





Swimming in the Shallows

Overcome the great barriers
to a data-driven supply chain

By Elizabeth Rennie

Multinational toy manufacturer Mattel is a company of dreams and aspirations.

"We're all about children; we're all about play; we're all about creativity, imagination, and trust," says Peter Gibbons, chief supply chain officer and executive vice president. "At the same time, we run a supply chain with 40,000 people and 11 factories. Fifty percent of our product comes from the outside. We make 20,000 injection-molding tools a year and have 25,000 global [stockkeeping units]. So, within this fantastic, sensitive, engaged culture, we also need to create an incredibly effective supply chain machine."



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Because Mattel is an exceedingly seasonal business, as many as 80 percent of its products are modified annually. “We can’t just hope it all works out; we need a data-driven mentality that allows us to make better decisions and drive the right kind of improvement,” Gibbons says.

To achieve this goal, Mattel leaders recently initiated a shift to a more data-driven culture. Their goal is to effectively use data to achieve a structured approach to managing the supply chain. Gibbons explains that, prior to this initiative, Mattel had “lost the knack of using metrics” to improve performance. In fact, the company

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did not employ a consistent set of criteria to drive its supply chain function. Determining how to change that and gain visibility into core metrics was an essential conversation among company decision makers.

Gibbons and his colleagues made some key discoveries during these dialogues: First, it was clear that employees were drowning in a sea of data, reports, emails, and spreadsheets. Furthermore, people lacked a coherent approach to what to measure, how to measure it, and how these practices should drive business plans. Senior managers saw that it would be necessary to reevaluate metrics, dashboards, and overall strategy; get everyone on the same page; reinvigorate interest in data; and create consensus over the handful of metrics that matter most.

“Our supply chain is so big, so complicated—and it changes so much—it was never going to be optimized unless we could steer it with a data-driven mind-set,” Gibbons says.

Calming the waters

Another critical goal for Mattel leaders is the ability to measure performance in a manner that provokes improvement. Furthermore, they believe that it’s unnecessary to know every level of detail in order to identify what deserves their attention. As such, Gibbons says a shallow-dive approach was the right choice because it provides just enough information to recognize when they should to do something.

“We don’t need 10 different customer service metrics if we take a core on-time-in-full metric. That gives us enough of an indication of if we’re on track or not,” Gibbons explains. “Same with things like first-pass yield. ... We just need to know if we are on track. Then we can take a deep dive elsewhere by brand or by product group as the data tells us.”


It was this desire to zero in on only the most essential metrics that led Gibbons to select Sage Clarity’s cloud-based One View. “It really appealed to our team that they weren’t going to be inundated with a massive database; rather, they would have a practical solution for choosing the core, vital few, real-time issues to focus on and get absolutely right,” Gibbons says. “It also allows us to talk numbers and data, rather than feelings and instincts and stories.”

Shallow-dive analytics is a new approach to managing the enormity of big data and the resulting information overload via a one-click, quick review of only the information that is most pertinent to business objectives. By focusing on key performance indicators (KPIs), proponents believe that the shallow-dive concept can enhance supply chain performance through better and less-time-consuming data management. Importantly, this real-time information also enables organizations to reduce the number of KPIs used to manage the business.

The basic idea is that users swim, rather than sink, through the deep ocean of data and then decide where to dive in. In this way, executives and knowledge workers are better able to focus on crucial business metrics that provide high-level insight and direction. These direct and indirect KPIs can strengthen people’s understanding of issues and provide essential findings for enhanced decision making.

“A common misconception is that, the closer you get a metric down to an individual, granular level, the more real time it becomes; and then, conversely, the higher level a metric is, the less real time it is,” says John Oskin, CEO of Sage Clarity Solutions. “With today’s architecture around data and solutions, the reality is that you can get real-time data from any level.”

Oskin sees many businesses making a common mistake with business intelligence: They treat data as its own problem and act as if the same dashboards and user experiences apply to everyone. “It really boils down to the fact that [data] should be organized differently for different stakeholders,” he explains. “Senior-level

An underwater photograph showing sunlight rays filtering through the water, creating a dramatic, ethereal effect. The water is a deep blue-green, and the light rays are bright and distinct. In the lower right, there are dark, rocky structures covered in green algae or coral.

managers don't want a deep dive. ... They want to be able to skim the information, quickly draw a conclusion, and take action."

At Mattel, this approach is creating a clearer understanding of the most important metrics. "It's reinforcing our strategic imperatives and why we're focused so strongly in certain areas," Gibbons says. "And it's reinforcing our messaging because people are seeing in real time with real data that that's what we care about."

Although the solution is targeted toward executives, it can generate engagement and responsiveness at every level of the organization because real-time KPIs put information at people's fingertips. All employees know that senior managers are looking at the KPIs, so everyone is motivated to get in front of the data, Oskin explains.

"It drives behavior," he adds. "Say an executive looks into how much downtime a plant had on a production line. He can pick up the phone and call that plant manager and ask, 'Why is line four down today?' That's pretty unsettling. People want to know how the data got to the senior management suite. Then, people want the information too so they can see what [executives are] seeing and react."

Sean McClure, director of data science at analytics solutions provider Space-Time Insight, also sees the value in making sure analytics results are readily available to people on the front lines. His firm aims to help clients overcome their data-management struggles by teaching users how to employ data to make valuable operational improvements. "The best way to do this is by embedding analytics into applications that are as easy to use as possible ... and understanding which at-a-glance visualizations will accelerate decision making," he says. "Once applications and solutions with these properties are developed, we find customers are able to easily operationalize them beyond their originally intended user base."

McClure recognizes the value of the shallow-dive concept, but also worries that it could contradict a user's ability to apply certain machine learning and analytics that are generally more effective with large data sets. "Shallow diving has a


Key Data-Analytics Trends

In addition to the shallow-dive movement, Sage Clarity CEO John Oskin notes several important developments that are changing the supply chain landscape. "The biggest trend we have seen is mobile," he says. "How data is consumed has really changed. People want to review data anytime on their time."

The prevalence of mobile devices in today's workforce is evident. But what Oskin finds most interesting is the usability and general adoption of mobile apps, such as metric tools that can analyze individual key performance indicators (KPIs). That provides information at a faster interval, enabling organizations to react to challenges more swiftly. "Rather than making a poor-quality product for one week," he explains, "perhaps this poor-quality production can be stopped in one hour."

Enabling teams to share these KPIs and analytics across the organization is another noteworthy shift that can bring about greater supply chain productivity. Oskin says this type of collaboration makes it possible to transform meeting topics from, "What happened?" to figuring out, "What do we do?" He notes, "The best organizations review data in advance and focus on action during the meetings."

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role that is dependent on the information and insights truly needed to solve a customer's specific problems," he says. "And it needs to support their pain points and objectives balanced against costs and development time."

An integral piece of the data-overload dilemma is context—an issue that can be difficult for supply chain organizations to solve. McClure says that a clear understanding of context can ensure that only the essential data is correlated and analyzed in order to generate insights and alerts that pinpoint useful information without overwhelming end users. He suggests that connecting employees with essential data is an alternative approach to overtly skimming the surface. "This is a very effective approach that solves the data-management problem as well as the 'How do we make quick and confident decisions?' problem," McClure adds.

He offers numerous real-world examples of this capability in action, including

- a utility company that is using Space-Time Insight's analytics solution to stem operational losses and electricity theft
- work crew managers who are able to more effectively plan and supervise shift-work schedules
- dispatchers reducing vehicle trips and travel time by accurately diagnosing problems prior to dispatch and bundling tasks so that crews can complete several items in a single trip
- the application of analytics to pinpoint the people, locations, times, and situations that pose the greatest risks in order to reduce workplace accidents and injuries.

"People want to do the best job they can. Providing them with information—whether it is data, insights, intelligence, or all three—when they need it and ideally on a self-serve basis empowers people to do their best and to work efficiently with the least frustration and stress," McClure says. "These are key drivers of job satisfaction."

Catch the value

Derek Nelson is a partner at supply chain analytics and optimization firm OPS Rules. In this role, he sees many companies failing to properly use available data. The challenges include lack of a consistent view of data across the organization, mistrusting data accuracy, ineffective tools for managing and leveraging data, and the absence of skilled users. Because of this, he says there are excellent career opportunities out there for people who are able to help create a truly data-driven culture. "I have seen this in action with several companies I have worked with," he notes. "In these companies, the executives make it clear that using data and analytics is an imperative, and people who excel in this area have bright futures in the company. This is supported through recruitment, education and training, centers of excellence, et cetera."

Nelson says the shallow-dive approach can be an effective strategy for many companies—as long as people don't let "the perfect be the enemy of the good" and thus get stuck when implementing the approach. When considering potential opportunities, he suggests thinking about which of the most important decisions can be significantly improved with the application of a "non-threatening amount of analytics."

He says to start simply and build complexity. "If you have important decisions that are made based on rule of thumb or intuition, using a small amount of analytics can provide a significant chunk of the potential benefits Nelson explains. "If people imagine a perfect solution, they soon will find a million reasons why they can't get there."

This anxiety is understandable, as there are numerous potential impediments to analytics efforts. Jesse Treger, senior director of product management and strategy at predictive analytics solutions provider Compellon, sees companies grappling with the technical challenges to deployment; cross-organizational complications related to the collection, management, and governance of data; and other obstacles as they work to take previously siloed information and make it available across their organizations. Notably, he says the ability to maximize the siloed data and put it to work in new ways can be a significant business opportunity.

"For example, data that originated as monitoring and alerting for the manufacturing or service department can be used to develop a predictive model to improve the product or incorporate

usage patterns in analysis of what drives customer satisfaction or repurchase,” he explains. “Or transactional data originally captured as part of the billing process can be used to predict ... which types of customers are likely to buy.”

Furthermore, to overcome lack of time or expertise, Treger says he often sees practitioners using assumptions about what matters based on their past experiences, conventional wisdom, or intuition. Additionally, they tend to apply mathematical techniques that intrinsically rely on simplifying assumptions. To address these inclinations, his company’s solution, Compellon 20|20, bases all analytics solely on evidence in the data. “The user need only to provide data and frame the business problem using an outcome of interest that can be measured in the data,” he explains.

Taking the plunge

Unfortunately, even organizations such as Mattel, which are moving diligently and enthusiastically toward a more data-driven culture, can struggle to pull value out of their time and resource investments. As Gibbons says, “We are in the early stages of adoption and use. ... But it’s becoming clear to people that, if you want to drive improvement, you are expected to come up with the facts and the data, then come up with an improvement plan and an action plan, and then go execute that plan to get good results.”

Gibbons says his company’s strategy is straightforward: Raise service and quality, lower costs, and develop talent. He is hopeful that taking a shallow dive will support those parameters by giving people easy access to great data and enabling them to use it in a strategic way. “I’m an admirer of this approach to data collection,” he says. “Steer the supertanker in the right direction.”

Along the journey, Compellon’s Treger advises keeping in mind the common barriers to moving beyond publishing reports and dashboards. Hurdles to achieving actionable insights include lengthy data preparation and analysis, lack of skilled workers, too much effort in the back and forth between data analysts and business

units, inability to translate trusted results, and rapidly changing environments leading to stale data.

He adds, “Despite major advances, it is not surprising that analytics is viewed by many as still in its infancy.”

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