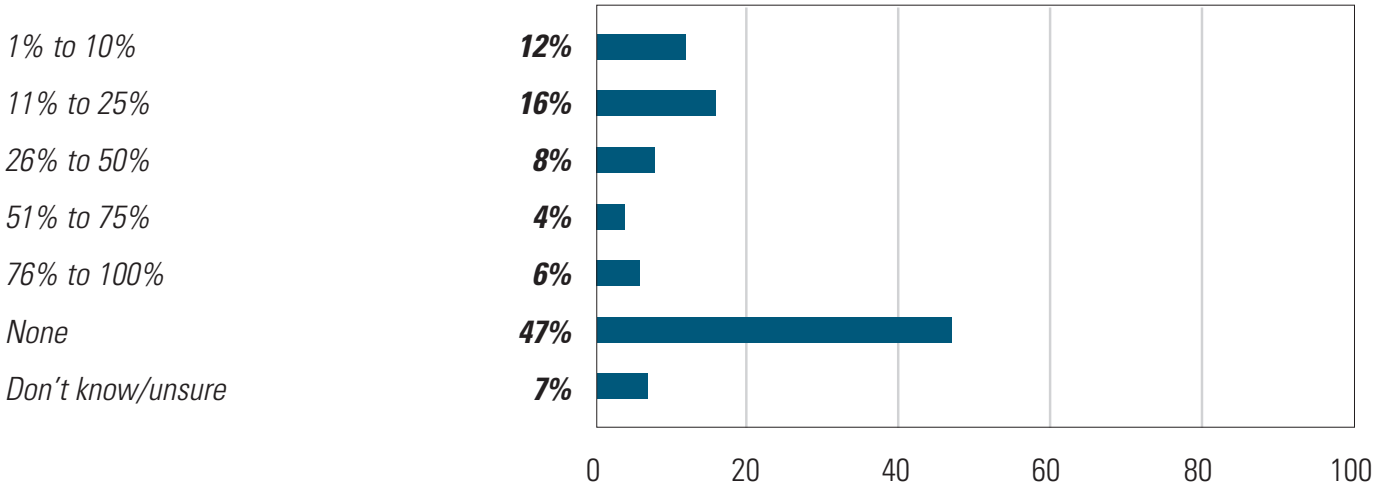


Figure 13: Organizations Employing In-Memory Database Technology

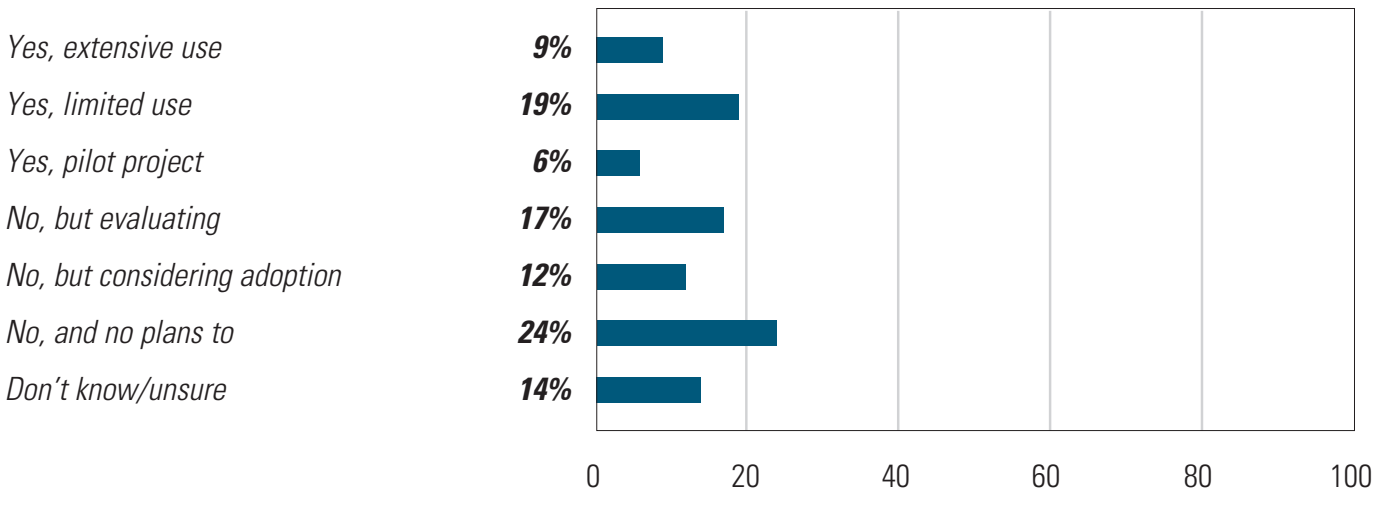


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Figure 14: What is your knowledge level of in-memory database technology?

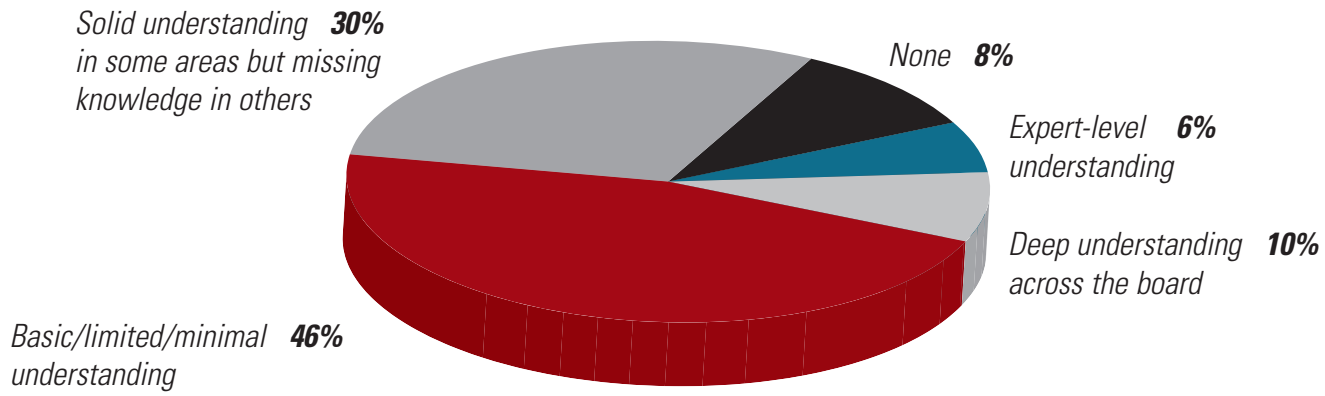


Figure 15: How important is in-memory to your organizational competitiveness?

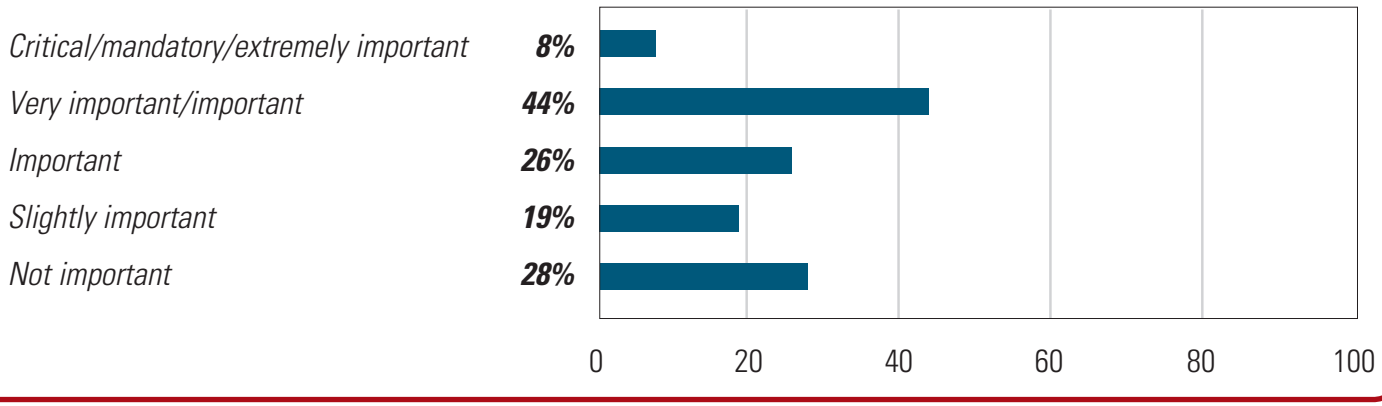


Figure 16: How is your organization currently using in-memory database technology?

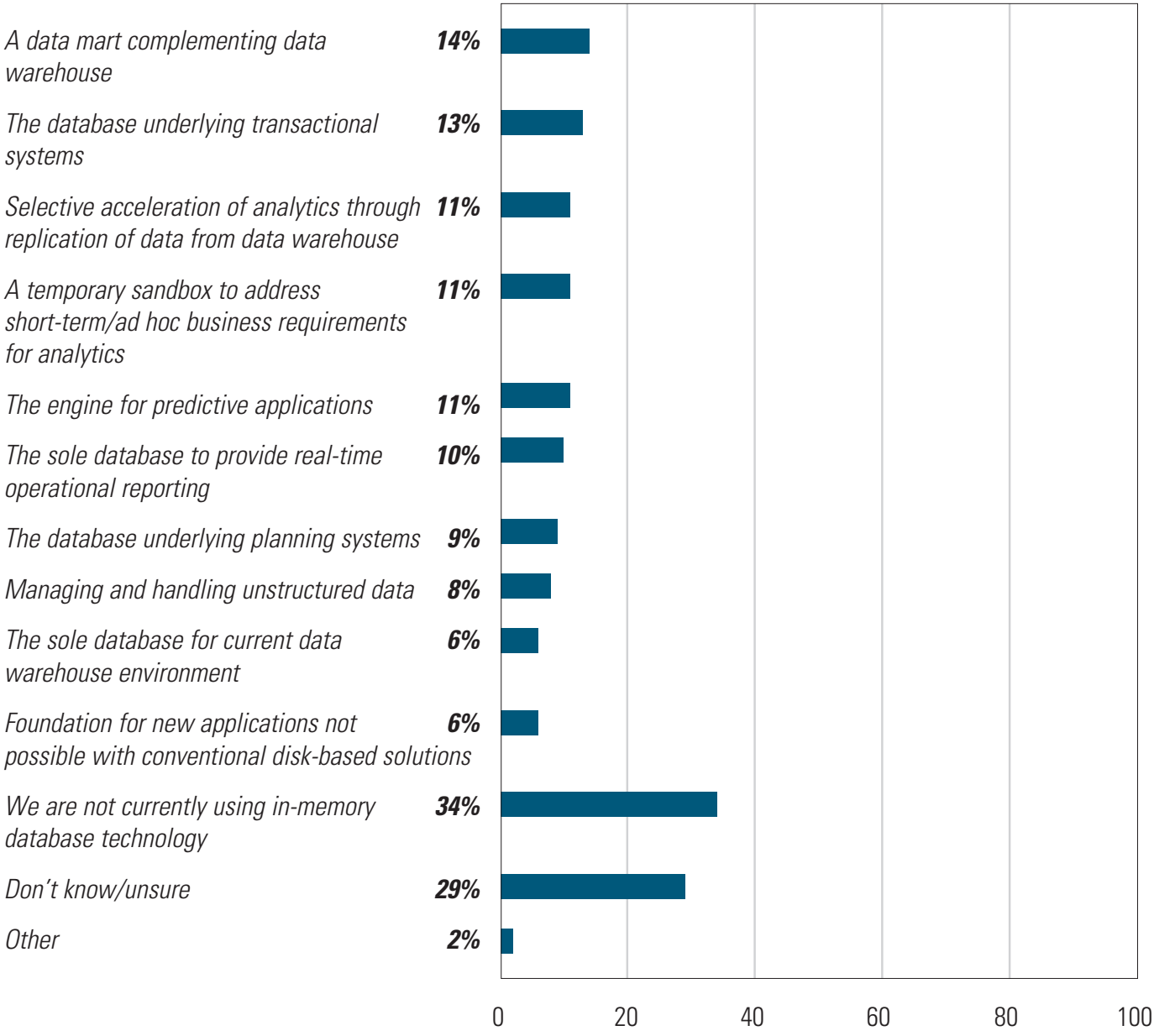


Figure 17: What are the top benefits you have received from your current in-memory solutions?

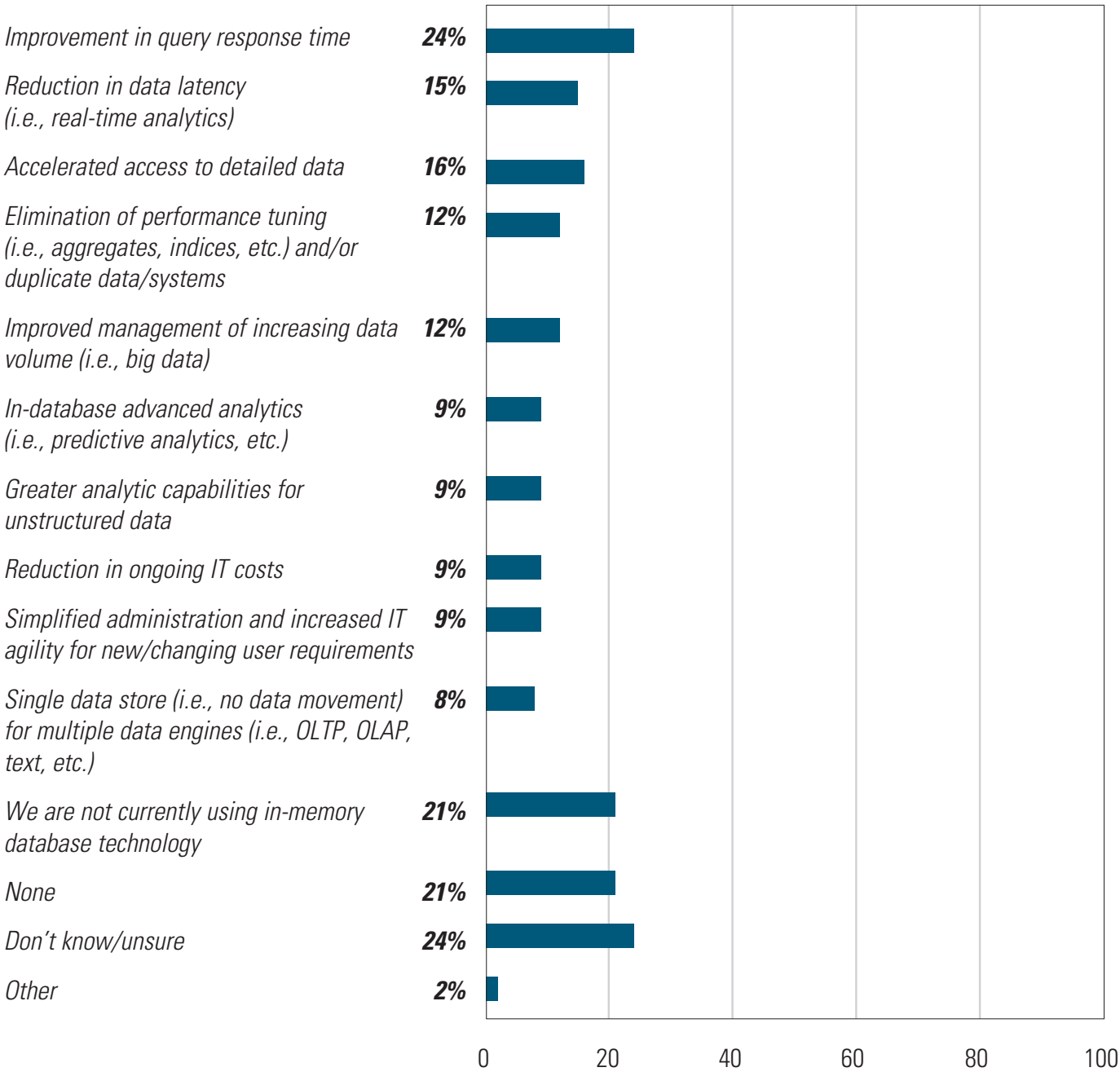


Figure 18: Organizations Delivering Majority of Data in Real Time—By In-Memory Adoption

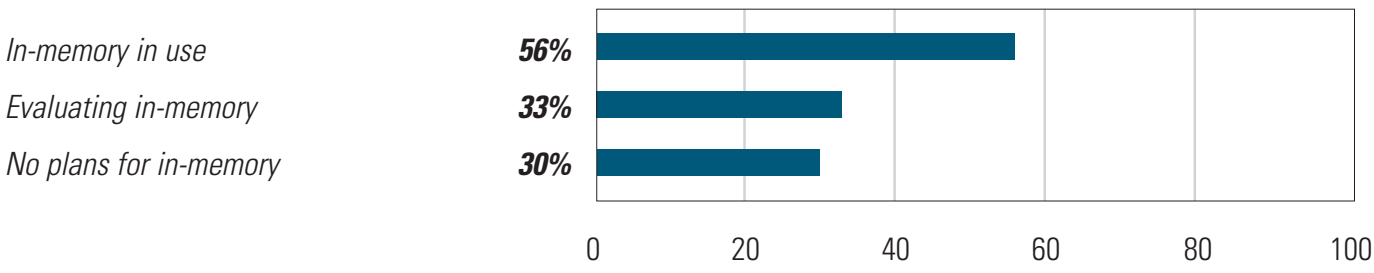


Figure 19: Organizations Delivering More Than 1TB of Data Into Analytics Systems a Day—By In-Memory Adoption

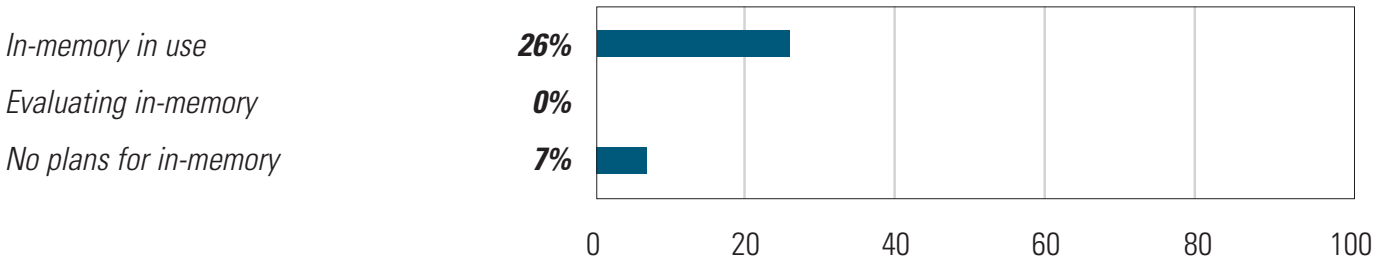
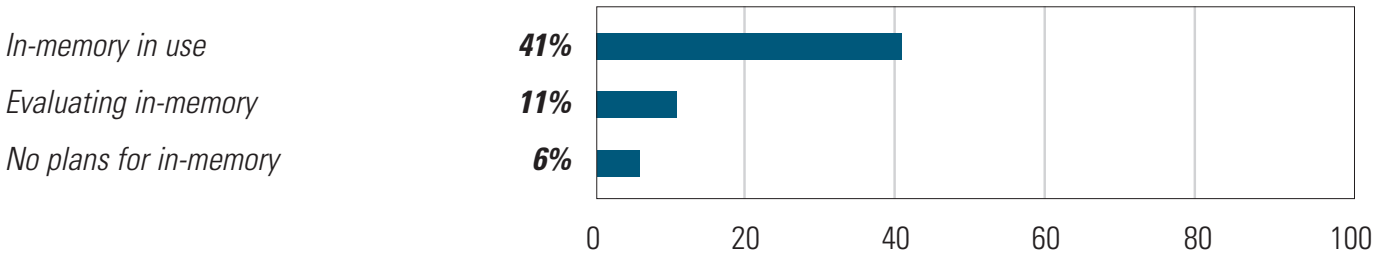


Figure 20: Organizations Moving Majority of Data Into Cloud—By In-Memory Adoption



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THE CHANGING DATA WAREHOUSE

Data warehouses themselves are also undergoing dramatic changes in today's enterprises. One-third of enterprises either have data warehouse appliances employed or are using cloud-based data warehouse services. They are also taking on ever-growing volumes of data, as well as greater varieties—in line with today's big data demands.

Appliances and cloud have become a big part of the data warehouse scene, the survey finds. About one-third of data managers and professionals use data warehouse appliances, and close to a third of enterprises now use cloud-based data warehouses to fulfill their data integration needs. (Figure 21.)

While data warehouses remain a force for enterprise data environments, they are showing signs of change. Data warehouses were first designed to be repositories of transactional data emanating from relational database management systems, and across just about every enterprise, that still is their main role. However, other forms of data are also being seen within many warehouses as well. Close to nine in 10 managers and professionals say their warehouses are repositories for transactional data. A majority, 57%, also report that documents are also now maintained within data warehouses, as well as text (51%). Data warehouses are also employed to support IT-centric data to support operations. (See Figure 22.)

Along with a rich variety, a large segment of data warehouses are storing massive amounts of data as well. Close to one in 10 now contain more than a petabyte of information. Another 14% report stores in the hundreds of terabytes range. (See Figure 23.) This is likely to keep growing, as enterprises just keep pumping more and more information into their data warehouses, and this is not likely to let up anytime soon. Close to nine in 10 report that the amount of data in their data warehouses has increased over the past year. Fourteen percent say this increase has been greater than 50%. (See Figure 24.)

The survey explored the reach of data warehouses in today's enterprises, and the impact these data environments continue to have on organizational success. Enterprise data warehouses continue to dominate the enterprise data scene, the survey finds, with two-thirds of organizations having enterprise-scale data warehouses. (See Figure 25.)

Data warehouses have been around for some time and they often provide coverage to large swaths of enterprises. Close to one-third of managers and professionals report their data warehouse environments have more than 1,000 users, and another 27% estimate those numbers to be in the hundreds. (See Figure 26.) In addition, there is usually no such thing as a single data warehouse that serves organizations' data needs. The survey finds 76% of enterprises have two or more data warehouses. Thirty-eight percent say they have, at a minimum, at least five data warehouses in their enterprises. (See Figure 27.)

While the ideal is to extend analytics capabilities to as much of the enterprise as possible, most organizations are not making it widely available. At this point, most organizations report that their primary data warehouse users are analysts and top executives. While new approaches promise faster and more comprehensive data delivery, the reach of data warehouses is still limited. A majority, 62%, indicate that the primary users of their data warehouses are analysts and researchers. Another 52% count IT professionals among their users, while 54% say their top executives comprise the user base. Interestingly, only 36% have marketing departments showing up among their users, though many use cases for data warehousing across the industry feature marketing and sales-driven applications. (See Figure 28.)

There is also a greater mix of workloads now being seen in data warehouses, versus the standard reporting requests seen in years past. Reporting and ad hoc queries are the types of workloads most frequently seen in enterprise data warehouses. (See Figure 29.)

Figure 21: Types of Data Warehouse Platforms in Use

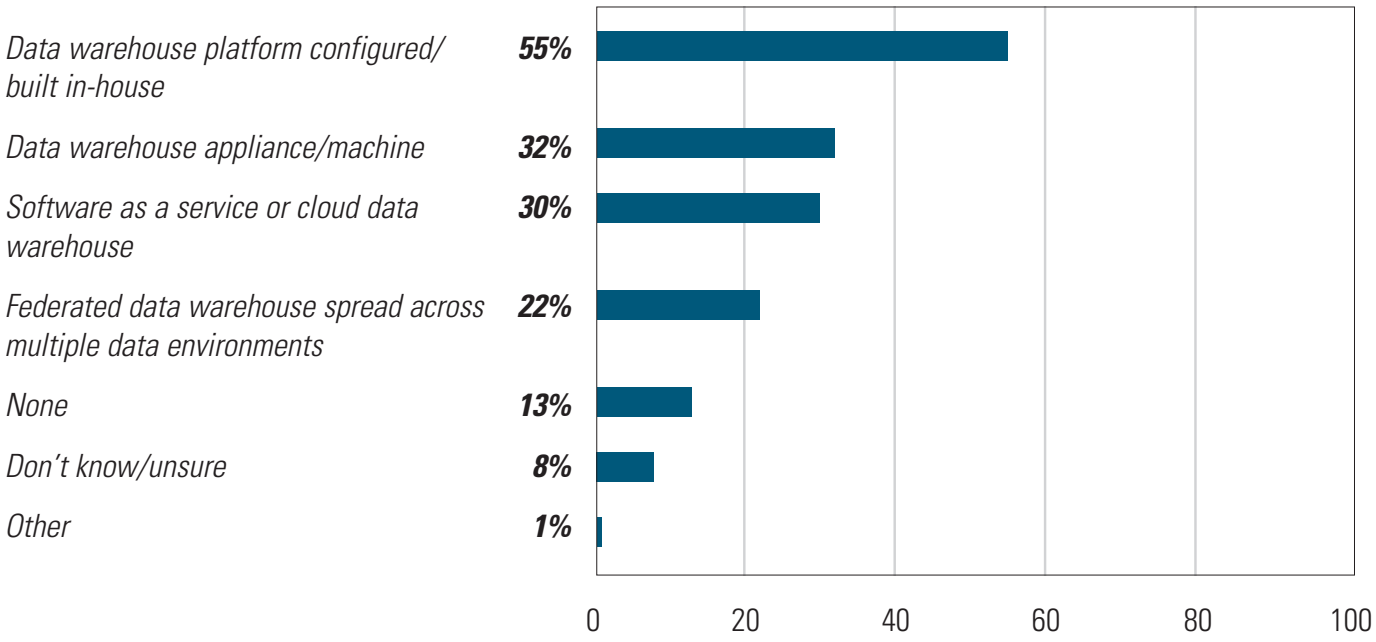


Figure 22: What data types are stored in your data warehouse(s)?

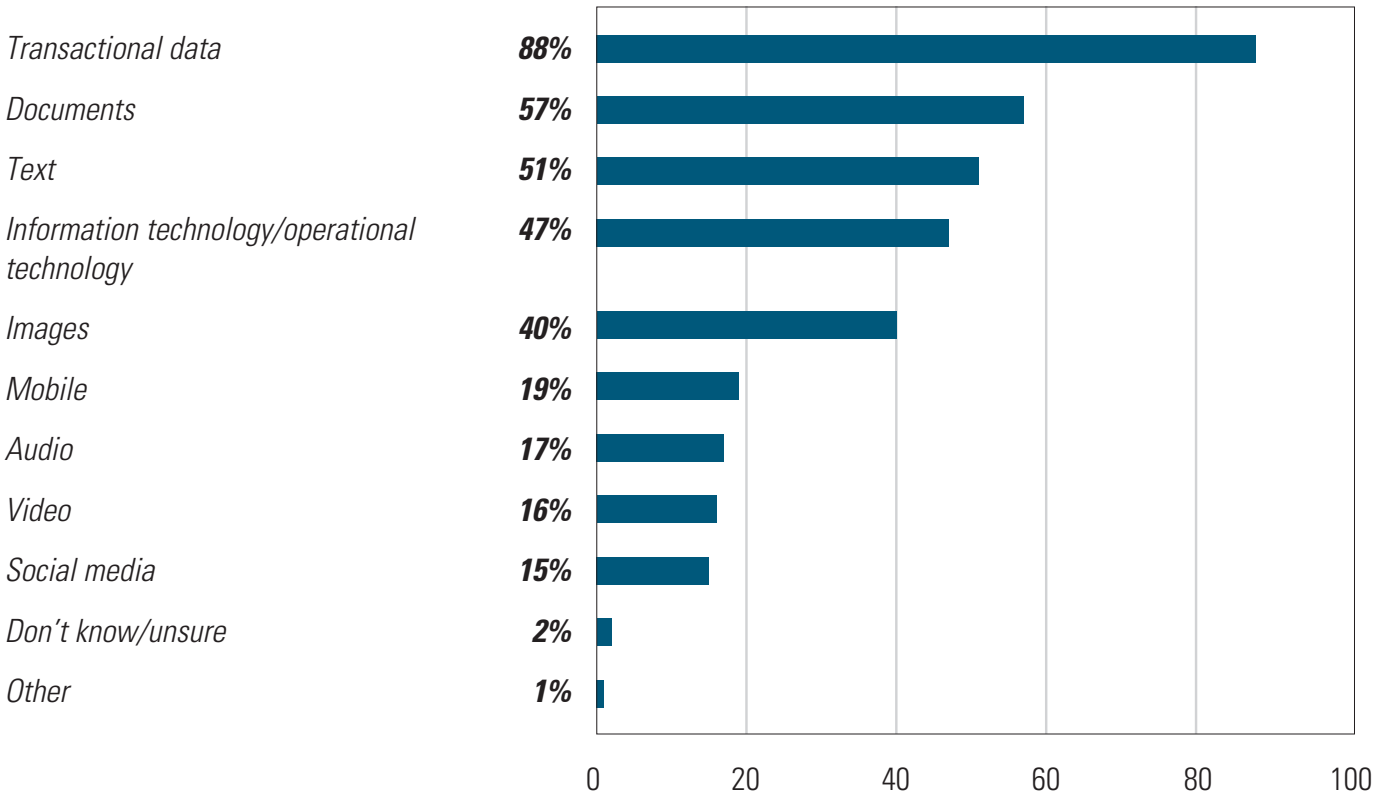


Figure 23: What is the total amount of data in your data warehouse(s)?

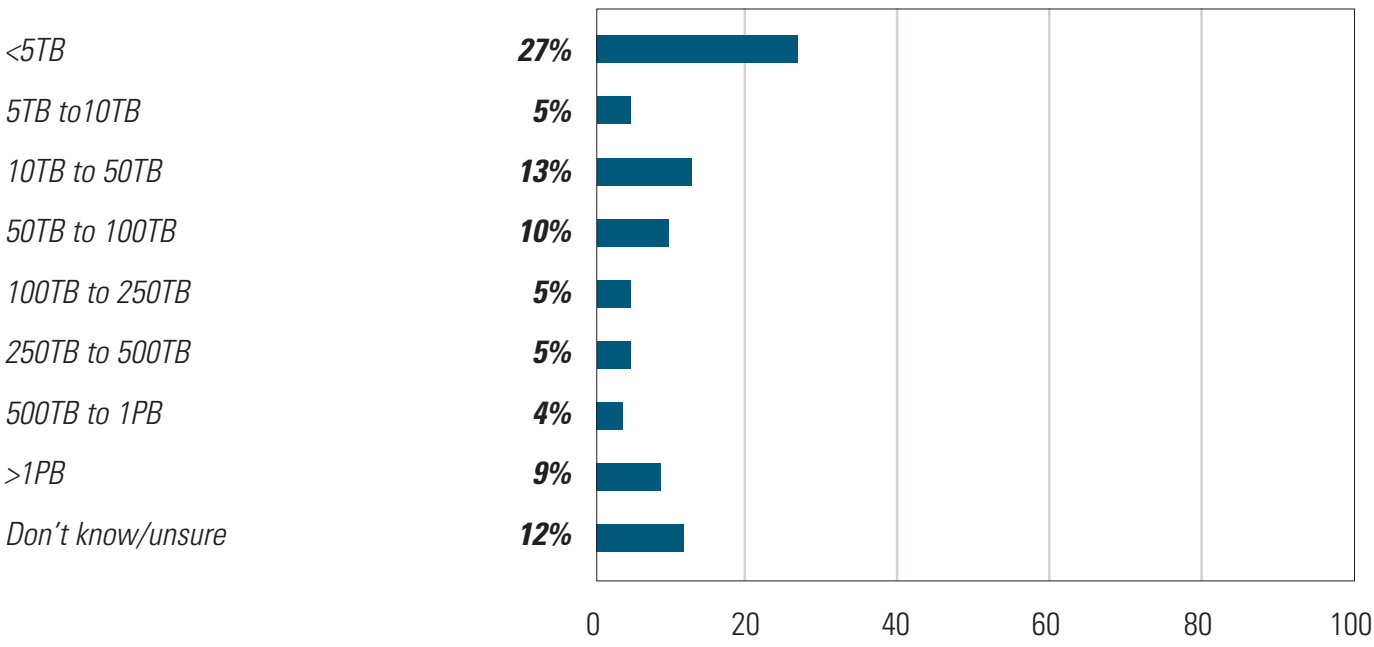


Figure 24: How has the amount of data in your data warehouse changed over the past year?

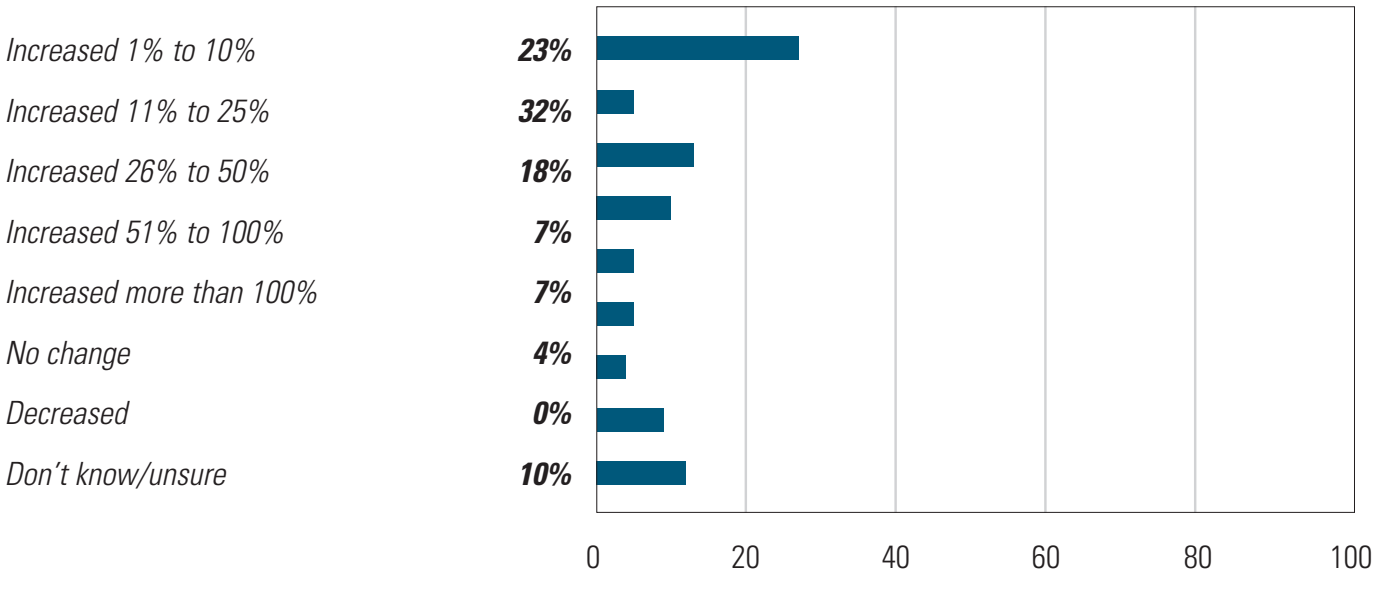


Figure 25: What is the reach of your data warehouse platform?

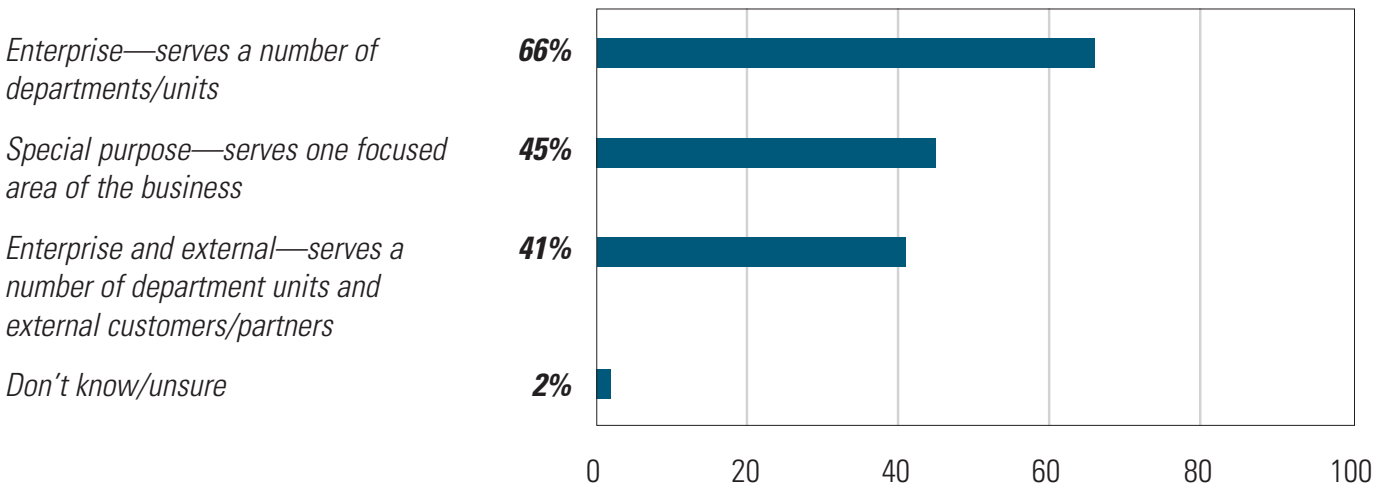


Figure 26: How many users does your data warehouse platform support?

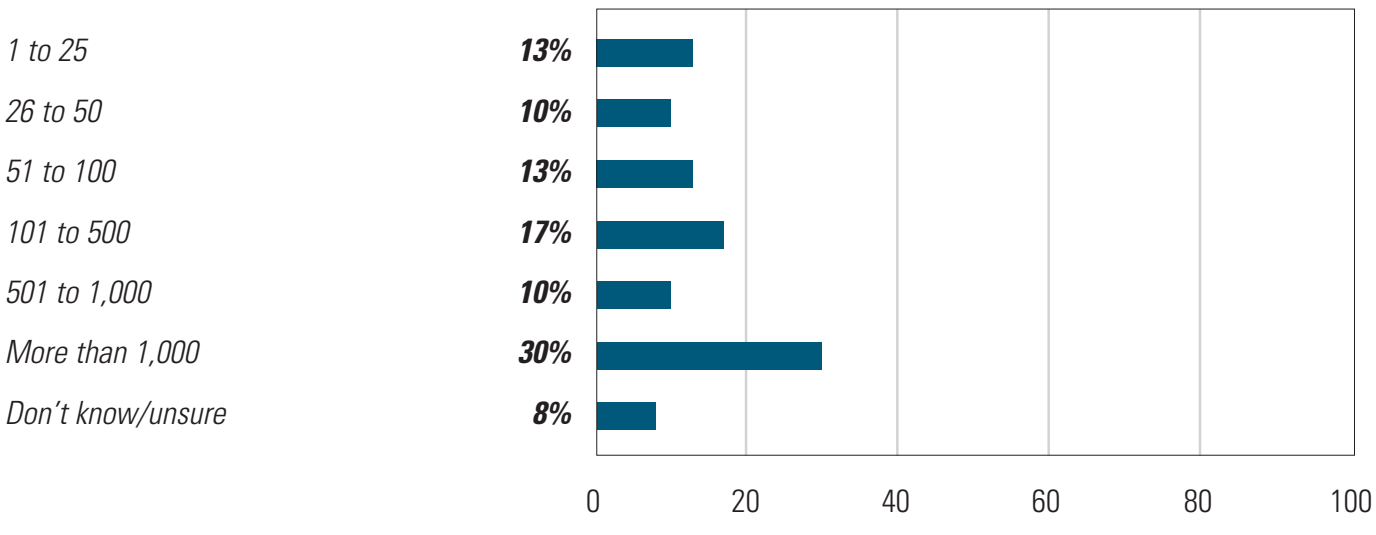
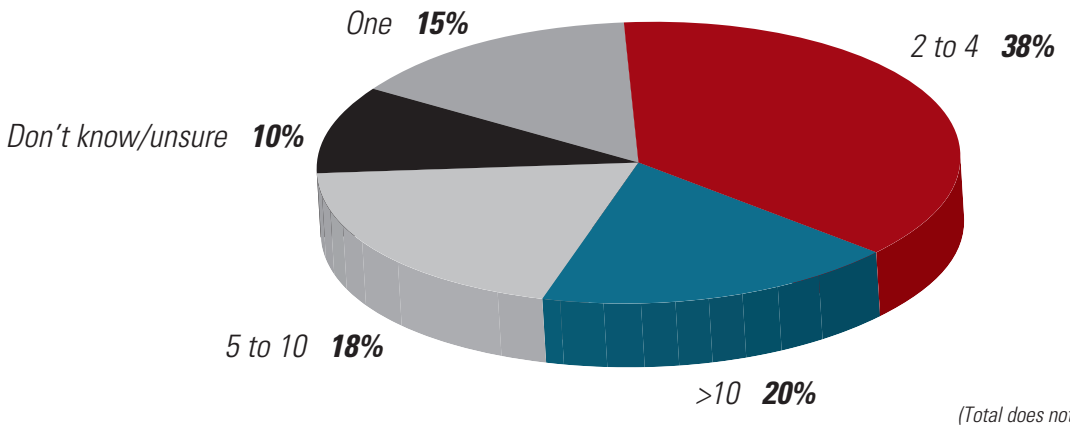


Figure 27: How many data warehouses and data marts do you have at your organization?



(Total does not equal 100% due to rounding.)

Figure 28: Who are the primary users of your data warehouse?

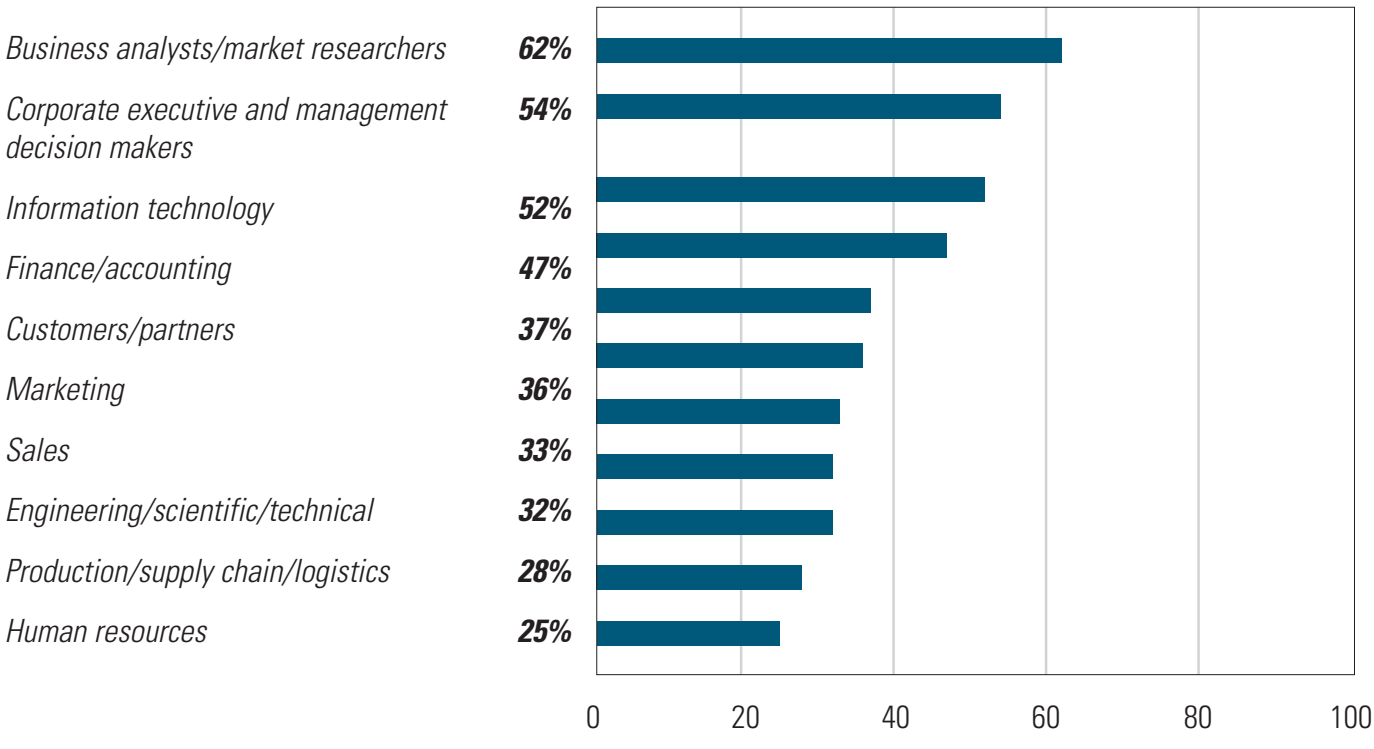
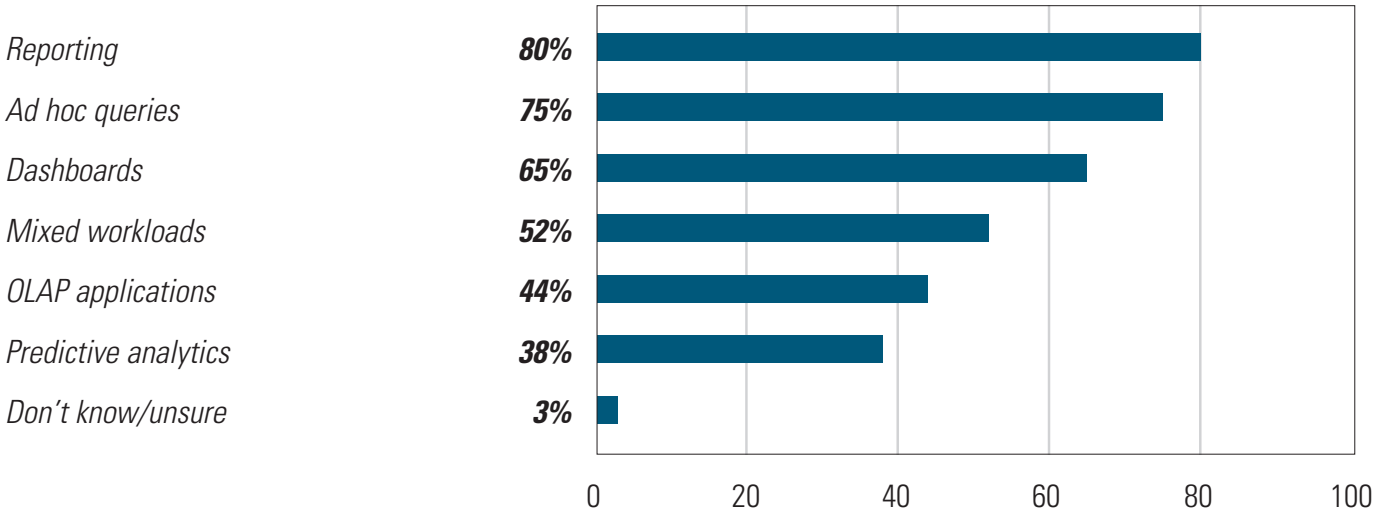


Figure 29: What types of workloads does your data warehouse run?



DEMOGRAPHICS

Figure 30: What is your primary job title?

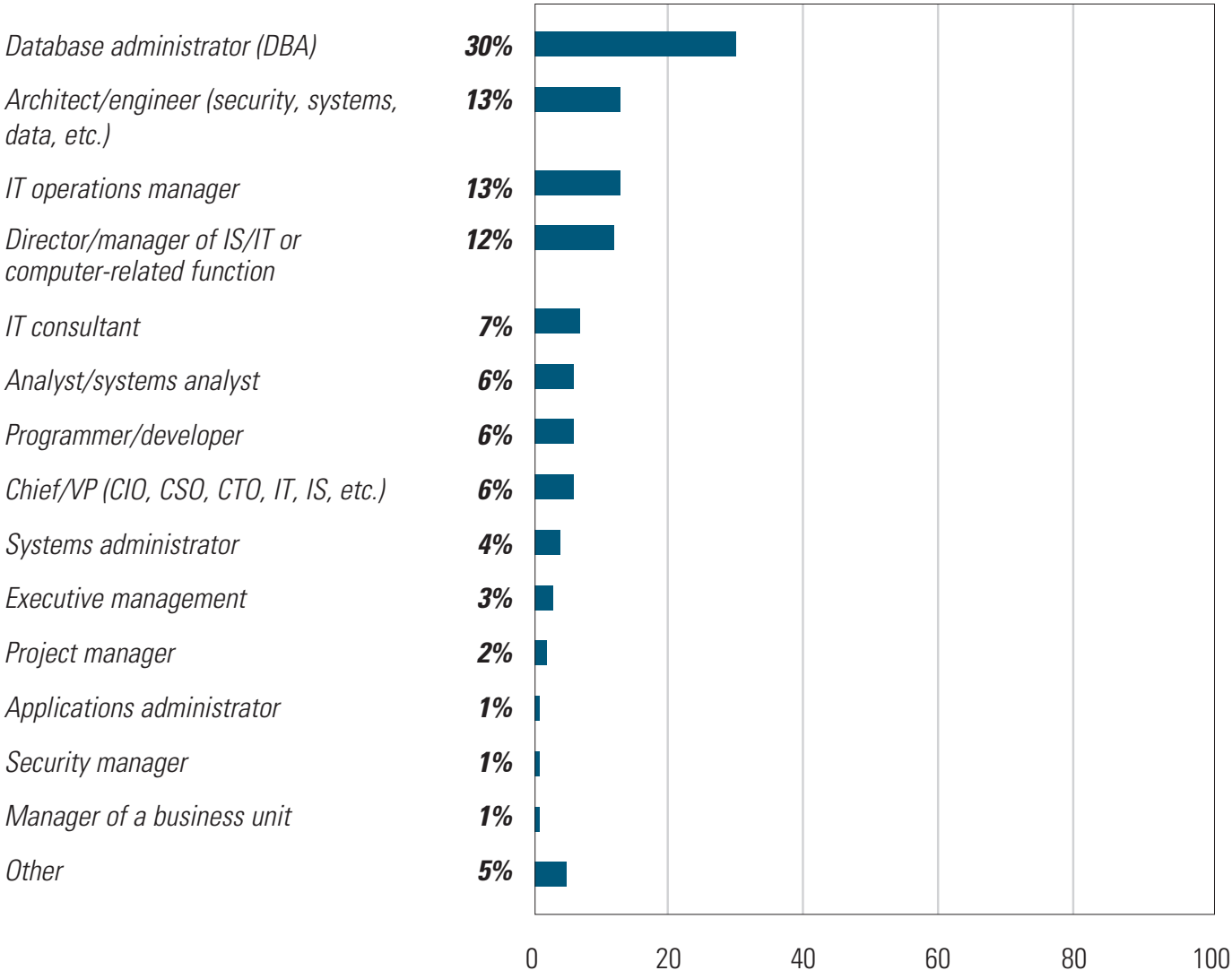


Figure 31: How many employees are in your entire organization, including all locations, branches, and subsidiaries?

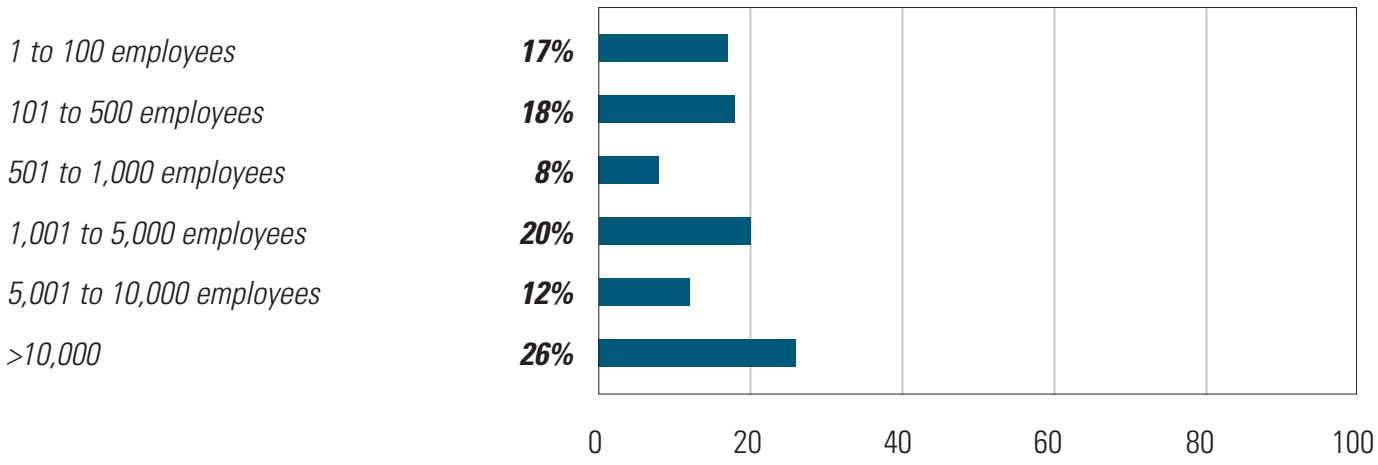


Figure 32: What is your primary industry?