

How Demand Planning and Forecasting Are Transforming Supply Chains

Conversations with planning managers and industry experts about how companies are coping with the challenge of assessing and reacting to demand in a fast-changing world.

It has never been more critical to assess the true nature of demand within global supply chains. Customer tastes and buying patterns are changing constantly. Old technology just can't keep up. Data is more readily available — and more difficult to manage — than ever before. So how can planners cope? Following are excerpts from conversations between SupplyChainBrain editors and industry experts about the present state, and likely future, of the demand planning and forecasting function.

Q: What are the biggest challenges that companies face today in the area of demand planning and forecasting?



KC Quah
Research Director
Gartner

Quah: When you think strategically, it's trying to figure out what people are buying in terms of bookings or orders. Will I have enough capacity? Will I have the right network structure? Will I have the right ecosystem and partners to allow me to be successful five to ten years out? That's a different conversation than if you pull it all the way into execution: What are buying patterns today? Which orders and bookings are coming in, and in which periods? What

is the flavor or customization being requested, and how do you respond to that? Both things — long-term and short-term — are happening.



Karin Bursa
Executive Vice President
Logility

Bursa: Supply chain is so much of a balancing act — making the best decisions with the information that's available today. It changes based on new data, in the form of leading indicators. We're looking at a whole new portfolio of information — things like social data as an indicator of short-term demand. What's happening in the marketplace today? What's the latest weather information, and how do I make use of it?



How do I harness that to make changes in short-term plans for my business?

Quah: The big gap at the front end lies in demand sensing and demand management. It's a difficult area, because there's a lot of uncertainty that you have to deal with. S&OP [sales and operations planning] has been around for over 30 years — most people forget that — and the interesting thing is that it hasn't changed. It's the same process. It's still about making sure you have enough demand, backed up by supply, to support the financial goals of the company.

Bursa: The second [issue] is around the planning process. It's about how I automate as much of my routine capability as possible, so that the knowledge workers who know my business — planners, analysts, and supply-chain experts — spend their time on the really tough stuff. They should be looking at the available options, and helping others to make the best decision today, based on all of the analysis that's been done.

Valentin Dahlhaus, Senior Vice President of Group Operations, Husqvarna: It's the on-time availability of accurate information. That's the technical gap. And, of course, integrating the various functions within a sufficient planning



Valentin Dahlhaus
Senior Vice President of
Group Operations
Husqvarna

process. It starts with the product and continues with sales, manufacturing, supply chain and distribution. From culture mindset perspective, you have to work cross-functionally.

Bursa: The challenges are in a number of different areas. The first I would say is access to data. We work with companies today that still struggle with structured data, much less how to use unstructured data to better plan their business. There's still lots of opportunity to create a connected enterprise — one that reflects

the current conditions everywhere that you do business, with all of your trading partners. You've got an opportunity around both structured and unstructured data. It's about how you use these new forms of information to add color to the current plan for your business.



Keith Peterson
President and Chief Executive Officer
Halo

Peterson: The thing we focus on a lot is using machine learning to try to improve data quality. The problem that most companies face is that they have a lot of data streams coming in. Some are structured, some unstructured. None of them are clean. So how do you cleanse

that data? Historically, it's either been a manual process, or one where you have very structured tools that allow you to do very limited things with the data. You're always reprocessing information. With machine learning technology, you're in a much better position to let the computer start to learn the patterns that are creating data errors, then either correcting them or going back to the source information. It helps us to generate rules that will ultimately improve data quality.



David Goddard
Principal
Oliver Wight

Goddard: At some companies, a gap in planning is just a lack of data quality

and believability. People are coming in and saying, “That’s not what my number says.”

Peterson: It’s the idea that every company has multiple hubs of data within the organization and outside it. They’re pulling in forecasts from their customers, and getting feeds from suppliers. Those are separate instances of data, and you’ve got to bring them all together and harmonize them if you’re going to make use of all that information. That’s where new technology for data integration and analysis really comes into play.

Q: What are some new tools that can help companies to improve their demand planning and forecasting process?



Christopher Frere
Vice President Supply Chain Navigator
AIMMS

Frere: There’s artificial intelligence and machine learning. They’re great developments because you can learn from them. But most companies are still playing with Excel. Don’t take the elevator — just take the stairs, step by step, and grow according to your maturity level.

Bursa: We’ve used artificial intelligence in some form or fashion for decades. Things like automatic model switching for demand plans or forecasting. Or looking at your portfolio of products

and determining which ones are new intros, which are at the peak of their lifecycle, and which are at the end of life. We manage and forecast those in very different ways. Leading solutions automatically make those model changes for you, and you may not even know it. We didn’t call it artificial intelligence, but we were applying it to the task of generating better plans. What’s different today is that the volume of data that’s being evaluated, interrogated and used as predictors of the future has grown exponentially. Therefore, the math and the science have evolved as well. Advanced analytics means more than just pretty pictures. It’s really about getting to the right decision in the quickest way possible. It means invoking things like algorithmic planning, machine learning, and the spinning out of multiple scenarios to help you evaluate the best options for your business. You need the ability not just for cadence-based activities — things that happen weekly, monthly and quarterly — but also on demand. For some of the real exciting stuff, we’re going to be generating those analytics for you before you know you need it. Using artificial intelligence allows you to make better decisions each and every day.

Peterson: Analytics allow you to handle all aspects of supply-chain planning. You understand what demand signals are telling you about your planning and volatility. It tells you more about inventory and the state it’s in — where there’s risk and opportunity. From the supply end of the continuum, you learn more about where materials are coming from, and which suppliers and partners you want to be working with to get the best economics for the supply chain.

Frere: Without analytics, you’re really missing out on opportunities. You have too much risk in your supply chain. Why is that? Because there’s a lot of data. People are struggling with managing it. Supply chains are extended, generating even more data. And the need for speed in getting answers is increasing. The nice part

of analytics is that you don’t focus on the things you know; you focus on the unknowns. It’s about finding new insights in your supply chain — how to reduce cost or optimize your margins. Normal transactional systems typically do calculations based on an existing set of data. Analytics is about creating new opportunities and breakthroughs.

Q: Where are the gaps in planning today?

Goddard: Many executives have grown up through the ranks and have great detailed skills, but never learned to think longer term. A gap tends to be in helping executives look out 24 months — make decisions for the long term based on data that’s somewhat questionable.

Peterson: It’s the lack of a total road map. Technology is changing so quickly. Companies are executing on road maps for a year or two, then finding that technology moves even further. They’re trying to keep up. Realistically, road maps should be used to solve your business problems, using the right technology for an extended period of time.



Chakri Gottemukkala
President, Chief Executive Officer
and co-founder
o9 Solutions

Gottemukkala: We’ve made it extremely simple for consumers. They can go in



and type anything on Google, and everything related to their question is available. The question to ask is: Why don't I have that kind of visibility in my enterprise system — that availability and ease of use?

Q: What does the future hold for demand planning and forecasting?

Bursa: We'll be hearing more and more about machine learning. How does the system get smarter and smarter over time? That's a huge opportunity, to leverage more planning and predictive models. You want to make sure that those models are getting smarter, so that when you put a plan into action, you can measure the results of that plan, and execute accordingly. You need to ask: What changes should we make in the future? How does the human intervention impact the decision that was made? And can I automate that as well?

Peterson: It's going to continue to change dramatically. The issues and the problems we're facing will be similar, but we'll be addressing them in better ways. That's the trajectory and nature of technology — it helps us to improve incrementally. Historically, we worked with structured data from our supply chains. Over the past few years, we've gradually gotten better at handling unstructured data, and big data. We're just getting to the point of blending those two together. For example, we can use sentiment signals to improve the demand forecast. The next

few years will be focused on how we use technologies to blend that data together, so that we can use it more effectively. Blockchain is being talked about as one of the technologies that can assist in that process. It's about creating a centralized, single source of data in a structured manner that you can then share across organizations securely.

Chien: With Logility right now, we're looking at basically the four walls of Kingston. The next step is to start incorporating information from the outside — material at the sub-supplier, in-transit with our freight forwarders, and channel inventory. Part of that is about making more connections between demand and supply. On the supply side, it's filling those gaps in visibility to give our business teams an idea of our total inventory exposure in the supply chain, so they can better plan their activities. On the demand side, we want to get a better sense of what's really hap-



Wei-Shine Chien
Director of Operations
HyperX (a division of Kingston)

pening out there with end users. We'd like to better understand the time from when an end-user makes a purchase to a channel replenishment order, so that we can make the necessary changes on the supply side.

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