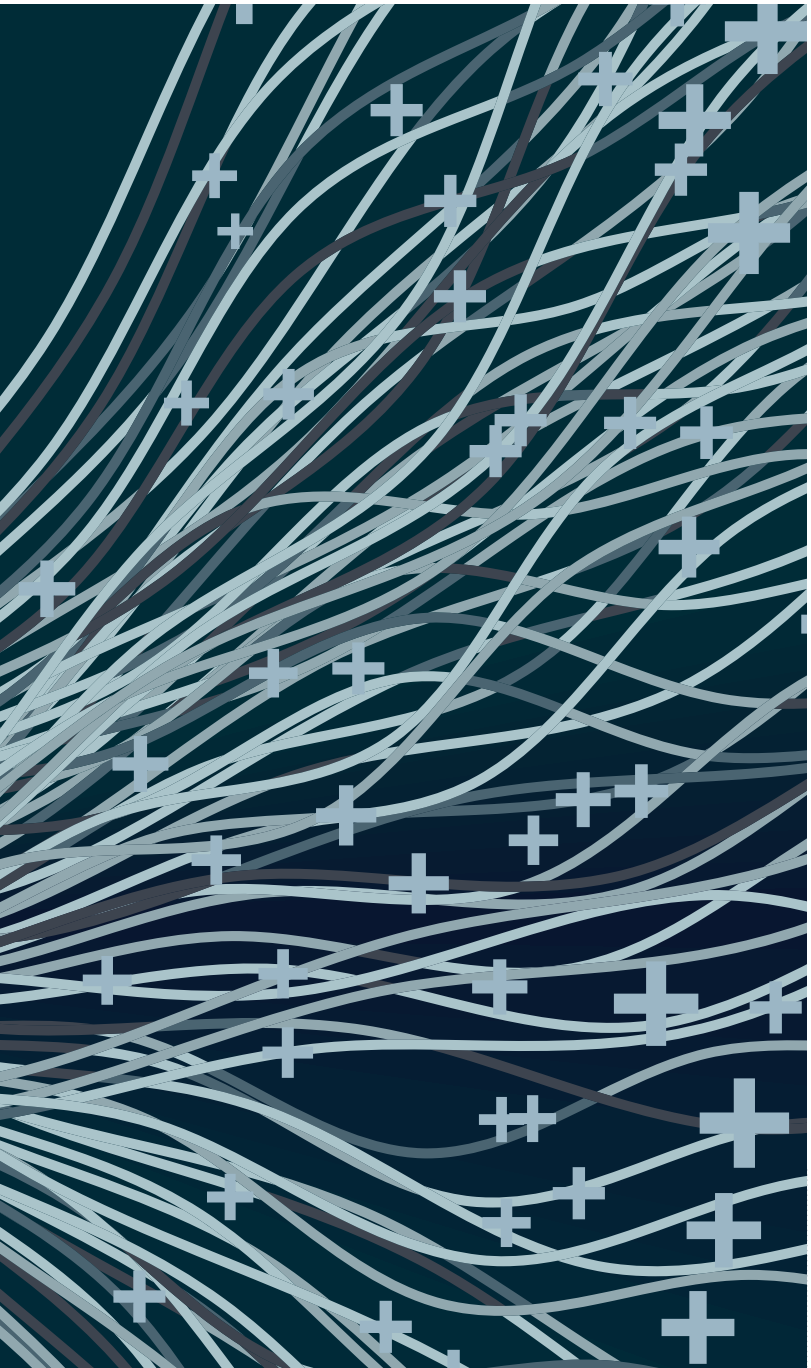

E-Guide

UNITING IOT AND SUPPLY CHAIN ANALYTICS

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MERGING IOT WITH supply chain analytics means harnessing the power of big data from sensors that can be placed on virtually any device at any point along the supply chain. Find out how to create an analytics strategy that accommodates IoT data volumes and hear from Mark Lockwood and Patrick Chartrand of Logi Analytics on how manufacturers can gain greater visibility into IoT data and supply chains.

MAKING SENSE OF IOT AND SUPPLY CHAIN ANALYTICS

Jim O'Donnell, News Editor

It's 3 p.m. Eastern on a Tuesday afternoon. Do you know where the shipment from the China plant is, or have any idea why shipments from there are consistently late? You might -- if you are using the new IoT-based supply chain analytics applications.

In fact, the internet of things is enabling business transformation in many ways, with new technologies to collect and analyze data. This new data analytics gives unprecedented visibility into the supply chain, by providing insight into the location, status and quality of goods throughout the process. But to realize the full potential of supply chain analytics, you need to understand the technologies and learn from business use cases.

For example, supply chain analytics is helping businesses to cut costs, gain efficiencies, offer better customer service and therefore get a leg up on the competition. Take The Bouqs Company, which uses supply chain analytics to enable its innovative business model. The cut-to-order flower retailer delivers flowers straight from its farm suppliers to customers, bypassing the warehouse

middlemen typically found in the flower delivery business. This allows The Bouqs to deliver its goods in just four days instead of the typical 17 days, which is a huge advantage in a business that depends on product freshness. Analytics also helps the company by looking at historical data to predict the bestselling flowers in a particular month, giving a much more accurate picture of demand.

To better understand how supply chain analytics can help a business, it helps to take a look at the underlying technology that enables supply chain analytics. Two broad categories include sensors and devices, both of which are now cheap and ubiquitous. Sensors connect over the internet for functions such as measurement, counting and recording video. Devices, including smartphones and tablets, add context that helps make sense of all the data, such as GPS for location-based data. This combination of sensors that can measure virtually anything in the supply chain, such as location or temperature of goods, and a variety of devices to access, analyze and display the data, makes it possible to implement creative and informative supply chain analytics applications.

Once you can make a business use case and understand some of the underlying technologies, you can begin to take steps to implement supply chain analytics. Think of supply chain analytics in two domains: operational and strategic. In the operational domain, which includes daily and real-time data,

there are several areas where vendors provide analytics tools. These include inventory and logistics decision making, such as making more informed stocking decisions based on actual, at-the-moment demand; complex event processing, which tries to understand the causes of events and predict future outcomes; and risk management, where analytics can spot risks, analyze causes and provide potential alternatives. The strategic domain, which includes trend analysis, discovery and planning, provides two broad implementation paths. The first is to use analytics within a larger-scale data management system, and the second is to use a business intelligence-focused tool from a BI provider.

IoT is making it possible to collect all sorts of data in the supply chain. The challenge now is finding and using the tools to make sense of it.

MANUFACTURERS NEED TO ADOPT IOT AND ANALYTICS INTO PROCESSES

Jim O'Donnell, News Editor

The internet of things and analytics are increasingly finding their way into almost every organization and industry. Manufacturers, in particular, are ripe for the opportunity that IoT and analytics can bring to improve processes and increase profitability; however, they face huge implementation challenges.

In this Q&A, Mark Lockwood, director of product marketing for Logi Analytics, and Patrick Chartrand, solutions strategy analyst for the same company, explore issues that manufacturers need to consider as they implement IoT and analytics. Logi Analytics is a Washington, D.C., firm that helps organizations embed analytics into applications that they use daily.

WHAT DO MANUFACTURERS NEED TO THINK ABOUT AS THEY CONSIDER EMBEDDING IOT AND ANALYTICS?

Patrick Chartrand: I think IoT and analytics mean a few different things for manufacturing. One is this idea, based on our research, of visibility. Manufacturers have a pretty good idea of their value chain; however, they don't have data in real time and transparency into their value chain -- they just have reported results. So, there's what we call horizontal visibility, which is understanding the connectivity along the supply chain. Understanding where your product is being sourced from, the raw materials coming into the particular processing environment and then being distributed out to consumers. But imagine any and all data points in that respect in real time being summoned up to a particular dashboard, that's what we're calling horizontal visibility. Separately from that there's the vertical visibility, which is a little more interesting and a little more in-depth and actually a little newer.

WHAT DOES VERTICAL VISIBILITY MEAN?

Chartrand: Vertical visibility is anything that you can get in terms of data interconnectivity from the shop floor to the top floor. For example, on the shop floor you're going to have machinery [and] capital equipment. You're going to

have people walking around the floor and the machinery is going to be kicking off different level sets of data, [and there are] the folks [who] interact with all those machines and the individual processes that they do away from those machines.

That data is going to get summated into a manufacturing execution system, and that MES layer can look significantly different. For example, you can have an MES that captures data across the entire production line of the shop floor. But, actually, instead of one giant layer of an MES solution, you tend to have a bit of a hodge-podge of different applications throughout the manufacturing process on the shop floor.

Above the manufacturing execution system layer you're probably going to have something like an ERP, which is more than administrative functions if they interact with the MES and they're going to translate information back and forth if they're going to get the production line going and also incorporate or interweave the financial reports. When you talk about the top floor, you're talking about the folks [who] interact with, typically, the ERP and MES systems to get some sort of dashboard that collects not only operational data but profit data as well and then can look at the whole.

WHERE ARE MANUFACTURERS IN THE PROCESS OF INCORPORATING IOT AND ANALYTICS? ARE THEIR DIFFERENCES IN THE TYPES OR SIZES OF THE ORGANIZATIONS?

Chartrand: This is where we see these different buckets where manufacturers are going. We spread the entire market into three buckets. The first one is called 'Small and Simple,' and these are typically firms that the type of machinery that they work on is very manually intensive, like a deblister or decapper. The client base in this segment is typically less focused on collecting analytics and data and more focused on cost recovery.

The middle bucket is called 'Small and Savvy' and these companies are really starting to look at IoT as their client base tells them that they need analytics. They want to be ahead of the game in terms of competing with industry peers who are also adopting analytics into their production line or facilities.

The third bucket is the 'Big and Aware' folks; big companies who have a lot of analytic need being driven by their clients. The question that these folks typically have is, 'Should we buy analytics or should we build it in internally? Because we are the experts and masters of our manufacturing needs.'

HOW CAN ANALYTICS HELP MANUFACTURERS?

Chartrand: The manufacturing industry is kind of notoriously known for having slim margins, so having analytics and having a much better idea of that value chain allows manufacturers to play around a little bit more with that profit margin. For every 1% in cost savings that a manufacturer can incorporate into their business model, that can mean tens if not hundreds of millions of dollars depending on the size and scale of the firm that they can withstand in a non-normal market; i.e., a recession. So, I think for all three, there really is going to be a transition to client-driven analytics.

WHAT DATA SHOULD BE COLLECTED AND WHERE SHOULD MANUFACTURERS LOOK TO COLLECT DATA?

Mark Lockwood: Collecting the data is really important, and as we move forward and the market matures, part of the difference between the hype of IoT and the reality of IoT is that collecting the data is going to be less important than translating the data into end-use analytics. Sensors are becoming increasingly cheap, the networks to capture that data coming from sensors are also becoming commoditized, and there are lots of big data storage companies out there to store the data. So, what we're seeing is that a lot of those historical data

and connectivity problems are being solved or commoditized, which is really putting pressure on the second and harder problem of how you take all that stored data and actually translate that into business value.

WHAT DO YOU TELL MANUFACTURERS THAT HAVE NOT YET ADOPTED IOT AND ANALYTICS BUT MAY BE THINKING ABOUT IT?

Lockwood: The one thing they need to be thinking about is that other people are starting to adopt this. It's not necessarily like whether you should or shouldn't do this... Your competitors are already starting to adopt this, so it's moved from a nice-to-have to something you need to do in order to remain competitive. As we've said, margins in manufacturing are super slim, they don't have the meaty 20% margins that software developers do, and if your competitors are able to find efficiency gains by tracking machine data in a way that allows them to improve operational efficiency in a measureable way, then you're in trouble if you're not doing that. I think you're just going to see increased pressure on people to do this in such a competitive environment where the margins are so slim.

Chartrand: There's a few things to consider. Number one is you have to look at where the market is going and where your client demand is, and what

we're seeing from client demand is an immediate and overwhelming need for analytics. Manufacturers need to start to educate themselves on analytics and how could it potentially impact [their] business. Number two is to call analytics firms and see how they can solve their problems for them.

WHAT KIND OF PAYOFF WILL MANUFACTURERS SEE FROM THEIR INVESTMENT IN IOT AND ANALYTICS?

Lockwood: One thing that sums it all up when you look at the manufacturing space in general is that when it comes to operational analytics and IoT... one of the things that's exciting about this market is that it's really easy to tie ROI to these investments. In some other industries, it's a lot harder to tie ROI to analytics; maybe you can see your sales statistics a little bit clearer, but how do you measure that? When you're talking about a manufacturing and operational use case, if you could get better visibility into a machine that allows you to reduce downtime by 3%, this could equate to X millions of dollars' worth of increased revenue. I think that's why, despite the fact that IoT is probably earlier in the hype curve than business intelligence or analytics, what gets us excited is that ability to really tie it closely to ROI as any company is ultimately trying to do with any investment.

WHAT KIND OF INVESTMENT ARE WE TALKING ABOUT FOR MANUFACTURERS?

Lockwood: This varies, of course, given the fact that manufacturers span so many shapes and sizes. The path that your 'Big and Savvy' manufacturer is going to take is going to be very different than your mom-and-pop shop that has one or two machines. I think the big guys are probably going to pave the way and figure out what's working and what's not working [because they] can afford to make a couple mistakes to figure that out. But then you're going to see it permeate the rest of the market.

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