Watson Supply Chain

# Top Supply Chain Trends for 2017

## Delighting customers and driving strategic value

IBM

# CONTENTS

**Introduction:** Consumers expect a lot from your brand – are you rising to the challenge? ..... 3

**Trend #1:** Increasing supply chain visibility, resilience, and value via Big Data and Analytics ..... 4

**Trend #2:** Mastering the equation in the need for speed ..... 5

**Trend #3:** Building demand-driven value networks ..... 6

**Trend #4:** Moving from the cockpit to the control tower ..... 7

**Trend #5:** Harnessing cognitive analytics to unlock hidden value from data ..... 8

**Trend #6:** Advancing knowledge management through cognitive technologies ..... 9

**Trend #7:** Growing momentum and adoption of blockchain ..... 10

**Partner Perspectives** ..... 11

# Consumers expect a lot from your brand – are you rising to the challenge?

**Lori Webber,**
**Director of Marketing,**
**Watson Supply Chain**

Let's take off our work hats for a moment. Think of your life as a consumer. Maybe it's last night's sprint to the market to pick up fixings for dinner. Or perhaps you spontaneously treated yourself to that long-coveted gadget. In these moments, whether you're envisioning free-range chicken or a snazzy VR headset, you feel content.

But, unfortunately, not every customer experience fulfills. Sometimes you discover your favorite <fill in the blank> is sold out. Or you're notified that your package is delayed due to inclement weather. Or worse, your preferred retailer made headline news for a labor scandal. The flavor and toll of customer dissatisfaction can vary. But these scenarios share one common root: an inadequate supply chain.

It's not for lack of effort. You, the supply chain professional (feel free to put that work cap back on), understand the endless dependencies and constant risk assessment involved – the incalculable number of transactions, communications, and processes that must go right to satiate customer demand.

I recently read that as much as 65% of the value of a company's products or services is derived from its suppliers – and supply chain.[1] (No pressure, right?) Consider supply chain's role in top customer careabouts – product quality, price, and availability. It's easy to understand its colossal impact on not just customer delight and brand affinity, but profitability.

And in an era where innovation dictates the difference between success and stagnation, the supply chain is stepping up its strategic merit to the business. In talking with our own clients, I've heard many fascinating tales of ideation – all stemming from ingenious supplier collaboration.

Meanwhile, there remain major obstacles to overcome. According to a survey of 400+ supply chain leaders,[2] lack of visibility and transparency is the biggest hurdle.[3] It's not surprising given the explosion of data. It's ubiquitous – scattered across disparate processes, sources, and systems.

Add to that the breakneck pace of change. Constant flux of the digital age places ongoing pressure on our workforce. How can we elevate our personnel and equip them with the knowledge, capabilities, and tools needed to proactively lead – not reactively transact?

The challenges are great, but so is our opportunity. Together, we can make technology work for us and build smarter, stronger supply chains. The following pages highlight trending topics, including many buzzwords you hear today – analytics, cognitive, and blockchain. But the measure of these technologies lies in the outcome. Are they exposing weaknesses in our ecosystem and helping us remedy them? Are they catalyzing positive customer sentiment?

I look forward to your thoughts. Tweet us @IBMSupplyChain

1. CAPS Research, Institute for Supply Management, Cross-Industry Report of Standard Benchmarks
2. *IBM IBV Global Chief Supply Chain Officer (CSCO) Study*
3. IDC FutureScape: Worldwide Big Data and Analytics 2016 Predictions

# Trend #1: Increasing supply chain visibility, resilience, and value via Big Data and Analytics

**Rob Allan,**
**Global Lead: Supply Chain Analytics Offering for Watson Supply Chain**

Although the concept of Big Data is pervasive in the media and in business, specific definitions and programs can vary widely. Big Data may refer to mining huge quantities of data, interpreting unstructured data such as social media, real-time data, and more.

Whatever the label, businesses are increasingly starting to understand and explore how to utilize Big Data solutions to analyze a vast array of information in new ways. In doing so, more and more businesses are achieving breakthrough business outcomes.

Almost half of businesses now have roadmaps for their Big Data programs, and roughly 30% have implemented or are implementing Big Data and Analytics programs and solutions, either as a pilot or at scale.[1]

Two important trends are driving adoption of Big Data and Analytics programs:

1. The digitization of virtually everything is creating large volumes of real-time data across various professions and industries.
2. Today's advanced analytics technologies and techniques enable businesses to extract insights from data with increasing sophistication, speed, and accuracy.

Some businesses – and the supply chain organizations at many businesses – are behind the curve in taking full advantage of the capabilities and opportunities presented by Big Data and Analytics.

This lag is ironic, given supply chain's importance and complexity. Consider the value in seeing material throughout the supply chain, from suppliers to customers. Linking customer orders with supplier purchase orders and materials in progress is crucial. It's instrumental in defining a business's readiness to respond to disruptions (e.g., weather impacts, material delays, quality issues, demand spikes, or delivery route degradations).

To enhance visibility and resilience, businesses need a system to identify, evaluate, and communicate about critical data across their supply chain. Despite the significance of end-to-end visibility, it historically has been very difficult to achieve. In practice, business information exists in silos. Segmented data serves the individual silos, not the entire supply chain. Moreover, each supplier and customer has their own silo, not commonly shared with others in the chain.

That makes for a perfect Big Data and Analytics challenge – and program. Breaking down these silos and establishing comprehensive visibility requires changing:

- Processes: From planning to execution, processes must become collaborative across departments and among organizations. Demand planning improves the suppliers' ability to fulfill orders. Risk management is essential to mitigate supply chain interruptions.
- Ecosystem: Data should be shared between business functions and outside the enterprise. Collaboration fosters trust between tiers. Information sharing across the chain connects partners in the network and provides an end-to-end process view.
- Technology: A challenge in information sharing between tiers is passing data between different systems. For example, how do you connect a company with an enterprise-wide ERP system with a supplier that manages their business on a spreadsheet? Cloud computing and data analytics software can address these challenges.

A Big Data and Analytics solution can provide the right information to bridge gaps across the supply chain – allowing for a unified, coordinated response to issues while improving decision-making and performance.

1. IBM Institute for Business Value, "Analytics: A blueprint for value"

# Trend #2: Mastering the equation in the need for speed

**Michael O'Leary, Director, Procurement Solutions and Watson Supply Chain Insights**

Supply chain organizations need to keep pace with the accelerating velocity of business. In fact, speed is essential to ensuring delivery and quality of supply, particularly in highly constrained commodity categories. And it's essential to meeting customer expectations.

Dr. Robert Handfield, executive director of the Supply Chain Resource Cooperative (SCRC), notes the high stakes. "Those that adapt more quickly and respond to change will survive," he writes, suggesting unwanted outcomes for those who can't operate with speed.

Modern supply chain organizations require two fundamental capabilities for speed:

1. Visibility across the end-to-end supply chain
2. Collaboration both externally and internally across multiple functions

In short, speed = visibility + collaboration.

Let's look at visibility first. To achieve rapid collaboration, supply chain and cross-functional teams need visibility across the entire global supply chain. And they need immediacy. They must be able to deftly answer critical questions, such as: What is the status of inbound supply? How does future committed supply compare to the latest set of demands? How volatile are future demands? Are customer orders, both volume and mix, aligned with expected demand? Are there quality defects that will impact future supply? What about manufacturing capacity and fulfillment execution?

To do this, best-in-class supply chain organizations are building a layer of visibility atop their systems of record (e.g., ERP, logistics, sales operations, etc.). This allows them to sense abnormal conditions through predictive alerts and insights derived from the collective data.

Supply chain data and analytics are fundamental to establishing this type of visibility. Nearly three-quarters of IT executives anticipate that the speed at which senior executives expect to access new data-driven insights will only continue to accelerate.[1]

Equally important to visibility is efficient collaboration. Ensuring prompt product delivery takes tight coordination among myriad functions: development, engineering, order fulfillment, supply assurance, logistics management, demand planning, strategic sourcing, procurement operations, manufacturing, and inventory management – not to mention shared services such as legal, finance, etc.

Envision a "typical" supply chain disruption resulting from demand fluctuations, supply constraints, quality defects, weather impacts, or other causes. Disruptions, by nature, often span the organization and partners. Then consider the alternatives to work through these disturbances: expedited shipments, additional sources of supply, engineering off-specs, design changes, demand shaping, alternative manufacturing/fulfillment locations, and more.

The point is, making optimal decisions from a cost, quality, and delivery perspective requires several parties, internal and external, across many functions. Finding and connecting the necessary decision makers can be challenging enough, but so is attaining cross-functional alignment.[2] That's why best-in-class supply chain organizations continually work to facilitate rapid collaboration.

Indeed, in today's fast-moving business world, meeting the need for speed is not simply encouraged, it's essential.

1. IBM Institute for Business Value, Analytics: *The Speed Advantage*, 2015
2. Supply Chain Insights, LLC Cross-Survey Analysis, 2015

# Trend #3: On the foundation of data visibility, supply chain leaders building demand-driven value networks

**Chris Cameron,**
**Worldwide Sales Lead**
**SaaS Supply Chain**

Companies are confronting heightened customer expectations for an Amazon-like experience in terms of personalization, availability, and delivery visibility for their products. These demands play out in a supply chain operational environment that prioritizes savings from reduced operational and support costs.[1]

All this, combined with advancements in technology, is driving Fortune 1000 companies to evolve their supply chains into demand-driven value networks (DDVNs) – a term Gartner coined. DDVNs integrate processes and data to translate demand signals into supply responses, to create greater value and mitigate risks.

The trend toward these DDVNs is becoming advanced in industries with complex supply chains such as automotive, aerospace, and retail.

DDVN provides a competitive advantage, allowing companies to:

- Grow revenue faster
- Achieve more than 15% higher perfect-order rates
- Reduce inventory levels by one-third[2]

Supply chain leaders tend to focus on visibility as their way of creating a DDVN. The reasoning has been that if management can get visibility into the components in the supply chain operating network, the result will be a more mature, responsive supply chain that can become a DDVN.

However, lessons from trendsetters demonstrate that DDVN requires more than an improvement in visibility. If an organization wants the full benefits of a DDVN, they must first build a foundation of data visibility – and then build upon it.

At best, visibility provides the organization the ability to react. To transform the organization into a true DDVN, supply chain leaders must combine data visibility with several other components:[3]

- Data ownership: Cost-focused companies often abdicate their data layer to services providers. DDVN companies own their data layer. They aggressively manage data provisioning by service providers to reduce errors and latency. Then they build architecture on top of the data to quickly leverage information.
- Anticipation capabilities: DDVN companies mine their data for opportunities to improve, and then scale effective mining and alerting functions.
- Integration on multiple axes: DDVN companies align networks and processes vertically with service providers – and also horizontally within their corporate functional units to empower personnel to quickly act upon signals extracted from data visibility.
- Collaboration: Most Fortune 1000 companies outsource supply chain expertise and services. DDVN companies do the same, but create efficient collaboration flows that act on network signals to efficiently match supply and demand.
- Standardizing orchestration: Supply chains are always changing, yet have similar, recurring issues. DDVN companies recognize these commonalities (such as port congestion, supplier delays, etc.) and create an ecosystem, using the visible data, to control and standardize repeatable actions to address disruptions.

In short, to turn a supply chain into a DDVN, companies must build organizational capabilities to both extract data and act when the network visibility indicates a disruption may occur. In doing so, supply chain leaders can help the company reduce costs and working capital, increase organizational and inventory agility, and mitigate disruptions and risks.

1. Gartner, "Predicts 2017: Global Logistics Are Embracing New Business Models to Remain Competitively Relevant," 2016
2. Gartner, "Demand-Driven Value Network Orchestration Key Initiative Overview," 2014
3. Gartner, "Align the Demand-Driven Maturity Journey with Supply Chain Outcomes," 2016

# Trend #4: Moving from the cockpit to the control tower

**William McKinney, Manager, Marketing Portfolio for B2B Integration**

Supply chains have many specialized systems that bring value, but they lack cross-process visibility to help identify and quickly resolve disruptions and reduce risk. You have enterprise resource planning (ERP), transportation management systems (TMS), and warehouse management systems (WMS), each with dashboards, reporting, and KPIs to help make better decisions. But how do you combine these into higher-level process views that can help more quickly identify and resolve disruptions?

A new class of cross-system visibility solutions have emerged to fill this gap. Dubbed "control towers," these supply chain–focused solutions provide a new level of visibility for better decision-making. Companies take three major approaches for control towers:

- Customizing integrations with new analytics on top of a consolidated data store
- Buying into one of the business networks that seek to consolidate data in the cloud
- Outsourcing to a logistic service provider that can contractually provide what is needed

While each of these approaches has advantages and disadvantages, they all fall short in handling new sources of "dark data" like sensor data from IoT or weather/news feeds. To be helpful, this new data would need to correlate with your existing system data and then be presented in a meaningful, actionable dashboard.

What is required is a new type of control tower. A cognitive control tower can embed insights, advice, and recommendations as well as add connections to a wide range of new data sources. Fundamentally a different type of computing, cognitive systems have four capabilities. They can:

- Understand—Be a cognitive advisor, giving you insights into your suppliers, categories, risks, and more
- Reason—Provide a trading partner network that can automatically recognize document types and map them to supply chain flows, offering tracking and notifications before you miss a service-level agreement
- Learn—Act as a risk agent looking at news, weather, and information on suppliers, categories, and geographies to help you manage potential disruptions
- Interact—Empower you to discuss options and solve problems, in real time, with those inside and outside your company

With cognitive capabilities applied to your supply chain, your enterprise can:

- Proactively monitor and govern operations with speed and agility
- Quickly act to mitigate disruptions and improve serviceability
- Manage constant change and act decisively

As you can see, the view from the cognitive control tower is truly amazing!

# Trend #5: Harnessing cognitive analytics to unlock hidden value from data

**Susan Roberts, Principal Offering Manager, Watson Supply Chain, Visibility and Analytics**

Top-performing companies digitize their supply chain processes to improve efficiency and reliability.

They also promote best practices and prioritize: partner relations, continuous improvement, internal collaboration to align business goals, and maximizing technology investments.

Indeed, these front-runners are busy, so how do they stay true to their mission? We can break it down into four requirements:

- Connect digitally with your partners – Implement digital supply chain practices, and bring as many partners as possible into the fold. The more participants, the more data – and the more you can do with it.
- Track and trace exchanges with those partners – Create context for the data and begin to correlate it to business value
- Achieve shared situational awareness – Access and share data in real time to make more informed decisions, especially during unforeseen scenarios
- Uncover actionable insight – Make better decisions now, and guide future direction

Currently, most companies rely heavily on an ERP system or external database for their supply chain data and insights. For most, analysis is a cumbersome, time-consuming task, and the data isn't real time. Visibility is limited to finding a certain document (e.g., order, shipment, invoice), but it lacks the context of how that one document relates to an overall business transaction, or even to larger business objectives. Although the organization's own system may be digitized, the supply chain network's isn't.

Top performers tend to address these issues and start to really uncover what's happening behind the scenes. They have digitized their processes. And now, this year, more and more will harness the power of that data via cognitive analytics. Once you gain better visibility into your data and create a new level of digital intelligence, cognitive systems can help you analyze and ingest all of it. By definition, cognitive systems work like the human brain to: understand, reason, learn, and interact.

So now, instead of merely seeing a purchase order, you can see how it relates to all the other parts of the business transaction (the subsequent ship notice, invoice, etc.).

And the next time you're deciding between supplier A and supplier B, you can gauge their responsiveness – compared at a macro-level to benchmarks of other suppliers, with granularity down to the transactional level, as a trend over time that's also projected to the future, or even related to the finished goods they support.

Answers to questions like "How long does this supplier take to ship their parts?" are now available just as quickly as you can ask them. Furthermore, the power of cognitive analytics means that as you continue to ask these kinds of questions, the system will learn from its "research" and will soon be able to make concrete, fact-based suggestions about whether you should choose supplier A or B.

Cognitive analytics is in its infancy. But this is undoubtedly the year that curious, tenacious organizations will start to walk – and maybe even run. With top performers well on the digitization road, aspire to go farther.

# Trend #6: Advancing knowledge management through cognitive technologies

**Matt McGovern,**
**Portfolio Marketing,**
**Watson Supply Chain**

From ensuring supply quality, delivery, and costs to mitigating risks and disruptions, the supply chain carries a heavy weight.

It takes smart, driven, and experienced professionals to manage these stresses and tasks, making the acquisition, retention, and training of supply chain professionals a critical aspect of business. With globalization and expansion of responsibilities, most supply chain organizations struggle to elevate their personnel and empower them with the knowledge and capabilities needed to succeed.

Current demographic trends make this challenge even more pressing: Baby boomers, the experienced core of supply chain teams, are retiring at a record pace.[1] And the millennials who make up the bulk of new hires often lack supply chain experience and knowledge. Millennials are also hard to retain and train – averaging less than two years in their positions.[2]

All this makes knowledge management a growing concern.

From a technology standpoint, much of the emphasis over the past decade has been on process automation and information and data management. However, with the talent management challenges, and advances in technologies, knowledge management is gaining renewed focus.

A key trend behind the renaissance in knowledge management is artificial intelligence, also known as cognitive technology.

IDC estimates that by 2020, 50% of all business analytics software will incorporate some cognitive functionality.[3] The Pew Research Center notes, "By 2025, artificial intelligence will be built into the algorithmic architecture of countless functions of business and communication, increasing relevance, reducing noise, increasing efficiency and reducing risk across everything from finding information to making transactions."[4]

From a knowledge management perspective, cognitive solutions hold the promise of enabling an organization to capture and retain institutional and supply chain knowledge and experience.

Cognitive solutions provide personnel with deep insights and experience, collected over time, drawing from sources inside and outside the organization. These technologies learn and operate by organizational preference and can provide actionable recommendations to personnel. Benefits of cognitive technologies in terms of personnel and knowledge management include:

- Establishing, retaining, and building a centralized repository of organizational supply chain knowledge
- Accessing internal and external sources of information
- Extending and expanding the knowledge and experience of global personnel
- Fostering collaboration across the company, and with suppliers and partners
- Elevating personnel by providing cognitive solutions that enable them to improve day-to-day actions and decisions

Cognitive technologies promise a knowledge revolution – where supply chain personnel can proactively advise the business, offering smarter insights, deeper analysis, and greater strategic value.

1. Pew Research Center Population Projections
2. Gallup, Millennials: The Job-Hopping Generation, May 2016
3. IDC FutureScape: Worldwide Big Data and Analytics 2016 Predictions
4. Pew Research Center: Predictions for the State of AI and Robotics in 2025

# Trend #7: Growing momentum and adoption of blockchain

**Shari Diaz, Ecosystem and Innovation Leader, Watson Supply Chain**

"Blockchain will do for transactions what the Internet did for information," states Ginni Rometty, CEO of IBM. While this may not happen overnight, there is no question that blockchain technology will change how business is transacted.

Finance is already adopting blockchain – faster than anticipated. Fifteen percent of banks and 14 percent of financial institutions intend to implement full-scale commercial blockchain solutions in 2017. And mass adoption isn't far behind, with roughly 65 percent of banks expecting to have blockchain solutions in production in the next three years.[1]

Much of the focus on blockchain has centered on financial services. But when we expand the definition of a transaction to include the exchange of orders, invoices, and the like, we can quickly see that blockchain technology will summon innovation for supply chain organizations, too.

Blockchain is a distributed, or shared, database that holds records of digital data or events in a way that makes them visible to multiple parties, yet is tamper-proof and secure. Blockchains are permissioned, enabling select users to access, inspect, or add to the data, but giving no one permission to change or delete it. Each new event or "block" is added to the chain and linked to the block that came just ahead of it. The original information stays put, leaving a permanent information trail, or chain, of transactions. [2]

Blockchain allows participants in a network to share a ledger, which is updated every time a transaction occurs. Participants agree on how transactions are validated through a process called consensus. The result is faster, permissioned, and auditable B2B interactions among parties (e.g., suppliers, distributors, financial institutions, regulators, or anyone wishing to make a secure, recorded exchange).

In short, blockchain is a record-keeping mechanism that makes it easier and safer for businesses to work together over the Internet.

Most B2B communications flow from one party to another. For instance, retailers order goods from CPG suppliers. Those CPG suppliers let logistics providers know when the order is ready for pickup. The logistics providers tell the CPG suppliers where the goods are with an agreed-upon frequency. And the CPG suppliers may also update retailers on status until the goods are delivered.

Imagine if these parties posted information to the same ledger.

Each could see information shared by the others. Moreover, all updates would be verified. The implications are astounding. Think of all the phone calls and emails that could be avoided. How quickly could a dispute be resolved?

Consider, too, the need to demonstrate that a product meets regulatory guidelines. Or the need to track raw materials and finished goods by the batch during a recall.

With blockchain, every time a product changes hands, the exchange can be documented and shared with all interested parties, creating a common product history from manufacture to sale. Knowing, with certainty, the inbound materials used in the production of outbound products could dramatically reduce time delays, costs, and errors.

Some supply chains already use blockchain. Experts suggest it could soon become a universal "supply chain operating system."[3] Here are just a few use cases:

- Recording the quantity and transfer of assets (e.g., pallets, trailers, containers) as they move between supply chain nodes
- Tracking purchase orders, change orders, receipts, shipment notifications, or other trade-related documents
- Linking physical goods to serial numbers, bar codes, and digital tags (e.g., RFID)
- Sharing information about manufacturing, assembly, delivery, and maintenance with suppliers and vendors

Blockchain's potential is extraordinary, especially when coupled with IoT, cognitive computing, and other exciting breakthroughs.

1. Leading the Pack in Blockchain Banking: Trailblazers Set the Pace. IBM Institute for Business Value, 2016
2. Investopedia
3. SpendMatters

# Partner Perspectives

## Prioritizing value as a service

**Donna Wilczek,**
**Vice President of Strategy and Product Marketing, Coupa**

Cloud is quickly becoming the preferred model for technology delivery. IDC predicts that by the end of 2018, 40 percent of IT spend across hardware, software, and services will be designated for cloud technologies, and by 2020, 45 percent to 50 percent of all spend will be for cloud-delivered models. Many on-premise software product companies are scurrying to move their offerings to the cloud in an effort to avoid missing the cloud boat.

However, 2017 will actually start a disruption of the cloud delivery model. Coupa CEO Rob Bernshteyn calls this disruption Value as a Service, where measuring and proving value becomes the focus and the actual delivery model takes a backseat.

Supply chain customers will demand to understand and quantify the value they are being provided by their technology partners. CFOs and CIOs will review and approve project business cases that detail specific value outcomes, and will then hold the project teams and technology partners accountable to those outcomes over the long term. This accountability will disrupt traditional companies that have become comfortable simply delivering software instead of delivering and quantifying their supply chain business value.

## Millennials are redefining software usability requirements for supply chain

**Jack Mulloy,**
**CEO, BuyerQuest**

This is a time of enormous change for supply chains. In the last decade, there have been massive technology shifts which have disrupted industries and redefined competitive market boundaries. While much of the focus on these shifts has largely centered on the move to cloud and the advancements being made in cognitive computing, there is one massive shift underway across the supply chain that, until now, has gone largely unnoticed.

The technical demographics of supply chain employee and contractor base are changing. With each day that passes, the user base is being increasingly occupied by new, young, tech-savvy employees who: have never known life without the Internet, grew up on Xbox, iTunes, and Facebook, have a much different relationship with technology than their predecessors, and expect that technology can and should work for them.

Millennials are driving the usability agenda with respect to all enterprise software—and the impact of this trend on your supply chain in 2017 will be greater than ever.

Making no distinction between an “at-home” interface and an “at-work” interface, millennials simply expect software to be intuitive and easy to use. They expect to be able to use any browser, on any device, at any time. They expect to personalize their own interactive experience with the software. They expect to just walk up and use it without training.

To execute supply chain strategies across the enterprise, especially within procurement, technology adoption is paramount. Indeed, for supply chain leadership, it is well understood that the sun rises and sets on user adoption in terms of measuring value delivered by supply chain technology solutions.

A critical success factor for differentiated supply chains in 2017 will be the ability to listen to this rapidly growing constituency and to deliver supply chain technology solutions that firmly meet their user experience expectations.

Win over the millennials in 2017 and businesses will win adoption across the whole supply chain for the next decade.

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