



## **Sales and Operations Planning in Complex Discrete Manufacturers –**

**A Research Report on Challenges and Opportunities**

SupplyChainDigest™

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# Sales and Operations Planning in Complex Discrete Manufacturers –

## *A Research Report on Challenges and Opportunities*

### Introduction

While there has been an increasing focus on improved demand management and sales and operations planning (S&OP) processes across virtually all vertical manufacturing industries, companies that manufacture and market complex discrete products face special challenges. What types of companies manufacture “complex discrete products”? While there is no universal definition, in general, we refer to companies in such vertical industries as high tech, electronics, telecommunications and networking, medical devices, and a range of general industrial products (engines, automotive components, robotics, etc.).

These are products and companies that tend to share similar characteristics such as:

- ❑ Complex, multi-level bills of material
- ❑ Multiple product configuration options
- ❑ Complex product lifecycle planning and management environments
- ❑ Multi-tier and/or multiple sales channels

As a result of these characteristics, companies in complex discrete manufacturing environments have unique challenges that complicate demand management and S&OP. For example, forecasting and operational planning must consider not only product-level forecasts, but also the expected mix across many potential configurations of the base product. Complicating this scenario, many complex discrete manufacturers operate within tight customer lead times in assemble-to-order or configure-to-order environments. Because most of these types of companies face inherently dynamic and complex product lifecycles, the need to tightly integrate sales and operations planning across the enterprise and the supply chain becomes a critical element of market success and overall efficiency.

The failure to get demand management and S&OP right are well understood, and include:

- ❑ Excess inventories of both finished goods and components
- ❑ Lost sales

- ❑ Increased manufacturing costs
- ❑ Customer service problems
- ❑ Longer cash-to-cash cycles
- ❑ Lower returns on new product investments

To better understand these issues, SupplyChainDigest™ recently conducted a study of 40 companies with complex discrete manufactured products. These interviews and surveys present an interesting picture of the current demand management landscape within a variety of vertical industries facing similar demand management challenges.

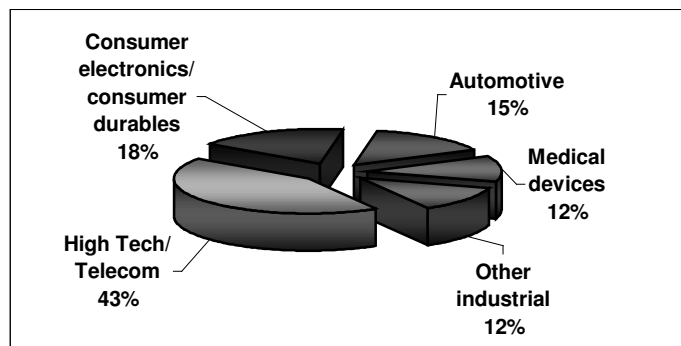
## Survey Methodology

SupplyChainDigest analyzed its database of thousands of companies and selected several hundred for inclusion in the survey pool, based on their industry classification. The focus was on companies in vertical industries that typically manufacture complex discrete products, such as high tech, electronics, consumer durables, automotive, medical, and other sectors.

From this pool, random calling was done to solicit respondents to take a 15-minute phone survey asking a series of questions around demand management and sales and operations planning. Almost all of the calls were with senior executives at these companies (VP and above), representing functions such as supply chain management and operations, sales, marketing and finance.

The breakdown of survey respondents by the vertical industry of their companies is illustrated below:

**Industry Profile of Survey Respondents**



The survey population was drawn from large companies, with 75 percent of respondents from companies with greater than \$1 billion in annual revenues, and 25 percent with revenues that are between \$500 million and \$1 billion in size. The combination of the random sampling of the target universe, the total number of responses obtained, and the use of both quantitative and qualitative feedback provides a valuable platform for insight and analysis of the issue facing discrete manufacturers in solving demand management challenges.

## The Importance of Operational Alignment and Execution Centricity in Corporate Success

A fundamental premise of this research is that companies are, more than ever before, recognizing the importance of operational alignment in overall company success, and how improved sales and operations planning processes can provide a foundation for executives to improve execution effectiveness.

In recent years, there has been a growing focus by CEOs, academics, consultants, and other thought leaders on the need to improve execution effectiveness. Many companies have found that the primary reason why potentially winning strategies have failed to bring results has been due to **organizational failure** to effectively execute those strategies. As Larry Bossidy, the legendary CEO of Allied Signal and then Honeywell Corp. recently noted, "Many people regard execution as detail work that's beneath the dignity of a business leader. That's wrong. To the contrary, it's a leader's most important job."

But Bossidy also notes the challenges of driving execution across the corporation. "Organizations don't execute unless the right people, individually and collectively, focus on the right details at the right time," Bossidy warns. "For you as a leader, moving from the concept to the critical details is a long journey."

The key to effective execution is organizational alignment across functions (sales, marketing, operations, etc.) in pursuit of the strategy. Unfortunately, for many companies a failure to achieve cross-functional alignment results in mediocre execution or worse. The good news is that this is also where improved sales and operations planning processes and technology tools can make a huge impact. By providing executives and functional groups with a synchronized, consistent view of both the plan (which almost by definition will be a component of the demand plan) and achievement against that plan (the "details," in Bossidy's view), companies can significantly enhance organizational alignment.

As a result, improvement in sales and operations planning and information technology support becomes more than just an opportunity to improve the top and bottom lines through improved forecast accuracy and supply chain excellence. It enables executives to achieve improved operational control and execution of corporate strategy.

## Survey Results and Analysis

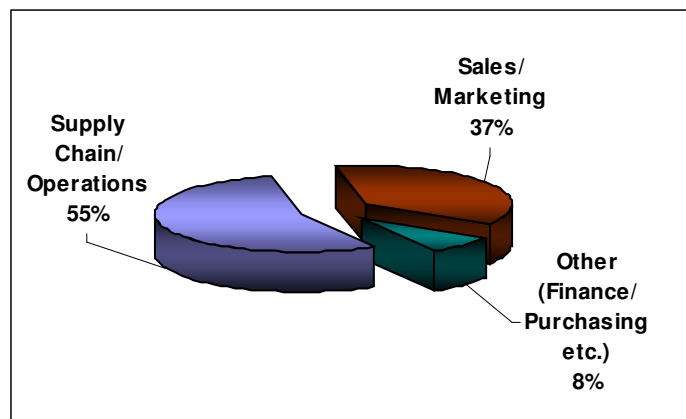
Survey respondents were asked a series of questions about their current practices and results in demand management and sales and operations planning, especially in regard to the special challenges of discrete manufacturing companies. These specific questions were supplemented by some open dialog that allowed companies to provide additional commentary that added insight and context to the main survey responses.

The following sections provide the summarized results of those survey responses, along with supporting quotes from respondents where appropriate and brief analysis of the results from SCDigest.

### Ownership of the Forecasting and Demand Planning Process

In a significant majority of respondents, forecasting and demand planning process were “owned” within the supply chain or operations group (55%). Sales and marketing owned the process in 37% of the participating companies, while in a small percentage these processes were owned by other functions.

#### What Function Owns The Forecasting/Demand Planning?



There appears to be slight trend, especially as companies move to more formal and cross-functional sales and operations planning, to having these processes owned by sales and/or marketing, rather than operations. As one respondent, a Vice President of Supply Chain and Logistics, noted:

*“I was responsible for starting our sales and operations planning initiative, but I wanted it owned by our sales organization, because in the end this is all about satisfying customers.”*

**Key Takeaway:** *While forecasting and demand planning are still primarily the responsibility of the supply chain and operations function in discrete manufacturers, companies should place that ownership where it will be most effective. At an increasing number of discrete manufacturing companies, these cross-functional S&OP processes are coming under the ownership of the marketing organization.*

## Effectiveness of Current Demand Planning Processes

Despite the obvious importance forecasting and demand planning in most discrete manufacturing companies, a large percentage of companies are not well satisfied with the current process and results. As one high tech respondent noted,

*“We operate in a very dynamic environment in terms of market demand and product lifecycles. Our forecast accuracy is poor, but maybe that’s just the way it has to be.”*

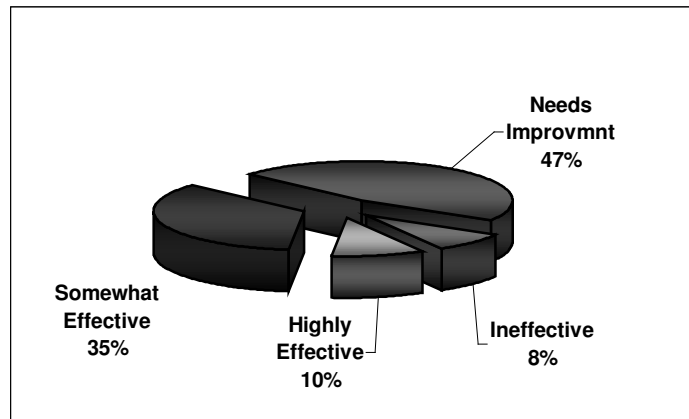
But contrast that perspective to another company in a related technology segment, who said,

*“We have taken our forecast accuracy from the low 40’s in terms of percentage to over 70 percent today, and we’re still improving.”*

The key for this company was a very disciplined approach to both demand management processes as well as deployment of demand planning technology to support sales and operations planning processes.

Overall, only 10% of respondents felt their current demand planning process and results were “highly effective,” while 35% said their current results were “somewhat effective.” That left 47% characterizing their current results and processes as “needing improvement,” and 8% as saying current processes were “ineffective.”

## Effectiveness of Current Demand Planning Process and Results

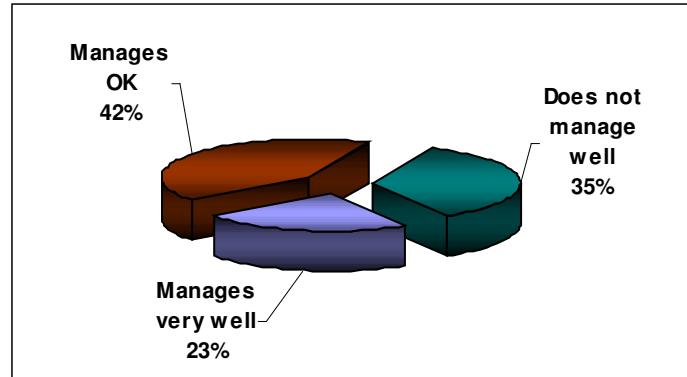


Interestingly, almost all of the companies rating their current results as either highly or somewhat effective were using technology support from one of several demand/sales and operations planning technology vendors. However, the reverse did not hold true with companies unsatisfied with their current results. For example, while about 40% of companies that rated their current results as either “needs improvement” or “ineffective” did not have any sort of unified demand planning technology platform. Approximately 60% of this group did have such technology in place, but were clearly not using it effectively.

These results lead to two conclusions. First, they illustrate the importance of process and especially “change management” in improving demand planning results. Second, they also indicate the special challenges that manufacturers of complex discrete products have in forecasting across complex SKUs and bills of materials, multiple configurations, etc. This is supported by the survey results, as only 23% of respondents said that their current demand planning technology well supports their current product complexity, versus 42% that said their current systems manage this complexity “OK,” and 35% that said they cannot manage it well. As one VP of supply chain for a consumer electronics company said,

*“Over the past few years, the choices and configurations we offer the customer have exploded. But our ability to manage the forecast below the SKU level has simply not kept pace.”*

## How Well Does Your Demand Planning Technology Support Your Current Product Complexity and Configuration Options



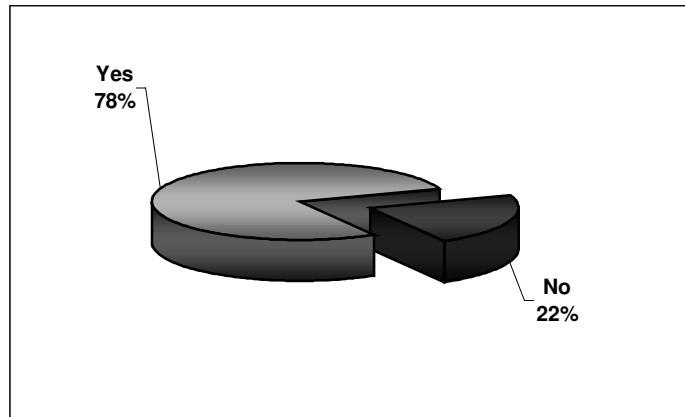
**Key Takeaway:** Advanced demand planning technology to support forecasting and sales and operations planning appears necessary, but not sufficient to achieve high performance results. This means companies without such technology support usually must deploy improved technology, but with a clear understanding the technology alone will not solve any problems or substantially improve results. Companies with complex products (multiple configurations, multiple level bill of materials, product mix challenges, etc.) must look hard at available solutions to understand their support for this level of forecasting complexity.

## Sales and Operations Planning

Somewhat surprisingly, given other industry reports that have found lower numbers, the vast majority of survey respondents said that their companies currently had formal sales and operations planning (S&OP) processes in place (78% saying Yes versus 22% responding No).



## Do You Currently Have a Formal Sales and Operations Planning Process?

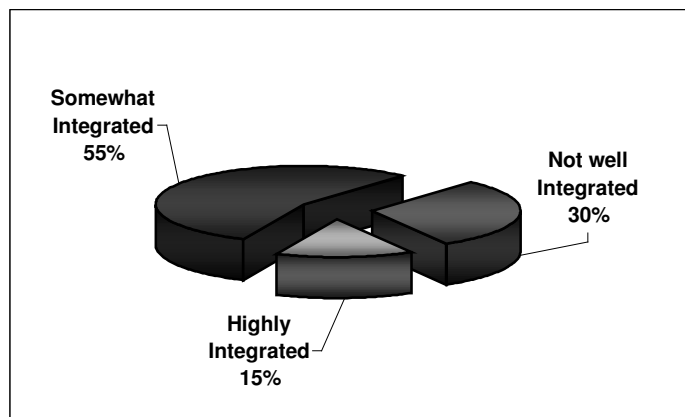


However, it was clear from both the survey results and conversations with respondents that there was often a big gap between having such a process on paper and actually making it work within an organization. As one respondent from a tier 1 automotive supplier said,

*“We have a model for sales and operations planning, but in reality we get comparatively little participation from sales, meaning that what we really have is “operations planning” based on input from the sales organization.”*

This dichotomy between having formal S&OP processes nominally in place but not effectively executing them was evident in our question that asked respondents to characterize how well integrated their S&OP processes were across functions. Only 15% of respondents said they were “highly integrated,” versus 55% that said they were “somewhat integrated” and 30% who said they were “not well integrated.”

## Level of S&OP Integration Across Functions



These results mirror anecdotal evidence from users, analysts and other observers, and support the notion that a significant gap exists between the widespread recognition of the value of effective sales and operations planning and the ability of companies to truly drive such processes throughout their organizations.

As might be expected, it also appears that many organizations focus S&OP most heavily in developing operational plans based on improved sales forecast visibility. However, there are other constituents that need to be more fully included in S&OP processes and intelligence. This would include marketing, especially in factoring the impact and success of new product introductions, and finance, in terms of providing the CFO with insight into financial implications (revenues, margins, profits) of different operating scenarios.

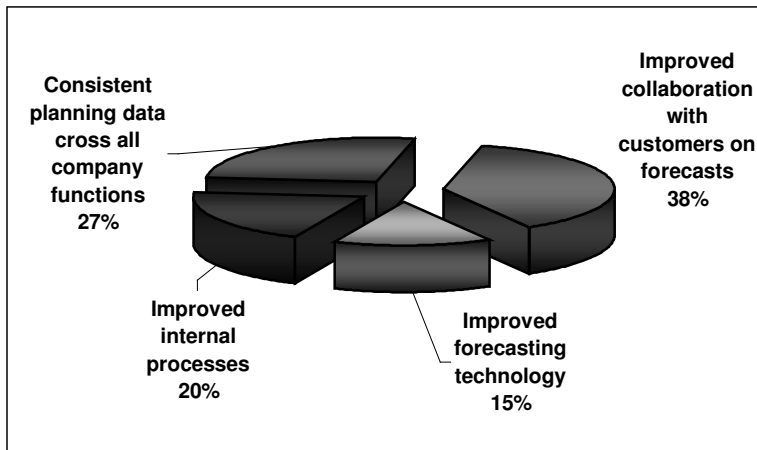
**Key Takeaway:** *Integrated Sales and Operations Planning has emerged as a clear best practice among discrete manufacturers. However, executives should not be confused having a formal S&OP process on paper with actually having one in practice. Despite the fact that the majority of companies say they do engage in formal sales and operations planning, the reality is that most are still executing those processes at a relatively immature level compared to the leaders and what is possible with a technology-enabled, integrated, and disciplined approach. Sales and operations planning must also more specifically enable corporations to “connect all the dots” by ensuring the needs of marketing and finance are also well served by the process and information.*

## Improving Demand Management Processes

Given the general dissatisfaction with current demand and sales and operations planning processes, we asked respondents what single area of improvement would have the most significant impact in their performance and results.

The results were mixed, illustrating the multi-faceted challenges of demand management in these industries and the different starting points of different companies in overcoming these challenges.

For example, 33% of respondents cited “increased collaboration with customers on forecasts” as the number one area for potential improvement, while “consistent planning data across all company functions” was cited by 27%, “improved internal processes” by 20%, and “improved forecasting technology” by 15%.



While customer collaboration is clearly an area where few companies or trading partner relationships have yet achieved truly outstanding results, there was also a strong correlation in the survey results between those companies that cited this as their primary area of opportunity, and those that consider their current demand planning processes to already be in one of the “effective” categories.

This is illustrated in the table below, which compares responses across these two questions. For example, of the 35% of respondents who rated their current demand planning processes as “somewhat effective,” 57% cited forecast collaboration as the area that could drive the largest potential improvement. Conversely, only 16% of companies that said their current demand planning processes needed improvement cited improved collaboration as the area of biggest impact:

Current Demand Planning Process	Biggest Potential Area of Improvement			
	Forecast Collaboration	Consistent Planning Data	Improved Processes	Improved Forecasting Technology
Highly Effective	10%	75%	25%	0%
Somewhat Effective	35%	57%	14%	21%
Needs Improvement	47%	16%	26%	26%
Ineffective	8%	0%	0%	67%

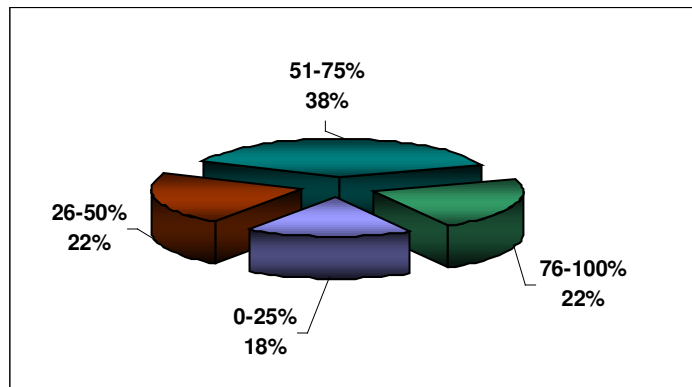
**Key Takeaway:** For companies that have achieved a high level of satisfaction with their internal demand management processes, improving forecast collaboration with customers quickly becomes the imperative for improving results. But for the more than 50% of companies that believe their demand management performance needs significant improvement, improving collaboration will add comparatively little value until process improvements, visibility to planning data across the enterprise, and core forecasting technology are improved.

## Use of Spreadsheets in Demand Management

Despite reasonably widespread adoption of demand planning software tools, it is clear that many companies still use spreadsheets to manage some or all of their supporting processes. Excel and Lotus spreadsheets generally serve as the exclusive tool for companies that have not deployed any specific demand planning tools. What is clear from the survey results is that even companies that have implemented more advanced planning software solutions often still have a significant portion of their demand management related data being manipulated on spreadsheets. As one respondent, a VP of Operations, noted:

*“We are using one of the best of breed demand planning tools, and do most of our work in that tool. However, there is still lots of stuff being done on spreadsheets by most departments around the system.”*

### Percent of Planning and Forecasting Data on Spreadsheets

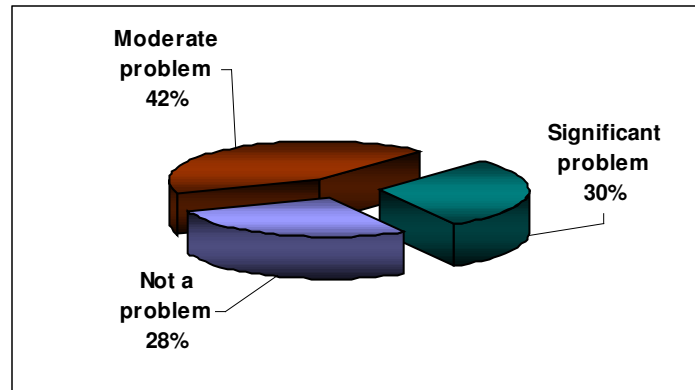


There is of course nothing wrong with the use of spreadsheets. They are often, if not usually, the preferred “interface” for those involved in the planning process. But widespread use of spreadsheets can create several issues for corporations, including:

- ❑ Keeping the spreadsheets synchronized even within functions and departments, let alone across the enterprise
- ❑ Inability to model different scenarios and truly understand their impact
- ❑ Lack of transparency – where did that number come from
- ❑ Lack of security
- ❑ Data “latency” – spreadsheets are often out of date as soon as they are created based on extracted data

These challenges are reflected in our survey results, as shown below:

### How Big a Problem is keeping Planning Spreadsheets in Sync in Your Company?



**Key Takeaway:** Whether beginning a new demand management or S&OP initiative, or looking at how current efforts can be improved, it is critical to understand how much of the work is or will be done on spreadsheets, and how to maximize process efficiency and data consistency when using spreadsheet data.

### Alignment with Overall Company Initiatives

We also wanted to understand how well S&OP processes aligned with other company functions and overall company strategic initiatives. For example, many discrete manufacturers face complex product lifecycle management challenges, due to very rapid product lifecycles, complex product introduction and retirement curves, unpredictable demand for new product launches and other factors.

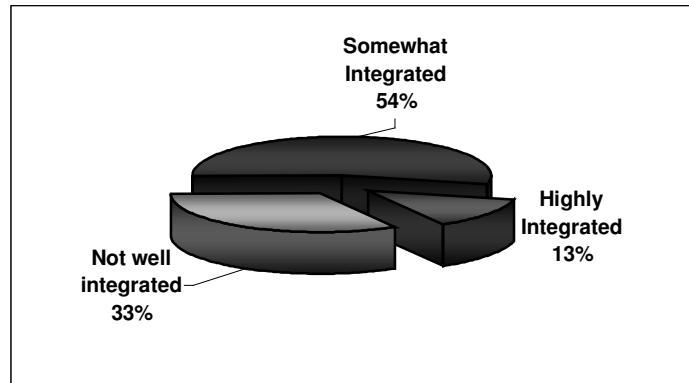
Therefore, it would seem critical that companies are able to well integrate demand management/S&OP processes with product lifecycle management and product portfolio planning tools and processes. However, our survey results found that while some companies had achieved a strong level of integration between the two processes, many still operated those functions and technologies in relative silos. In fact, only 13% characterized the two related processes as being “highly integrated.” The two sides of this coin are illustrated by comments from survey respondents. Noted one VP of Marketing from an electronics company:

*“For us, product portfolio planning and sales and operations planning are totally linked. Given the dynamics of our product introductions, it is essential that it be that way.”*

But commented another respondent from a medical devices manufacturer,

*“While we recognize the need to synchronize product introduction and retirement planning with demand planning processes, the reality is that in our company these are really two different functions that too often pass a bit like ships in the night.”*

### How Well Integrated are Your Product Portfolio Planning and Demand Planning Processes

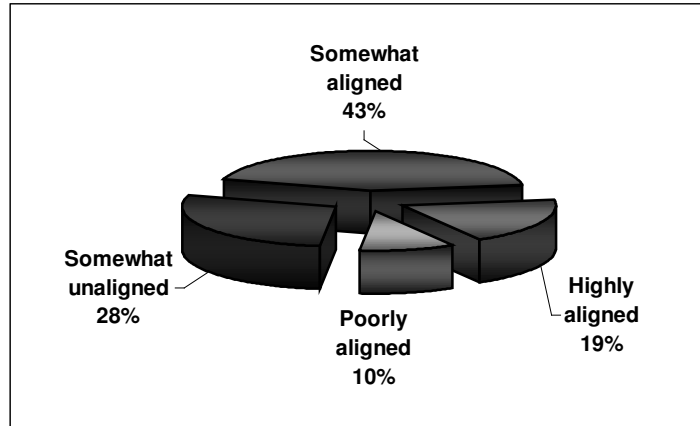


We also wanted to understand the abilities of companies to execute new product and go-to-market strategies effectively. As discussed earlier in this report, there is growing recognition of importance of execution in company success.

As can be seen from the chart below, only 19% of survey respondents believe that their companies were “highly aligned” across functions such as operations/supply chain, engineering/R&D, sales, marketing, etc. with regards to new product introductions and important strategic initiatives. While 43% felt their companies were “somewhat aligned,” that still left 38% of companies who believed their companies were “mostly unaligned” or “poorly aligned” across functions on these critical corporate efforts and strategies. As one Vice President of Marketing noted,

*“We are not out of alignment because we want to be or because we can’t work together. It’s just hard to coordinate when every group focuses on its own day-to-day responsibilities.”*

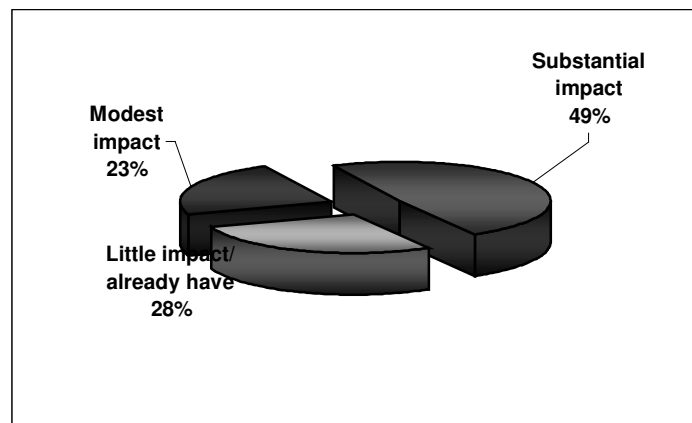
### How Aligned is Your Company Across Different Functions for New Product Introductions and Strategic Initiatives?



Of course, setting up an environment that enables and fosters a high level of alignment around key strategies and initiatives is perhaps the most important job of CEOs, COOs and other corporate executives. While people, organizational structure, metrics and rewards, and other management decisions will have a substantial impact on the degree of alignment and internal collaboration, having the right level of information available to the company's top executives and senior functional leaders is also critical.

Expanding on this theme, we asked survey respondents about the degree to which improved visibility to planning information across functions would improve organizational alignment. As can be seen from the chart below, 49% said that the impact of having this capability would be "substantial," while another 23% said it would have at least a "modest impact" on their performance.

### What Would be the Impact in Your Company of a Single System That Easily Enabled All Functional Groups in the Company to Work Off the Same Planning Information?



When we asked respondents to comment on this issue specifically, we received some very strong responses. Said one VP of operations:

*“Frankly, our CEO lacks the tools to really understand how the plans and execution are unfolding. This contributes to misalignment across the functions, and means too often we are looking at the world through a rearview mirror, not a windshield.”*

A few of the respondents said their companies had already achieved this level of information integration. As one respondent noted:

*“Having uniform planning information that is really used at the executive level drives an incredible level of focus on what is important to the company. The information has to be both available – and used.”*

**Key Takeaway:** *While improved demand planning and forecasting is an essential first step for many companies that want to improve supply chain performance, top performing companies look at these processes in a broader context. Integrated sales and operations planning is an element of this transformation, but discrete manufacturers must implement S&OP across all facets of the company more tightly into this process, including integrated product portfolio planning and financial reconciliation. This provides an information framework that enables companies to improve strategic execution through alignment of different functions around the overall corporate plans and to monitor execution against those plans.*

## Analysis and Summary

In total, our survey of discrete manufacturers indicate that many of these companies recognize they still have multiple opportunities to improve both demand management and overall company performance through process improvement, greater integration and alignment, and new technology tools that support the specific needs of discrete manufacturers.

To reach or maintain market leadership, discrete manufacturers should consider the following five strategies that combine both process improvement as well as appropriate technology enablement:

1. **Make Sales and Operations Planning a Business Imperative, and Not Just a Supply Chain Project:** Executives must take a hard look at current sales and operations planning processes, and the results they are achieving



from S&OP. There are too many companies that are theoretically doing S&OP, but which in practice have unbalanced processes that do not result in optimal demand visibility and which have an unnecessarily high level of forecast inaccuracy. These companies must re-architect those processes (and underlying technology as appropriate) to achieve the full potential of integrated S&OP across all functions of the company, including new product impacts and full financial involvement and reconciliation. Effective S&OP provides a common view of the entire business for improved executive decision-making and operational alignment.

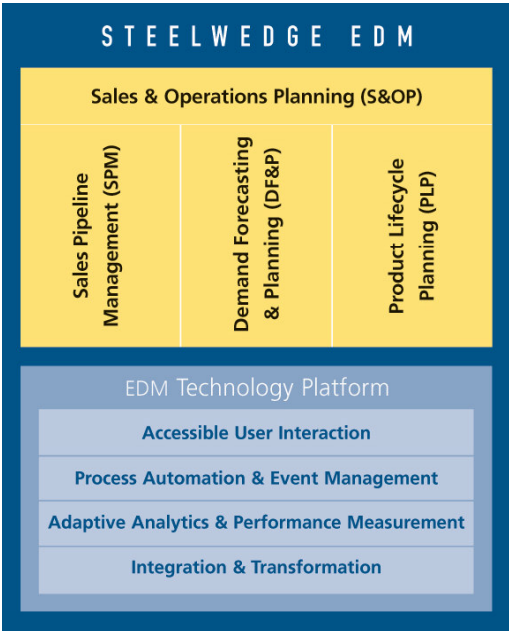
2. **Ensure Demand Planning and Product Portfolio Planning Processes are Well Integrated:** In the complex world of most discrete manufacturers, companies must map current product portfolio planning processes into demand management processes to ensure they are in sync.
3. **Understand Role and Challenges of Spreadsheets in Planning Processes:** There is nothing inherently wrong in the use of spreadsheets for S&OP and forecasting processes. However, companies should analyze whether the widespread use of spreadsheets is adding overhead and error into the processes, and look for ways process and technology approaches to reduce this variability.
4. **Look for Demand Management Solutions that Can Support Product and Process Complexity:** Many discrete manufacturing companies have deployed forecasting and planning systems that do not well support full bill of materials planning, forecasting for multiple product configurations, and other requirements critical to providing information at the level of detail they require for success. In the past, most demand management solutions did not support this level of functionality, and discrete manufacturers simply were unable to meet their full planning needs with available tools. Today, solutions exist that can deal with discrete product complexity much more effectively than even just a few years ago.
5. **Focus on Operational Alignment and Execution Effectiveness:** Closing the gap between strategy and execution is the key challenge for many discrete manufacturers. While there are many factors involved in achieving execution excellence, companies often overlook the role that information can play in ensuring that all functional areas are operating off of the same plan, and in monitoring performance against that plan across the enterprise, down to specific initiatives such a new product, market, or channel introductions, changes in pricing strategies, etc.

Discrete manufacturers, especially those with complex products, really do have special challenges to get demand management right. Given the importance of demand management on both top and bottom line performance, corporate executives must put significant focus on current processes and supporting information technology to avoid being at a competitive disadvantage to those companies that achieve leadership in demand management strategies.

## About Our Survey Sponsor - Steelwedge

Steelwedge is the leading innovator in the emerging field of Enterprise Demand Management, helping manufacturing companies consolidate, predict and manage demand across the enterprise, to effectively balance supply with an accurate view of demand.

Leveraging your existing infrastructure and systems, Steelwedge Enterprise Demand Management (EDM) connects your people, tools, and information into a unified planning process. Steelwedge EDM enables your company to proactively drive improved business performance through a demand-driven sales & operations planning (S&OP) process, effectively linking top-down strategic and financial plans with functional plans throughout the enterprise.



Steelwedge helps discrete manufacturing executives make better decisions by delivering a new class of business planning and analytic applications for manufacturers that offer a consolidated, predictive and accurate view of the enterprise. Steelwedge EDM consists of the following core applications:

Sales & Operations Planning: Applying new tools to the S&OP process, Steelwedge S&OP automates and streamlines cross-functional communication and collaboration and provides real-time, aligned visibility into disparate departments, data and systems. Steelwedge S&OP delivers unparalleled scenario analysis and what-if capabilities, instantly modeling the operational and financial impact of strategic options

Demand Forecasting & Planning: Improves forecast accuracy and dramatically increases revenue predictability by engaging all users and departments across disparate technology systems in a managed, exception-based process. Steelwedge DF&P is a proven demand visibility solution for complex discrete manufacturers that accurately models your business, products and processes – delivering competitive advantage and enhanced business performance.

Sales Pipeline Management: Steelwedge SPM addresses the problematic linkage between vital sales pipeline opportunities and downstream departments, including marketing, operations and finance. Steelwedge SPM translates sales pipeline data into detailed forecasts that are meaningful to the rest of the organization – especially critical in complex discrete manufacturers where it's difficult to predict product mix and component/assembly attach rates based on historical shipments and bookings.

Product Lifecycle Planning: Steelwedge PLP allows planners to forecast new products with little or no history and to effectively manage products throughout their lifecycle. Combining quantitative and qualitative data, market research and proven statistical techniques, Steelwedge PLP delivers unparalleled results through an advanced composite forecasting approach.

Founded in 2000, Steelwedge is privately held and based in Pleasanton, California. For more information, visit Steelwedge at [www.steelwedge.com](http://www.steelwedge.com), or call 925-249-3400.

## About SupplyChainDigest

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**For more information, contact SupplyChainDigest at:**

**PO Box 714  
Springboro, OH 45066  
937-885-3253  
[info@scdigest.com](mailto:info@scdigest.com)**