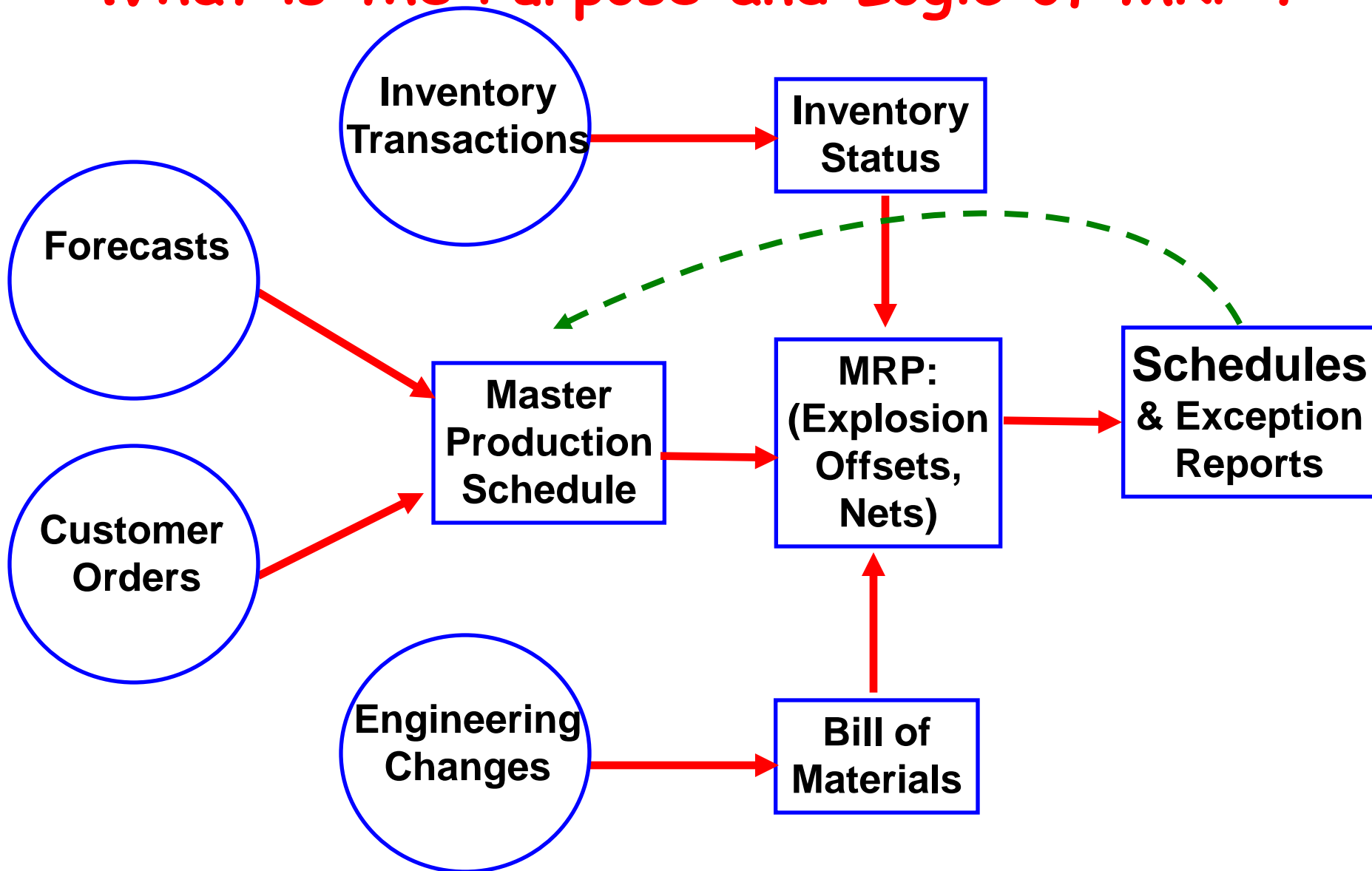


15.768: MRP/ERP

What is the Purpose and Logic of MRP ?



What is the Purpose and Logic of MRP?

- **Coordination of Production and Inventory in large, multi-stage production systems**
- **Used for**
 - **Scheduling & re-scheduling**
 - **Capacity Planning**
 - **Supplier coordination (internal & external)**
- **Timely dissemination of information**
- **Time-phased production & procurement**
 - **with lead time offsets & BOM explosions**
- **Independent vs. Dependent demand**
- **Requires centralized information system; hence ERP**
- **Organizes large complex production and delivery coordination requirements**

Criticisms of MRP

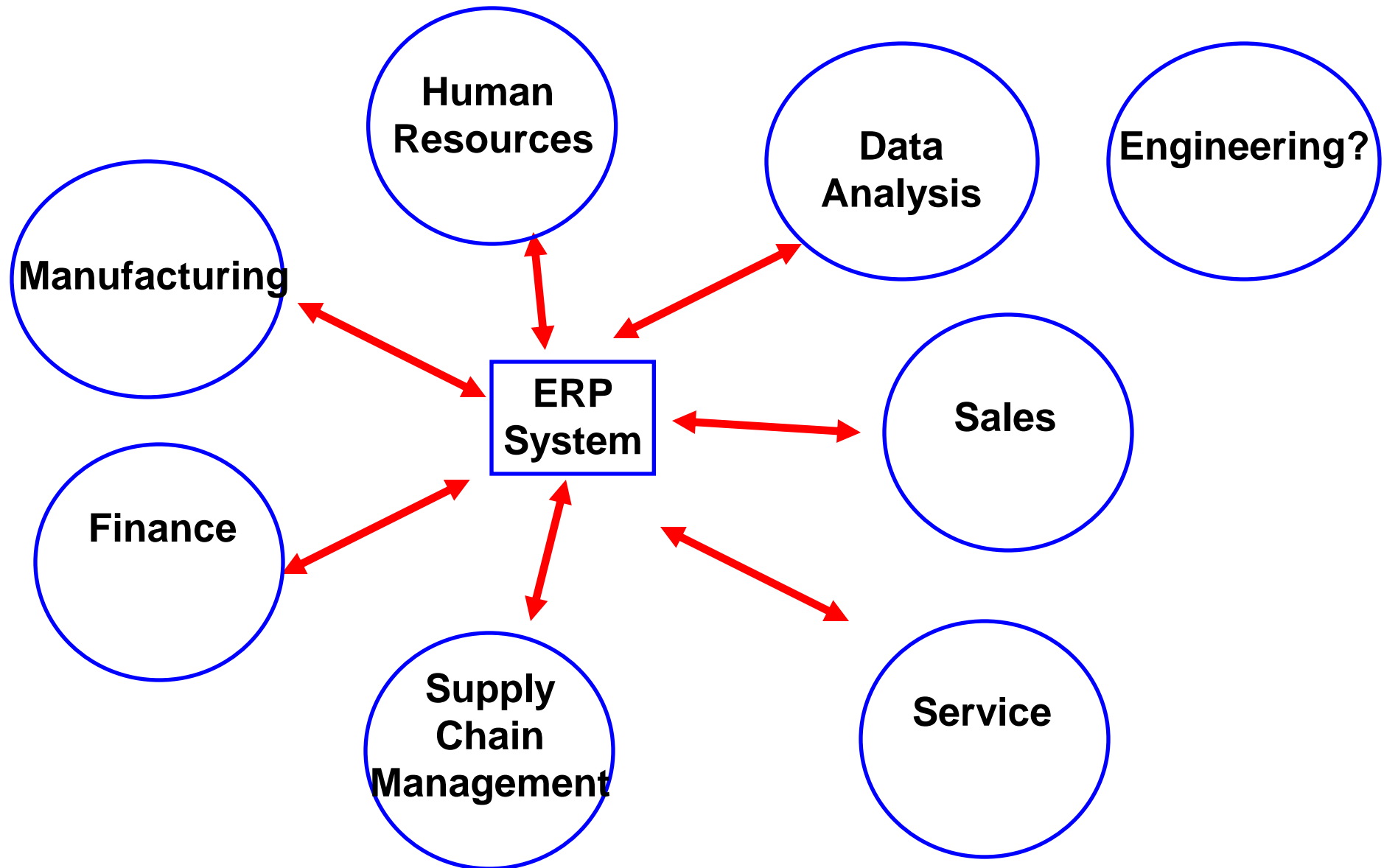
- **Deterministic Model**
- **Push system**

- **poor data ==> GIGO**
- **Self-fulfilling lead times**
- **Difficult/costly to install & maintain**
- **Centralized command & control mindset**

Three Principles of Forecasting

- 1. The Forecast is always wrong**
- 2. The longer the forecast horizon,
the worse the forecast**
- 3. End item forecasts are less accurate
than aggregate forecasts**

What is the Purpose and Logic of ERP ?



What is the Purpose and Logic of ERP?

- **Financial & Operational Planning & Control**
 - uniform business processes
- **Integration of corporate data & systems**
- **Used for**
 - Financial analysis & reports
 - Coordinating operations, sales, engineering
 - Supplier coordination (internal & external)
- **Timely aggregation and dissemination of information**
- **Requires centralized information system;**
- **enables decentralized control?**

Criticisms of ERP systems

- **Implementation nightmares**
- **Encourages centralized control**
- **Enforces uniformity; can stifle innovation**
- **Very expensive**

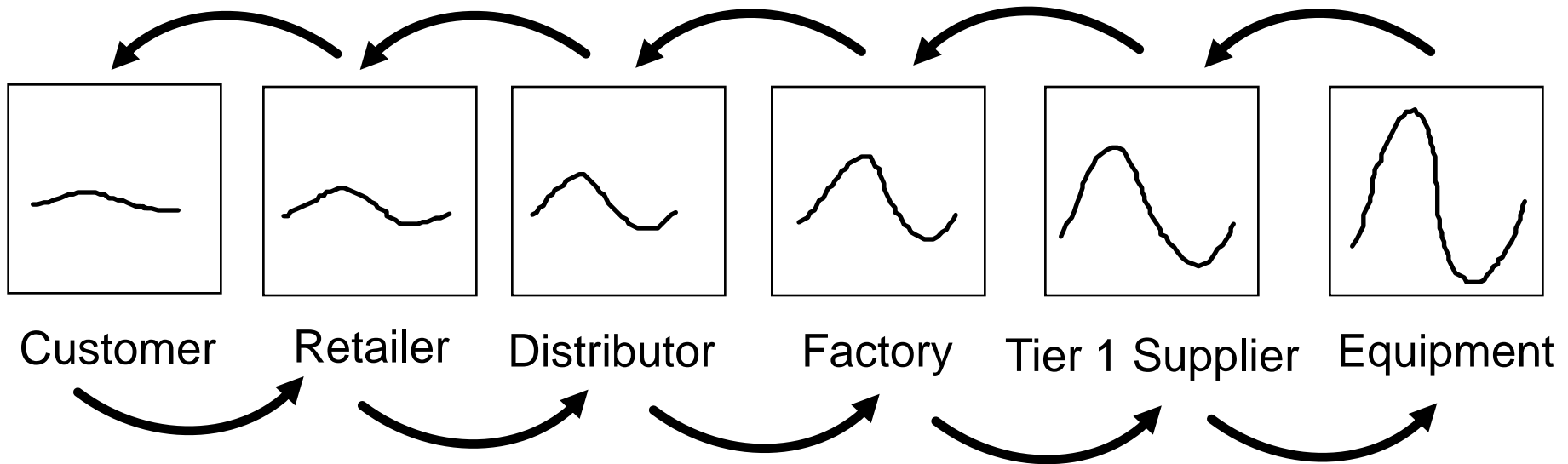
Management issues:

- 1. Process redesign**
- 2. Flexibility and internal capabilities**
- 3. Implementation**

Lessons from Cisco's Implementation?

- **make it a top priority; resource accordingly**
- **do it quickly**
- **rapid prototype iterations**
- **in-house capabilities**
(outsource capacity, not knowledge)
- **need realistic-scale testing**

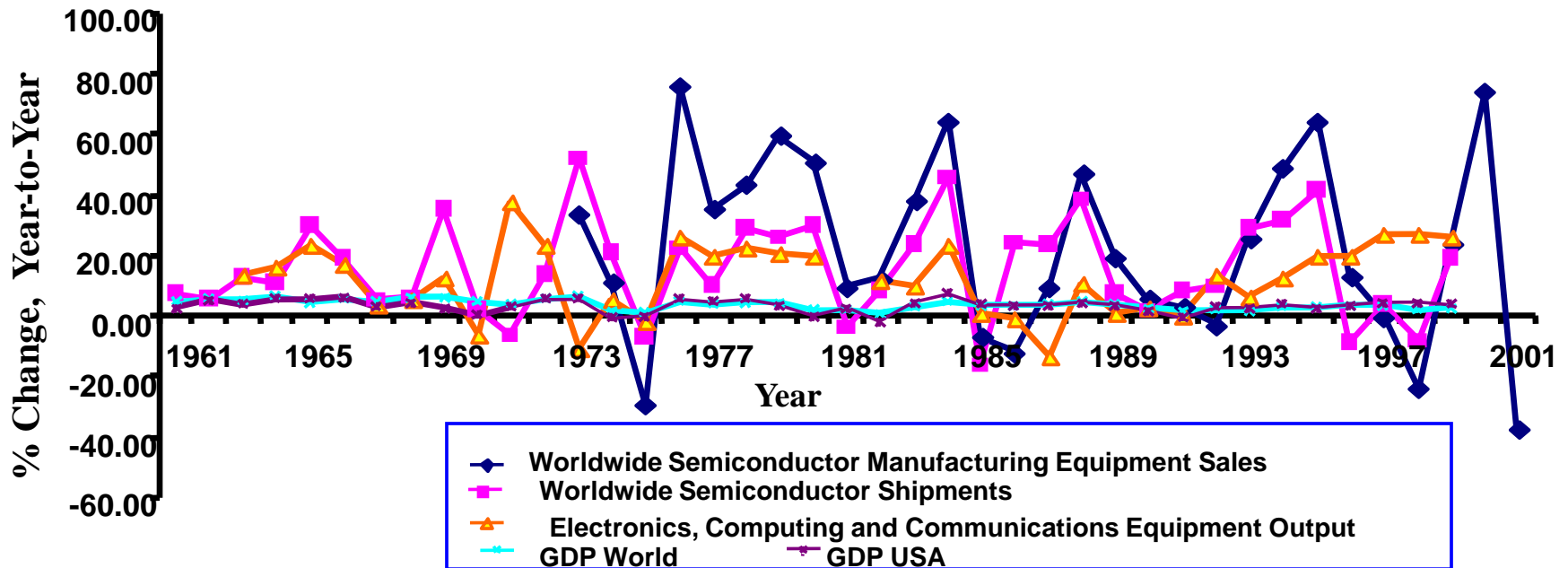
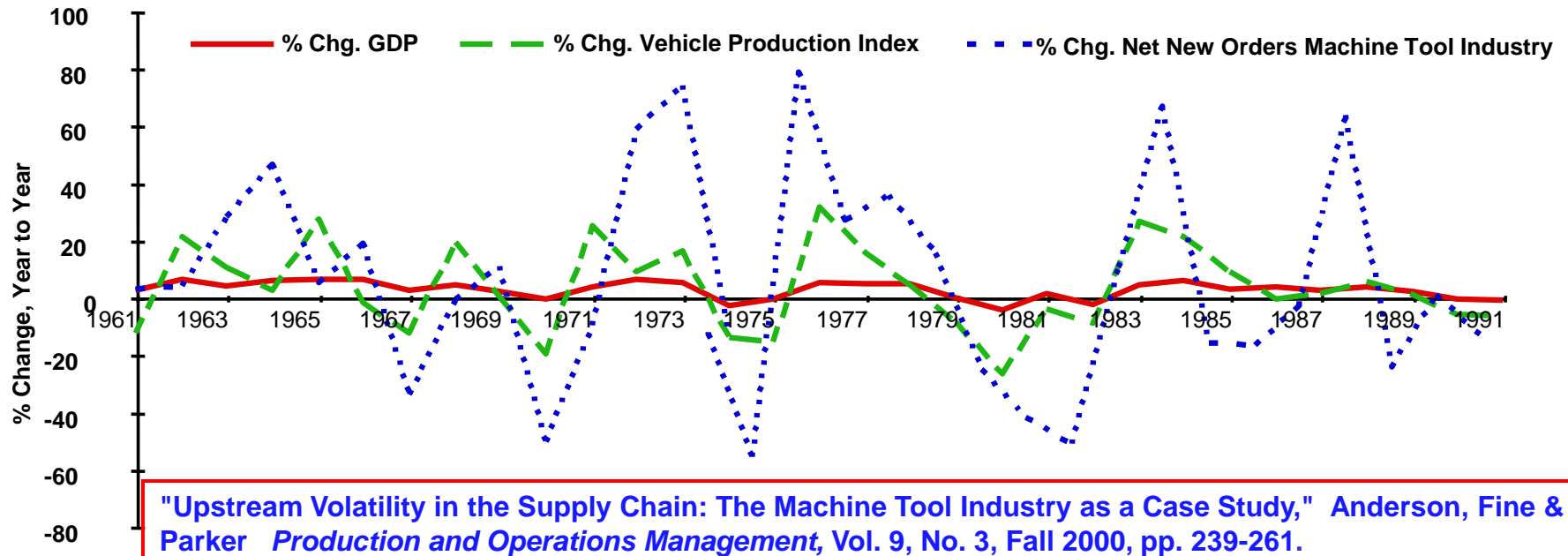
Volatility Amplification in the Supply Chain: "The Bullwhip Effect"



Information lags
Delivery lags
Over- and underordering
Misperceptions of feedback
Lumpiness in ordering
Chain accumulations

SOLUTIONS:
Countercyclical Markets
Countercyclical Technologies
Collaborative channel mgmt.
(Cincinnati Milacron & Boeing)

“We are experiencing a 100-year flood.” J. Chambers, 4/16/01



LESSONS FROM A FRUIT FLY: *CISCO SYSTEMS*

1. KNOW YOUR LOCATION IN THE VALUE CHAIN
2. UNDERSTAND THE DYNAMICS
OF VALUE CHAIN FLUCTUATIONS
3. THINK CAREFULLY ABOUT THE ROLE
OF VERTICAL COLLABORATIVE RELATIONSHIPS
4. INFORMATION AND LOGISTICS SPEED DO NOT REPEAL BUSINESS
CYCLES OR THE BULLWHIP.

Bonus Question:

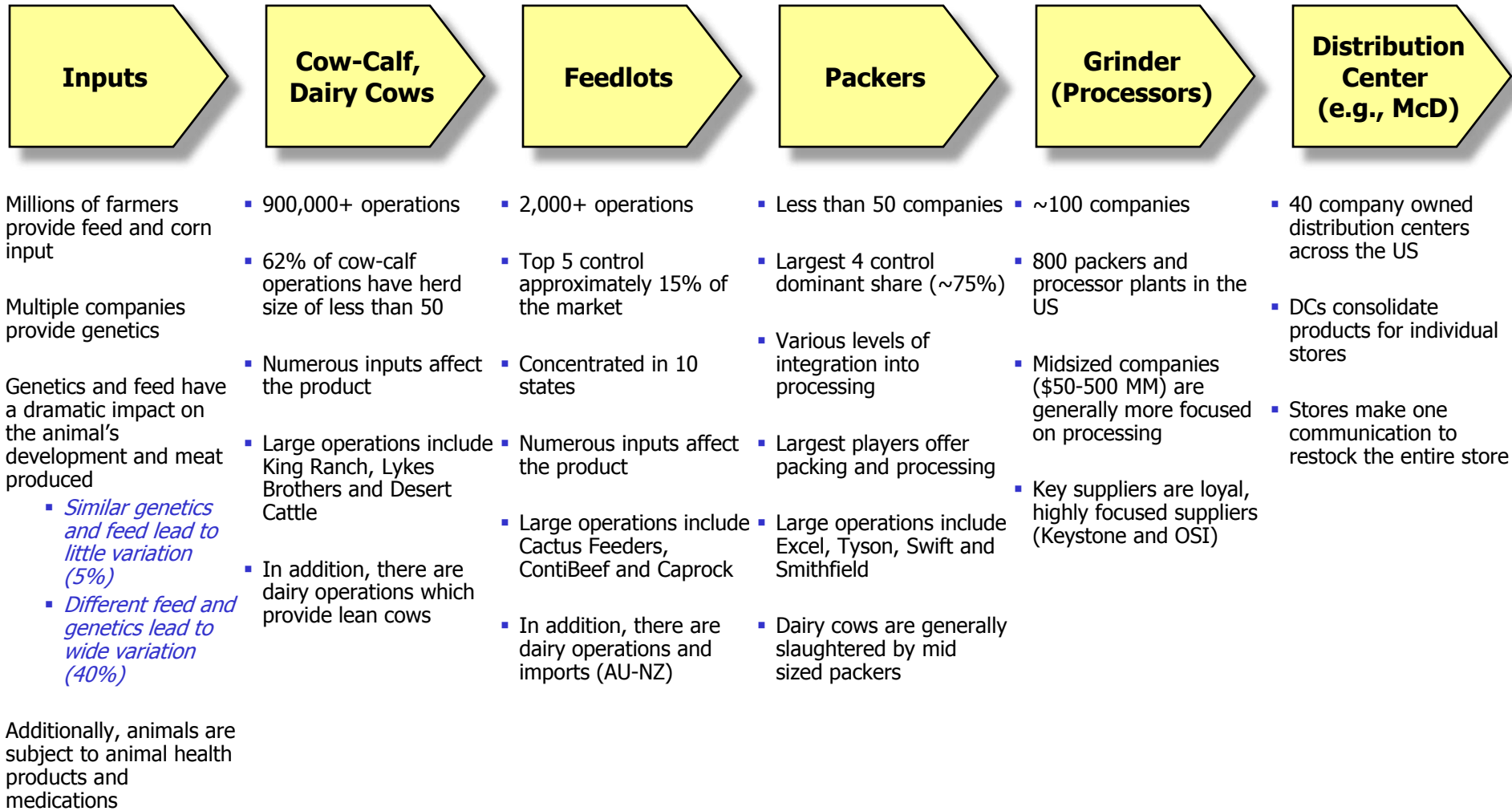
How does clockspeed impact volatility?

Class 8 Wrap-Up

- **MRP for production planning**
- **ERP Systems: Implementation & Process Design are key**
- **Bullwhip Dynamics**

Next Time: Southwest Air

Beef Supply Chain



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15.768 Management of Services: Concepts, Design, and Delivery
Fall 2010

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