ivalua

2019 Supply Chain Data Quality and Governance Study

Sponsored by Ivalua

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Preamble

Quantitative clarity is a strong foundation for the advancement of any field. Data exists to help when there is decision uncertainty. Data is the foundation for the creation of analytical outputs that become the basis for management decision-making. As the supply chain management function advances its digital transformation strategy, high-quality and consistent data becomes an essential component of this journey.

Due to the continuously increasing complexity of the supply chain network, a large volume of structured and unstructured data will be available to make both discrete and/or continuous and on-going decisions.

Multimodal learning will significantly advance the capabilities for autonomous decision making, using advanced machine learning.

The 2019 "Supply Chain Data Quality and Governance Study" will support this advancement by providing a guidepost on the journey to data as an enabler of digital transformation.

Executive Overview

We are pleased to release our report that presents the findings of our third annual "Supply Chain Data Quality and Governance Study." This year's study was conducted with the support of several global and national professional supply chain and contracting associations.

As a result of this support, we were able to obtain 876 responses to our survey, making this one of the most comprehensive studies addressing data quality and governance in the supply chain. We believe this to be the largest continuous study on this subject. The results of the 2019 third Annual "Supply Chain Data Quality and Governance Study" by the Supply Chain Resource Cooperative (SCRC) at N.C. State University, with the support of Ivalua, provides some important insights for organizations seeking to pursue digital transformation in their supply chain network. These results are summarized below:

1 | Data quality and governance in supply chain management are improving gradually, and the improvement shows modest acceleration.

2 | While data quality appears to be improving, the organization and categorization of data remain a challenge, as evidenced by the increase in time spent trying to find data.

3 | The supply chain management function has increased its participation on company data governance steering committees. This participation will enable the data quality and governance needs of the supply chain to begin to be addressed at the corporate level.

4 | It appears that the supply chain is starting to decrease its dependence on Excel as its primary tool for data cleansing, organizing and analysis.

5 | The concept of viewing data as an asset is becoming established as more procurement functions start to play a prominent role in creating the components of a Data Asset Management (DAM) strategy.

Introduction

The 2019 Annual "Supply Chain Data Quality and Governance Study" is the third in a series of annual efforts led by North Carolina State University to understand the current state of data quality, governance and digital transformation. The study is intended to create insights into the current state and governance challenges and opportunities that exist for organizations as they seek to drive analytic strategies that span multiple business functions, but focuses on the supply chain network.

The study was sent to over 1,000 supply chain executives and seeks to assess the current state of data quality and governance, as well as the extent to which organizations are using data to create advanced analytics for business decisions. The third annual survey was conducted with the sponsorship of Ivalua and support from several professional associations, including the Institute for Supply Management, IACCM, the Chartered Institute for Purchasing and Supply, and the Supply Chain Management Association of Canada. The scope of our study for 2019 reflects the market and technological shifts in the nature of challenges facing adopters of AI, machine learning and blockchain, who are discovering that the fundamental nature of data quality is the foundation to enable successful analytics investments. We consulted with a number of executives while interpreting the results of our study, and have drawn some important conclusions for supply chain leaders who seek to improve the state of data governance as the basis for effective supply chain analytics.

The larger audience and scope of our current study yielded several surprising insights, along with a number of trends noted in the previous iterations of our survey. There has been an exponential increase in executive management expectations for analytics that dominate much of the supply chain press, yet our results suggest that progress is not as rapid as those press releases would have us believe. In addition, increasing focus on cybersecurity initiatives has increased the focus on data security, which may be why we observed heightened investment in data governance. As data management is improving, we also observed an increased level of interest on this subject, as reflected by the increased number of responses to our survey. This year, 876 executives from 17 industries across the world responded, spanning organizational revenue well in excess of $300 billion.

Siloed data, a lack of standards and a lack of skills remain the most significant challenges for improving data governance. These challenges are at the root of poor data quality, which suggests that data and analytics roles are starved for resources needed to fix them, where focus remains on driving ROI. There are some areas of disagreement about the role of data governance within organizations and where it belongs in the enterprise. A common theme is increased levels of excitement about the potential for data to shift business priorities, which has reached all corners of the world in our survey (U.S. Europe, South Africa and Australia). However, some things remain the same: Although there has been a rise in the use of more advanced analytics tools, Microsoft Excel remains the most commonly used analytics tool in the world.

Data Asset Management Strategy

Supply chain management functions are beginning to view and approach data in a much different and broader fashion, and some are even referring to it as the "new oil." C-level executives have expressed increased expectations that data analytics will yield continual cost and process improvement, resulting from the increased use of data-driven business decisions. The creation of a data asset management (DAM) strategy as an enabler for improved supply chain management has become one of the more prevalent functional views. Although Marketing has been using data analytics for some time, supply chain managers are only now beginning to realize the potential impact of improved analytical insight for supply chain decisions, particularly in light of demands for quicker next-day delivery, lower working capital and supply chain complexity. This spans a number of areas, including procurement, materials management, customer order fulfillment and shipping, and assortment and stocking, where we see more integration of enterprise data asset management with supply chain strategy.

Our study shows an increased involvement of supply chain management personnel in enterprise-level data governance committees. In some cases, supply chain executives are taking the lead in driving analytics for the enterprise. Data governance committees are primarily focused on DAM, an activity that comprises four key categories:

1 **Data Quality and Governance:**
Timely, complete, accurate and relevant data that is governed by a set of processes and rules that validate the sources of data (both internal and external), performs data audits, determines when data should no longer be used in analysis and so on.

2 **Data Catalogues:**
Consistent data descriptions (data dictionaries) and tagging which allow for a means of repeatable retrieval of data assets for cleaning, organizing and analysis.

3 **Uniform Data Accessibility:**
Standardized data asset repositories and Azure Information Protection (AIP) to both external and internal real-time data sources.

4 **Analytics:**
Real-time predictive and prescriptive analytics operating with standardized analytic and artificial intelligence (AI) tools.

This study addresses the first and one of the most critical categories of a DAM strategy – Data Quality and Governance. Digitization of supply chain processes simply cannot occur without an active data quality and governance program that addresses all internal and external data sources.

Development of all "higher-order" analytics projects, including AI, IOT, blockchain and contract automation, are all dependent on an effective data quality and governance foundation.

2019 Key Findings:

Data Quality is Improving

Progress is being made with respect to improving data quality and governance in the supply chain space but continues to occur at a slow pace. This could be due to a lack of awareness among many executives. Indeed, executives frequently complain of "data overload," failing to recognize that identifying critical data is a required first step.

Executives report that their overall perception of the quality of the data being used in the supply chain is increasing, as shown in **Figure 1: 28% rate it as Good and 9% as Excellent.**

We believe that this is due to multiple factors, but the most important may be the increased recognition of supplier risk. Organizations that have experienced significant supply chain disruptions in the last two years now recognize that getting their supplier master data is becoming key to mapping supply chains, and they understand the source of risk that exists.

To improve supplier master data, organizations have recognized that although data governance is "difficult," it is an imperative. Some of the major steps to improve data quality include:

- ✓ Standardize and automate the process of supplier data capture and maintenance.

- ✓ Cleanse and enrich existing and new data, and harmonize across systems.

- ✓ Capture additional supplier details through forms/assessments/surveys to drive more complete information as well as improved compliance, risk management and communication.

- ✓ Provide an enterprise view of clear, comprehensive and accurate supplier information.

- ✓ Provide training to suppliers so they can improve data quality and consistency.

Figure 1 - 2019 Overall Supply Chain Data Quality
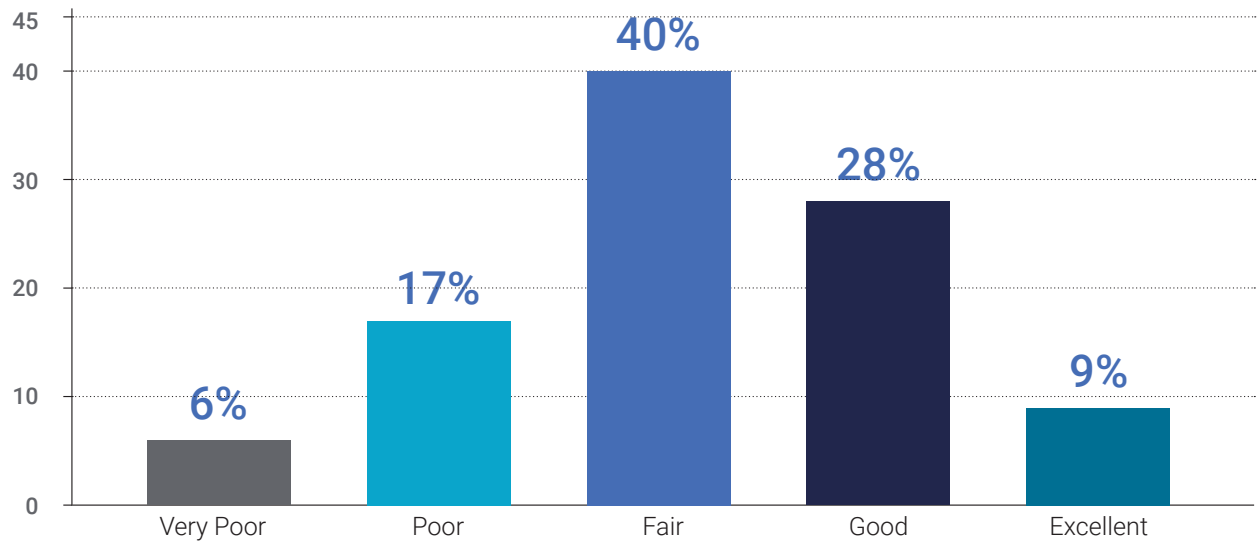
The "future state" around improving supplier data involves leadership recognizing the goal of what a cleansed supplier database will look like, as depicted below:

From	To
✓ Multiple supplier numbers for the same supplier	✓ One supplier number for each supplier
✓ Fragmented supplier management	✓ Company common supplier on-boarding and lifecycle management solution
✓ Supplier profile data not accessible to the supplier	✓ Profile data accessed and managed by supplier
✓ Multiple sources of inconsistent data consolidated into eight data warehouses	✓ One source of core business data for consistent and trusted reporting and analysis in one data warehouse
✓ No leadership definition of data	✓ One definition of core business data and clear business ownership
✓ Entity-driven master data decisions and designs	✓ Company-driven program approach

The 2019 combined rating of "Overall Data Quality" that fall into the "Fair," "Good" and "Excellent" categories now represents 77% of respondents, compared to 46% for the same classifications in 2018 (see **Figure 2**).

However, the overall trend that most executives rate their data as "Fair" is evidence that they recognize the challenges ahead.
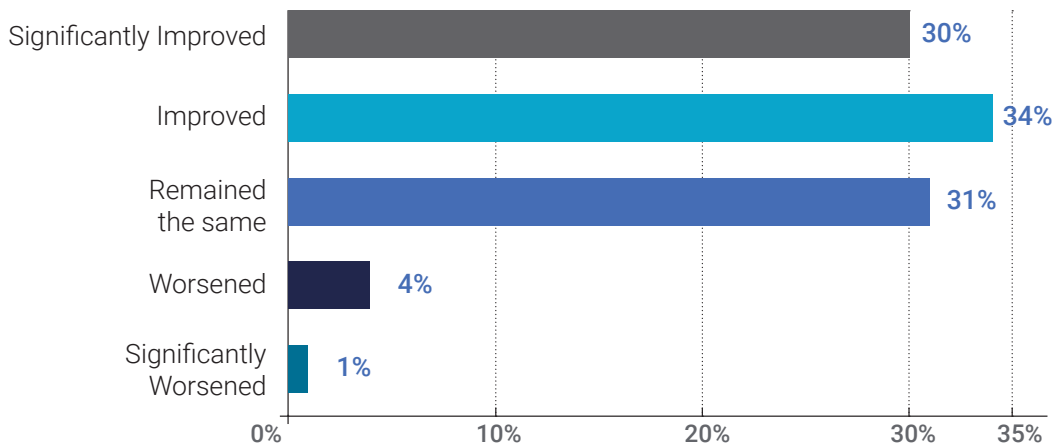
Figure 2 - Comparison of Data Quality in 2019, 2018 and 2017
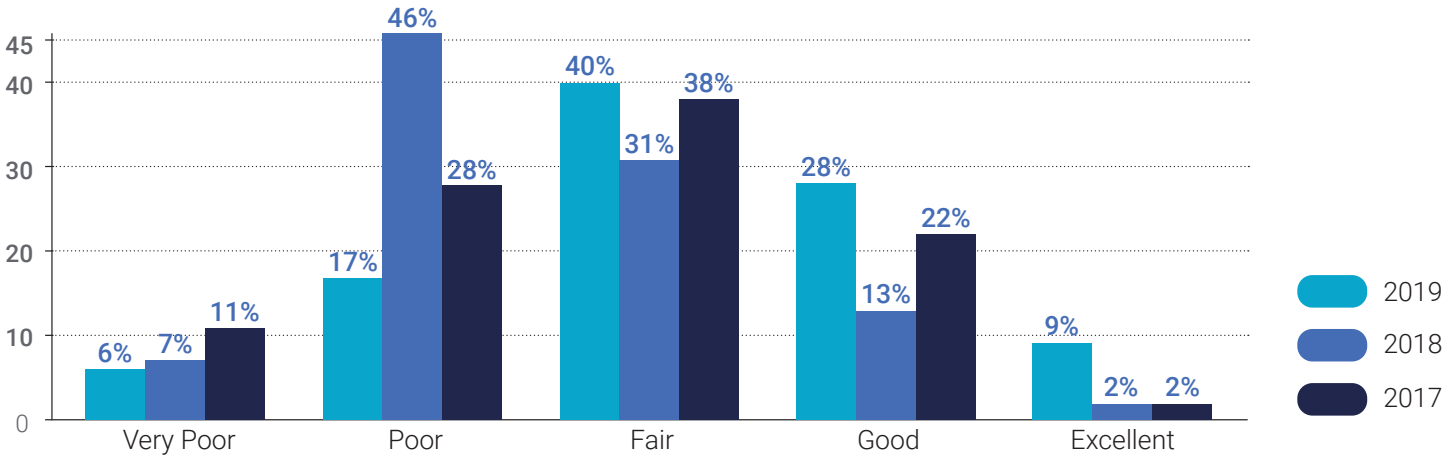
The 2019 study reflects a major improvement in data quality from the 2018 results.

In 2019, the ratings for "Improved" and "Significantly Improved" totaled 64% compared to 4% for 2018 (see **Figure 2a**).

Figure 2a - Data Quality Improvement Over the Previous Two Years

Many of the challenges that arise may be due to organizations' continuing activity in mergers and acquisitions. Any merger leads to a period of wandering in the data wilderness, as businesses continue to operate in data silos, working on their own ERP systems, materials systems and financial reporting systems. Pulling those systems together to create analytical insight is a gargantuan task that can take years and may never be completed due to many reasons.

Recognizing this challenge, executives are more aware now than ever that data governance is essential for harnessing and getting an ROI from analytics investments. As shown in **Figure 3**, the perception of "data governance" as a "Necessity" is at its highest level since 2017. Many executives are recognizing that to enable their managers to be more effective at work or while working at home, access to reliable, high-quality data is a necessity.

Figure 3 - 2019 Perspective Toward Data Governance
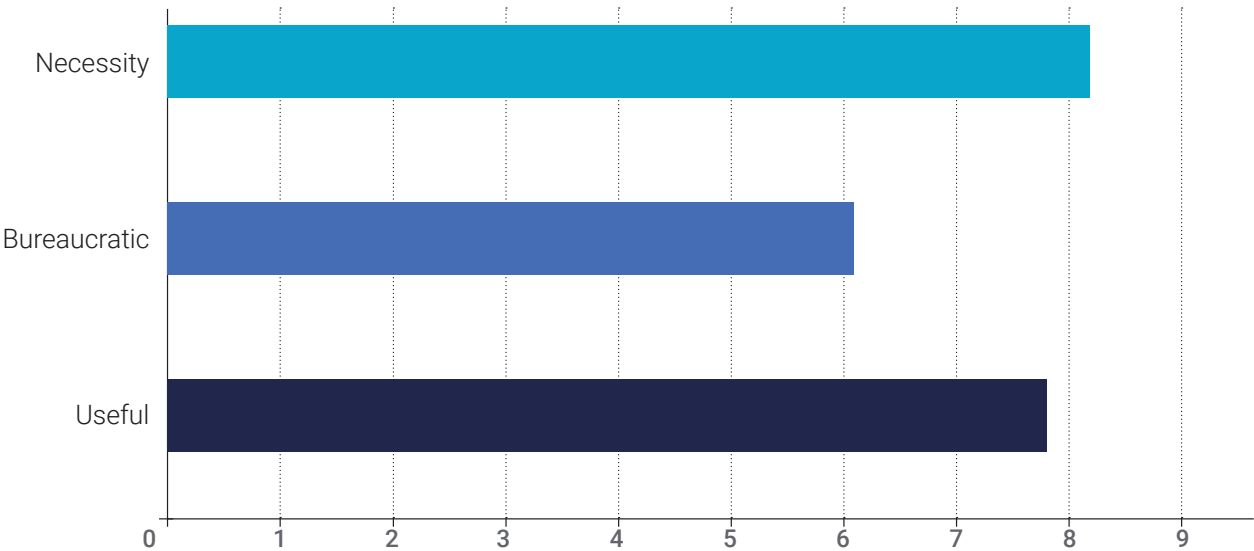
As shown in **Figure 4**, two-thirds of executives recognize that having staff who can analyze data to make better decisions is important for their organizations to remain competitive.

Figure 4 - 2019 Desire for All Staff Members to Have Ability to Analyze Data

41%
No

59%
Yes
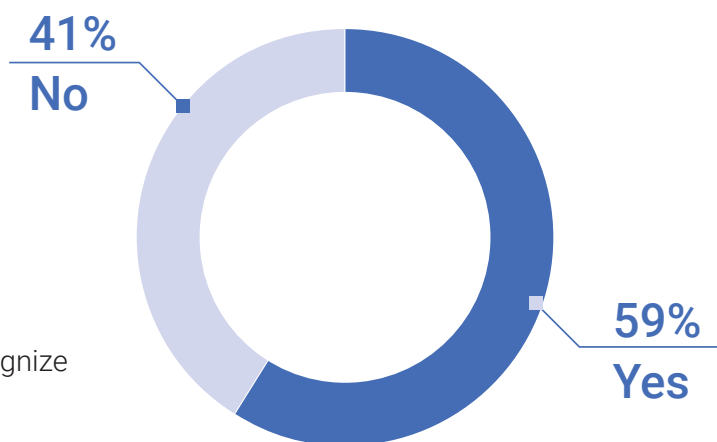
Proactive and forward-looking organizations recognize the value of putting reliable data in the hands of employees. As one executive said:

> *We were focused on creating a higher 'digital IQ' across all business functions. Because procurement had started the earliest, they were at the eighth-grade level, while everyone else was at the third-grade level – and the goal was to get everyone to high school! Creating a data platform was key for us – we were worried that if we just put a bunch of tools out there, it would be a free-for-all – and there would be 10 people working on different apps to solve a common working capital problem. To minimize waste, we wanted to get control of the analytics development process and seek to solve problems as a standard for the whole company. Our goal was not to move to 'Excel on steroids,' but gain some level of control. To create a more robust BI capability, we couldn't leave this in the hands of data scientists. Everyone brought unique perspectives and we needed to synthesize all of the different views into a common understanding. This is the vision we sold to the CFO.*

As shown in **Figure 4** however, there remains a high level of reluctance to allow "all" staff members to have the ability to analyze data. If the fear is that data analysis is difficult, new analytical tools are becoming available which will make this easier. The goal is to deliver actionable insights by applying sound business knowledge to the analysis. Data silos significantly hinder the implementation of a digital supply chain network.

Impact of Poor Data on Supply Chain Productivity

Results from the survey show that supply chain managers still spend a good amount of their day looking for data (see **Figure 5**). Specifically, 53% of them spend more than 10% of their day looking for data they need for analysis. (About 9% don't even know how much time they spend!). A comparison of 2017 – 2019 data shows that although there is a significant improvement in the ability to find clean data, the data may still lack organization/classification, as evidenced by a significant increase in the amount of time spent looking for it. This may be the result of more time spent on analytics in general (see **Figure 6**).
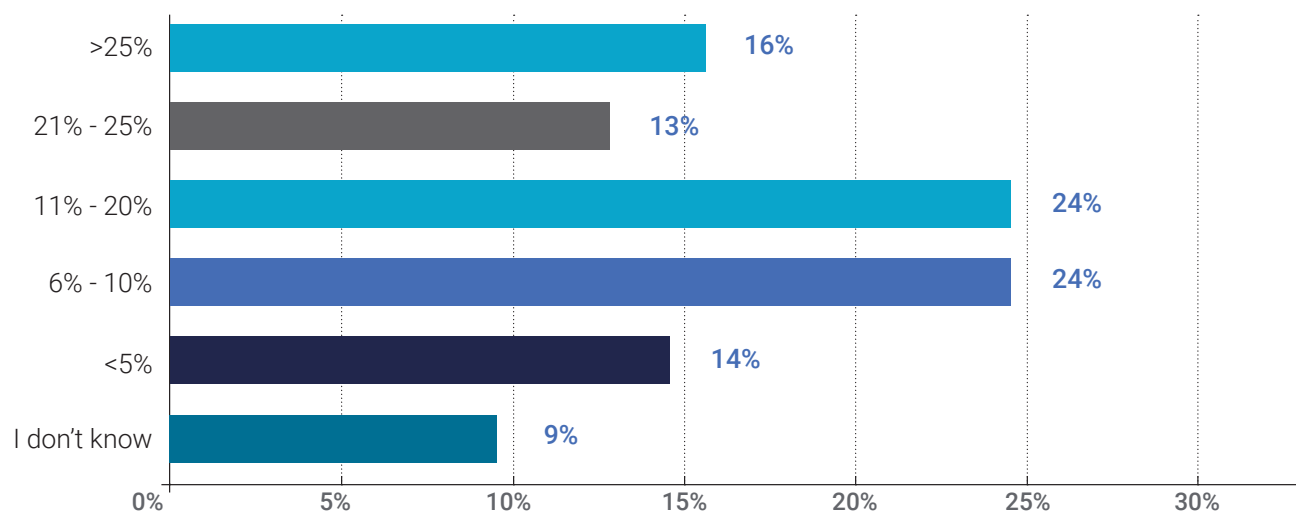
Figure 5 - Time Spent Looking for Data

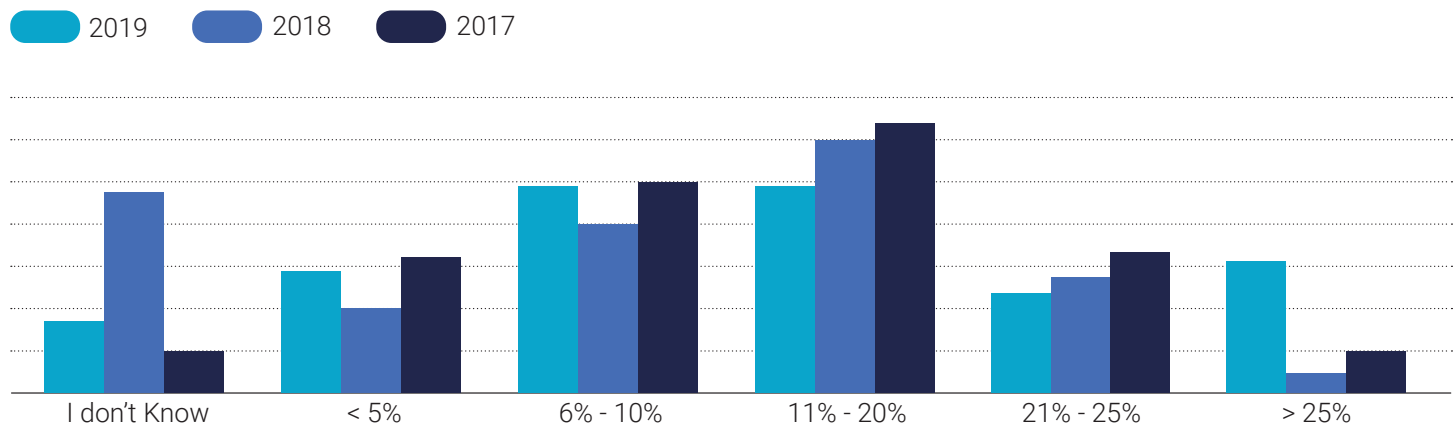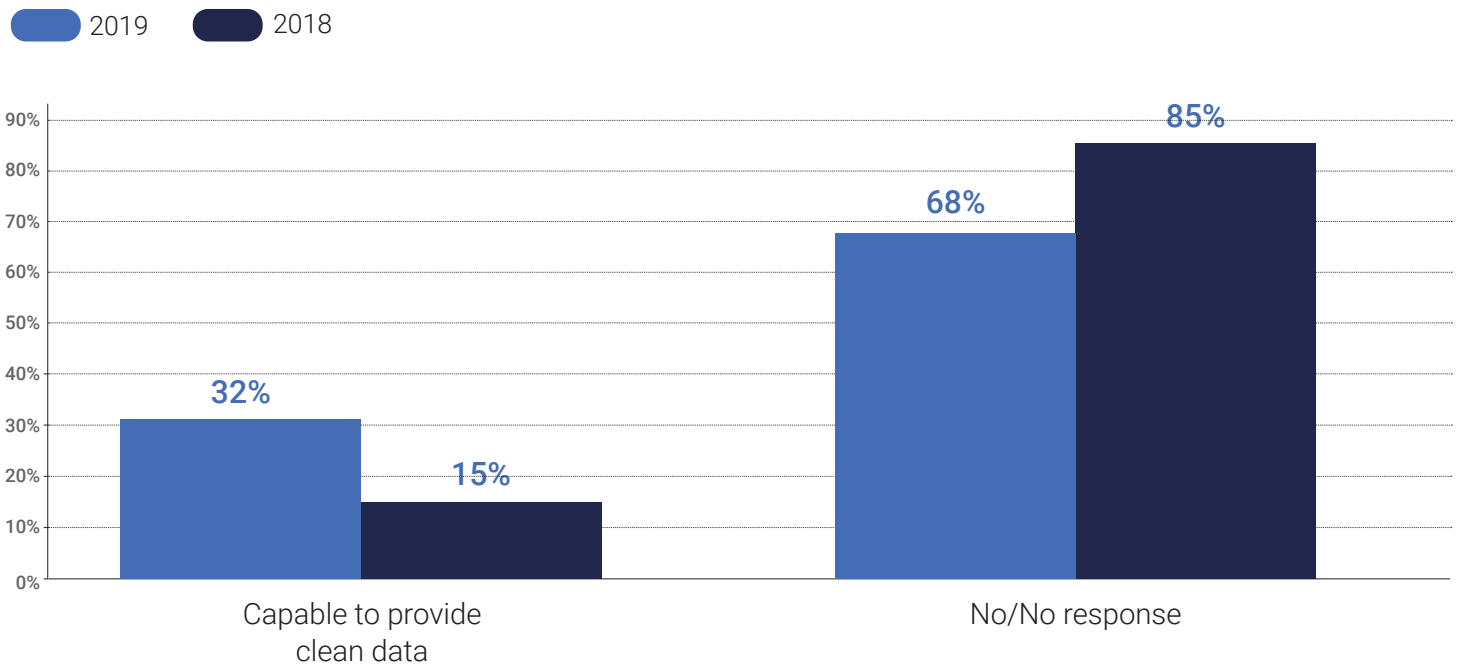## Figure 6 - Time Spent Looking Data in 2019 vs. 2018 and 2017

Figure 7 - Capability to Find Clean Data in 2019 vs. 2018

Legend: 2019 | 2018

Chart data:

Category	2019	2018
Capable to provide clean data	32%	15%
No/No response	68%	85%

The results also show that the capability to find clean data has improved significantly in 2019, with 32% of respondents saying they are able to use the data once they locate it (up from 15% in 2018, see **Figure 7**). Efforts to improve data quality is yielding some benefits, although the time to locate and cleanse the data is impacting productivity.

One of the areas in which some organizations have made significant improvements is the development of algorithms that can be used to create dashboards and control towers for senior executives in procurement and other areas. End-of-quarter reporting used to take several weeks of activity, including pulling and cleansing data from multiple systems and entering it into Excel charts. One executive noted how this has improved dramatically:

> **"** *As an organization, we decided to build our analytics capability at the Business Intelligence layer – based on our belief that this was the quickest way for a value proposition to emerge and inspire the executive team to continue to invest. Since then, our efforts have accelerated – and we have moved quickly into other areas of the analytics space. It's great to have a lot of data, but we also recognize it is more important to have GOOD quality data. Otherwise, you have isolated pockets of data that can be used. In a sense, creating an analytics culture is about considering opportunities along two dimensions: Data quality and speed to value. Where you decide to take action becomes a cultural problem – involving how to drive a change in culture in how we capture quality data to drive business results, and where to begin the journey.* **"**

> **"** We began our journey by focusing on data governance, beginning with core data on customers. Next, we focused on establishing quality data for systems operating in different areas. This required developing regional governance by area, using Hyperion for creating financial reports as well as a Project Management Tool used by offices executing projects at universities, hospitals and so on. The initial goal was to make sure that the team interconnected data from different places while addressing data quality. Some initial disputes arose regarding 'whose data goes into the data mart first?' Finance wanted Hyperion data for financial analytics, whereas operations wanted the Project Management data – so the team had to go through a reconciliation process. **"**

> **"** An important component of the roll-out was the development of Institutional Analytics; that is, analytics that have a common standardized look and feel. To enable this, we adopted Qlikview as their visualization standard. In many organizations, analysts spend weeks to establish our end-of-quarter charts and graphs. The goal was to enable an executive to generate exactly the metrics and charts they want at any time with a push of a button. Siemens achieved this goal, and created a platform that allows all senior executives to press a button to run a meeting anytime, not just at the end of the quarter. One executive emphasized that this capability, more than any other, allowed him to completely change the way he managed the business. Now, sales executives are grilled on what shows up on the dashboard and can be engaged on a weekly basis, instead of just at the end of the quarter. **"**

> **"** Another type of analytical capability, which only applies to about 5% of the workforce who will become adept at it, involves Discovery Analytics – the ability to drill down into datasets and explore relationships. This work requires technically oriented individuals, as well as those who understand what types of data are required to address a business problem. Both individuals are needed to produce Discovery Analytics. **"**

Our results have support in other recent studies. A Deloitte 2019 CPO study found that poor master data quality, standardization and governance was the single most cited element that produced the biggest challenge for mastering digital complexity. The second was the inability to generate analytics and insights in the system (related to the first component). Third was the proliferation of custom solutions, reflecting a lack of standardized processes for establishing improvements.

CPOs Cited Poor Master Governance as the Biggest Challenge in Mastering Digital Complexity

Which of the following areas of digital complexity are the biggest problems for you?
(Please select all that create significant frustration for you.)

Poor master data quality, standardization and governance

60%

Inability to generate analytics and insights across the systems

40%

Too many homegrown/custom solutions that have outlived their usefulness

33%

Too many fragmented internal applications - multiple ERPs

33%

Too many fragmented internal applications - multiple best-of-breed solutions
(suites and/or apps of any type)

30%

Complexity in working with IT and/or competing priorities between procurement objectives and IT objectives

25%

No formal "architect" role or architecture to integrate various digital technologies

22%

Too many solutions in the marketplace to keep track of and too many disconnected providers of apps, content, intelligence, etc.

13%

Poor tools/processes for managing complex cloud contracts

12%

Shadow systems with stakeholders

12%

Over fixation with new digital buzzwords and tools in areas such as RPA, blockchain, AI, etc.

11%

Mega technologiy providers who create complexity with their business strategies, solution portfolios, onerous contracts and over-influence vis-a-vis IT

10%

Etc.

9%

Organizational Governance

Most organizations we surveyed are in a highly centralized supply chain structure (59%), which provides an opportunity to build a common data governance approach. A centralization can facilitate a common approach to Institutional Analytics, which is used for common metrics reporting and business intelligence, and the use of a standard toolset for discovery analytics. In the latter category, it is important to ensure that people don't start creating massive amounts of visual charts that can cause confusion around what's important. Rather, those types of projects should be "one-offs" that are project-specific.

Figure 8 - 2019 Overall Supply Chain Structure
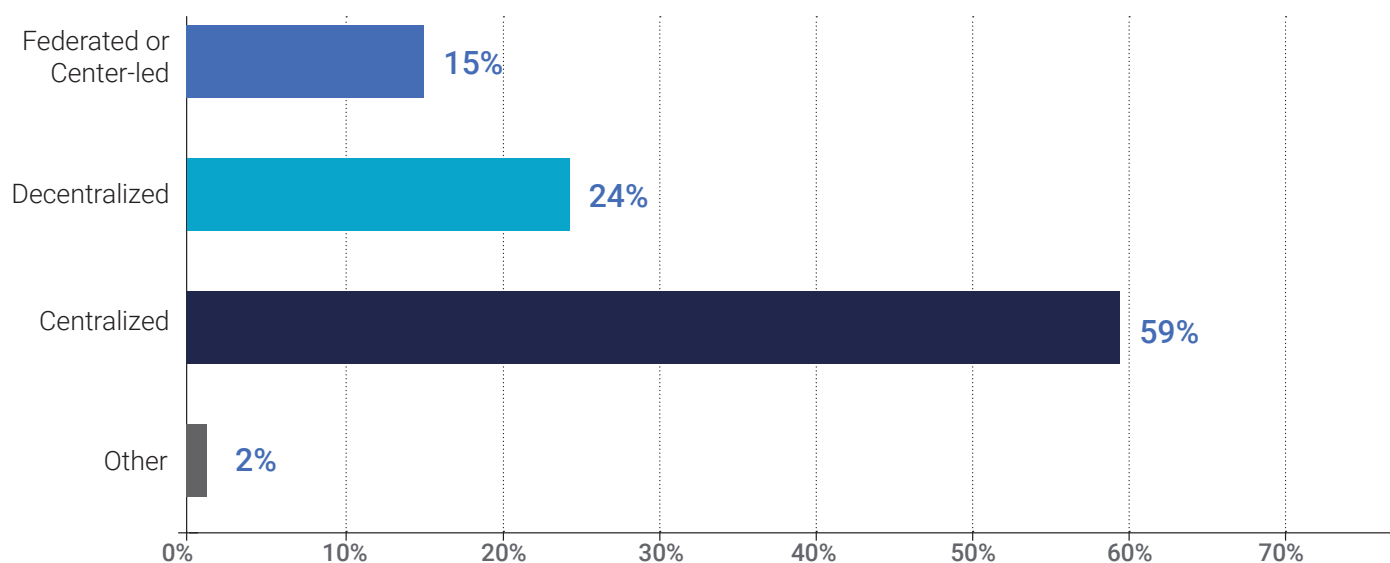
Leadership at an enterprise needs to place the right priority on data governance; without resources, companies will struggle with digital transformation. Viewing data as an asset is critical for establishing the right DAM strategy. In our 2019 survey, 40% of respondents do not assign the same priority to data assets as they do to physical assets, and another 12% don't think it is necessary (see **Figure 9**).

Figure 9 - 2019 Data Practice in the Company
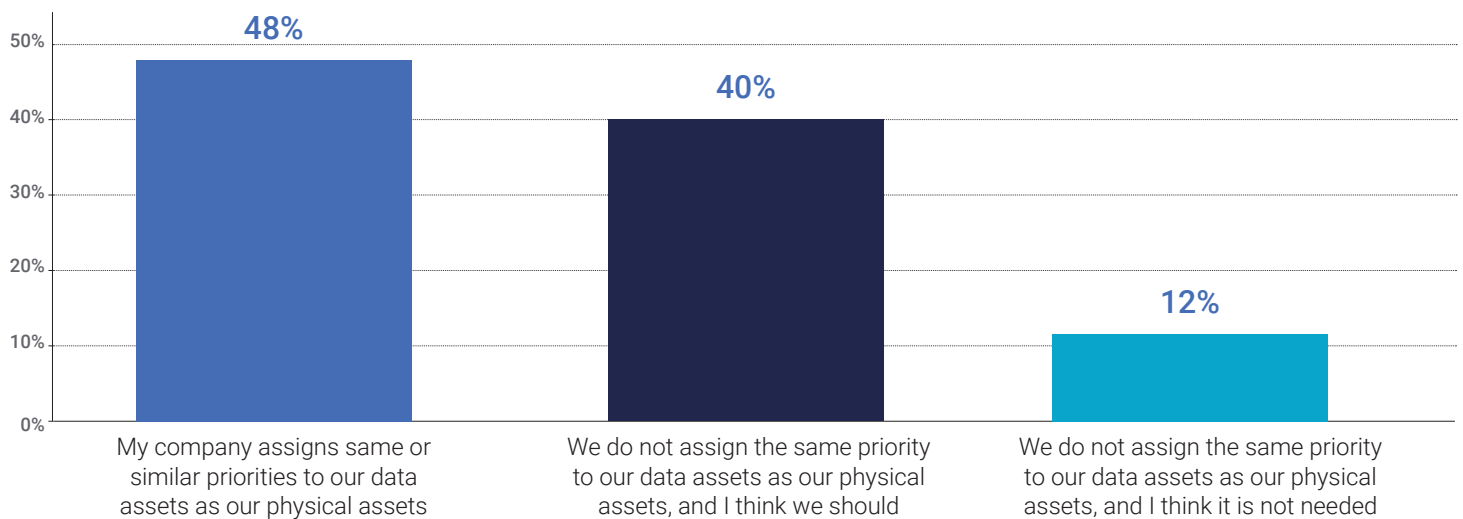
As shown in **Figure 10**, data required for effective analytics is often scattered throughout the company. IT should partner with supply chain management teams to provide the right technical solution for

creating a data lake that can be used to ensure data integrity for specific applications. Here's one executive's opinion on the topic:

> **"** *Critical in rolling out an analytics strategy is establishing an IT resource to configure the data. At one organization, ERP data has to be manipulated into financial reports, using extraction and transformation approaches with Hadoop. Hadoop feeds data into the data mart, which makes it accessible through Qlik Sense and QlikView. Director-level executives emphasized that they want to be able to do their own analysis, but don't capture the data anywhere to produce the analysis they need. This required mapping needs data, followed by technical visualization, end-user inputs and assignments of data stewards responsible for capturing the data. One of the challenges was being able to hang it all together. To coordinate the movement and capture of data, the CFO established a digital office for the entire organization, which moved the initial effort out of procurement. The Program office at the local level will handle regional data governance.* **"**

Figure 10 - Internal Database Struture

Category	Percentage
Every time there is a need for new data, we scramble	13%
We get all our data from the ERP system	24%
Most of the data is collected by our team of data analysts; the data analysts' laptops/Dropbox/Google docs folder contain all the information	6%
We have a database that is accessible to only those who work in my organization	26%
We have a central data warehouse or data mart, but I do not find it relevant for my business	5%
We have a centralized service to provide us data and consult regarding our needs	25%

Most organizations continue to be "swarming in data," because they do not have the foresight to create a strong analytical culture that treats data as an asset nor establish processes and governance to ensure it is kept clean. As shown in **Figure 11**, poor data structures continue to result in significant amounts of siloed data, which severely limits an organization's ability to realize maximum value from their data.

Over a third of companies exchange data through emails or Sharepoint, yet others send their data to a centralized service provider (likely in India) monthly and have it returned in a cleansed format a month later. Clearly, this approach is ineffective for data governance and results in data that is not timely and always backward looking. As one executive noted:

> 66
>
> *Once we pulled up data and started to visualize it, we realized that the data was flawed and the results didn't make sense. But when you shine a light on bad data, it quickly becomes apparent. Someone is creating that bad data, and when I make it visible, it won't remain bad for long. The owner of that data doesn't want to be the one that is seen as responsible for producing bad data, so they will go back and fix the system or process that is producing the bad data to begin with. It's funny how that happens when you shine a light on it.*"

Figure 11 - 2019 External Database Structure

Figure 11 - 2019 External Database Structure

Category	Percentage
I don't know how we obtain external data	17%
Most of our data is obtained through email or shared through services like SharePoint or Google docs	33%
We have an EDI for most of our supplier data, but may or may not store it	11%
We get some data from our data service, but end up subscribing or hiring external service to provide additional data often	15%
We have a centralized service to provide us data and consult regarding our needs	24%

As shown in **Figure 12**, most individuals prefer to access their own data and run reports themselves. In this way, they're able to interpret the data through their own business acumen and process knowledge. To do so, it is critical to use a common approach to create data lakes, where the data is trusted and can be used for this type of "Discovery Analytics."

One executive used the metaphor of "Jonah" in Moneyball to describe how to inspire individuals to feel empowered to pull their own data and move toward an analytics culture:

> *An important component that was deemed critical for creating an analytics culture was the technical visual team. In the movie "Moneyball," Jonah Hill was the key individual who was able to pull together all the data required to assess ball players. Every organization needs a "Jonah Hill" – someone who can cover data flowing in from human resources, legal, operations and procurement. When you first approach departments and ask them what analytics they need, they don't have a clue! But once they get a flavor for how analytics can support business decisions, they want more. Then things mushroom, at which point you need to establish each department's responsibility for data stewardship. Getting each department needs to understand what it takes to get them involved, and that each department is instrumental in identifying what data they need to sustain and manage their visualization requirements. Each one also needs to identify the resident data expert and visualization analyst/expert at a local level. The local data steward is one of the most important roles, because he or she is responsible for understanding what data quality looks like and whether data can be shoved into the system.*

Figure 12 illustrates the importance of creating a culture that encourages individuals to probe data, seek insight from data, and use data to innovate and improve decision-making. When individuals feel confident that they can pull data, run reports and build out dashboards and reports they trust, they will become more efficient and effective at running their supply chain.

Figure 12 - 2019 Approach to Interpret the Data
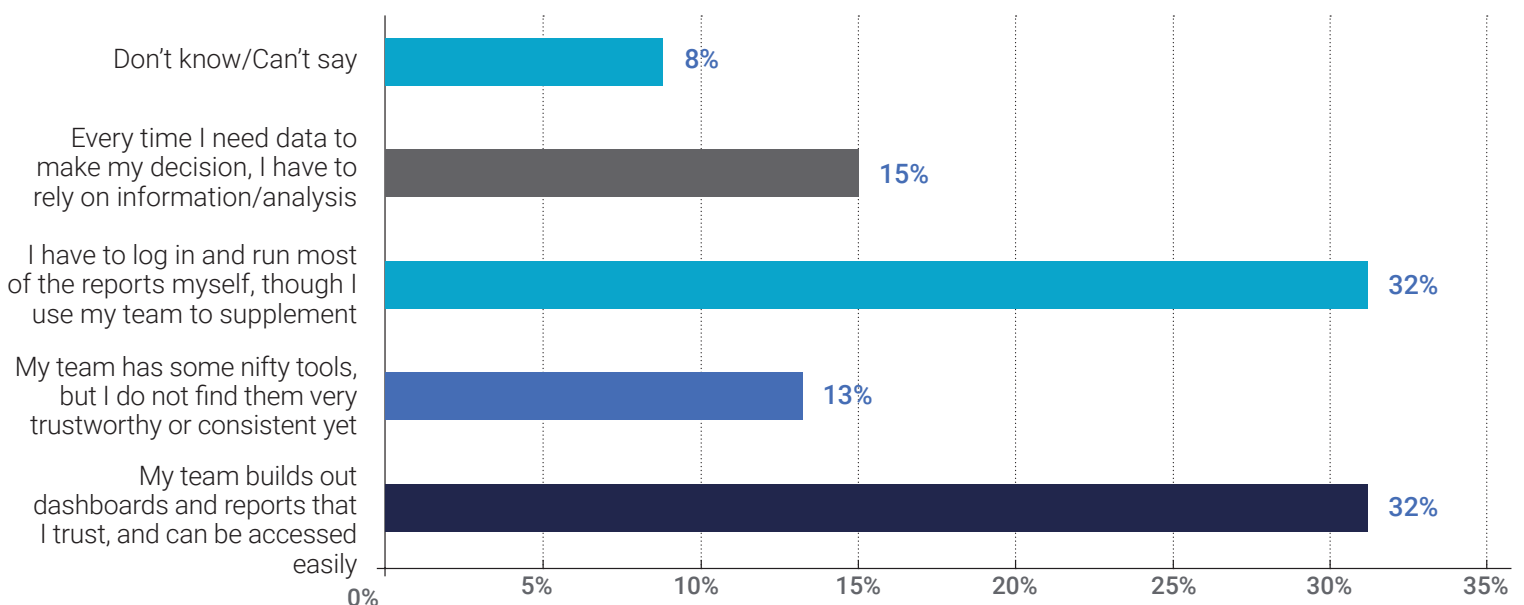
Organizations must invest in the resources to create more effective data governance. The 2019 study shows a significant increase in the overall percentage of companies with a separate data governance organization (see **Figures 13 and 14**). The 2018 study showed that, on average, 37% of the responding organizations had a separate data governance organization. That number increased to 54% in 2019.

Some of the most significant improvements by industry were in manufacturing (41% improved to 59%), hospitality and travel (33% improved to 42%), and in federal government procurement (17% improved to 70%). The presence of a data quality organization can alleviate many of the common problems (or excuses), as shown in **Figure 15**.

Figure 13 - 2019 Perspective Toward Data Governance

Industry	Percentage
Telecommunication/Communications/Internet	53%
Software/Hi-Tech	69%
Retail/Wholesale Distribution	42%
Media/Entertainment/Publishing	50%
Mining	69%
Manufacturing	59%
Logistics/Transportation	36%
Insurance	71%
Hospitality/Travel	42%
Healthcare	64%
Government: State/Local	47%
Government: Federal/National	70%
Food/Beverage	66%
Energy/Oil & Gas Utilities	46%
Education	48%
Consulting/Professional Service	65%
Construction/Engineering/Real Estate	40%
Bio-technology/Pharmaceuticals	53%
Banking/Financial Services	54%
Agriculture/Forestry/Livestock/Farming	38%

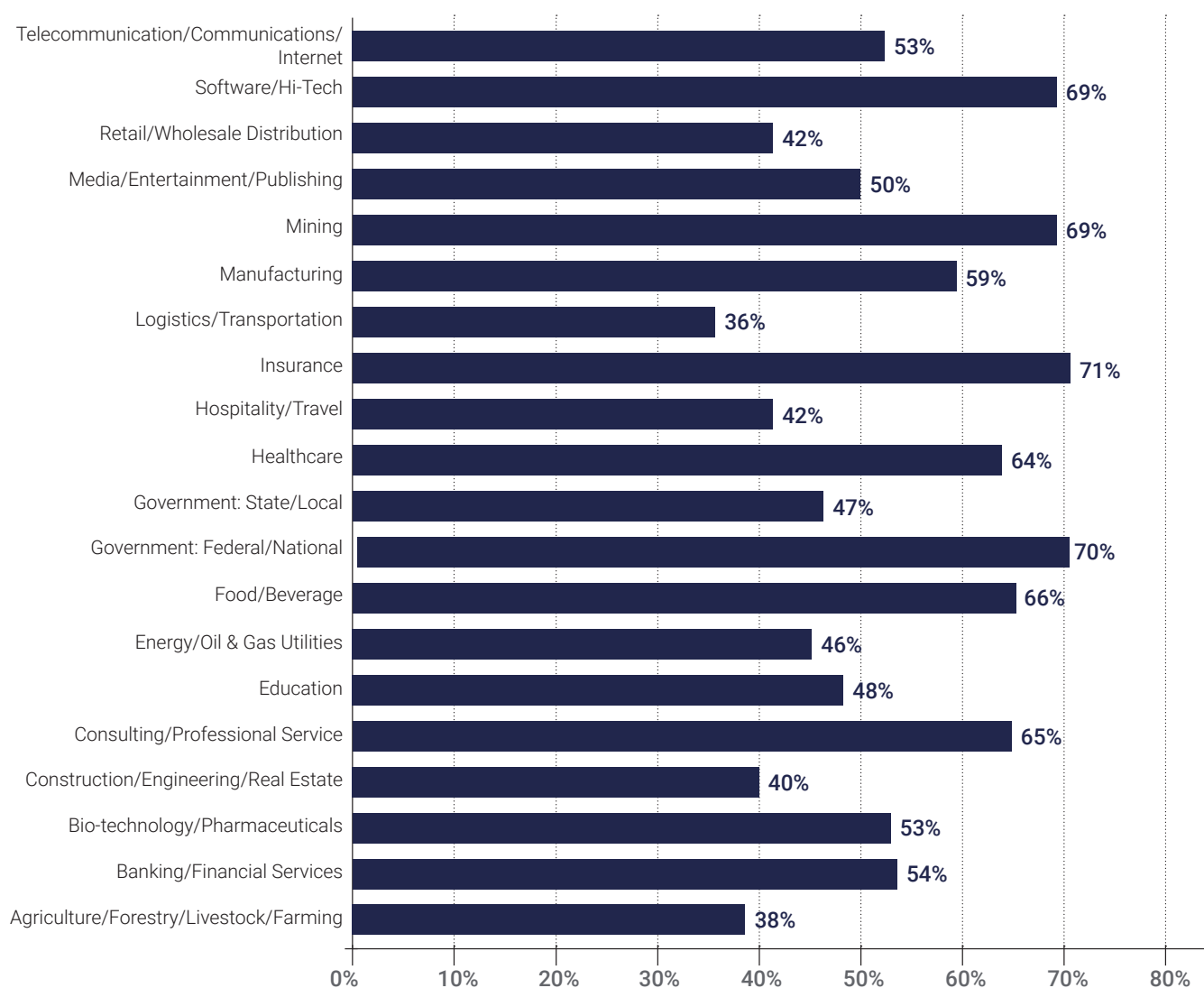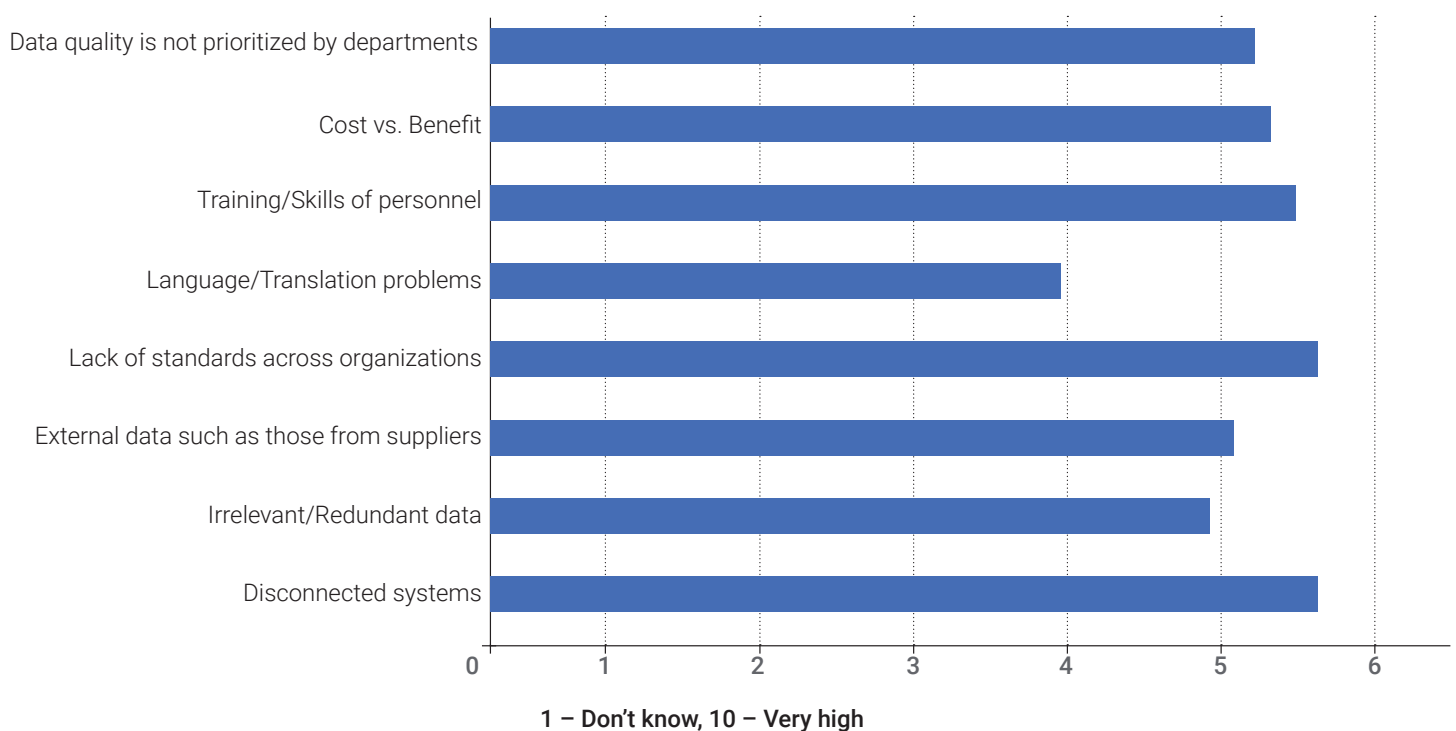## Figure 14 - 2019 Data Quality Practices and Ratings Within Specific Industries Participating in the Survey

1 – Don't know, 10 – Very high

Legend:
- Data Completeness
- Data Uniqueness
- Data Timeliness
- Data Validity
- Data Consistency
- Data Accuracy
- Data Authenticity
- Data Security

Figure 15 - 2019 Reasons for Lack of Data Quality

1 – Don't know, 10 – Very high

Excel continues to be the primary data mining tool, but its usage has dropped since last year's study. Excel is used for data cleansing, organizing and interpretation. This year, we found an increase in respondents' ability to find clean data, which may explain why managers are using a greater array of data mining tools, such as visualization tools like BI, Tableau and Qlik (see **Figure 16**).

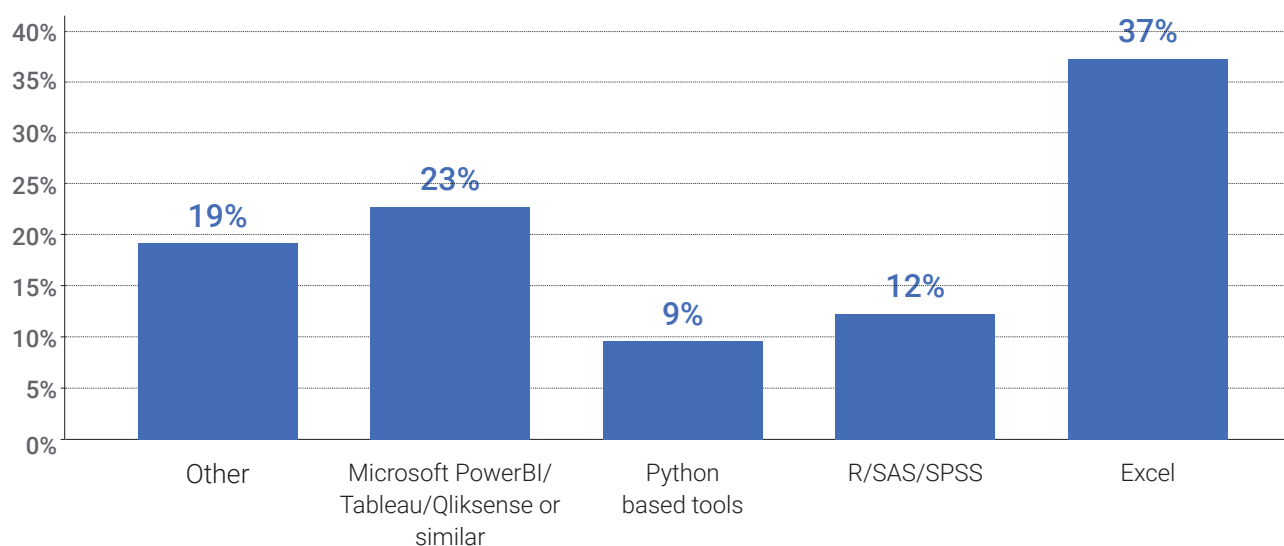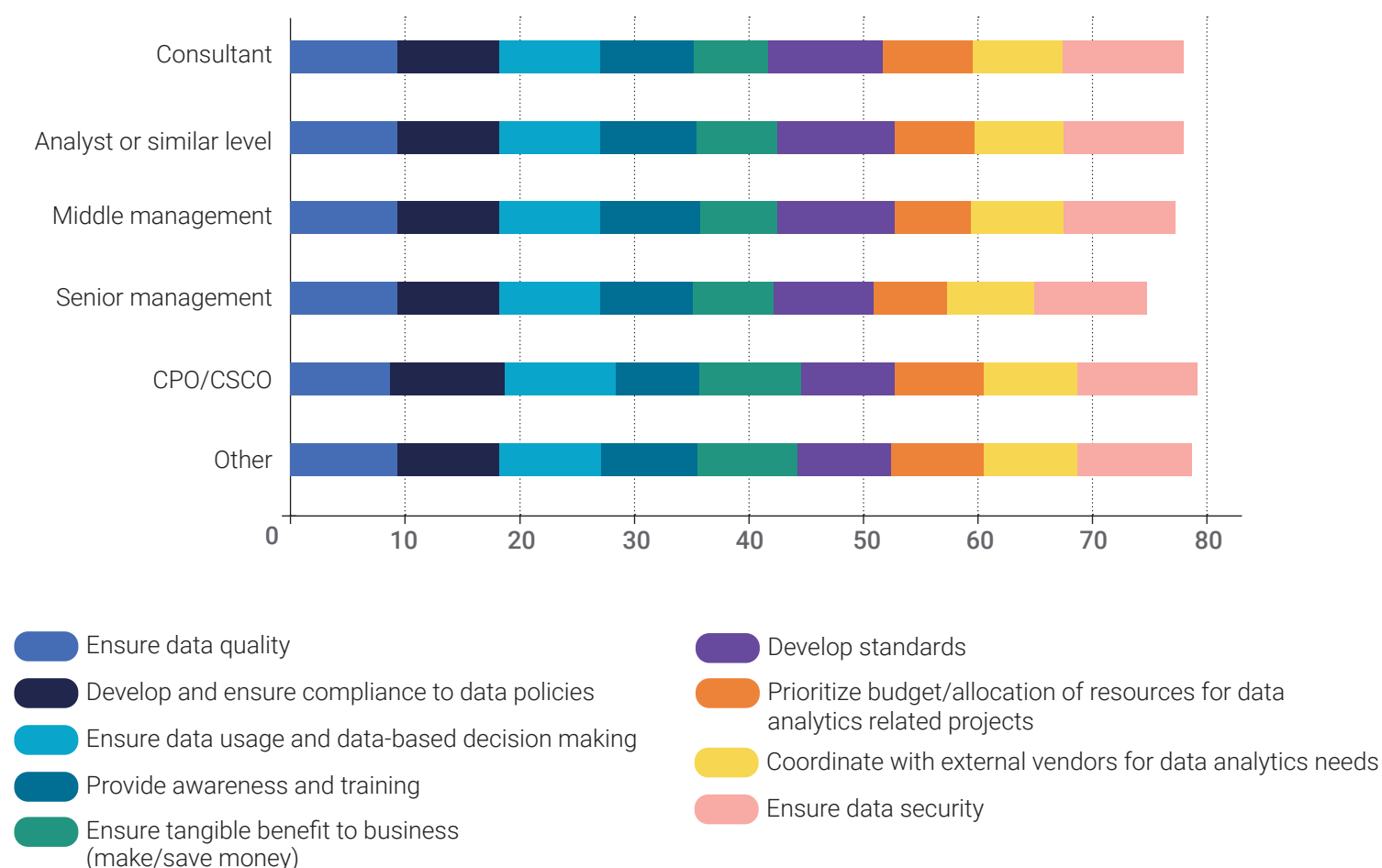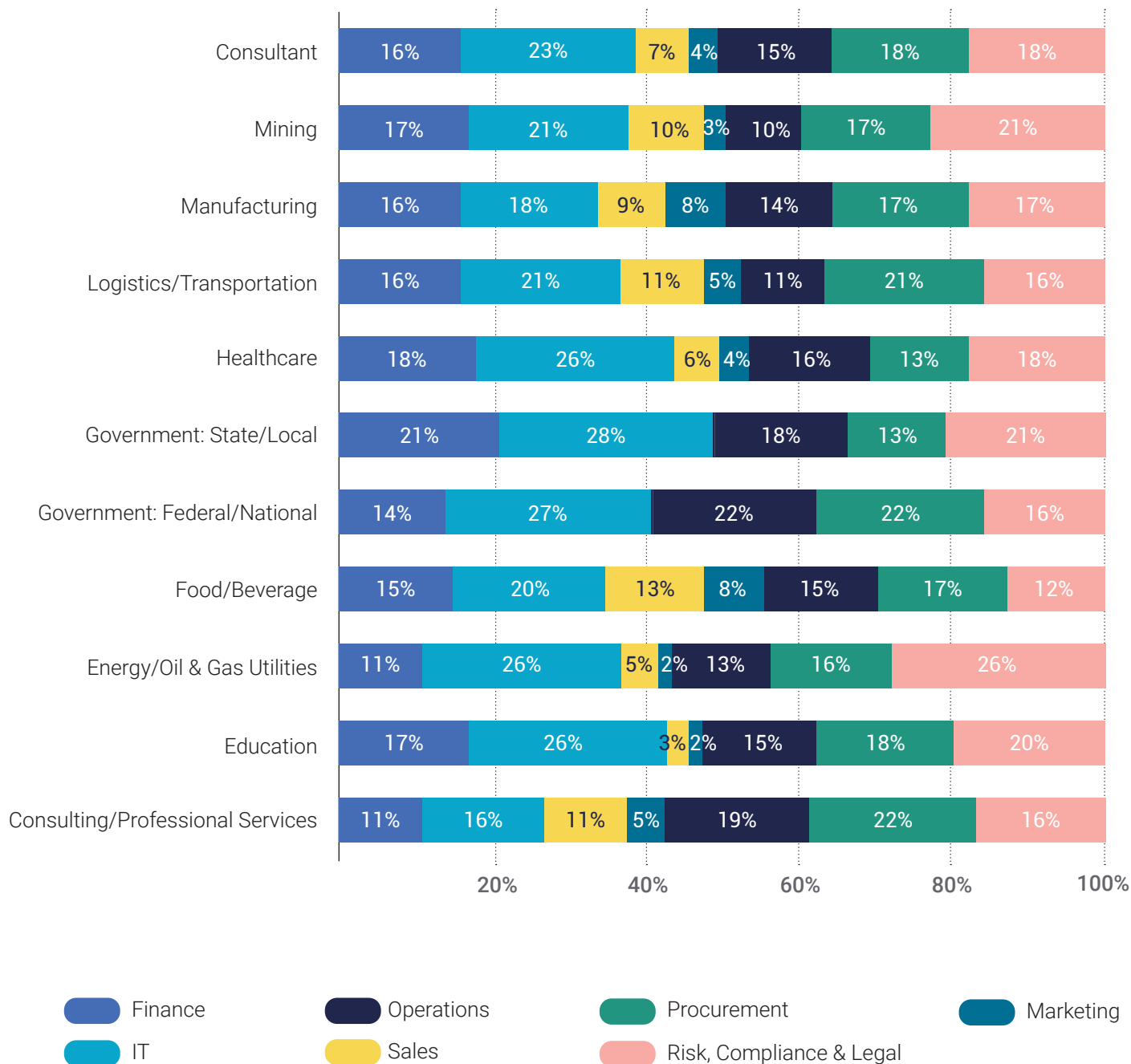## Figure 16 - 2019 Relative Ranking of Data Mining Tools

Figure 17 - 2019 The Perceived Governance Tasks Performed by Job Title

Legend:
- Ensure data quality
- Develop and ensure compliance to data policies
- Ensure data usage and data-based decision making
- Provide awareness and training
- Ensure tangible benefit to business (make/save money)
- Develop standards
- Prioritize budget/allocation of resources for data analytics related projects
- Coordinate with external vendors for data analytics needs
- Ensure data security

Finally, our study provided some important insights about how current events help shape data governance issues now and in the future. The rise of the "post-globalized" world and the threat of regulatory restrictions on the flow of information across borders are expected to become challenges for data governance organizations in the near future. Our current survey helps us establish the baseline for data governance, and we hope to focus more on the issues concerning data governance organizations in our upcoming work.

The involvement of supply chain and procurement teams in data governance steering committees has increased by 4% compared to last year (from an average of 14% in 2018 to 18% in 2019). As noted earlier, there is also a movement to assign data governance ownership to business units and ensure each function is accountable for the quality of their own data. Sales and Marketing teams are also becoming more engaged in data governance (see **Figure 18**).

Figure 18 - 2019 Composition of the Data Governance Steering Committee by Industry

Industry	Finance	IT	Sales	Marketing	Operations	Procurement	Risk, Compliance & Legal
Consultant	16%	23%	7%	4%	15%	18%	18%
Mining	17%	21%	10%	3%	10%	17%	21%
Manufacturing	16%	18%	9%	8%	14%	17%	17%
Logistics/Transportation	16%	21%	11%	5%	11%	21%	16%
Healthcare	18%	26%	6%	4%	16%	13%	18%
Government: State/Local	21%	28%			18%	13%	21%
Government: Federal/National	14%	27%			22%	22%	16%
Food/Beverage	15%	20%	13%	8%	15%	17%	12%
Energy/Oil & Gas Utilities	11%	26%	5%	2%	13%	16%	26%
Education	17%	26%	3%	2%	15%	18%	20%
Consulting/Professional Services	11%	16%	11%	5%	19%	22%	16%

Legend: Finance, IT, Operations, Sales, Procurement, Risk, Compliance & Legal, Marketing

Conclusions

1 | Progress is being made with respect to improving data quality and governance in the supply chain space, but continues to occur at a slow pace.

2 | While data quality appears to be improving, the organization and categorization of data does not appear to be advancing as represented by the increase in time spent trying to find data.

3 | Supply chain management has increased its participation on company data governance steering committees. This participation will allow the data quality and governance needs of the supply chain to begin to be addressed at the corporate level.

4 | It appears that the supply chain is starting to decrease its dependence on Excel as its primary tool for data cleansing, organizing and analysis.

5 | The concept of viewing data as an asset is beginning to be established as more procurement functions start to create the components of a DAM strategy.

6 | While not specifically addressed in this study, companies need to focus on:

- ✓ Conducting data audits

- ✓ Creating and sharing master data dictionaries within their company and amongst their supply chain network

- ✓ Eliminating all data silos

- ✓ Assigning value to data and treating data as a critical asset

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Special Thanks

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We'd like to thank Ivalua for having the vision of sponsoring the 2019 "Supply Chain Data Quality and Governance" study.

Study Participants:

The 2019 study had considerable support/participation from various professional associations throughout the world. With their support, we were able to have an increased number of participants for our study.

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Chartered Institute of Procurement & Supply (CIPS) – **Bill Michels**

Institute for Supply Management (ISM) – **Paul Lee**

International Association for Contract & Commercial Management (IACCM) – **Tim Cummins**

Supply Chain Management Association of Canada (SCMAC) – **Clément Bourgogne**

We look forward to the participation of these and other professional organizations during our 2020 study.

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