

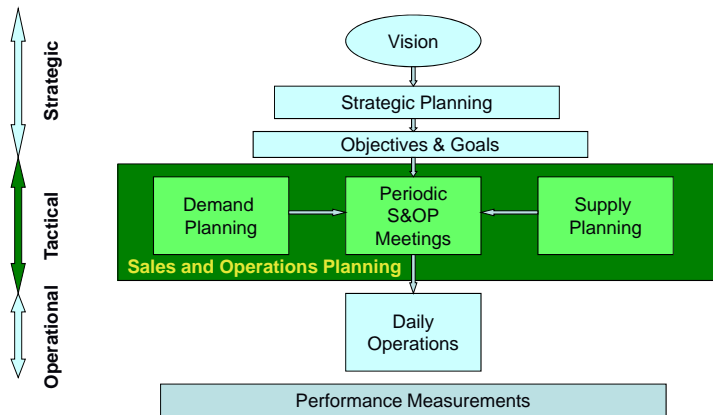
The Sales and Operations Planning (S&OP) Process

MIT-ABI Logistics Leadership II Program

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What Is S&OP?: It Is a Routine Tactical Planning Process to Match Future Supply and Demand



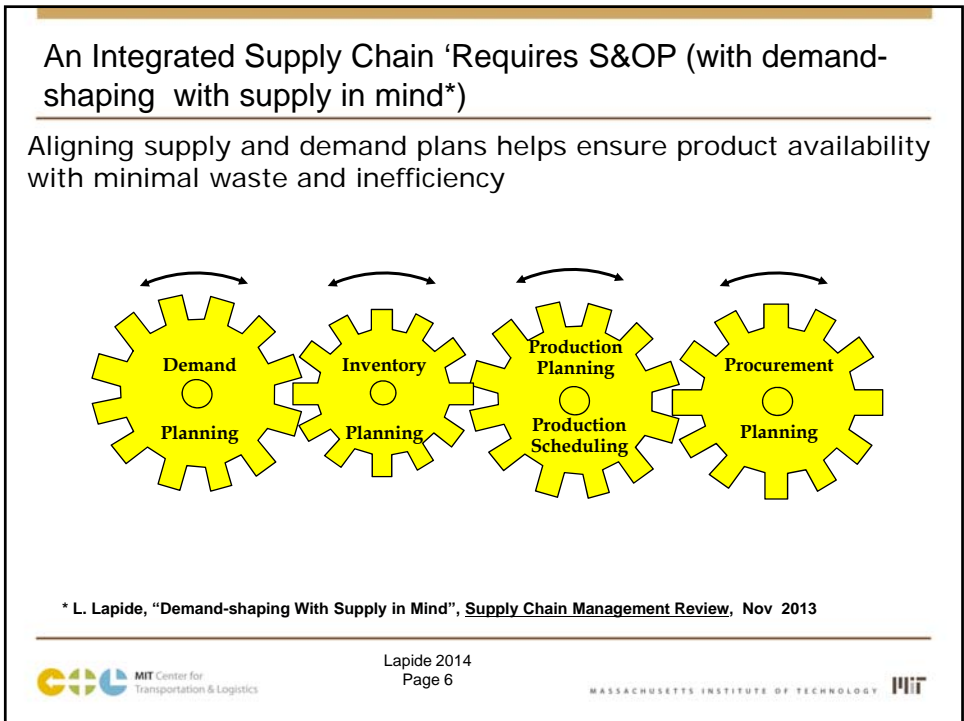
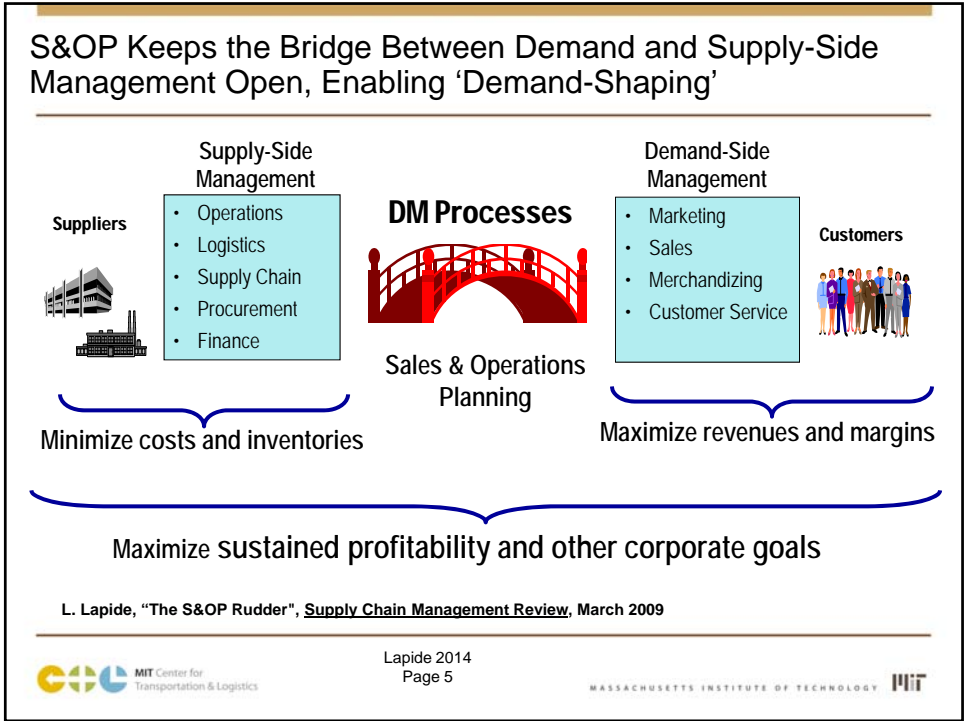
Source: Peng Kuan Tan, "Demand Management: A Cross-Industry Analysis of Supply-Demand Planning", MIT Master of Engineering in Logistics Thesis, June 2006

Agenda

- Importance of the Sales and Operations Planning (S&OP) Process
- How S&OP is done
- Success factors (including the planning hierarchy)
- Improving the S&OP process

S&OP had been 'hot' because of decades of growth in global trade and consumerism

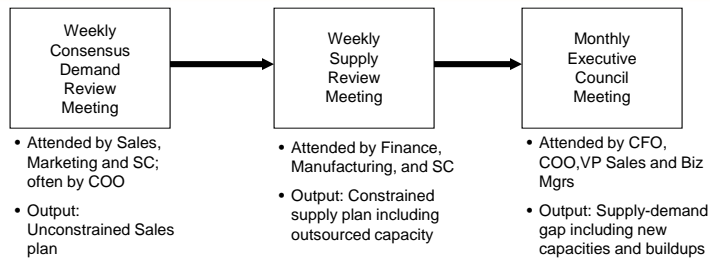
- More global selling (internationally into multiple countries)
- More global sourcing (internationally from multiple countries)
- More fragmented supply lines (e.g., outsourcing)
- Longer supply lines and lead times (e.g. off-shoring)
- Rise of consumerism has led to more competitive environments to plan:
 - Broader product lines with more Stock-Keeping-Units (SKUs)
 - Shorter product-life cycles (with more fashion-oriented products)
 - More Mergers & Acquisitions to gain customers/products
- Greater uncertainty and risks including greater supply-side due to climate change (floods & tsunamis), overseas worker unrest, pirates, and politics such as the Arab Spring



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Semi-Conductor Company's S&OP : A Typical Process



- Process driven by Integrated Process Director from Supply Chain (SC)
- Plans by month for 18 months
- Improvements:
 - Automate to allow more demand-side planning focus
 - Incorporate demand uncertainty
 - Plan for external fabs and foundries

An S&OP Process Needs to be Driven by a Baseline Demand Forecast not a Sales and Marketing Plan

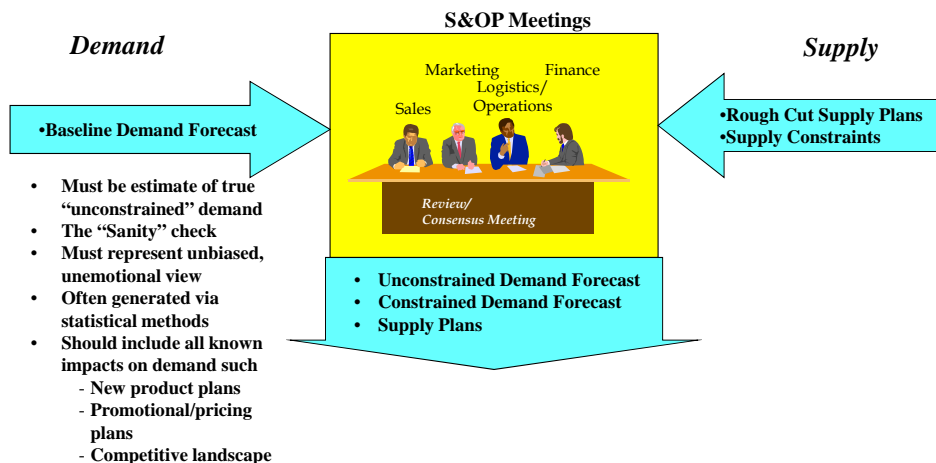
A plan is not a forecast and a planner is not necessarily a forecaster



So, an independent, unbiased, and professionally-run forecasting organization is needed to support an S&OP team

* L. Lapide, "Navigating a Course with Planning and Forecasting", *Supply Chain Management Review*, May/June 2014

An S&OP Process Is Typically Driven by a Baseline Forecast Predicted on a Pre-Defined Demand Plan



Elements of S&OP meetings

- Typical number of meetings
 - One: To match supply and demand
 - Three: Demand review, then Supply Review, then final executive-level review and adjustments (e.g., Executive S&OP)

- Frequency and length
 - Monthly and/or weekly
 - 2 hours to half of a day

- Cross-functional
 - Demand forecasting organization
 - Supply chain
 - Operations (e.g., manufacturing, logistics)
 - Marketing
 - Sales
 - Finance

Agenda Items from A CPG Company's S&OP Process

Learn from History:

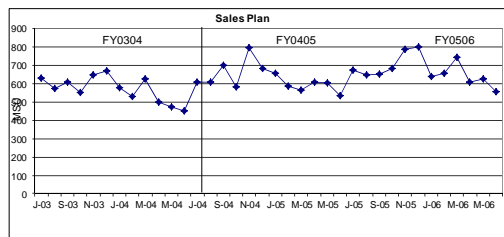
Spend a short time looking back:

- How good was our last plan?
- What did we get right & why?
- What did we get wrong & why?
- Are there any trends emerging?
- What do we need to change for the future?

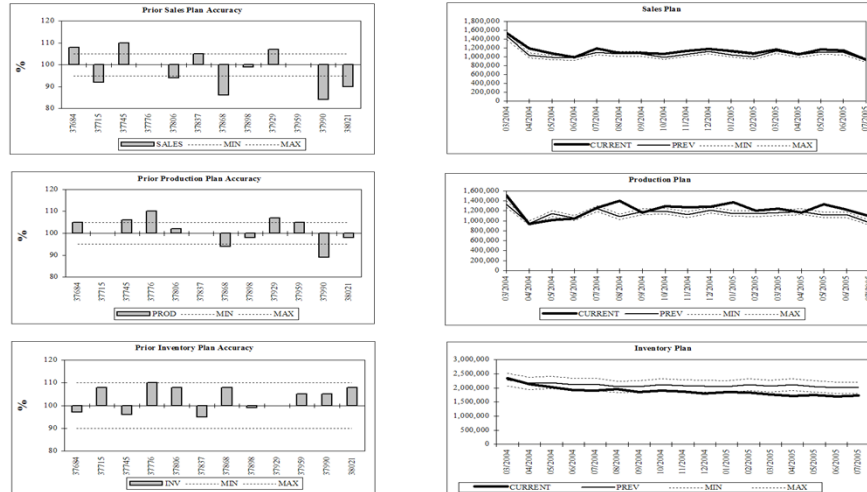
Focus on the Future:

Spend most of the time looking forward:

- Does the plan look & feel right?
- How does it compare with historical trends?
- Do we have a statistical right to believe the forecast?
- Have we got clearly documented assumptions?
- Have we really fixed past issues or are we repeating them?



Supply-Demand matching focuses on Historical Accuracy and Future Plans for Sales, Production, and Inventory



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S&OP Success Factors

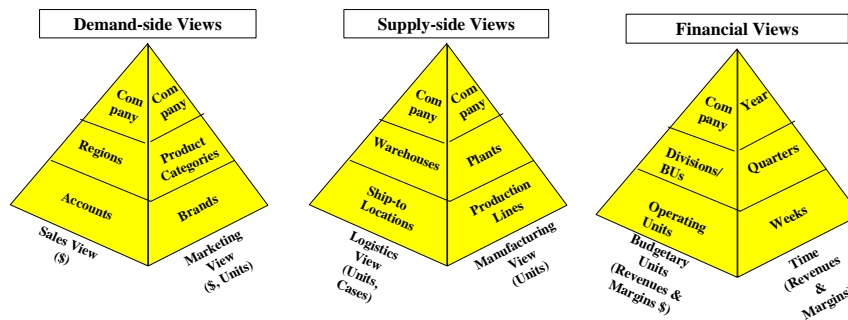
1. Ongoing routine S&OP meetings
2. Structured meeting agendas
3. Pre-work to support meeting inputs
4. An unbiased baseline forecast to start the process
5. Cross-functional participation
6. Participants empowered to make decisions
7. An unbiased, responsible organization to run a disciplined process
8. Internal collaborative process leading to accountability/ consensus*

*A planning hierarchy is important to a collaborative process

L. Lapide, "Sales and Operations Planning Part I: The Process", Journal of Business Forecasting (JBF), Fall 2004

Planning Hierarchies

Single number plans need to be translated into terms stakeholders can understand (such as revenue, costs, margins, and assets)



S&OP meetings should not discuss demand at the lowest detailed, SKU-level nor discuss at the top aggregated level – somewhere mid-aggregated demand (e.g., in apparel & footwear: color/style)

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Current S&OP Processes Are Challenged in Five Ways

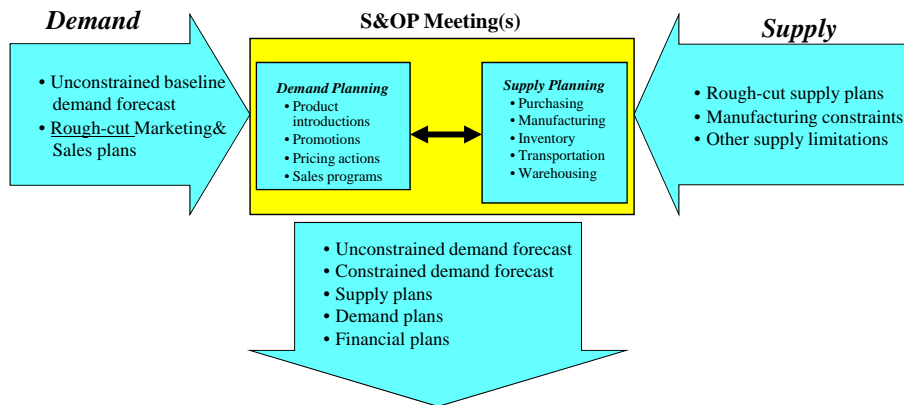
1. Operations and APICS-oriented, and often not Marketing & Sales friendly
2. Don't leverage organizational capabilities well
3. Internally-focused
4. S&OP Needs to Support Larger, More Complex Global Businesses
5. Don't account for uncertainties and risks

1. What Needs the Most Improvement?

Frequent Imbalance in Functional Participation/Accountability



1. S&OP Does This by Enabling Joint Demand and Supply Planning (e.g. , “demand-shaping with supply in mind”)



2. Organizational Capabilities: Many S&OP processes turn into Arm-Wrestle conflicts



Source: DS.com S&OP Knowledge Center, DemandSolutions, 2008

2. Organizational Capabilities: Types of Manager Mindsets*

- Facts
- Numbers
- Analyses

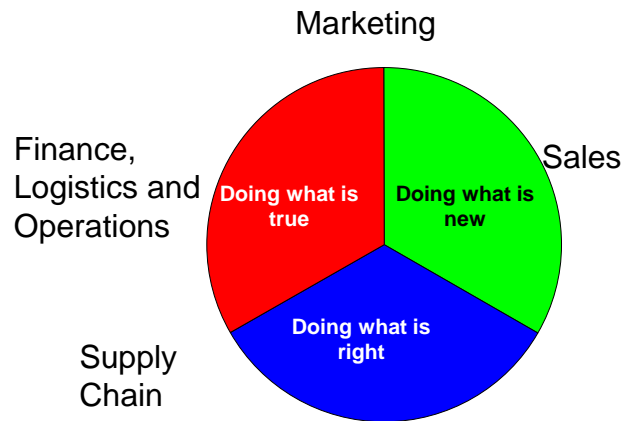


- Futuristic
- Possibilities
- Creative

- Decisive
- Judgmental
- Impatient

Sources: *Based on concepts discussed by Dr. Shalom Saar (MIT-CTL) at Demand Management Symposium held at MIT in 2006
Larry Lapide, "Sales and Operations Planning (S&OP) Mindsets", Journal of Business Forecasting, Spring 2007
Larry Lapide, "S&OP Psych 101", Supply Chain Management Review, April 2007

2. Major Mindsets of S&OP Participants

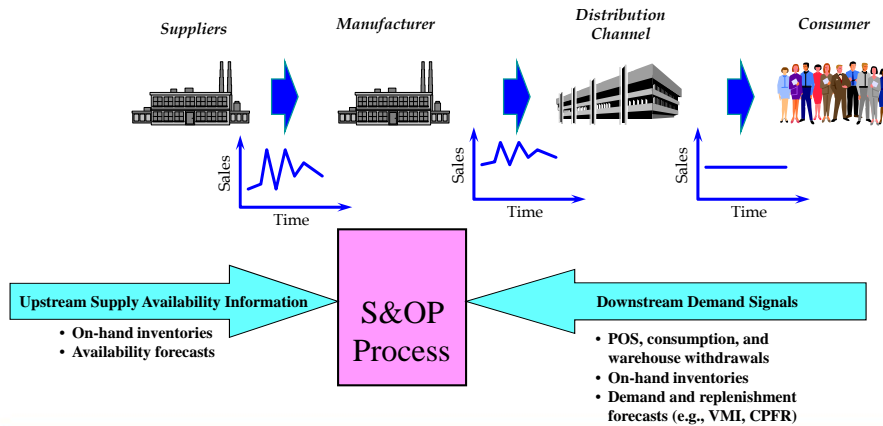


2. Roles in the S&OP Process That Leverage Mindsets

- Sales: Identifying the sales possibilities, sales plans and market assumptions.
- Marketing: Identifying the demand plans, market assumptions, and possibly forecasting the demand.
- Operations & Logistics: Developing the supply plans and possibly forecasting the demand.
- Finance: Monetize the supply-demand financial plans.
- Supply Chain: Moderating a disciplined collaborative process and possibly forecasting the demand.

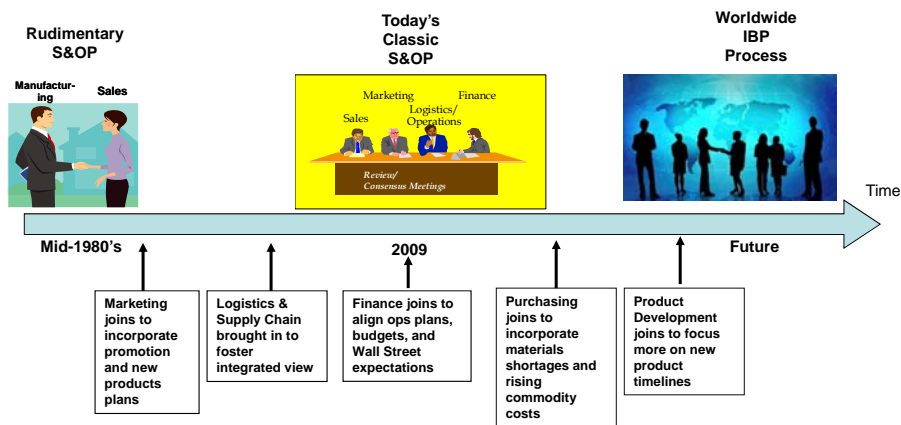
3. Internal Focus: Greater Use of Downstream and Upstream Collaborative Information is Needed

The "Bull Whip Effect" can be reduced and better understood using multiple upstream and downstream data in the S&OP process



4. S&OP Needs to Support Larger, More Complex Global Businesses

S&OP's evolution towards becoming 'The Integrated Business Planning (IBP) Process' requires a global/multi-country focus



4. Complex global businesses require multiple S&OP processes via parsing

- Christopher Michael Honstain”, Sales & Operations Planning in a Global Business”, MIT Master of Engineering In Logistics Thesis, June 2007:
 - Research question: How do you break up S&OP for global businesses?
- Findings:
 - Break up the S&OP process into closest entities that represent Profit & Loss (P&L) centers
 - Use the supply-side to best determine the P&L structure: 4 supply scenarios
 - Have Finance consolidate and harmonize the operational pieces
 - *It becomes more important to translate operational plans into financial plans*

Larry Lapide, "Parsing Holds the Key to Better S&OP", Supply Chain Management Review, Mar/Apr 2012

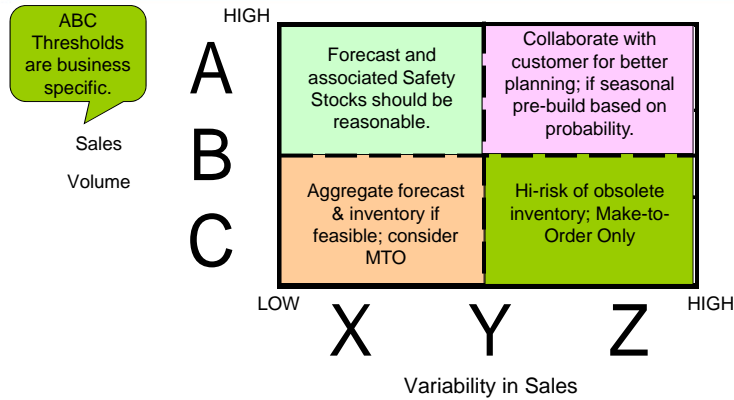
5. Current S&OP processes Don't Account for Uncertainties: Risk Management is needed

- Most S&OP processes use point forecasts and plans, assuming certainty
- Need to incorporate risk management techniques and methods to account for uncertain supply as well as demand:
 - Francis Bacon: "If a man will begin with certainties, he shall end in doubts; but if he will be content to begin with doubts, he shall end in certainties".
- Yanika Daniels and Timothy Kenny, Leveraging Risk Management in the Sales and Operations Planning Process , MIT MLOG thesis, June 2008
 - Research Question: What risk management techniques can be brought into S&OP?
- Findings:
 - Use of range and scenario forecasts (to represent uncertainty)
 - Use tactics and techniques such as buffering (inventory, capacity, and time) and redundant sourcing strategies
 - Focus on important, strategic Products, Customers, and Suppliers using segmentation
 - Flexible supply (procurement) contracts

Larry Lapide, "Risk and the Planning Process", Supply Chain Management Review, October 2009

Larry Lapide, "How Buffers Can Mitigate Risk", Supply Chain Management Review, April 2008

Account for Uncertainties and Risks: Demand Volume & Variance versus Inventory Management Approach (from BASF)

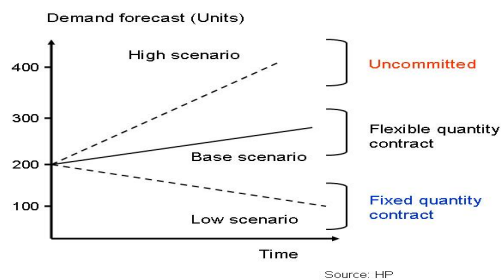


Coefficient of Variation = Standard Deviation of Period Sales or Forecast Error/Average Period Sales

Source: Alan L. Milliken, *Use of Volume-Variance Analysis to Develop Demand Planning Strategies*
L. Lapide, "Volume-Variance Analysis", *Journal of Business Forecasting*, Fall 2009

Account for uncertainties: HP's flexible procurement contracts using range forecasting

Demand Risk Influence on Procurement Contracts



Thank You

Questions

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