ACTIAN DATACAST 2020: HYBRID DATA TRENDS SNAPSHOT

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Introduction

The Actian Datacast 2020: Hybrid Data Trends Snapshot
Our last survey looked at the state of data utilization among would-be data-driven enterprises, and exposed some of the pain points and struggles faced by IT leaders.

Now, it's time to examine the unexpected consequences of migrating to the cloud, and how this has impacted data utilization, system complexity and cost within organizations. Given the unprecedented impact caused by COVID-19, businesses must be agile now more than ever, and IT teams are tasked with the added difficulty of finding the right tools and solutions to get the job done – and done quickly and to the satisfaction of stakeholders and end-users – while weighing the cost/performance benefits.

To glean insights into the complications of cloud migration and how organizations are leveraging their data, Actian surveyed just over 300 Chief Information Officers (CIOs) and Chief Data Officers (CDOs).

Summary of Key Takeaways

1. Hybrid landscapes are unavoidable, and are in fact necessary for larger organizations with vast amounts of data and various requirements that preclude placement in the cloud.
2. For a majority of IT Decision Managers (ITDMs), the journey to the cloud is proving to be more complicated than anticipated, particularly around data security, data integrity, data accuracy and real-time reporting.
3. Having experienced many unexpected complications, a majority of ITDMs have learned important lessons about cloud migration, including the need for visibility into potential complexities before beginning the journey, the importance of adequate preparation and the need for adequate education and support.
4. For many data decision makers, migration to the cloud has made their jobs easier by providing real-time data access; however, a majority are still spending their time on routine reporting instead of gleaning actionable insights that deliver business agility.
5. From a data decision maker perspective, more understanding and support is needed from ITDMs in order to work together more effectively. This is particularly true when it comes to having secure access to the data they need in a timely manner.

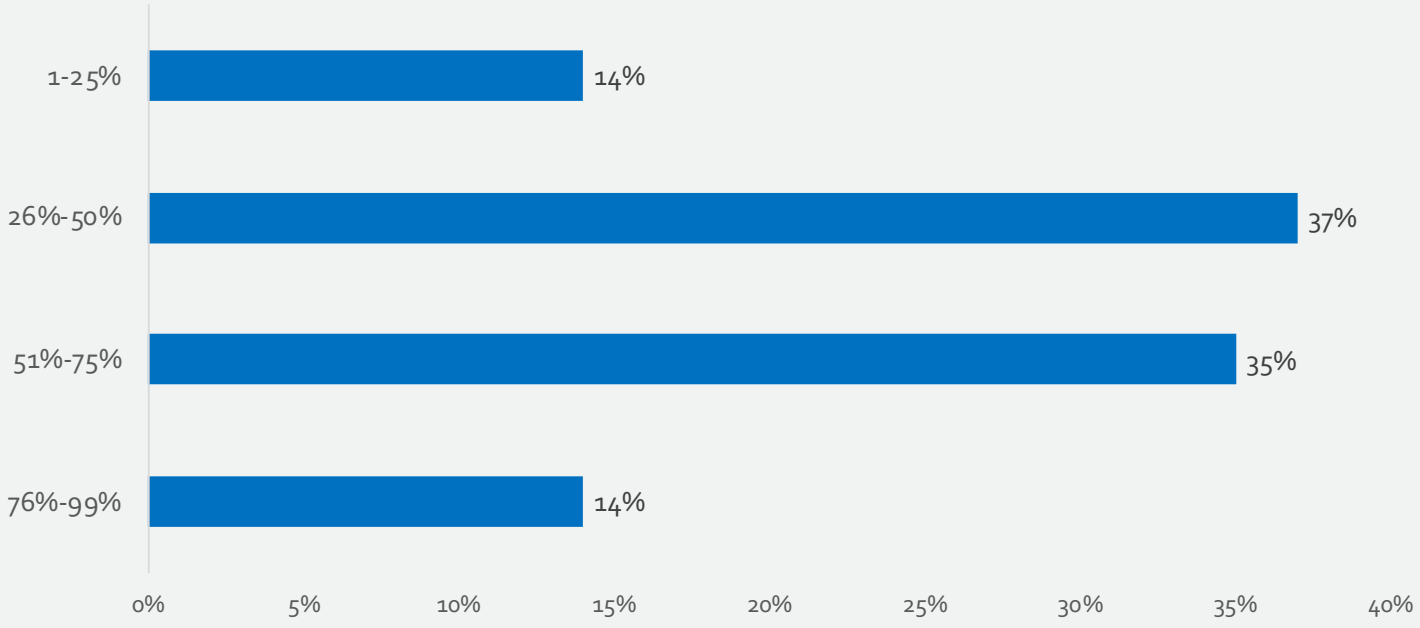
A Hybrid Landscape is Unavoidable (ITDM)

THESIS

Hybrid landscapes are unavoidable, and are in fact necessary for larger organizations with vast amounts of data and various requirements that preclude placement in the cloud.

- Companies with more than 1,000 employees have **more hybrid data (anywhere from 10TB to greater than 1PB) than smaller organizations**. (See Appendix A4.a)
- **85% of respondents** have some data on-premise and in one or more clouds, whereas **only 15% of respondents** have moved all their data off-premise. (See Appendix A3.a)
    - This 85% of respondents have an average of **52.4% of their data in the cloud**. (See Figure 1.1)

FIGURE 1.1: Percentage of Company Data Currently in the Cloud



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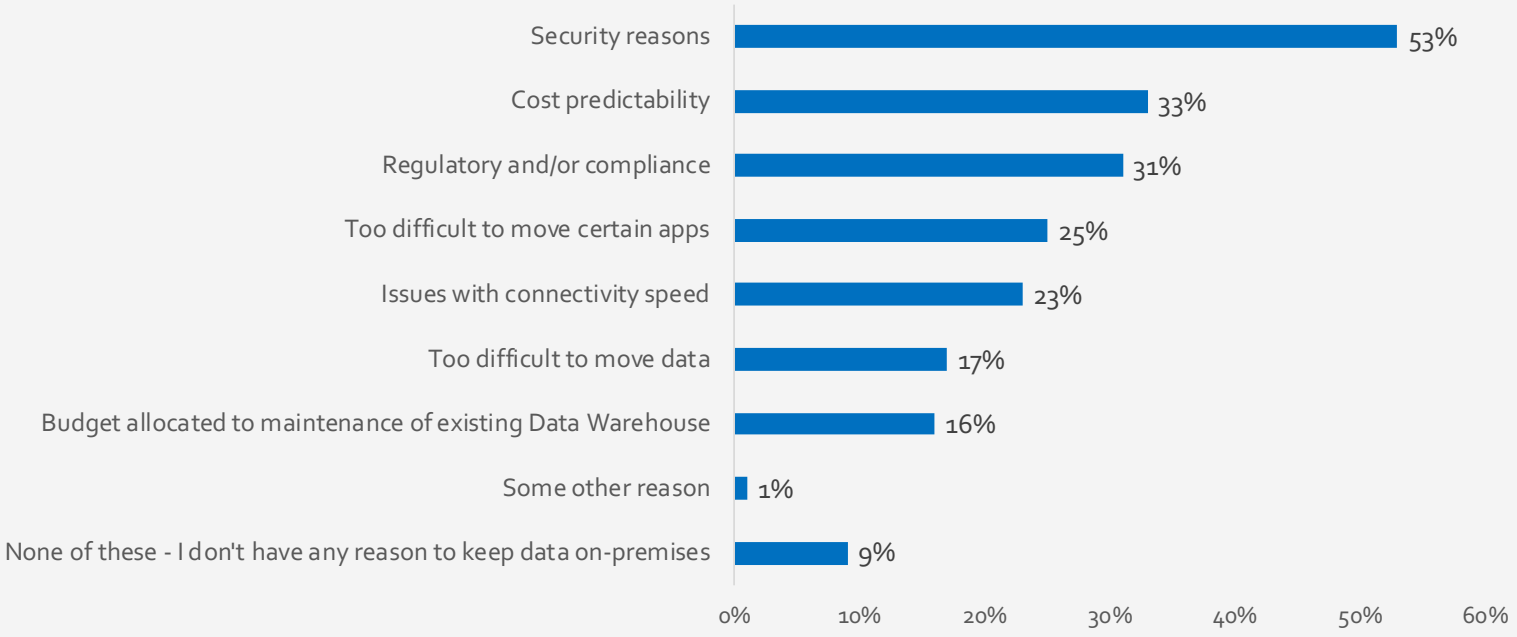
- **Cloud adoption for data is increasingly pervasive**, as less than 5% of IT departments surveyed have less than 5% of their data in the cloud. (See Appendix A4.a)

- ITDMs who have a hybrid solution have multiple reasons for keeping some fraction of their data on-premise, including **security (56.7%)**, **cost predictability (33.1%)**, **regulatory and compliance issues (32.3%)**, **legacy apps (26%)** and **budget allocated to maintenance of existing data warehouses (16.5%)**. (See Figure 1.2)
    - As data sets grow, security and cost predictability become more important. (See Appendix A9.a)

FIGURE 1.2: Reasons for Keeping Data On-Premises



What This Means

For the vast majority of enterprises the Cloud Journey is ongoing.

For most organizations, the advantages of moving to the cloud must be weighed against existing investments, skillsets, service delivery practices and SLAs. Further, as organizations progress on their journeys the calculations change.

There is a balancing act between several factors, including what to move to the cloud (which applications and data), when to move them, how many clouds makes sense, and what changes to security policy are involved. All of these and more are critical decision making factors as organizations move through their journey.

With different workloads the calculations as to whether to move from on-premise and, if so, to which cloud will vary and a mix of multi-cloud and on-premise will be unavoidable for most organizations for the foreseeable future.

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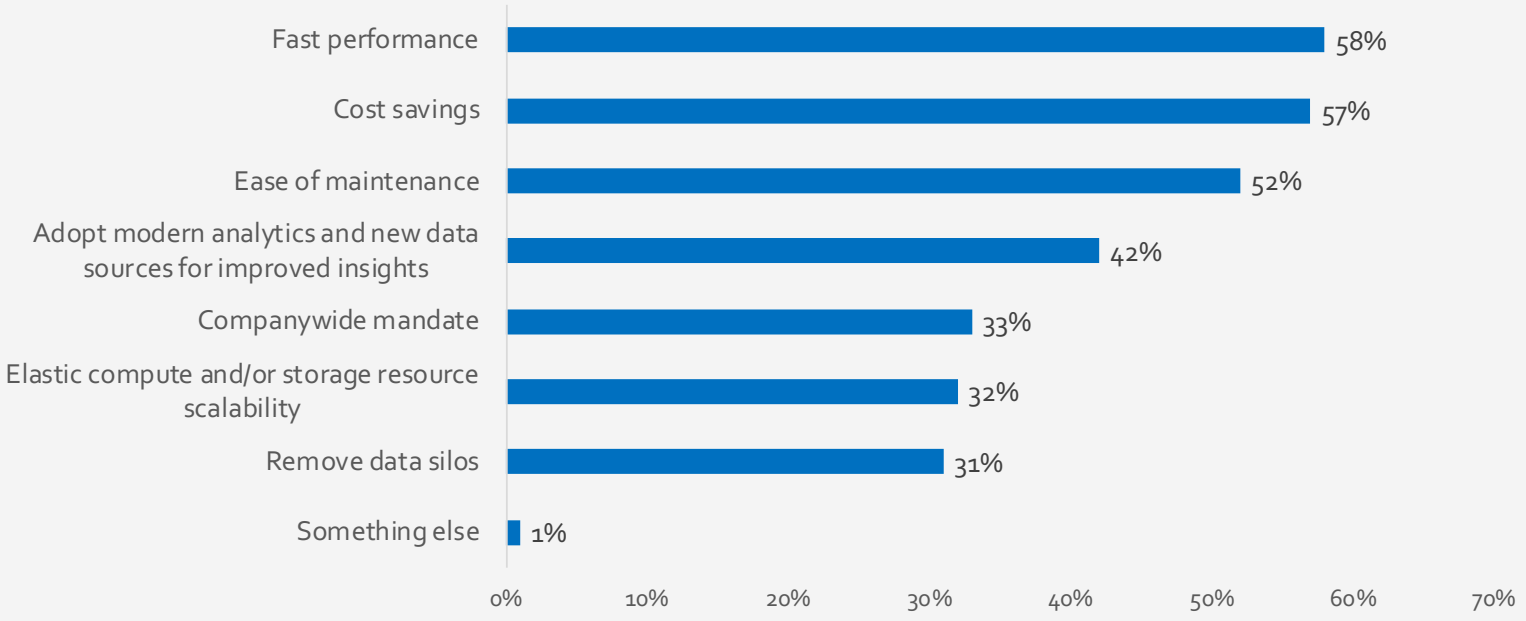
Cloud Migration - Unexpected Complications (ITDM)

THESIS

There was a rush to embrace cloud based on industry hype around ease of migration, use, and cost savings; then the reality set in. For a majority of ITDMs, the journey to the cloud was more complicated than anticipated, particularly around data security, data integrity, data accuracy and real-time reporting.

- While the cloud is supposed to present greater greenfield opportunity for enterprises, the cost of digital transformation has to be looked at more holistically.

FIGURE 2.1: Key Drivers for Moving to the Cloud



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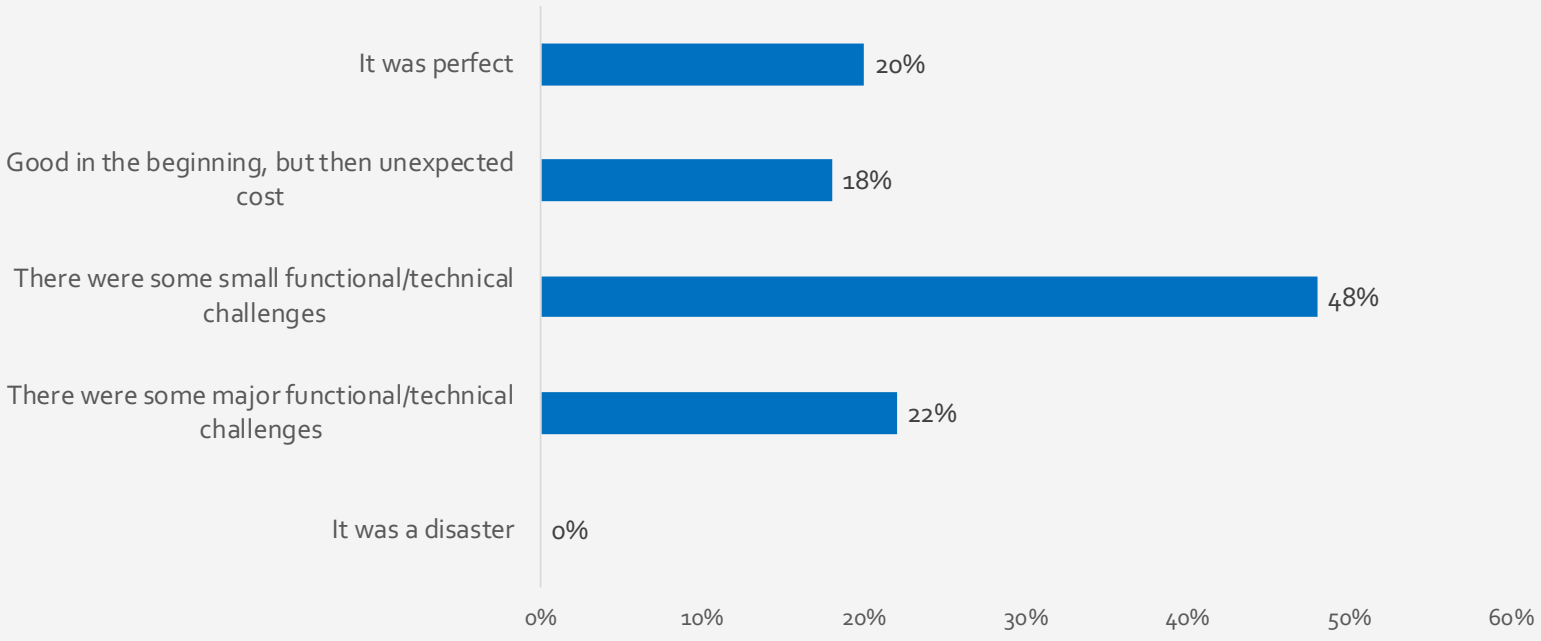
- Price-performance with ease of maintenance are the top reasons for moving to the cloud. (See Figure 2.1)
  - **58% of respondents identified fast performance** and **57% selected cost savings** as key drivers for moving to the cloud
  - **52% of respondents selected ease of maintenance** as a key driver

- **70% of ITDM experienced complications** during their move to the cloud (cost and minor to major technical issues). **59% of ITDM felt their journey to the cloud was far more complicated than expected.** (See Figure 2.2)

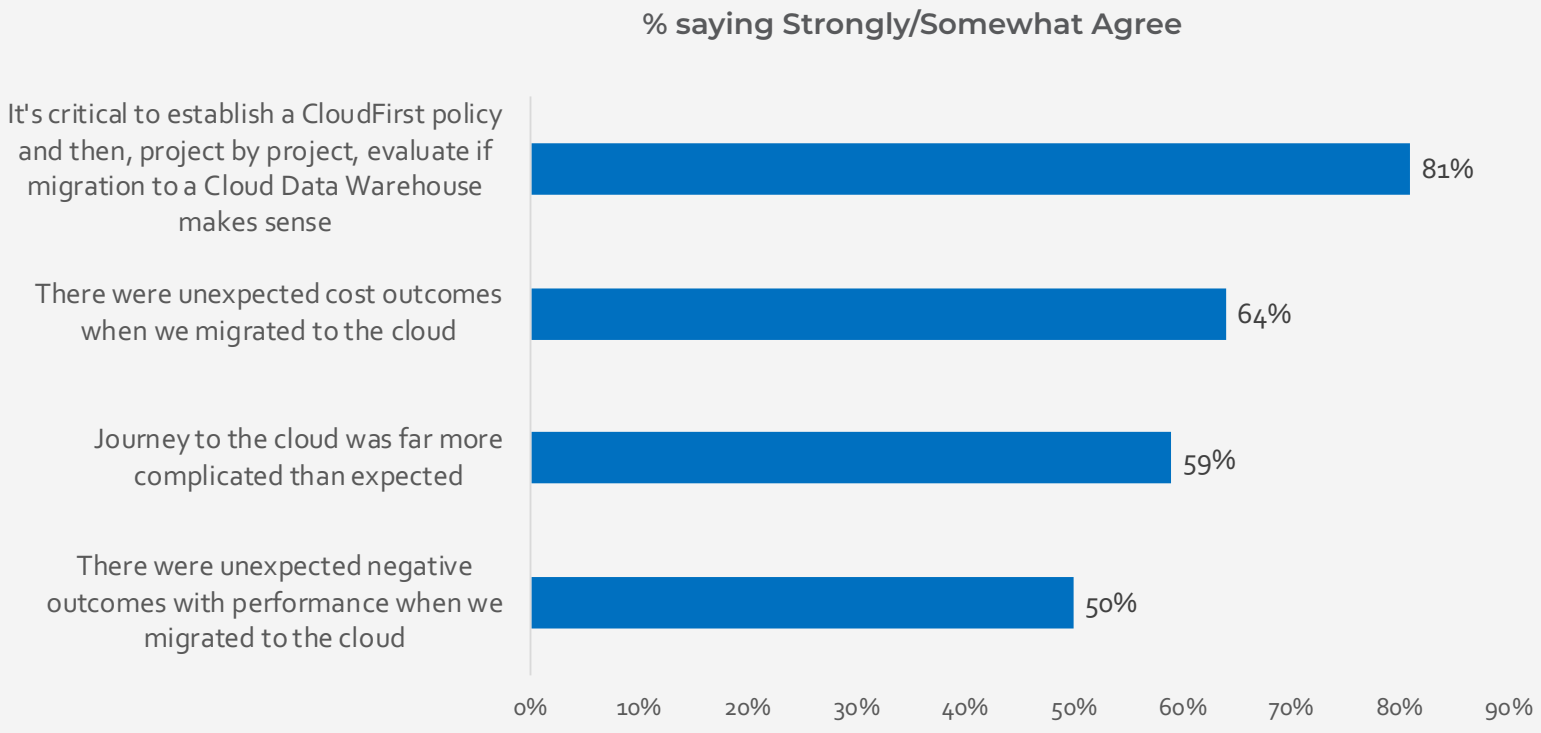
- The customer segment deploying warehouses between 150TB and 1PB were **more likely to see complications than any other group**, which we can infer may be because they were in the sweet spot for large data sets and complexity without the experience and resources of those in the 1PB range.

FIGURE 2.2: What ITDMs Say About the Process of Moving Data to the Cloud



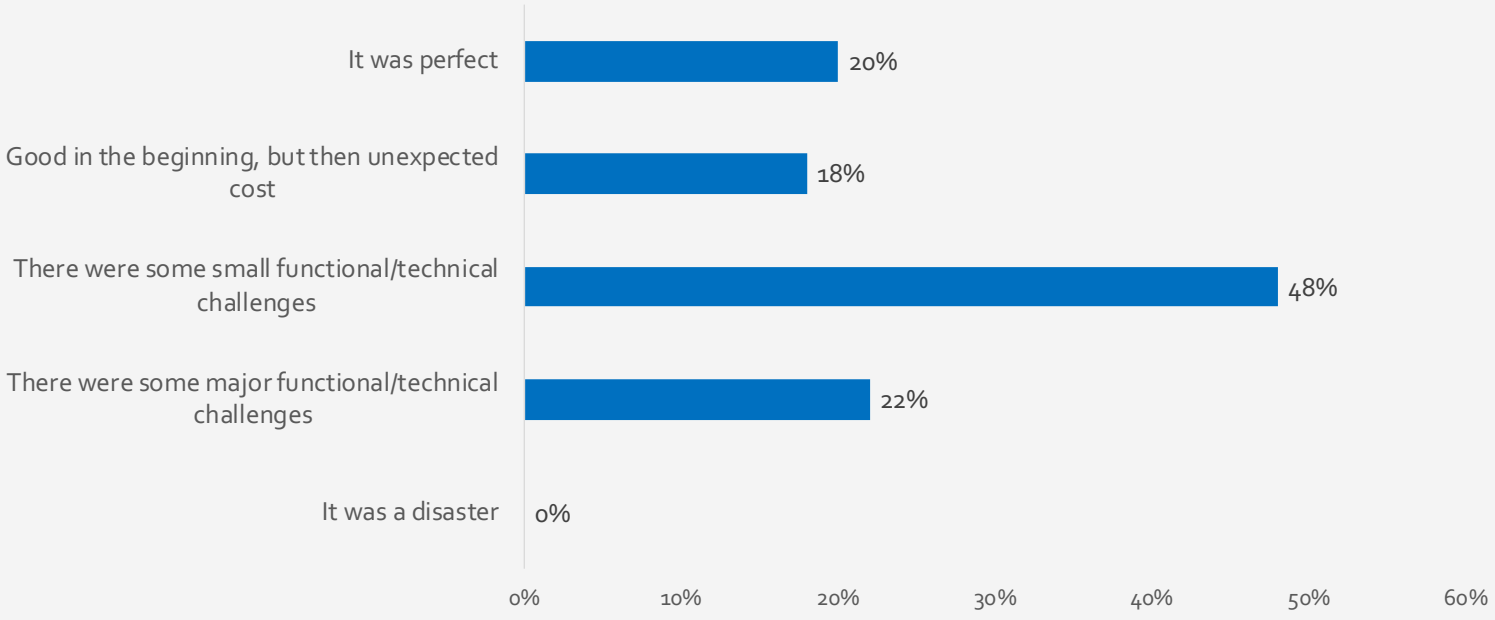
- Half of ITDM say there were unexpected negative outcomes with performance and **64% say there were unexpected cost outcomes** when they migrated to the cloud. (See Figure 2.3)
  - **In fact, there were several unexpected challenges around data security, integrity and accuracy:**
    - » So many people and departments have their own silos and different ways of storing their data. There's no unified interface for what everyone collects.
    - » Data are in different incompatible formats - The hardest part is getting the multiple various systems to sync and talk in the same language.
    - » The challenge would be the departments working together to actually want to share the data that other departments need to have in order to run successfully.

FIGURE 2.3: ITDMs Level of Agreement With the Following Statements



- Those with a cloud-only environment were **22% more likely to see their move to the cloud as easier and without technical difficulties** than those who had to maintain an on-premise environment and move to the cloud. (See Figure 2.4)
  - It's not about the size of the company, it's about the amount of data.
    - **54% of Companies under 500 felt the migration went faster than expected vs. 37% for companies over 1,000**. Oddly, this seems inversely correlated with data set size as 51% of those with >150TB felt it went faster vs. 35% for those with less than 150TB. However, the vast majority of smaller data sets belong to small companies.
  - **Expectations for level of difficulty was tied to age** – those who felt the process went faster than expected was higher by 23% points for those with less than 10 years in IT with the reverse relationship for those that felt it took longer.

FIGURE 2.4: How ITDMs Describe the Process of Moving Data to the Cloud



What This Means

Digital transformation is not a one-size-fits-all undertaking.

Each organization begins their journey from their unique starting point, and a 100 percent migration to the cloud may not necessarily be the answer for every company. Whether they have a legacy analytics system based on Oracle, Netezza or Teradata, or they have mission-critical data workloads running in the data center, the flexibility offered by a hybrid approach to data architecture is proving an essential requirement for many digital transformers.

Even though a wholesale migration to the cloud has been equated with digital transformation, the reality for many businesses is that the future looks hybrid for a long time to come.

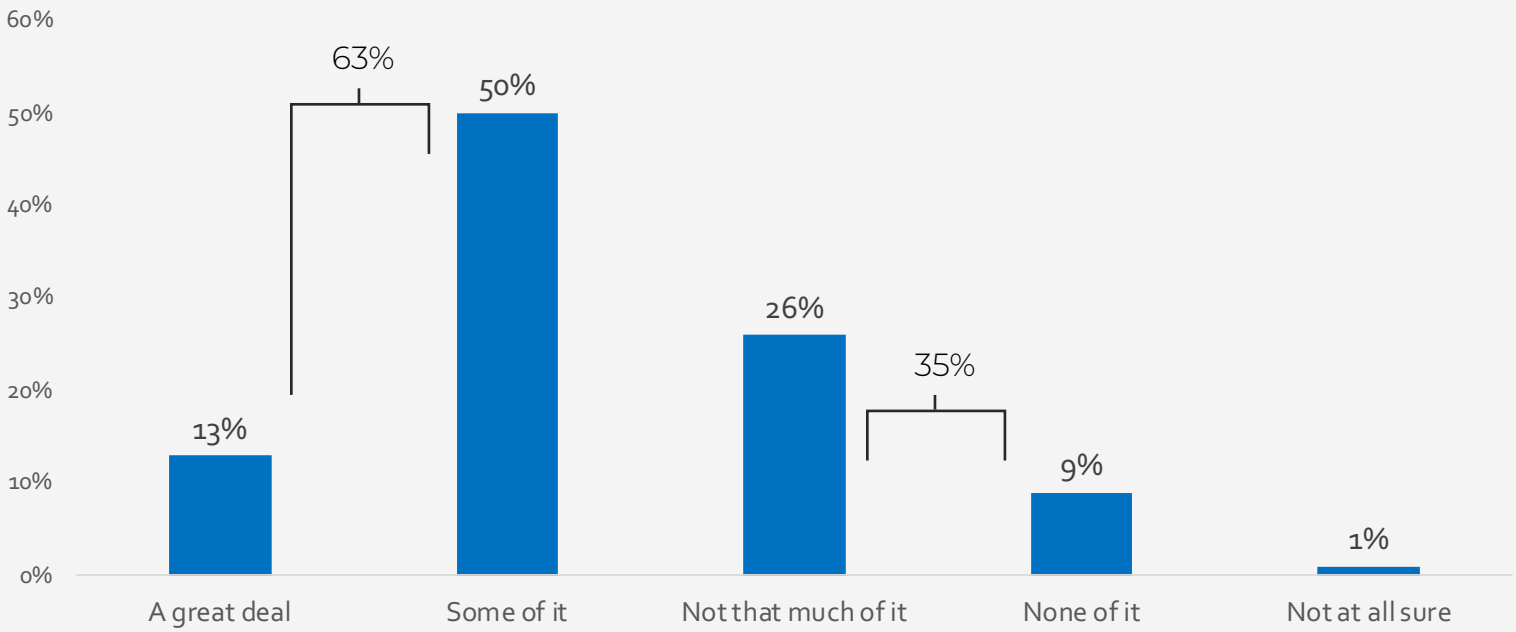
Cloud Migration - Lessons Learned (ITDM)

THESIS

Having experienced many unexpected complications, a majority of ITDMs have learned important lessons about cloud migration, including the need for visibility into potential complexities before beginning the journey, the importance of adequate preparation and the need for adequate education and support.

- By embracing on-premise and the cloud together, businesses are able to rapidly integrate their technologies and data for faster analytics and real-time reporting.

FIGURE 3.1: What Percent of the Process Would ITDMs Do Differently If They Had to Migrate to the Cloud Again



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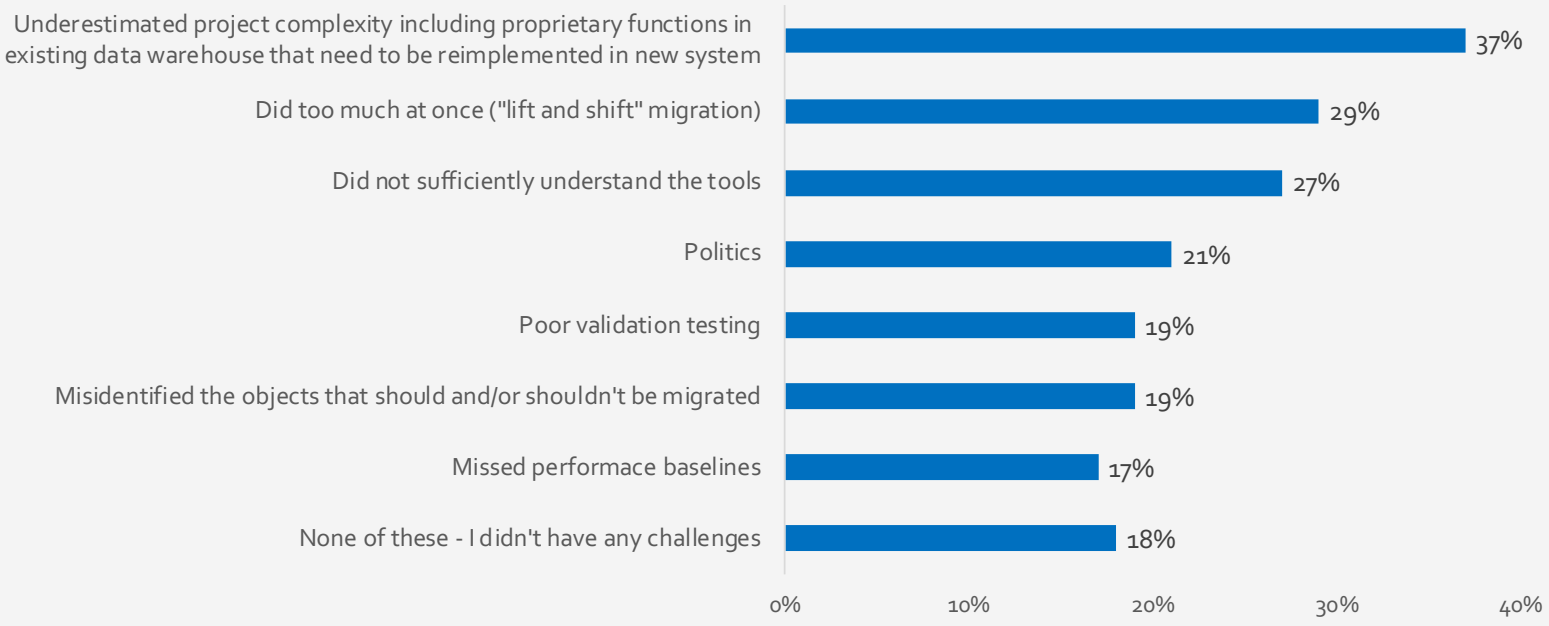
- **63% of ITDM say they would handle their migration to the cloud differently** if they had to do it again. (See Figure 3.1)
  - Those who have worked in IT for 10 years or less are more likely than those who have worked in IT for over 10 years to say the migration was faster than they expected (57% vs. 34%); however, they are also more likely to say they would have done something differently (72% vs. 58%), and a great deal differently (26% vs. 6%). Based on supplemental respondent answers, we can infer that migrations went faster because they weren't necessarily done well or completely, and corners may have been cut.

- **37% of ITDM say the challenge they encountered during the data migration to the cloud was they underestimated the project complexity, 29% say they did too much at once, the "lift and shift" migration, while 27% say the challenge was that they did not sufficiently understand the tools. (**See Figure 3.2)
  - The larger the data set size, the more likely to underestimate project complexity and do too much, particularly in the core 150TB to 1PB range. (See Appendix A9.b)

FIGURE 3.2: Challenges Encountered During Data Warehouse Migration to the Cloud



”What, if anything, would you have done differently?”

1. “I think we would have implemented some items in **a different order** and **maybe not have moved some critical services** without a back up.”
2. “More **volume testing** for data latency.”
3. “Researched cloud providers more closely, **entertained more than the lowest cost options** and prepared on site data better.”
4. “We would have cleared things up more before transferring data. So much garbage to sort out and **quite a bit of it caused problems.**”

What This Means

Merely moving your data and applications to the cloud won't necessarily make your life easier or even lower costs.

Take a workload based approach to your migration so that you can independently assess the performance needs and costs before you move.

Any full or partial migration to the cloud should be done with your data governance needs and requirements in mind. Changing your data architecture for performance and/or cost saving reasons is also a perfect opportunity to rethink your data governance and compliance requirements.

Pick your public cloud vendor for the services you need and then for what it costs to deliver them. Set expectations that there will be multi-cloud complexity. Ensure that the team has knowledgeable cloud technical experts, data user stakeholders, and financial managers as part of the virtual team responsible for cloud TCO.

If possible, take a low-hanging fruit, iterative approach to launching, running, and evaluating your selected cloud projects.

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Data Decision Makers – Top Concerns

THESIS

The desire to leverage more data more completely for insights is often cited as a reason for migrating to the cloud. There's no doubt that for many data decision makers, migration to the cloud has made their jobs easier by providing real-time data access; however, a majority are still spending their time on routine reporting instead of gleaning actionable insights.

- With so much data available to enterprises, we're supposed to be in the middle of a "data revolution"; however, our first Datacast report held similar findings regarding how ITDMs felt they were accessing and using data.
- This second report reconfirms these findings and adds in the experiences and perceptions of ITDM stakeholders as well. Unsurprisingly, while there may be disconnects on how well ITDM may be servicing their stakeholders from their perspective, there was clear agreement on the needs and value to-date. In reality, no one has been able to make their big dreams of data usage, reporting and insight into a reality – yet.

- Easy to get data today and have up to date, real-time data BUT **nearly 6 in 10 are spending more time on traditional reporting**, which doesn't allow for actionable insights. (See Figure 4.1)
  - **However, according to our Datacast 2019 research,** 91% of ITDMs said end users are leveraging data by accessing the data that is available and getting it at the moment they need it.

FIGURE 4.1: Data Decision Makers' Level of Agreement with the Following Statements

	Agree (NET)	Strongly Agree	Somewhat Agree	Disagree (NET)	Somewhat Disagree	Strongly Disagree
	%	%	%	%	%	%
It is easier to get data today than it was just a few years ago.	90	51	39	10	9	1
I always have up-to-date, real-time data available.	83	34	49	17	15	2
I have to spend so much time on traditional reporting activities with the data, it doesn't allow time for actionable insights that truly impact the business.	59	15	43	41	33	9
I don't understand why it's so hard to have ready/secure access to the data I need.	55	22	33	45	34	11

- 85% of company's data is being leveraged for routine reporting, but data decision makers believe this should only be getting 12% of the focus. (See Appendix A15)
  - This is in contrast to our Datacast 2019 report, which found that 87% of ITDMs said end users are leveraging data for routine planning

- On average, data decision makers say only 55.7% of the data they have available is currently being used to gain actionable insight. (See Appendix A13.a)
  - Interestingly, when asked in the Datacase 2019 what percentage of data available is actually being leveraged to gain valuable insights, ITDMs said on average they are only harnessing 54.1%

What This Means

Many enterprises are only marginally better off in terms of gaining new or more complete insights after their move to the cloud.

Besides finding increasing complexity and higher costs after a move to the cloud, many businesses failed to take into account the data integration and data transformation pieces needed to realize their more advanced analytics ambitions. Again, this doesn't say moving to the cloud is ineffectual, it simply means planning and execution to a holistic set of applications, data repositories, and so forth is critical to making the move completely effective.

For many ITDMs the move to the cloud is expected to make more data available to insights, because you can provide both storage and compute in an elastic fashion. But without thoughtfully creating the data pipelines between sources and consumers, the desire for more complete insights more quickly can be frustrated.

What's needed are cloud-based data analytics solutions that can work as either data lakes, data warehouses, or data marts in an elastic fashion, combined with the real-time data integration that ingests data from the various types of data sources and makes it available for analytics with virtually zero delay.

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ITDM + Data Decision Makers – Working Together

THESIS

From a data decision maker perspective, more understanding and support is needed from ITDMs in order to work together more effectively. This is particularly true when it comes to having secure access to the data they need in a timely manner

- With the democratization of data, more people in an organization have access to data. We now have IT teams responsible for providing data which is consumed and leveraged by data teams. Working together is critical to success, yet there are challenges to overcome. Businesses must change internally for these different groups to be able to easily pull data, analyze it, and share actionable insights.

- ITDMs are more likely to say the IT and Data/Analytics teams work very well together while Data decision makers are more likely to say they have material differences, but find a way to work together most of the time. (See Appendix A16)

- Two-thirds of data decision makers say they are meeting the needs of data scientists well. (See Figure 5.1)
  - 76% for business/operations analysts.
  - 75% for end-users consuming canned reports and LOB stakeholders seeking real-time understanding of the business/looking to identify breaking trends.
  - 73% for developers building apps that leverage their enterprise data warehouse.
  - 64% operational technologists requesting IoT/edge data integration.

FIGURE 5.1: Data Decision Makers Opinions on How They are Meeting Different Company Needs

	Well (NET)	Very Well	Well	Not Well (NET)	Not That Well	Not Well At All	N/A
	%	%	%	%	%	%	%
Business/Operations Analysts	76	33	43	23	17	5	1
End-users consuming canned reports	75	26	59	23	17	6	1
Line of business stakeholders that seek a real-time understanding of the business and a lens into identifying key breaking trends	75	24	51	20	15	5	5
Developers building apps that leverage their enterprise data warehouse	73	23	50	25	18	7	3
Data Scientists	68	29	39	28	22	6	4
Operational technologist requesting integration of IoT/Edge data	64	29	35	27	19	8	9

- A majority of data decision makers say they don't understand why it's so hard to have ready and secure access to the data they need. (See Figure 4.1)
- Data decision makers say security and getting data in a timely manner are the two top challenges they have with utilizing and/or accessing data. (See Appendix A14.a)

"What would you say your biggest challenges are with utilizing and/or accessing data in your company?"

1. "The data samples are so large that it is **hard to pare down what we need and what is actually useful** in a time sensitive environment, we can either be extremely accurate or extremely fast, but never both, so by the time the data is collected and analyzed and categorized it is already old data and not as relevant as we would prefer."
2. "Getting teams **to use system consistently** to enter in info."
3. "Different equipment utilizes different software and **not all solutions are compatible.**"
4. "Making it **available across multiple platforms.**"
5. "Getting **management** to act on it."
6. "Would like **more input from senior management** on what data they could use."
7. "Keeping it **up to date and usable.**"

What This Means

Differences of perception continue between the people who use data in an organization and the people who provide it to them.

This results from an incomplete understanding of each other's needs and constraints. At the same time, the tools and methods through which data is provided (to both end users and applications) in an enterprise are in transformation.

As IT itself continues to transform - becoming less focused on capacity and more focused on consumption - the skills needed, and therefore the people doing this work, are changing. This is a positive shift that should result over time in closing the gap of understanding between providers and consumers of data.

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Why Actian?

Actian has over three decades in data management, integration and analytics innovation, consistently delivering enterprise-class solutions designed to address scale, volume and concurrency demands. We have consistently been #1 in performance and have over 50 patents. Our mission is to provide customers and partners with hybrid data solutions and, to this end, we have over 3,000 customers globally – including 24 of the Fortune 100 - with a 95% customer satisfaction. **For Actian, this survey reinforces our belief that we are on the right mission and reaffirms that we've addressed the correct requirements.**

1. **The future of data warehousing is hybrid.**
   Actian is focused on hybrid data, and our cloud data warehouse uses the same architecture and data models, to better enable your IT team to use a single set of skills, instead of siloed on-premise and cloud systems.

2. **Price, performance, and ease of use.**
   The Actian Avalanche Cloud Data Warehouse provides the best price/performance in the market when compared with other leading platforms, including Snowflake and Redshift. Avalanche has built-in connectors to over 200 on-premise and native cloud applications and data repositories, giving project owners tasked with migration to the cloud ease of use - not just for day-to-day operations, but for getting the right data into the warehouse as easily and as rapidly as possible.

3. **Be prepared for the future scale-up.**
   Actian's Avalanche Cloud Data Warehouse easily scales without surprises in cost, non-linear performance, or inability to add concurrent users. Avalanche elastically scales up and down linearly with metered payments only for what you use, thereby avoiding surprise changes to your bills. Avalanche not only scales nodes very easily, but also supports growth in concurrent users. With Avalanche, price-performance is no longer a challenge filled with unexpected surprises.

Summary/Methodology

The Actian Datacast 2020: Hybrid Data Trends Snapshot survey was commissioned by Actian and fielded by Regina Corso Consulting, an independent research firm. The responses were generated from a survey of 300 respondents: 150 IT professionals (ITDMs) who have at least some influence and/or decision-making ability, and 150 data stream decision makers, all who work in a company with at least 500 employees.

In looking at these two specific groups, the study aimed to see how ITDMs manage data and leverage it for reporting, visualization and analytics; how they feel about the cloud for data analytics via a Cloud Data Warehouse; and what issues they may have had with transitioning to the cloud. For data decision makers, we are looking to see how they actually use the data and if they have the access to it that they need.

Notes for reading charts and tables – percentages may not add up to 100% due to rounding or because the question was a multiple response allowed item. Unless otherwise indicated, bases for all slides are 150 ITDM or 150 Data users. A "*" indicates that the response is less than 0.5%.

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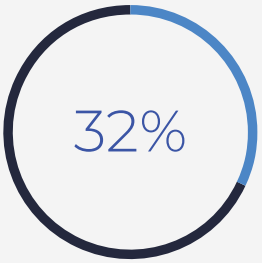
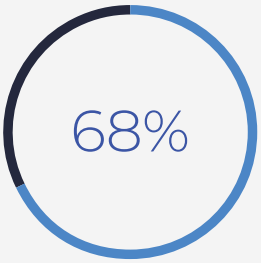
Appendices:
Demographics

COMPANY SIZE

IT Decision Makers

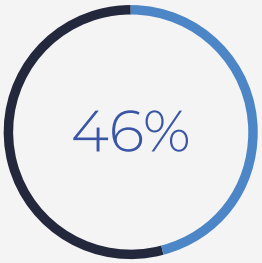


500-999 employees

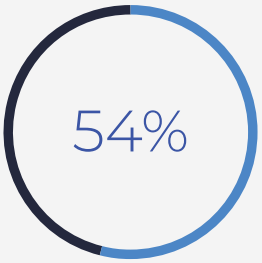


1000+ employees

Data Decision Makers



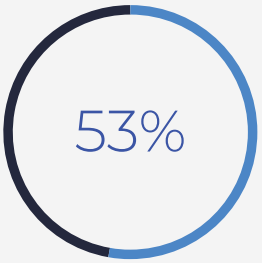
500-999 employees



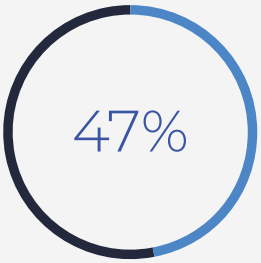
1000+ employees

TIME IN FIELD

IT Decision Makers

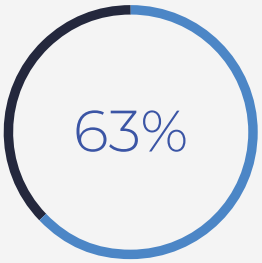


10 years or less

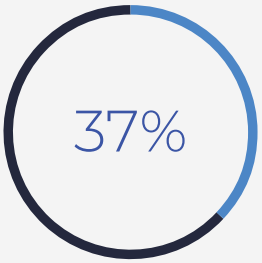


Over 10 years

Data Decision Makers



10 years or less



Over 10 years

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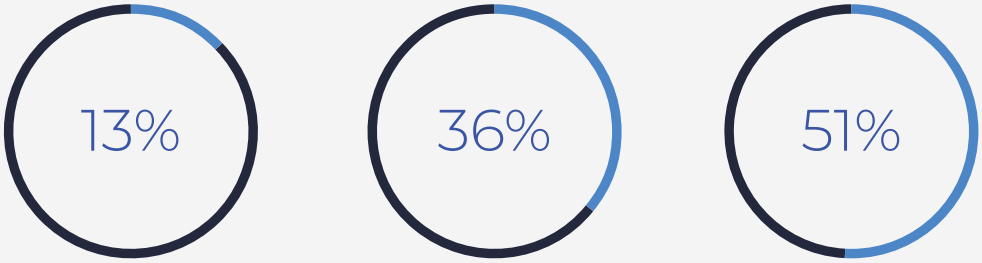
JOB LEVEL

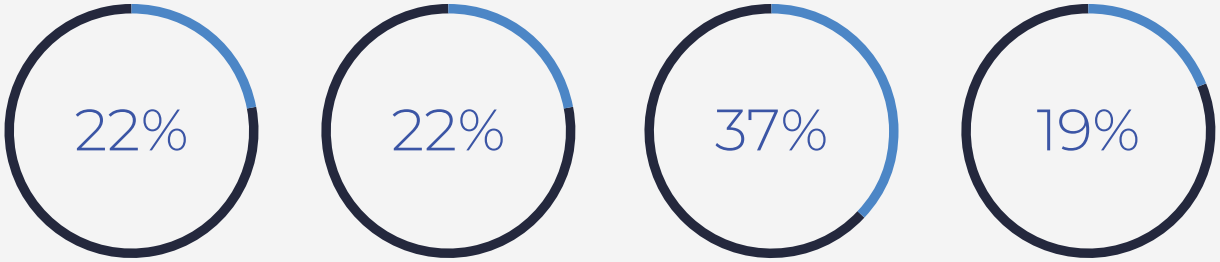
Data Decision Makers



Executive/ C-Suite | Senior Management | Middle Management

US REGION

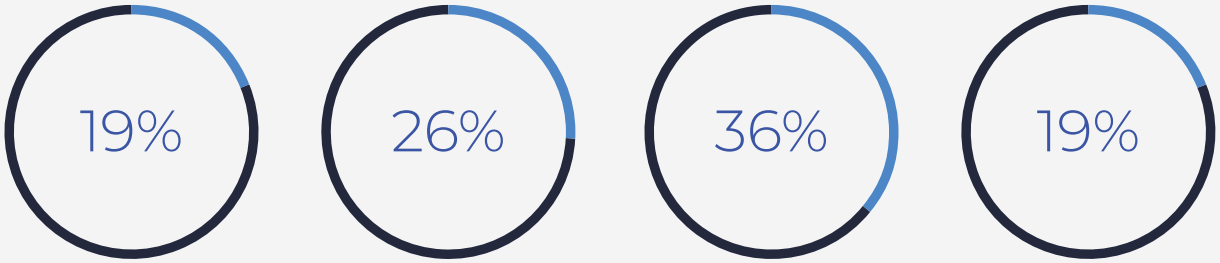
IT Decision Makers



Northeast | Midwest | South | West

US REGION

Data Decision Makers



Northeast | Midwest | South | West

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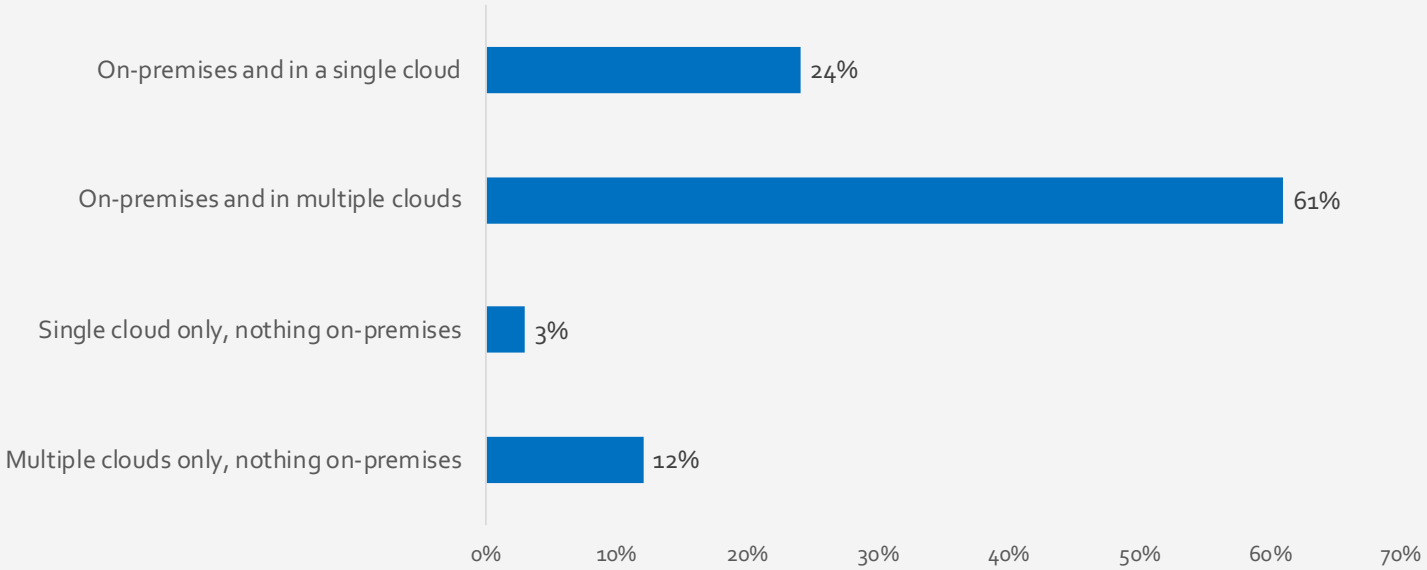
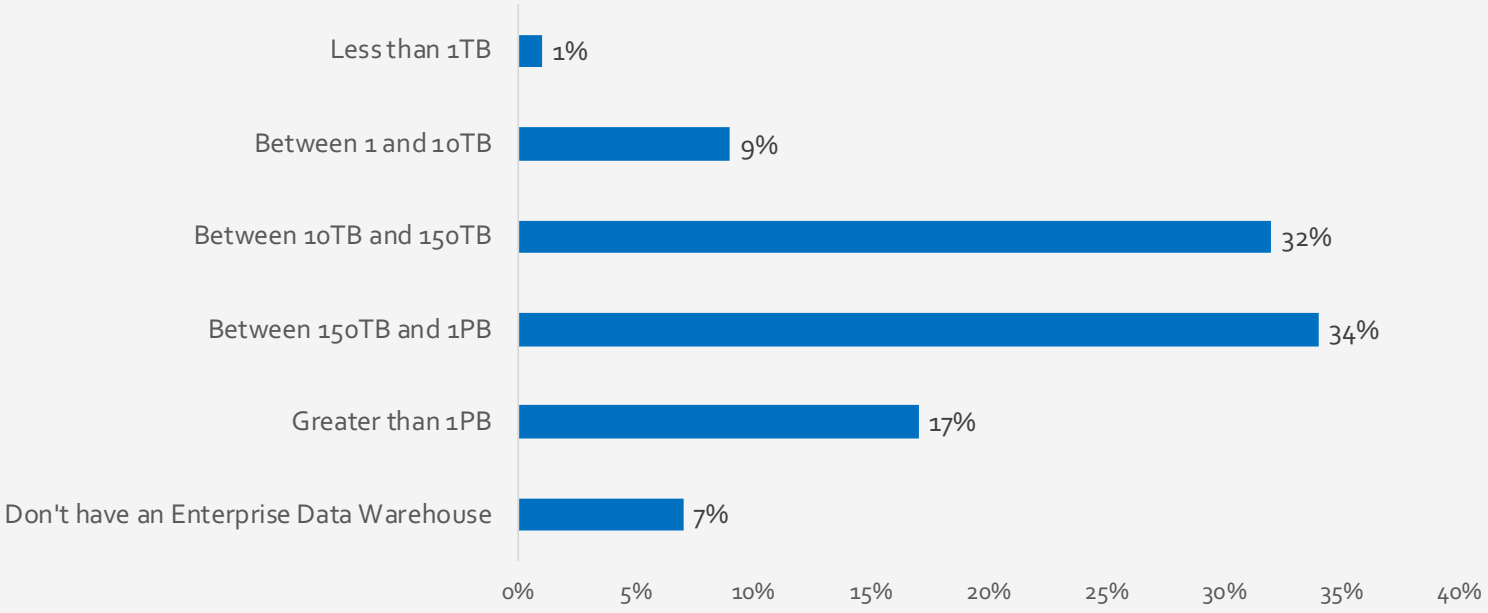
Appendices:

The following questions were answered by those respondents that self-identified as IT decision makers within their company.

A3.a: HOW DATA IS STORED



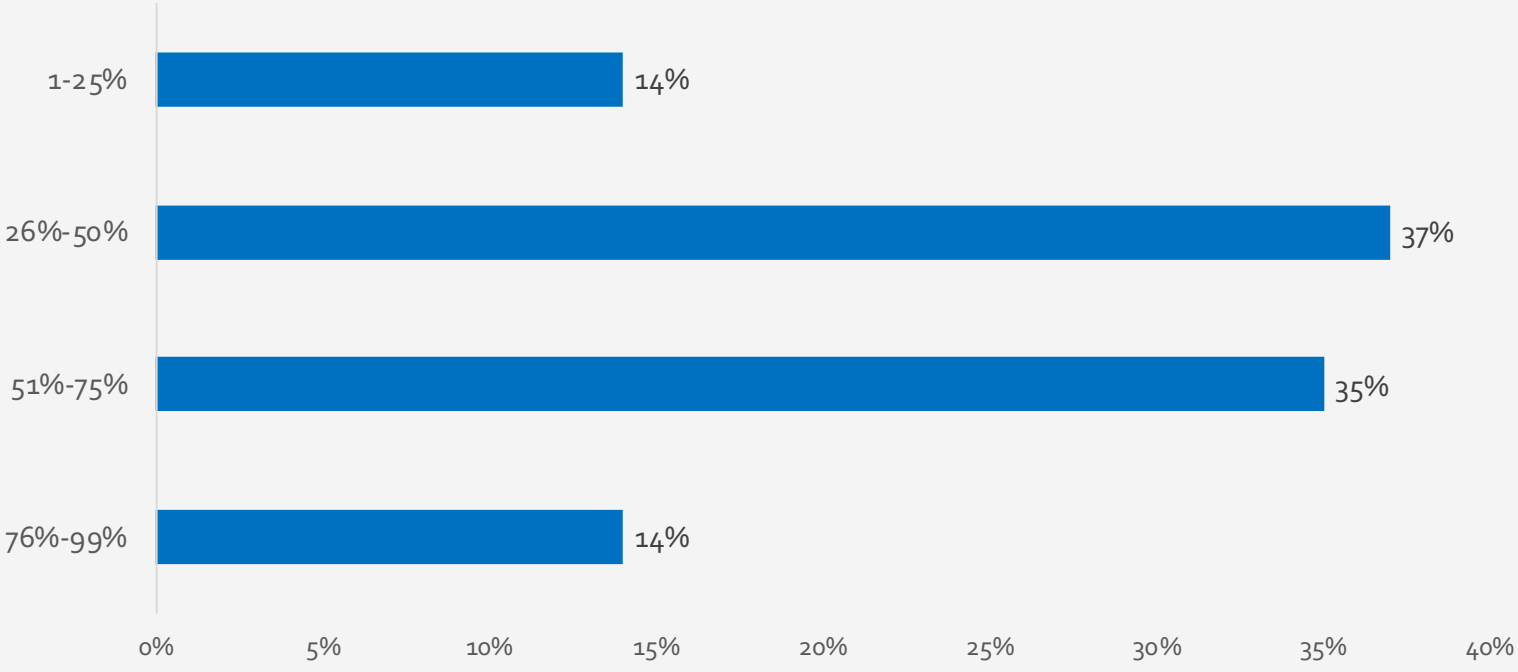
A3.b: HOW MUCH UNCOMPRESSED DATA IS STORED IN ENTERPRISE DATA WAREHOUSES



A4.a: HYBRID VS. CLOUD-ONLY (BY COMPANY SIZE SEGMENT)

	Hybrid	Cloud-Only
Companies > 1000 Employees	%	%
Between 10TB and 150TB	97	3
Between 150TB and 1PB	71	29
Greater than 1PB	92	8
Companies >500 Employees		
Between 10TB and 150TB	71	29
Between 150TB and 1PB	76	24
Greater than 1PB	100	0

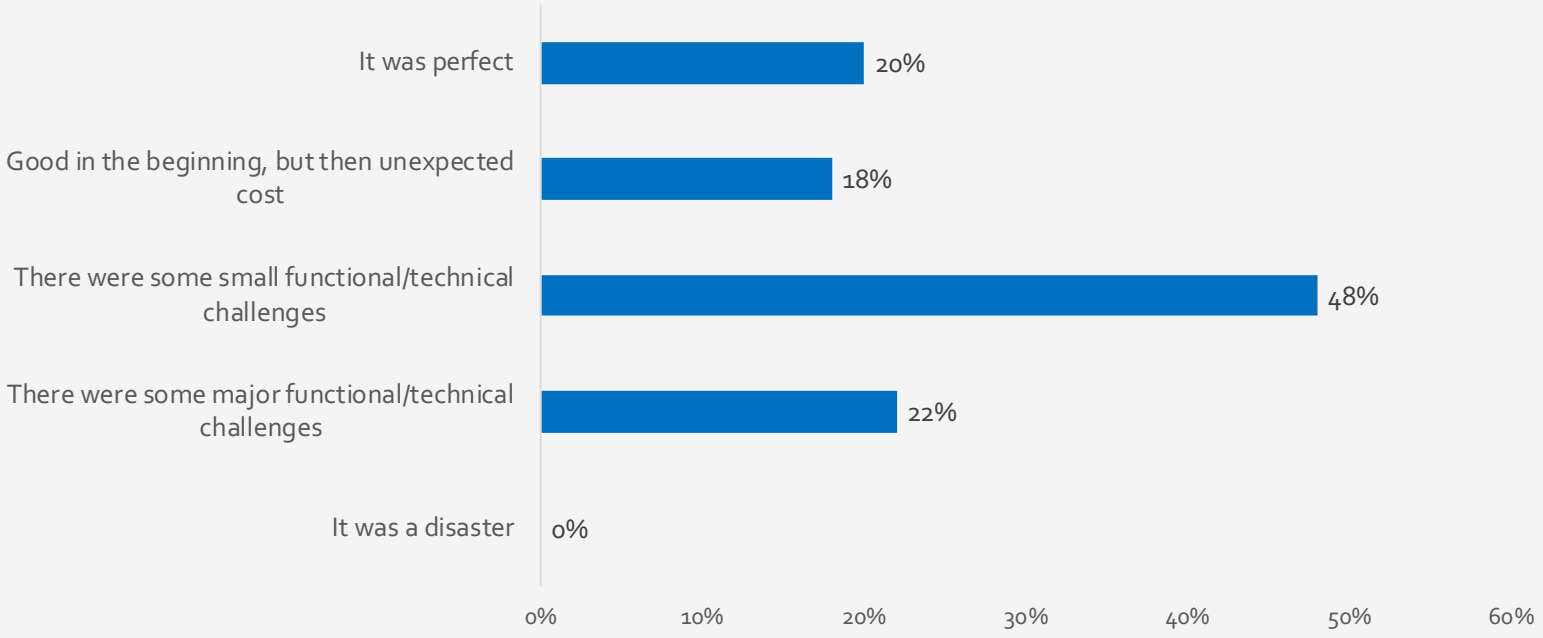
A4.b: PERCENTAGE OF COMPANY DATA CURRENTLY IN THE CLOUD



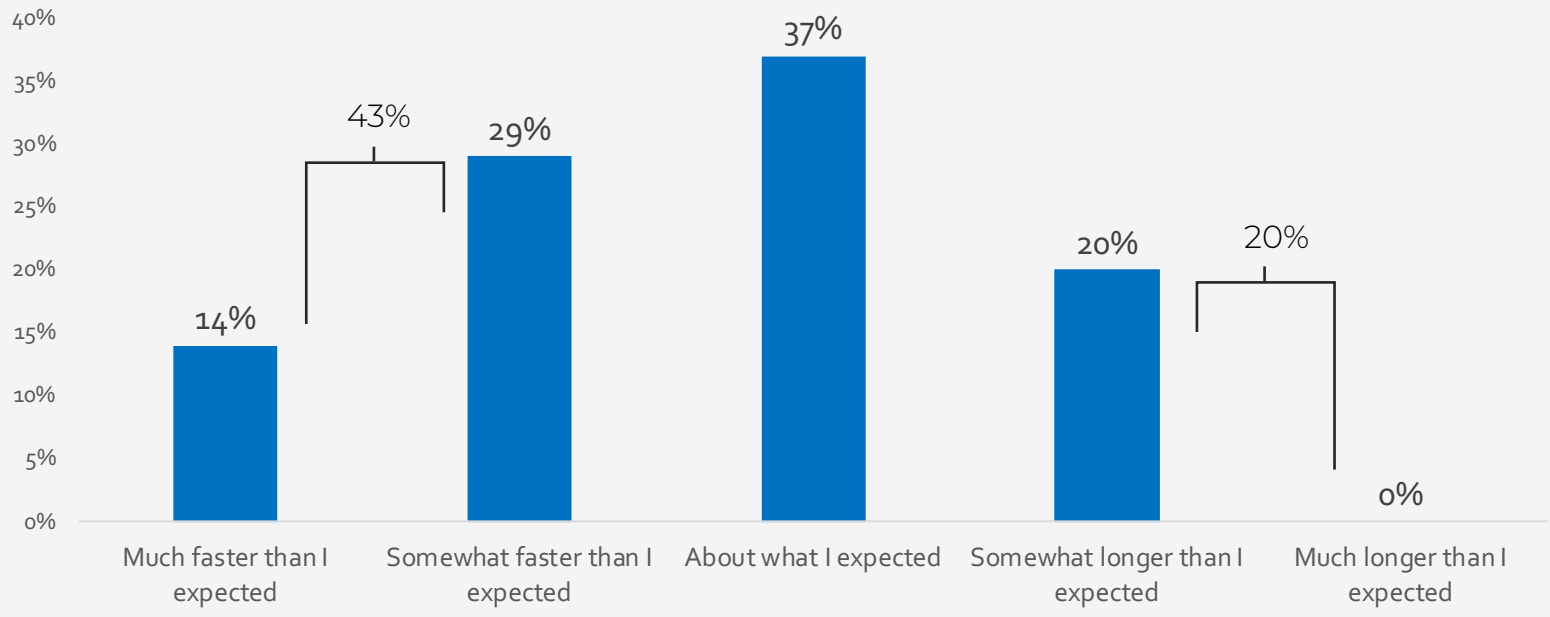
A5.a: HOW ITDMS DESCRIBE THE PROCESS OF MOVING DATA TO THE CLOUD

	As Expected	Faster	Longer
	%	%	%
Between 1TB and 10TB	69	23	8
Between 10TB and 150TB	35	43	21
Between 150TB and 1PB	27	61	13
Greater than 1PB	40	32	20

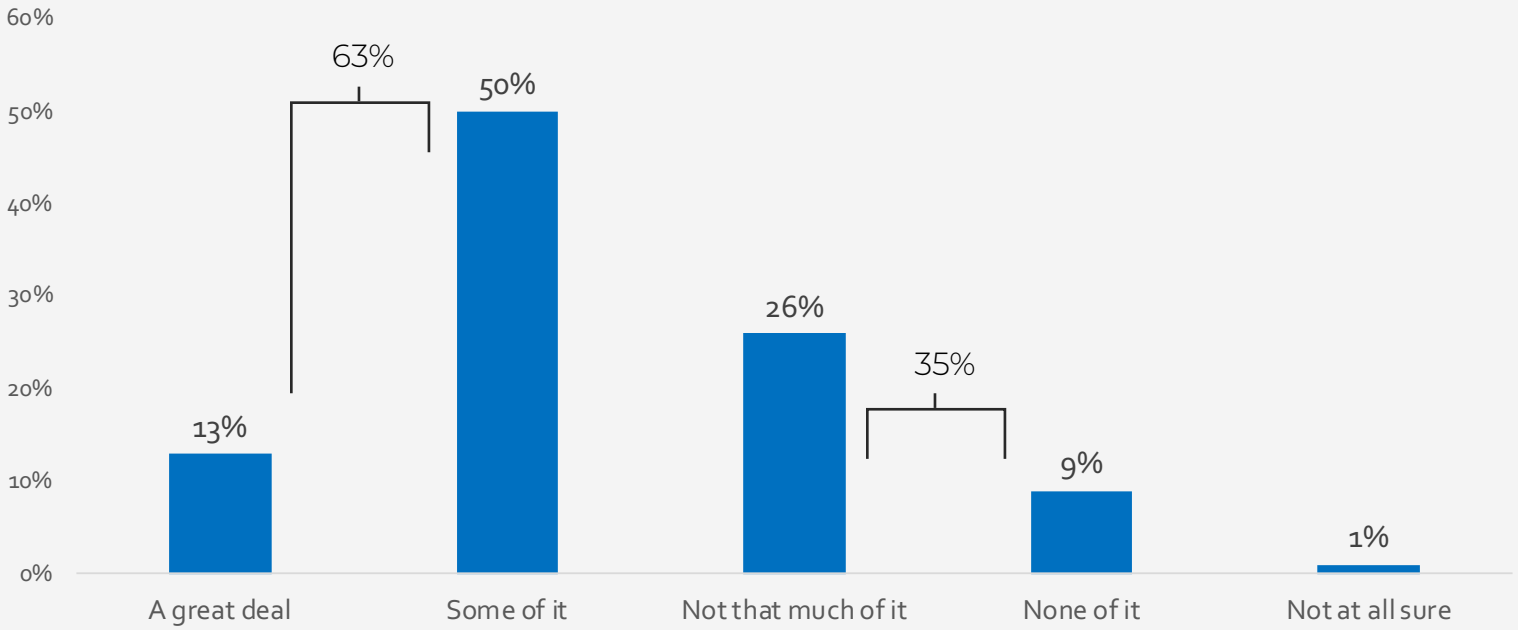
A5.b: WHAT ITDMS SAY ABOUT THE PROCESS OF MOVING DATA TO THE CLOUD



A6.a: LENGTH OF TIME FOR DATA MIGRATION TO THE CLOUD; COMPARED TO ITDM EXPECTATIONS



A6.b: WHAT PERCENT OF THE PROCESS WOULD ITDMS DO DIFFERENTLY IF THEY HAD TO MIGRATE TO THE CLOUD AGAIN



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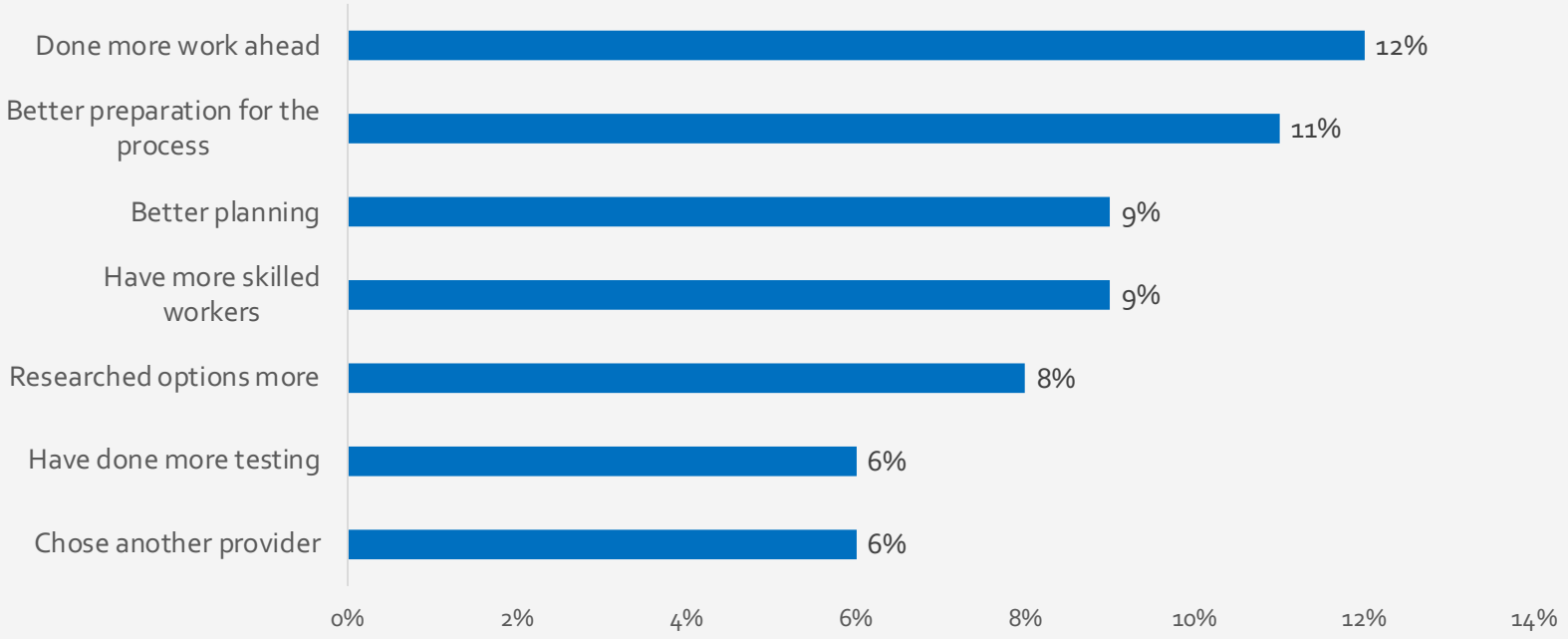
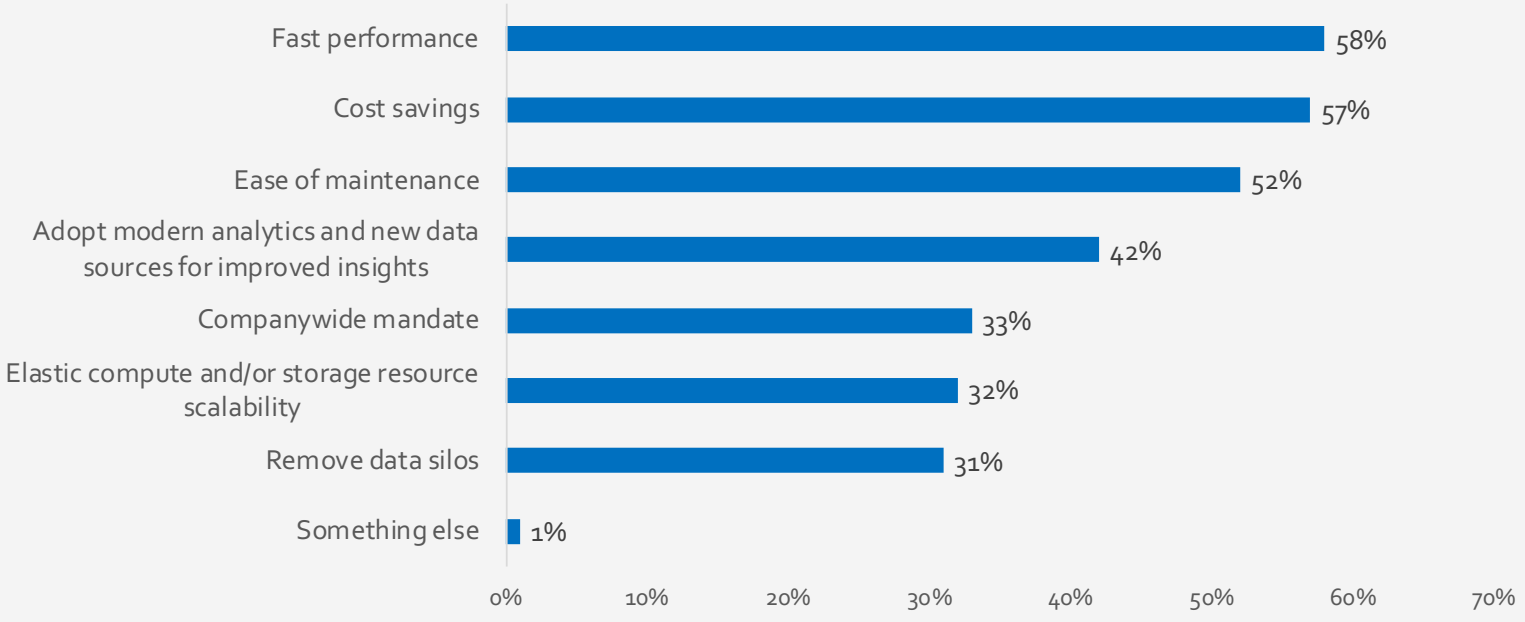
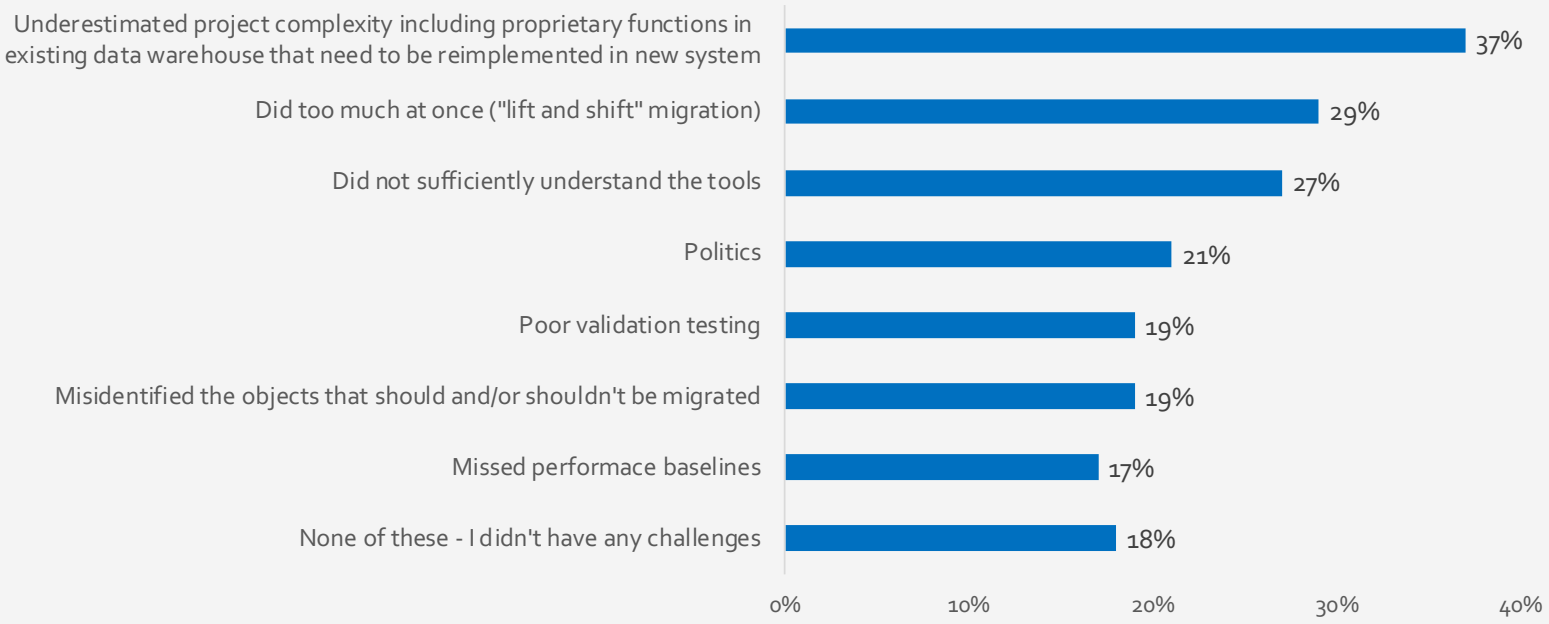
A7.a: WHAT WOULD BE DONE DIFFERENTLY WHEN MIGRATING TO THE CLOUD



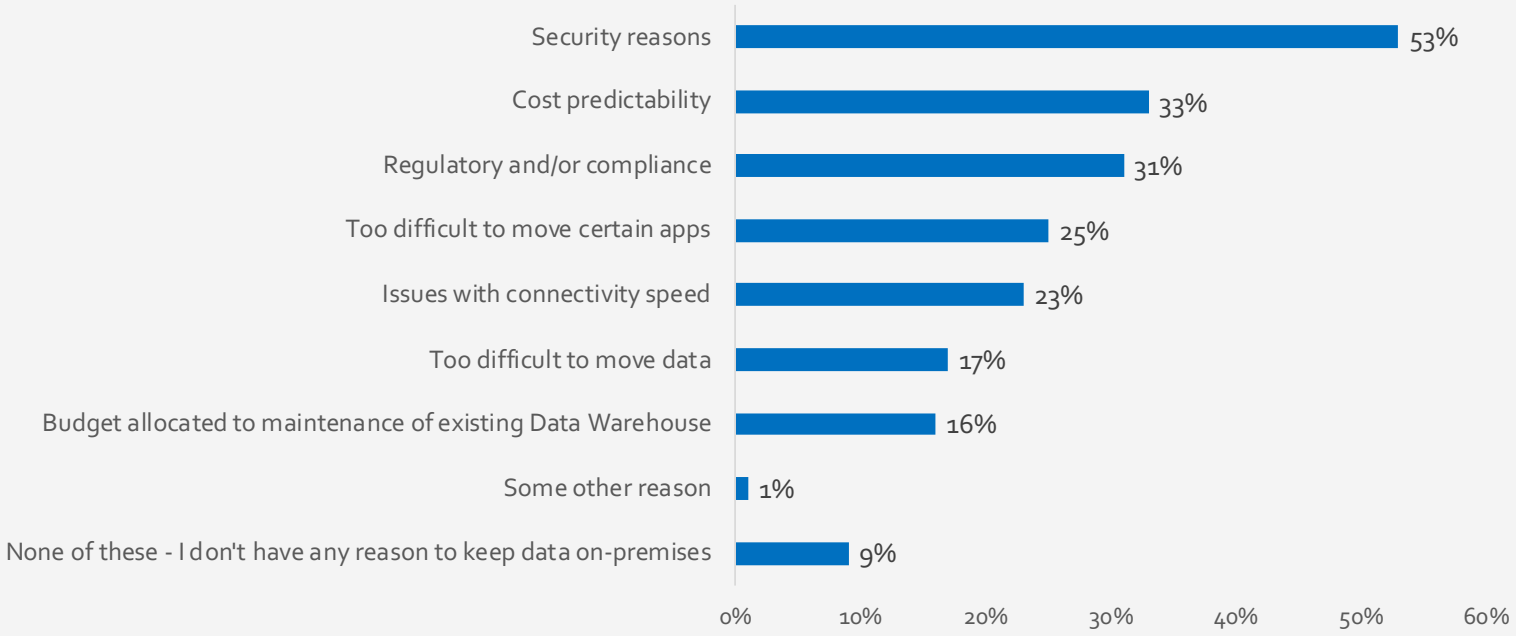
A7.b: KEY DRIVERS FOR MOVING TO THE CLOUD



A8.a: CHALLENGES ENCOUNTERED DURING DATA WAREHOUSE MIGRATION TO THE CLOUD



A8.b: REASONS FOR KEEPING DATA ON PREMISES



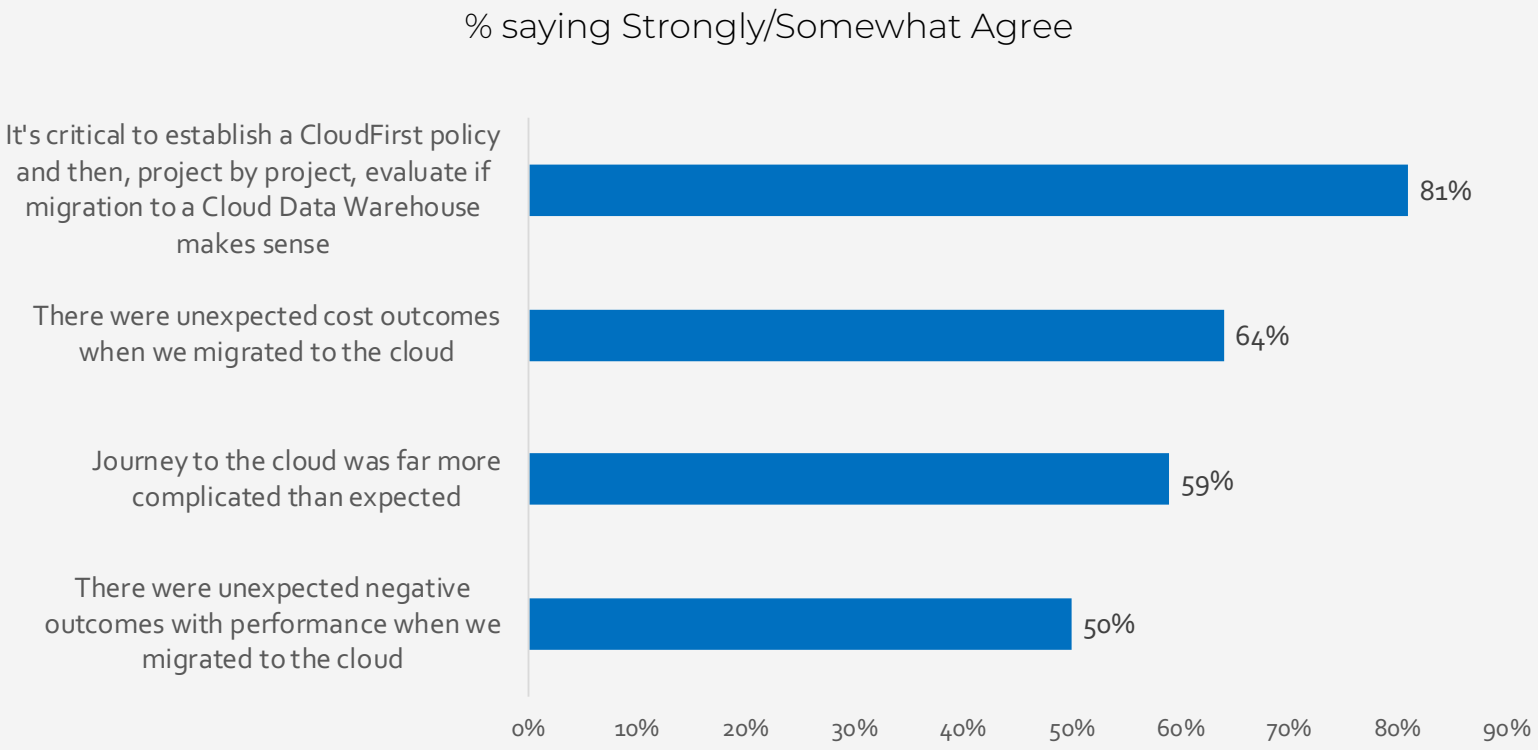
A9.a: RATIONALE FOR KEEPING DATA ON-PREMISE BY SIZE OF DATA WAREHOUSE

	Security Reasons	Cost Predictability	Regulatory and/ or Compliance	Too difficult to move certain apps	Issues with Connectivity Speed	Too difficult to move data	Budget allocated to maintenance of existing data
	%	%	%	%	%	%	%
Between 1 and 10TB	21	14	21	29	71	43	21
Between 10TB and 150TB	29	23	23	17	60	42	10
Between 150TB and 1PB	29	31	31	14	45	29	24
Greater than 1PB	40	20	16	16	48	24	16
No EDW	36	9	27	9	55	27	0
Grand Total	31	20	24	17	56	33	14

A9.b: HYBRID VS. CLOUD-ONLY BY COMPANY SIZE SEGMENT

	Underestimated Project Complexity	Did Too Much At Once	Didn't Sufficiently Understand Tools	Politics	Poor Validation Testing	Misidentified Objects that should/ should not be migrated	Missed Performance Baselines
	%	%	%	%	%	%	%
Between 1 and 10TB	21	21	21	7	14	21	0
Between 10TB and 150TB	50	27	21	23	19	21	21
Between 150TB and 1PB	33	24	29	27	14	20	16
Greater than 1PB	36	32	32	8	28	16	24
No EDW	27	64	36	0	9	18	64
Grand Total	34	34	28	13	17	19	15

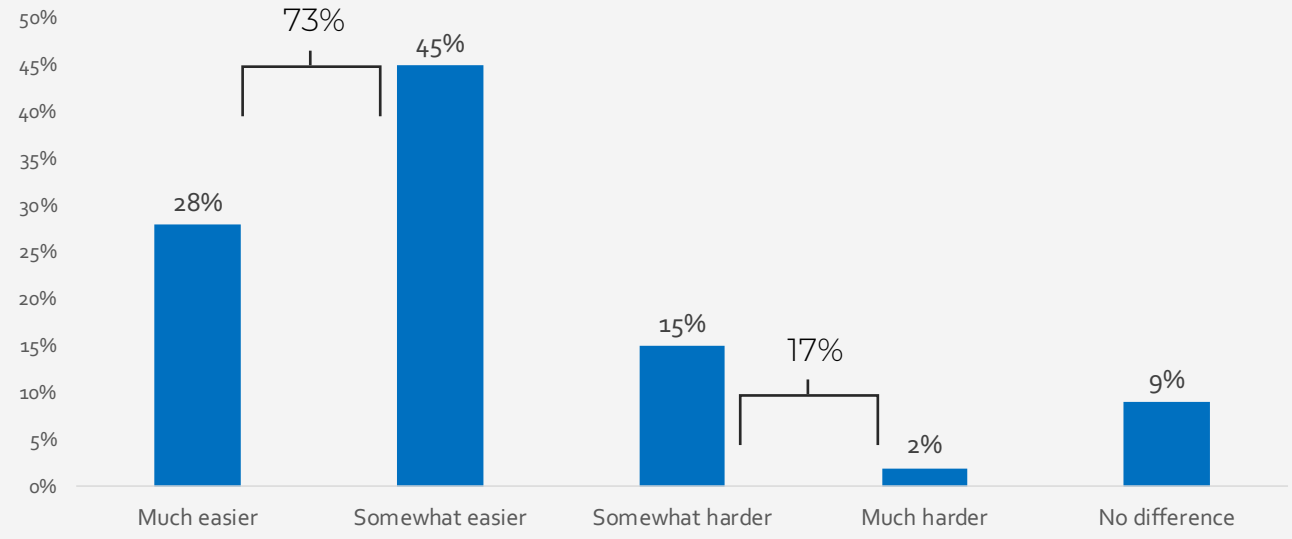
A10: ITDMS LEVEL OF AGREEMENT WITH THE FOLLOWING STATEMENTS



Appendices:

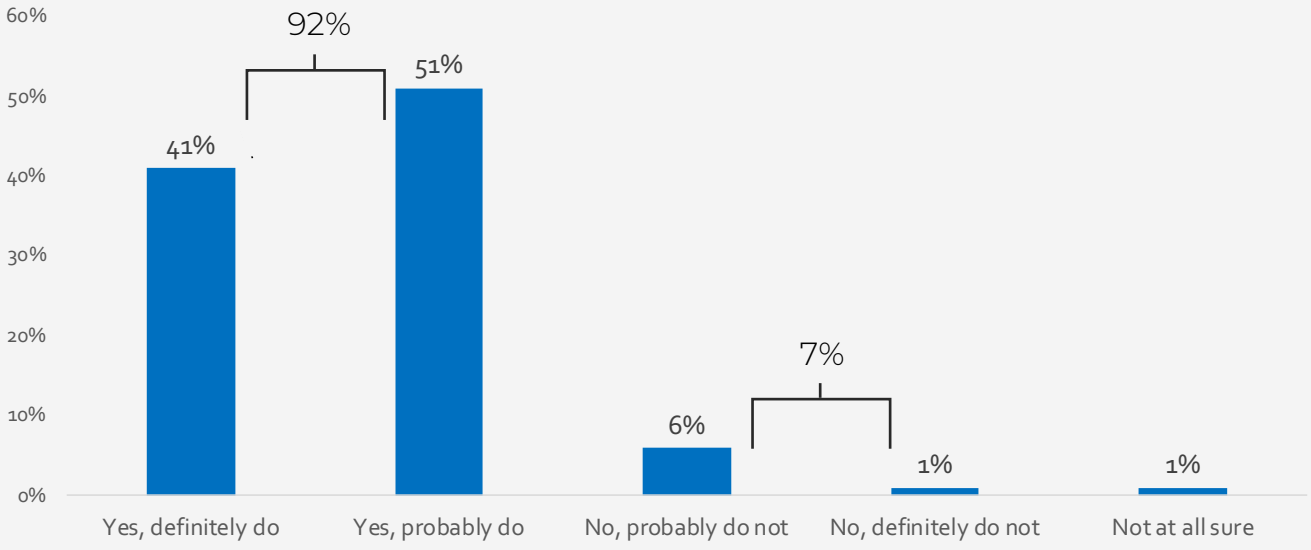
The following questions were answered by those respondents that self-identified as data stream decision makers within their company.

A11.a: AFFECT ON DATA DECISION MAKERS' JOB BY MOVING DATA TO THE CLOUD



A11.b: DATA DECISION MAKERS' LEVEL OF AGREEMENT WITH THE FOLLOWING STATEMENT:

"I have access to all the data I need to do my job effectively:"



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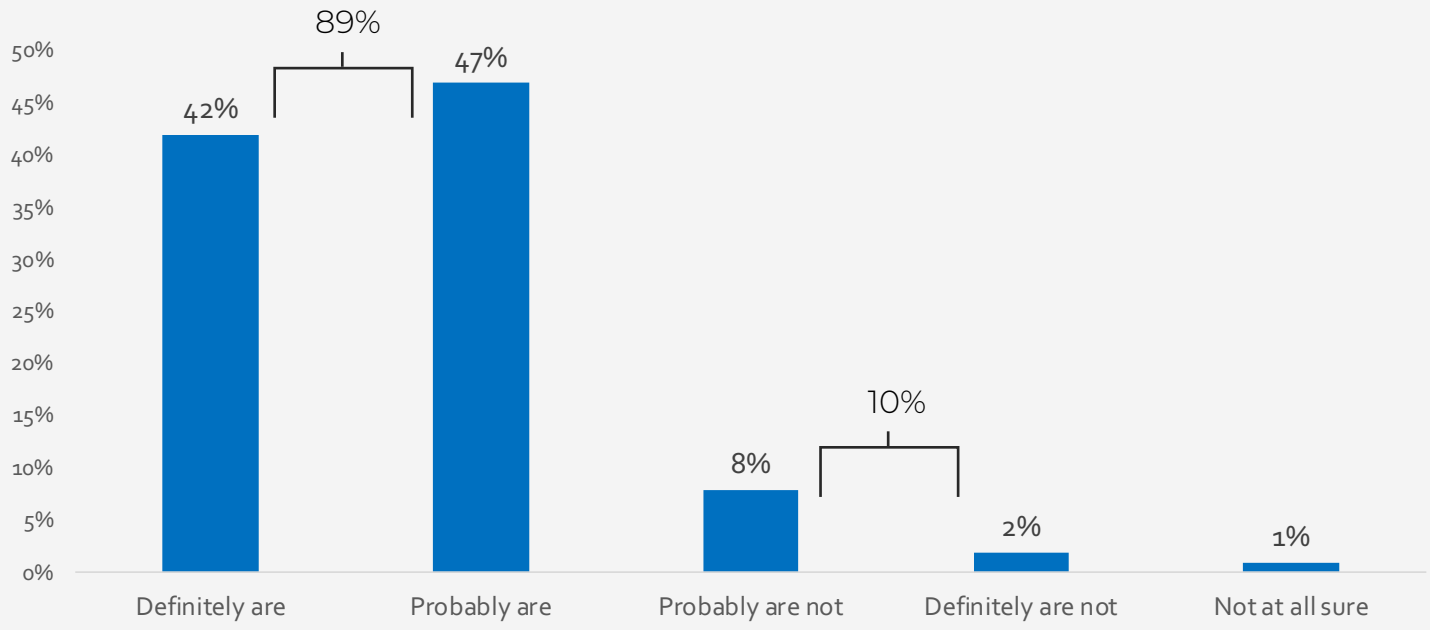
A12.a: FREQUENCY OF DATA BEING LEVERAGED FOR THE FOLLOWING ACTIVITIES

	Leveraged (NET)	All The Time	Sometimes	Not Leveraged (NET)	Not That Often	Not At All	Not At All Sure
	%	%	%	%	%	%	%
For routine reporting	85	50	35	15	12	3	0
Risk assessment and analysis	84	40	44	14	12	2	2
To support real-time views/alerting/ operational decision making	81	39	41	19	16	3	1
To track opportunities to grow the business	79	38	41	19	14	5	1
Forecasting future performance	78	39	39	21	17	4	1
For ad hoc analytics	74	37	37	25	23	2	1
For data mining/exploration	74	35	39	26	19	7	0

A12.b: DATA DECISION MAKERS' LEVEL OF AGREEMENT WITH THE FOLLOWING STATEMENT:

"Are actionable insights that have material business impact being generated and acted on from the data that is currently available in your company?"



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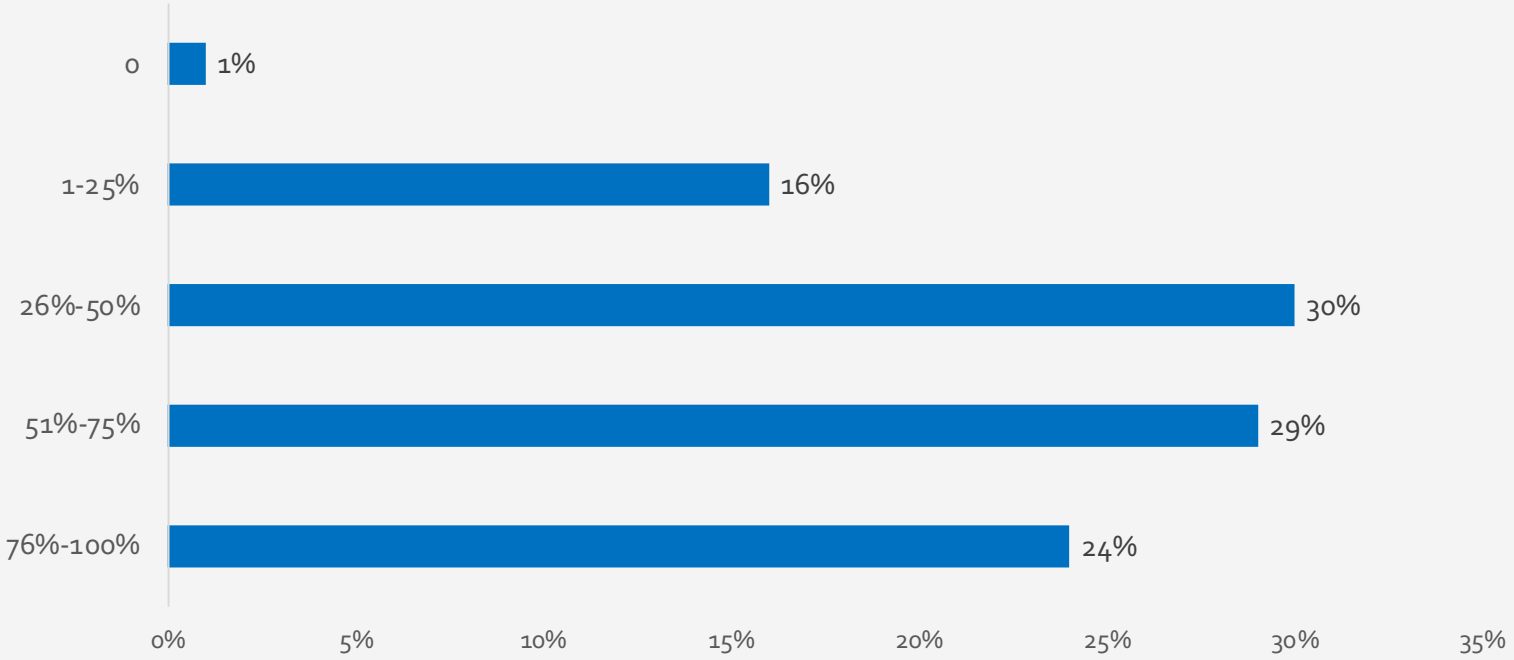
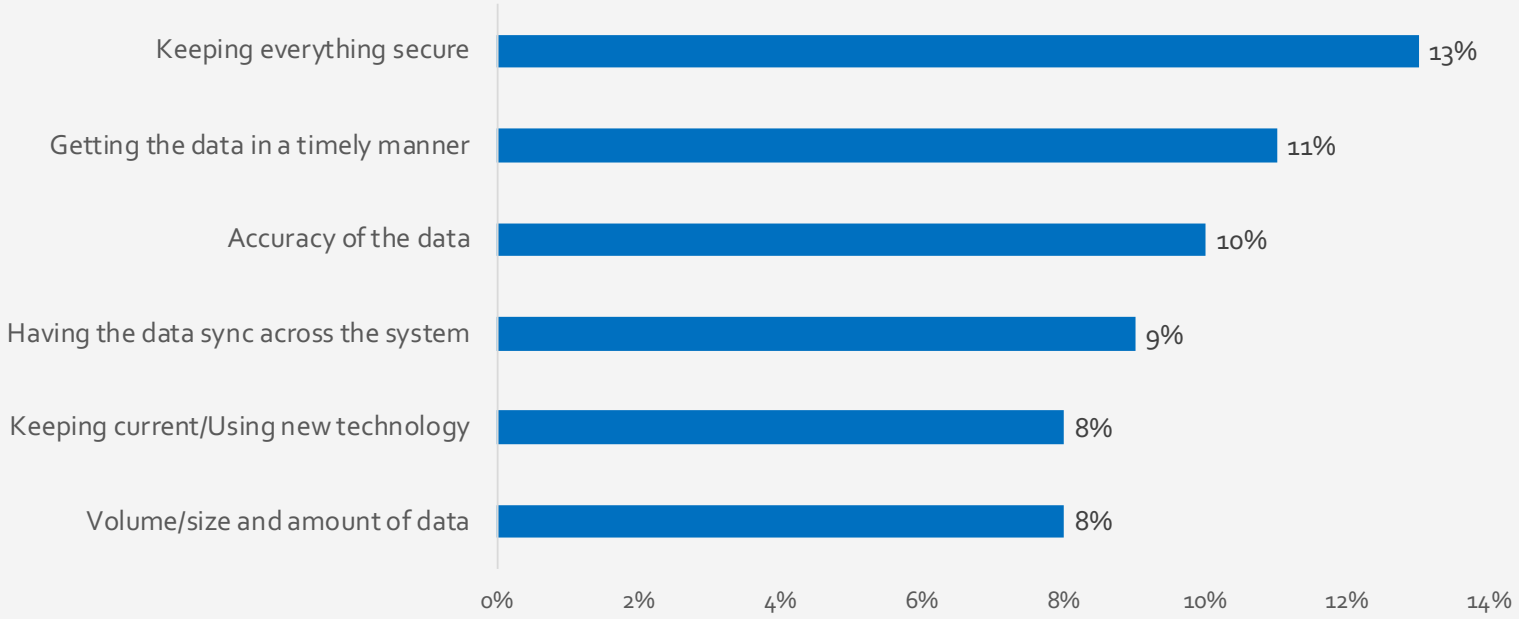
A13.a: OF THE TOTAL DATA AVAILABLE, WHAT PERCENT IS CURRENTLY BEING USED TO GAIN ACTIONABLE INSIGHT



A13.b: DATA DECISION MAKERS' LEVEL OF AGREEMENT WITH THE FOLLOWING STATEMENTS

	Agree (NET)	Strongly Agree	Somewhat Agree	Disagree (NET)	Somewhat Disagree	Strongly Disagree
	%	%	%	%	%	%
It is easier to get data today than it was just a few years ago.	90	51	39	10	9	1
I always have up-to-date, real-time data available.	83	34	49	17	15	2
I have to spend so much time on traditional reporting activities with the data, it doesn't allow time for actionable insights that truly impact the business.	59	15	43	41	33	9
I don't understand why it's so hard to have ready/secure access to the data I need.	55	22	33	45	34	11

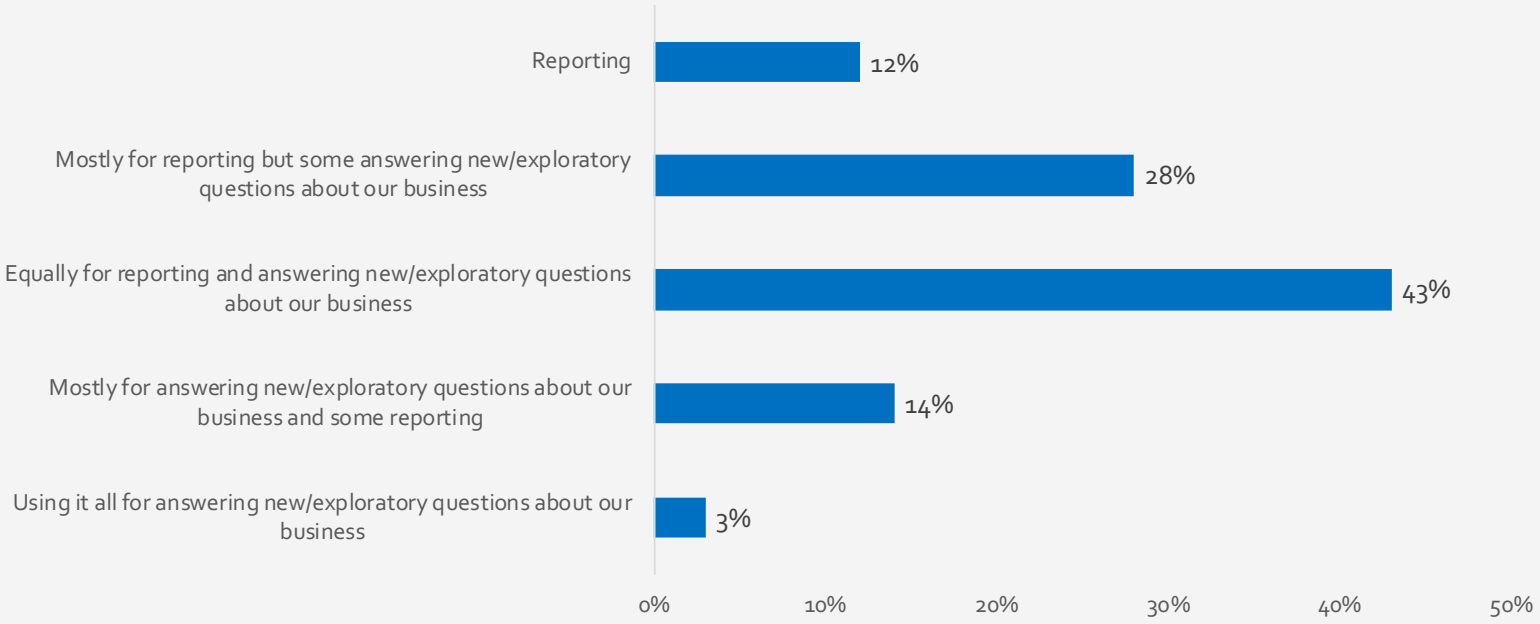
A14.a: BIGGEST CHALLENGES UTILIZING AND / OR ACCESSING COMPANY DATA



A14.b: DATA DECISIONS MAKERS OPINIONS ON HOW THEY ARE MEETING DIFFERENT COMPANY NEEDS

	Well (NET)	Very Well	Well	Not Well (NET)	Not That Well	Not Well At All	N/A
	%	%	%	%	%	%	%
Business/Operations Analysts	76	33	43	23	17	5	1
End-users consuming canned reports	75	26	59	23	17	6	1
Line of business stakeholders that seek a real-time understanding of the business and a lens into identifying key breaking trends	75	24	51	20	15	5	5
Developers building apps that leverage my data warehouse	73	23	50	25	18	7	3
Data Scientists	68	29	39	28	22	6	4
Operational technologist requesting integration of IoT/Edge data	64	29	35	27	19	8	9

A15: DATA DECISION MAKERS BELIEVE THE FOLLOWING ACTIVITIES SHOULD GET THE MOST FOCUS FROM THE USE OF DATA



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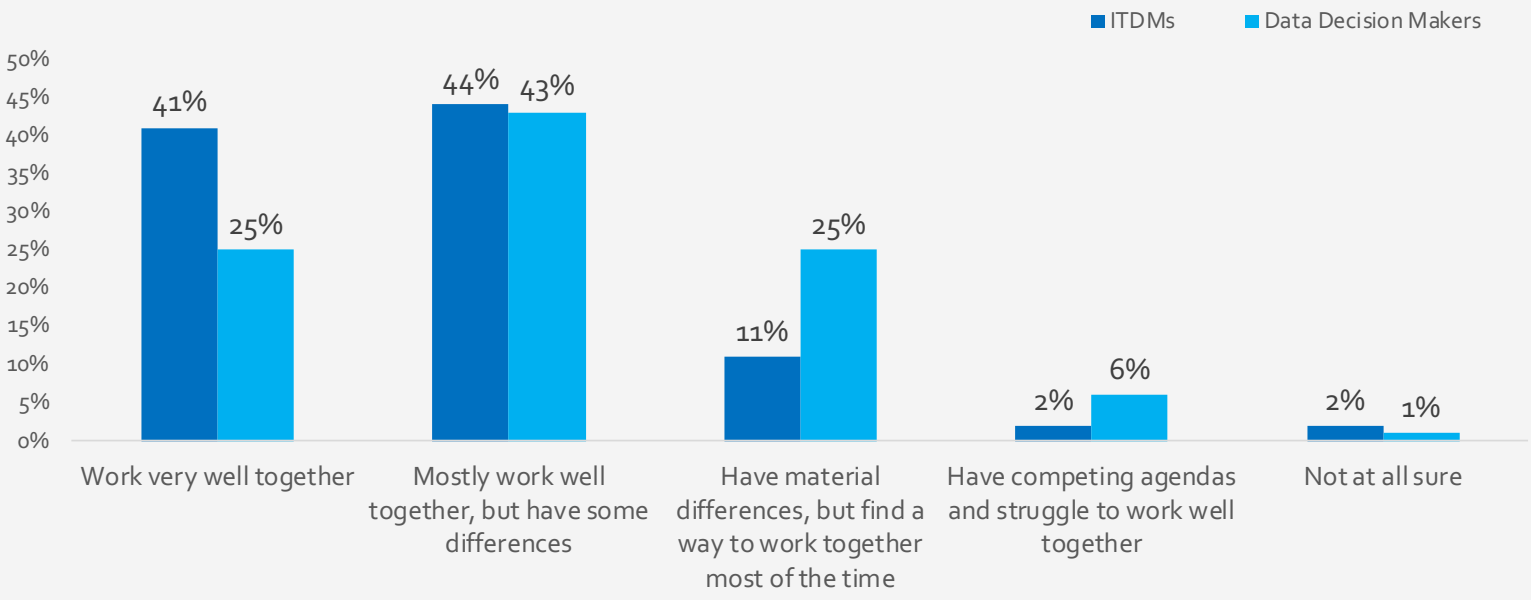
Appendices:

ITDMs & Data Decision Makers

A16: HOW IT & DATA / ANALYTICS TEAMS WORK TOGETHER



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