

Collaboration: Coordinating the Supply Chain

Yossi Sheffi

MIT Engineering Systems Division

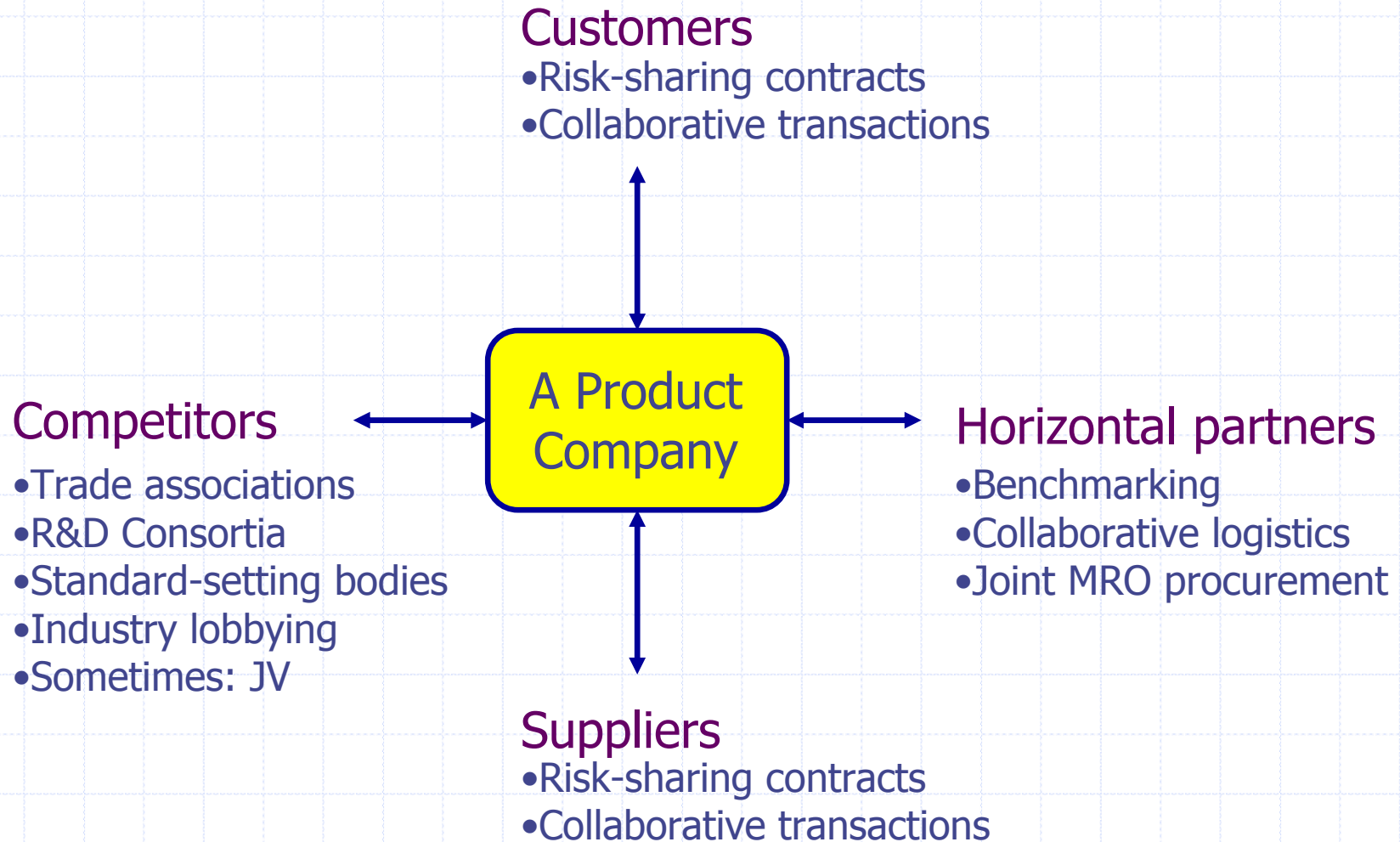


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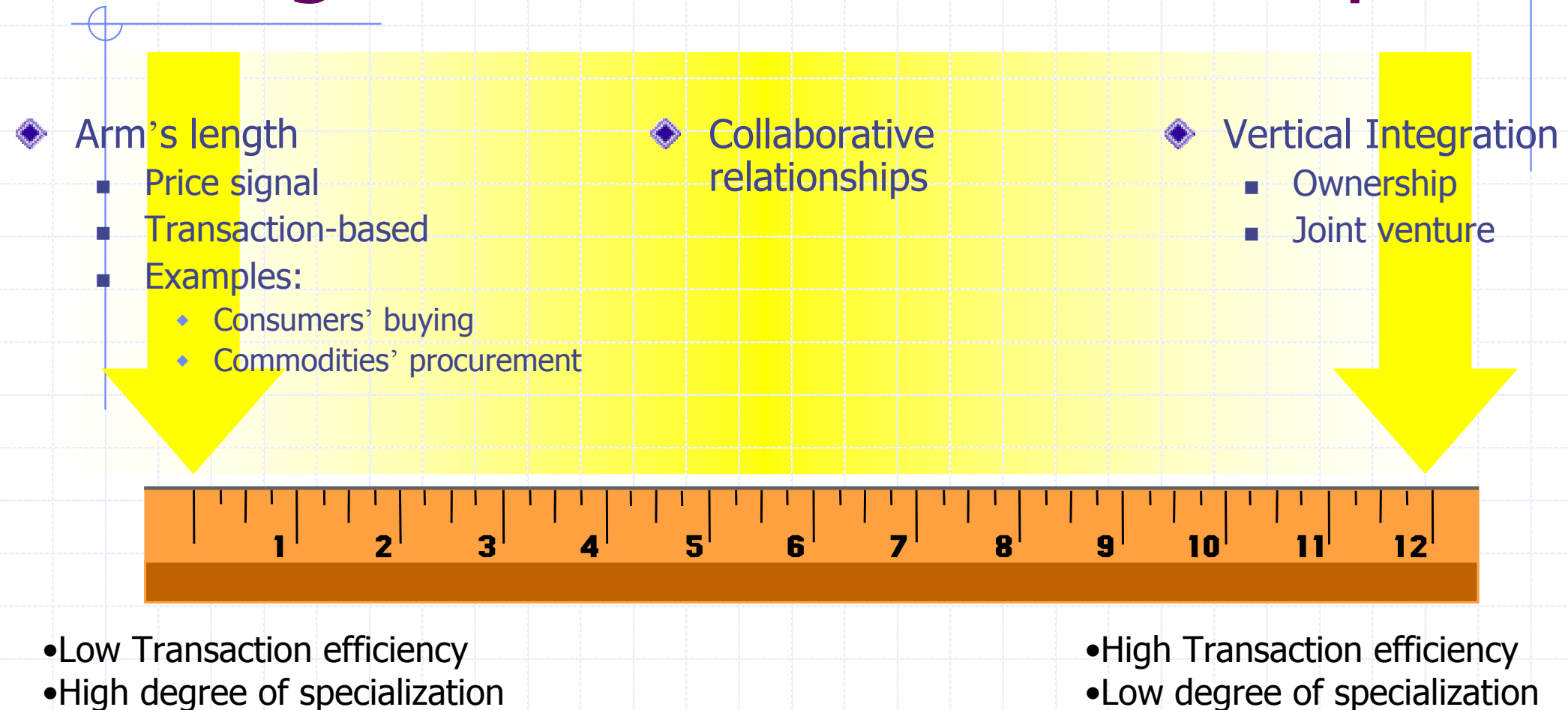
Outline

- ◆ Collaborative Relationships
- ◆ Vertical Collaboration
- ◆ Horizontal Collaboration
- ◆ CPFR Process
- ◆ Exception Engine and Example
- ◆ CPFR Benefits
- ◆ Early Implementations
- ◆ SuperDrug case Study

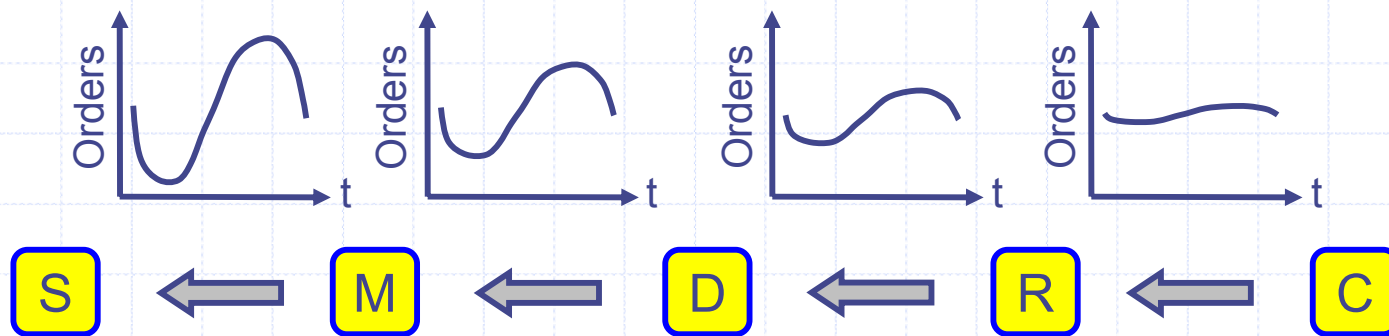
Collaborative Relationships



Range of Vertical Relationships

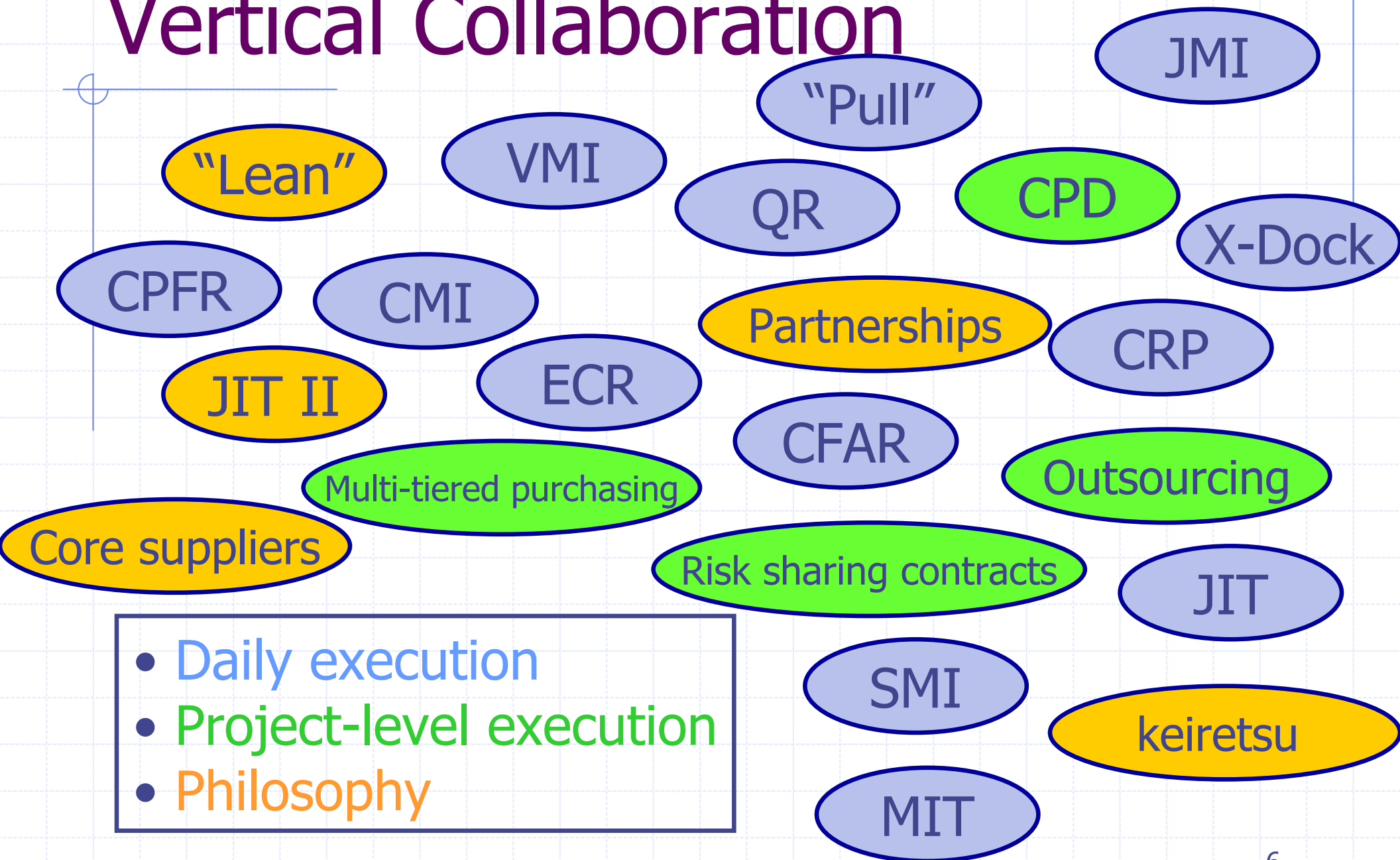


The Bullwhip Effect



One of the main control mechanisms is **collaboration**

Vertical Collaboration

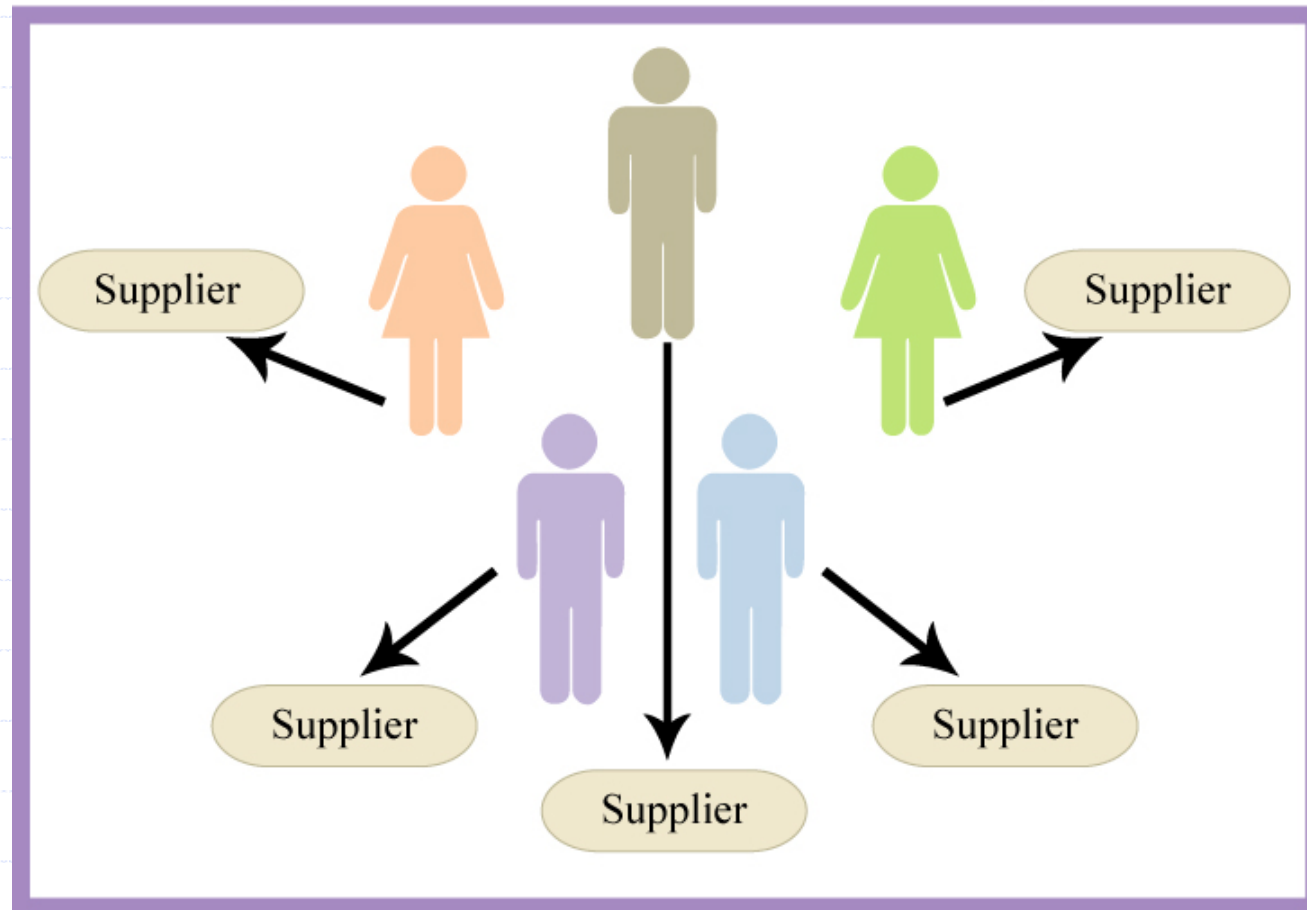


Characteristics

- ◆ Couple and coordinate consecutive processes – reducing the need for inventory
- ◆ Changing traditional roles
- ◆ Enabling technologies
 - Electronic data interchange (EDI)
 - Electronic funds transfer (EFT)
 - Item-level coding; bar codes; RFID
 - POS data collection and tracking
 - e.g, Wal-mart's *Retail Link* allows > 4,000 suppliers to get POS data through EDI and a web interface.

JIT II

BOSE



Grocery industry: Efficient Consumer Response

- ◆ Efficient Consumer Response (ECR) is the realization of a simple, fast and consumer driven system, in which all links of the logistics chain work together, in order to satisfy consumer needs with the lowest possible cost (ECR Europe Executive Board **Vision Statement**, 1995)
- ◆ Focus areas:
 1. Category Management
 - Product Introductions,
 - Product Promotions and
 - Store Assortment
 2. Product Replenishment

Apparel Industry: Quick response

- ◆ A comprehensive business strategy to continually meet changing requirements of a competitive market place which promotes responsiveness to consumer demand, encourages business partnerships, makes effective use of resources and shortens the business cycle throughout the chain from raw materials to consumer (QR Committee of the American Apparel manufacturers Association, January 1995).
- ◆ Aim: lead time reduction (less inventory, more accurate forecasting, less discounting) -- bring assortment planning, design and manufacturing closer to selling.
- ◆ Methods:
 - Improved information flows
 - standardize recording systems
 - cooperation along the supply chain

Vendor-Managed Inventory (VMI)

- ◆ The vendor takes responsibility for inventory replenishment
- ◆ Vendor works to agreed-upon LOS (usually in terms of fill rate)

- ◆ Steps:

1. Assemble data: (M)
 - DC withdrawal for DC-level retail VMI
 - POS in store-level retail
 - Storage levels in chemical plants (e.g., Air Products, Synergistics)
2. Forecast sales (M)
3. Forecast orders (M)
4. Generate replenishment orders (M)
5. Order fulfillment (M)

- ◆ Expected benefits:

- Customer (retailer): higher fill rates, reduction in price, reduction in inventory
- Supplier: stronger customer tie; integrated supply chain
- Rationale: vendor can pool the risk

- ◆ Reality:

- KMART: 300 $\Rightarrow$ 50 suppliers, other retailers canceling VMI altogether
- LOS failures due to forecast failures
- Limited collaboration

Co-Managed Inventory (CMI/JMI)

◆ Emphasis on collaboration

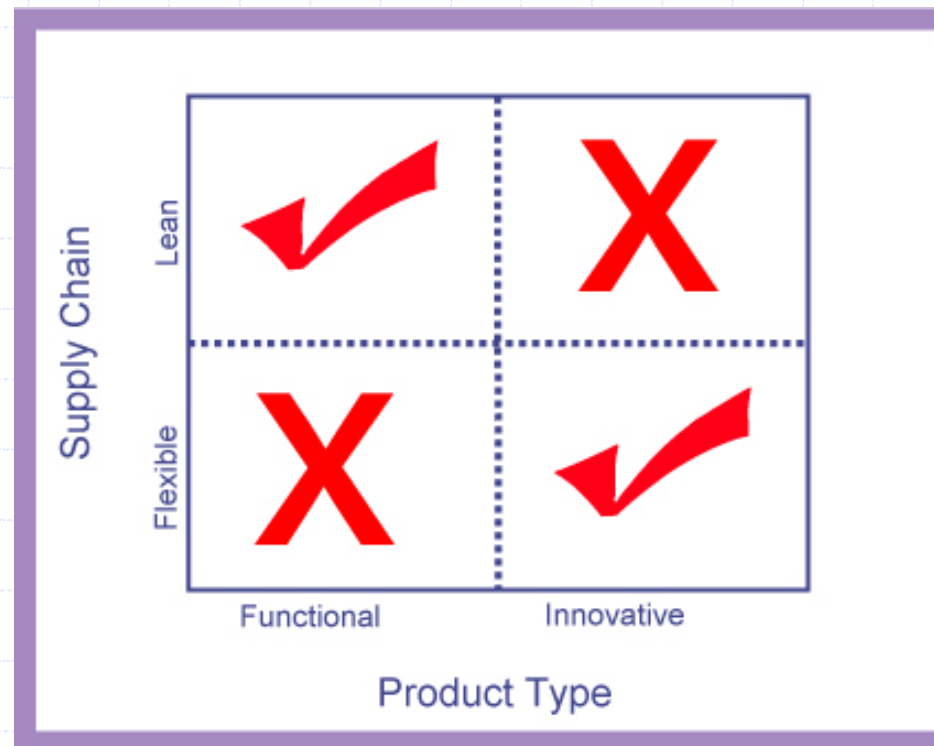
◆ Steps:

- ◆ Joint business process planning ($R+M$)
- ◆ Assemble data: (M)
- ◆ Forecast sales ($R+M$)
- ◆ Forecast orders ($R+M$)
- ◆ Generate replenishment orders ($R+M$)
- ◆ Order fulfillment (M)

◆ Significant successes

◆ But: high costs

Supply Chain Strategies



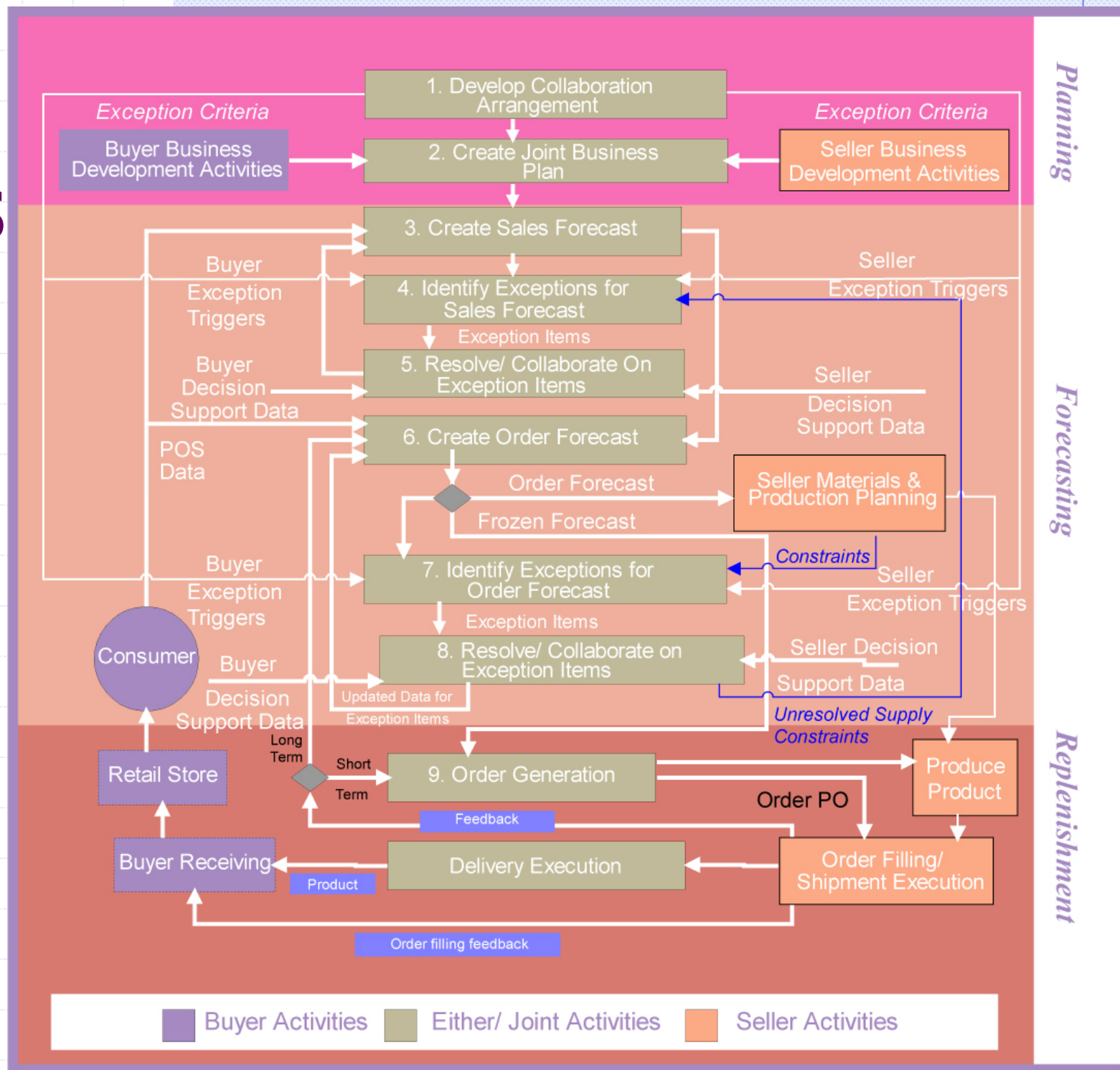
Role of Trust

- ◆ When there is none: difficult to collaborate
 - Requires a detailed contract
 - Stifles innovation; similar to arms' length
- ◆ When it is full: there is no need
 - Less fear of opportunistic behavior
 - “Implicit contracts” (based on consistent past behavior)
- ◆ Most collaborations: “Trust and verify”

Collaborative Planning, Forecasting and Replenishment (CPFR)

- ◆ Developed by the Voluntary Inter-industry Commerce Standards Association (VICS)
- ◆ Builds on “best-in-class” VMI and CMI implementations
- ◆ Principles:
 - Builds on the trading partners’ competencies (includes several “scenarios”)
 - Working off a single forecast which imbeds the retailer’s view (of multiple suppliers’ plans) and the supplier’s view (of multiple retailers’ actions)
 - Making the whole supply chain more efficient (optimizing the entire chain)

CPFR Process Model



Exceptions Engine Features

- ◆ Highly flexible exception criteria
 - Compound exceptions: absolute values and %
 - Comparisons to prior data generations
 - Comparisons to single values
 - Group and individual criteria
- ◆ Exceptions on KPI results
- ◆ Exception severity assignment
- ◆ E-mail alerts by criteria

Data Streams Examples

Retailer

Prelim POS (Units)
Actual POS (Units)
Store Inv (Units)
Store+DC Inv (Units)
Store Orders
Store Shipments
Store Returns
Store Waste
Retail Sales/POS (\$)
Retail Sales/POS (€)
Retail Sales/POS (£)
Retail Sales/POS (¥)
Lost Sales
Open to Buy
Store Open Orders
POS Forecast (Units)
POS Forecast (\$)
POS Forecast (€)
POS Forecast (£)
POS Forecast (¥)
Store Receipt Fcst
Store Rainchecks
Actual # Locations
Planned # Locations

Distributor

Retail DC Withdrawals
Retail DC Inventory
Retail DC Receipts
In-Transit Inventory
RDC Receipt Fcst
RDC Withdrawal Fcst
RDC Open Orders
Retail DC Backorders
Finished Goods Inv
Act Mfg Consumption
Shipments to DC
Quantity Unloaded
Unavailable Stock
Matl on Quality Hold
Safety Stock Thresh
Raw Mat Inv (Units)
Mfg Consumption Fcst
Work in Process
Mfg Receipt Forecast
Shipment Forecast
Scrap (Units)
Consignment Inv
RMA/RTV Inventory

Supplier

Supplier Inv (Units)
Supplier Avail Stock
Customer Allocation
Capacity

Internal

Mfg Org Fcst
Logistics Org Fcst
Sales Org Fcst
Finance Org Fcst
Marketing Org Fcst
Planning Org Fcst
Working Forecast

Consumer

Consumer Inv (Units)
Consumer Inv (Days)

KPIs

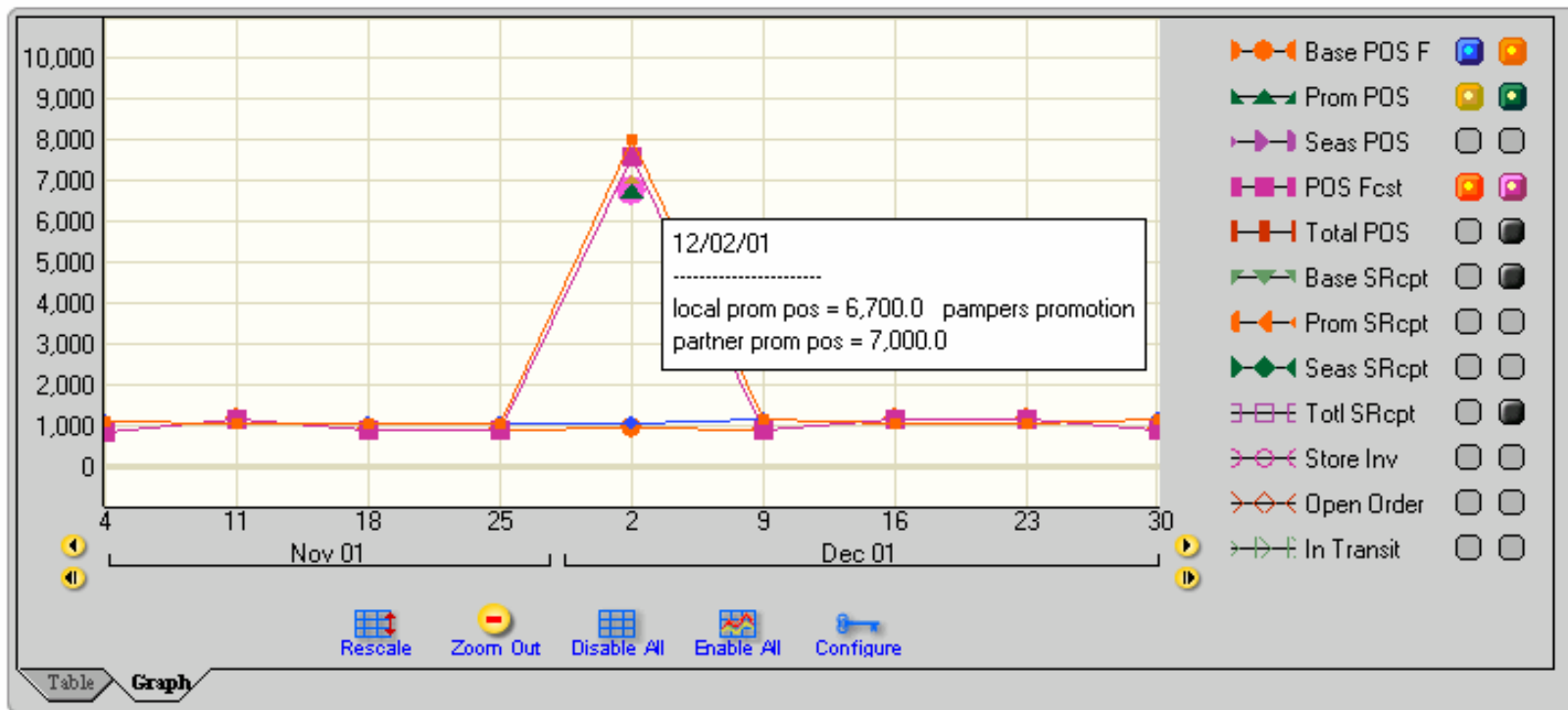
Gross Margin (%)
Category Rank
Category Share (%)
POS Forecast Error %
Ord Forecast Error %
Fill Rate (%)
Sales Growth Rate %
Inventory Turns
RDC Availability (%)
Store In-Stock %
Store Out-of-Stock %
Store Shrink (%)
Retail DC Stockout %
Store Inv (Days)
Raw Mat Inv (Days)

Admin

Items Processed
Items Rejected
Downtime
Collaboration Units

Original plan is synchronized

	11/04/01	11/11/01	11/18/01	11/25/01	12/02/01	12/09/01	12/16/01	12/23/01	12/30/01	01/06/02
Local Curr										
Base POS Fcst	800.0	1,101.0	820.0	847.0	900.0	821.0	1,100.0	1,100.0	820.0	840.0
Promo POS Fcst					6,700.0	Pampers Promotion				
Seasonal POS Fcst										
Total POS Fcst	800.0	1,101.0	820.0	847.0	7,600.0	821.0	1,100.0	1,100.0	820.0	840.0
Partner Curr										
Base POS Fcst	1,024.0	998.0	1,013.1	1,000.0	1,000.0	1,102.0	988.0	1,011.0	1,112.0	996.0



Easily set up criteria, so that when exceptions arise...

Individual Group

List | Template | Create

☐ Scorecard Name: Total POS FC

Time: ☒ Fixed ☐ Rolling

View by Time Period: None Period: [All Periods](#) ☐ Aggregate On Period

Template: None UOM: Base Units

Comparison: ☒ Current to Current ☐ Current to Previous ☐ Threshold

Type 1: POS Forecast (Units) Subtype: Total POS Fcst Type 1 is Local

Type 2: POS Forecast (Units) Subtype: Total POS Fcst Type 2 is Partner

Offset: ☒ None ☐ Period

Percent Formula: $[(\text{primary} - \text{secondary}) / \text{secondary}] * 100$

Absolute Threshold: 100 Change Percent Threshold: 15 Change

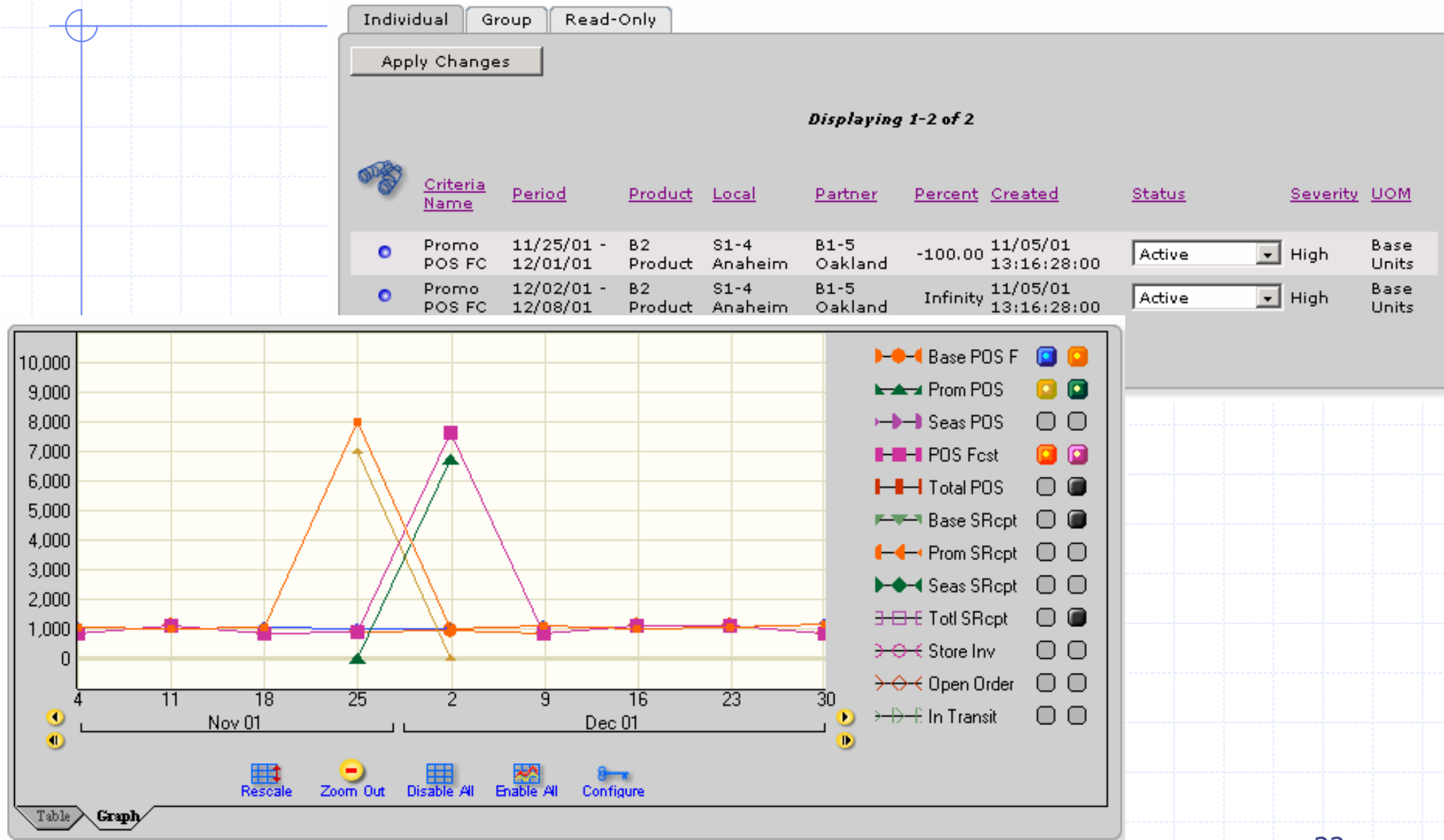
Severity: Percent Medium Severity: 20 High Severity: 25

E-Mail: buyer@target.com

☐ Trigger even if part of group

Create Cancel

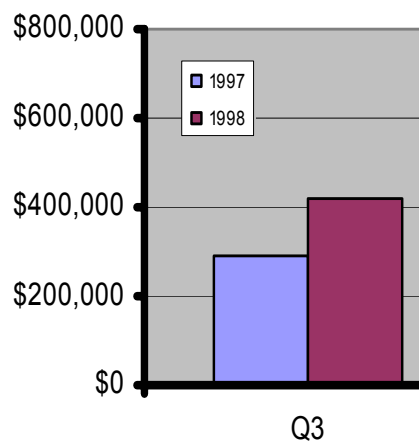
Exceptions can be quickly spotted



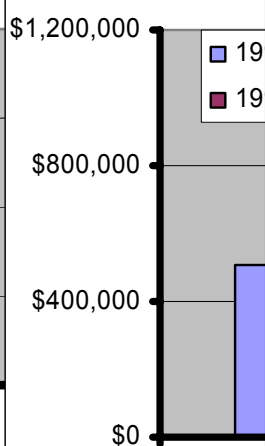
CPFR Pilot Projects: Nabisco and Wegman's

- ◆ 22 Planters nut items
- ◆ July 1998 – January 1999; expanded with Milk Bone pet food to June 1999
- ◆ Shipping: from one Nabisco DC to one Wegman's DC to all 58 outlets
- ◆ Technology: EDI and spreadsheets
- ◆ Quarterly planning
- ◆ Results:

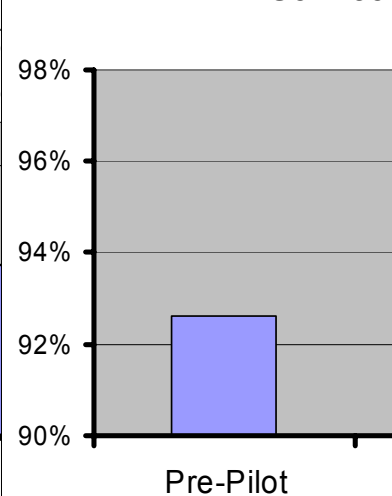
Planters sales at
(Source: P



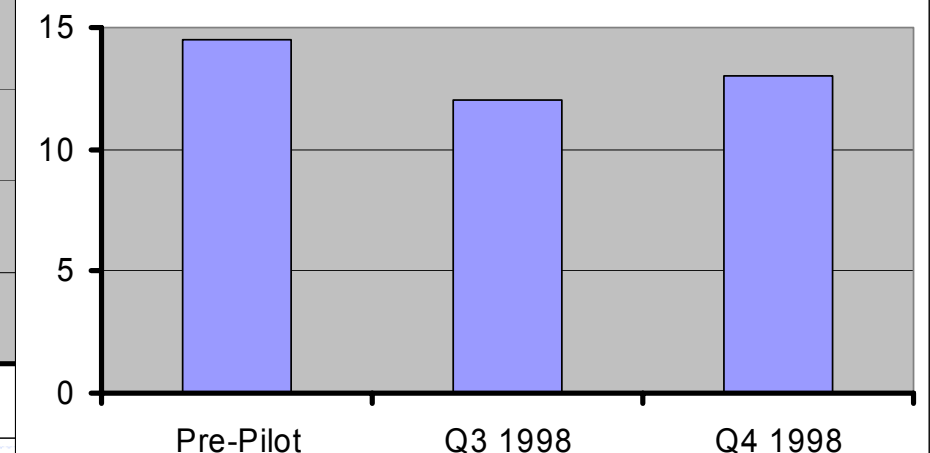
Wegman's



Service level t



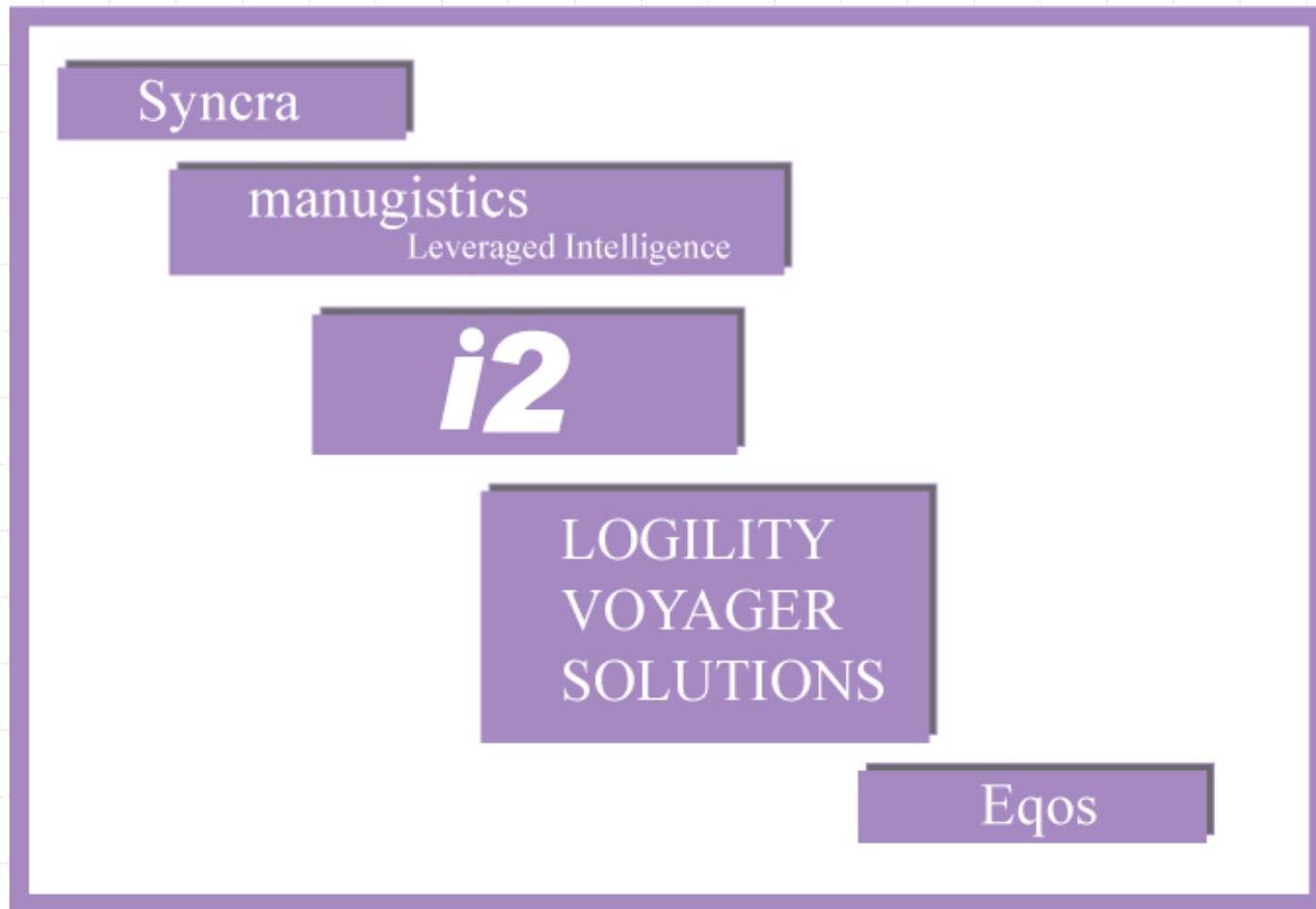
Days of Supply



CPFR Pilot Projects: Kimberly Clark and Kmart

- ◆ *Depend* product line
- ◆ 2100 stores, 14 DC-s, 16 SKU-s (later expanded)
- ◆ Technology: *Syncra Ct*
- ◆ Results:
 - Increased in-stock rate from 86,5% to 93.4% without overall increase in inventory levels
 - Increase in retail sales by 14%
 - Cost avoidance by discovering discrepancies
 - Identification of many store locations with significant over-stock
 - Unexpected benefits: improved coordination around product rollovers and new product introductions

The Software Providers



CPFR Case Study: Superdrug & J&J

- ◆ Superdrug:
 - 700+ store in the UK
 - All health and beauty goods (premium skin care, fine fragrances, medicines and pharmacists)
- ◆ Pre-trial work
- ◆ Project time lines
- ◆ Problems Encountered
- ◆ Weekly Process
- ◆ Exception Criteria
- ◆ Results
- ◆ Next Steps

Pre-trial work

◆ Choosing a supplier

- Done work with J&J SC folks
- Similar culture
- Committed to speed without fuss
- Wanted to do the project

◆ Setting collaboration objectives

- Agreed-upon sales forecast
- Developed a scorecard for benefit tracking

◆ Front End Agreement

- Expectations
- Responsibilities

Project Time Line

Start date	Activities
Apr 2000	◆ Select Project Sponsor ◆ Project Brief Completed
May 2000	◆ Front End Agreement ◆ Joint Business Plan ◆ Project “ Kick Off”
July 2000	◆ Training
Aug 2000	◆ Weekly collaboration
Dec 2000	◆ Project completion

Problems Encountered – Technical

- ◆ Alignment of Superdrug & J&J exception criteria
 - Partner had difficulties aligning the criteria.
 - Solution: used the S/W vendor to do it.
- ◆ Visibility of data at Superdrug
 - Firewall problems, slow response
 - Solution: changed internet provider
- ◆ Multiple exceptions against single product
 - A problem with J&J sales forecast manifested itself in all weeks
 - Solution: software fixed to recognize this
- ◆ Inconsistent data feeds from supplier
 - Some bar code inconsistencies

Problems Encountered – People & Processes

- ◆ Time available to work on project
 - More work than expected initially
 - Solution: redefined roles and responsibilities so people focused only on their part
- ◆ Depth of Resource
- ◆ Project Discipline
- ◆ Tracking of benefits
 - Watching the joint scorecard

Weekly Process

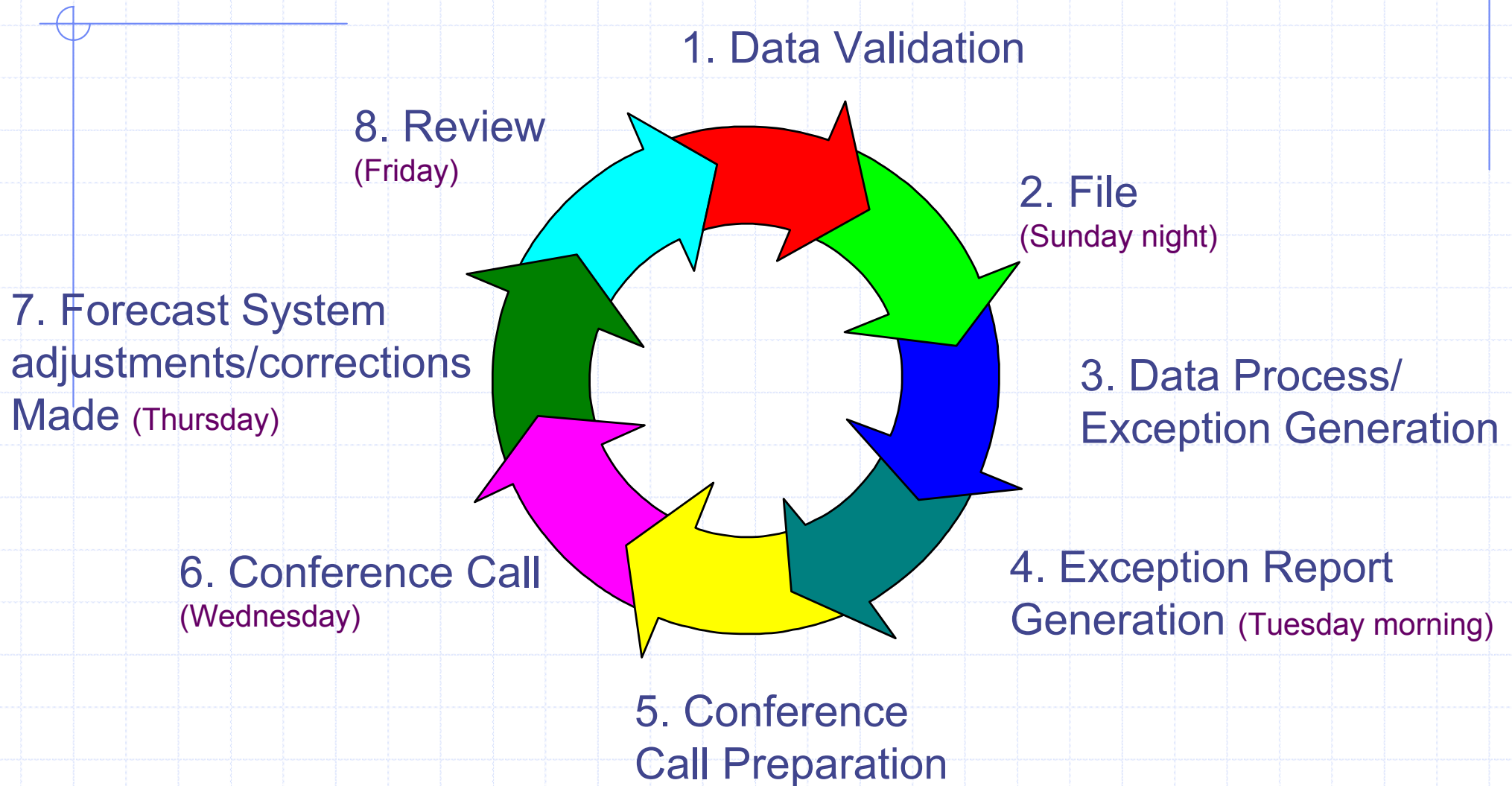
◆ Collaborated on:

- Sales forecast
- Order forecast vs. actual order

◆ Measured:

- Inventory
- Actual Sales vs. sales forecast
- Order sent vs. order received

Weekly Process



Exception Criteria

- ◆ Greater than 20% sales forecast error 8 weeks out
- ◆ Greater than 10% sales forecast error up to 8 weeks out
- ◆ Order forecast greater than 20% error
- ◆ Actual orders vs. shipments

Results - Subjective

- ◆ Highlighted relevant issues
- ◆ Gave access to a range of previously unavailable data
 - Supplier's internal forecasts of orders and sales
- ◆ Collaboration tool was easy to use and navigate through
- ◆ Improved communications between Superdrug and J&J via weekly conference call, further raising of J&J's profile within Category Supply Team

Results - Measurable

- ◆ Stock reduction in RDC of an average of 13%
- ◆ RDC availability increase of 1.6%
- ◆ Forecast accuracy improved by 21%
- ◆ RDC cover (DOS) reduced by 23.8% against an increase of 11.8% for non trial lines

Progress made since trial

- ◆ New Product Introductions
- ◆ Promotions
- ◆ Rollout to more SKU's & suppliers

Any Questions?