Take Demand Responsiveness to the Next Level

How manufacturers in all sectors are capitalizing on emerging capabilities to sense, respond to and shape customer demand.
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### Research Methodology

This report highlights the findings of the 2014 IndustryWeek/SAS Demand-Driven Forecasting and Planning Research Study*. The purpose of the study is to explore the current demand-driven forecasting and planning practices among U.S. manufacturing companies in all industrial sectors. On August 27, 2014, IW Custom Research e-mailed invitations to participate in the online survey to print subscribers. That invitation was followed by two reminders to non-respondents. We received and tabulated 347 completed surveys.  

*Response percentages do not always add up to 100 percent due to rounding and the allowance for multiple responses on some questions.

### About IW Custom Research

IW Custom Research is an operating unit of IndustryWeek that provides insight into executive opinions and manufacturing trends. IndustryWeek connects decision makers within manufacturing enterprises to share ideas and tools that inspire action. In print, online and in person, the IndustryWeek community is the leading resource for manufacturing operations knowledge. IndustryWeek is a property of Penton. For more information, go to www.industryweek.com.

### About SAS®

SAS® is the leader in business analytics software and services, and the largest independent vendor in the business intelligence market. SAS's market-leading business analytics software and services help customers make fact-based decisions to improve performance, from identifying the right product to market to forecasting trends. For more information, go to www.sas.com.
RESEARCH PREFACE

Demand-Driven Forecasting Tames the Bullwhip Effect

Whether supplying other firms further downstream, or shipping directly to distributors, dealer networks or retailers, manufacturers have always been whipsawed by customer demand swings. As forecast inaccuracies accumulate at each transaction level, demand fluctuations multiply up the supply chain. This is known as the bullwhip effect.

Historically speaking, inventory has been the primary method of managing this demand volatility. But inventory is expensive and having the wrong inventory, as is often the case, doesn't do anyone any good.

For decades now IndustryWeek has been covering manufacturers’ efforts to tighten up their supply chains, become more responsive to market signals and trends, and reduce inventory while maintaining service levels.

Today, manufacturers are working on ways to be more than just reactive to supply chain fluctuations. They are monitoring and responding to early demand signals; and they’re figuring out how to reduce demand variability itself. Emerging data collection, storage, forecasting and other analytical capabilities, coupled with real supply-chain collaboration, are making this possible.

To find out how far along these efforts are, IndustryWeek partnered with SAS, one of the pre-eminent and long-time providers of data management and data analysis capabilities. We found that many manufacturing firms have made some progress actively managing and shaping customer demand. Yet, the opportunity remains for enhanced demand sensing, shaping, forecasting and planning, to capture hundreds of millions of dollars in lost revenue and cost savings.

I hope that you find the results of this special research project as insightful and motivating as we have.

Sincerely yours,

Patricia Panchak
Editor-in-Chief, IndustryWeek
Executive Summary

A joint research initiative of IndustryWeek and SAS, this study explores current demand-driven forecasting and planning practices among U.S. manufacturers. Researchers asked about forecasting and planning challenges, accuracy levels, data sources, and methodologies, as well as future technology investments.

Half of all manufacturers reported some adoption of demand-driven forecasting practices, with adoption rates somewhat higher at larger companies. However, further inventory reductions, better customer service, and working capital reductions, enabled by better forecasts would translate into major financial gains. Two-thirds of companies said that better forecasts would increase revenues by at least 3%; and one third said better forecasts would increase revenues by 6% or more.

Demand forecasting tools are currently being used for creating financial plans, inventory planning, setting sales targets, and S&OP (sales, operations and production planning). Forecast accuracy varies significantly. Less than half report that their current forecasts are “very accurate” or at least “fairly accurate.” (For the purpose of this study, “fairly accurate” means that forecasts are within 80% or better of the anticipated mark.)

The benefits of better forecasts span multiple departments. More than three out of four manufacturers indicate their demand forecasting and other planning activities are at least somewhat integrated with fulfillment, manufacturing, procurement and supply chain functions. In addition to using forecasts to drive the appropriate supply chain response, some companies are using demand-shaping practices to modify demand to fit current capabilities.

To improve accuracy, manufacturers plan to adopt more sophisticated forecasting methodologies. They range in complexity from simple moving averages through regression, time series and other analytic models. Some forecasters are even looking at prediction markets and game theory. Specific technology investment priorities include general forecasting solutions, new data management capabilities, and tools that will help ensure the success of the new product introductions.

Respondent Demographics

Seventy-seven percent of respondents hold executive-level (VP, C-level, director) or manager (with direct reports) positions. Responsibilities span a wide range of roles: operations (26%), general management (24%), product engineering/design (14%), quality/reliability (10%), supply-chain management (8%), and sales/marketing (5%), with the remainder in IT or "other" functions. The top industries represented are industrial machinery (15%), automotive (11%), aerospace and defense (8%), metals and mining (8%), consumer packaged goods (8%), and consumer durables (7%). Other industries include medical devices, pharmaceuticals, oil and gas, electronics, semiconductors and telecommunications, and computer equipment. One third of respondents report annual revenues of $1 billion or more. One fourth have annual revenues between $100 - $999 million; and the remainder (43%) report revenues of less than $100 million.
Introduction

Demand-Driven Forecasting and Planning: Optimize Supply and Demand While Maximizing Profits

For decades manufacturing leaders have been working on operational improvements designed to make their factories and supply chains more responsive to market demand. In the process they have improved asset utilization, customer service and factory efficiency, while simultaneously reducing inventory and order fulfillment costs.

Where possible, by becoming more responsive to customer demand signals, they have become less dependent on sales forecasts for production planning and scheduling. These forecasts have always been inaccurate to some degree, wildly so in many cases, because of market volatility and internal management practices. Chief among these is basing forecasts on monthly and quarterly sales targets, which are often laced with stretch goals and overly optimistic marketing projections.

Sales and operations planning (S&OP) initiatives, which started in the 1980s to balance demand projections, supply planning and inventory levels, have slowly become more widespread and robust. Advanced S&OP practitioners now factor in product introductions, portfolio changes, special marketing initiatives, and associated financial plans. These inputs and more come together to create a single, unified, consensus-based operating plan that’s aggregated and updated on a monthly basis.

While there will always be additional opportunities for improvement, both supply chain responsiveness and S&OP have their limits. Globalization and changes in customer expectations continue to increase market volatility and the complexity of balancing supply and demand across multiple product lines, business units and geographic regions on a daily basis. The sheer size, footprint and diversity of many multinational corporations, compounded by the multiple channels they sell through, are driving much of this complexity.

At the same time market pressures are increasing the breadth of product offerings. This is evidenced by the growing number of SKUs most manufacturers have to manage. Add shorter product life cycles, declining customer loyalty and rising expectations for immediate product availability, and it’s easy to see how any improvements in demand visibility and responsiveness would pay dividends.

Enter Demand-Driven Forecasting and Planning

Demand-driven forecasting and planning complements and enhances other efforts to close the gap between demand projections and day-to-day reality. It utilizes data from market and channel sources to sense, shape, and translate demand requirements into an actionable demand response that is supported by an efficient supply plan. That’s the working definition we used for this research study.

“To become demand driven, companies need to identify the right market signals, build demand-sensing capabilities, define demand-shaping processes, and effectively translate demand signals to create a more effective response,” writes Charles Chase, author of Demand-Driven Forecasting: A Structured Approach to Forecasting (Wiley, 2013), and SAS industry consultant for manufacturing.
Demand-driven forecasts leverage sales information (including point-of-sale data), as well as customer orders and shipments, to present a best estimate of market demand. Taking advantage of nascent data capture, storage and analytical capabilities—a.k.a., “big data”—forecasters can then estimate the impact of pricing, promotions, merchandising and other marketing tactics.

Following these projections, marketers can take steps to shape demand in accordance with supply capacity constraints and profitability targets. Pushed by fickle consumers and the need to manage volatility, applying these tactics to manipulate demand has been a key strategy of large retailers and consumer packaged goods (CPG) manufacturers for years. One of the goals of this joint IndustryWeek/SAS research project was to look at current demand-driven forecasting practices across manufacturing businesses of all types.

As described in the methodology on page 5, we asked manufacturers about their current forecasting and planning practices. We asked about the potential financial gains from better forecasts and about the management process and technology barriers to achieving those gains. We also asked about current practices, as well as immediate and future investment priorities.

Our findings are detailed in this report. Interestingly, we found that while consumer packaged goods companies were ahead in adopting demand-driven forecasting practices, they weren’t that far ahead. Half of all manufacturers (50%) reported widespread or some adoption of demand-driven forecasting, compared to 57% of CPG companies.

Finally, a brief word of caution about the observations in this report. What may be true for most, is not necessarily true for all. For example, while our research did support the frequent observation that manufacturers are handling more SKUs today, one out of four companies has resisted market pressures and kept a lid on product proliferation. Not only that, a similar proportion has managed to reduce their SKU count, perhaps in response to growing complexity in other areas of their business, or through a deliberate effort to eliminate unprofitable product lines. Keep this diversity of market situations and competitive responses in mind as you review the results presented on the following pages.
The Payoff

What’s Better Forecasting Worth?

What’s the potential payoff for more timely and accurate demand forecasts? Higher revenues. And lower costs. That translates into higher profitability. It’s as straightforward as that, as our research confirmed.

We asked manufacturers exactly how much of a sales boost they believed they could get from better demand forecasting. The results were striking. Almost a third (31%) anticipated a sales increase between 3% and 5%. That’s three to five million dollars for a company with $100 million in annual sales (and the majority of our respondents reported much higher sales levels).

What’s even more striking though is that a solid one-third of companies (35%) reported that better forecasting would increase sales by 6% or more. And one out of ten manufacturers reported a potential revenue gain of 11% or more. Eliminating lost sales due to stockouts and backorders—for both existing and new products—would account for much of that sales gain.

Manufacturers anticipated similar multi-million dollar cost reductions from better forecasts. Almost three out of four (72%) predicted annual cost reductions of 3% or more. Of all the potential benefits from better forecasts, the top three in terms of potential impact were: inventory reductions, better customer service, and increased sales.

Some of the specific ways more accurate demand forecasting and planning can improve financial performance include:

- Reduced safety stocks, lower carrying costs and working capital requirements.
- Reduced inventory ultimately reduces asset requirements through redesigned distribution networks with fewer warehouses.
- Lower freight and logistics costs improve profit margins.
- Enhanced relationships drive superior customer service and responsiveness, which lead to repeat business and growth.

Manufacturers also cited general overhead reductions, higher productivity, reduced overtime, and lower changeover costs, as other benefits from better forecasting methods.
On Target

Demand Forecast Applications and Accuracy

Like any type of business analysis and intelligence, there’s no point in expending the effort and expense to collect and analyze the data if it isn’t going to be used to change tactics and improve performance.

Roughly two out of five manufacturers say they are extensively using demand forecasting and planning information for some purpose. The primary uses are for creating financial plans, inventory planning, setting sales targets, and S&OP (sales, operations and production planning). A similar proportion reports some usage of demand forecasting for these applications.

Survey respondents also cited some additional uses of demand forecasts within their organizations. These included cash-flow management, capacity planning, capital equipment investments, engineering testing, innovation timing and staffing.

The accuracy of manufacturer’s forecasting efforts vary significantly. Less than half (44%) report that their current forecasts are “very accurate” or at least “fairly accurate.” For the purpose of this study, “fairly accurate” means that their forecasts tend to be within 80% or better of the anticipated mark, which still leaves a lot of room for improvement. The majority said their forecasts were only somewhat accurate, or not accurate at all.

As one might expect, manufacturers that have widely adopted demand-driven forecasting practices reported higher forecast accuracy. But larger companies with $1 billion or more in annual revenues, which were more likely to have adopted demand-driven forecast practices, did not report higher forecast accuracy levels.

Use of Demand Forecasting and Planning

<table>
<thead>
<tr>
<th>Current Forecast Accuracy</th>
<th>Extensively used</th>
<th>Some usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very accurate</td>
<td>10%</td>
<td>13%</td>
</tr>
<tr>
<td>Somewhat accurate</td>
<td>34%</td>
<td>43%</td>
</tr>
<tr>
<td>Not very accurate</td>
<td>43%</td>
<td>34%</td>
</tr>
</tbody>
</table>

Users of Demand-Driven Forecasting Report Higher Accuracy*

<table>
<thead>
<tr>
<th>Adoption Level</th>
<th>All</th>
<th>Widespread adoption</th>
<th>Wide familiarity and some adoption</th>
<th>Infancy</th>
<th>Not developed at all</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>90%</td>
<td>92%</td>
<td>80%</td>
<td>70%</td>
<td>60%</td>
</tr>
</tbody>
</table>

But Larger Companies Do Not Report Higher Forecast Accuracy*

<table>
<thead>
<tr>
<th>Revenue Level</th>
<th>All</th>
<th>$1 billion or more</th>
<th>$100 - $999 million</th>
<th>Less than $100 million</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
</tr>
</tbody>
</table>
Data Integrity

Laying the Foundation for Better Forecasting

There was a time, back when there were inventory buffers up and down manufacturers’ comparatively short supply chains, when forecasts based on the previous month and adjusted for seasonality were sufficient. In any case, that’s all there was.

As data capture, storage, retrieval and analytical power have steadily evolved, and systems costs have declined, one sometimes wonders if increasingly advanced supply and inventory management capabilities arose to meet growing market complexity. Or, if they in fact created that complexity by enabling massive global supply chains, endless product configurations and customer choices, and product life cycles less than half what they were not too many years ago.

Within every business there is a similar, ongoing tension between capabilities and needs. The ability to capture, cleanse and share data across the organization once required a significant investment and justification within already strained IT budgets, often without an immediate payoff. Such investments laid the foundation for early adopters of advanced data management capabilities. As these data collection and analysis tools have become more affordable and powerful, they’ve become easier for more manufacturers to justify.

Of course, the output and recommendations of any planning and decision-support system—like demand-driven forecasting—is only as good as the integrity of the underlying data.

“The road to achieving the benefits from improved forecast accuracy starts where most business process improvement projects start: With the data,” says Leo Sadovy, principal product marketing manager, SAS. “It begins by addressing data quality, and then by breaking down the functional siloes and making the data readily accessible to everyone in the demand-forecast and S&OP processes.”

According to our research, both data quality and data availability are better for manufacturers reporting wider adoption of demand-driven forecasting methods. That implies that better and more widely accessible data is either a prerequisite, or that poor quality data and a lack of sharing could be barriers to adoption.

Better Data, Better Forecasts

Manufacturers with Better Data Quality, Wider Availability, and Broader Data Synchronization and Sharing, Report Higher Forecast Accuracy

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Demand Information Currently Used for Forecasting and Planning

Today, for many companies, data management capabilities have advanced so quickly that the challenge now is how to report and make practical use of it all. Data storage costs have fallen off a cliff. Sales transaction data is being captured at increasingly granular levels across markets, channels, brands and product configurations. Faster in-memory processing is making it possible to run simulations in minutes that previously had to be left to run overnight.
Crunching The Numbers

Forecast Development Practices and Strategies

Sadly, it comes as no surprise that Microsoft Excel remains the most widespread forecasting tool. As limited as its capabilities are, spreadsheet applications are ubiquitous on every desktop and laptop computer, and even most mobile devices. The problem with spreadsheet analysis, given the SKU-proliferation and data deluge noted previously, is that it is simply not powerful or scalable enough to get the job done.

There are, however, a wide variety of other, non-spreadsheet based forecasting tools, techniques and applications available. Within the next 12 months, the manufacturers we surveyed plan to adopt a number of these practices, ranging in complexity from simple moving averages through to regression, time series and other analytic models. Some are even looking at prediction markets and game theory. The goal for planners, of course, shouldn’t be to use the latest or most complex tools for their own sake, but to identify the approach that is the best fit for a given product line by providing the necessary intelligence on a timely basis.

Of course, when it comes to building consensus forecasts, analytical outputs are only the beginning. Expert input is necessary to incorporate factors outside the purview of forecasting engines, as long as such input doesn’t take the form of wishful thinking. No matter how sophisticated the underlying statistical algorithms, people often feel like they haven’t participated in the forecast process unless they’ve tinkered with the numbers.

Almost half (47%) of manufacturers report that five or fewer people are involved in forecast development, review and approval. Perhaps because they have wider networks of accountability, more people tend to participate in forecast development at larger companies, especially those with $1 billion or more in annual revenues.

In addition to translating forecasts into the appropriate supply chain response, demand-shaping practices can be used to modify demand to fit current supply chain capabilities. Just as collaboration with external value chain partners is necessary to optimize the demand response on the supply side, demand shaping practices—pricing, merchandising, promotions, etc.—require internal collaboration to optimize and coordinate activity on the demand side.

More than three out of four manufacturers indicate their demand forecasting and other planning activities are at least somewhat integrated with fulfillment, manufacturing, procurement and supply chain functions.

Forecast Accuracy Improves with Higher Integration of Demand Forecasting and Planning with Order Fulfillment, Manufacturing, Procurement and Supply Chain Activities

<table>
<thead>
<tr>
<th>Highly integrated</th>
<th>Somewhat integrated</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td></td>
</tr>
<tr>
<td>22%</td>
<td>54%</td>
</tr>
<tr>
<td>Fairly or very accurate forecasts</td>
<td></td>
</tr>
<tr>
<td>35%</td>
<td>50%</td>
</tr>
<tr>
<td>Less than fairly accurate</td>
<td></td>
</tr>
<tr>
<td>16%</td>
<td>60%</td>
</tr>
</tbody>
</table>
## Employee Involvement In Forecast Development

### Number of People Involved in Developing, Reviewing, Adjusting and Approving Forecasts

- More than 20: 19%
- 11-20: 11%
- 6-10: 23%
- 0-5: 47%

### More People Provide Input into Forecasts at Larger Companies*

- All: 50%
- $1 billion or more: 40%
- $100 - $999 million: 30%
- Less than $100 million: 20%

### Degree that Stakeholder Judgment Shapes Final Forecasts

- Not at all: 17%
- Extensively: 22%
- To some degree: 61%

### Power Users of Demand Driven Forecasting Report a Higher Degree of Stakeholder Judgment in Shaping Final Forecasts*

- Widespread adoption: 50%
- Wide familiarity and some adoption: 40%
- Infancy: 25%
- Not developed at all: 15%

### Forecasts Adjusted at Some Point in Each Forecast Cycle

- Most (76%-99%): 3%
- A majority (51%-75%): 10%
- Some (26%-50%): 37%
- Few (0-25%): 37%

### Larger Manufacturers Tend to Adjust Forecasts More Frequently*

- All: 50%
- $1 billion or more: 40%
- $100 - $999 million: 30%
- Less than $100 million: 20%
True Demand

Shortening the Demand Sensing to Response Cycle

According to our research, three out of four manufacturers are using order and shipment information for demand forecasting and planning purposes. But as consultants from Oliver Wight (the founders of S&OP) wrote in Demand Management Best Practices (J. Ross, 2003), sales orders and shipments are supply signals, not true demand signals. Point-of-sale (POS) data is closer to a true demand signal.

Few participants in our research have incorporated POS signals into their forecasting and planning activity. Less than one out of ten are collecting and buying POS/Syndicated data from third party service providers (e.g., Nielsen, IRI, and IMS), and only one out of three are using POS scanner data. One explanation for this is the fact that a relatively small sample of our survey respondents sell directly to end consumers (only 8% classify their businesses in the consumer packaged goods sector).

On an even higher level, point-of-sale signals are only the beginning when it comes to sensing true demand. The increasing availability of other real-time data opens up new opportunities for forecasters to monitor and report demand activity throughout the day. Alerts about external events, weather or competitor activity can enable immediate countermeasures to minimize any negative impact on sales, or take maximum advantage of opportunities.

“Companies need to sense and measure the impact of market drivers that influence POS/syndicated scanner data (true demand), and use those drivers to shape future demand,” says Charlie Chase. “Then they can use the history and shaped future demand as a lead indicator (using sales orders or shipments) to shape future supply.”

Using data mining and predictive analytics, forecasters can now predict and measure the effects of proposed price changes, advertising and promotions at different times of the year. The ultimate objective, Chase adds, is to connect demand to supply up and down a business hierarchy using data and analytics, and be able to do it automatically for tens of thousands of SKUs.

Larger Companies Are More Likely to Be Using the Data They’re Capturing to Understand and Analyze Demand Patterns

<table>
<thead>
<tr>
<th>Extensively used</th>
<th>Some level of usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>20%</td>
</tr>
<tr>
<td>$1 billion or more</td>
<td>28%</td>
</tr>
<tr>
<td>$100 - $999 million</td>
<td>23%</td>
</tr>
<tr>
<td>Less than $100 million</td>
<td>12%</td>
</tr>
</tbody>
</table>

Demand Sensing Information Currently Being Used for Demand Forecasting and Planning

<table>
<thead>
<tr>
<th>Currently used</th>
<th>Available, but not used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer orders</td>
<td>77% 16%</td>
</tr>
<tr>
<td>Customer shipments</td>
<td>73% 16%</td>
</tr>
<tr>
<td>Point of sale (POS) data</td>
<td>36% 22%</td>
</tr>
<tr>
<td>RFID tag tracking</td>
<td>11% 12%</td>
</tr>
<tr>
<td>Syndicated scanner (IRI, Nielsen)</td>
<td>6% 14%</td>
</tr>
</tbody>
</table>

Manufacturers Are Not Making Extensive Use of Real-Time Demand Information, Predictive Analytics and Data Mining, or What-If Simulations and Scenario Planning

<table>
<thead>
<tr>
<th>Extensively used</th>
<th>Some level of usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>What-if simulations and scenario planning</td>
<td>18% 55%</td>
</tr>
<tr>
<td>Predictive analytics and data mining</td>
<td>7% 50%</td>
</tr>
<tr>
<td>Real-time demand information (POS, RFID)</td>
<td>8% 38%</td>
</tr>
</tbody>
</table>

Demand Shaping Practices Currently Being Used

<table>
<thead>
<tr>
<th>Price changes</th>
<th>Economic information</th>
</tr>
</thead>
<tbody>
<tr>
<td>65%</td>
<td>50%</td>
</tr>
<tr>
<td>Sales promotions</td>
<td>37%</td>
</tr>
<tr>
<td>External events</td>
<td>36%</td>
</tr>
<tr>
<td>Advertising</td>
<td>35%</td>
</tr>
<tr>
<td>Trade promotions</td>
<td>33%</td>
</tr>
<tr>
<td>Store merchandising (displays)</td>
<td>14%</td>
</tr>
</tbody>
</table>
Looking Ahead

Future Forecasting Investments and Opportunities

As any company leader knows, investments in people and capabilities are essential for a business to thrive and keep growing. While a third of manufacturers are planning to increase investments in demand-driven forecasting capabilities over the next 12 months, many are relying on past or ongoing investments to keep moving forward.

The top three investment priorities are general forecasting, new data management technology, and tools that will help manage the new product introductions. When it comes to forecast accuracy and maximizing profitability, anything will be better than continuing to fall back on spreadsheets.

“Excel is the most widely used technology across all industries still today in 2014,” says Chase. “However, Excel is not scalable, particularly, given that SKU proliferation has been on the rise for the past decade. Also, Excel doesn’t have the depth and breadth of preditative models to support a demand-driven forecasting process on a large scale.

“In order to support large-scale demand-driven forecasting, it is critical to have preditative models and a user-friendly, point-and-click user interface. The solution must be highly scalable allowing the user to sense demand signals and shape future demand up and down the business hierarchy,” he adds.

In Conclusion

Given finite resources, traditional business strategy posits that manufacturing executives have to decide between which strategic tradeoffs they are going to make. Are they going to be a high volume, low cost producer? Or are they going to be a lower volume, high quality producer? Are they going to offer low prices? Or are they going to offer superior customer service and responsiveness?

Operational improvement efforts over recent decades have enabled manufacturers to provide customers with the best of both worlds. They can now manufacture and market high quality, highly customized products at both low and high volumes, and offer them at very competitive prices. They can also be highly responsive to customer orders despite maintaining dramatically lower inventory levels (with lower overall operating costs).

The rise of demand-driven forecasting and planning capabilities continues this broad trend toward improving performance by working smarter without increasing operating costs. As noted by respondents to this research study, manufacturing leaders readily recognize that the ability to develop more accurate forecasts, to sense and to shape customer demand, could have a multi-million dollar impact on their revenues and cost structures. What are you waiting for?

For information on how to implement demand-driven forecasting and planning capabilities in your organization, go to www.sas.com/supplychain or call SAS at 1-800-727-0025.

Specific Demand-Driven Forecasting Technology Investment Priorities

- General forecasting tools: 44%
- Data integration and/or data management: 33%
- New product forecasting: 24%
- Data mining and analysis: 19%
- Demand sensing: 14%
- Consensus forecasting / workflow management: 14%

Source: 2014 IndustryWeek/SAS Demand-Driven Forecasting and Planning Research Study, n=329