Bloomberg Businessweek
RESEARCH
SERVICES

Supply Chain Innovation Driving Operational Improvements

With global markets showing signs of growth, companies are looking to reduce costs and improve product availability by upgrading their capabilities for employees, partners and customers alike.

An exclusive survey and research report from Bloomberg Businessweek Research Services

SAP®

JANUARY 2013

Table of Contents

Methodology. 3

Executive Summary 4

Introduction. 4

First and Foremost, Forecasting 5

Actual Deployments Lag Somewhat 6

The Future of Mobile Device Access 8

Analytics Must Become More Predictive 9

Summary 9

Sponsor's Statement:
SAP's Roadmap to the Ultimate in Supply Chain Innovation—Real Time 10

Copyright and Disclaimer Notices

Bloomberg Businessweek does not make any guarantees or warranties as to the accuracy or completeness of this report. Bloomberg Businessweek shall not be liable to the user or anyone else for any inaccuracy, error or omission, regardless of cause, or for any damages resulting therefrom. In no event will Bloomberg Businessweek nor other companies or third-party licensors be liable for any indirect, special or consequential damages, including but not limited to lost time, lost money, lost profits or lost good will, whether in contract, tort, strict liability or otherwise, and whether or not such damages are foreseen or unforeseen with respect to any use of this document.

This document, or any portion thereof, may not be reproduced, transmitted, introduced into a retrieval system or distributed without the written consent of Bloomberg L.P.

© Copyright 2013 Bloomberg L.P. All rights reserved.

The names of actual companies and products mentioned herein may be the trademarks of their respective owners.

Methodology

Bloomberg Businessweek Research Services (BBRS) launched a survey and research program in summer 2012 to discover and analyze the views of C-level and line-of-business executives around the world on the drivers of operational performance and ways that decision-support can be strengthened. The survey also queried the executives to uncover what types of new information technology they are deploying or actively considering to improve their financial and operational performance.

The goals of this program included:

- Better understanding how midsize and large organizations view the state of their operational performance at the present time, in addition to their plans for the next few years.
- Examining the operational performance of five key corporate functions: sales, customer service, finance, operations/production and supply chain.
- Better understanding the level of involvement of operational and C-level officials in various functions outside their primary function.
- Identifying the role of technology in supporting efforts to improve operational excellence.

This research program included both quantitative and qualitative components:

- A global survey of director-level or above executives at midsize and large companies from around the world. A total of 318 director-, vice president- and C-level executives responded to the July 2012 survey. About two-thirds of the respondents are involved in supply chain excellence efforts at their organizations, either as their primary or secondary job function. For more information about the demographics of the survey, refer to the "Methodology" charts, at right.

In-depth telephone interviews with C-level and other senior executives at the following companies:

- Barilla Group
- Freescale Semiconductor Co.
- Whirlpool Corp.

Telephone interviews were also conducted with:

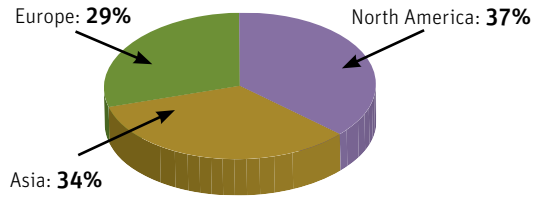
- A research affiliate at MIT, who is former analyst with AMR Research
- The chief research officer of ChainLink Research
- The president of B2B Analysts

BBRS and the author of this report, Bill Roberts (who is a long-time business and technology freelance writer based in Silicon Valley), wish to express their gratitude for the executives and consultants who provided their insights.

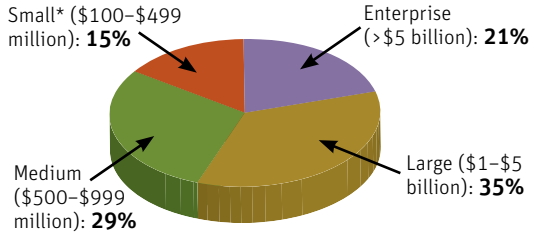
This research project was funded by a grant from SAP but was written independently of this sponsor. The editorial department of *Bloomberg Businessweek* magazine was not involved in this project.

Methodology

Respondents by Region

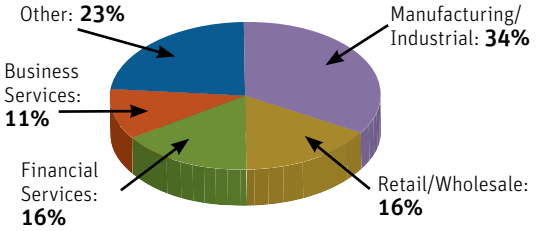


Respondents by Company Size



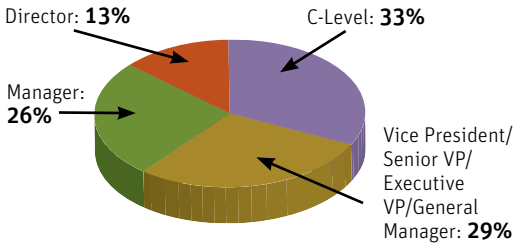
*1000 employees or more

Respondent by Industry Sector



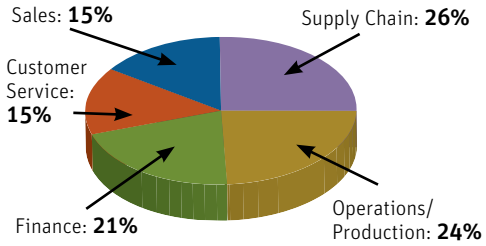
Respondents by Title

*Total exceeds 100% due to rounding



Respondents by Primary Function

*Total exceeds 100% due to rounding



Source: Bloomberg Businessweek Research Services, 2012

Executive Summary

- Supply chain tools are widely acknowledged to be crucial to meeting corporate goals now and in the future as supply chains grow more complex, customers become more demanding and globalization accelerates. Two-thirds or more of respondents to the BBRS survey view a dozen supply chain tools as important in meeting these challenges and making decisions based on the most up-to-date information.
- Demand-driven supply forecasting/planning leads all supply chain tools in level of importance and level of adoption. Clearly, getting this task right is seen as key to supply chain management.
- Although deployment of supply chain management tools lags the expressed level of importance, adoption and upgrading will grow over the next two years across the board for these tools.
- Newer supply chain tools that support the creation of real-time supply chains, such as multi-level inventory optimization, demand signal repository, sales and operations planning, and leveraging point of sale (POS) data are not widely adopted yet. However, they are recognized as highly important and are on track to be adopted more quickly over the next two years than most other tools.
- Mobile access to supply chain tools and data is gradually happening. For example, 51 percent of respondents expect employees to have mobile device access to demand and supply forecasting/planning data by 2014, up from today's 28 percent, who say it is available now.
- Just under three-fourths (73 percent) of the executives surveyed say supply chain analytics tools are important to meeting their company goals.
- With 71 percent of respondents saying analytics tools need to be more predictive, it is not surprising that nearly the same portion—73 percent—plan to upgrade or replace analytics tools within two years to gain these features.

Introduction

Supply chains have never been as long or as complicated as they are today. The globalization trend of the last two decades has driven even smaller companies to build extended supply networks with the same advantages enjoyed by major corporations—namely, multiple tentacles to source and manufacture in diverse locations, to achieve the ability to sell in different geographies and to expand the number of products for the growing and increasingly informed and connected global middleclass.

But these advantages are not without challenges. The more extended the supply network, the more risks there are from natural disasters and manmade turmoil. And then there is the economy. Although the pace of business is accelerating and many companies are doing well, "the global economy is still a mixed bag," says Bill Gilmour, director of supply chain systems at Freescale Semiconductor Co.

In this milieu, companies are seeking to create real-time supply chains that enable managers to make decisions in context, with full visibility into potential impacts on financial targets and key performance indicators (KPIs). This means harnessing the wealth of big data—structured and unstructured—and turning it into insights in real time. An exclusive July 2012 survey by Bloomberg Businessweek Research Services confirms that companies are upgrading supply chain capabilities now and in the next two years to add collaboration and responsiveness across global networks. Many seek to gain the ability for business users to more easily sense, analyze and simulate their supply chains in real time and to better understand the financial implications.

Key survey findings include:

- Forecasting in an uncertain world remains imperative, with about 80 percent of executives saying this function is crucial to meeting corporate goals and achieving success.
- Although new tool deployments still lag, more than half of respondents say they will have new or upgraded supply chain tools, such as supply chain analytics (73 percent) and supply chain traceability (71 percent), by 2014.
- Newer tools are not as widely deployed as others yet, but respondents indicate they will adopt these tools at a faster pace than others. For example, multi-echelon inventory optimization and demand signal repositories are on pace to have twice as many users in 2014.

"The supply chain is a very complex problem, which you have to solve in real time," says David Dobrin, president of B2B Analysts. "Sales operations and planning is where the rubber hits the road. The key need is to figure out your strategy to align supply and demand."

Despite the lackluster economy, companies are refocusing on the requirements for renewed growth and market expansion. A majority of the respondents to the BBRS survey are looking to reduce costs and improve product availability by upgrading supply chain capabilities. In their quest for more effective supply chain management, managers want to better leverage the wealth of data in their supply chains, gain insight into business processes and achieve deeper visibility into demand changes.

This research report provides insights, examples and recommendations on how supply chain professionals can improve forecasting, roll out tools faster and better leverage those tools for real-time insights, demand-driven operations, and efficient logistics and order fulfillment.

First and Foremost, Forecasting

The survey results leave little doubt that executives view supply chain technologies as one key to meeting goals and achieving corporate success. The survey asked respondents how important (on a scale of 1 to 5) each of a dozen supply chain tools is to meeting company goals in 2012—and how important each will be in 2014 (see Figure 1, "Supply Chain Tools: Key to Achieving Corporate Goals," at right).

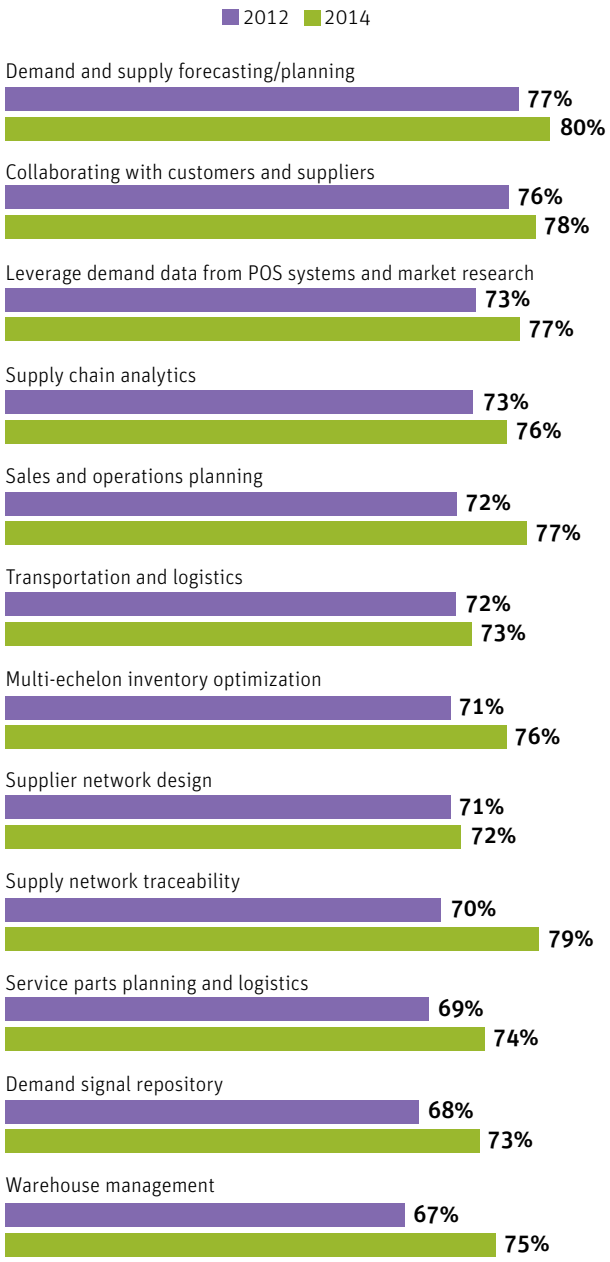
The importance of all these tools is widely acknowledged. Demand and supply forecasting/planning tools topped this list: 77 percent say it is very important in 2012, and 80 percent say it will be important in 2014. "Those results are in line with my view of the world," Freescale's Gilmour says. "Demand and supply forecasting is absolutely important for me." Although warehouse management software received the fewest "important" responses to this question, with 67 percent, 75 percent say it will be important in 2014. This notable change in outlook further suggests a replacement cycle continuing in warehouse management as older solutions are replaced with new, more flexible ones (45 percent will upgrade in the next two years; 19 percent will replace).

In a similar vein, "Our ability to forecast is critical," says Jim Keppler, vice president of integrated supply chain and quality for North America at Whirlpool Corp. "The accuracy throughout is important. Our goal is to have our appliances in

Figure 1

Supply Chain Tools: Key to Achieving Corporate Goals

Better demand and supply forecasting are key concerns. Respondents were asked how important to achieving their organization's goals each of these supply chain tools is through 2014. (Percent rating the importance of a tool as a 4 or 5 on a scale of 1 to 5.)

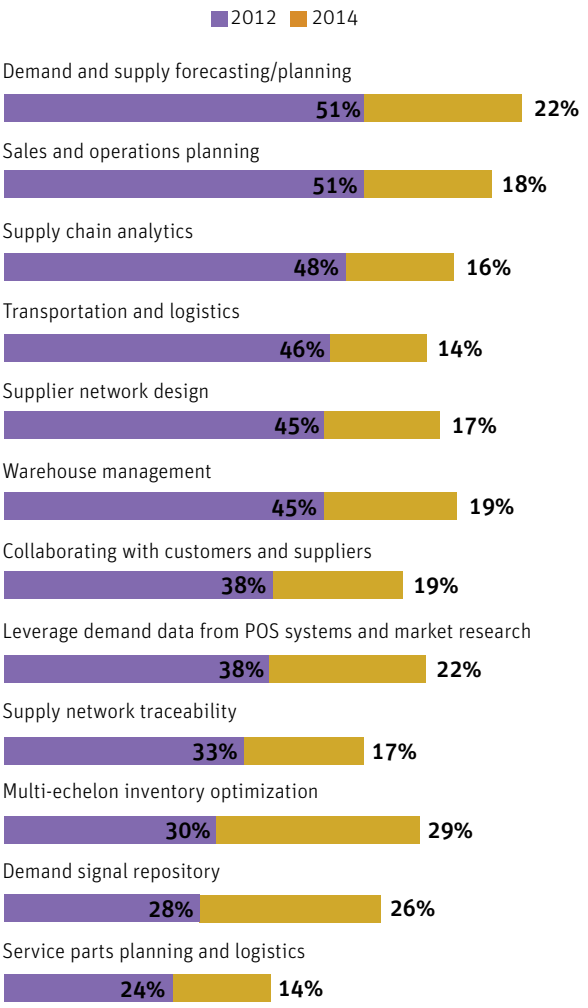


Source: Bloomberg Businessweek Research Services, 2012

Figure 2

Forecasting Tools Top a Strong Supply Chain Outlook

Today's most widely deployed tools are demand and supply forecasting/planning, along with sales and operations planning. Respondents were asked which of these supply chain solutions is deployed at their organization now and which will be in use by 2014. (Percent indicating solution was deployed in 2012 or will be in 2014.)



Source: Bloomberg Businessweek Research Services, 2012

the right place at the right time for the right cost." Keppler runs an organization that includes Whirlpool-owned manufacturing plants and the supply chain for North America. Integrated systems tie everything together, providing end-to-end visibility that enables real-time supply chains.

After spending the past two years migrating to an integrated supply chain model, Whirlpool has been able to shift between 3 percent and 4 percent of fixed costs to variable costs in North American operations, Keppler says. And end-to-end supply chain tools are the keys to this effort. "We focused on inventory reduction, while still being able to serve the customer," he says. "As we've taken inventory out of the system, we have been able to consolidate warehouses and reduce total warehouse space."

The supply chain tool in Figure 1 (on page 5) for which there is the largest difference between 2012 and 2014 is supply network traceability; 70 percent of respondents say it is important now, and 79 percent say it will be important in 2014. That notable nine-point spread would suggest a significant and growing recognition of the importance of this function and the tools for accomplishing it.

"Supply network traceability is not high now, but it should be," says Larry Lapide, a supply chain research affiliate at the MIT Center for Transportation & Logistics and former analyst at AMR Research (now part of Gartner). "Notice it is the biggest change between 2012 and 2014 in the survey."

Traceability is important to Whirlpool's ability to create a 360-degree view of the customer. If salespeople are calling on customers, Keppler says, it is important they have easy access to the same product and order fulfillment information as everyone else at Whirlpool. For this reason, Whirlpool has decided to make additional investment in this area.

Actual Deployments Lag Somewhat

Although supply chain tools are viewed as important, adoption can sometimes lag, according to the survey (see Figure 2, "Forecasting Tools Top a Strong Supply Chain Outlook," at left). Six of the 12 tools mentioned were identified by 45 percent or more of respondents as deployed today. The most widely deployed tools are demand and supply forecasting/planning, along with sales and operations planning. In both cases, 51 percent of respondents say they are using them now. Looking to 2014, an additional 22 percent say they will deploy demand and supply forecasting/planning, and another 18 percent say they will roll out sales and operations planning tools.

Even with the advent of new tools for various functions, demand and supply forecasting/planning remains fundamental, MIT's Lapide says. He adds that today's sprawling, global supply networks are fraught with geographical hazards including natural disasters like tsunamis in Japan and floods in Thailand. Manmade turmoil such as political upheaval in the Mideast and

Somali pirates add to the risk. "Most of the uncertainty used to be on customer demand, so we spent time figuring out how much to make," Lapide says. "Now there is more uncertainty about where we will make things and source the parts. So what we have to do really well is to plan. That is why we see a big push for tools to help."

The fastest deployment growth among the 12 tools in Figure 2 (on page 6) is the two near the bottom of the list for 2012: multi-echelon inventory optimization and demand signal repositories. But by 2014, both will be adopted by nearly twice as many respondents. This is still more recognition of the importance of new tools to support real-time supply chains. Two other tools lower on the list are worth calling out, as well: adoption of leverage demand data from POS systems and market research, and supply network traceability. Both will increase by nearly 60 percent from 2012 to 2014.

Achieving real-time visibility everywhere will not be easy, but supply chain executives clearly have their eyes on the prize. Whirlpool, for example, currently receives POS data from only one of its largest customers. "Everywhere else it is limited or non-existent for us," Keppler says. Whirlpool augments with market research data, its own historical data and what it knows about seasonal changes—and has pretty good results that he would like to see get better.

"In an ideal state, if we had true POS from customers, we could have more of a true pull model," Keppler says. "As customer 'X' buys this appliance model, we could add that back into the production plan at an SKU level. There is a real science to measure the demand signal and use that for our production plan."

The survey found evidence of a willingness to spend more on supply chain tools in the responses to a question about upgrade and replacement plans over the next two years (see Figure 3, "Upgrade and Replacement Forecast," at right). At the top of this list: 73 percent say they will upgrade or replace supply chain analytics within the next two years. "Over the last six or seven years we've invested tremendously in IT to support the supply chain," Freescale's Gilmour says. "What we've done in the last 12 months is focus on leveraging the tools and systems we have and refining them, then putting the analytics on top to exploit what we have."

Figure 3

Upgrade and Replacement Forecast

Seventy-three percent of respondents say they will upgrade or replace their supply chain analytics within the next two years. Respondents were asked what will be the status of each of the following supply chain solutions at their organization by 2014. (Bar shows total changing in 2 years.)

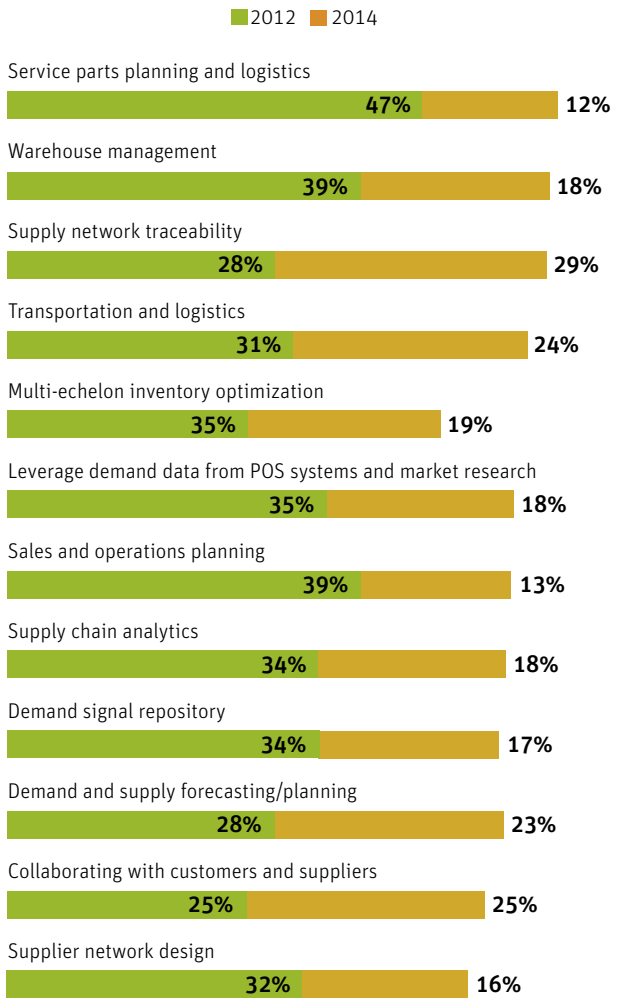
Source: Bloomberg Businessweek Research Services, 2012

At Freescale, the emphasis is on diagnosing problems in real time, and that requires not only the analytical capabilities but the operational tools and underlying databases, Gilmour adds. "If I am a planner for a product line and things change on both the supply and the demand sides, we now have the ability to quickly isolate what changed, what caused it."

Figure 4

Steady Growth in Apps for Mobile Devices

A little more than half of respondents say their employees will use mobile devices to access supply chain information by 2014. Respondents were asked which of these supply chain tools will be available in 2014 via a mobile device to employees. (Percent shows incremental penetration; bar shows total penetration.)



Source: Bloomberg Businessweek Research Services, 2012

Certain new tools that increase real-time capabilities are also high on this list for replacement or upgrade by 2014. Among them are supply chain traceability and multi-echelon inventory optimization, which comes as no surprise to Bill McBeath, chief research officer at ChainLink Research, a supply chain analysis firm. "Optimization is the key. It starts with network design, where you are making decisions about where to locate factories, warehouses and distribution centers. That is actually a type of analytics, and it has been around a long time. Inventory optimization is another."

The Future of Mobile Device Access

Mobile access to data and tools might be one obvious way to improve the real-time capabilities of a supply chain. The survey found evidence of a steady but cautious move to giving employees, suppliers and customers this access, asking which of the dozen supply chain tools would be accessible via mobile devices and to whom by 2014 (see Figure 4, "Steady Growth in Apps for Mobile Devices," at left). Although the number of responses was smaller for these questions (ranging from 51 to 159), among those answering steady movement is expected toward mobile access.

Although there are small variations from tool to tool, a little more than half of respondents say employees will have access to a variety of supply chain tools by 2014. Service parts planning and logistics scores the highest, at 59 percent access, with warehouse management and supply network traceability not far behind, at 57 percent each.

Not surprisingly, mobile device accessibility will come more gradually to stakeholders outside the enterprise. About one-third or more of respondents say suppliers will have mobile access to each tool by 2014. Access for customers will lag supplier access somewhat.

The decision to expose potentially sensitive information to any party outside the organization does not come easily. Many observers say the use of mobile devices with supply chain tools will vary widely, depending on stakeholder demand and company culture. In the area of logistics and execution, access to mobile devices and data is already critical and well established for warehouse workers, truck drivers, purchasing managers, and dispatchers and their managers.

For supply chain planning, however, the need for mobile is less clear than it is for supply chain execution workers. Gilmour says Freescale has yet to find much use for smartphones or tablets in the supply chain planning area beyond receiving e-mail alerts when something goes awry—which is very useful, he adds. "Because of the volume of data we have, supply chain professionals want to do the actual planning and analytics on their computers in-house," he says.

Analytics Must Become More Predictive

Survey respondents registered significant concern about supply chain analytics today. A majority agrees with each of seven statements describing some problem with the tools (see Figure 5, "Analytics Tools Today: More Predictive Power, Please," at right). Clearly, analytics is a pain point.

"These analytics tools are not very easy to use," says Mauro Viacava, the CIO of Barilla Group, a maker of pasta and other food products, echoing the survey findings. Another problem, he says: "The volume of data is growing quickly. This means it takes more time to collect, and it is hard to manage."

Viacava recommends first getting the underlying supply chain tools right before moving on to analytics. To that end, Barilla has invested heavily in supply chain systems and end-to-end integration since 2004. And it has implemented the same operating model worldwide, with one integrated supply chain system to manage all countries. As a result, he says, "While we don't have a lot of predictive tools, our analytics are well used by our supply chain managers. For our demand forecast, we do have a predictive tool."

Freescale's Gilmour agrees that robust underlying systems are essential. "Analytics is the culmination of years of investment in the basic tools. You need the underlying databases. They have to be maintained and structured in a methodical and rigorous way. On top of that, you need technology that enables basic reporting. These are all keys to getting value from analytics tools."

Figure 5

Analytics Tools Today: More Predictive Power, Please

A majority of those surveyed point to problems with today's tools, including limited predictive capabilities and an inability to deal with unstructured data. Respondents were asked if analytics today is a pain point that needs to be solved. (Percent who agree.)

Source: Bloomberg Businessweek Research Services, July 2012

With some help from third-party analytics, Freescale supply chain professionals can now create data cubes and then run their own algorithms against specific scenarios. For example, the system can predict whether an order will be negatively impacted by a semiconductor test house problem in Asia and, if so, help find an alternate source.

Summary

Clearly, the need for supply chain efficiency, agility and innovation has never been greater. And the survey shows executives recognize that more supply chain tools are needed to facilitate integration, collaboration, transparency, traceability and sustainability in the real-time supply chain for all stakeholders. Despite continuing economic uncertainty, companies are refocusing on the requirements for renewed growth and market expansion. A clear majority of executives are looking to reduce costs and improve product availability by upgrading their supply chain capabilities.

It is likely that many of the respondents would agree with Barilla's Viacava. "This is a never-ending process. Every day you look to be more efficient and find new ways to improve," he says. "The cost of our supply chain is huge, and it is very important that it be competitive. Your work is never finished. The job is never done. Building the real-time supply chain is the next frontier." ■

SPONSOR'S STATEMENT

SAP's Roadmap to the Ultimate in Supply Chain Innovation—Real Time

Organizations need to focus on five areas and take the steps necessary to enable real-time supply chain management. SAP offers a suite of products to enable each step.

The Bloomberg Businessweek Research Services survey and report makes it clear that innovative supply chain tools are widely acknowledged to be crucial to meeting corporate goals now and in the future as supply chains grow more complex, customers become more demanding and globalization accelerates. In this context, supply chain innovation is becoming more important as companies that have invested in traditional tools are now determined to operate real-time supply chains.

Although more than three-quarters of survey respondents noted that demand and supply forecasting and planning tools are already very important, and a majority already has these tools in place, adopting newer supply chain tools that support the creation of real-time supply chains is recognized as highly important.

A real-time supply chain can sense and detect new challenges as they happen. That enables supply chain planners and practitioners to make real-time decisions based on the most up-to-date information.

Companies taking this approach view the supply chain as a strategic initiative. They use their understanding of the market and fluctuating demand patterns to adjust their supply plans in real time.

In fact, the Bloomberg Businessweek Research Services survey found that the tools required for real-time supply chain management are on a fast track to adoption within the next two years. Among those real-time supply chain tool enablers targeted for rapid deployment are multi-level inventory optimization, demand signal repository, sales and operations planning, and leveraging point of sale (POS) data.

SAP has identified five focus areas on the road to a real-time supply chain and offers a suite of products to enable each step to upgrade organizations' capabilities in each area.

Perhaps the most critical step is **enabling insightful supply chain management**. Supply chain business decisions need to be made in a business context, not in a silo. Companies leveraging the wealth of performance data about their supply chains can enable that real-time analysis, gain insight into fragmented business processes and achieve deeper visibility through alerts based on key performance indicators (KPIs). The result is a transition from management by exception to management by information—a "supply chain GPS," if you will.

The second step is **transitioning from traditional sales and operations planning to sales and operations business planning**. Companies cannot afford to disconnect their sales and operations business planning from tactical planning. Business priorities and operational decisions must be balanced against a clear understanding of their financial impact.

Using solutions that combine operations and financial data, the business can collaboratively create scenarios and simulate the effects of decisions in real time to increase supply chain profitability.

Another key driver is **embracing the concept of a** demand-driven supply chain. The most prevalent supply chain challenge is lack of clarity into what customers want and when they want it. In a demand-driven model, companies use POS, social media and market research data to sense customer demand signals immediately and to respond in real time to build that demand into the planning processes. This accelerates supply chain processes and reduces planning cycle times, working capital (inventory) and lead times. It also provides the opportunity to increase revenue by avoiding stock outs, increasing promotion effectiveness and optimizing new product launches.

With complex global networks, **ensuring efficient execution in the areas of** logistics and order fulfillment is more critical than ever. With increased supply chain complexity, it becomes more difficult to deliver the perfect order. At the same time, transportation costs are rising across more complicated supply chains. Optimizing execution requires real-time visibility into shipping processes and track-and-trace capabilities, along with automated warehouse and distribution processes and advanced transportation planning.

What's Inside a Real-Time Supply Chain Management System

- A continuously updated window into demand signals and customer data, in addition to the ability to incorporate that information into planning processes.
- The ability to sense and adjust current supply fulfillment plans based on the latest demand data.
- The ability to perform real-time collaborative simulations to clearly understand the operational and financial impact of decisions.
- The ability to be sure decisions map to short-term and long-term plans.

To close the real-time loop, companies must focus on streamlining the service supply chain. Successfully running an integrated supply chain for service parts businesses requires real-time visibility into customers, suppliers and operations. This enables companies to respond swiftly to customer requirements, procure parts earlier, plan parts inventory more effectively and unlock service parts profit potential.

SAP's tightly integrated supply chain solutions help enable the transition to a real-time supply chain. By coupling SAP Supply Chain Management's market-leading applications with powerful SAP analytics solutions and game-changing technologies like the SAP HANA in-memory database platform, companies will be able to respond quickly to market dynamics with real-time visibility into customer demand.

Mobile device connectivity capabilities and cloud options also give companies constant access to their information and low-cost, yet highly scalable, deployment options. On the front end, these mobile solutions, with their user-friendly interfaces, can deliver optimization to all stages of the supply chain.

SAP is also dedicated to providing this technology in a non-disruptive way, through side-by-side deployment options, enhancement packages and rapid-deployment solutions.

Information about these five focus areas first appeared in an article in the January-February-March issue of SAPinsider and is repurposed here with permission of the publisher, WIS Publishing. ©2013 SAPinsider

For More Information

The road to a real-time supply chain is getting shorter, and those who have arrived say it is well worth the journey. To learn more, visit www.sap.com/scm.