

A. G. RAYMOND & COMPANY
Incorporated

Management and Technical
Solutions for the Furniture Industry



Meeting The Challenge

American Furniture Manufacturers Association
Manufacturing Division Meeting
Hilton Head, SC
24 August 2001

The Typical Wood Furniture Plant

A casegoods plant with...

- > Annual Production \$36 million
- > Product Line 375 SKUs

faces a huge product engineering challenge...

- > Average Parts per SKU 25
- > Parts Standardization 4%
- > Discrete Parts 9,000
- > Product Life 3 years
- > New Products per Year 125
- > New Discrete Parts per Year 3,000

The Typical Wood Furniture Plant

And a complex manufacturing process...

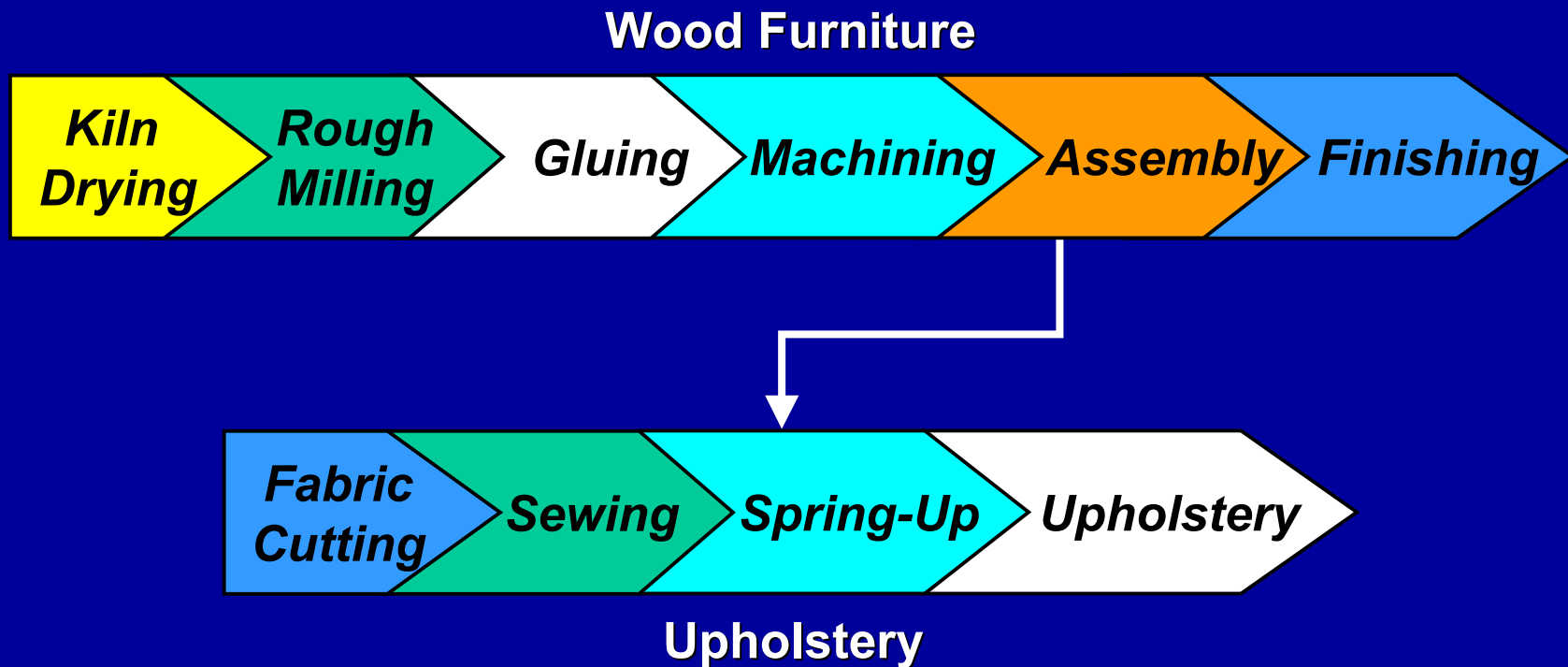
- > Average Price per Unit \$300
- > Annual Unit Production 120,000

when cutting size is small...

	<u>Per Year</u>	<u>Per Day</u>
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Furniture Technology

Making furniture requires the mastery of a wide range of technologies...



U.S. Producers' Results

Given the low level of capital investment, it's no wonder domestic producers have experienced...

- Low Labor Productivity
- High Inventories

- High Material Costs
- Inconsistent Quality

**Low
Profits**

**Slow
Delivery**

**Dissatisfied
Shareholders**

**Dissatisfied
Customers**

Alternative Responses

Today U.S. furniture producers can meet the competitive challenge by...

	<u>U.S.</u>	<u>Global</u>
<i>Re-Tool Existing Plants</i>	<input checked="" type="checkbox"/>	
<i>Build New Plants</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<i>Acquire Plants/Producers</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<i>Partner with Other Producers</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<i>Close Plants</i>	<input checked="" type="checkbox"/>	
<i>Exit the Business</i>	<input checked="" type="checkbox"/>	

But time is of the essence!!

Alternative Responses

For many U.S. plants, time has run out...



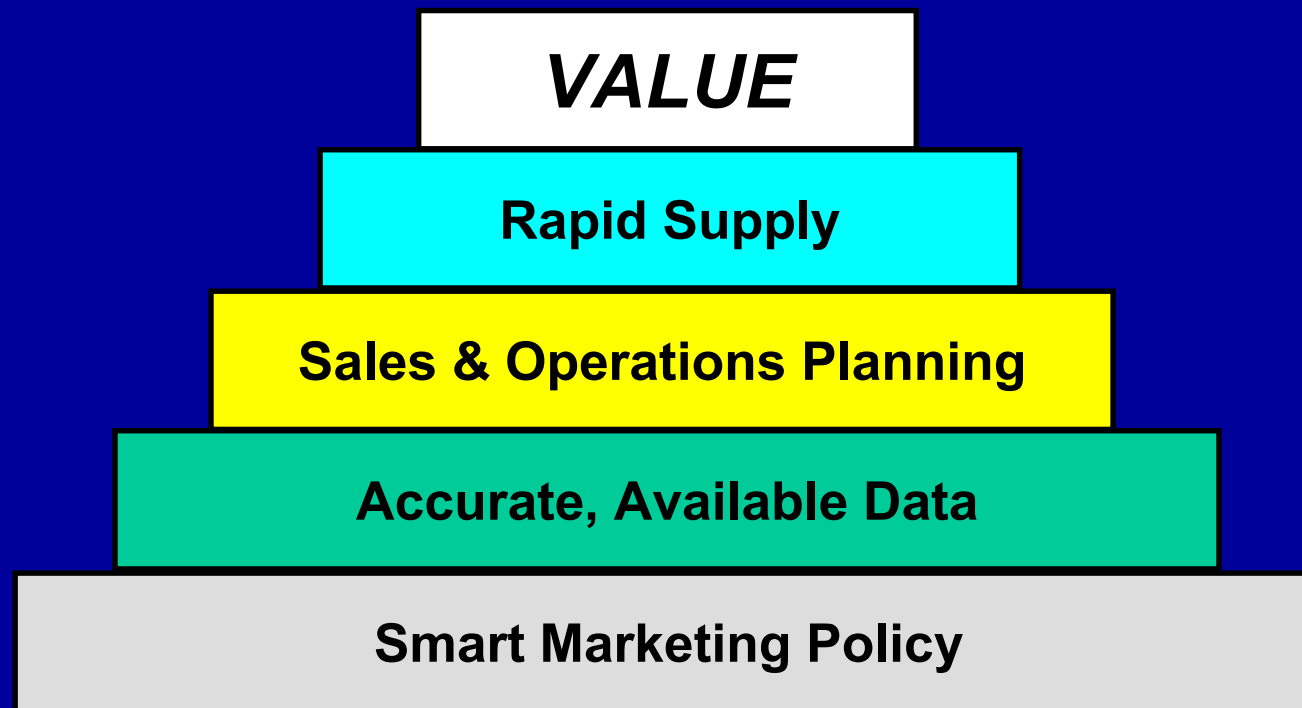
The Industry Challenge

Your supply chain must deliver VALUE...

***The Right Product **at** The Right Time **at**
The Right Price **to** The Right Customer***

Back To Basics

To satisfy that goal furniture companies must build a foundation of best practices...



Inventory – A Necessary Evil

Complexity and time force the furniture industry to maintain inventories of key components and/or finished goods...

Product

Casegoods

Process Design

Build To Stock

Critical Factor

Process time exceeds delivery promise.

Upholstery

Build From Stock

Fabric replenishment exceeds delivery promise

Marketing Policy

Smart
Marketing Policy

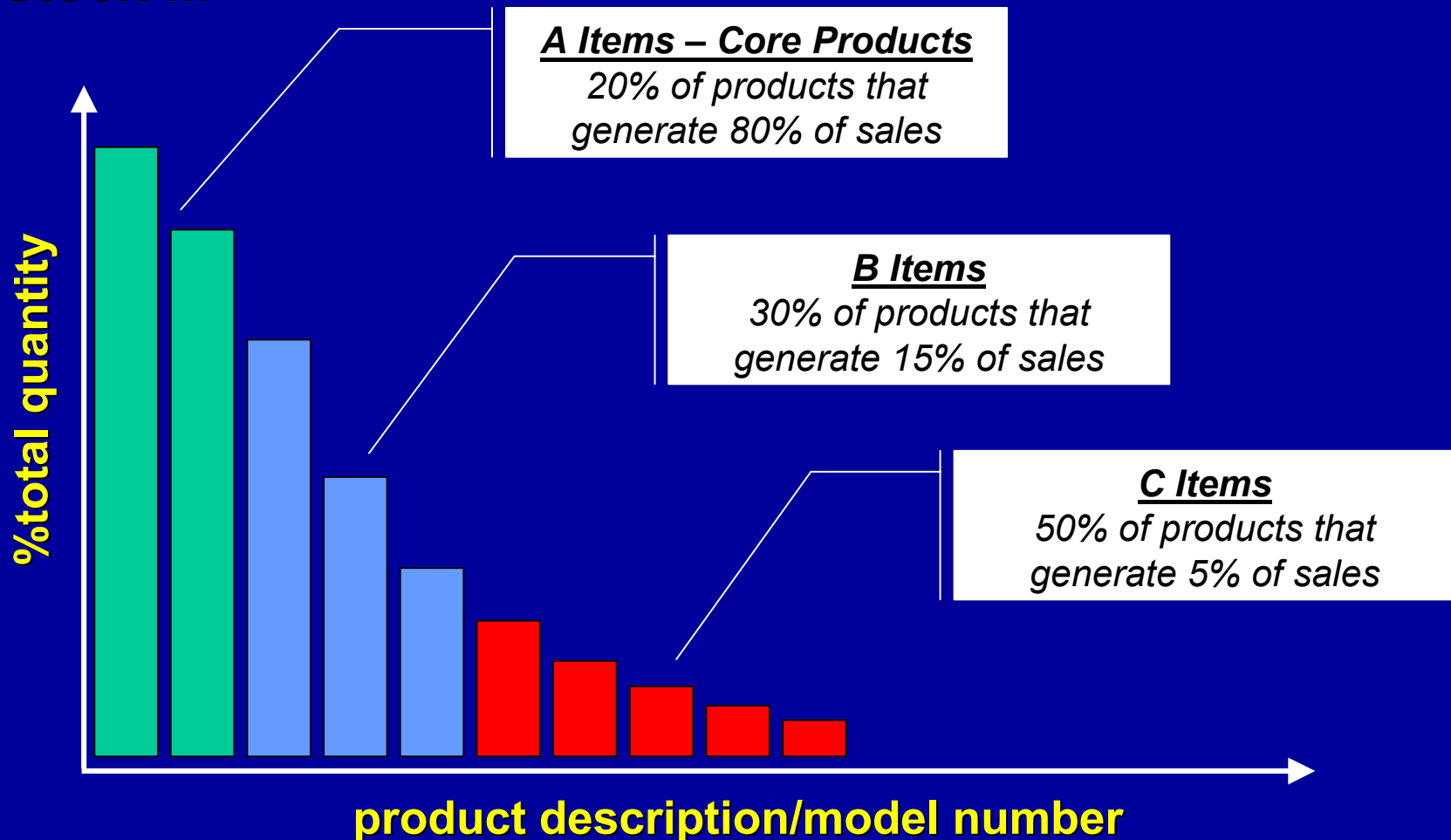
Management can minimize the 'stock' part of build-to-stock and build-from-stock process models...

Key Ingredients

- *Standardization and modularity*
- *Focus on fast selling, high volume SKUs*
- *Rules for purging slow selling SKUs*
- *Product testing/other market research methodologies*

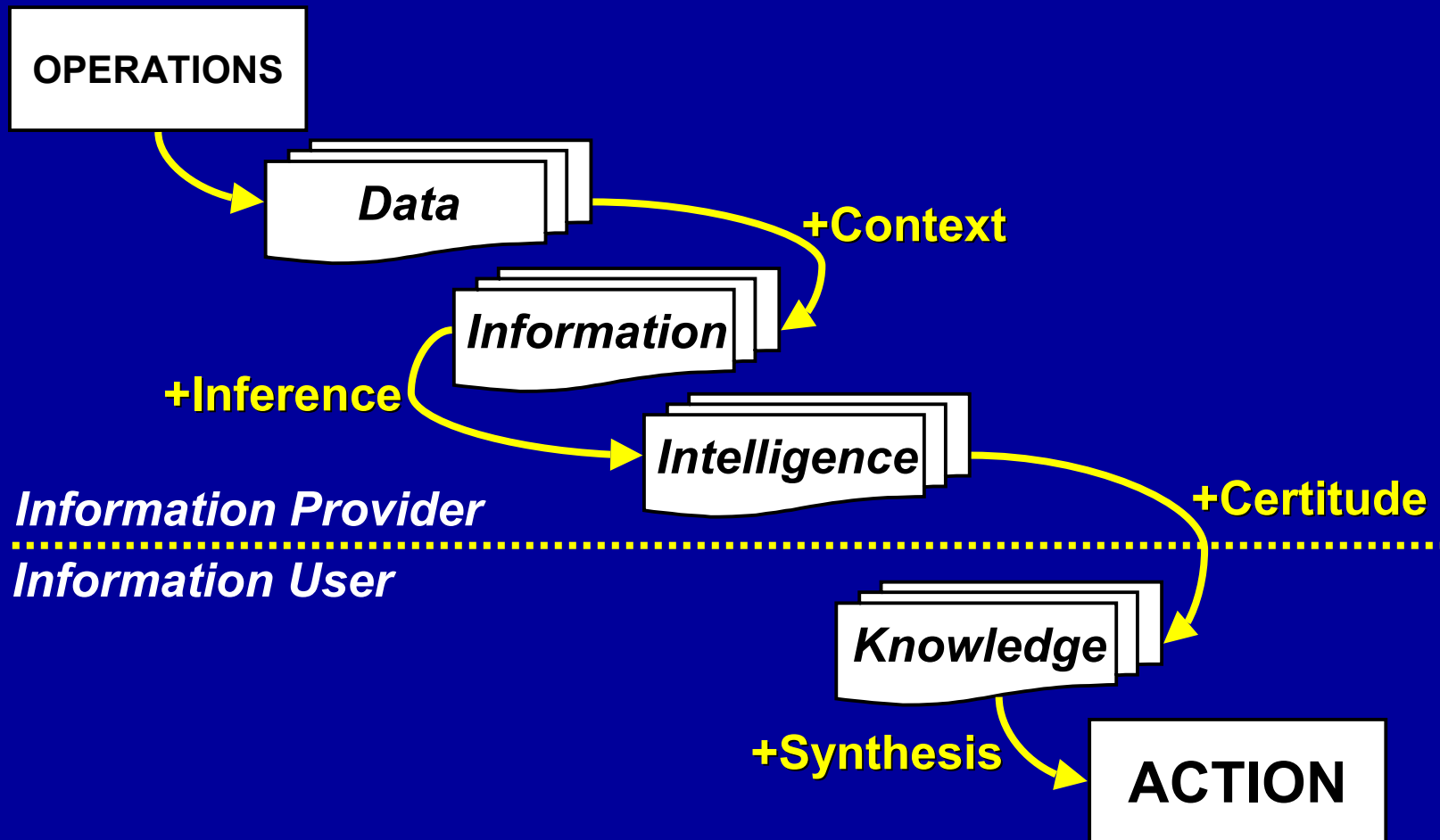
Who To Sell – What To Sell

Focusing on core products and customers minimizes 'stock'...



Data

Data are the basis of **KNOWLEDGE** and **ACTION**...



Data Requirements

**Accurate,
Available Data**

Data enables good decision making...

Key Ingredients

- ***Sales History – Two years minimum***
 - ***By SKU in units and \$'s***
 - ***By Customer***
- ***Inventories on Hand by Item***

Data Requirements

Accurate,
Available Data

and...

Key Ingredients

- ***Bills of Materials***
 - ***Yields***
 - ***Attrition Rates***
- ***Process Routings***
 - ***All Activities in Correct Sequence***
 - ***Reasonable Set-Up & Run Times***

Sales & Operations Planning

**Sales & Operations
Planning**

**Three interdependent tools that turn
data into knowledge...**

- *Systematic Forecasting*
- *Smart Inventory Planning*
- *Logical Master Scheduling*

**... that tell you what to make, how many to make, and
when to make it.**

Forecasting

Systematic Forecasting

Regular mathematical forecasting of demand minimizes the ‘stock’ part of *build-to-stock* and *build-from-stock* process models...

Key Capabilities

- *Projects demand at the SKU level*
- *Uses early sales data*
- *Employs multiple forecast methods*
- *Considers sales ‘events’*
- *Tracks event history by customer*

“The best way to manage your supply chain is to know your demand chain.”

Inventory Planning

Smart Inventory Planning

Inventory performance is pre-determined by policy decisions and plant capabilities ...

Key Capabilities

- *Classifies SKUs by sales performance*
- *Considers replenishment frequency at the SKU level*
- *Determines order size by SKU*
- *Considers customer service promise*
- *Sets safety stock requirements by SKU*

“Judging inventory performance by turns alone is simply wrong.”

Master Scheduling

Logical Master Scheduling

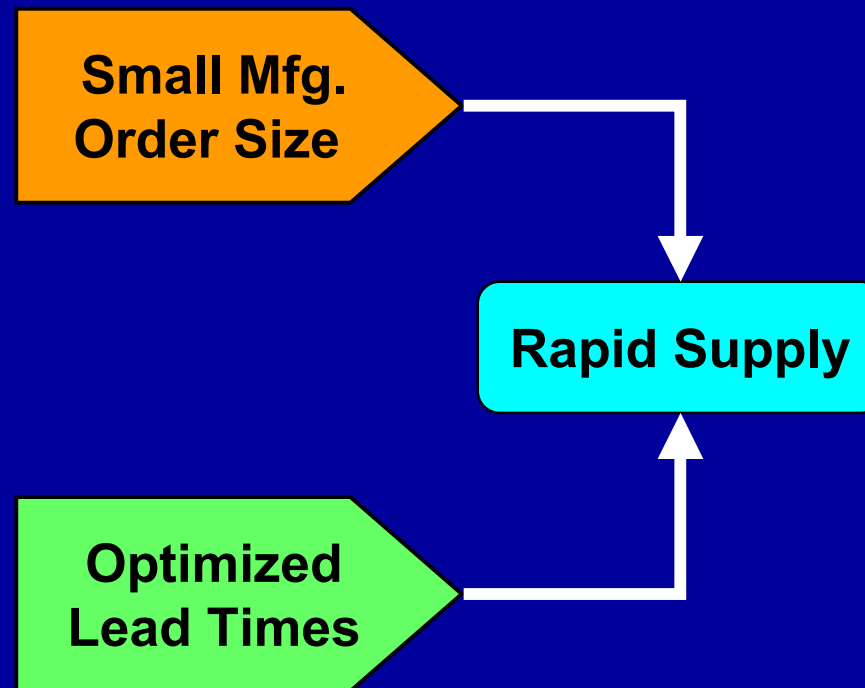
A critical step is planning the key due date for an order...

Key Capabilities

- *Establishes first available due date*
- *Considers plant or line capacity*

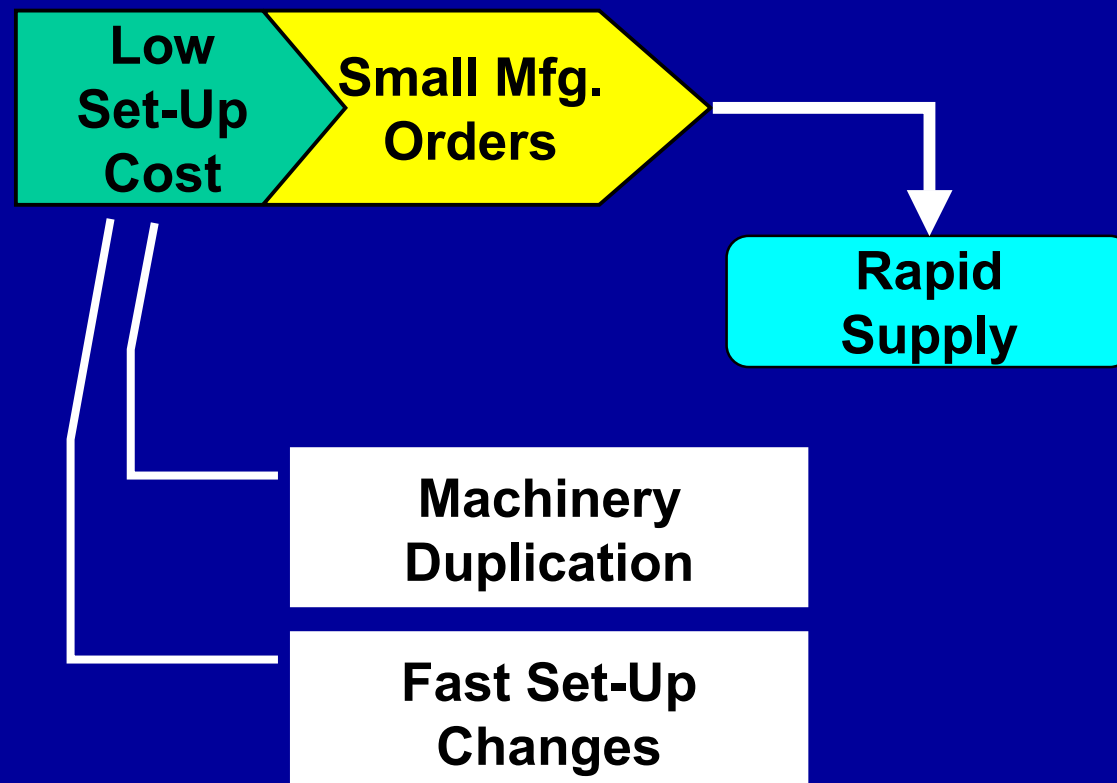
Rapid Supply

On-time and complete fulfillment of customers' orders is abetted by *timely processing in the plant.* Low, yet economic order quantities and minimal throughput time are critical to *fast throughput...*



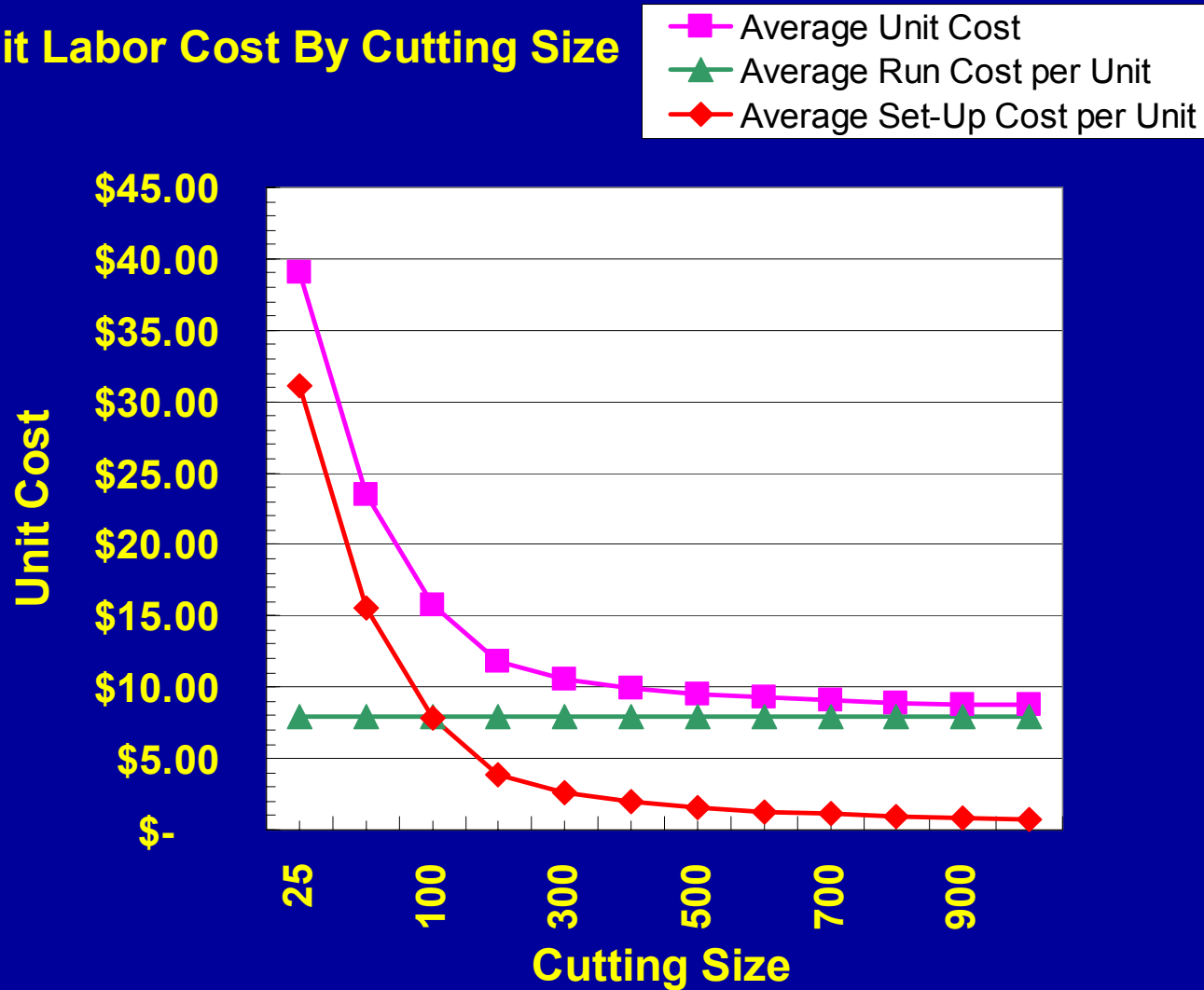
Small Order Quantities

Producing small orders economically requires low set-up costs...



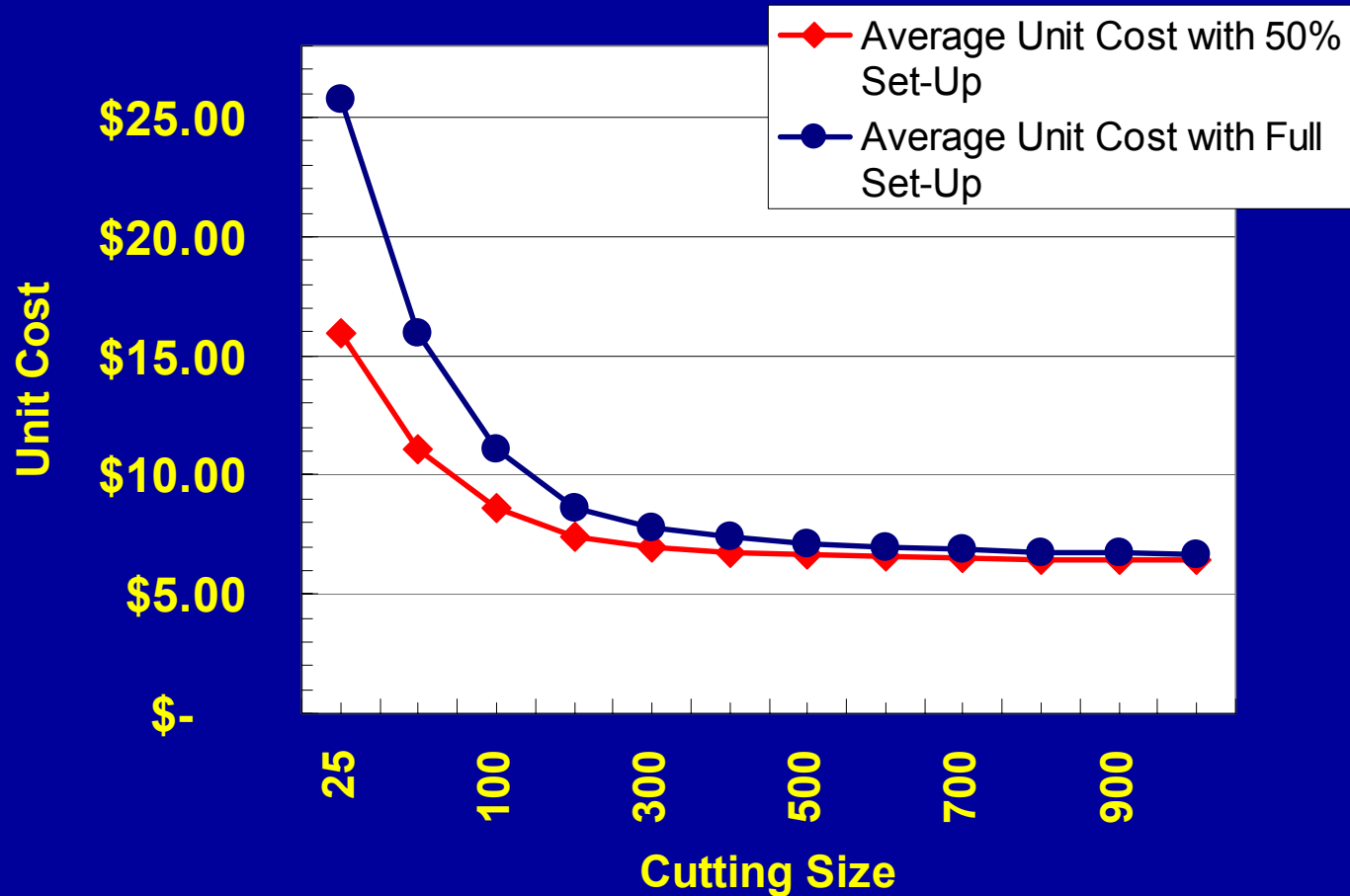
Set-Up Economics

Unit Labor Cost By Cutting Size



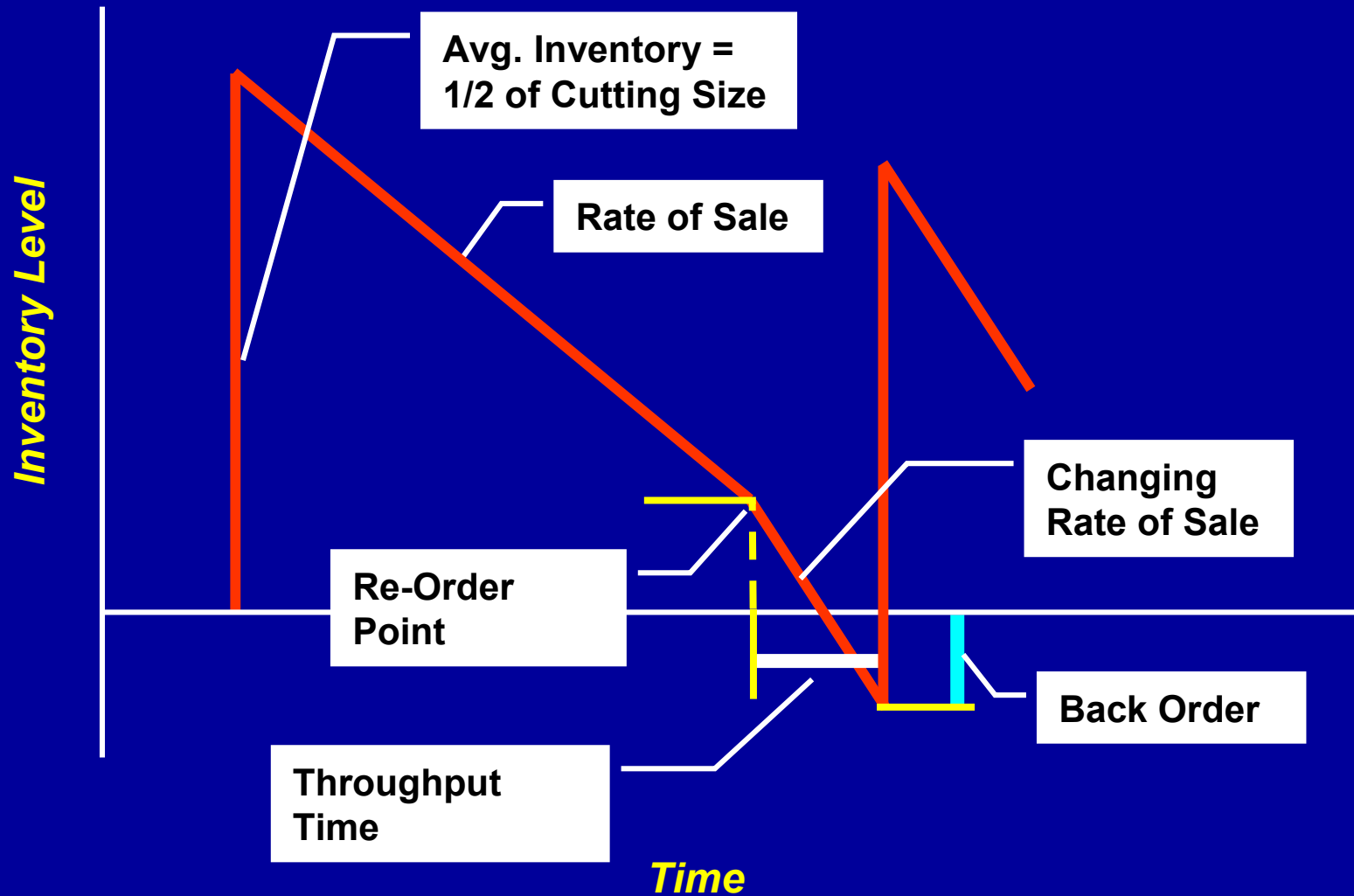
Fast Set-Ups > Smaller Cuttings

Unit Labor Cost By Cutting Size



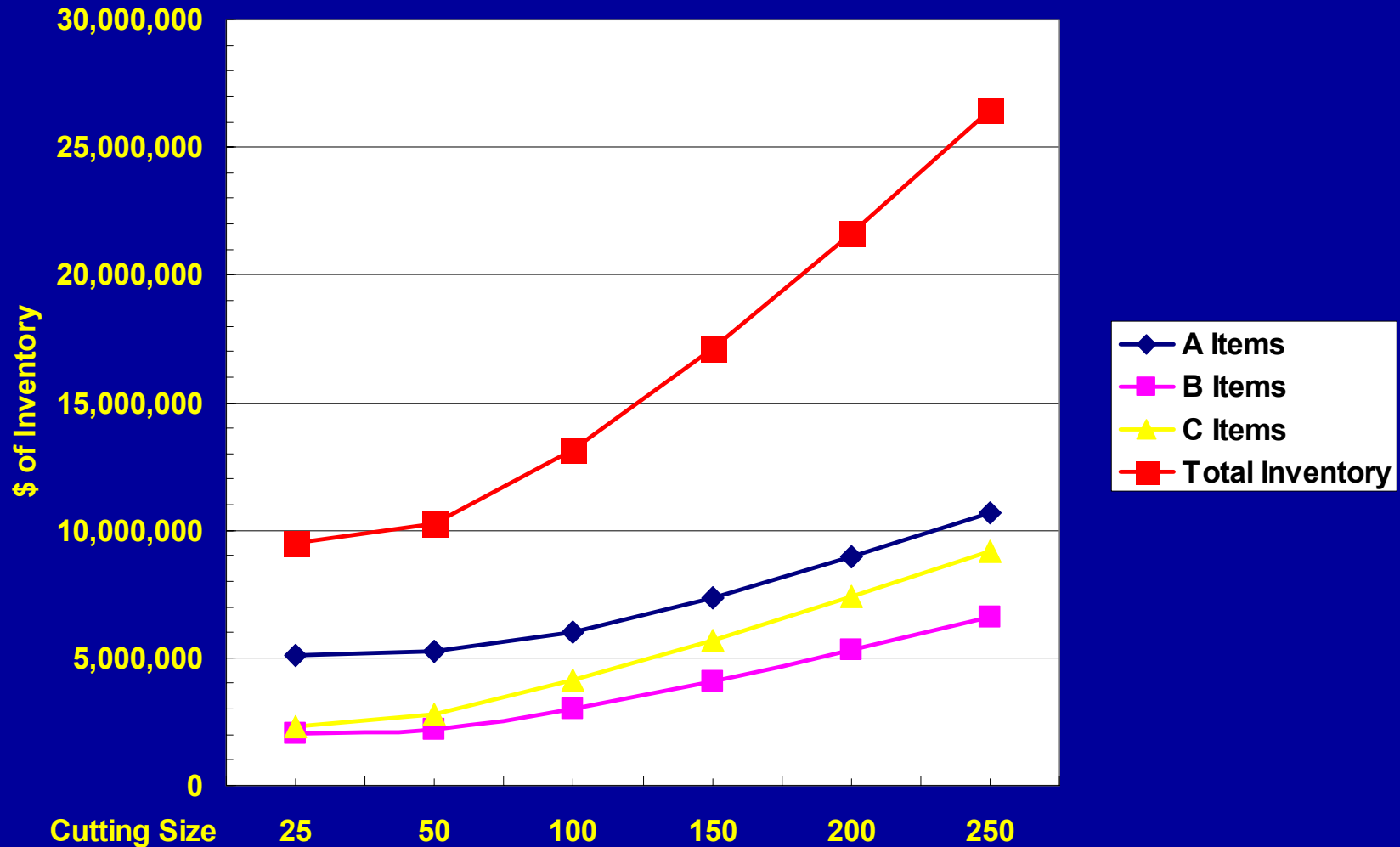
A Primary Inventory Driver

Order size is a primary driver of 'stock' levels...



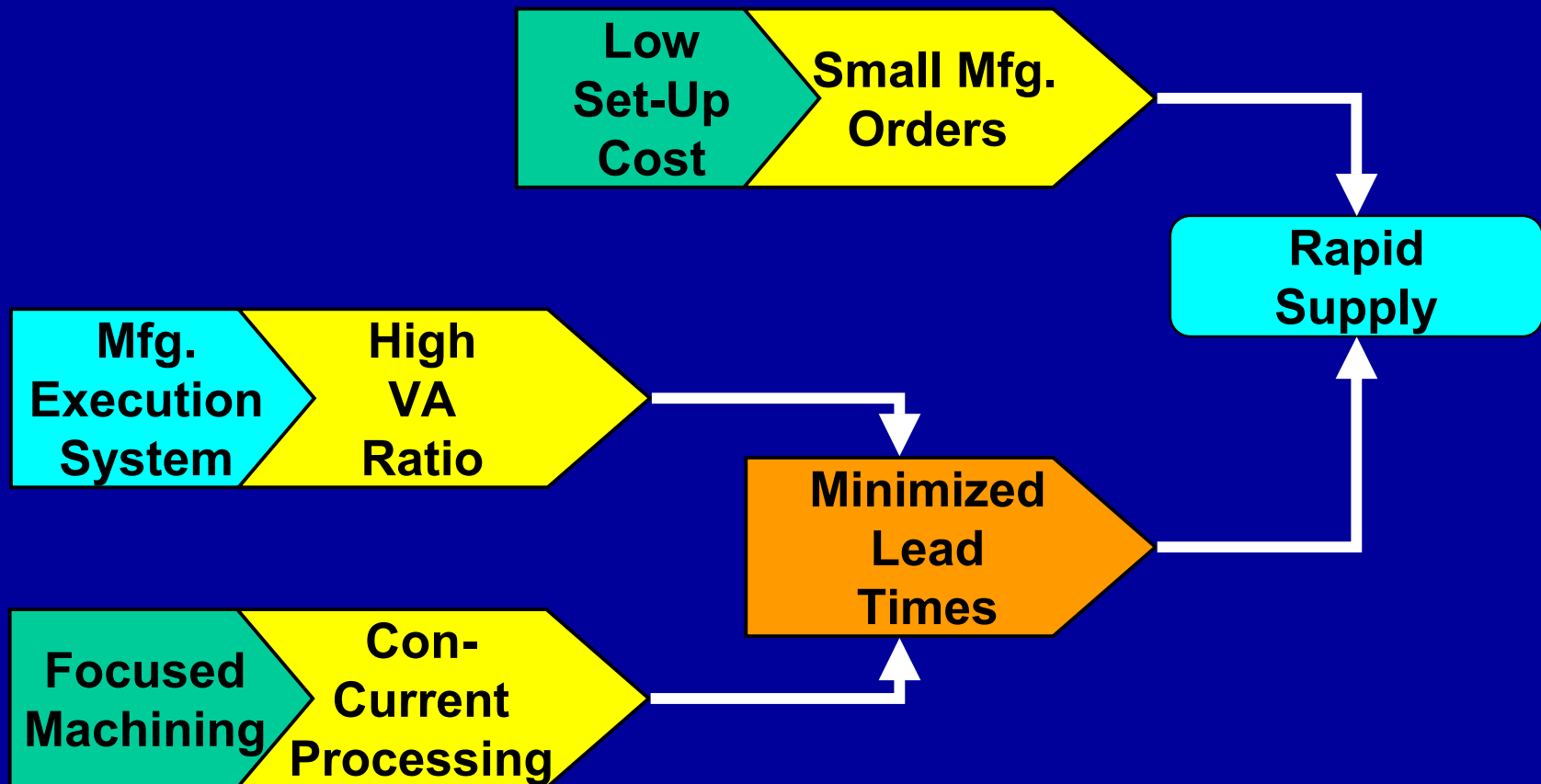
Inventory Relationship To Cutting Size

Finished Goods Inventory By Cutting Size



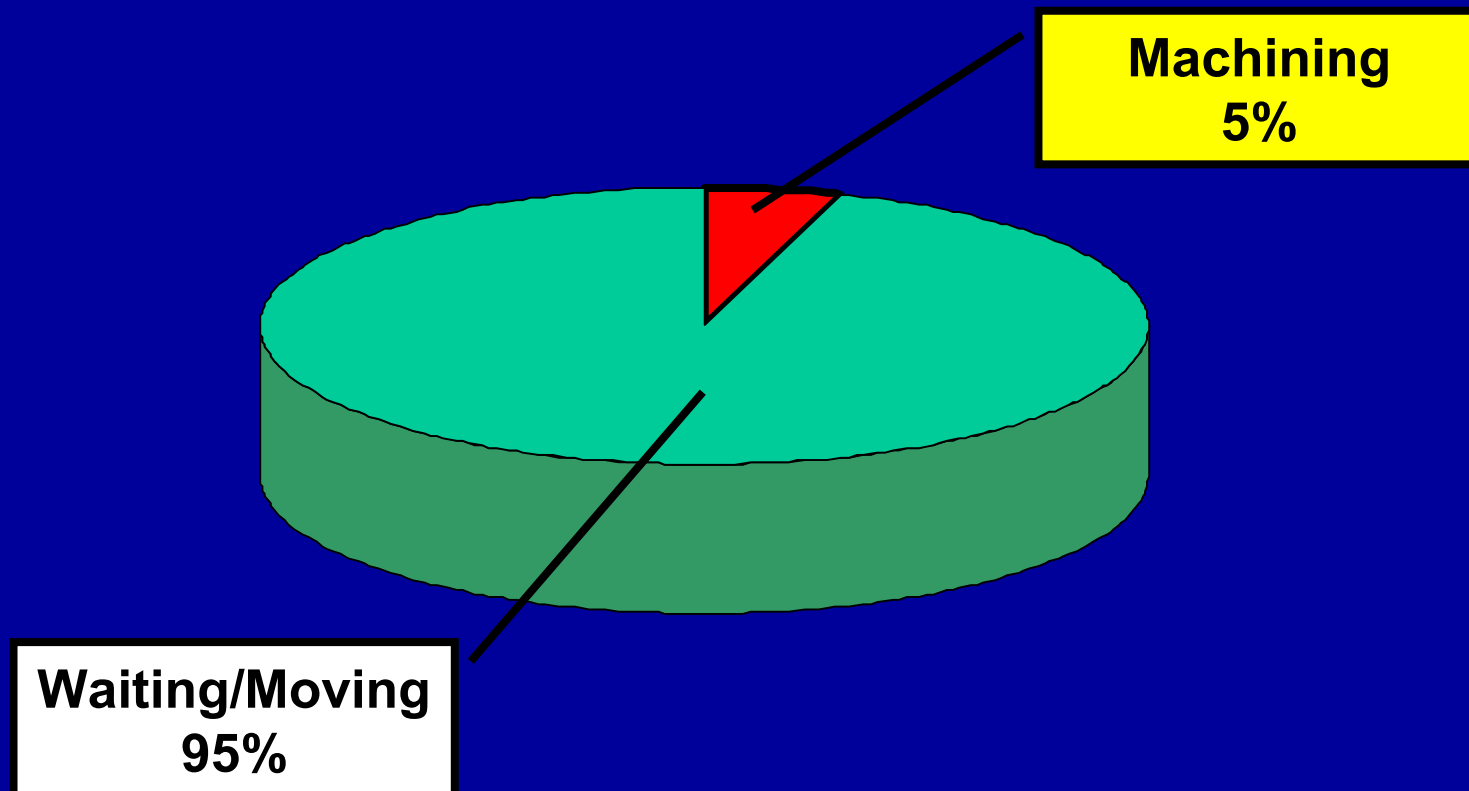
Lead Times

Minimizing delays between each step in the production sequence is also critical...



High Value-Added Ratio

Being on schedule reduces the amount of time spent in the plant when no value is being added to your product...



Manufacturing Execution

**Mfg. Execution
System**

**Optimizing throughput time requires
a computerized shop floor control
system...**

Key Capabilities

- ***Infinite Capacity Scheduling Logic***
- ***Back Scheduling from Due Date***
- ***Real-Time Work Center Schedules***
- ***Load Planning***

Benefits

These operating fundamentals offer numerous benefits...

- ***Reduced inventories***
- ***Improved capacity utilization***
- ***Less plant space***
- ***Shorter throughput time***
- ***Reduced scrap and rework***
- ***Higher labor productivity***

Opportunities

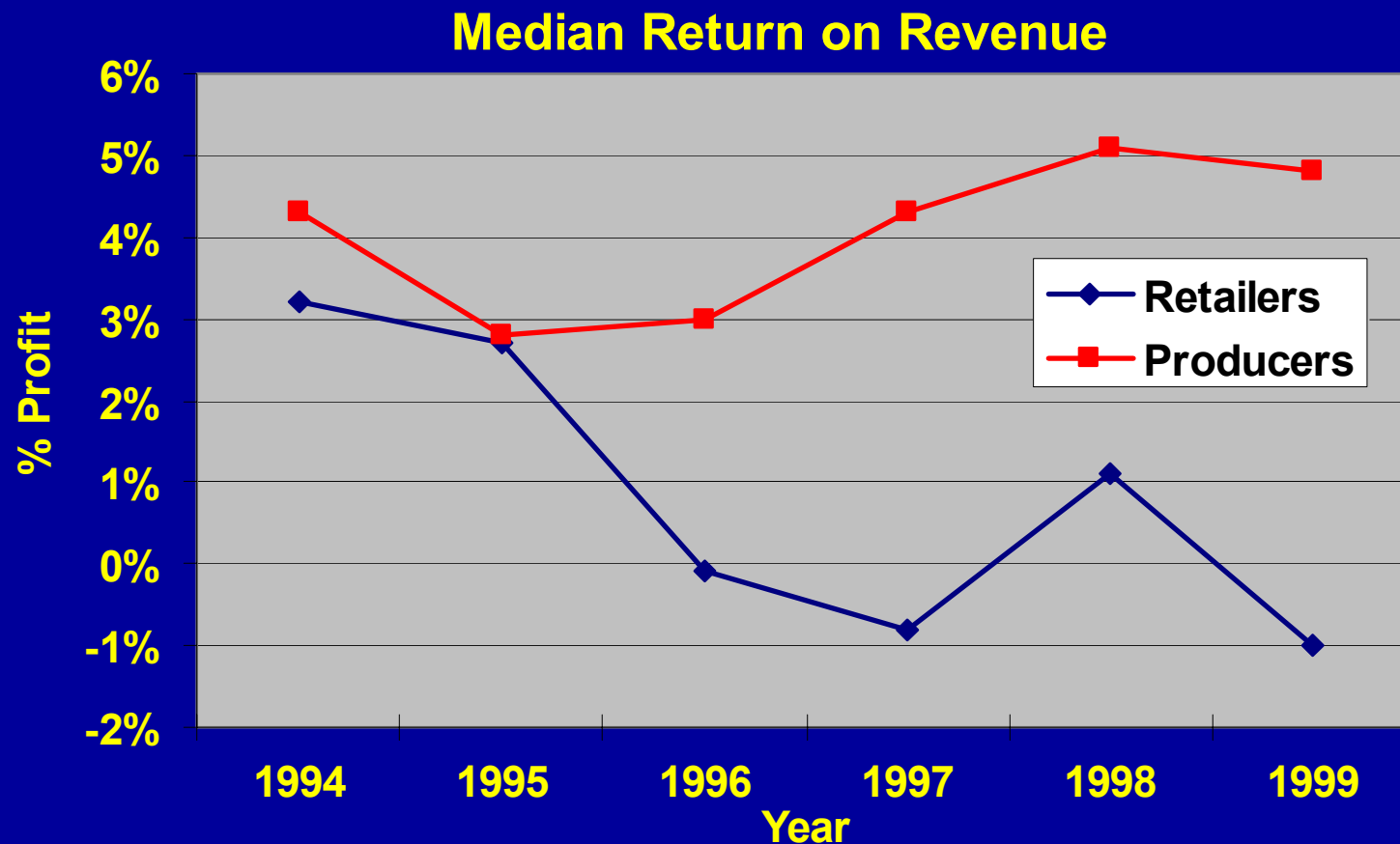
A \$36 million casegoods plant can achieve substantial returns by returning to basics...

- ***A 1-day inventory reduction is worth \$86,250.***
- ***The cost of 1 production hour is worth \$6,400.***
- ***A 10% improvement in productivity is worth \$1,800,000 in added gross profit.***
- ***A 5% reduction in waste and scrap is worth \$720,000 in added gross profit.***

And thousands of satisfied customers.

The Critical Strategic Issue

The traditional retail channels are broken...



The Critical Strategic Issue

Over 5% of furniture retail 'capacity' is gone or going...

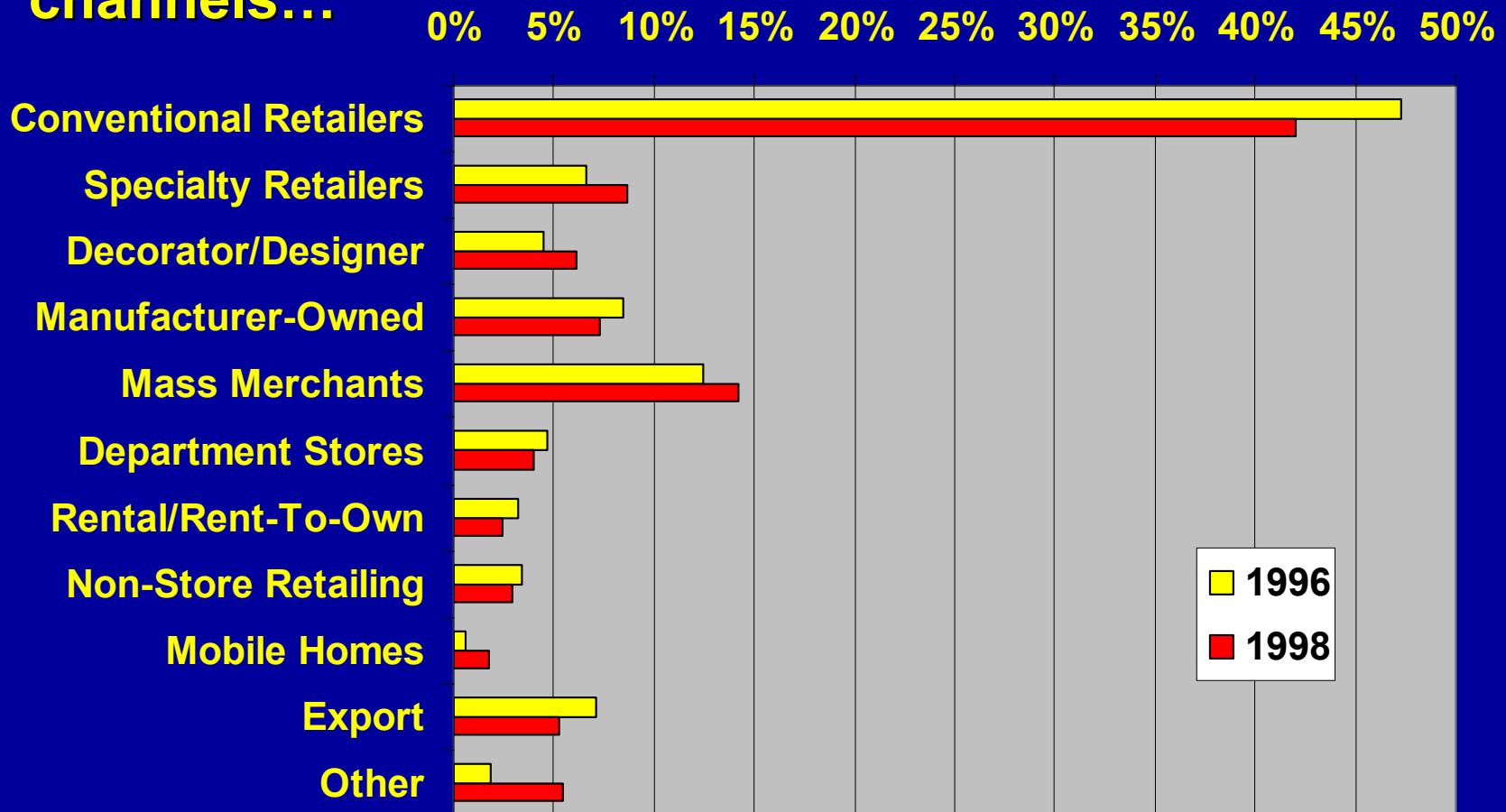
Retail Furniture Bankruptcies

Retailer	Filing Date	Peak Volume (\$ millions)	Peak Year	Furniture Today Rank*	No. of Stores
Roberd's	1/00	\$342	1997	19	24
This End Up	2/00	152	1997	20	152
Heilig-Meyers	8/00	1,729	1999	1	1,253
Wards	12/00	506	1999	18	252
Krause's	7/01	155	2000	40	101
Homelife	7/01	680	2000	8	133
Bedroom Superstore	7/01	60	2000	88	19
Total		\$3,624			1,934

* Wards rank from Furniture Today Top 25 Furniture Retailers. All others from Furniture Today Top 100 Furniture Stores

The Critical Strategic Issue

And more furniture is being sold in alternative channels...



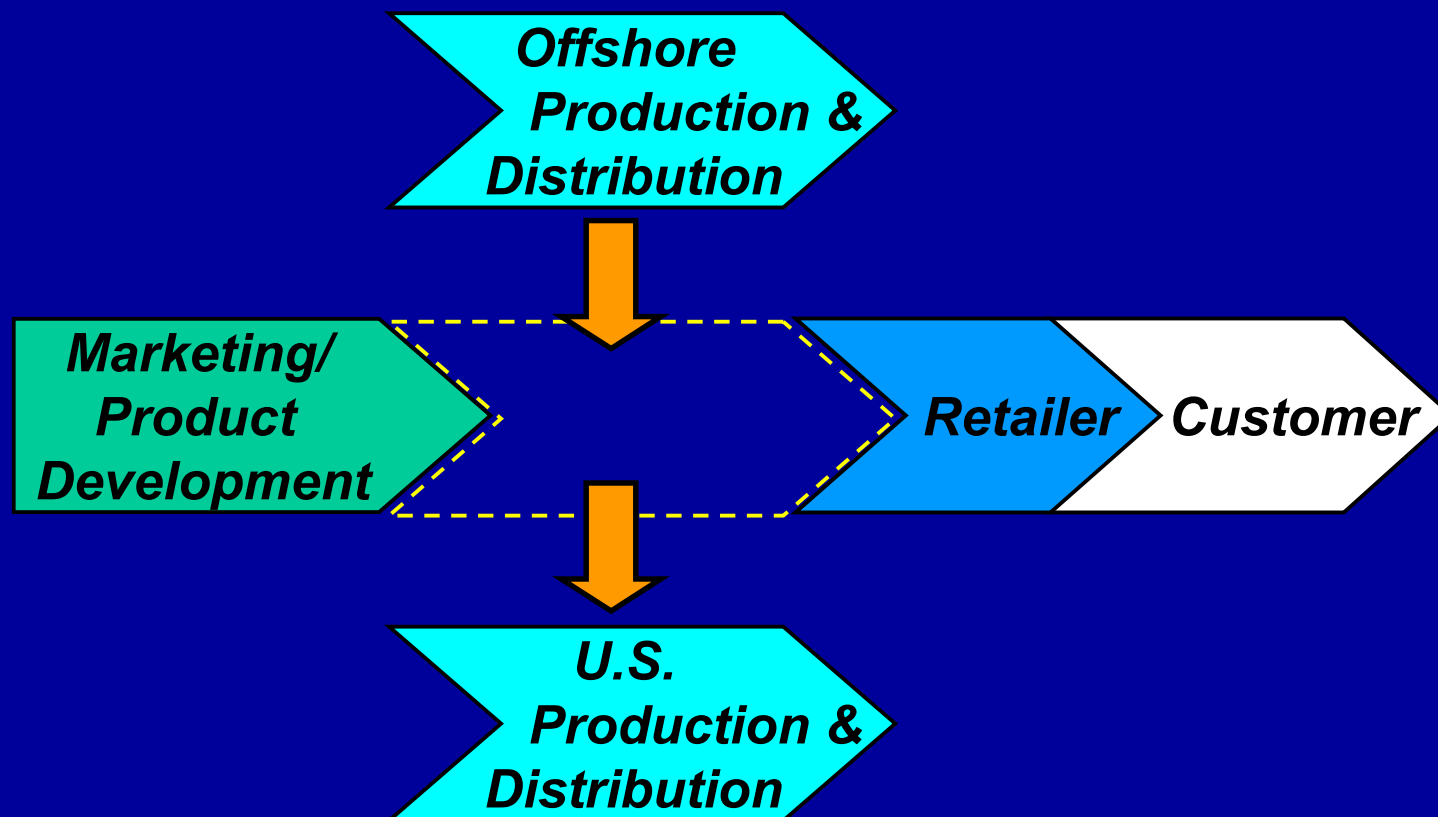
The Critical Strategic Issue

How has your company changed to meet the new reality?

- **Who Should You Sell?**
- **What Should You Sell?**
- **How Should You Execute Your Value Proposition?**

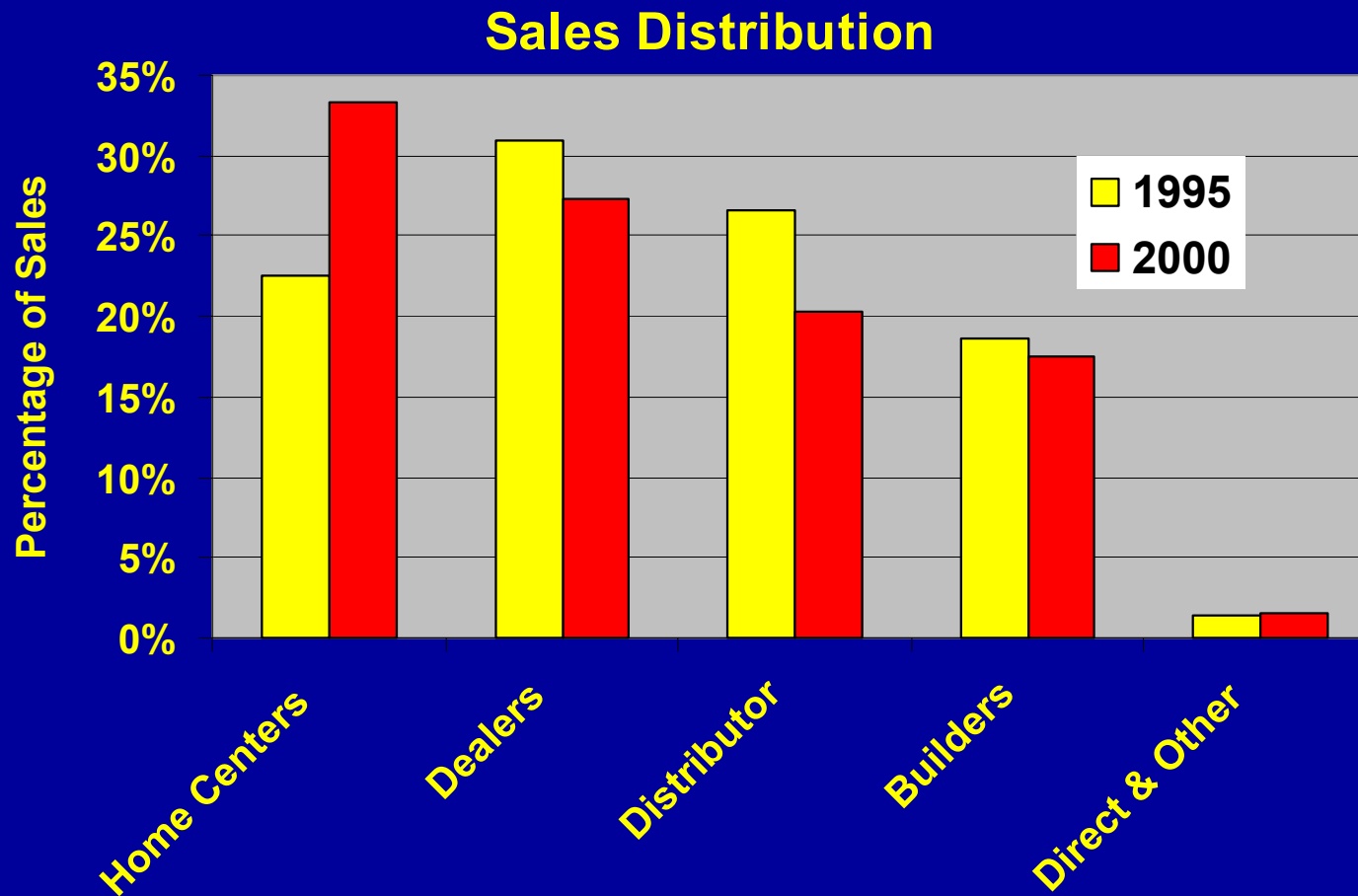
The Critical Strategic Issue

Is moving production and distribution from the U.S. to China a sustainable cure for the broken value chain?



Cabinet Industry Responds to the Market

Cabinet makers identified a huge new customer...



Case Study – Responding to the Market

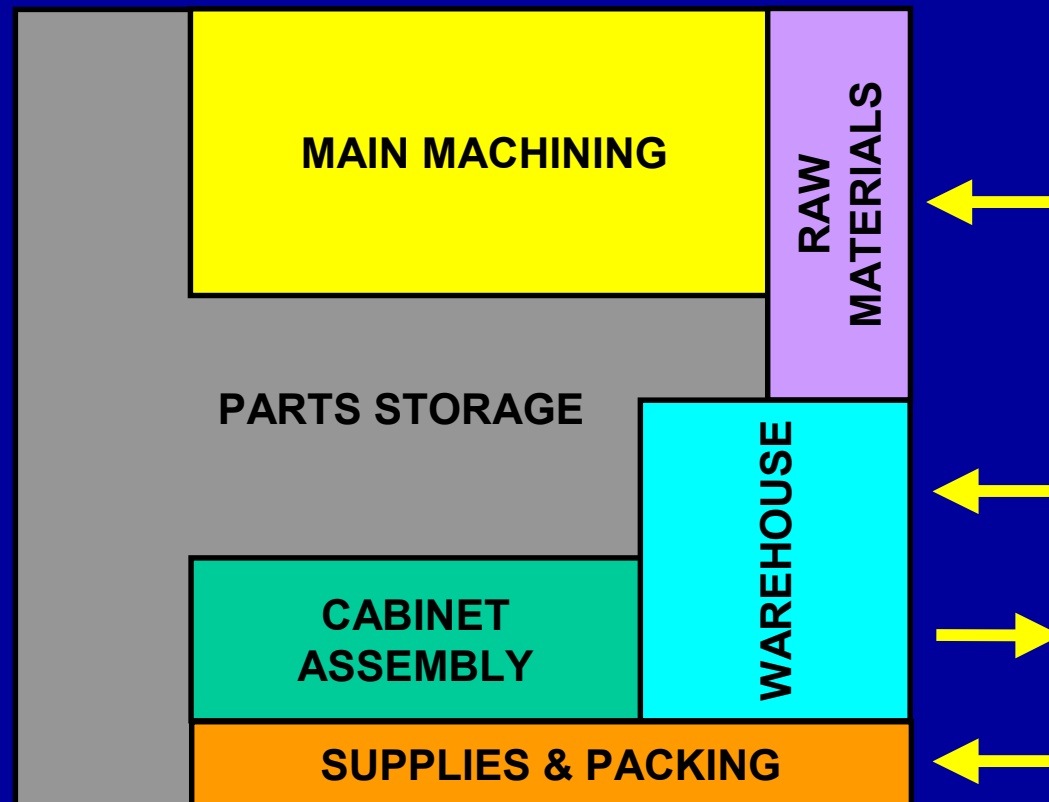
The shift to home centers has required...

- ***Longer Product Lines***
 - ***More Door Styles & Materials***
 - ***More Cabinet Configurations & Accessories***
- ***Faster Delivery***
- ***Higher Customization***

How have these needs been accomplished?

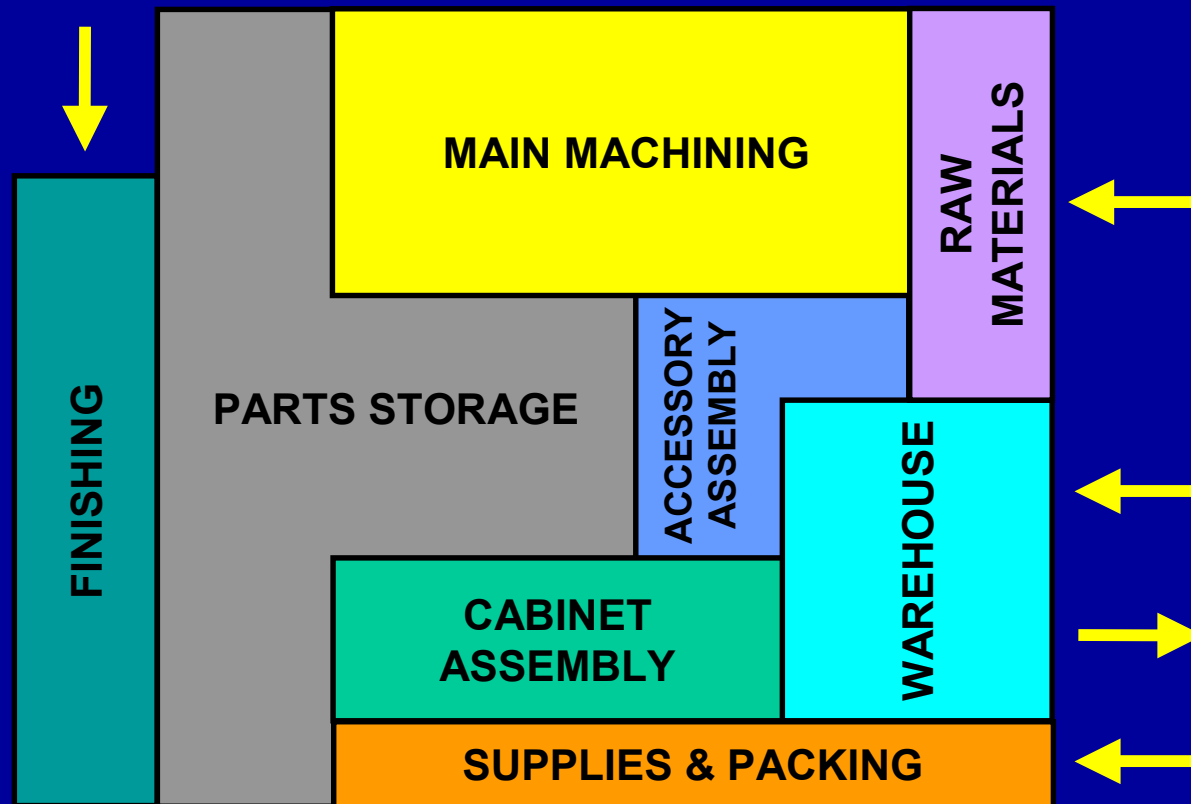
Case Study – The Initial Plant

When first built the plant produced a narrow line with few choices...



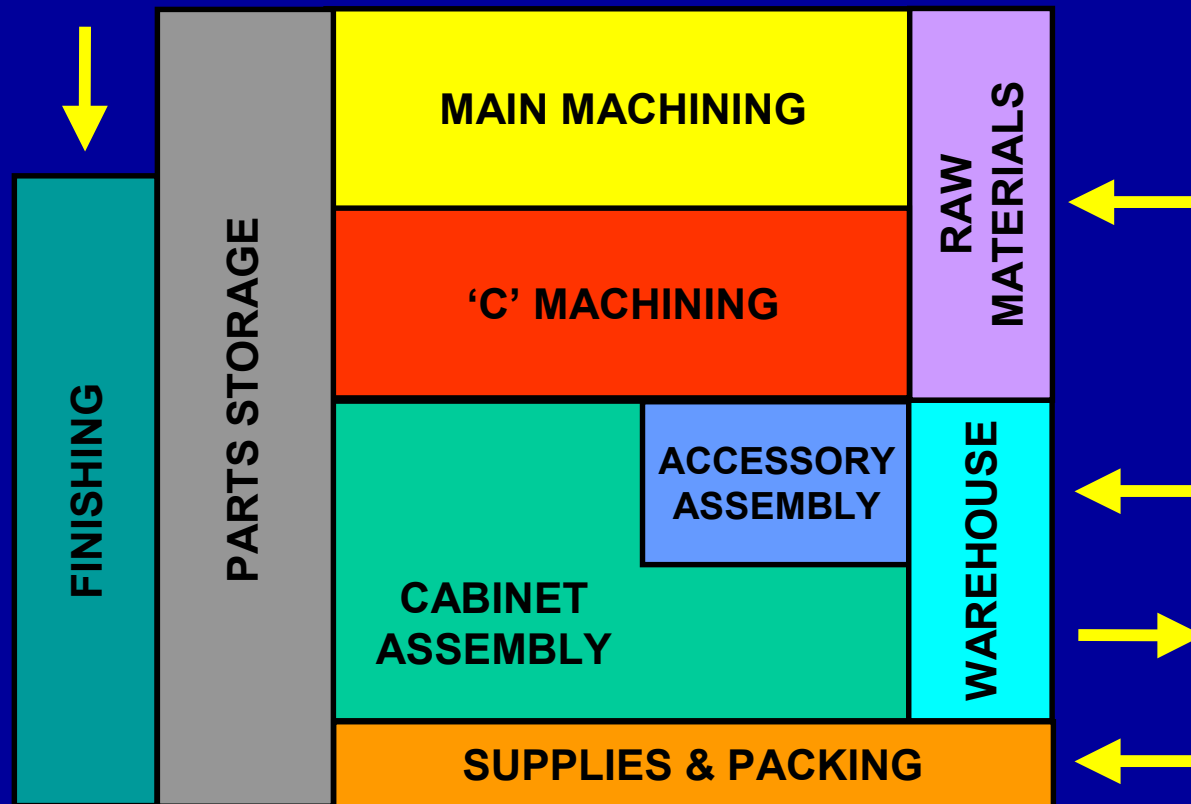
Case Study – More Doors & Accessories

Adding wood doors and accessories was the first line expansion...



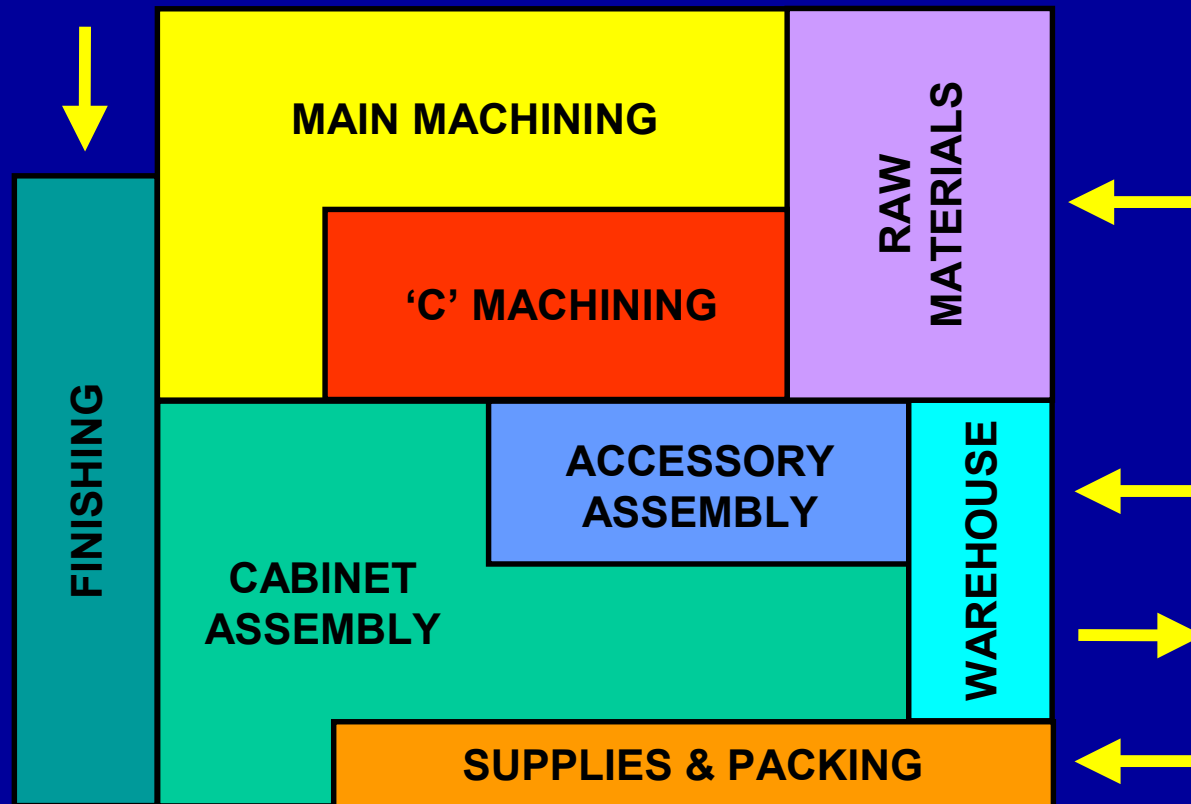
Case Study – More Cabinet Choices

More cabinet configurations/materials necessitated a special machining area for low-volume parts...



Case Study – Mass Customization

The final step will be highly flexible parts manufacture that eliminates large stocks of machined components...



Case Study – The End Results

Once completed this plant will exceed the owner's and the market's expectations...

- ***Longer Product Line***
 - ***Multiple Cabinet Materials***
 - ***Extensive Choice of Design & Style***
- ***Shipment of Individual Kitchens within Two Weeks of Order***
- ***Higher Volume***

By reorganizing their process with minimal addition of space.

Your Strategic Plan?

It's 2001. The world is changing. Time is of the essence...

What Is Your Next Move?

- ***Which Customers Matter Most To You?***
- ***What Are The Priorities of Those Customers?***
- ***How Can You Satisfy Their Priorities?***

The Opportunity of a Lifetime

Winston Churchill once said,

“An optimist sees an opportunity in every calamity; a pessimist sees calamity in every opportunity.”

Are you an optimist or a pessimist?