The AFIT of Today is the Air Force of Tomorrow.

Demand Management
The Supply Chain Management Processes

- **Information Flow**
  - Tier 2 Supplier
  - Tier 1 Supplier
  - Manufacturer
  - Customer
  - Consumer/End user

**Product Flow**
- Purchasing
- Logistics
- Marketing
- Production
- R&D
- Finance

**Supply Chain Management Processes**
- Customer Relationship Management
- Supplier Relationship Management
- Customer Service Management
- Demand Management
- Order Fulfillment
- Manufacturing Flow Management
- Product Development and Commercialization
- Returns Management
What is Demand Management?

Demand management balances the customers’ requirements with the capabilities of the supply chain.

It is not just about forecasting!

Why Is It Important?

- It enables a firm to be more proactive to anticipated demand, and more reactive to unanticipated demand.

- It can have a significant impact on the bottom-line through:
  - Increased sales
  - Reduced inventories
  - Reduced logistics costs
  - Improved asset utilization

How Demand Management Affects EVA®

- Increase customer loyalty and repeat business
- Improve product availability
- Improve market share due to “fresher” product
- Reduce returns and markdowns
- Improve “share of customer”
- Lower cost of raw materials
- Reduce manf. costs due to improved scheduling
- Reduce storage and handling costs
- Fewer transshipments and lower redist. costs
- Fewer split orders
- Leverage transportation and freight consolidation
- Fewer expedited shipments
- Reduce non-cost-of-money components of inventory carrying costs
- Lower safety stocks
- Reduced obsolete inventory
- Reduce accounts receivable
- Improve asset utilization and rationalization
- Improve investment planning and deployment

Economic Value Added = \[ \text{Net Profit} - \frac{\text{Cost of Capital}}{\text{Total Assets}} \times \text{Capital Charge} \]

Sales - \[ \text{Gross Margin} \]

\[ \text{Total Expenses} \]

\[ \text{Profit from Operations} \]

\[ \text{Inventory} + \text{Other Current Assets} \]

\[ \text{Fixed Assets} + \]

\[ \frac{\text{Cost of Capital}}{\text{Total Assets}} \]

\[ \text{CGS} \]

\[ \text{Taxes} \]

\[ \text{Profit from Operations} \]

\[ \text{Gross Margin} \]

\[ \text{Sales} \]

\[ \frac{\text{Cost of Capital}}{\text{Total Assets}} \]

\[ \times \]

\[ \text{Capital Charge} \]

\[ \text{Total Assets} \]

\[ \text{Current Assets} \]

\[ \text{Inventory} \]

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Demand Management

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Strategic Sub-Processes

- Determine Demand Management Goals and Strategy
- Determine Forecasting Procedures
- Plan Information Flow
- Determine Synchronization Procedures
- Develop Contingency Management System
- Develop Framework of Metrics

Processes Interfaces

- Customer Relationship Management
- Supplier Relationship Management
- Customer Service Management
- Order Fulfillment
- Manufacturing Flow Management
- Product Development & Commercialization
- Returns Management

Operational Sub-processes

- Collect Data/Information
- Forecast
- Synchronize
- Reduce Variability and Increase Flexibility
- Measure Performance

Supply Chain Management: Processes, Partnerships, Performance, p. 91.
The Strategic Demand Management Process

Process Interfaces

- Customer Relationship Management
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- Customer Service Management
- Order Fulfillment
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Strategic Sub-Processes

1. Determine Demand Management Goals and Strategy
   - Review firm’s strategies
   - Study supply chain network and bottlenecks
   - Determine focus and goals for the process

2. Determine Forecasting Procedures
   - Determine level(s) of forecasts
   - Determine sources of data
   - Analyze different approaches
   - Choose the most appropriate and plan forecasting process

3. Plan Information Flow
   - Determine data requirements
   - Determine sources of data
   - Determine how forecast information will be shared
   - Consider how inputs and outputs can be used to shape business strategy

4. Determine Synchronization Procedures
   - Outline procedures for synchronization
   - Determine long-term planning requirements
   - Examine supplier/manufacturing capabilities
   - Determine allocation procedures

5. Develop Contingency Management System
   - Develop list of potential interruptions to supply or drastic changes in demand
   - Determine event response procedure for each possible event

6. Develop Framework of Metrics
   - Link demand management performance to EVA
   - Determine appropriate metrics and set goals

Different Types of Products…

Hydro-electric power, some food produce

Telecom, high-end computers, semiconductors

Grocery, basic apparel, food, oil and gas

Fashion apparel, computers, music

require different supply chain strategies

<table>
<thead>
<tr>
<th>Demand Uncertainty</th>
<th>Supply Uncertainty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
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<tr>
<td>Risk-hedging supply chains</td>
<td>Efficient supply chains</td>
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<td>Agile supply chains</td>
<td>Responsive supply chains</td>
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Forecasting Approaches

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Air University: The Intellectual and Leadership Center of the Air Force

Aim High…Fly - Fight - Win

Forecasting Approaches

- **Make-to-Order Environment**
- **People-Driven Forecasts**
- **Data-Driven Forecasts**

Supplier and customer both generate forecasts at the SKU level, and enter them into a database on the internet.

The system compares the forecasts and flags any discrepancies over a pre-prescribed level.

The differences are resolved:

- two sides work together, typically electronically, or
- rule-based systems are put in place.
The Strategic Demand Management Process

Process Interfaces

Customer Relationship Management
Supplier Relationship Management
Customer Service Management
Order Fulfillment
Manufacturing Flow Management
Product Development & Commercialization
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Synchronization

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- Forecast
- Marketing
- Finance
- Demand Execution Plan
- Manufacturing & Sourcing
- Logistics
- Distribution Capabilities
- Manufacturing Capabilities
- Supply Capabilities

The Strategic Demand Management Process

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The Operational Demand Management Process

- Collect historical demand
- Collect sales/marketing information
- Collect customer information – CPFR/VMI

- Analyze data
- Develop forecasts
- Track errors and provide feedback

- Identify and plan within capacity constraints
- Determine confidence intervals for forecasts
- Develop aggregate demand execution plan
- Balance risk with financial constraints
- Plan rough-cut capacity for new products

- Identify root causes of variability
- Work to reduce demand variability
- Determine how much flexibility is required
- Identify opportunities to increase flexibility
- Work to increase flexibility

- Calculate process metrics
- Link metrics to EVA

Operational Sub-Process #4
Reduce Variability and Increase Flexibility

- Identify root causes of variability
- Work to reduce demand variability
- Determine how much flexibility is required
- Identify opportunities to increase flexibility
- Work to increase flexibility
## Causes of Demand Variability

“The mean is mean but the variability is meaner”

<table>
<thead>
<tr>
<th>Cause</th>
<th>Possible Solution</th>
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<tbody>
<tr>
<td>Consumer promotions</td>
<td>Plan promotions collaboratively with customers</td>
</tr>
<tr>
<td>Sales metrics</td>
<td>Design consistent metrics that avoid actions such as end-of-quarter loads</td>
</tr>
<tr>
<td>Credit terms</td>
<td>Revise credit terms with customer input to ensure that the terms of sale are not negatively affecting purchase patterns</td>
</tr>
<tr>
<td>Pricing/Incentives</td>
<td>Work with sales/marketing to only offer incentives that truly increase long-term sales</td>
</tr>
<tr>
<td>Minimum order quantities</td>
<td>Assure that all costs are included when calculating the appropriate minimum order size</td>
</tr>
<tr>
<td>Long distribution channels</td>
<td>Incorporate demand volatility into network design decisions</td>
</tr>
<tr>
<td>Seasonality</td>
<td>Find alternative channels that might fill-in demand between the peaks</td>
</tr>
<tr>
<td>Amplification of demand</td>
<td>Find ways to get downstream demand signals</td>
</tr>
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</table>

Ways to Increase Flexibility

- Introduce postponement
- Introduce agile manufacturing practices
- Standardize parts
- Multi-source
- Reduce lead times
- Pool inventory
- Stratify customers
- Implement VMI
The Operational Demand Management Process

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4. **Reduce Variability and Increase Flexibility**
   - Identify root causes of variability
   - Work to reduce demand variability
   - Determine how much flexibility is required
   - Identify opportunities to increase flexibility
   - Work to increase flexibility

5. **Measure Performance**
   - Calculate process metrics
   - Link metrics to EVA
Conclusions

The AFIT of Today is the Air Force of Tomorrow.

- Demand management aims to match demand with the capabilities of the supply chain.

- It is about more than forecasting; it also includes synchronizing, contingency management, reducing demand variability and increasing system flexibility.

- It can have significant impact on the profitability of the firm and its customers and suppliers.