Benchmark Study 2015






Leveraging Supply Chain Data for Competitive Advantage

SupplyChainDigest™
Your First Stop for Supply Chain Information






Table of Contents

Introduction 3

About the Study 4

Survey Demographics 4

Survey Results 6

Key Takeaways from the Data 14

The Path Forward 15

About Supply Chain Digest 16

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Across the globe, company CEOs are hearing the same message... go digital, or go the way of the dinosaur.

Consulting giant McKinsey, for example, recently wrote that "To stay competitive, companies must stop experimenting with digital and commit to transforming themselves into full digital businesses." Of course, for most companies a key part of a transforming into a digital business is creating the digital supply chain – and the pressure from the top to do so quickly is ramping up.

A PwC survey earlier this year, for example, found 88% of CEOs globally say that digital technologies provide "quite high" or "very high" value in terms of increasing operational efficiency – and that CEOs also committed to other digital strategies such as data mining and analysis, boosting their e-innovation capacity, and improving decision-making.

All this of course begs the question, what does it mean to become a digital business or digital supply chain? There is not yet really an accepted definition, but we know what the key components are: mobility, the Internet of Things, visibility, the Cloud, Big Data – and the ability to better leverage the information the company often already has for insights, analytics, internal and external collaboration, improved decision-making and more.

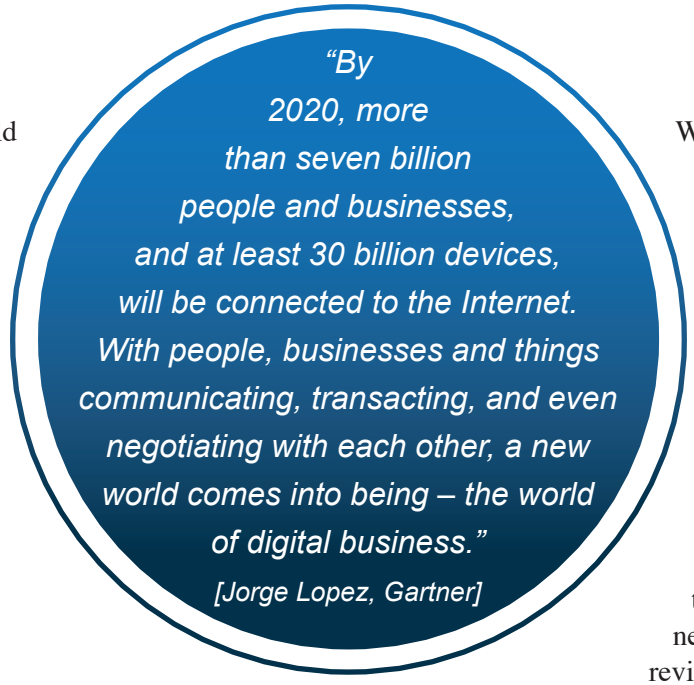
In fact, with the explosion of data coming from point of sale and other demand points, social media, a rapidly expanding number of connected "things" and more, the ability to harness that data into actionable intelligence really may be the defining capability of a digital business.

And here, things are changing rapidly, with technology leading the way, moving well past traditional reporting and even on-line dashboards (though these are very useful) to flexible, interactive, user-driven capabilities that take analysis and insight to entirely new levels – capabilities that are already providing a digital competitive advantage to a few supply chain leaders.

As Gartner's Jorge Lopez recently wrote: "By 2020, more than seven billion people and businesses, and at least 30 billion devices, will be connected to the Internet. With people, businesses and things communicating, transacting, and even negotiating

with each other, a new world comes into being – the world of digital business."

Lopez continues: "Digital business is the creation of new business designs by blurring the digital and physical worlds. It promises to usher in an unprecedented convergence of people, business and things that disrupts existing business models – even those born of the Internet and e-business eras. What makes digital business different from e-business is the presence and integration of things, connected and intelligent, with people and business."



With that in mind, *Supply Chain Digest* recently undertook a significant survey of supply chain professionals to see where they stand on the opportunities to craft these next-generation data management and analytics platforms, the level of capabilities companies currently have in place, and the priorities they are setting over the next few years. This report reviews the results of this survey data and concludes with a summary of what this means for improving and digitally transforming the supply chain.

About the Study

In Q1 of 2015, *SCDigest* launched a global survey of our readership around the subject of how companies are planning to leverage their supply chain data, including the capabilities they have in place now or intend to develop over the next few years.

We generated about 200 valid responses, a significant number, with respondents from around the globe.

Below we provide a detailed look at those responses, and identify key trends that are currently driving companies relative to data analysis and tools. We believe this is the most detailed study of these practices in the supply chain that the industry has seen to date.

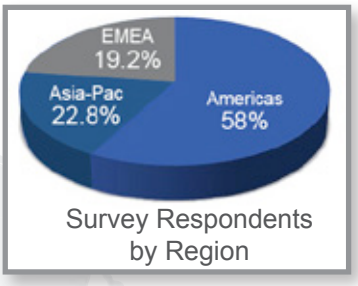
Survey Demographics

Responses came from a wide variety of roles within the supply chain, both traditional operations-related positions, as well as some from supply chain IT.

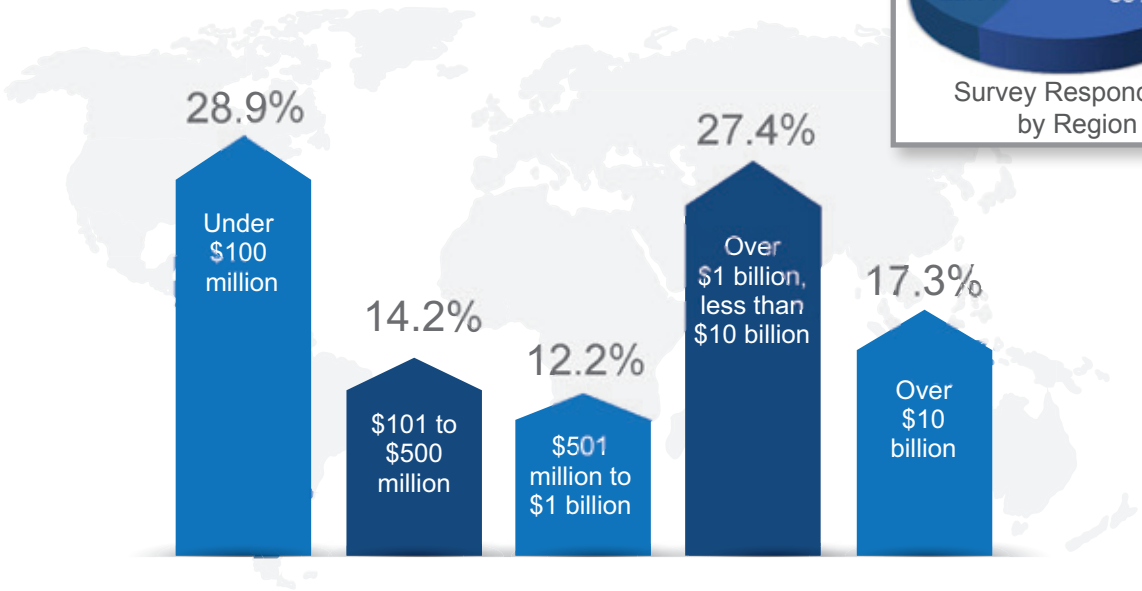
There was also a wide mix of industries, but the top five were from consumer goods companies (19.3%), followed by automotive, industrial or aerospace (15.2%), transportation and logistics (9.6%), high tech/consumer electronics (8.1%), and retail (6.1%). Responses from many other industries, such as chemicals, medical devices, pharma/bio-tech, wholesalers, utilities and more, were obtained.

Almost 58% of respondents were from the Americas, primarily the US, but more than 42% were from outside of Americas, split between the EMEA region (19.2% of the total population) and Asia-Pac (22.8%). This represents a more truly global respondent base than *SCDigest* typically has for its survey data.

There was also a nice split by size of companies, as shown in the figure nearby. More than 44% of respondents were from companies with more than $1 billion in annual revenues, and that probably understates the mix a bit, as some respondents answered from a divisional or SBU perspective that might have smaller revenues but be part of a larger company that has much larger sales.



Survey Respondents by Region



We received responses from great companies across the globe, including the following:

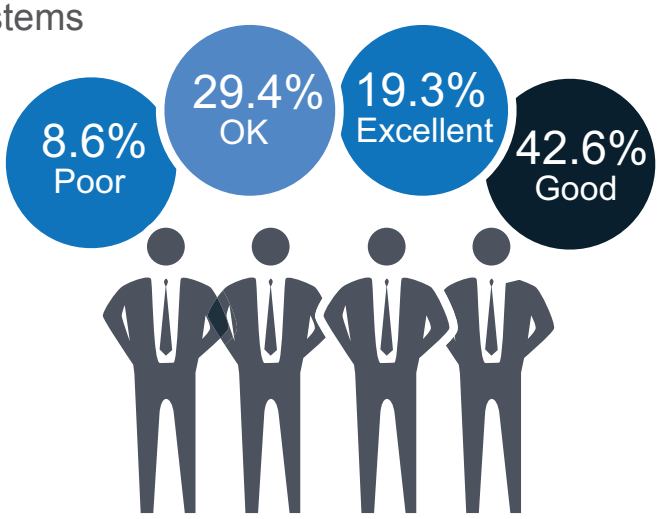
Eaton	Solar Turbines	Oriflame Cosmetics	Axalta	Amway
Manfrotto	Rexnord	Godrej & Boyce	Applied Materials	Big Lots
Nordam	AB Enzymes	Osram	Daniel Corp	Sears
UTC Aerospace	Gullbrandsen	Johnson & Johnson	Philips Healthcare	Wegmans Food
MaxamCorp	Nuplex Resins	Mondelez	Seagate	Land O Lakes
Honeywell	Nike Australia	Energizer	Suncor Energy	Expeditors
General Electric	Johnsonville Sausage	Colgate Palmolive	Bayer HealthCare	RS Components
Caterpillar	Tiger Brands	Armstrong World Industries	Boehringer Ingelheim	Estes
Toyota	Edlyn Foods	McCormick & Company	Siemens Healthcare	DB Schenker

Survey Results

Robustness of Current KPI Reporting Systems

Companies have made sizable investments in time and effort over the past two decades or more to develop systems to report on key performance indicators (KPIs) that track a seemingly ever-growing list of supply chain metrics.

As can be seen, almost 62% of companies say their traditional KPI systems and capabilities are good or excellent, indicating this is an area of growing maturity – and that the real action today is in more advanced systems, as we'll explore throughout this report.



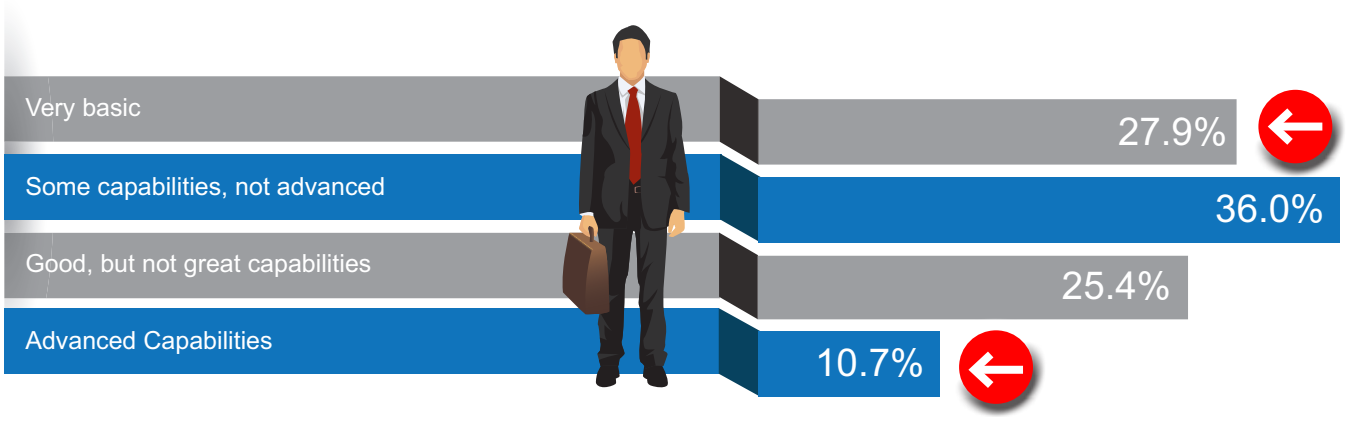
The Bottom Line

While some companies are still struggling with basic metrics and performance measurement, excellence here is no longer a differentiator – more advanced capabilities are now required to gain competitive advantage.

Advanced Analytic Capabilities

While the definition of what makes so-called "advanced analytics" is far from precise, there is no question that leading companies are in fact leveraging data in new and innovative ways to find relationships, patterns and other insights that improve decision-making.

Relative to these more advanced capabilities, we see a drop off from the previous question, with just 25.4% of respondents saying they have good analytic capabilities and only 10.7% advanced capabilities, as shown below.



Supply Chain Data and Analytics Capabilities by Region

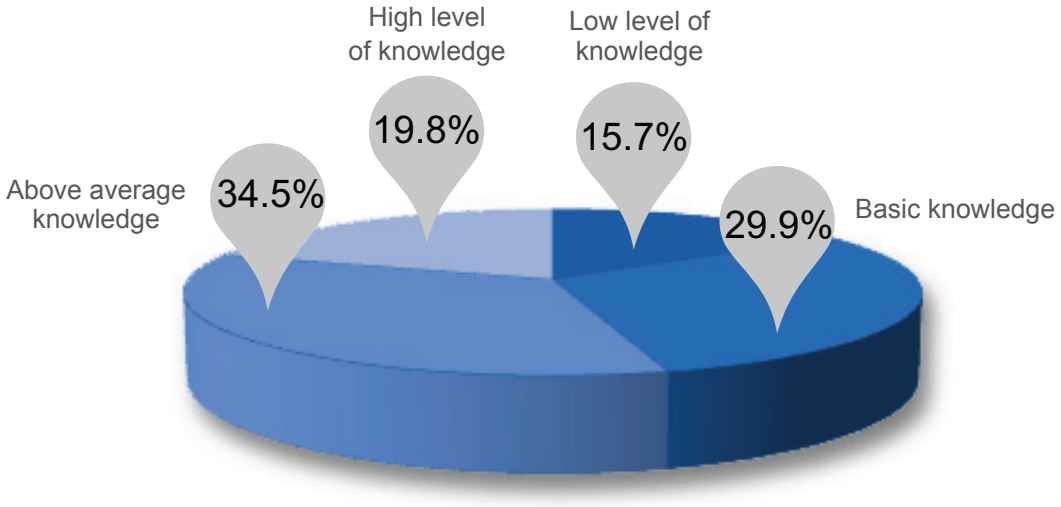
In general, we did not find a meaningful level of difference across the three geographic regions we targeted. That said, on this question there were some differences across regions, with Americas companies claiming to have the most advanced capabilities, while EMEA companies and Asia-Pac firms having roughly the same outlook, if somewhat different in the specific breakdown across the four categories.

	Very Basic	Some Capabilities, But Not Advanced	Good, But Not Great Capabilities	Advanced Capabilities
Americas	22.8%	36.0%	28.1%	13.2%
EMEA	26.3%	47.4%	23.7%	2.6%
Asia-Pac	44.4%	26.7%	20.0%	8.9%

Knowledge of Supply Chain Analytics in Early Stages

As noted above, there is far from a universal definition of what defines advanced analytics – and a lack of knowledge about the subject area in general. This is not surprising given the relative newness of these tools in the last few years.

As shown in the graphic below, fewer than 20% of supply chain managers say they have excellent knowledge relative to supply chain analytics, while more than 45% say they have at most basic knowledge of this subject matter. It interestingly comes at a time when many companies have pared back their own operations research departments, but may now look to expand back in somewhat different ways relative to data management and analytics.



The Bottom Line:

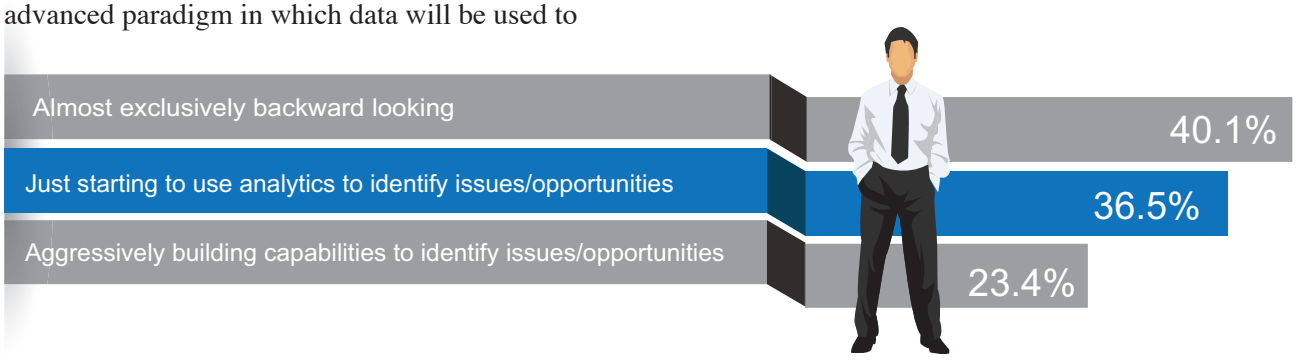
While use and knowledge of more advanced supply chain analytics is growing, it is still in its relatively early stages, with few supply chain managers having deep knowledge of the topic, and overall capabilities high in just 10% of companies.

What Characterizes Your Approach to Analyzing Supply Chain Data?

A critical difference between traditional KPI reporting systems and today's data analytics is that the traditional approach – scorecarding – provides a rearview mirror of performance: what happened yesterday, last week, last month, last quarter, etc. Modern dashboards, on the other hand, provide a more real-time view of what is happening right now, allowing supply chain managers to react to issues and opportunities as they unfold.

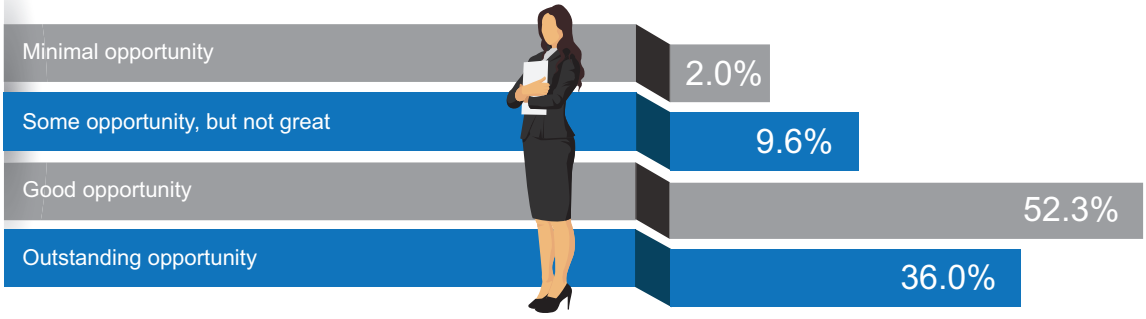
But we are rapidly moving towards an even more advanced paradigm in which data will be used to predict future supply chain behaviors and outcomes, and ultimately prescribe what course to follow to drive the optimal results.

We are very early in this game. While 23.4% of respondents indicate they are "aggressively building" these forward-looking capabilities, 36.5% said they were just getting started in this direction, and more than 40% said they were still almost exclusively backward looking when it comes to data analysis.



What is the Potential Value from Analytics that Identify and Predict Issues/Opportunities?

While few companies are well down the path to these forward-looking capabilities, the vast majority understand the value in doing so. In fact, 36% of respondents said they see such advanced capabilities as an "outstanding opportunity," while another 52% characterized the opportunity as "good" - or a full 88.3% combined. Only 11% are not that optimistic on the potential here for the supply chain, as shown in the chart nearby.



The Bottom Line:

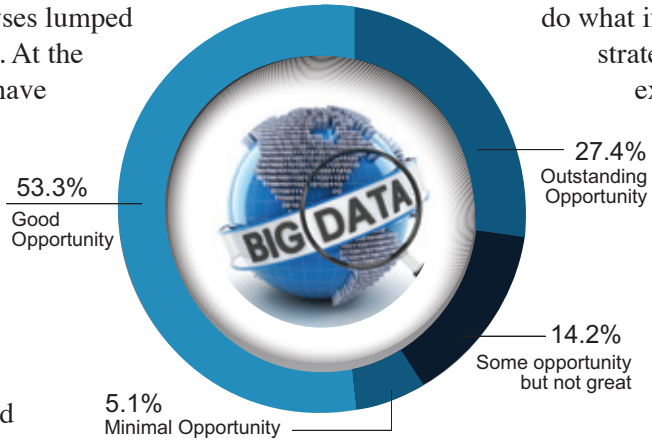
At this point in the data and analytics evolution, it is not be surprising the majority of companies are still focused on a backwards view of performance, or just starting a more forward-focused set of capabilities. Many have worked hard to develop robust KPI reporting systems, only to find some of that work has to be rethought in light of today's capabilities and opportunities to leverage the data in whole new ways.

Becoming a digital business will involve building forward looking capabilities – and the good news is the vast majority of companies recognize the potential value in getting there.

What is the Opportunity for Big Data in the Supply Chain?

Companies see similar bright opportunities for so called "Big Data" in the supply chain. *SCDigest* would argue that just as with advanced analytics, that term is less than precisely defined, and we have heard all kinds of analyses lumped under the Big Data umbrella. At the same time it's clear that we have entered a new era.

Retailers, for example, are working hard to connect a variety of data sources – loyalty program shopping data, web site behavior, social media interaction and more to better understand what drives shoppers and to better predict and understand demand. Transportation data is being leveraged by many companies to better understand how actuals become degraded from the original plan, to improve driver safety, do what ifs on potential logistics strategy changes, and many other examples.



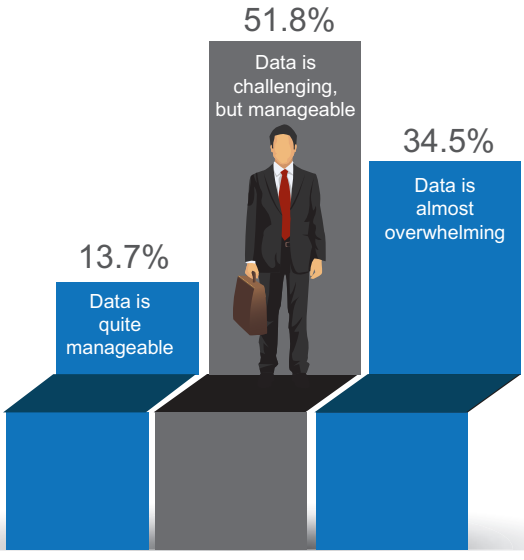
A combined 80.7% of companies see either good or outstanding opportunities from use Big Data in the supply chain – even if the path forward is not yet completely clear.

How Hard will Managing All this Data Be?

A key question of course is whether companies will really be able to manage and take advantage of all this data as it continues to explode – and that's before the Internet of Things has really yet become a major force. Trading partners are also increasingly making supply chain data available, while a company's ability to access its own data – such as transportation-related information – continues to improve.

Might this flood of data prove too much to manage? We would say the jury is still out on that one. More than 34% of respondents say the amount of data is almost overwhelming, while just 13.7% say it is quite manageable. The preponderance – 51.8% - are in between, recognizing the challenges in the amount of data but believing it will be manageable in the end.

We would just add that how manageable and useful the data is - whether it's "big" or not – will depend on the tools and processes that are put in place to leverage it, combined of course with the skill of the people involved.



The Bottom Line

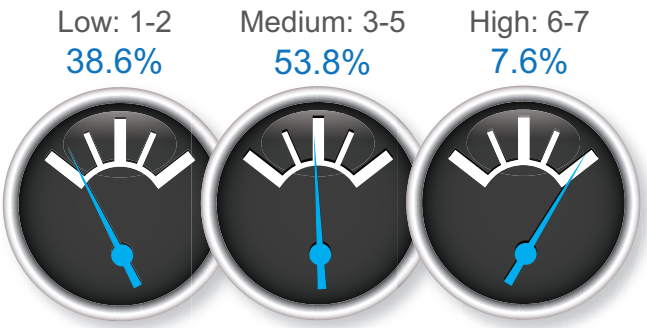
Even if unsure of the specifics, the vast majority of respondents see big supply chain potential in Big Data, and are optimistic that while there will be challenges, the huge amount of data being generated will be manageable in the end.

We agree – but suspect big differences among companies depending on investments made, the level of talent to manage these programs, and the technology path that is chosen.

How Flexible is Your Current System for Users?

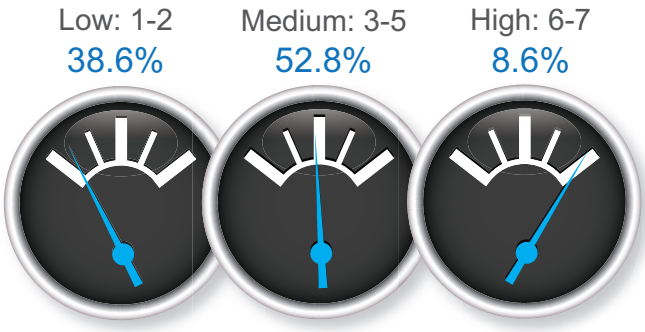
We next asked respondents to evaluate their company's data capabilities in a number of areas. For each, we provided a scale of 1-7, with seven being the highest and one the lowest. Rather than computing a simple average, we thought it would be more useful to group the responses, assigning a score of '"low" to 1 and 2's, "medium" to 3 through 5, and '"high" to 6 and 7's.

The first chart looks at data system flexibility and the extent to which users are empowered to manipulate/explore the data on their own. As shown below, clearly few respondents (just 7.6%) believe their systems have high levels of such flexibility, and that syncs with general feedback that *SCDigest* has heard that managers want to be less dependent on IT to provide the views and correlations they are looking for in the data.



Data Visualization Capabilities

Data visualization is becoming an increasingly important capability – meaning new ways in which data can be displayed, generally in a graphical form – that brings the data alive and helps managers, their peers and their bosses visually see the results in a way that is more meaningful than tables in a spreadsheet or even basic pie/column type charts.



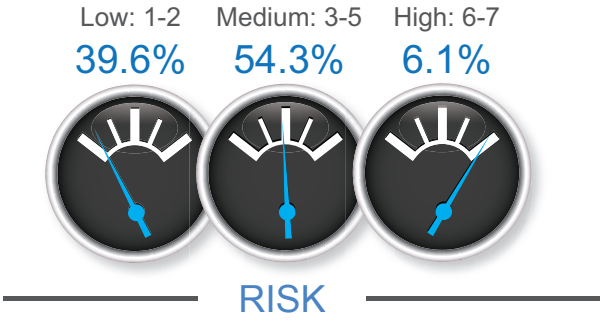
As shown here, very few companies appear to have made major advances in the data visualization challenge – and more than one-third of respondents say their capabilities in this area are currently low.

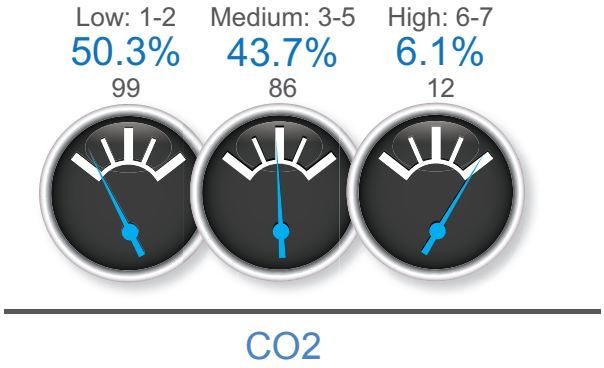
"...very few companies appear to have made major advances in the data visualization challenge – and more than one-third of respondents say their capabilities in this area are currently low."

Risk Analytics and CO2 Emissions Reporting Capabilities

We found similar results for capabilities around identification of supply chain risk and reporting on CO2 emissions, both of which had just 6% of companies saying that they had high capabilities in these areas, though more companies had a medium level of capabilities in the supply chain risk identification area than they did for CO2 reporting. Given their prominence in supply chain thinking these days, we would expect capabilities in both areas to grow over the next few years.

Of course C02 is just one of many measures of Sustainability, and we would expect most companies will look to expand capabilities and KPIs across many measures.





The Bottom Line

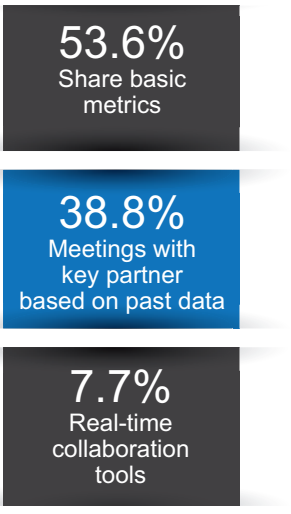
Consistent with other data points from this research, analytics capabilities in areas such as user self-empowerment, data visualization, supply chain risk management and more are still in general very immature.

We believe a high-performance digital supply chain will include these types of capabilities, meaning companies need to define a roadmap now to get there if they have not done so already.

Use of Data and Analytics with Trading Partners

Advanced data tools will also foster new and improved levels of trading partner collaboration. How? By enabling a real-time, forward looking dialog – based on real data for improved scenario analysis and decision-making – rather than focusing primarily on past performance, which characterizes most trading partner interactions today.

That opinion is supported by the data, which shows just 7.7% of companies have the ability to leverage real-time data, scenario planning and other capabilities when discussing future plans with key trading partners. Conversely, almost 54% rely primarily on simply sending trading partners data on their past performance.



With the competition so fierce in every industry, supply chain leaders will move to become more strategic with leading trading partners to make decisions that can reduce total supply chain costs, improve promotional effectiveness; find new opportunities to drive revenue gains and more.

Data-driven analysis and "what if" capabilities will be central to that future collaborative state.

Areas of Biggest Potential Gains from Improved Data Management and Analysis Capabilities

We asked respondents to rate a series of potential benefits on a scale of 1 to 7, with seven being the highest benefit and one the lowest, as shown in the graphic below.

All the listed benefits scored highly, each well above the mid-point average of 3.5, but coming out on top was "better decision-making," which really in the end is the key to all of this, with an average score of 5.6. Right behind was improved supply chain agility, followed by "finding hidden supply chain opportunities."

We would say the respondents got it just right.



Areas of Greatest Opportunity

Becoming more "forward looking" topped the list, with an average score of 5.6 on the same 1 to 7 scale. That was followed by "connecting and relating disparate data sources," at 5.3, and improved data visualization, with a score of 5.2. Improving the "range of KPIs tracked" was the lowest rated improvement area (though still with a score of 4.3, well above the mid-point), but again we believe that this is because many if not most companies have created very good traditional supply chain metric systems over the last decade.



The Bottom Line

Despite early stages of maturity, companies see significant potential from improvements in data management and analysis. Not surprisingly, improved supply chain decision-making tops that list, while similarly becoming more "forward looking" was the number one opportunity identified by respondents from improved data management and analytics.

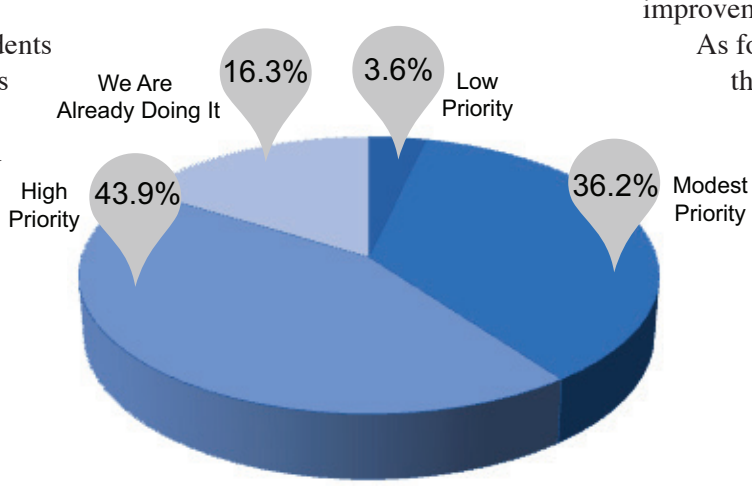
The consensus is clear – there is significant potential here to improve supply chain performance through better data management and analytics.

Priority of Making Improvements in Data & Analytic Capabilities

Capping that off, respondents made it very clear that improvements in this area are a very high supply chain priority – in part as an element of overall digital business strategies, as discussed at the beginning of this report.

Almost 44% of respondents said such improvements were a "high priority," while another 16% said their companies were "already doing it" in terms of building advanced data and analytic capabilities – some 60% combined between the two responses.

Just 3.6% of respondents said such improvements were a low priority. As for the 36% that suggest this is an area of just modest priority – SCDigest suggests you may want to revisit that thinking.



The Bottom Line

For supply chain leaders, the advanced analytics train has already left the station.

Key Takeaways from the Data

Clearly, the data from our global survey shows that we are very early in the maturity and deployment of a series of next generation data analysis tools, but that the interest is high, and companies understand the potential value.

In fact, the vast majority of companies sees significant value in increasing their capabilities in terms of data and analytics (88% said there is a good or outstanding opportunity), with similar numbers seeing high potential for Big Data.

However, very few companies – generally well under 10% - say they are at advanced levels across a number of more advanced capabilities in this area, such as user system flexibility and user empowerment, data visualization, supply chain risk management capabilities and more.

At the same time, 16.3% say they have already started acting on building advanced analytics capabilities – providing a competitive edge for those that are turning the potential opportunity into action. Respondents especially see opportunities in better leveraging data to become more forward versus backward looking, correlating data from multiple sources, better data visualization and managing Big Data.

Advanced analytics will without question be a cornerstone of creating the digital supply chain – and the evidence says CEOs are hoping the supply chain gets there fast.

The Path Forward

Companies are facing the convergence of several important mega-trends:

- An explosion of new data sources, including social media, the Internet of Things, and inter-connected supply chains.
- The rise of Big Data and advanced analytics to drive improved business insight and decision-making.
- A growing corporate focus on improving visibility across the supply chain and beyond to achieve greater agility and speed of response to issues and opportunities.

Companies are also increasingly crafting strategies to push more data down to the point of decision-making, with mobile technology playing a growing role, as companies want workers to be able easily access the data they need wherever they are, on the device of their choice.

The supply chain of course presents a rich opportunity take advantage of these trends in data management and analytics, and this survey and anecdotal evidence (conference presentations, trade magazine stories, vendor case studies, etc.) show a growing number of companies are doing so. They are developing capabilities that:

- Enable data from multiple sources to be pulled together for a consolidated, holistic view
- Allow end users significant flexibility to mine the data on their own without going to IT for a new report – one key example is the ability to drill down and horizontally as part of root cause analysis to supply chain issues
- Provide high levels of data visualization capabilities to more powerfully tell the story that underlies the data
- Enable a company and its trading partners to jointly view key information and use "what if" capabilities to explore opportunities for improvement
- Make data and analytics easily accessible on mobile devices

"While as always it's about people, process and technology, there is a certain binary aspect to this data opportunity: either your supply chain has some of these more advanced BI capabilities or it doesn't."

The first step to this data empowered supply chain world is to better understand the possible, and how leading companies are taking their data management and analytics to new levels across every area of the supply chain.

Reports such as this and others from industry analysts are one component in this education, but here technology vendors, generally grouped under the term business intelligence (BI) system providers, can also be a valuable resource. From product demonstrations to customer cases studies and site visits, SCDigest is confident most companies will be pleasantly surprised by just how far this type of technology has come from leading BI providers.

And here is the thing: while as always it's about people, process and technology, there is a certain binary aspect to this data opportunity: either your supply chain has some of these more advanced BI capabilities or it doesn't. So here, technology really plays the key role in reaching a more advanced state.

But people and process of course play key roles as well, and are joined at the hip in many ways. This is especially true because how to best leverage supply chain BI is not always simply intuitive – how to gain

maximum advantage needs to be defined, in many instances, with detailed thinking about what data visibility and analysis are required to make certain types of decisions.

Some companies have formalized this process in some areas into what are called "playbooks." Such playbooks, for example, might prescribe what to do in the case of a serious supply disruption: what information is needed to respond and where that information can be found.

Once a company understands what is possible today, it needs to create a vision for supply chain BI and of course a plan to get there, including building the business case. Here, BI vendors and industry consultants can again provide help – they will likely have had experience doing just that across many other companies that can be leveraged in your own company.

We know that many companies are moving aggressively down this supply chain BI path, as part of an overall digital business strategy or independently.

In either case, SCDigest strongly believes those not yet on this journey need to begin soon, with some sense of urgency. The level of capabilities in supply chain data management and business intelligence can clearly deliver competitive advantage – or the reverse for industry laggards.

Such capabilities will not only provide better decision-making and agility, they will play a key role in attracting supply chain talent when candidates are exposed to advanced tools that will help them succeed at their jobs.

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