



The Sales & Operations Planning Report

**A senior executive-led business risk
management process**



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EXECUTIVE SUMMARY

These are challenging times for product producers. Recent research shows that supply-related risks now rate as the single top threat to companies' revenues. As a result, organizations have become very sensitive and highly vulnerable to supply interruptions. Since customers increasingly demand more choices, flexibility and lower costs, their loyalty is not a guarantee.

It is clear that value chains are subject more often to the risk of disruption – labor disputes, security, pandemic and weather threats, and a variety of economic pressures and uncertainties. At the same time, awareness of such risk is heightened. Strategies such as global sourcing, single sourcing, lean manufacturing, outsourcing, and extended information technology (IT) and supply chain networks provide substantial competitive benefits. However, each of these solutions can also significantly increase supply chain risk and uncertainty.

Emerging risks, as well as traditional value chain risks and challenges, are causing executives and stakeholders to demand comprehensive risk management practices and capability design and implementation to protect their interests and help ensure growth and profit targets are met. Sales and operations planning (S&OP) has reemerged in recent years as a proven and leading value chain risk management practice for executives and managers in top companies.

Any organization that designs, produces, markets, sells and distributes products carries out some form of S&OP. It is a means for management to integrate demand, supply, new product and financial plans, so operations can be executed effectively and efficiently. More mature S&OP processes also are used by senior management to:

- Assess risks and opportunities in these plans and plan choices
- Build cross-functional consensus from “what-if” scenario evaluations
- Decide on optimization and mitigation strategies, as well as tactics for all aspects of the business
- Execute the previous decisions cohesively
- Hold each other accountable for plans and execution

In the past decade, S&OP has seen a reemergence and maturation. It is the leading practice used by progressive companies to ensure completeness, consistency and commitment in decisions to align with overall business strategies. These organizations have a laser-focus on profitability and maintain a long-term view.

The emerging emphasis is on the entire value chain, with consumer demand as a major driver, along with supply, financial performance and innovation. When S&OP is led and executed properly, it is not a form of supply chain management. On the contrary, there are many situations where marketing and sales are the primary facilitators (demand-driven process).

Leading organizations are dedicated to collaboration, and ensure dynamic risk and opportunity assessment and management, scenario planning and analysis, and seamless, senior executive-level, cross-functional teamwork and consensus-building. S&OP becomes the forum where tough questions are asked, debated and decided upon. More mature organizations also work to ensure continuous improvement in all S&OP process capabilities.

Within the past few years, a variety of studies have revealed outstanding business performance improvements achieved by product companies of all types and sizes. The evidence shows:

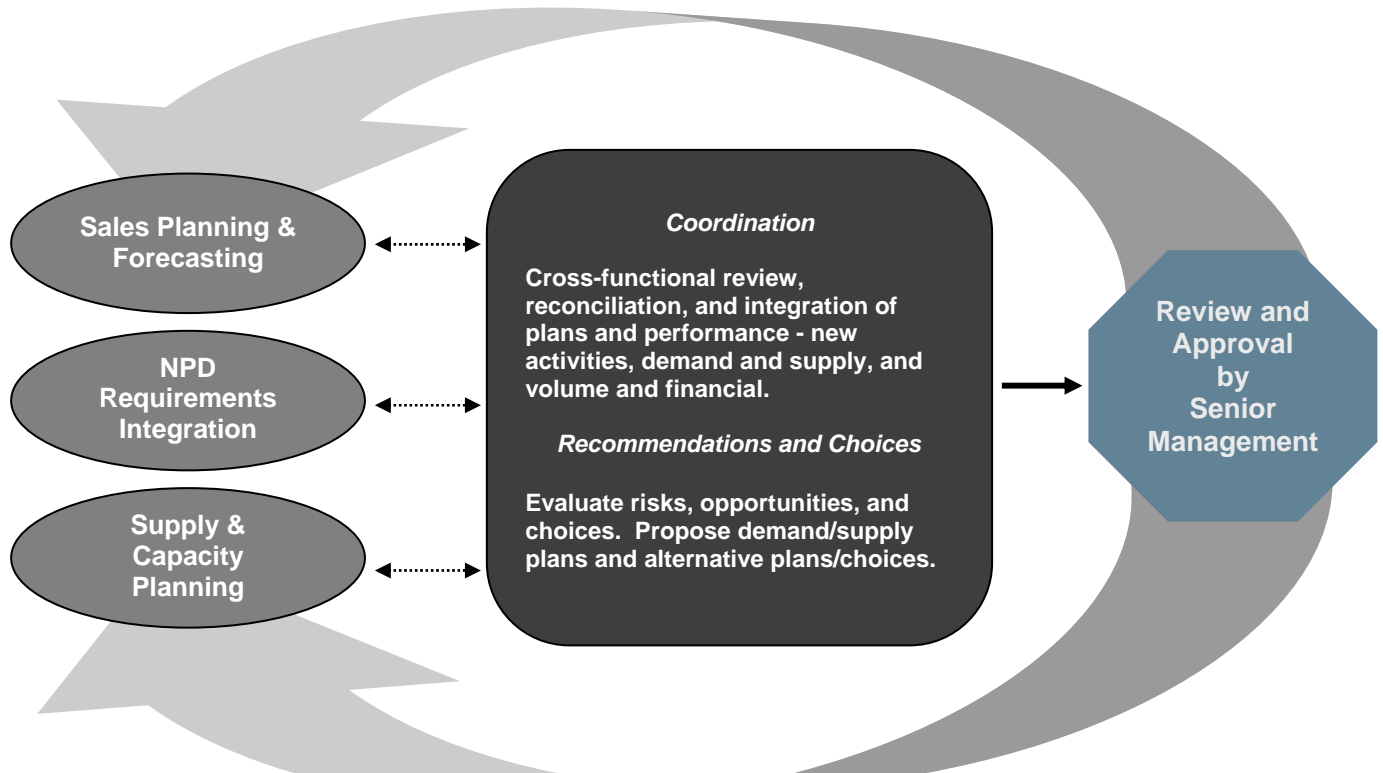
- Gross margin improvements of 25 percent to 35 percent
- Significant savings from product and customer rationalization
- Customer retention improvements of 10 percent or more
- Order fulfillment rate improvements of 20 percent to 40 percent
- Product introduction success rates growing in direct proportion to S&OP maturity
- A wide variety of other benefits and performance gains.

Outstanding improvements are being recorded by adopters of S&OP practices from best-in-class performers on one end of the scale to new adopters on the other. There are many ways to make progress or begin S&OP implementation. Deciding to begin by upgrading any one of the subprocesses of S&OP will bring benefit and also, a foundation, whether in sales planning/forecasting; supply planning, analysis and reporting; the monthly senior-executive team reviews; or any other element. Even small adjustments can yield results.

This survey and white paper's primary purpose is to add further to the research on emerging best S&OP practices and capabilities. We also believe this white paper should prompt leaders to question, and, help them understand, the maturity of S&OP at their own companies. In addition, leaders can use this as a framework to take the lead to improve S&OP, and by extension, their overall value chain risk management and control capabilities.

History has shown that most variability and risk lies in consumer demand and new product plans, yet many companies continue to focus on supply and financial planning alone. S&OP is a highly disciplined process in which senior executives share responsibility for risk and opportunity management, as well as for dynamic, informed planning, decision making and commitments relating to demand, supply, innovation and financial plans.

It is essential to take a holistic, value chain view of business. Using the process to incorporate feedback, input, and dialogue on risks, concerns and opportunities that apply to key customers and suppliers and other value chain partners leads to a much richer and more prudent set of decisions.



S&OP REQUIRES: An Overall Vision, Strategy, Policy, Defined Planning Process, Teamwork, Accountability, Preparation, Quality & Timely Information, Executive Decision-Making, Reporting & Analysis Tools, Accurate, Timely & Complete Data

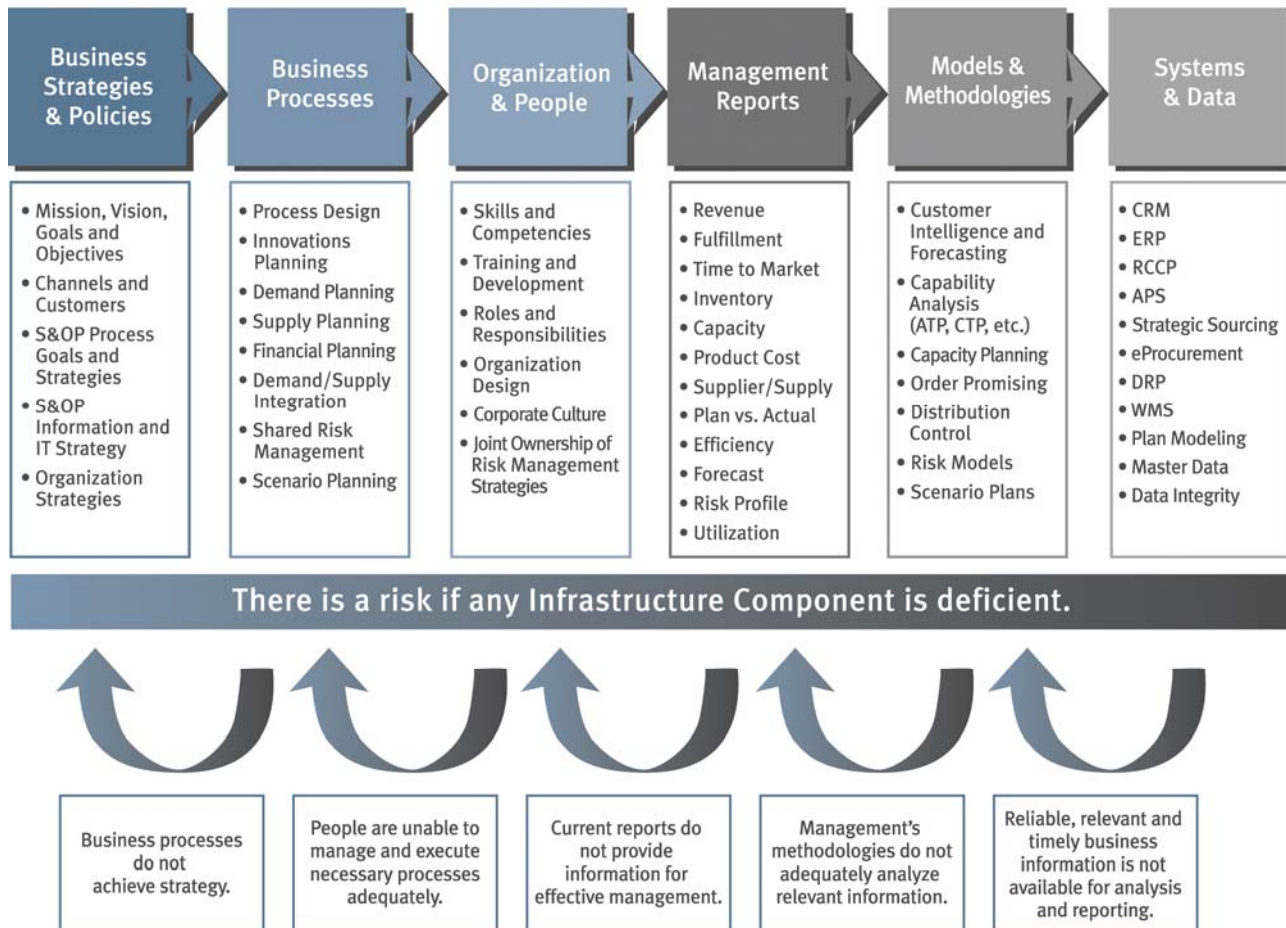
S&OP is a dynamic process. It is senior executive-led and requires well-defined workflows, schedules, disciplines, reporting, analyses, measurement, and information feedback, as well as documentation of decisions and assumptions. Additionally, a dedication to controlled continuous improvement is essential. While some time needs to be allocated to recent performance and short-term issues, the process focuses primarily on mid- to long-term analyses, planning and decision making.

S&OP incorporates demand planning (sales planning and forecasting); supply/operations and resource planning; the integration of new product development (NPD) and innovation plans; mapping and reconciliation of those plans to financial plans and objectives; the evaluation of various plan scenarios; and agreement by cross-functional management of the best plans/scenarios.

The cycle is completed with a thorough review, discussion and approval by the senior management team of those plans, associated risks and opportunities. Once plans are approved, execution, monitoring and control of the agreed-upon plans and schedules become the focus.

SIX INTERDEPENDENT ELEMENTS OF SALES & OPERATIONS PLANNING CAPABILITY

Six Interdependent Elements of Sales & Operations Planning Capability



S&OP process capability elements to consider:

- 1) **Business Strategies and Policies:** By strategy, we mean a strategic plan to develop the desired level of capability for the S&OP process. The strategy must include a vision and objectives for that process. These must be supported by specific plans and investments to put S&OP capabilities in place. Policies must be developed to enable the strategic goals of S&OP.
- 2) **Business Processes:** This includes practices and procedures for demand planning; supply planning; reconciliation and integration of demand, supply, financial and new product plans; and senior executive review and approval of scenarios and plans.
- 3) **Organization and People:** Addresses corporate culture as it relates to successful S&OP, the executive-level leadership and teamwork required, and the specific skills, qualifications, training, education, team structures and responsibilities and other organizational considerations to meet the vision and objectives for S&OP.
- 4) **Management Reports:** The reports and other information required by management and the organization for decision making, scenario evaluation, measurement, management and control of the S&OP process.
- 5) **Models and Methodologies:** The models and tools used for scenario development, “what-if” and plan analyses, performance measurement, reporting and so forth.
- 6) **Systems and Data:** The internal and external systems and data supporting the process, and the integrity and availability of the data required for effective and efficient S&OP.

SURVEY RESULTS OVERVIEW

We have been following the evolution of S&OP for several years. Thanks to the leadership of academicians, business executives, APICS and other professional societies, consultants and technology solution providers, S&OP concepts, processes, education, tools and technologies all have matured substantially over time.

Leading organizations are dedicated to profitable market growth. They carry out risk management, integrated planning and informed decision making routinely. This results in outstanding order fulfillment and customer satisfaction, and is characterized by extensive collaboration and visibility across key business partners upstream and downstream in the value chain and a relentless commitment to value and process improvement.

It is evident that current and emerging business pressures have attracted a much wider audience to executive-led, cross-functional integrated planning, risk management and execution. Today, many more business leaders are using S&OP as the key ingredient in demand, supply, and financial plan management and integration. And increasingly, S&OP is being recognized as an important cross-functional executive risk management practice.

This white paper builds on studies by AMR Research, the Aberdeen Group, Protiviti Inc., and others. It expands upon evidence that leading companies of all sizes are leveraging S&OP processes and capabilities. These surveys and other studies bear witness to a growing adoption and maturity of S&OP capabilities. It is no longer acceptable to delegate demand and supply planning and decision making deeply in the organization. High performing companies ensure that demand, supply, new product and financial risks, opportunities and plans are now routinely and cross-functionally analyzed, reconciled and agreed upon.

While S&OP is still largely the domain of product companies, recent innovations include the adoption of these capabilities into the retail world, further advancing the theories and practices in value chain risk management.

Why Some S&OP Processes Fail

- The process is only as good as its weakest link/capability. (See six elements of capability on Page 6.)
- Weakness in organizational alignment, commitment, and/or skills is the most common cause of failure for the S&OP process.
- Lack of executive-level ownership and commitment to the process is a primary cause of failure or underperformance.
- Having the S&OP process owned by the supply chain organization is a fundamental design and implementation flaw. This is not supply chain: This is value chain and an enterprisewide risk management process.

Survey Process Background

We invited a targeted group of executives, managers, and a number of other professionals to respond to a wide range of questions that addressed the maturity of each of the six interdependent areas of capability in the S&OP process within their organizations. We also continued dialogues with executives, managers and researchers.

The six areas of S&OP process capability assessed directly in the survey include:

1. Strategy and Policy for S&OP Processes
2. S&OP Process and Practice Design
3. S&OP Organization Culture, Teamwork and Skills
4. S&OP Information for Decision Making
5. S&OP Information Methodologies and Tools
6. S&OP-Related Technology/Systems and Data

Report Structure

To make this paper as valuable as possible, we will provide very detailed insights into each of the first three capabilities: 1) strategies and policy, 2) process and practice design, and 3) organization culture, teamwork and skills. We then will provide a brief summary of the results from the other three capability areas (information for decision making, information methodology, and tools and technology/systems and data).

Respondents

- A total of 186 respondents participated in the survey. More than 40 percent represented organizations with estimated annual revenues over \$500 million.

Industry Representation

- Sixty-seven percent of respondents are from the manufacturing, high-tech, and consumer products industries with the balance spread across a range of other industries.

Role in Organization

- Fifty-five percent of respondents are in the “executive-level” category. Another 44 percent are categorized as “management.” The remaining one percent consisted of “nonmanagement” professionals.
- Almost half of those responding described themselves as being part of their organization’s “operations” function. The balance came from sales and marketing, procurement and sourcing, inventory management, and IT.

Results Overview

The following graph provides a high-level overview of results for all six elements of capability, identifying the percentage of respondents rating each element of S&OP capability at a “less than satisfactory” or “ineffective” level of maturity.

These data provide evidence of considerable improvement in S&OP process maturity when compared to our previous studies on the topic. The study confirms a trend toward investment in strategies, policies, practices and procedures; organizational capabilities and responsibilities; information for decision making; measurement and control; and underlying and supporting tools, models methodologies, systems and data required for effective S&OP and risk management.

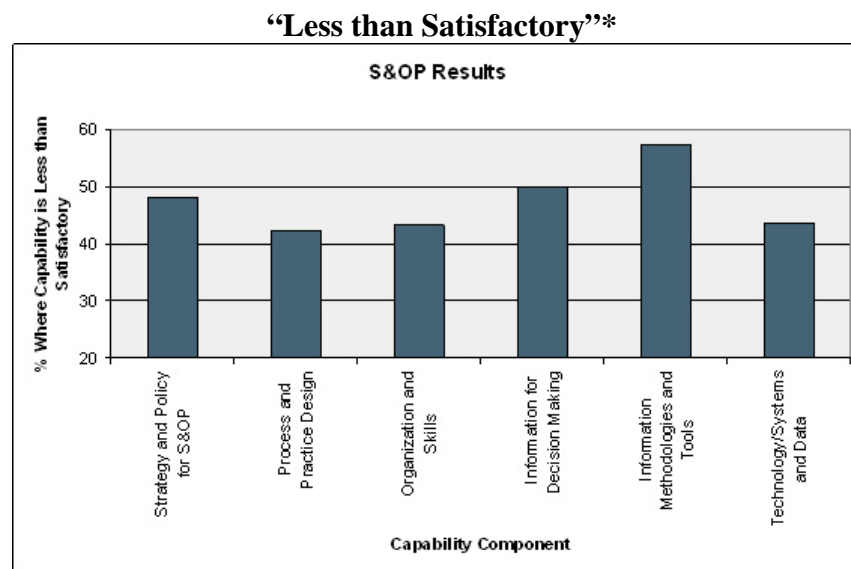


Figure 2

* The term “less than satisfactory” refers to the combination of the two lowest levels of process maturity; the “ad hoc/initial” and “repeatable” levels of maturity (adapted from Carnegie Mellon’s capability maturity model). Each capability and level is defined in Protiviti Inc.’s “S&OP Process Capability Maturity Model 2006/07.”

The “ad hoc/initial” level is considered an “out-of-control and chaotic” business environment where planning is disastrous. The “repeatable” level is somewhat or minimally better, but still is rated well below the “acceptable” control effectiveness threshold from an operational risk management and planning perspective. A “less than satisfactory” rating is considered below minimum acceptable levels of planning and integration, as well as risk identification, management and control effectiveness for these critical processes. We strongly urge all such organizations to put remediation action plans in place to improve these risk management capabilities.

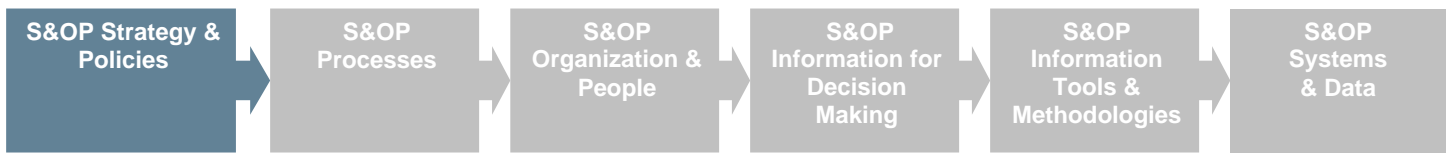
DETAILED RESULTS AND CONSIDERATIONS

Risk Management Incentives

Why do more and more organizations want to effectively manage their demand and supply plan risks, and why do they need to ensure that demand, supply, new product and financial plans are aligned and executed effectively?

Failure to manage demand/supply/financial and new product planning risks, opportunities and plan options can lead to or significantly contribute to:

- Missed profits/earnings
- Lost customers
- Missed orders
- Unacceptable forecast error
- Decreased market share
- Late-to-market and underperforming new products
- Supply interruption
- Lower inventory turnover
- Longer lead times
- Reduced confidence in planning systems
- Higher total costs
- Poor use of resources
- Increased obsolescence
- Lack of teamwork and cohesion from the top on down
- Inaccurate and incomplete information available for decision making and control
- Inefficient planning process and lack of confidence in the outputs



Capability #1: Strategy and Policy for S&OP

- A) S&OP Process Strategy** – This includes a defined set of goals and objectives, a mission and vision, and related strategies and action plans to achieve those objectives for the S&OP process. It is not the marketing, financial, manufacturing or sourcing strategy. Instead, it is the set of goals and plans used to develop S&OP process capabilities. The strategic plan for S&OP capabilities should span short- and long-term horizons.

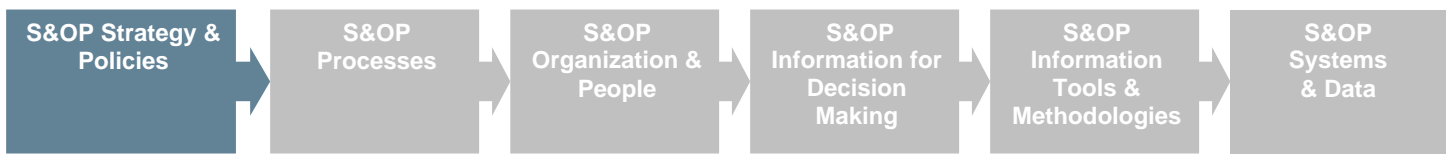
In addition, the strategic plan should include the activities/actions to drive the design; the investments and the implementation of specifically targeted S&OP process and risk management capabilities; organizational capabilities; information for decision-making capabilities; information and control-related methodology and tools capabilities (the means to get the information); and supporting IT system architecture and data integrity standards to meet the strategic objectives for the S&OP process (desired maturity).

The strategy defines an end-in-mind, as well as management’s targets for S&OP process capabilities, and addresses the plans and resources to develop the capabilities to the desired level of maturity over time.

- B) S&OP Process Policies** – These are policies that must be designed, with execution in mind, to enable and support the implementation of the S&OP process strategic objectives. The policies need to reflect the goals for the process and should be designed and implemented in parallel as the process capabilities are rolled out.

These policies must be aligned with the organization’s S&OP process strategic objectives and plans. If any desired S&OP policy cannot as yet be deployed effectively, implementation should be postponed until the other capabilities (process, organization and so forth) are in place and mature enough for the policy to be viable.

The alternative—attempting to force policies that are unrealistic due to a lack of enabling process, organizational, informational, or systems, tools or data capabilities—can do more harm than good in the long term.



Capability #1a: S&OP Process – Strategy Results and Observations

Sixty-three percent of respondents stated their S&OP strategic plans are acceptable or better. This is about 50 percent higher than previous studies. What’s more is that 37 percent of the total respondents said their plans are well above average in terms of the maturity level. This is one of the more surprising results in the survey. It provides strong evidence that many organizations recently have recognized the value propositions and business results of their peers, which have been documented by independent researchers and business process and risk management thought leaders.

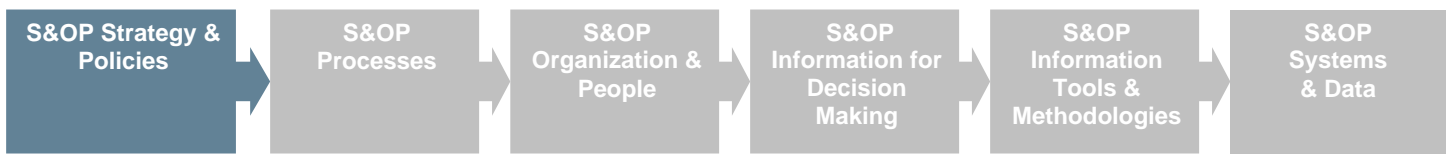
As we look into some of the details of strategic plans within the S&OP process, there are a few special areas of concern to point out. These are highlighted in **red** below, and are areas where the S&OP process capability plan is significantly deficient for 50 percent or more of the respondents.

Sixty percent do not include risk assessment and mitigation practices within S&OP, yet supply risk has emerged as the top concern for many executives. This has been reaffirmed over the past two years in our studies. Supply risk management is the domain of the senior executive team. Also, supply risk mitigation decisions must be taken into consideration for revenue, marketing and sales plans (demand), new product plans, and financial plans. Executive-led S&OP is the ideal process for addressing the “what-if” planning, risk and opportunity scenarios, trade-offs and investments.

Fifty-eight percent of respondents said they are not addressing S&OP training and skills. The concern is fairly self-evident, as success for even the best plans, processes and procedures depends entirely on the skills, competencies and culture of the organization. Additionally, as many as 50 percent reported they do not have a plan to provide the required data and systems to enable an efficient and effective S&OP process. This will become very problematic over time.

The strategic plan for S&OP process capabilities addresses:					
Top number is the count of the respondents selecting the option. Bottom % is percent of total respondents selecting the option.	1	2	3	4	5
	Not Adopted				Fully Adopted
S&OP Policies	28 19%	43 29%	34 23%	29 20%	13 9%
S&OP-related processes and procedures	22 15%	41 28%	34 23%	32 22%	17 12%
S&OP Risk assessment and mitigation practices	39 27%	48 33%	36 24%	15 10%	9 6%
S&OP Cross-functional teamwork	21 14%	42 28%	29 20%	41 28%	15 10%
S&OP Training and skills	37 25%	48 33%	29 20%	22 15%	11 7%
Defines the actions required to identify and to provide for the information for decision making	22 15%	46 31%	39 26%	28 19%	14 9%
Defines the plans to provide the supporting information methodologies, tools, systems, and data	23 15%	52 35%	45 30%	19 13%	10 7%

Figure 3



Capability #1b: S&OP Process – Policies

A set of aligned, current and executable policies must be documented and implemented by management to ensure the process objectives, targets, plans and expectations are supported/enabled, and that overall S&OP risk management and control objectives are achieved. S&OP policies also should be reflective of and consistent with management’s overall business policies and standards.

As with all policies, S&OP policies must be current. They must reflect the way things are and *can* be done today and mirror the current capabilities of the organization. As previously mentioned, it is unproductive to try to enforce policies that cannot be executed. To implement policies, it is necessary that all other enabling elements of process, skill, organizational design, information for decision making, information methodologies and tools, or systems and data be in place.

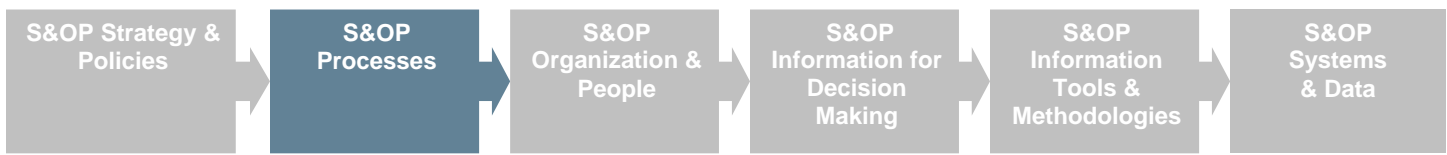
Credibility for that policy can be lost – and quite possibly so too will the credibility of other related S&OP policies. The credibility may be unrecoverable. Policies should be designed and implemented in line with the organization’s capabilities and readiness to implement and comply.

Forty-eight percent reported that S&OP policies were covered in the overall S&OP strategic plan at a “less than satisfactory” level.

There can be several sources for this weakness. It is likely that there is an inadequate, unclear or absent strategic vision and plan for the overall process. Without the plan, it is far less likely that the organization will drive and guide the design and implementation of S&OP policies or other process capabilities.

There are several reasons why policies are not at a desired level of maturity and compliance. For example, many policies are written once and never updated. If policies do not reflect the current practices, capabilities and standards, failure is likely. Additionally, policies may be written with a particular vision in mind, in the absence of S&OP capability maturity. Intent may be good, but execution is not yet possible. Policy design and implementation can be likened to engineering changes and product phase-in/phase-out.

Time-phased design and implementation of well thought-out policies is an essential ingredient for success with S&OP. Training and awareness are key factors in successful policy implementation. People must understand the policies and the purpose of having those directives in place. And finally, it is crucial that management require compliance with policies.



Capability #2: Process Practice and Design

Process capability refers to the core S&OP process steps, practices, workflows and supporting procedures. These guide and enable management and the organization to effectively and efficiently achieve strategic goals for the S&OP process in adherence with S&OP policies. The process capabilities for S&OP include such activities as:

- Data collection and sales/marketing input
- Demand plan formulation
- Demand consensus refinement
- “What-if” analysis for demand and supply
- Constrained plan by supply
- Senior executive review and consensus meeting
- Continual communication and measure of the plan.

The S&OP Process Component: AMR Research View of the S&OP Process

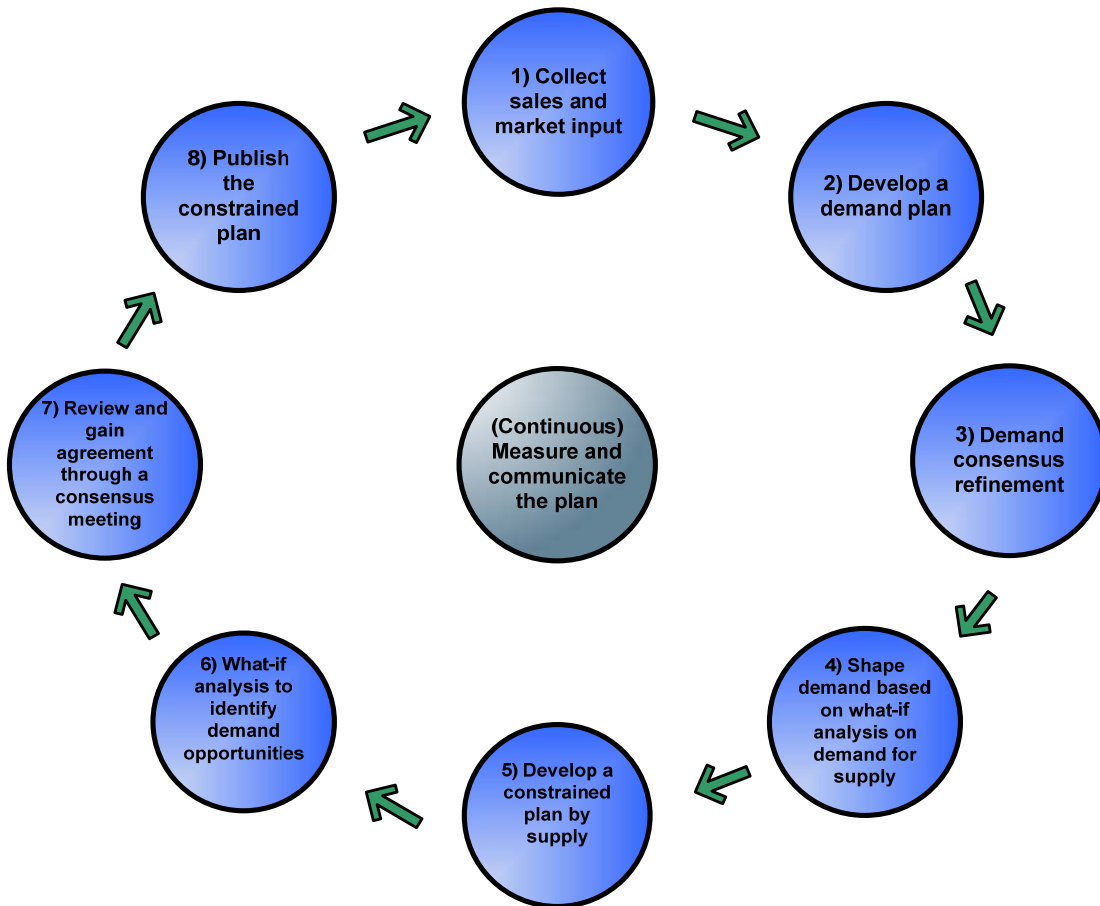
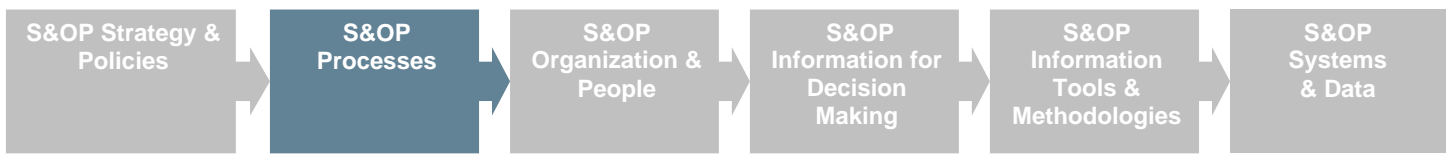


Figure 4



Sales and Operations Planning – Key Subprocesses

Subprocess (A) Sales Planning and Forecasting

Revenues, Market and Promotions, Sales – Planning Essentials

Sixty percent of respondents reported that their sales planning and forecasting procedures were developed to a “satisfactory or better” level. While that leaves a full 40 percent below an acceptable level of control and performance, the trend clearly is going in the right direction. Organizations are realizing the importance of this process.

There are still those who downplay the value of forecasting. We believe that this is a serious mistake, and we think that the idea of diminishing the need for forecasting is a flawed argument for most “product” businesses. Forecasting, and a commitment to continuous improvement in sales planning and forecasting, is a core prerequisite for a successful S&OP process.

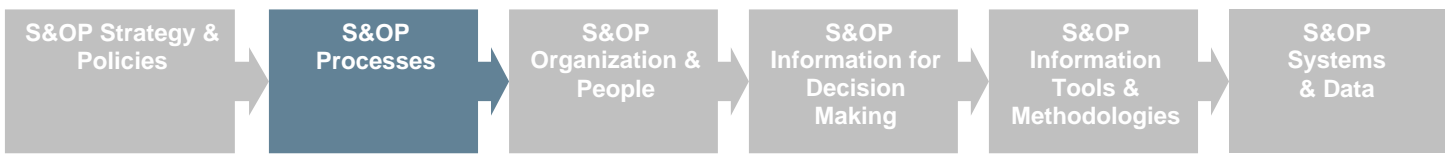
Also, delving into the details resulted in some notable observations. A fundamental requirement for S&OP is that the “demand” plan be agreed upon and reconciled. The survey showed that 29 percent of respondents are very good or excellent at this. Thirty-four percent are just “average,” while this process (highlighted in red) was reported at below tolerable levels of control and demand plan reconciliation for a full 47 percent.

It is highly unlikely that top-down and bottom-up plans will be consistent for that large portion of respondents. Without a well-defined and executed process to ensure that top-down and bottom-up sales plans and forecasts are reconciled, the organization probably is doomed to failure in its S&OP plan integration and risk management objectives.

Top down sales goals are integrated with the bottom up plan from the sales force to form the sales plan and forecast.		
Not Adopted	28	22%
	32	25%
	30	24%
	24	19%
Fully Adopted	12	10%
Total	126	100%

Figure 5

Range forecasting proved to be another area of weakness in demand planning. Range forecasting is fairly self-explanatory in that ranges of demand are forecasted as opposed to forecasting discrete numbers. This is not a widely used practice as of yet, and many organizations do not have tools, technology, data integrity, collaborative processes or other key ingredients required to deal with more than the single-number forecast.



Some sales and marketing groups may have access to and are using state-of-the-art forecasting tools and technology. Some also use very basic approaches and tools. Either way, the use of range-forecasting concepts has become increasingly topical and accepted. Often, there are a range of views as to what will happen in terms of demand. The more consensus-driven the organization, the more inputs and viewpoints will be sought.

The numbers below in **red** refer to the number and percentage of companies that are not using range forecasting as part of their planning and risk management, and those that are using it very little. The questions focused on the use of the range forecast for demand planning are then, by extension, for the subsequent S&OP process steps.

Range forecasts are produced and used as a basis for					
Top number is the count of the respondents selecting the option. Bottom % is percent of total respondents selecting the option.	1	2	3	4	5
	Not Adopted				Fully Adopted
Supply Planning	46 36%	25 20%	32 25%	18 14%	6 5%
Scenario and risk evaluation/what-if analyses	54 43%	23 18%	31 24%	13 10%	6 5%
Sales and operations plans	41 33%	22 18%	37 30%	20 16%	5 4%

Figure 6

The organization does need to come to a consensus on the demand plan it intends to support—a plan that sales and marketing are committed to making happen. However, it is also very important to provide supply and finance with the variables and ranges so that supply and finance have a view of these possibilities, and “what-if” scenarios can be run so well-informed decisions are made within the S&OP process.

Variables can come from external economic drivers, new product uncertainties, promotional activities and many more sources. When a reasonable range of demand rather than just a single number is forecasted, it provides all involved parties with a basis to begin evaluating the various scenarios.

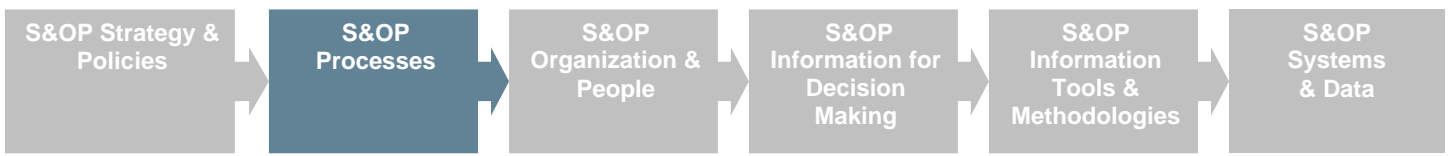
Organizations commonly are challenged by some or all of the following concerns:

- Actual demand is rarely certain and is often volatile, often resulting in demand/supply mismatches.
- The actual variation in demand from the point forecast is often “chased” rather than previously anticipated, and inventory-related risks and liabilities often are costly consequences.
- Sales, profit, and market opportunities frequently are missed because the team has not planned for contingencies or there are preventable supply shortages.
- High pricing and expediting costs are forced under stressful/urgent circumstances.

Most products have a three-phase **life cycle**, requiring different demand and supply strategies and tactics. These phases include initial concept and design, followed by development and testing activities, and finally, the mass-production phase. Through the first two phases of concept and design, and afterwards along the mass-production stage, the demand forecasts create challenges and a different set of dynamics.

Throughout this life cycle, as a product moves from concept, to design, and then through introduction, increased demand, steady state and on to end-of-life, variable amounts of uncertainty exist. These cycles and variables can be occurring across any number of products and innovations at once. To further complicate matters for sales planning and forecasting, new and advanced technologies, along with the very demanding market, are driving increasingly shorter product life cycles.

Range forecasts help to quantify demand uncertainty and volatility and allow supply, finance and other affected parties to analyze, anticipate and plan for different scenarios. Additionally, when incorporated with integrated product introduction planning and risk management practices and disciplines, the supply organization can develop and implement what are known as “structured agreements.”



Structured agreements occur after an organization has assessed demand, and supply and finance plan risk associated with new product introduction and the life cycle. The supplier agreements are set up to support supply options that can most effectively cover the variables and uncertainty—the ranges in the demand-forecast scenarios. The organization and key suppliers share risk and reward. This, of course, requires a serious commitment within the organization and culture *to negotiate deals with key suppliers that are based on fair trade-offs between price, availability and liabilities*.

Supply risks and ranges also must be understood. Together with the supply partner, the organization can agree to mutually acceptable economic terms, conditions and arrangements. Pricing and turnaround time are agreed upon based on various demand scenarios, mutual commitments and lead times. Management can be aided greatly by the effective use of control dashboards and monitors to manage and measure demand, supply, contract and other risks for these products and supply chains (for more on these monitoring tools, see pages 20 and 21, Figures 9 and 10, “supply risk management” section).

Other Results and Observations for Sales Planning and Forecasting

- **Incorporating Marketing Programs/Promotions in the Forecast**

Where applicable, including these forecasts in the overall plan is an essential prerequisite for success. Disturbingly, however, 45 percent of survey respondents reported serious deficiencies in this critical aspect of the process. And only 29 percent indicated very good or excellent incorporation of demand information in the plan.

- **Managing and Documenting Assumptions**

This is a best practice for both demand and supply planning. Documenting assumptions is a basis for understanding variances in the forecast, learning from mistakes and continuously improving the process and performance. Forty-one percent said they are doing a better than average job of this for sales planning and forecasting, while 36 percent said they are doing a poor job in this area.

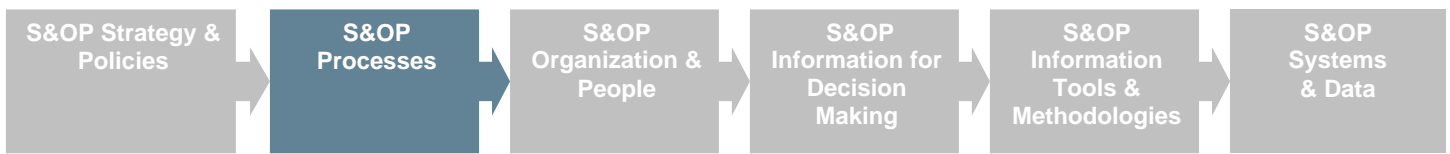
- **Involving New Product/Innovation Management in the Forecast Process**

Ownership of the forecast by the sales, marketing and/or product management functions is highly desirable. Just 35 percent reported this as being a highly effective discipline in their companies; 42 percent admitted this is a significant defect in the planning process.

- **Reviewing Product and Customer Profitability**

Product management/marketing should review product and customer profitability on a regular/routine basis to ensure profitability drives both product and customer focus and prioritization. It also is essential to ensure that unprofitable products and customers are addressed and eliminated from the portfolio, as appropriate.

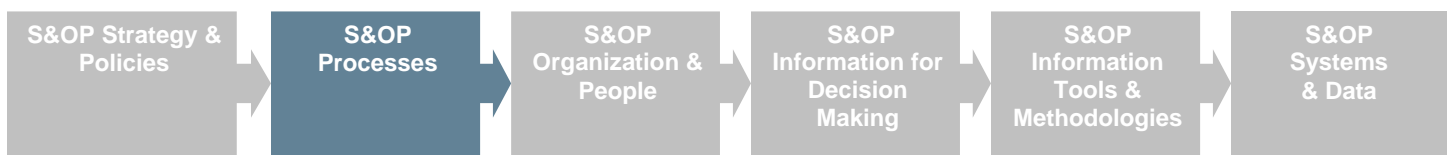
This best practice was absent or ineffective in as many as 51 percent of the organizations surveyed. To prioritize sales, marketing and supply strategies, and to make informed decisions on profit and risk, it is critical to understand the profitability of specific products and customers as part of the S&OP process.



Sales Planning and Forecasting Best Practices

The list below reflects the ideas of a combination of S&OP thought leaders, as well as the results of our own research and experience with our clients.

- 1) The sales forecasting process is very important for product manufacturers, sellers and so forth. It is a foundational planning and control process, and organizations should commit themselves to developing and maintaining effective forecasting capabilities.
- 2) The forecast must reflect the economic outlook, industry trends, market share targets, and so on, and the various levels of forecast used for strategic planning, business and financial planning, and operations planning should be aligned and consistent (one plan).
- 3) Reducing forecast error will typically increase the likelihood of higher customer service (order fill rates), shorter lead times, lower inventories, more efficient operations, improved supplier performance, reduced cost and increased sales.
- 4) More mature, disciplined and inclusive forecasting processes will provide best results.
- 5) Forecast bias is highly dangerous – target zero bias.
- 6) Forecast at higher levels and manage the details. Wherever possible, forecast at higher, aggregate levels. Forecast in detail only where necessary.
- 7) Use benchmark information to understand and set competitive standards for forecast error and accuracy levels.
- 8) Forecasts can be turned into sales and demand plans when the forecasts are agreed to by sales, marketing and other functional management; when sales is committed to sell the plan and is accountable to do so; and when those sales plans are bought into across the entire organization.
- 9) There should be a consensus demand plan, but ranges of demand also should be communicated to supply and finance so that the organization can evaluate alternatives and “what-ifs,” and be demand- and profit-driven, as well as opportunistic.
- 10) Best-in-class organizations collaborate with key customers and suppliers to share demand information, forecasts, assumptions, risks and so forth.
- 11) Document forecast assumptions, as well as actual outcomes and unexpected or unplanned events.
- 12) Use the data from 11) above to continuously improve the forecasting process.



Subprocess (B) Supply Planning

Managing Operations, Capacity and Supplier Planning and Risks

Supply planning drives plans and schedules for internal operations, distribution and the supply base, and includes resource, capacity and inventory management activities. Today's supply chains and networks are challenged to be demand-sensitive, lean, flexible and efficient. Supply planning depends heavily on the effectiveness of the demand planning process, and supply-related decisions and trade-offs are inextricably linked to the demand, market and profit opportunities and risks.

The S&OP process is where the demand and supply risks, opportunities and choices can be made with maximum visibility and full senior executive, cross-functional involvement and decision making. Supply plans, production plans, master schedules and supplier plans and schedules must be crafted with a clear consideration of demand scenarios and the cost and return of supplying the demand.

Supply Risk Management and S&OP – Emerging Leading Practices

Supply risk and/or supply interruption risk has clearly emerged as the top risk area for many senior executives. In this era of global economies, organizations have increased their exposure to risk and uncertainty as they extend their supply chains to meet increasing market demands.

Many best-in-class organizations are employing leading-edge manufacturing, supplier and overall supply chain strategies to improve performance and flexibility while reducing costs and lead times.

Global sourcing, outsourcing, single sourcing, and lean operations – eliminating supply redundancies and costs where possible – all help organizations to realize lower costs, achieve higher margins, and bring improvements in quality and performance. Whereas these strategies provide competitive advantages when implemented correctly, they also are inherently risky in terms of the likelihood and/or impact of supply interruptions. Often, there is a very direct correlation between an increase in supply chain efficiency achieved through these strategies and an increase in supply interruption risk.

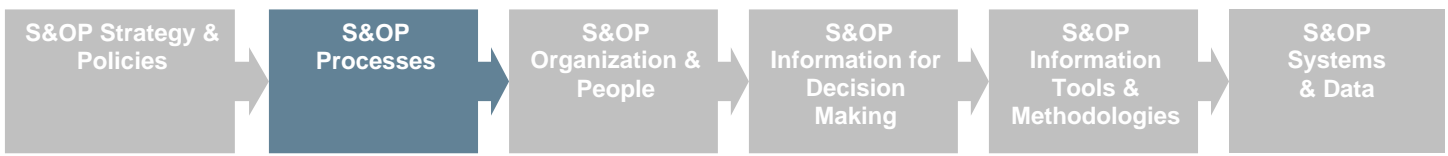
Global sourcing can increase exposure to a new set of risks and issues. Terrorist attacks, natural disasters, tariffs and trade agreements, political upheavals, customs delays and other events, now impact the continuity of supply and supply lead time. Outsourcing can reduce the visibility of sub-tier suppliers, thus exposing the company to supply issues over which they have little or no control. Companies often use outsourcing as a supply strategy, but fail to put the processes, people and controls in place to manage risk and ensure success. The process, product or service can be outsourced; however, *risk* cannot be outsourced.

Single sourcing can improve product quality and replenish lead times between two organizations and the collaborative effort to improve the processes within their customer-supplier supply chain. However, the more dependent a company becomes on a single supplier, the greater the risk of supply interruption if that supplier has financial, operational, sub-tier supplier performances issues or regulatory problems, or is subject to other external factors that affect operations.

By proactively identifying, assessing and managing the risk and reducing the impact and/or the likelihood of occurrence, or by having effective contingency plans, these same risks ultimately can be exploited to help increase market share, reduce costs, improve process performance, improve customer service, and so on. And, if a similar set of risks has a negative impact on competitors, and you are adequately prepared to mitigate or respond to that same/similar risk, it can represent a key competitive advantage.

Supply risk management is not an event or a project – it is an ongoing process. Clearly, management must begin by assessing, understanding and evaluating supply risks for key products and/or key supply and value chains. Once these risks are understood and quantified (likelihood and impact scenarios), the organization will need to agree to the strategies, investments, plans and tactics to manage the risk.

Risk management can include new or improved business strategies, policies, processes and procedures, organizational changes, internal cross-functional teaming and structures, and internal/external cross-business cooperation and planning. In addition, management needs to identify what specific information is needed for monitoring, managing and controlling the risks, and then source the information and put in place improved tools, risk and control dashboards, and foundational data and systems to enable risk management and monitoring to occur effectively and efficiently.



Emerging, new or period-specific risks must be recognized and brought into the view of management. The risks should also become part of the monitoring and control universe. Similarly, risks that are decreasing in probability and impact also must be detected and, if appropriate, removed from the supply risk monitoring and control priority list.

Next, this supply risk management information should be incorporated routinely into the supply planning, pre-S&OP reconciliation and scenario analysis process, as well as into the executive-level review of suggested plans and alternatives. This helps to put supply risk and opportunity on the executive agenda and allows for informed decisions to be made in a timely and continuous manner by the leadership team. It also ensures that risk management is incorporated and “programmed” into this senior executive-level process.

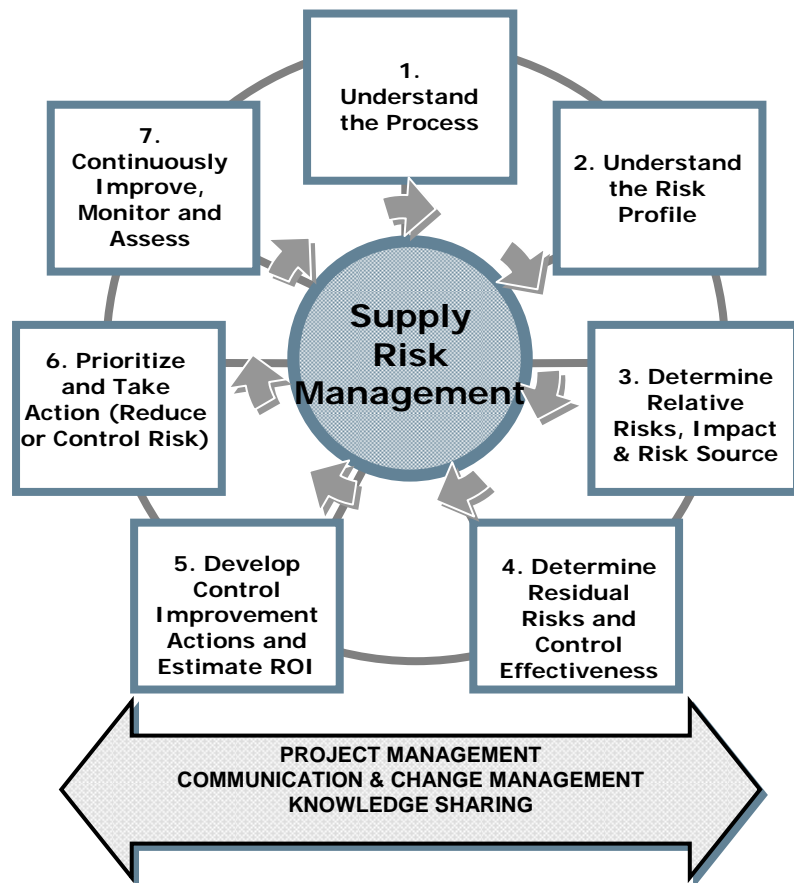
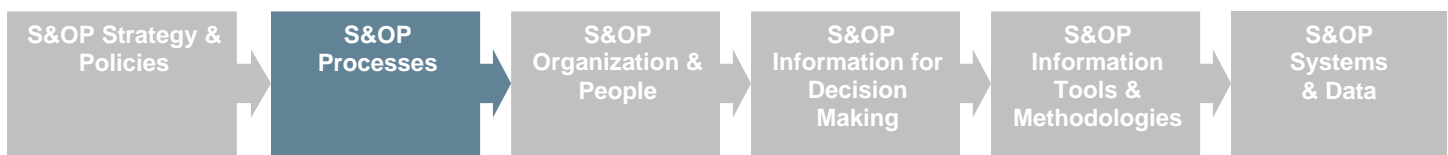


Figure 7

The supply risk management framework (as depicted above) is a methodology that we have developed in the field. We have deployed it successfully in partnership with a select number of our most interested, enlightened clients. It is a highly cross-functional effort.

The process begins by identifying the risk population pertaining to a specific product and/or product supply. Then, the organization needs to inventory the risks, identify the sources and significance of the risk, and consider the impact on the business if the risk occurs. The team then goes on to understand current risk management and control process capabilities in detail (all six elements), including mitigation strategies, leading to a good and reasoned appreciation of “residual” or “unmitigated” risk.



Cross-functional teams then evaluate and propose the supply risk management capabilities (strategies, policies, processes, organizational capabilities, and improved information and monitor tools, systems, data and so forth) and investments required to reduce the “residual” risk to a desirable level, as well as the estimated return on investment (ROI). From there, management decides on and implements the risk management and control investments, monitors their effect, and continuously improves the processes and controls.



Figure 8

These dashboards depict examples of supply risk monitoring. Risks and impact are identified as part of the initial assessment. Current risk control capabilities (six elements) are identified. Residual risk and impact are estimated. Control improvement investments are assessed, prioritized, implemented and then monitored.

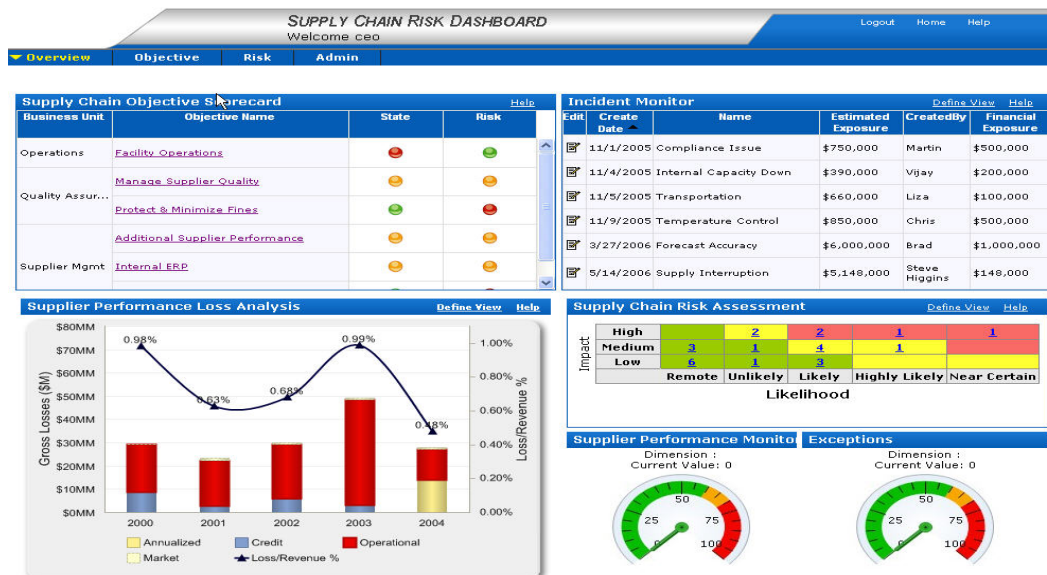
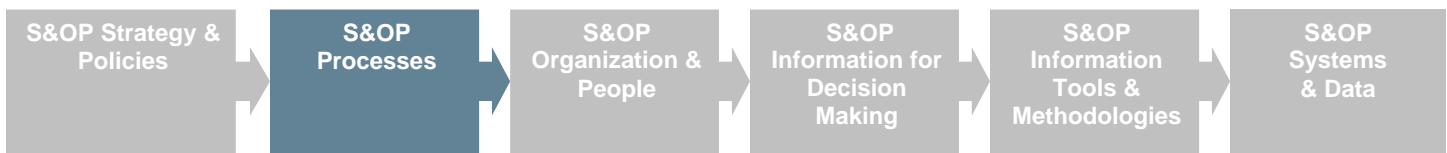


Figure 9

Note: Supply risk management has emerged as one of the most sought-after capabilities among leading companies in industries such as pharmaceuticals, aerospace & defense, oil and gas exploration, refining and distribution, and high-tech. The APICS/Protiviti partnership was formed from the outset in an effort to advance thought leadership, awareness and education in supply chain risk management and related risk management areas.



Subprocess (C) Innovations/New Product Development (NPD) Planning and Risk Management

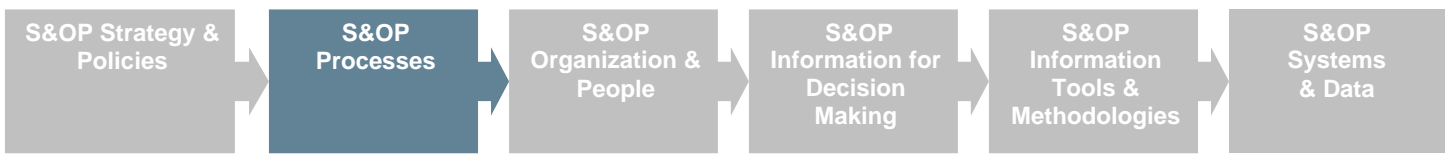
Innovations/New Products Planning Must Be Included

“Product” or new product development/innovations planning and risk management are closely linked and important parts of the planning process. The successful launch of new products can dictate an organization’s market and competitive performance. Business history books are littered with case studies that tell of new product risks and opportunities, tremendous successes and also failures.



Figure 10

The graphic above depicts new product development (NPD) at the center of the universe of processes. However, the intent is to depict just some of the key interactions, especially those with sales planning and forecasting, supply planning, financial planning, and sales and operations planning. The demand, supply and financial information associated with NPD are an integral part of the entire S&OP process.



Subprocess (D) Business Planning/Financial Planning

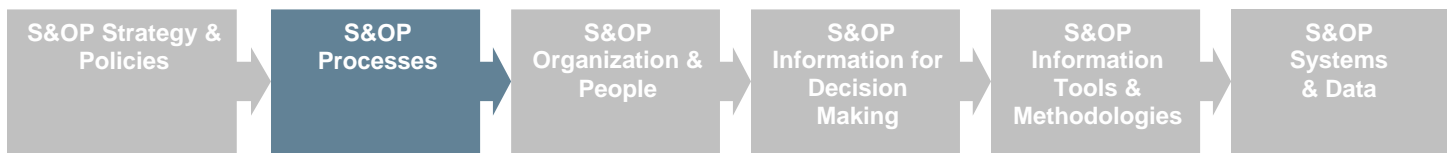
Business planning/financial planning processes are additional beneficiaries from the implementation of a well-designed and effectively managed S&OP process. Transparency to key business plan performance goals and metrics is an integral part of the S&OP process. Financial performance metrics, such as profitability, are at the forefront, along with market performance, customer service and satisfaction, sales forecast error, and operations and new products performance measures. These goals and strategies must align with strategic and annual business plans of the organization.

In many organizations, the financial budgeting and forecasting process is decoupled from demand, supply and new products plans. The budget is treated as a major annual “event” and is seen as an unwelcome chore and a big effort. Often, once the budget iterations are concluded and the annual plan approved, changes in market demand, operations and new product introductions lead to the plans getting out of sync.

The monthly S&OP cycle drives the review of financial plans, new product plans, revenue plans and forecasts, and supply and operations resource plans and performance. Performance gaps are identified and assessed, and management evaluates and learns from the variances by checking reality in comparison to the assumptions that previously had been made and documented. Risks and opportunities applying to future plans are reevaluated and consensus is reached on any adjustments required to meet the business plan, profitability, service level and other targets.

The horizon for S&OP is typically a rolling 18 months or more – depending on the needs and maturity of the business and the process. Monthly, an additional month is added to the planning process as one month is assigned to history. With the disciplined attention to planning and reconciliation of plans across all key processes, the annual budgeting and business planning process becomes much less of an onerous event. The planning is continuous, and the planning horizon extends far enough to support budgeting, as well as sales and operations planning.

A rolling, integrated business plan with built-in and cross-functional risk and opportunity analysis is a major advantage for the finance and risk management organizations.



Subprocess (E) Plan Reconciliation (Pre-S&OP Meeting) Process Findings

Let’s get back to the results from the S&OP survey and examine the findings as they apply to supply planning and reconciliation of demand and supply plans and scenarios. Beginning with supply planning fundamentals, the study shows that 44 percent of respondents reported the basic supply planning processes and procedures are documented at a “less than satisfactory” level. Meanwhile, 31 percent reported that they had highly effective and formal supply planning processes and procedures in place.

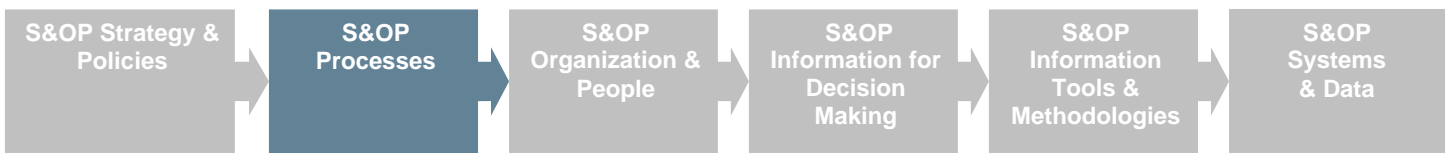
Planning and scheduling demands a disciplined approach, clear steps and routines for information analysis, scenario creation, decision making and formal rules. Without such disciplines and basic procedures and controls, it is highly unlikely that an organization will be effective and efficient at managing demand and supply risks and opportunities to achieve maximum profitability and growth.

It is not surprising that the survey results show many organizations scored themselves in the “less than satisfactory” category (columns 1 and 2 in Figure 11) in terms of modeling supply risk and opportunity for both materials availability, as well as capacity to meet demand scenarios.

When combined with ongoing monitoring and control, this modeling activity is a means to help ingrain supply risk management as a routine and operational part of the business decision-making process for the senior management team and beyond.

These items are routinely modeled and assessed in the supply planning and reconciliation phases					
Top number is the count of the respondents selecting the option.	1 Not Adopted	2	3	4	5 Fully Adopted
Materials availability, risks, and opportunities	29 23%	29 23%	31 24%	26 20%	12 10%
Capacity availability, risks, and opportunities	22 18%	30 24%	29 23%	27 22%	18 14%

Figure 11



Key Partner/Supplier Integration

Another strategy for profit-focused organizations is to engage key partners in the planning processes. Providing visibility of forecasts, changes, scenarios, plans, risks and opportunities to these key partners, and engaging the partners in the dialogue to help optimize performance, customer response and profit clearly are best practices. As the data in Figure 12 shows, just 11 percent of the organizations polled consider this to be a real strength. Alternatively, a startling 75 percent admitted to being below average in this strategy and practice. Certainly, there is an opportunity for improvement.

Key suppliers and contractors routinely provide input into the S&OP process.		
Not Adopted	54	43%
	40	32%
	19	15%
	11	9%
Fully Adopted	2	2%
Total	126	100%

Figure 12

Reconciliation of Plans and Risk/Opportunity Scenario Analysis

Figure 13 provides some very interesting information in a number of critical S&OP areas. A very solid 41 percent reported that the S&OP cycle contains very effective or excellent demand/supply planning and integration practices. However, when the question of integration of financial plans with demand plans and supply plans was asked, 42 percent admitted that this is not done or is performed poorly.

The number of respondents expressing satisfaction with the process dropped all the way to just 28 percent when the question was asked whether risk and impact are assessed during these reconciliations. Fifty-one percent reported that they don't reconcile plans or do a poor job of reconciliation. Risk and impact assessment are fundamental to the evaluation of various scenarios, and help to highlight the choices available to management. It allows managers to optimize their efforts and resources and make the most appropriate trade-offs and investments.

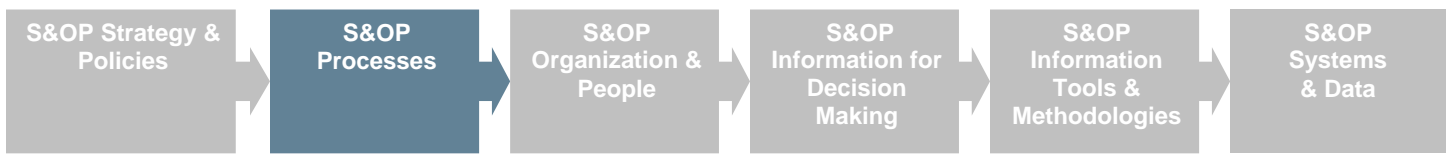
Only a few very top-level organizations have mature demand/supply/financial and product introduction planning processes where risk, impact and opportunity are being assessed across these plans effectively. Not surprisingly, the survey data are very similar in terms of responses to the question addressing whether the organization "evaluates opportunity/impact scenarios or 'what-if' questions."

The monthly S&OP cycle includes					
Top number is the count of the respondents selecting the option. Bottom % is percent of total respondents selecting the option.	1 Not Adopted	2	3	4	5 Fully Adopted
Demand/supply planning and integration	19 15%	20 16%	36 28%	25 20%	27 21%
Reconciliation meetings to assess risk and impact in various plan options	29 23%	35 28%	27 21%	18 14%	18 14%
Opportunity/impact scenarios and recommendations in plans	22 18%	37 29%	32 25%	23 18%	12 10%
Integration of demand, supply, and financial plans	21 17%	32 25%	30 24%	28 22%	16 13%

Figure 13

This likely indicates that organizations are not using information effectively to evaluate various scenarios and trade-offs to improve profit, grow market share, and understand investment and return options, as well as a variety of demand, supply and financial risks and opportunities.

These findings most likely signify a lack of sophistication in plan reconciliation practices and are typically accompanied by weakness in one, two or all three of the other capability areas: the information for decision making, information gathering and analysis methodology and tools, and underlying systems and data required to support "what-if" risk and opportunity scenario analysis. That conclusion is borne out in the answers to questions on those three areas of capability as discussed specifically later in this paper.



Subprocess (F) Senior Executive Sales and Operations Planning Review and Approval Process

The cycle concludes with the senior executive review and approval process. Fifty percent of respondents stated that this critical step of the process was acceptable or better. Stated in the negative, 50 percent also confirmed they do not have an executive-led review and approval process, or alternatively, do not have one that is in any way effective.

As previously discussed, S&OP is a senior management process, and the S&OP review meeting is the forum to address performance; to plan, review and discuss future demand, supply, new product and financial plans; to debate trade-offs, risks, opportunities and so on; and to make executive-level, cross-functional decisions. These decisions serve to orchestrate the organization's actions.

Data from Figure 14 raise another set of concerns and opportunities for improvement. Fifty-six percent stated that risk and goal tolerances are not defined in the context of S&OP key performance indicators and parameters. Goal- and tolerance-setting for key performance areas are excellent tools to help the management team better focus its efforts on priorities and risks in the business.

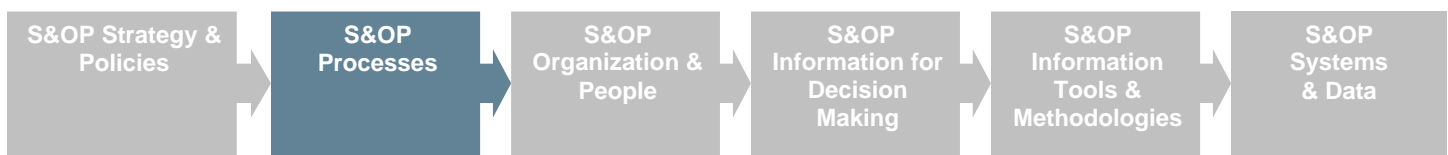
Risk and goal tolerances are set for all S&OP key performance measure areas (for example, profit, revenue, order fulfillment, inventory, utilization, forecast, supply plan).		
Not Adopted	41	33%
	29	23%
	26	21%
	15	12%
Fully Adopted	14	11%
Total	125	100%

Figure 14

Not surprisingly, as many as 62 percent of respondents reported the frequency of review of out-of-tolerance performance results as being "less than satisfactory." See Figure 15 for results.

"Out-of-tolerance" results are reviewed and addressed throughout the S&OP processes.		
Not Adopted	38	30%
	40	32%
	21	17%
	20	16%
Fully Adopted	8	6%
Total	127	100%

Figure 15



Another key practice for successful S&OP is to document assumptions, decisions, meeting minutes and the like in a timely and complete manner. This helps to drive accountability and enables the organization to look back at the assumptions made versus what actually occurred and learn from both good and bad decisions. As can be seen, a full 60 percent reported a serious deficiency in application of these important disciplines.

Reconciliation and executive-level S&OP meeting minutes, actions, and assumptions are documented.		
Not Adopted	41	33%
	34	27%
	20	16%
	12	10%
Fully Adopted	18	14%
Total	125	100%

Figure 16

Overall, the process capability element of the survey showed that while much improvement has occurred in many organizations, there are still significant opportunities – and a strong need – to improve across each of the subprocesses, including demand planning, supply planning, plan reconciliation and risk/opportunity scenario evaluation, and the executive-level S&OP review and decision making.

Note: Value Chain Risk Management Program – Converting Demand, Supply and Financial Uncertainty into a Strategic Opportunity for Business Advantage and Growth

The Eli Broad Graduate School of Management at Michigan State University is developing a new C-level Executive education program titled “Value Chain Risk Management.” The objective of this program is to provide an intensive review of the nature and source of risk, as well as a framework for initiating and building an enterprisewide risk management philosophy and related processes. The program is designed for senior executives who must understand the critical questions to ask and capabilities to employ concerning risk and trade-offs when reviewing financial, supply and market strategies.

This program is being offered through a unique partnership between Michigan State University, Protiviti and a major consumer products company. Each brings complementary knowledge and experience in the areas of value chain risk management. The AMR Research group also has joined the team to provide its unique perspective. The executive-led S&OP process is a central component of this timely and innovative education program.



Capability #3: Organization and Skills

This process refers to all organizational and people aspects that apply to the S&OP process. The maturity level of organizational and skills capability will have a significant influence on the successful execution of S&OP process objectives, strategies and policies. The successful execution of a well-designed S&OP process and procedures depends heavily on the strength, qualifications and skills, and commitment of the organization. S&OP organization and people capability elements include:

- Senior Executive Process Ownership
- Cross-Functional Executive Teaming and Decision Making
- Cross-Functional Teamwork for Plan Reconciliation and “What-If” Assessment
- Executive and Team Ownership for Sales Plan and Forecast
- Executive and Team Ownership for Supply Plan
- Trained and Qualified Planners
- Training and Development for All in Process
- Identified and Applied Skills and Competencies
- Corporate Culture and Passion

Major changes to business practices involve considerable up-front education, communication and training, as well as marketing of the changes. It is widely accepted that success in such major change efforts has the following approximate dependencies:

People – 50 percent
Process – 40 percent
Technology – 10 percent

The exact percentages can be argued forever, but it has been proven time and again that people aspects are dominant, that the process must be very well-designed, and that technology, while important, is an enabler rather than a dominant force in success or failure. Obviously, if people do not have good information and tools, they will become frustrated and demoralized and the process will fail.

So, what does this all mean? To embrace and own the process, all those participating in S&OP, from the most senior executives through team members and individual contributors, must thoroughly understand the management principles and concepts. Those key principles include a laser-focus on profit and a dedication to identifying, analyzing, openly debating, and resolving the very toughest business questions and trade-offs.

The team also must grasp how essential are continuous isolation and quantification of risks, opportunities and choices (“what-if” scenarios), and learn how to make those choices while reconciling demand, supply, new product and financial plans.

Many organizations fail to meet their S&OP objectives, or experience unacceptable delays and other barriers to implementation because they have not invested the time, effort and patience to get their team members to understand and buy into these objectives, principles and techniques. Similarly, thorough change management plans and training and development programs must be designed in great detail, implemented proactively and completely, and reinforced with frequency.

In the survey, we also examined the people and organizational capabilities. Following are some of the most interesting observations, starting with sales planning and forecasting. Thirty-five percent of respondents reported a high level of effectiveness in this aspect, with 24 percent being somewhat satisfied and as many as 42 percent reporting that this discipline does not exist or is ineffective.



Sales planning and forecasting must be led by the marketing group or the sales and marketing group to drive the responsibility to the right personnel. What happens in some organizations is that the supply chain or operations function will take the lead without a commitment by marketing and/or sales and marketing. This will not work for obvious reasons.

Sales forecasting is owned and led by marketing and sales, but it is a cross-functional team effort.		
Not Adopted	24	20%
	26	22%
	29	24%
	30	25%
Fully Adopted	12	10%
Total	121	100%

Figure 17

Also, 51 percent of respondents reported that the review of risk tolerances and forecast ranges by cross-functional management occurs at a “less than satisfactory” level – meaning it is not done at all, or done poorly. Another insight into this area of organizational capability weakness is highlighted by the fact that 72 percent of respondents reported there is little or no reward for sales and marketing personnel in terms of forecast error/accuracy improvement.

The survey also evidenced that as many as 56 percent of respondents reported minimal or unsatisfactory involvement of the new products function in demand/supply planning, plan reconciliation and the overall S&OP executive management process. And yet, for so many organizations, the introduction of new products is critical.

Inclusion of new product and end-of-life plans in demand and supply planning, financial planning, and plan and risk evaluation and reconciliation processes is another prerequisite for success. The S&OP process must deal with product decisions throughout all phases of the life cycle: the introductory phase, the volume or **supply phase** and finally, the end-of-life or obsolescence phase. (Please refer to “range forecasting” process concepts in the Capability #2 section.)

The results were very mixed in terms of the skills and competencies of those carrying out the sales planning and forecasting work. Unless management has the right people in the right place with the right responsibility, skills and qualifications, it is unlikely the organization will enjoy major benefits that undoubtedly will accrue from having good forecast information.

Qualified personnel are in place to carry out the						
Top number is the count of the respondents selecting the option. Bottom % is percent of total respondents selecting the option.		1	2	3	4	5
		Not Adopted				Fully Adopted
Development of the statistical forecasts		29	26	24	27	12
		25%	22%	20%	23%	10%
Sales and marketing promotion forecasts		19	29	34	28	8
		16%	25%	29%	24%	7%
Local sales plans		20	22	38	27	11
		17%	19%	32%	23%	9%

Figure 18

However, as can be seen in Figure 19, in about 80 percent of cases it was very clear who was responsible for the supply chain and achievement of supply plan performance. And, as is appropriate, that is the supply chain or operations group.

Supply chain and operations have primary responsibility for the supply plan and the achievement of the supply plan.		
Not Adopted	11	9%
	13	11%
	22	18%
	40	33%
Fully Adopted	34	28%
Total	120	100%

Figure 19



A dominant best practice and inherent part of a successful S&OP process surrounds the leadership and decision making by the executive team. We examined this with the question displayed in Figure 20. Forty-six percent reported having achieved a very high level of success in this regard, with an additional 24 percent being reasonably satisfied with the senior executive involvement. This again represents significant progress from previous studies.

Final S&OP decisions and choices are made by the senior executives of the company.		
Not Adopted	17	14%
	20	17%
	29	24%
	30	25%
Fully Adopted	25	21%
Total	121	100%

Figure 20

Consistent with other aspects of S&OP capability, results overall were very mixed in this often elusive area. All case studies have made it clear that the people, organizational and culture capability is at the heart of success, or otherwise, of S&OP. Indeed, S&OP is not for the weak of heart: It demands discipline, and requires a new level of teamwork and the elimination (or at least the minimization) of departmental politics.

Sales and operations planning brings the tough decisions to the executive suite routinely; it forces trade-off conversations, requiring management to look beyond functional goals and to put company objectives at the fore. S&OP requires the management team to adopt a plan of action based on all of the best available data. Most of all, an effective S&OP process requires the passionate and dedicated commitment, persistence and time of the most senior executives. Change management is a critical prerequisite for success; therefore, a formal change management program should be a very clear requirement of the senior executive responsible for S&OP.

Sales and Operations Planning - The “Change Management” Challenge

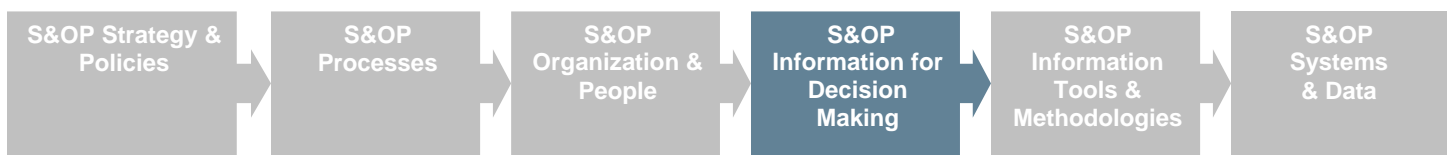
The change management plan needs to be designed and tailored for each key department and leader – different groups and people will have different needs and will be more or less supportive from the outset. The level of cross-functional teamwork varies from one organization to another, and successful S&OP depends highly on this teamwork. It will not occur for most in the absence of a well-defined plan without investments in training, education, communication and internal marketing.

The education includes making the different functions and leaders much more aware of the drivers, goals, challenges, tactics and activities of their peers in other departments. This is a necessary step. To better support or challenge each other, the leaders and other professionals must have a reasonable knowledge of and respect for each other’s operating environment. As the S&OP process matures, this becomes a habit.

But S&OP is more than an internal-only, cross-functional planning and risk management process. It also extends to key customers and suppliers. These partners should be targeted and included in the change management and education initiatives. One of the differentiators between those achieving outstanding versus average results from S&OP is the inclusion of key business partners in the process.

This often requires another change in attitude internally, and an investment in education and communication on all sides to get the buy-in and trust of these partners. These partners also need to actively participate in the development and implementation of the new or improved procedures for information sharing, including shared value chain risk and opportunity management activities and decision making, revising contracts and service-level agreements, and new and improved communication forums.

Change management plans, including marketing and communicating the benefits and changes, along with appropriate investments in training and education for key internal and external participants, are prerequisites for success and the hallmarks of winners.



Capability #4: Information for Decision Making

This S&OP process capability refers to the variety of information required and available to manage, control and measure performance and risk and to make wise and informed decisions throughout the process cycle. Organizations must rely on the availability of timely, relevant and complete information to effectively and efficiently manage, execute, and control the S&OP process. S&OP process information for decision making includes, but is not limited to, key performance areas, analysis monitoring and control components, such as:

- **Financial Plan and Performance**
 - EBIT
 - Business Plan Performance
 - Revenue/Sales Performance
 - Profit Margin
 - Operations Costs & Drivers
 - Return on Assets (ROA)
- **Sales and Marketing Plan and Performance**
 - Total Marketing Share Forecast Performance
 - Forecast Accuracy/Error by Product (Family, Subfamily, Top SKUs, etc.)
 - Forecast Bias Performance
 - Promotion Plan Performance
 - Perfect Order Fulfillment Performance
 - Past-Due Order Performance
 - Customer Profitability Performance
 - Product Profitability Performance
- **Operations Plan and Performance**
 - Manufacturing Margins
 - Product Supply/Operations Plan Performance
 - MPS Performance
 - Utilization Performance
 - Supplier Performance KPIs (include subcontract and outsourced)
 - Inventory Performance
 - Inventory Accuracy
 - Yield Performance
 - Cycle Time Performance
- **New Products Introduction Plan and Performance**
 - NPI On-Time Performance
 - Key Cycle Time Performance (Stage Gates)
 - Project Cost Performance
 - Development Cost Performance
- **“What-If” Scenario Analysis Areas:**
 - Supply Risk/Opportunity
 - Demand Risk/Opportunity
 - Financial Risk/Opportunity
 - New Product Introduction Risk/Opportunity
 - Supply/Demand/Financial/New Product Risk/Opportunity Scenarios – Choices

Emphasis will differ by industry and by how demand-driven the firm has become. But S&OP is now widely used by executive teams at leading organizations in a range of industries including pharmaceuticals, consumer products, electronics and high-tech, heavy manufacturing, chemicals and retail.



While an organization can develop the best S&OP strategies and policies and a very well-designed and disciplined process, and invest in highly motivated, skilled and cooperative management and personnel, the S&OP process will be undermined or fail entirely without accurate, complete and timely information for decision making, measurement, monitoring and control. The process is intended to enable management to understand performance; evaluate and discuss risks, opportunities and trade-offs; and develop a set of integrated and reconciled plans that best reflect the goals of the business.

If the information is not timely, complete and/or accurate, it becomes highly difficult or impossible to make good decisions and manage and control risk and performance across the various scenarios and plans. Traditionally, this has been a major inhibitor for many organizations as they set about developing and deploying S&OP process capabilities. The results of this survey provide evidence that this very fundamental need is still a struggle for most.

The S&OP process leverages the following information:					
Top number is the count of the respondents selecting the option. Bottom % is percent of total respondents selecting the option.	1 Not Adopted	2	3	4	5 Fully Adopted
Comprehensive future demand forecasts and forecast ranges	13 11%	32 28%	31 27%	24 21%	14 12%
Recommended supply plans	18 16%	27 24%	25 22%	31 27%	13 11%
Risk and opportunity data	33 29%	35 31%	32 28%	9 8%	5 4%
Tradeoff choices	35 31%	29 26%	29 26%	13 12%	7 6%
Financial scenario data	23 20%	30 26%	32 28%	21 18%	8 7%

Figure 21

The results highlighted in bold above show where these weaknesses appear. Around 33 percent have reached a high level of performance in terms of using comprehensive future demand forecasts (including range forecasts), with 39 percent seriously struggling in this aspect. Thirty-eight percent reported they are leveraging recommended supply plans very effectively in the S&OP process, while as many as 40 percent of respondents admitted this is a significant area of weakness.

Not surprisingly, and consistent with what appears to be an overall immaturity of demand/supply risk management, just 12 percent of those surveyed felt they are doing a very effective or excellent job of evaluating risk and opportunity data in S&OP. A full 60 percent admitted the usage of risk and opportunity data for S&OP decision-making was ineffective or nonexistent. This is a major cause for alarm.

“Good information must be used to support trade-off choices and for financial scenario evaluation” also was rated as very poor for the majority of organizations – 57 percent and 53 percent, respectively. This is a serious situation, as a lack of good information for decision-making will serve to ultimately undermine the entire process.

Generally, the results on availability and use of information across all subprocesses of S&OP showed similar problems. This critical capability is going to play out as detrimental and challenging for organizations. Since each capability is interdependent, it follows that management’s objective to achieve a high-level of performance through the S&OP process will likely be undermined over time by a lack of complete, timely and accurate information. So, while people and process elements are still the most obvious and significant challenges for successful S&OP, the absence of good information will erode and eventually sink the whole process.

Let’s look briefly at some of the other results in the information for the decision making element of capability. Just 28 percent reported that they are very satisfied with the way that sales plan/forecast performance targets and ranges are defined, agreed upon and monitored. Forty-eight percent rated this as either “ineffective” or “not happening at all.” The effective use of information to improve forecasting performance also was surveyed with the following (somewhat grim) results: Those in bold represent responses of “ineffective or no application” of these better practices.



Sales plan/forecast					
Top number is the count of the respondents selecting the option. Bottom % is percent of total respondents selecting the option.	1 Not Adopted	2	3	4	5 Fully Adopted
Assumptions are documented	23 20%	31 27%	26 23%	21 18%	12 11%
Performance variations are assessed	26 23%	33 29%	22 19%	19 17%	15 13%
Lessons are documented and communicated	40 35%	34 30%	17 15%	16 14%	8 7%

Figure 22

The following value chain key performance measurements are in place and monitored/reported:					
Top number is the count of the respondents selecting the option. Bottom % is percent of total respondents selecting the option.	1 Not Adopted	2	3	4	5 Fully Adopted
Demand plan	22 19%	17 15%	24 21%	30 27%	20 18%
Supply plan	20 18%	19 17%	24 21%	33 29%	17 15%
New product introduction plan	26 23%	37 33%	24 21%	17 15%	10 9%
Financial plan	14 12%	20 18%	26 23%	34 30%	20 18%
MPS plan	27 24%	25 22%	27 24%	22 20%	12 11%

Figure 23

More disturbing data appeared in Figure 23. From 30 percent to as many as 56 percent of those surveyed reported unacceptable performance in the development and monitoring of key performance measures for the various plans within S&OP. New product plan and MPS plan controls both had a particularly high frequency of weakness, with financial plan performance monitoring being the most effectively managed. Forty-eight percent stated they are doing a very effective or excellent job.



Other Survey Results in the Information for Decision-Making Capability:

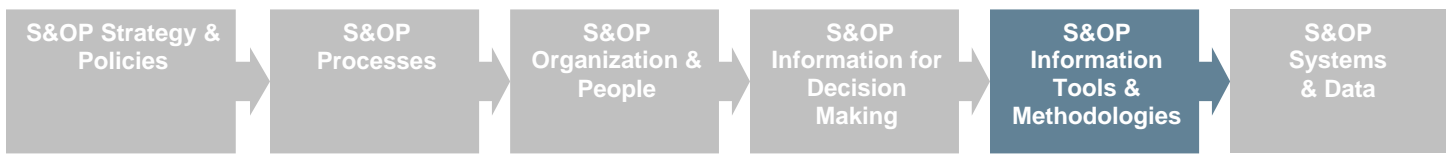
- Almost 50 percent of respondents said they do not regularly review customer expectations as applied to desirable product lead times.
- Fifty-nine percent do not audit the master schedule routinely to ensure it coincides with management's decisions in the S&OP process.
- Only 10 percent are doing a very good or excellent job at documenting pre-executive S&OP reconciliation information, with 73 percent not doing this at all or doing it very poorly.
- Just 8 percent reported they are doing a very effective or excellent job of document assumptions, recommendations, choices, "what-if" information, and risk and alternative information for the entire S&OP process. It is very desirable to document all scenarios, assumptions and decisions to learn from that information, as actual events deviate from the plan over time, and the organization can retrace assumptions and variances. Seventy-six percent are failing in this key area of using information effectively for decision making.

S&OP Reporting Package – What is done well and not done well?

The S&OP reporting package includes:					
Top number is the count of the respondents selecting the option. Bottom % is percent of total respondents selecting the option.					
	1 Not Adopted	2	3	4	5 Fully Adopted
Key customer service statistics	33 29%	20 18%	21 18%	18 16%	22 19%
Supply performance	31 27%	17 15%	22 19%	26 23%	18 16%
Financial performance	25 22%	17 15%	21 18%	33 29%	19 17%
Demand plan performance	29 25%	16 14%	28 25%	21 18%	20 18%
Inventory and capacity utilization performance	24 21%	21 19%	22 20%	29 26%	17 15%
Future demand forecasts	20 18%	19 17%	30 26%	18 16%	27 24%
Recommended operations plans	27 24%	20 18%	28 25%	25 22%	14 12%
Risk and opportunity data	42 34%	34 30%	23 20%	10 9%	5 4%
Analysis of total promotion spend, incremental volume, and ROI	66 58%	24 21%	16 14%	4 4%	4 4%

Figure 24

Figure 24 shows the survey results describing how effectively various key reports are used in the S&OP processes by respondents. Some key findings are highlighted in bold, and include several surprises, such as the lack of focus on key customer service and supply performance metrics, as well as the more predictable areas of weakness, such as risk and opportunity data review, the analysis of promotions expenditures, incremental volume and ROI.



Capability #5: Information Methodologies and Tools

Very closely related to Capability #4, this process capability refers to the tools, methodologies and procedures used for organizing, analyzing and transforming data so that it becomes useful for decision making, measuring, monitoring and control.

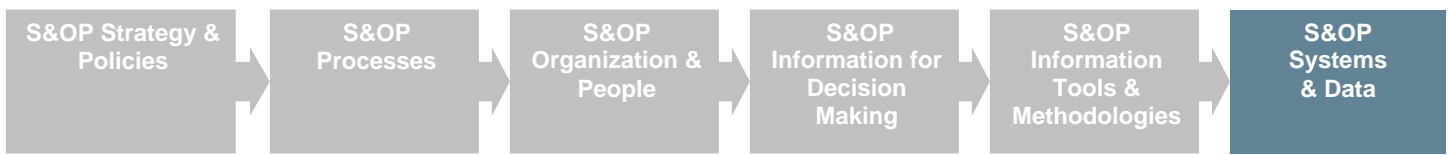
Technological advances in the past decade have been impressive. However, when it comes to S&OP and demand/supply risk management in general, organizations frequently are not taking advantage of the modeling tools, analytics methods, dashboards, and the like, that are now available. This is changing—and quickly.

Our survey shows that a lack of investment and application of tools and methodologies for generating information is among the root causes for the weakness in information for decision making in S&OP. This lack of investment also lies at the root of weaknesses in the identification and management of demand, supply, financial and new product introduction risks and opportunities.

Figure 25 calls out many of the areas where these tools should be applied to enable an effective S&OP process. The percentages in bold highlight that most organizations do not have the tools in place to produce the information needed to effectively, efficiently and continuously make good decisions about the future or to really understand what happened previously versus the assumptions that had been made about the future.

S&OP tools enable the organization to					
Top number is the count of the respondents selecting the option. Bottom % is percent of total respondents selecting the option.	1 Not Adopted	2	3	4	5 Fully Adopted
Analyze revenue impacts and create "what-if" demand plan scenarios	33 30%	37 33%	22 20%	10 9%	10 9%
Analyze inventory, capacity, and material availability, and create "what-if" supply plan scenarios	32 29%	27 24%	24 22%	17 15%	11 10%
Review financial impacts and carry out "what-if" on financial plan scenarios	34 30%	26 23%	24 21%	16 14%	12 11%
Provide an effective audit trail	39 35%	38 34%	21 19%	9 8%	5 5%
Complete root-cause analysis on the S&OP plan and its deviations	48 43%	28 25%	16 14%	14 13%	5 5%
Facilitate discussion on risk tolerances	35 31%	35 31%	24 21%	10 9%	8 7%
Effectively model proposed plan and alternatives for senior management	36 32%	32 29%	21 19%	15 13%	8 7%
Provide information for management to make decisions	21 19%	30 27%	28 25%	22 20%	11 10%

Figure 25



Capability #6: Technology/Systems and Data

These are the systems used to run day-to-day operations, as well as a host of other computer systems used to manage and execute all aspects of the business – ERP, financials, sales and marketing, and so forth. It also includes any external systems and databases used by the organization to help run the business.

In combination, these are all the systems from which data are drawn for analysis and reporting by the tools referenced in Capability #5. The data within these systems, and their integrity and completeness, also is an essential component of this process capability.

The responses to questions displayed in Figures 26 through 28 show a mixed bag of results as it applies to data availability and integrity for forecasting and demand planning, supply planning and overall S&OP activities. The percentage of those doing an excellent or highly effective job in these aspects ranged from 30 percent to 35 percent, while those with unacceptable levels of capability ranged from 39 percent to 48 percent (in bold), with the balance being tolerable controls.

Effective procedures are in place to ensure accurate data are used in the forecasting system(s).		
Not Adopted	14	13%
	29	26%
	29	26%
	26	23%
Fully Adopted	13	12%
Total	111	100%

Figure 26

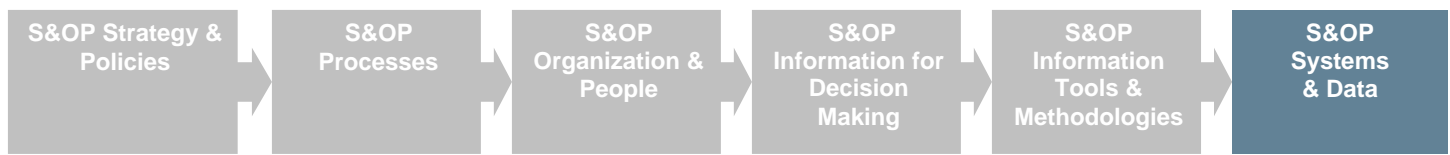
There are automatic data feeds from forecasting and transaction/operations systems into demand/supply planning and S&OP tools.		
Not Adopted	33	30%
	20	18%
	25	23%
	20	18%
Fully Adopted	13	12%
Total	111	100%

Figure 27

Supply/demand and related information is fed accurately into the supply planning and S&OP systems in a timely and quality manner.		
Not Adopted	24	22%
	25	23%
	27	25%
	18	16%
Fully Adopted	16	15%
Total	110	100%

Figure 28

Thanks in a no small way to the Y2K rush, the usage and availability of comprehensive ERP-type systems has increased substantially. These systems house a good deal of the base data required for S&OP.



A comprehensive enterprise-wide transaction system capability (such as ERP) is in place to support S&OP activities.		
Not Adopted	18	16%
	18	16%
	26	23%
	23	21%
Fully Adopted	26	23%
Total	111	100%

Figure 29

We also asked respondents about which type of data in the ERP and other systems were available and used in their S&OP process. Most importantly, we inquired about the data’s quality. The responses are provided in Figure 30.

The S&OP input data					
Top number is the count of the respondents selecting the option. Bottom % is percent of total respondents selecting the option.	1 Not Adopted	2	3	4	5 Fully Adopted
Supply plan and MPS performance	27 24%	25 23%	21 19%	24 22%	14 13%
Sales plans and forecasts (and performance)	14 13%	21 19%	24 22%	32 29%	20 18%
Order fulfillment performance	20 18%	26 23%	17 15%	28 25%	20 18%
Capacity information	26 23%	28 25%	22 20%	22 20%	13 12%
Inventory	11 10%	13 12%	21 19%	32 29%	34 31%
Delivery	19 17%	23 21%	19 17%	29 26%	21 19%
Quality and returns information	36 32%	21 19%	18 16%	20 18%	16 14%
New product plans and actual	29 26%	25 23%	28 25%	16 14%	13 12%
Financial plans and actual	19 17%	18 16%	22 20%	25 23%	26 24%
Historical and future customer promotion plans	39 35%	33 30%	20 18%	14 13%	5 5%

Figure 30

The results listed in bold highlight the large population of those reporting that the data for specific key performance areas were ineffectively used, or not at all used. The worst areas included “promotions planning” at 65 percent; “quality and Returns information” at 51 percent; “new product plans/actual” at 49 percent; “capacity information” at 48 percent; “supply plan and MPS performance” at 47 percent; and “order fulfillment” at 41 percent.

OVERALL RESULTS SUMMARY

The chart below aggregates the results survey for each of the six elements of S&OP process capability. It is very evident to us that many more leading organizations and executives have invested in S&OP capabilities over the past two years or so. And various studies have confirmed that the business performance results for those organizations separates them from the competition in terms of profitability, risk management and control, market share growth, and customer satisfaction.

To succeed in S&OP, companies must set their goals and put integrated plans in place for all six capabilities of S&OP so as to achieve impressive business performance results, as well as the risk management improvements at stake. Our research and experience indicate that organizations should aspire to the “managed” level of capability.

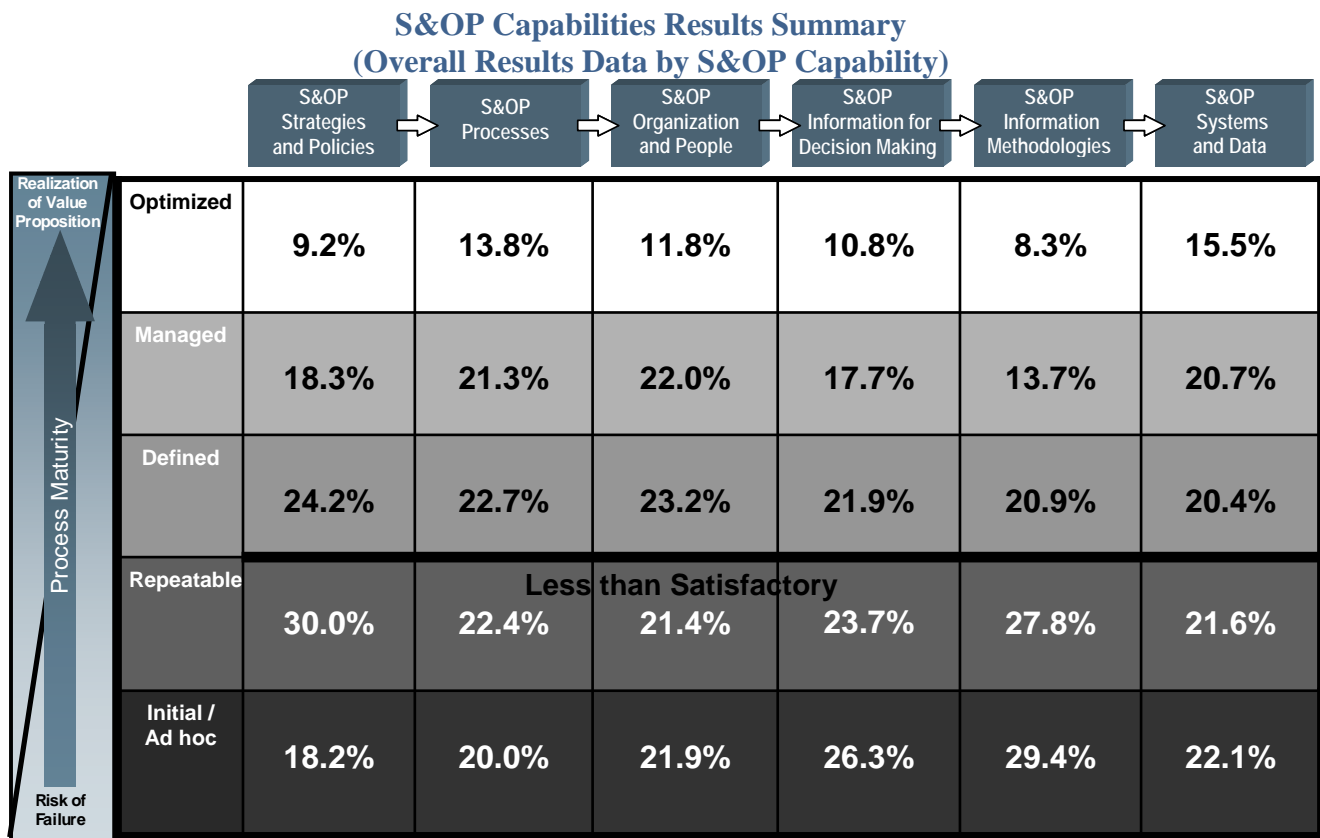


Figure 31: Key to Capability Maturity Chart

Initial / Ad Hoc = This is an Ad Hoc or Chaotic Planning and Control Environment

Repeatable = Still Below the Minimum Level of Capability and Control

Defined = Achieves Minimum Acceptable or Average Capability and Control

Managed = Highly Effective Process and Control – Superior Performer

Optimized = World-Class/Industry Leaders – Across Entire Value Chain

CLOSING COMMENTS AND RECOMMENDATIONS

The S&OP process enables management to effectively and routinely address major enterprisewide and value-chain risks. When properly functioning, S&OP is a high-impact, enterprisewide, senior executive-led risk management and mitigation process. It enables management to adopt an effective profit, risk and demand-driven approach.

S&OP serves as a highly disciplined enterprisewide risk management practice. It is a key investment area for successful organizations, and requires a focus on bringing all six elements of capability to the desired level of maturity over time. As organizations continue to mature their processes and realize the opportunities that exist, technology will play an increasingly vital role in the S&OP process.

Key indicators of a successful S&OP process include:

- Evidence demonstrates that senior management uses the process continually to effectively run the business.
- Management teams are demand-driven, profit-focused, and consistently drive superior performance.
- Management routinely uses risk and opportunity assessments in decision making.
- Short- to long-term demand/supply/financial risks and plans are continually managed, reevaluated and reconciled.
- Genuine, constant and evident collaboration exists with key value chain partners (both customer and supplier).
- High levels of customer service, satisfaction and retention are maintained.
- Demand-planning accountability is evident and forecast bias is eliminated.

Key indicators of S&OP need include:

- Absence of effective executive and middle management-level teamwork in the planning process, in general
- The lack of an executive-level demand/supply/financial and innovation planning and risk management process among internal functions
- Sub-par collaboration among business partners, both internal and external
- Lack of high-quality information and tools for decision making
- Unacceptable levels of sales forecast bias/error
- Lack of ownership of sales plans and forecasts
- Unclear understanding and management of supply bottlenecks and constraints
- Material/product shortages, as well as unacceptable expediting and freight costs
- Supply interruptions leading to production delays and customer delivery issues
- Longer than acceptable or necessary lead times
- Excessive on-hand inventories and obsolescence, as well as lower inventory turns
- Serious lack of confidence in planning systems
- Ineffective use of resources, including lack of resources when needed

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Protiviti is a leading provider of independent risk consulting and internal audit services. The company provides consulting and advisory services to help clients identify, assess, measure and manage financial, operational and technology-related risks encountered in their industries, and assists in the implementation of the processes and controls to enable their continued monitoring. Protiviti also offers a full spectrum of internal audit services to assist management and directors with their internal audit functions, including full outsourcing, co-sourcing, technology and tool implementation, and quality assessment and readiness reviews.

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