Best Practices in Improving Supply Chain Response Management

Steve Lykken, ICON-SCM
Mark David, SAP
Agenda

1. **Session Introduction**

2. Response Management Planning Cycle

3. Planning a Better Customer Response (Overview)

4. Strategies for Demand Prioritization

5. Case Studies
With Today’s Challenges
Heightened Focus on Response Mgmt..

OPERATE BETTER

COLLABORATE BETTER

DECIDE BETTER

leaders

Business Strategies

Days or Weeks
Personal Productivity
Functional Efficiencies

Complex

Business Networks
Linked Processes, Linked Businesses

Business Value
Leading Processes

Instant Real-time
Response Mgmt
What is Response Management?

Requires a solution that can quickly answer and respond to changes in the supply chain

How to answer critical SCM questions\what-if in 1-5 minutes such as....

- How can I fulfill an unexpected customer order?
- How can I support a proposed promotional offer?
- What orders are impacted by my inventory shortage?
- What is the most profitable way to allocate scarce inventory?
- How much excess inventory will I have if I make this part substitution?
- What orders from next quarter can I build and ship this quarter?
Key Take-Away(s) for Today’s Session

What We Plan to Accomplish

How do I:

Gain a clear definition, understanding situations in your business where response management is required

Understanding use cases, discussion around general response scenarios and industry specifics

Define priorities companies use when they have demand/supply mis-match

Understand key responses, appropriate action and how to incorporate

Understand how this would work with your existing solution landscape...
Open Discussion

Participant Introduction (Who You Are, What Do You Do and Who Do You Work For…)

Company Background

Level of Understanding
Definition and Scope of Response Management
### Characteristics to Effective Response Management

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fast</strong></td>
<td>Quick response</td>
</tr>
<tr>
<td><strong>Manages Changes</strong></td>
<td>Deal with changes based on rules, not manual</td>
</tr>
<tr>
<td><strong>Feasible</strong></td>
<td>Demand is matched to available supply</td>
</tr>
<tr>
<td><strong>Integrated</strong></td>
<td>Execute the response to planning (supply) and order management (commits)</td>
</tr>
</tbody>
</table>
Common Response Management Challenges

1. **Customer changes** either qty or request for new date
2. **Supply disruption**, quality issue in manufacturing, supplier delays…
3. Supply plans **not aligned** to most important demands
4. Cannot easily understand **impacts of changes**
5. When changes occur **hard to protect existing** customer **commitments**
6. Decisions done on phone, spreadsheets, in a conference room – cannot track
7. Plan response **too slow** to capture opportunities
Examples: Response Management Scenarios

**Unexpected Demand/ Customer Upside**

**Situation:** 2009, OEM is asked to respond to unexpected end of year demand. Best Buy asks multiple vendors to respond and commit to new demand orders.

**Criteria:** Speed of response, delivery date and price

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**Material Shortage, Coordinate BOM Change**

**Situation:** 2011 Japanese Tsunami, component plant impacted by Tsunami. What is the effect of more limited supply for next 4 – 6 weeks, can they get buy with limited supply, what alternatives do they have available?

**Criteria:** Run demand/supply matching, approved engineering change for alternative component, prioritize customer commitments

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**Increase in Promotional Demand**

**Situation:** Customer asks for 20% more promotional intake. Account team approves as forecast lift.

**Criteria:** Run impact analysis with packaging CM, internal ops and inventory availability, reduce manual links & lags
Functional Boundaries of Response Management Solutions (What Response Mgmt is Not…)

Response Management typically provides highly efficient demand/supply matching, re-planning and what-if. Some areas Response Management does not include:

1. Demand Forecasting
2. Execution Level ATP (Real-Time Order Commitment)
3. Detailed Production Level Scheduling
4. Deployment, Trans Load Building, VMI(Customer Centric)
5. Optimization Centric Supply Models
6. Inventory Management Policy Setting
Functional Boundaries of Response Management Solutions (Where Response Mgmt Helps…)

Proven Areas for Response Management

1. Short to Medium Term Demand/ Supply Matching and Simulation
2. Demand Change Analysis and Impacts
3. Constrained Supply (material or capacity level/ alternative analysis)
4. Customer Pull-In Analysis
5. Outsource Manufacturing Simulation Models
6. Product Introduction Planning and Change Analysis
7. Promotions – Demand Adjustment, Supply Impacts
As a Data Point - What is SAP Response Management?

Something changes in the supply chain all the time…

Supplier → Manuf → DC → Customer

- What orders are impacted by supply shortage?
- Can my supplier also support this change?
- Do I have alternative inventory options?
- How can I fulfill an unexpected order?
- What is most profitable way to allocate supply?
- What orders from next quarter can I ship now?

SAP Supply Chain Response Management

Responsive planning (in 1 – 3 minutes) and what-if analysis to ensure highly efficient Demand Prioritization, Demand/Supply Matching and Feasible Rescheduling
SAP Supply Chain Response Management
How Response Management Compliments Existing SCM Processes

SAP APO (Advanced Planning)
- Provides demand plan and forecast
  - Runs tactical supply plans
  - Global ATP for real-time order execution

SAP Supply Network Collaboration
- Extends supply requirements to suppliers
- Provides VMI requirements and demand

SAP Supply Chain Response Mgmt
- Operational re-planning, simulation and demand reprioritization
  - Sets allocation rules and amounts

SAP ERP
- Provides current demand and supply data for prioritization
- Receives updates & changes from SCRM

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<table>
<thead>
<tr>
<th>Scenarios</th>
<th>Description</th>
<th>Timeframe</th>
<th>Compliment Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Response Simulation and Re-planning</td>
<td>Re-planning engine that matches demand and supply, makes recommendations &amp; changes</td>
<td>Short – Mid Term</td>
<td>gATP, ERP, APO</td>
</tr>
<tr>
<td>2 Demand Prioritization and Management</td>
<td>Managing Customers Allocation Rules and Limits</td>
<td>Short – Mid Term</td>
<td>gATP</td>
</tr>
<tr>
<td>3 Advanced Backorder Processing</td>
<td>Rescheduling orders against fixed supply</td>
<td>Short Term</td>
<td>gATP</td>
</tr>
<tr>
<td>4 Feasible Supply Plan and Build</td>
<td>Tactical supply planning, master scheduling</td>
<td>Mid Term</td>
<td>APO, ERP, SNC</td>
</tr>
<tr>
<td>Determination (based on need)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Multi-Tier Visibility &amp; Analysis</td>
<td>Outsource Manufacturing - Offline analysis of potential changes to demand/supply (shadow planning)</td>
<td>Mid Term</td>
<td>SNC</td>
</tr>
</tbody>
</table>
WHY SAP SCRM – Backed by the Tightest Level of Commitment

- **LEVEL OF ENGAGEMENT**
  - **SAP SOLUTION CERTIFIED**
    - (Not an SAP Partner)
    - Integration with SAP Applications
    - Integration with SAP NetWeaver
    - Integration with BusinessObjects
    - Integration via Enterprise Services
    - Not a partner of SAP, but Vendor solution certified to integrate to SAP solution; Depth of integration depends on type of certification
  - **ENDORSED BUSINESS SOLUTIONS**
    - **ECOHUB**
      - Solution Marketplace for PARTNER EDGE partners
      - Partner solution on SAP solution map, endorsed to SAP customer base & joint marketing campaigns
  - **SOLEX**
    - **SOLUTION EXTENSION**: Partner solution on SAP pricelist & sold on SAP paper; Solution needs to undergo same validation and QA as SAP products
  - **PARTNER EDGE PARTNER**
    - Legal partner of SAP, solution SAP integration certified; Easy access of enablement content, tools & SAP experts
    - PartnerEdge partners can join SAP EcoHub Solution Marketplace (fee)
Four Keys to Effective Response Management

<table>
<thead>
<tr>
<th>Fast</th>
<th>Quick response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effective</td>
<td>Feasibly get the most from capabilities</td>
</tr>
<tr>
<td>Strategic</td>
<td>Steer to business objectives</td>
</tr>
<tr>
<td>Integrated</td>
<td>Execute the response</td>
</tr>
</tbody>
</table>
The Response Management Planning Cycle

**Demands**
- Customer demand
  - Want more, want less
  - Want the same
  - Want it sooner

**Review**
- Can I meet the demand?
  - What is on-time vs. late?
  - Where am I short materials?
  - Where am I short capacity?
  - Do I have excess?

**Supply**
- Can I resolve the problems?
  - Can I get more materials?
  - Can I get more capacity?
  - Can I eliminate excess?

**Response**
- What plan do I commit to?
  - Do I now have enough supply?
  - If not, what are the priorities?
  - How can I best use available materials and capacities?

**Demand**
- How fast?
- How effective?
- How strategic?
- How integrated?
Response Management needs a flexible and comprehensive planning model

- Very fast planning with easy and flexible modeling, e.g. non-ERP data
- Proposes delivery dates to customer demands from all levels of supply
- Proposes a finite supply plan based on materials and capacity constraints
- Flexible demand prioritization steers planning to business objectives
- What-if planning with powerful reporting and analysis
Quick response needs very fast planning performance

Planning performance benchmarks for SCRM response management

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Benchmark #1 Longer Term Response</th>
<th>Benchmark #2 Short Term Response</th>
</tr>
</thead>
<tbody>
<tr>
<td># Sites</td>
<td>12</td>
<td>2</td>
</tr>
<tr>
<td># Parts</td>
<td>124,000</td>
<td>30,000</td>
</tr>
<tr>
<td># BOM Records</td>
<td>444,000</td>
<td>100,000</td>
</tr>
<tr>
<td># POs</td>
<td>11,400</td>
<td>1,000</td>
</tr>
<tr>
<td>Plan Frequency</td>
<td>1 x day</td>
<td>30 to 50 x day</td>
</tr>
<tr>
<td>Sales Order Lines</td>
<td>61,000</td>
<td>10,000</td>
</tr>
<tr>
<td>Forecast Orders</td>
<td>100,000</td>
<td>n/a</td>
</tr>
<tr>
<td>Planning Run Time</td>
<td>&lt; 3 minutes</td>
<td>&lt; 30 seconds</td>
</tr>
</tbody>
</table>

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Review – what is the impact, are there issues, what to do?

Review impact on key metrics

Quickly determine the impact and problem areas

Materials plans & proposed actions

Capacity utilization & proposals

Proposed shipments to demand
Resolve - where do I have shortages & excess materials?

Do I have complete visibility?
  • Can I run fast what-if plan through my internal sites?
  • How about my external suppliers?

Where am I short?
  • Do I have supply in another site?
  • Can my supplier provide more?
  • Do I have alternate suppliers?

Where do I have excess?
  • Can I cancel excess-on-order?
  • Does another site need it?
  • Can I shape demand to use up?

ID and focus on the materials with the greatest impact on your response
Tellabs Visibility and What-if Response

End-to-end supply visibility and what-if response

CM-managed Supplier POs & Lead Times

Forecasts Orders What-ifs

Constrained Demand Plan & What-if Response

Raw Materials Flexibility

0-30 Days 20%  31-60 Days 30%  61-90 Days 50%

End-to-end planning runs in 3 minutes
Tellabs Shadow Planning Benefits

**Flexibility from Agility and Build Strategies**
Delivered an average 15-20% reduction in customer lead times
Moved from 97% build-to-forecast to 32% build-to-forecast
Expedited freight cost reduction

**Improved Cost Management from Visibility**
Improved E&O avoidance
Supply rebalancing amongst product lines and suppliers
Instant ECO effectivity date analysis

**Responsiveness from Enhanced “What-If” Capabilities**
Execute “What-If” scenarios in minutes
Respond to customers in hours instead of weeks
1-2% increase in revenues via pull-ins
Resolve – do I have enough capacity to meet demand?

What capacities should be modeled?
- What are my key internal capacities?
- How about my external suppliers?
- Labor, extra shifts, etc..?

Where am I short capacity?
- Where do I need more capacity?
- What will be delayed if I don’t resolve?
- Do I have alternative capacities?

Where do I have excess capacity?

Define and manage rough cut capacities that model your response flexibility
Resolve – aligning multiple capacities to the same plan

Aligning plans across multiple capacities can be a difficult challenge in response management.

This requires going back and forth between capacities, while also checking for materials availability.

This can be time-consuming and result in higher inventories and poor utilization.

The ability to quickly align production plans saves time and reduces costs.
Resolve – considering both materials and capacities

**PACK**

Days 1 2 3 4 5

Demand = 2,000
Due = wk 3

One day lead time

PACK pushed out due to MIX constraints

No capacity limit

**MIX**

Days 1 2 3 4

Capacity limit = 500

Some production pulled in earlier, then push out later, materials plans stay in sync

**Raw Materials**

<table>
<thead>
<tr>
<th></th>
<th>Needed</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feasible</td>
<td>500</td>
<td>500</td>
</tr>
</tbody>
</table>

Materials and capacities must be aligned to ensure a feasible response
Respond - with a completely aligned and efficient plan

SCRM end-to-end demand and planning in minutes
Highly efficient demand-supply matching

Critical Suppliers
Other Suppliers
Production & Distribution
Alternate sourcing
Product changes
Capacity planning

Flexible demand prioritization
Direct Ship
OEMs
Distributors
Retailers

Proposed purchase orders
Proposed production, distribution, and capacity plans
Proposed customer deliveries
Planning a Better Customer Response
# Standard sales order planning: plans to need date

<table>
<thead>
<tr>
<th>Sales Order #</th>
<th>Priority</th>
<th>Today</th>
<th>Week 1</th>
<th>Week 2</th>
<th>Week 3</th>
<th>Days Late</th>
</tr>
</thead>
<tbody>
<tr>
<td>SO_01</td>
<td>1</td>
<td></td>
<td>30</td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>SO_02</td>
<td>2</td>
<td>20</td>
<td>10</td>
<td>20</td>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>SO_03</td>
<td>3</td>
<td>10</td>
<td></td>
<td></td>
<td>10</td>
<td>14</td>
</tr>
<tr>
<td>Production Capability</td>
<td>20</td>
<td>30</td>
<td>20</td>
<td>20</td>
<td>10</td>
<td>14</td>
</tr>
</tbody>
</table>

Supply is allocated to sales orders by priority to the need date.

The two highest priority demands are on-time and the lowest is late.
Suddenly lose supply: What is the better response?

Standard sales order planning to need date.

<table>
<thead>
<tr>
<th>Order #</th>
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<th>Week 2</th>
<th>Week 3</th>
<th>Days Late</th>
</tr>
</thead>
<tbody>
<tr>
<td>Order_01</td>
<td>1</td>
<td></td>
<td>30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Order_02</td>
<td>2</td>
<td>20</td>
<td>10</td>
<td>20</td>
<td>20</td>
<td>7</td>
</tr>
<tr>
<td>Order_03</td>
<td>3</td>
<td>10</td>
<td></td>
<td>10</td>
<td>10</td>
<td>14</td>
</tr>
<tr>
<td>Production Capability</td>
<td>20</td>
<td>30</td>
<td>20</td>
<td></td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

Lose 10 units

SCRM plans to feasible date. Makes trades offs across demands to improve the response.

<table>
<thead>
<tr>
<th>Order #</th>
<th>Priority</th>
<th>Today</th>
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<th>Days Late</th>
</tr>
</thead>
<tbody>
<tr>
<td>Order_01</td>
<td>1</td>
<td></td>
<td>30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Order_02</td>
<td>2</td>
<td>20</td>
<td>10</td>
<td>20</td>
<td>20</td>
<td>7</td>
</tr>
<tr>
<td>Order_03</td>
<td>3</td>
<td>10</td>
<td></td>
<td>10</td>
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<td>20</td>
<td>30</td>
<td>20</td>
<td></td>
<td>20</td>
<td></td>
</tr>
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</table>

Lose 10 units
Customer upsides & pull-ins: Response by trial and error

Typical approach is to change Required Date and test what happens.

<table>
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<th>Days Late</th>
</tr>
</thead>
<tbody>
<tr>
<td>Order_01</td>
<td>1</td>
<td>10</td>
<td></td>
<td>10</td>
<td></td>
<td>-14</td>
</tr>
<tr>
<td>Order_02</td>
<td>2</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Production Capability</td>
<td>20</td>
<td></td>
<td>10</td>
<td></td>
<td></td>
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</table>

If supply is available, then order is pulled-in without any other impact.

If not enough supply, then other orders are pushed out (or de-committed)

<table>
<thead>
<tr>
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<th>Priority</th>
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<th>Week 2</th>
<th>Week 3</th>
<th>Days Late</th>
</tr>
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<tbody>
<tr>
<td>Order_01</td>
<td>1</td>
<td>10</td>
<td></td>
<td>10</td>
<td></td>
<td>-14</td>
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<td>Production Capability</td>
<td>10</td>
<td></td>
<td>10</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

How do you know if supply is available and if other orders will be pushed out? Only by trial-and-error. This is slow and risks de-commits.
Customer pull-ins: Respond faster without de-commits

SCRM: Keep required date the same, but set Earlier Requested Date (ERD) to pull-in date.

<table>
<thead>
<tr>
<th>Order #</th>
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<th>Week 2</th>
<th>Week 3</th>
<th>Days Late</th>
</tr>
</thead>
<tbody>
<tr>
<td>Order_01</td>
<td>1</td>
<td>(ERD)10</td>
<td></td>
<td>10</td>
<td></td>
<td>-14</td>
</tr>
<tr>
<td>Order_02</td>
<td>2</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
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<td>20</td>
<td></td>
<td></td>
<td>10</td>
<td></td>
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</tbody>
</table>

If supply is available, then order is pulled-in

If supply does not support a pull-in without de-commits, then order kept at required date

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<th>Today</th>
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<th>Week 2</th>
<th>Week 3</th>
<th>Days Late</th>
</tr>
</thead>
<tbody>
<tr>
<td>Order_01</td>
<td>1</td>
<td>(ERD)</td>
<td></td>
<td>10</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Order_02</td>
<td>2</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td>0</td>
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<td></td>
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</table>

Eliminates trial and error, allows for quick evaluation of opportunities without risk.
Global Consumer Electronics Brand

Challenges:
- 25,000 changing demands
- Slow response to change
- Poor delivery performance
- Frequent de-commits
- Lost opportunities for pull-ins and upsides impacted revenues

SCRM Solution:
- Plans in two minutes
- Powerful prioritization
- Highly efficient supply plan
- Protects existing commits
- Protects promotions
- Grant pull-ins with no de-commits
- Immediate what-ifs

Impact:
- 30% better on time deliveries
- Reduced order-to-cash
- Immediate response to upsides and pull-ins
- Better account visibility and communication
Realized Benefits of Response Management

Respond in minutes to hours, not days or weeks
Capture upsides for 1-2% higher revenues
Increased on-time delivery by up to 30%
Reduced inventories by over 20%
Reduced planning efforts by 25-50%
Open Discussion

Potential Scenarios for Response Mgmt

Current Challenges and Limitations

Discussion: Describe scenarios that would be good candidates for Response Management for your company/industry
Strategies for Demand Prioritization
## Typical Business Priorities for Response Management

<table>
<thead>
<tr>
<th>Business Priorities and Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Secure new business</td>
</tr>
<tr>
<td>2. Protect customer commit dates</td>
</tr>
<tr>
<td>3. Support promotions</td>
</tr>
<tr>
<td>4. Fair share distribution of supply</td>
</tr>
<tr>
<td>5. Differentiate service by customer tier</td>
</tr>
<tr>
<td>6. Launch new products</td>
</tr>
</tbody>
</table>
1. Prioritize based on any dimension of class, customer, product, and time

2. Create powerful customer service strategies:
   - Classify and prioritize previous commits ahead of new demands
   - Evaluate customer pull-in requests without risking de-commits
   - Differentiate service levels between tiers of customers or new products
   - Ensure promotions supply is stable
   - Ensure that one customer doesn’t take allocations from another

3. Produce insightful end-to-end pegging and supply planning reports
Classifying and Prioritizing Demands

Demand Analysis

Total Demand

Class 2 Demand

Class 1 Demand

Customer A

Demand Prioritization

Simple Prioritization
1. Class 1 (e.g. previously committed)
2. Class 2 (e.g. new)

More Advanced
1. Class 1, CO, Cust A, Prod X, Month 1
2. Class 1, CO, Cust B, Prod X, Month 1
3. Class 2, FC, Cust A, Prod Y, Month 2
4. Class 2, FC, Cust B, Prod Y, Month 2

Priorities may be based on any attribute of demand, including class, customer, product, and time dimensions

Demand Class is created as an attribute for demand prioritization

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Example of Prioritizing Previous Commits

Previously Committed Demand
Product A = 100 units  
Product B = 100 units

Priorities
1. PREVIOUS COMMIT  
2. NEW

Supply Plan
Inventory = 200 units  
PO #1 Wk 3 = 50 units  
PO #2 Wk 4 = 50 units

Current Demand
Product A
#1 100 units Wk1  
#3 50 units Wk1  
Product B
#2 100 units Wk2  
#4 50 units Wk2

Forecast Preprocessor

Priority Manager

Planning

Deliveries
Product A
#1: Week 1 100  
#3: Week 3 50  
Product B
#2: Week 2 100  
#4: Week 4 50

Classify Demand

Prioritize

Peg Demand to Supply

<table>
<thead>
<tr>
<th>Product</th>
<th>Demand</th>
<th>Qty</th>
<th>Classification</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product A</td>
<td>CO #1</td>
<td>100</td>
<td>PREVIOUS COMMIT</td>
<td>1</td>
</tr>
<tr>
<td>Product A</td>
<td>CO #2</td>
<td>50</td>
<td>NEW</td>
<td>3</td>
</tr>
<tr>
<td>Product B</td>
<td>CO #3</td>
<td>100</td>
<td>PREVIOUS COMMIT</td>
<td>2</td>
</tr>
<tr>
<td>Product B</td>
<td>CO #4</td>
<td>50</td>
<td>NEW</td>
<td>4</td>
</tr>
</tbody>
</table>

Pegging
Current Inventory
PO #1 Week 3  
Current Inventory
PO #2 Week 4
Fair Share Allocations

The goal is to evenly distribute scarce supply across customers

Based upon the fair share percentage, each supply receipt is split

Opportunities:

1. There is no consideration of demand priorities
   - Previous commits, promotions, top customers, etc.
2. Customer order patterns typically don’t match supply receipts
3. Process is highly manual and time-consuming

Fair Share Percentage
- Customer A = 50%
- Customer B = 50%

Expected Receipts
- Week 1: 50
- Week 2: 50

Fair Share Allocation
- Week 1: Cust A = 25, Cust B = 25
- Week 2: Cust A = 25, Cust B = 25
How allocating supply receipts may lead to a late bubble

At the aggregate level the patterns of demand and supply match, but not at the level of customer and channel

- Some inventory waits for demand = higher inventory
- Some demand waits for inventory = later deliveries
- At the end of the month, demand is expedited at higher costs

From a consumer electronics company
How to more efficiently achieve fair share with flexibility

Fair Share of Supply Receipts

<table>
<thead>
<tr>
<th>Week</th>
<th>Cust A</th>
<th>Cust B</th>
<th>A Supply</th>
<th>B Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>50</td>
<td>50</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>50</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>3</td>
<td>50</td>
<td></td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>50</td>
<td>25</td>
<td>25</td>
</tr>
</tbody>
</table>

Each receipt split 50%/50%

50 units are 2 weeks idle
50 units are 2 weeks late

SCRM “Fair Share” Allocation

<table>
<thead>
<tr>
<th>Week</th>
<th>Cust A</th>
<th>Cust B</th>
<th>Total Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>50</td>
<td></td>
<td>50</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td>50</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td>50</td>
</tr>
</tbody>
</table>

No demand is late
No inventory is idle

Fair share fixes supply without consideration of order patterns
SCRM approach meets fair share over time, but with more flexibility
The Fair Share Allocations Strategy with SCRM

Demand Analysis

Demand Prioritization

Prioritization Strategy
1. Class 1 – CO
2. Class 1 – Net Allocation
3. Class 2 – CO

Allocations are netted by orders, Netted allocations and orders are classified.

This strategy protects the remaining allocation for Customer A before supplying extra Customer B orders.
Example of the Allocations Target Approach

Current Month Allocations Target

- Customer A = 100 units
- Customer B = 100 units

Priorities

1. CLASS 1 CO
2. NET ALLOC
3. CLASS 2 CO

Supply Plan

- Inventory = 100 units
- PO #1 Mo 1 = 100 units
- PO #2 Mo 2 = 100 units

Order Dates

- Customer A
  #1 Today 100
  #2 Month 2100
- Customer B
  #3 Month 1 50
  Net Alloc Month1

Customer Orders

- Customer A
  #1 100 units
  #2 100 units
- Customer B
  #3 50 units

Demand Classification

Prioritize

Priority

1  2  3

Classify Demand

<table>
<thead>
<tr>
<th>Customer</th>
<th>Demand</th>
<th>Qty</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cust A</td>
<td>#1</td>
<td>100</td>
<td>CLASS 1 CO</td>
</tr>
<tr>
<td>Cust A</td>
<td>#2</td>
<td>100</td>
<td>CLASS 2 CO</td>
</tr>
<tr>
<td>Cust B</td>
<td>#3</td>
<td>50</td>
<td>CLASS 1 CO</td>
</tr>
<tr>
<td>Cust B</td>
<td>Net Alloc</td>
<td>50</td>
<td>NET ALLOC</td>
</tr>
</tbody>
</table>

Match Demand to Supply

Date | Pegging
--- | ---
Today | Current Inventory
Month 2 | PO #2
Month 1 | PO #1
Month 1 | PO #1
Example of Aligning Supply Network to Demand Priorities

Key Supply = 400

Netted Demand - North
Class 1 = 250
Class 2 = 150

Netted Demand - Global
Class 1 = 400
Class 2 = 350
Total = 750

Netted Demand - South
Class 1 = 150
Class 2 = 200

Factory

Netted Demand - North
Class 1 = 250
Class 2 = 150

Netted Demand - Global
Class 1 = 400
Class 2 = 350
Total = 750

Netted Demand - South
Class 1 = 150
Class 2 = 200

1 Peg to Class 1

2 Netted Demand - North
Class 1 = 250
Class 2 = 150

200
NE

50
SE

50
NW

150
SW

25%

3

Demand by Class
Total Demand

Class 1 = 200
Class 2 = 0
200 25%

Class 1 = 50
Class 2 = 150
200 25%

Class 1 = 50
Class 2 = 150
200 25%

Class 1 = 150
Class 2 = 50
200 25%

Class 1 = 200
Class 2 = 0
200 25%

Class 1 = 50
Class 2 = 150
200 25%

Class 1 = 150
Class 2 = 50
200 25%

On Time Delivery

<table>
<thead>
<tr>
<th>Allocation Rule</th>
<th>Class 1</th>
<th>Class 2</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>By Share of Demand</td>
<td>67%</td>
<td>71%</td>
<td>56%</td>
</tr>
<tr>
<td>By Demand Class</td>
<td>100%</td>
<td>0%</td>
<td>56%</td>
</tr>
</tbody>
</table>

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Tying it all together – The Western Digital story

About Western Digital Branded:

Rapidly growing business

Highly outsourced to 7 Contract Manufacturers across all regions

High diversity of end-products

Very short product life-cycles

Fast changing demand
BEFORE: Disparate Manual Planning Steps (2wk cycle)

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AFTER: Synchronized Plans (< 1wk cycle)
Western Digital Weekly Planning Process Overview
New Western Digital Planning Capabilities

Generate synchronized plans across the Supply Chain instantly
Unconstrained, semi-constrained and fully constrained
Considers both materials and capacity constraints
Considers alternative choices in materials and production locations

Very fast What-if planning, full re-plan < 2 min
Prioritization work-bench with three levels of demand classes
Capacity planning

Excellent reporting enables planners to take action, e.g.:
Excess and shortage reporting
Capacity load analysis

Advanced forecast netting strategies

Fully integrated with ERP system

System very user friendly
# Summary of Response Challenges Addressed with SCRM

<table>
<thead>
<tr>
<th>Response Capabilities</th>
<th>SCRM Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respond quickly</td>
<td>■ Fast planning in minutes</td>
</tr>
<tr>
<td></td>
<td>■ What-if scenarios and analysis</td>
</tr>
<tr>
<td>More effective response</td>
<td>■ Flexible planning model</td>
</tr>
<tr>
<td></td>
<td>■ Rough cut capacity planning</td>
</tr>
<tr>
<td></td>
<td>■ Efficiently align capacities and materials</td>
</tr>
<tr>
<td></td>
<td>■ Use-up alternative supplies</td>
</tr>
<tr>
<td>More strategic business response</td>
<td>■ Demand analysis and priority management</td>
</tr>
<tr>
<td></td>
<td>■ Respond to pull-in requests</td>
</tr>
<tr>
<td></td>
<td>■ More efficient ‘fair share’ allocations</td>
</tr>
<tr>
<td>Integrated response and execution</td>
<td>■ Two-way integration for execution</td>
</tr>
</tbody>
</table>
Response Management – where to get started?

What type of response management?
- Short term response to customer demand?
- Mid to longer term supply planning response and simulation?

What is the scope of planning? What answers are needed?
- Internal and external (supplier) production and distribution?
- Rough cut capacity planning – how rough or detailed?
- Model all parts or only some of the key parts?
- Alternative sourcing?

Where does the data come from and how frequently?
- Internal systems and external partners?

How are the results used to manage the business?
- Internal analysis and reporting?
- Integrated back into execution systems?
Questions?
Thank You!

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