

# From Make-To-Stock To Make-To-Demand

## — A Front Office Transformation

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# Introductions

- ④ Our objective is to address the implications to Lean for:
  - Customer relationships and sales processes
  - Demand profiles
  - Inventory buffers
  - Performance measures across the organization
- ④ We will use several case examples to illustrate these concepts
- ④ You should leave appreciating the ‘front office’ issues to address for Lean success!



# A Common Front Office View

- ④ Lean applies to the automotive industry:
  - Invented by Toyota
  - Is already repetitive production
  - Suppliers/customers already work closely together
  - Orders and schedules are very predictable
- ④ Many manufacturers view their markets differently:
  - No predictable customer demand – customers will not “cooperate”
  - Our products are not “standard”
  - Currently have some quality problems
- ④ Doesn't apply to the front office anyway; it's a manufacturing thing



# A Common Front Office View

- ④ Who is the “front office”
- ④ How can they support Lean?
- ④ What barriers exist to extending Lean across the front office?
- ④ What are the benefits to enrolling the front office?
- ④ How do we take specific steps forward?

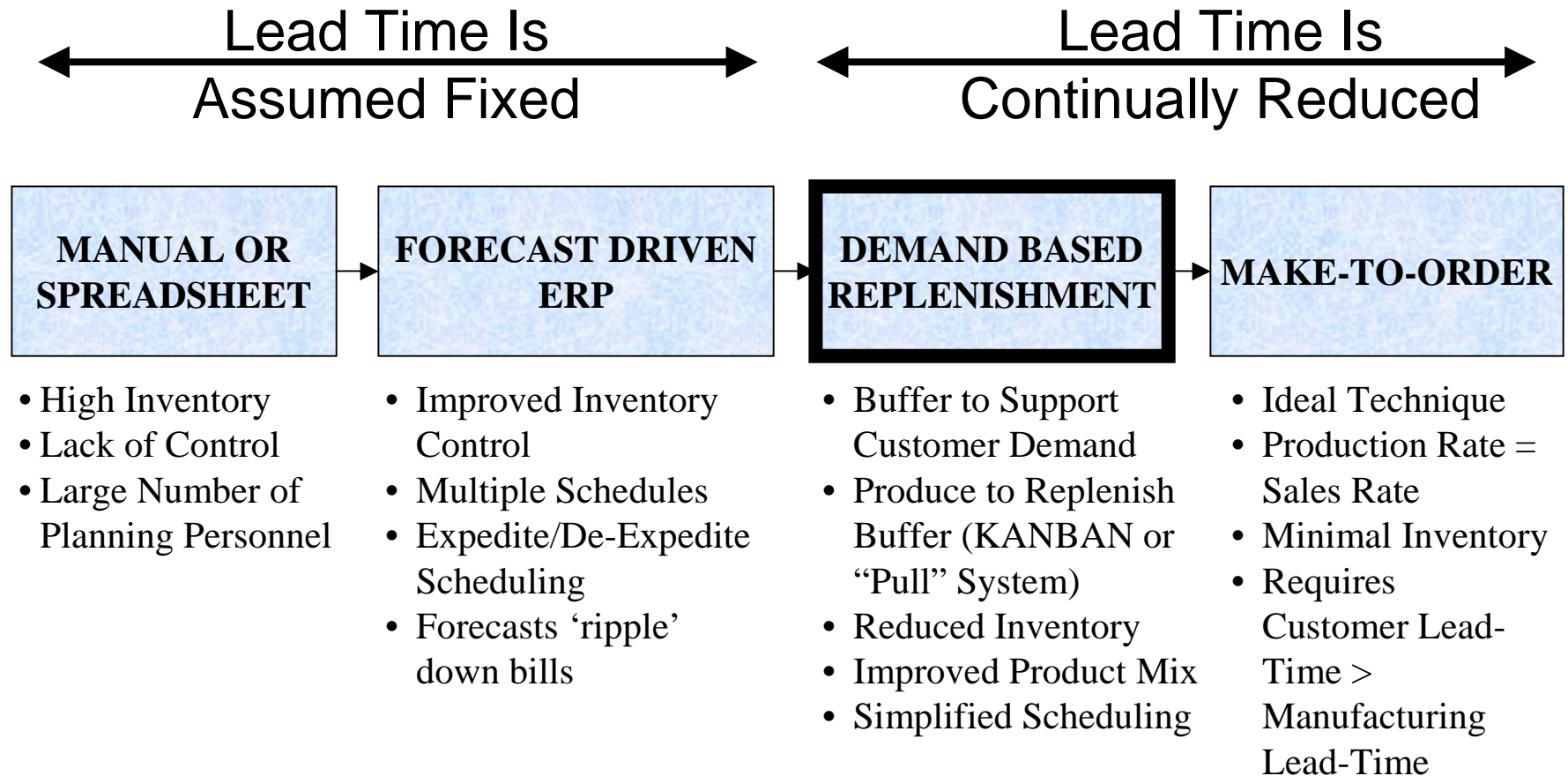


# A Common Front Office View

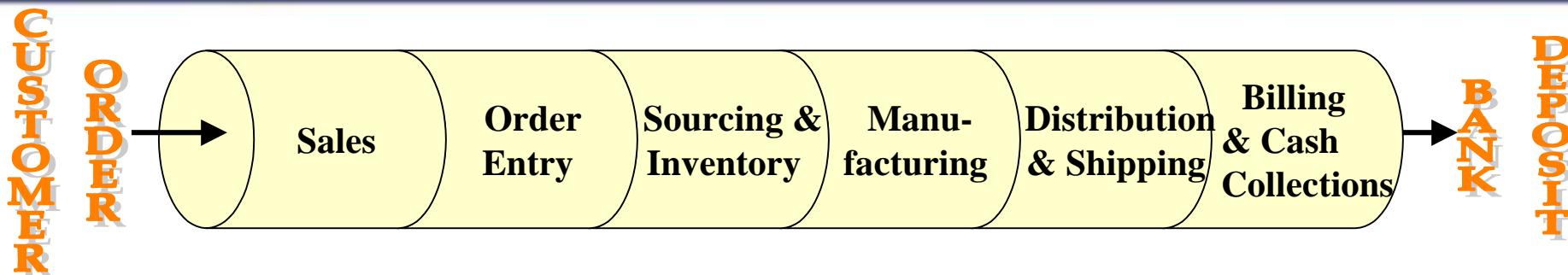
- ④ For the last 20 years, we've been training executives:
  - To freeze the forecast
  - Make large volumes to reduce cost
  - That inventory is good
  - To give us more lead time for customer orders
- ④ We used that information to:
  - Develop material plans and buy raw materials
  - Schedule shop operations to be efficient
- ④ In other words, to guess about what and when customers wanted products and hope our guesses were accurate...

# A Supply Chain View

🌐 The evolution of production systems and operations:



# A Supply Chain View



## Core Concepts:

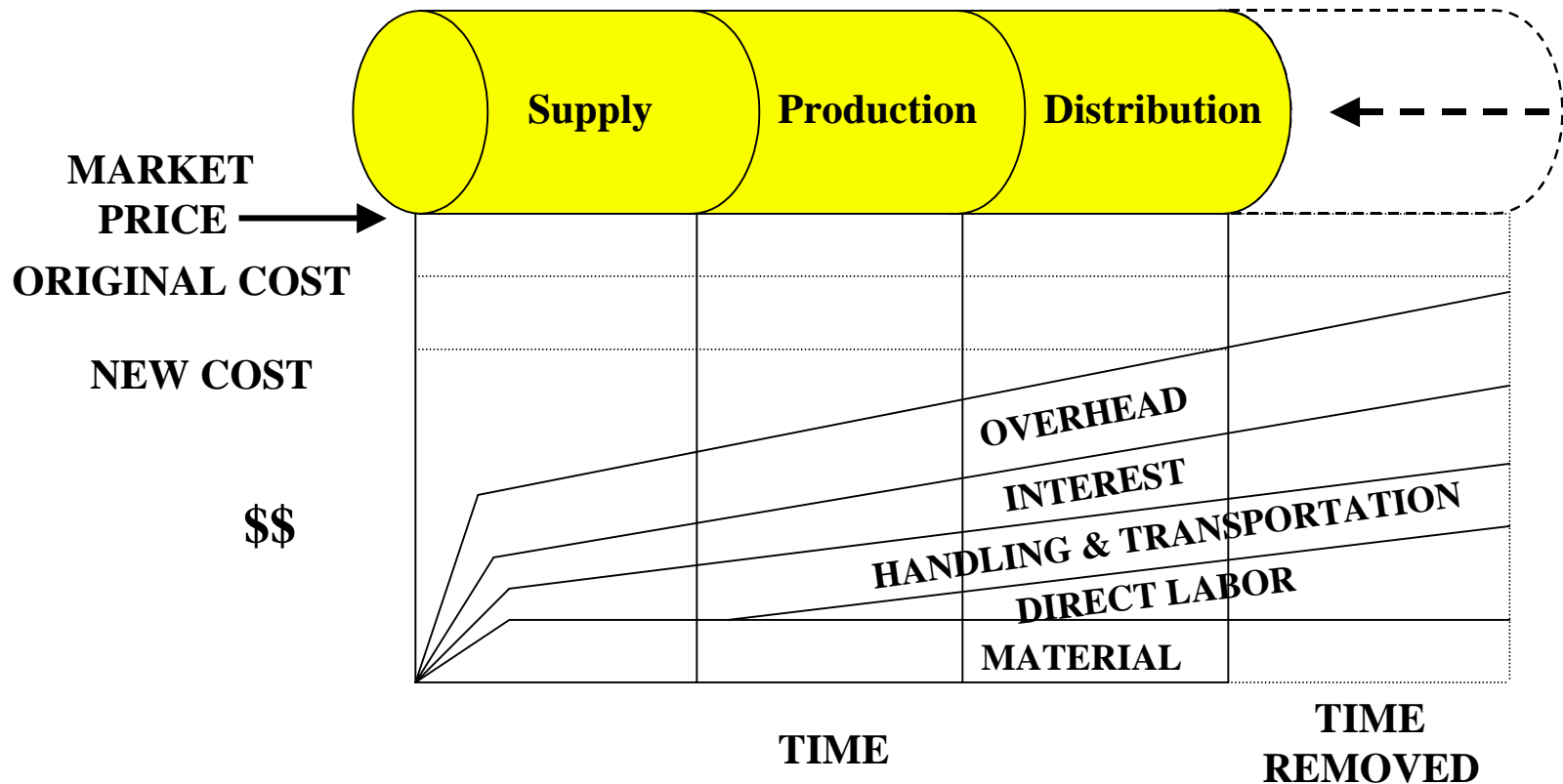
- Attain cost leadership
- Elimination of work
- Value added activities
- Increase customer responsiveness
- Methodology: simplification
- Replenishment: simplify, automate, integrate

## Implications:

- Definition of service policies
- Business processes crossing functions
- Focus should be managing the process, not transactions
- Cannot stop and evaluate every order

# A Supply Chain View

⌚ Time is the key driver for productivity and responsiveness:





## NEW OPERATING CONCEPTS

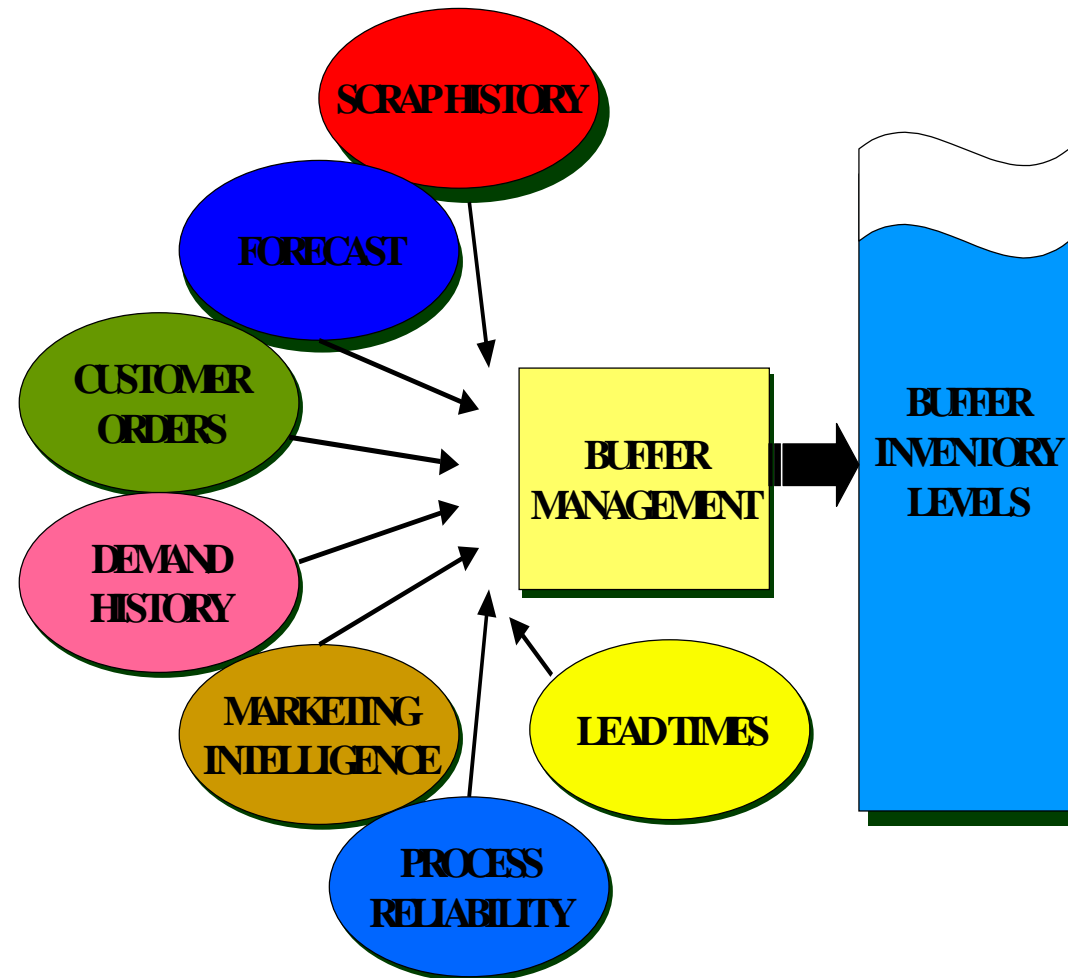
# INVENTORY

**INVENTORY LEVEL IS A MEASURE OF TOTAL SYSTEM EFFICIENCY, THE FINANCIAL EFFECTS OF WHICH APPEAR IN MANY WAYS DUE TO SHORTEST LEAD TIMES, LOW DEFECT RATES, SMOOTH MATERIAL FLOWS, AND HIGH PRODUCTIVITY. THE REAL QUESTION IS NEVER “HOW MUCH INVENTORY IS NEEDED?” BUT ALWAYS, “WHY IS INVENTORY NEEDED?”**

# NEW OPERATING CONCEPTS

At times, we have forgotten WHY we have inventory:

- Increase responsiveness to customers
- Balance loads
- Protect from process instability





# NEW OPERATING CONCEPTS

- ④ Build to actual customer demand – not forecasts
- ④ Make a little bit of what is required every day
- ④ Schedule only the constraint - then FIFO/pull
- ④ Maintain a continuous flow of material



# Performance Drivers

**OLD**

**VS.**

**NEW**

## **ABSORPTION**

**INDEPENDENT DEPARTMENTS**

**NO CONSIDERATION TO CONSTRAINTS**

**BATCHES TO MAXIMIZE ABSORPTION**

**INVENTORY - AN ASSET**

**PRODUCE TO MAXIMIZE EACH DEPARTMENT. EXPEDITE SHIPMENTS**

## **OPERATING EXPENSE, THROUGHPUT, AND INVENTORY**

**BUSINESS (OR PLANT) AS WHOLE**

**EMPHASIS PLACED ON BOTTLENECKS**

**CONTINUOUS FLOW TO MAXIMIZE THROUGHPUT**

**INVENTORY - A LIABILITY EXCEPT TO SUPPORT A CONSTRAINT**

**PROCESS WHAT YOU NEED WHEN YOU NEED IT. EQUIPMENT RELIABILITY**



# Performance Drivers

- 🌐 An overall transformation of performance measures is required to support Lean operations:

## Example Transformation

### Current Measures

- ◆ Cost/ton
- ◆ Profitability
- ◆ Cost variances
- ◆ Inventory levels
- ◆ Cost reduction
- ◆ Freight expense

### Implications/Issues

- Mix sensitive
- Volume dependent
- Primarily fixed costs
- Price/volume dependent
- Static budgets
- Unclear required level
- Local vs total cost reduced
- Volume and plan dependent

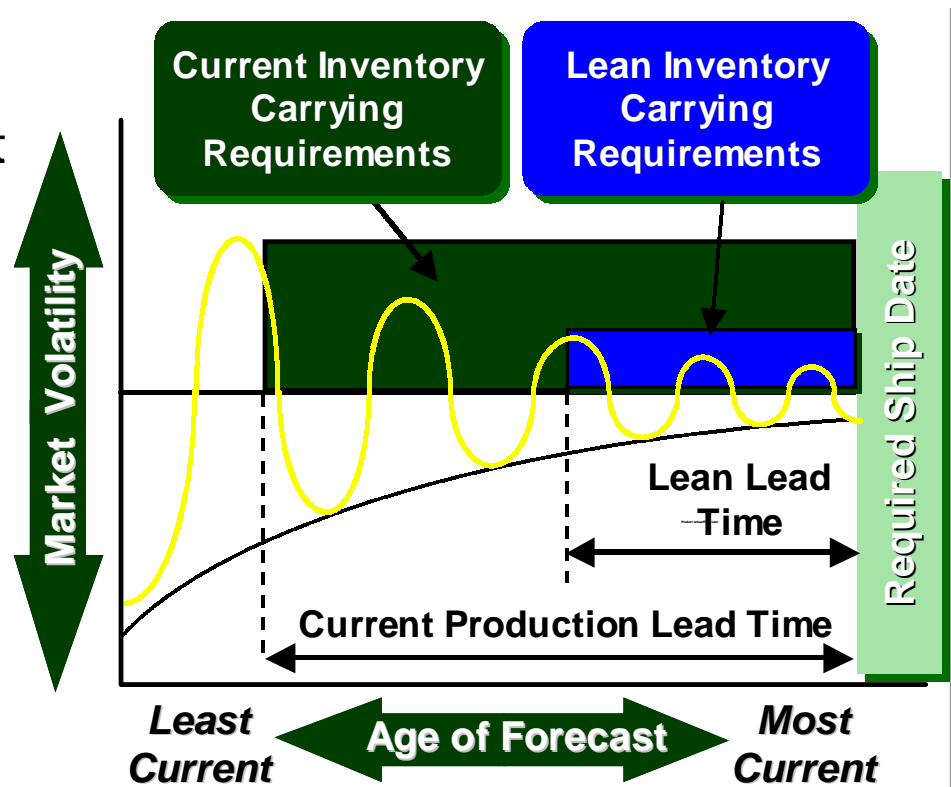
### Proposed Measures

- Usage versus target
- Price versus target
- Production to plan
- Profit maximization
- Spending compared to plan
- Cycle time
- Demand variation
- MEE/batch sizes
- Cost profiles (fixed/variable)
- Actual costs to plan

# Demand Drivers

- Then we sold the idea of Lean:
  - Reduces inventories
  - Improves responsiveness
  - Lowers costs
- But, we were not specific about the inventory drivers:
  - Lead time
  - Demand fluctuation
  - Process variation
  - Lot size
- Luckily, Lean attacks all of these except:
  - Demand fluctuation

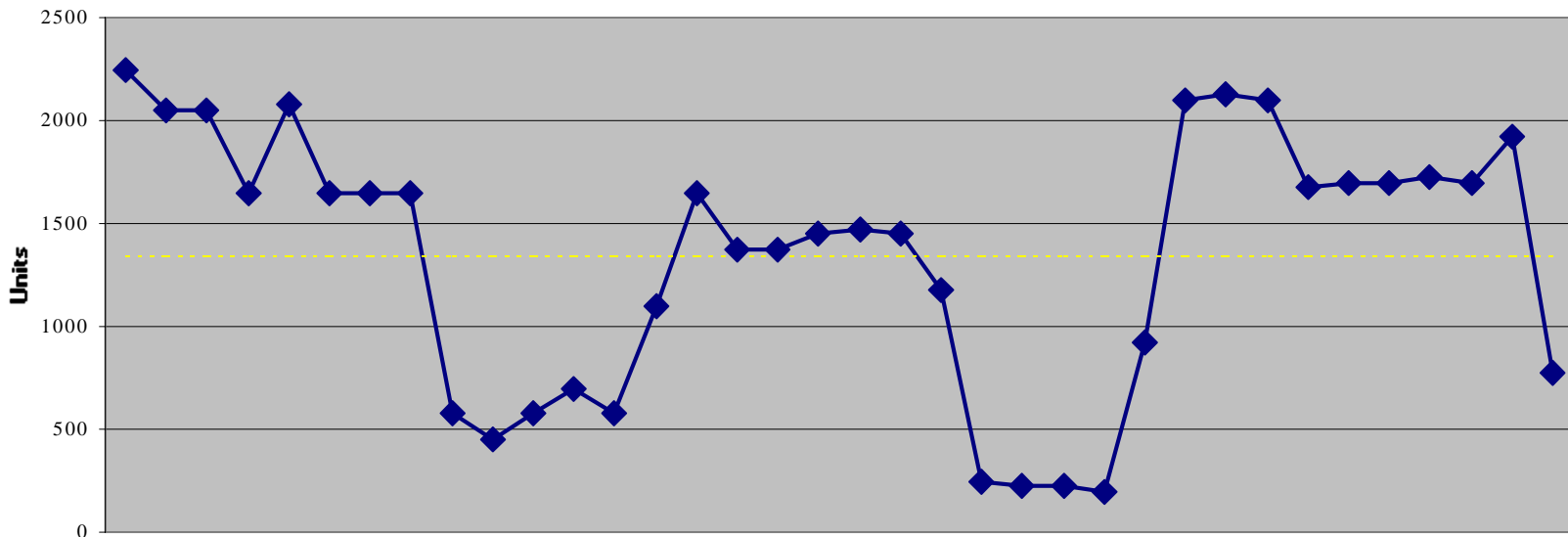
## Lead Time/Inventory Paradox



# Demand Drivers

- 🌐 Demand fluctuation drives inventory levels:
  - Intuitively, we know customer demand is not stable
  - Responsiveness is limited by flexibility of capacity
  - Therefore, we must buffer against demand fluctuations greater than our ability to flex capacity:

Customer Order Demand



# Demand Drivers

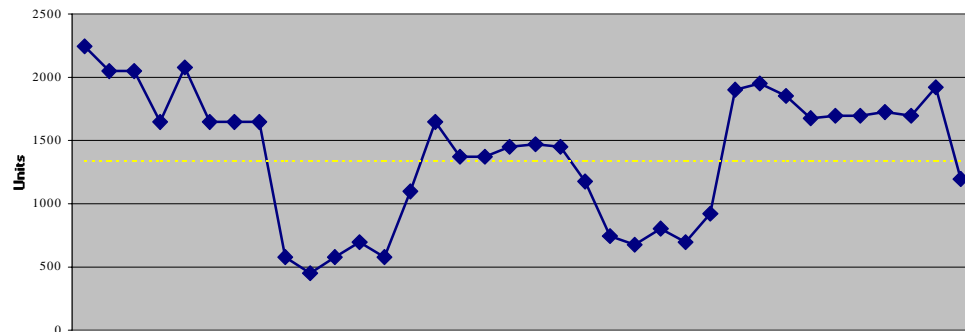
But where should we buffer demand?

- Customer level
- Part level
- Product family
- Option
- Other?

Depends on how to best stabilize and manage demand:

- Customer segmentation
- Lead time policies
- Product priorities

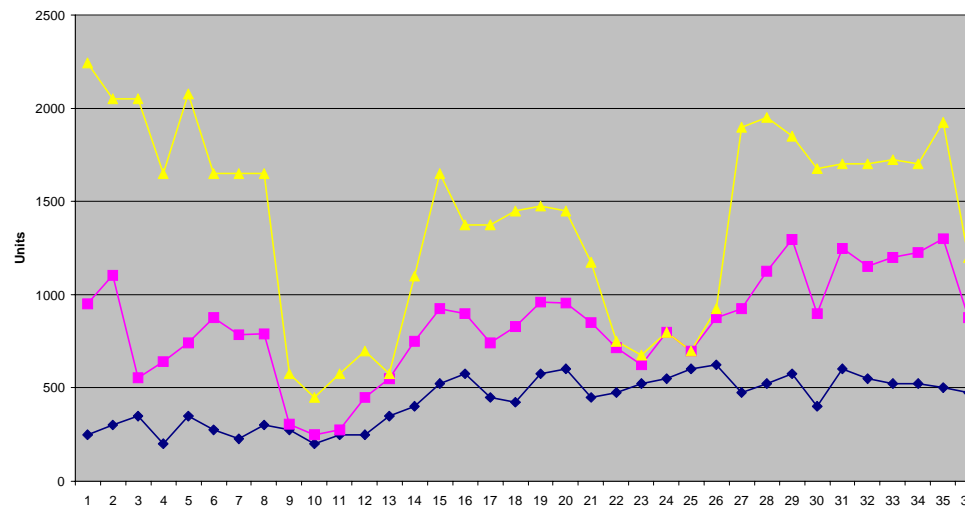
Customer Order Demand



Segmenting demand shows the drivers of variability



Demand By Customer





# Demand Drivers

- ⊕ Buffer and inventory management is MORE than setting inventory levels:
  - Manage actual demand to plans and capabilities
  - Adjust buffers as service levels, processes, etc change
  - Integral part of constraint management
  - Input to customer or product profitability assessments



# Conclusions

- ④ Lean should start in the front office!
- ④ Leverage Lean to gain share and customer satisfaction
- ④ Inventory is not protection from customer pull!
- ④ Sales incentives can be a barrier to consistent demand
- ④ Forecasts identify market shifts, not order placement
- ④ Align service policies with buffer management
- ④ Therefore, there are serious supply chain implications:
  - Commitment to service policies
  - Cross functional business processes
  - Managing processes, not transactions
  - Beating the competition, not yourself