

Forecasting Demand and Beyond

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A Few Forecasting Techniques - Grocery Industry

- 🎯 Pile high and watch it fly
- 🎯 Random walk
- 🎯 Dart Board
- 🎯 Back in to Bonus
- 🎯 I'm the Market Leader
- 🎯 Last year plus 10%
- 🎯 Lock and Load

Collaborative Demand Forecasting ...

The process of collectively estimating future demand for an organization's products or services



Interesting Demand Influences and Relationships

- ☛ Beer and bad weather
- ☛ Spirits and really bad weather
- ☛ Red wine and the Atkins diet
- ☛ Ice wine and over 55
- ☛ Martinis and Baby Boomers
- ☛ Crown Royal and under 25
- ☛ Growing importance of ethnic population and imported beer

Demand Forecasting

Customers

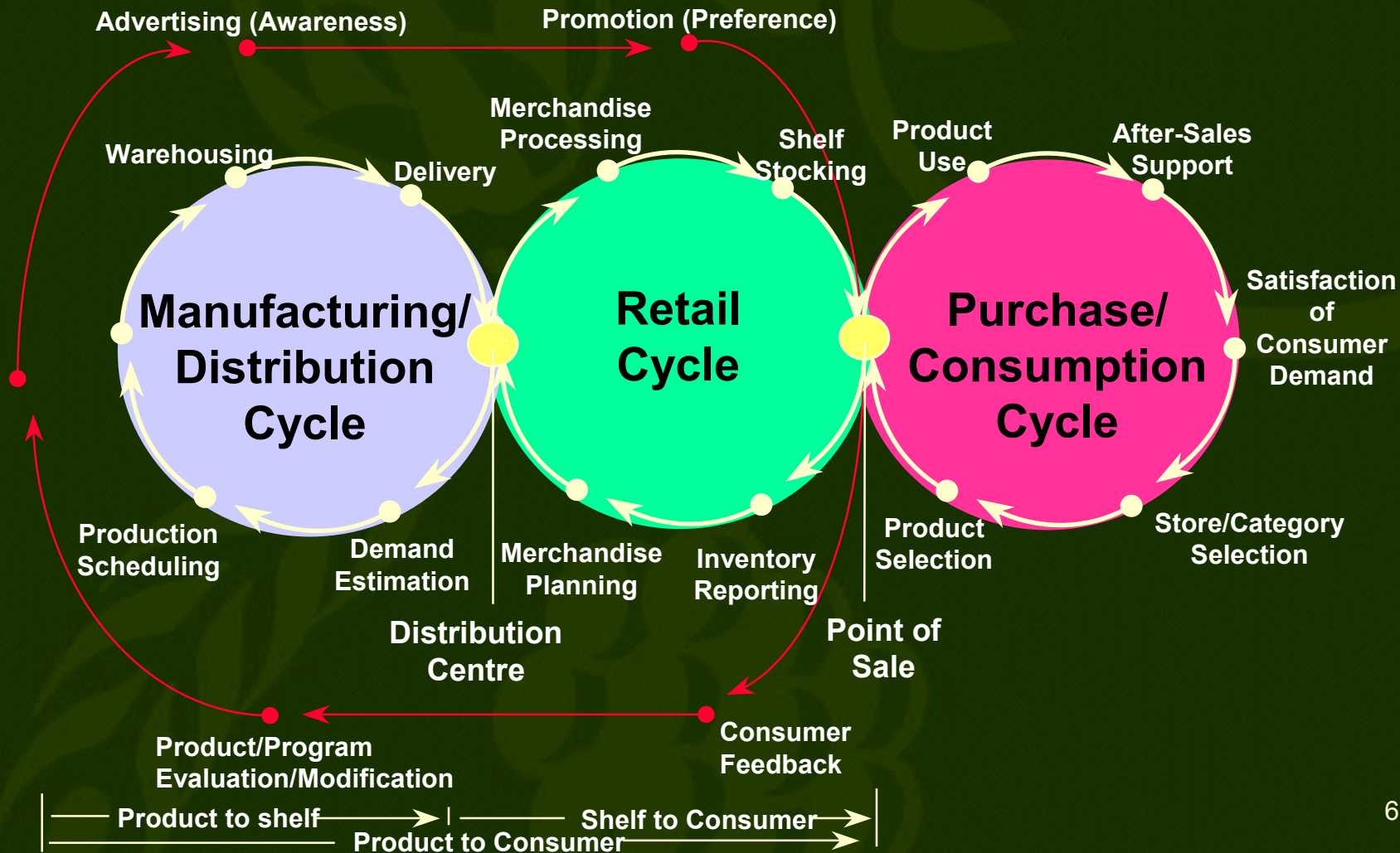
- ☞ Who is target customer
- ☞ Size of target market
- ☞ Buying power
- ☞ Buying behavior
- ☞ Growth potential

Products

- ☞ Unique or commodity
- ☞ Really New or Me Too
- ☞ Size of market
- ☞ Market potential
- ☞ Capacity for Profit

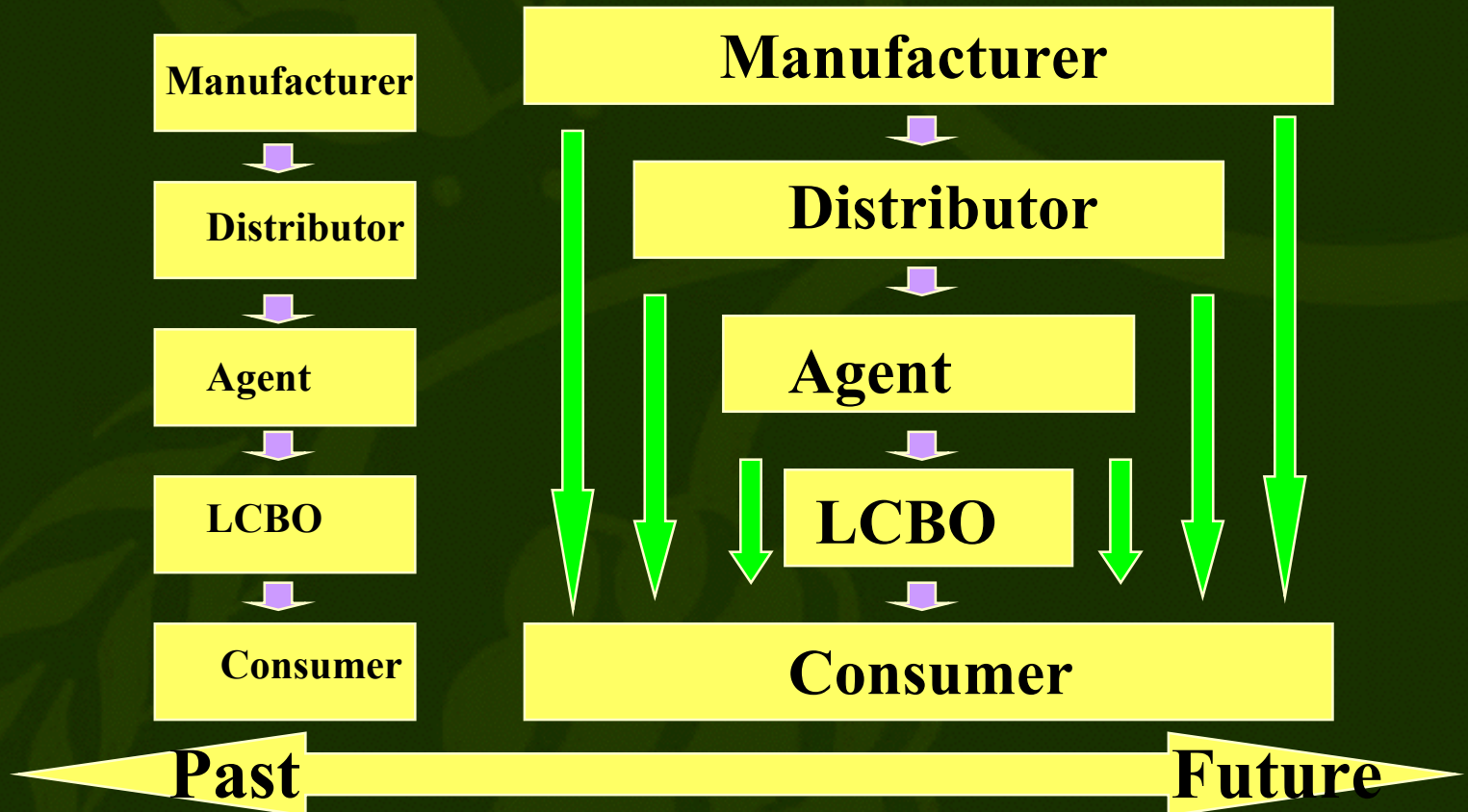
Competitors?
Market Position?
Promotions?

Transition Cycles in Consumer Marketing



Forecasting Implications

 *Internet*
 *Conventional*



Elements of Collaborative Demand Forecasting

Consumer Predictability

Effective Communication

Levels of Influence & Responsibility

Manage Process



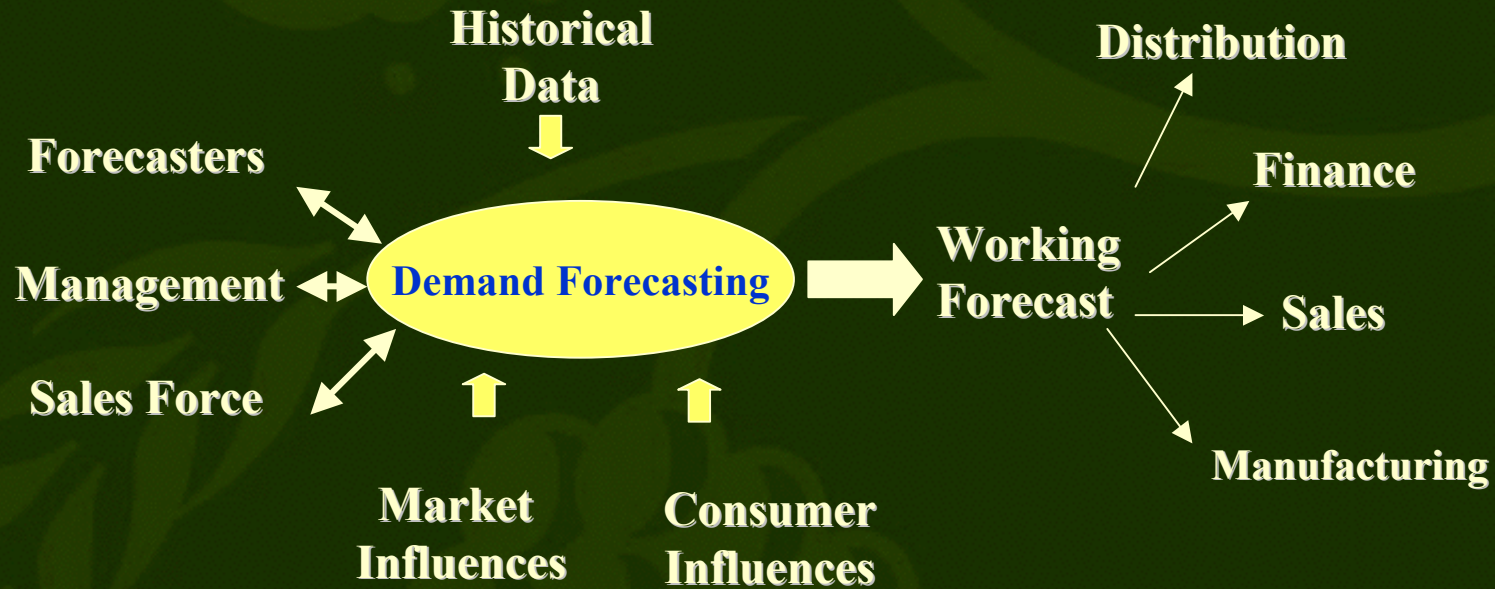
Demand Forecasting

Inventory Policy

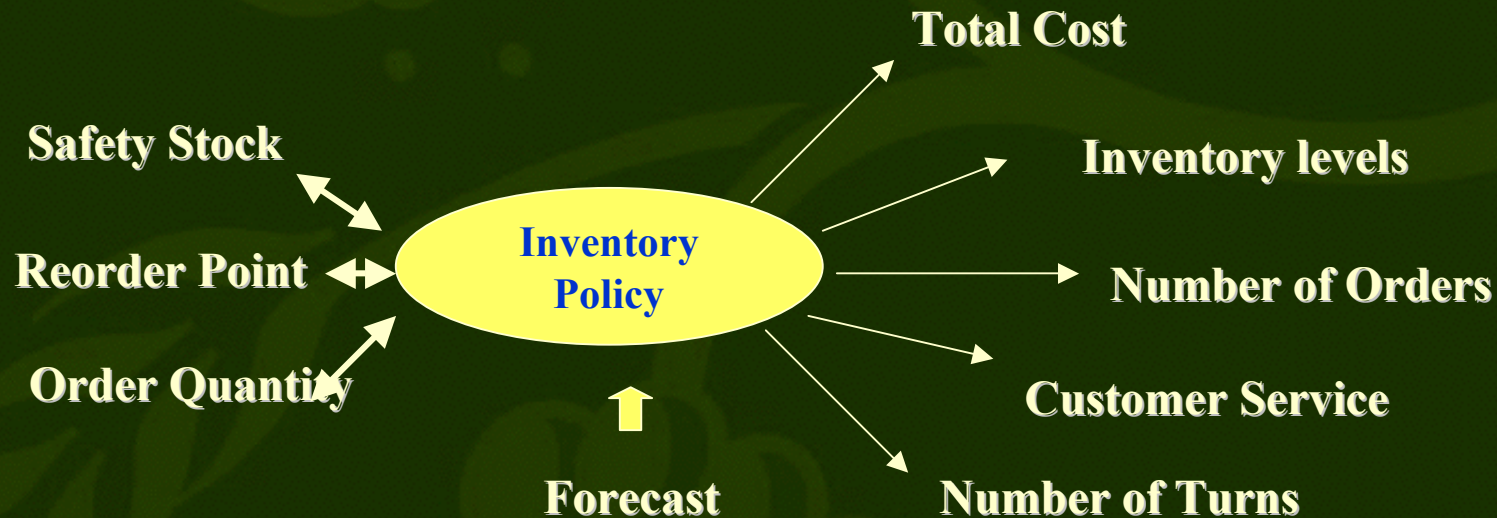
Scheduling and Production

**Collaborative Demand Forecasting
will require a strong commitment
to effective communication and
the continuous sharing of
information between key
stakeholders**

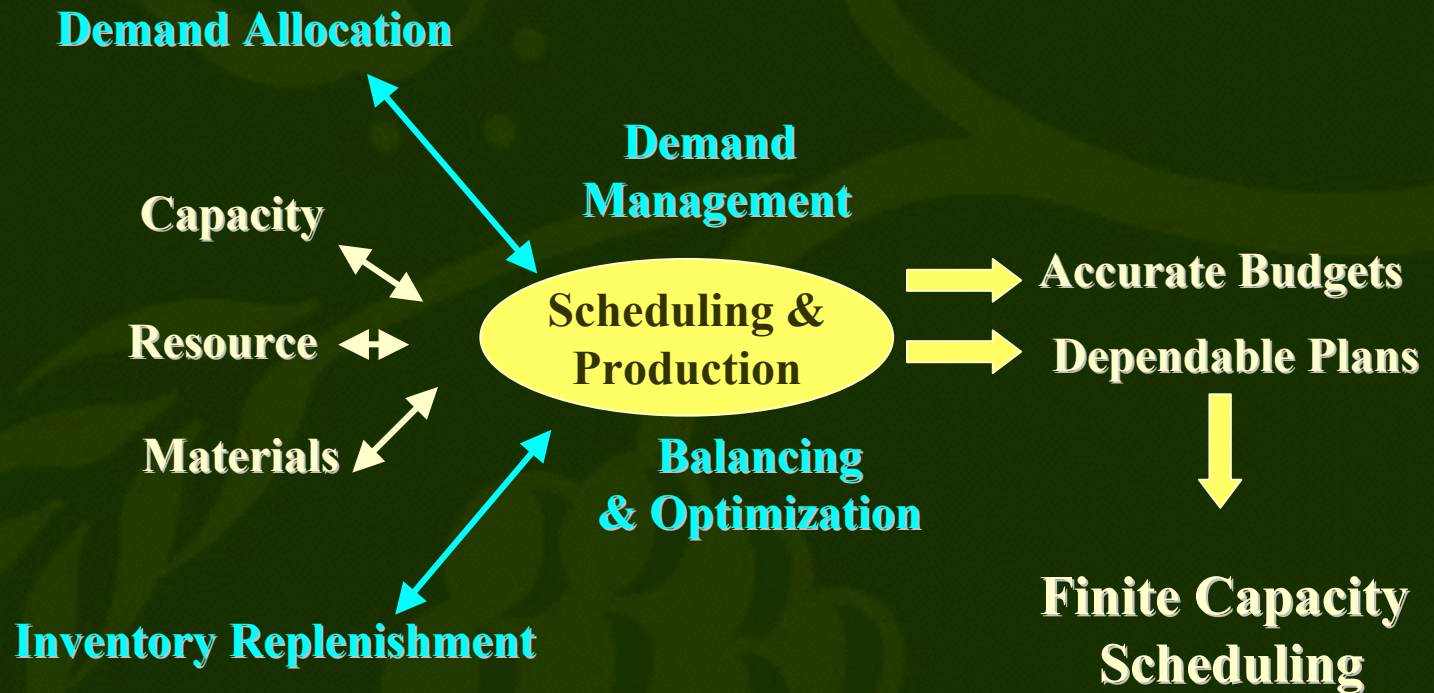
Demand Forecasting



Inventory Policy



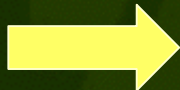
Scheduling & Production



Demand Forecasting Challenges

- ☞ Too much information
- ☞ Not enough information
- ☞ Wrong information
- ☞ Can't find information
- ☞ Do not understand information
- ☞ Cannot share information
- ☞ Do not use information

Garbage in



Garbage out

Information Sources

Manufacturer

- POS Data
- Consumer Data
- Primary Market Research
- Secondary Market Research
- Promotion and Advertising
- Market Trends
- Consumer Dynamics at Retail
- New Product Performance

Retailer

- Sale of data info
- Consumer Data
- Primary Market Research
- Secondary Market Research
- Promotion and Advertising
- Market Trends
- Consumer Dynamics at Retail
- New Product Performance

Information Sources cont'd

Manufacturer

- Warehouse and shipment data
- Consumer preference data
- Geo-demographic information
- Space management data
- Market level data (pricing, marketshare, shipments, etc.)
- Airmiles

Retailer

- Warehouse and shipment data
- Consumer preference data
- Geo-Demographic Information
- Space management data
- Market level data (pricing, marketshare, shipments, etc)

Collaborative Forecasting Opportunities

- 🐼 Collaborative forecasting significantly increases forecast accuracy
- 🐼 Most companies utilize 25-50% of available information to forecast demand
- 🐼 An opportunity for Marketing and sales to work together more often
- 🐼 More information will be shared and internalized
- 🐼 Most forecasting information requirements exist in your organization

Collaborative Forecasting Benefits

- More accurate demand forecasts resulting in increased sales and profits
- Ability to more effectively capitalize on market opportunities
- Better understanding of the evolution of consumer needs
- More effective new product launches and promotions
- Faster adoption of current and emerging technologies and industry initiatives (ECR and Category Management)
- More effective communication between the LCBO and the Trade

Collaborative Forecasting Benefits - Supply Chain

- More effective production scheduling and lead times
- More effective utilization of supplier production facility
- Reduced out of stocks and higher fulfillment accuracy
- More effective and efficient utilization of Supply Chain Resources (ABC impact) (i.e. scheduling and receiving)

Something to think about ...

What information will you require from the Trade and the LCBO to collaboratively forecast the following and how would you measure your success?

- 🍷 Crown Royal Gift Set
- 🍷 Crown Royal Limited Edition
- 🍷 Absolut Mandarin

Appendix 1 - Scorecards



A Typical Scorecard

Category - Canadian Whisky

Manufacturer	# Skus	\$ Sales	Trend	\$ Profit	Trend
Vendor A					
Vendor B					
Vendor C					
Vendor D					

Consumer Behavior

MEASUREMENT

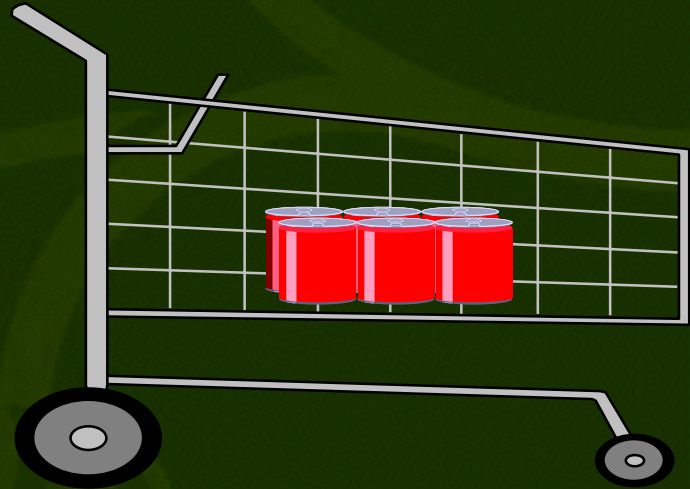
- 🐼 Item share of Cons. Requirements
- 🐼 Penetration
- 🐼 Frequency
- 🐼 Basket Analysis
- 🐼 Units/Transaction
- 🐼 Cherry Pickers/Loyals

PURPOSE

- 🐼 Brand Loyalty
- 🐼 % HHLDS Purchasing
- 🐼 Frequency Purchase
- 🐼 % Shoppers Buying
- 🐼 Propensity Pantry Load
- 🐼 Value of Consumers

Do you Understand How your Products are Purchased?

- Can you identify your most loyal consumer?
- Do you understand what they purchase most often?



Consumer Behavior Scorecard

Basket Case # 1

Average Shopping Basket Value

% Consumers with Baskets > \$60

% Consumers with Baskets > \$35

% Consumers with Baskets < \$20

Basket Case # 2

Category Penetration

% Consumers with Baskets > \$60 and buy cheese

% Consumers with Baskets > \$35 and buy cheese

% Consumers with Baskets < \$20 and buy cheese

Performance Scorecard

	% sales	% Shelf	%Display
Vendor A	25%	25%	15%
Vendor B	40%	15%	5%
Vendor C	10%	35%	20%



Appendix 2 - Statistics 101

Forecasting Techniques

- ☛ Time Series Analysis
- ☛ Moving Averages
- ☛ Exponential Smoothing
- ☛ Regression Analysis

Time Series Analysis

Time Series Analysis identifies patterns in data

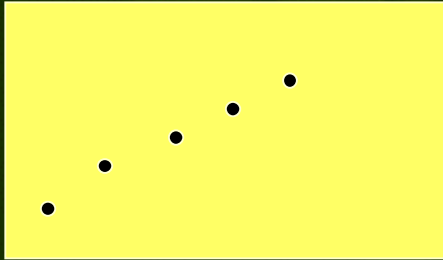
- 📈 Trends

- 📈 Seasonal

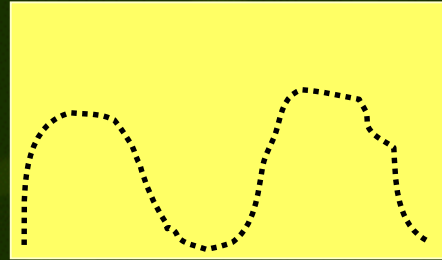
- 📈 Cyclical

- 📈 Random

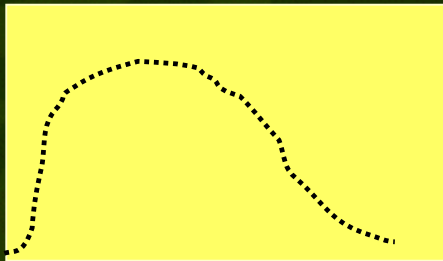
Time Series Analysis



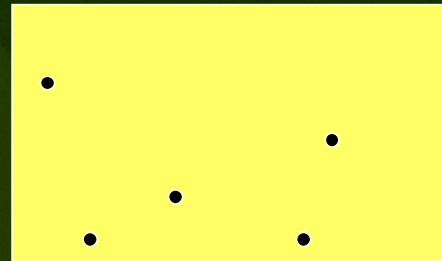
Trend



Seasonal



Cyclical



Random

Moving Averages

Simple Moving Averages

- Average of past data over a specific time period and uses the result to forecast the future

Weighted Moving Averages

- Assigns a predetermined weight to each data point and thereby puts more weight on recent time periods as a basis for forecasting

Rule # 1 - A forecast is never 100% accurate

Rule # 2 - If it is something is wrong

Exponential Smoothing

- Uses exponential weights to to accomplish weighted moving average
- Exponential smoothing uses alpha α (a value greater than 0 and less than 1)
- Requires two data points
 - original forecast
 - actual demand for for present time period

$$F_{t+1} = F_t + \alpha (D_t - F_t) \quad \alpha = 2/(n+1)$$

n = number of periods in a moving averages

Regression Analysis

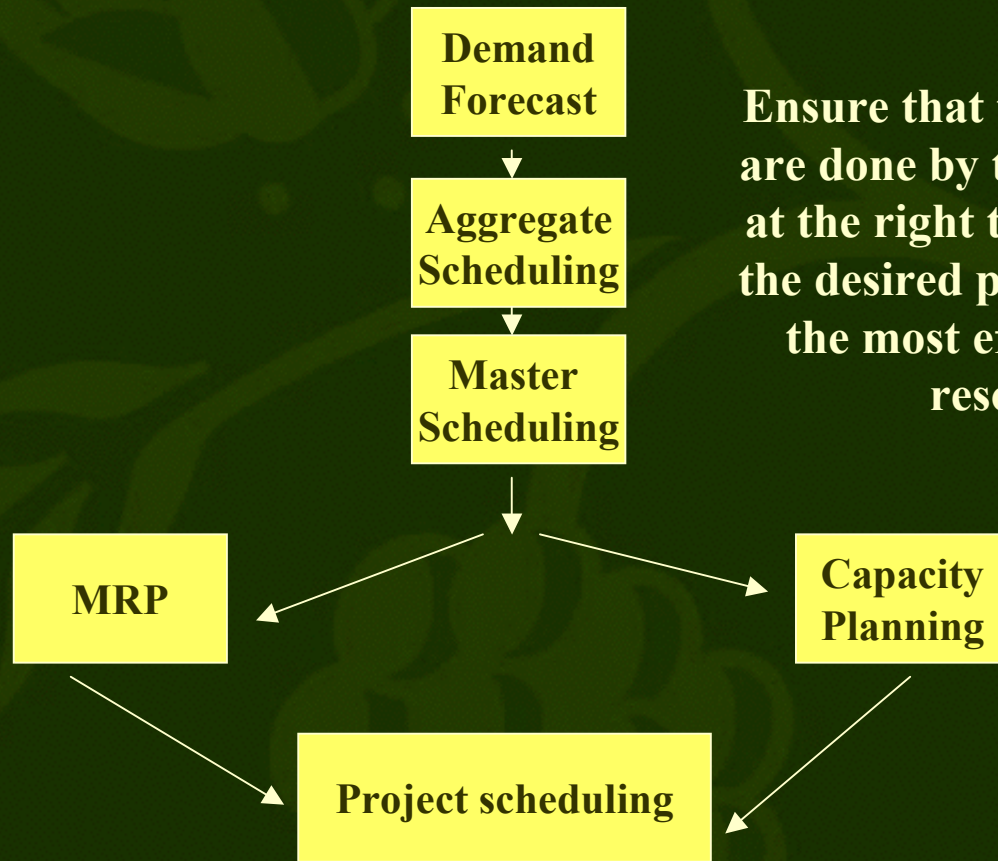
- Regression analysis used for long range forecasts because moving averages and exponential smoothing can average out important seasonal trends
- Focus on dependent and independent variables $Y = a + bX$

Y is the dependent variable

X is the independent variable

a,b are constants

Basic Scheduling Activities



**Ensure that the right things
are done by the right people
at the right time to produce
the desired product through
the most efficient use of
resources**

Economic Order Quantity

**Economic Order Quantity = the square root of
(two times the actual demand for inventory use
times ordering cost) divided by the carrying cost**

Tip - Too complicated for today's exercise

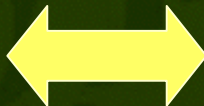


Appendix 3 - Supply Chain Trends and Initiatives

Efficient Consumer Response - Background

ECR began when retailers began searching for a way to compete in an environment where consumers have a lot of shopping choices and suppliers have a number of alternatives for distribution

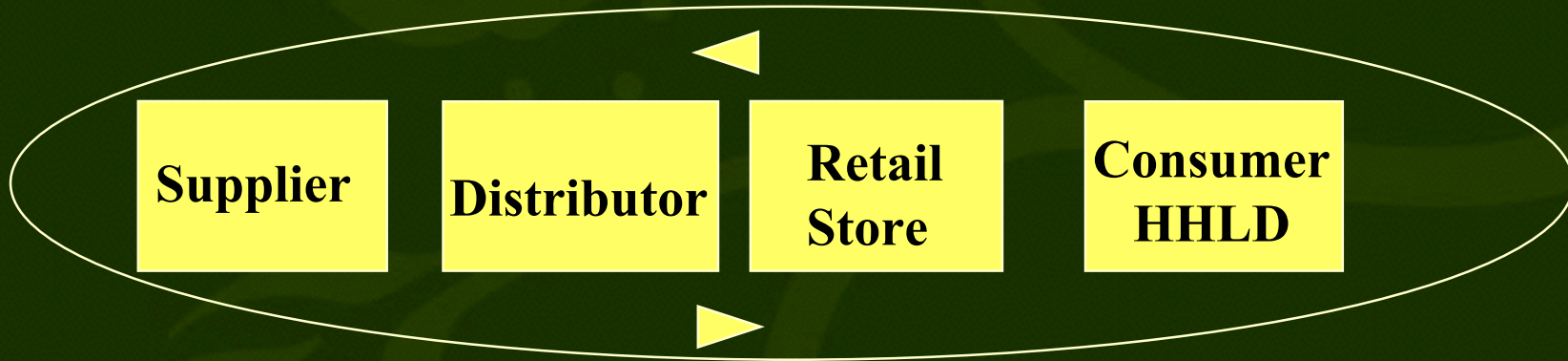
**A timely, accurate,
paperless flow of
information**



**Smooth, continual
products flow matched
consumption**

ECR Vision

Timely, accurate, paperless, information flow



Smooth, continual, product flow matched to consumer

Evolution Towards Future Supply Chain

Progressive ECR Implementation Steps

1. UPC
2. POS Scanning
3. Category Mgmt Plannograms
4. EDI
5. Partnerships
6. Multi-Company Teams
7. POS Data Vendor Forecast by Warehouse
8. POS Data Vendor Forecast by Store
9. Warehouse Perpetual Inventory *cont...*

Evolution Towards Future Supply Chain

cont...

Progressive ECR Implementation Steps

- 10. Cross-Docking via UCS**
- 11. Store Perpetual Inventory**
- 12. EFT Based on Vendor Owned Inventory**
- 13. Full Replenishment**
- 14. Collaborative Forecasting**

The Flows of Information Support Two Independent Replenishment Cycles



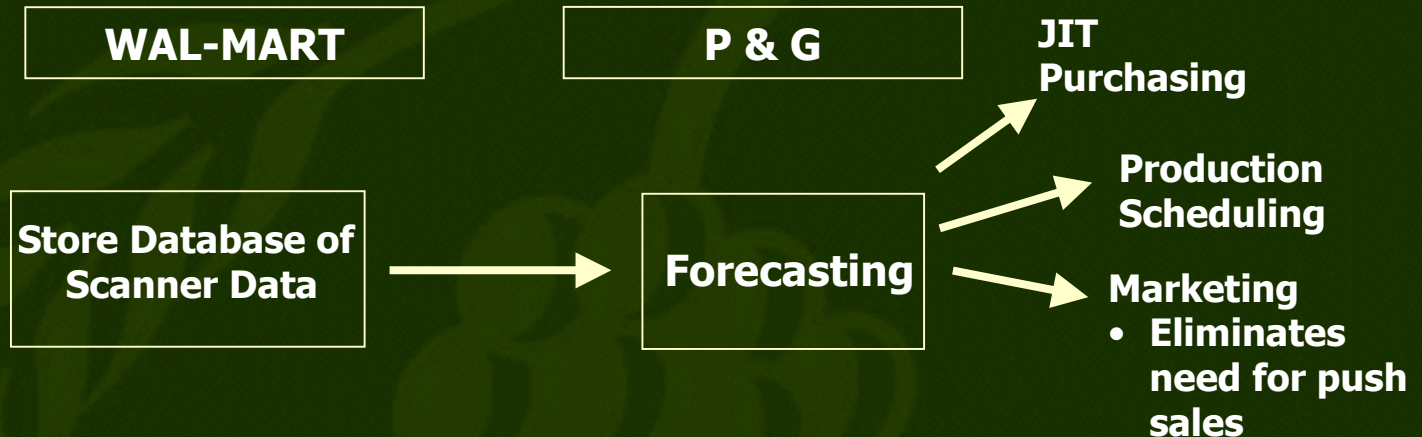
ECR Industry Requirements

- Managed E-Business Solutions
 - Intranets
 - Extranets
 - VANS
- Electronic Catalogues
- Connectivity - Business to Business & Business to Consumer
- Electronic Payment Solutions

FORECASTING: Procter & Gamble/Wal-Mart

**Continuous Replenishment
That Eliminates Written
Orders and Invoices**

**True Partnership Based
on Achieving Long Term
Benefits for Both Parties**



INCREASED SALES DECREASED INVENTORIES - Concentrate on Consumption of Product rather than Just Getting it Out of the Warehouse

Must link ECR Strategies to Financials

Functional Model Focus

**Product &
Distributions**

Operations

Consumer

ECR Strategies

Efficient replenishment

Efficient Promotions

**Efficient Store
Processes**

Category Management

Efficient Assortment

Efficient Product Intro.

Initiatives

- Strategy & Planning
- Order Management
- Delivery
- Receiving
- Payment & EDI
- Strategic Program Planning
- Event Presentation & Selection

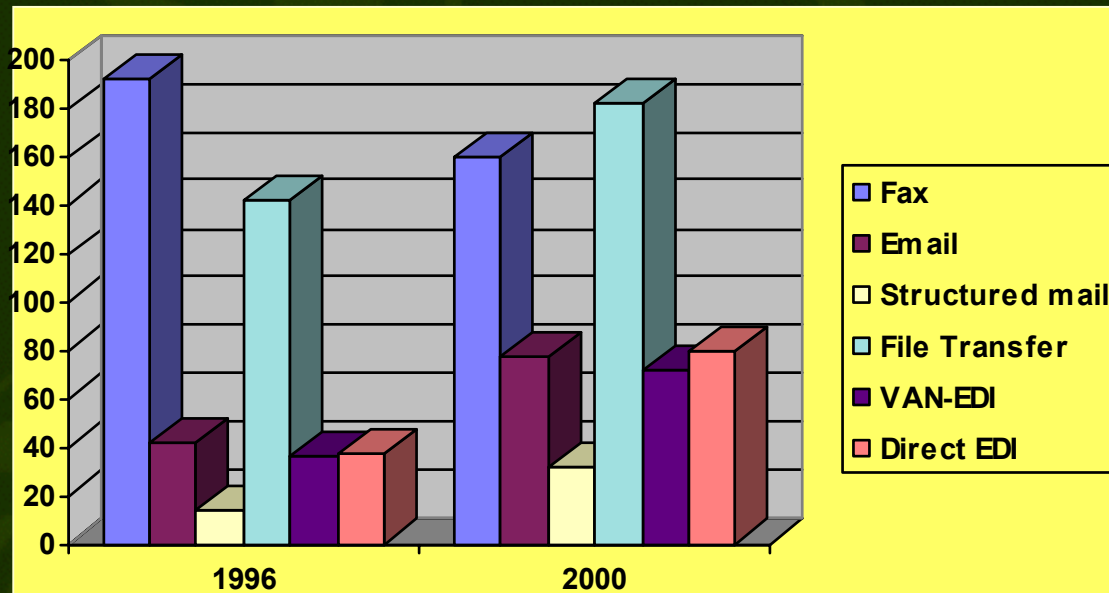
- CAO
- ASN's
- Labor Scheduling
- Receiving
- Merchandising

Strategy	Relationships
Business Processes	ABC
Measurement	Org. Capabilities
Information Tech	Results
Category Analysis	Category Analysis
Opportunity Evaluation	

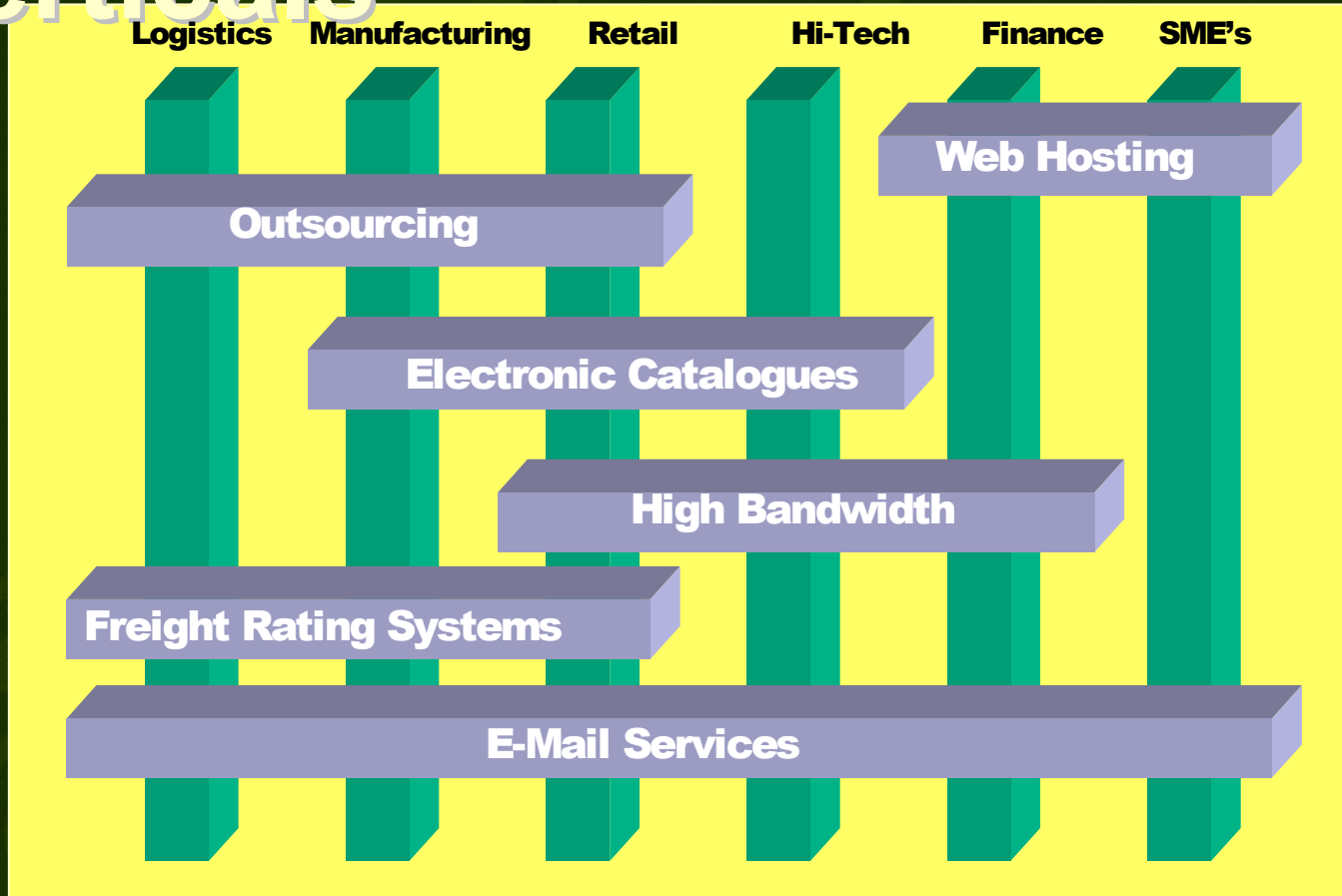
Virtual Value Chain ABM



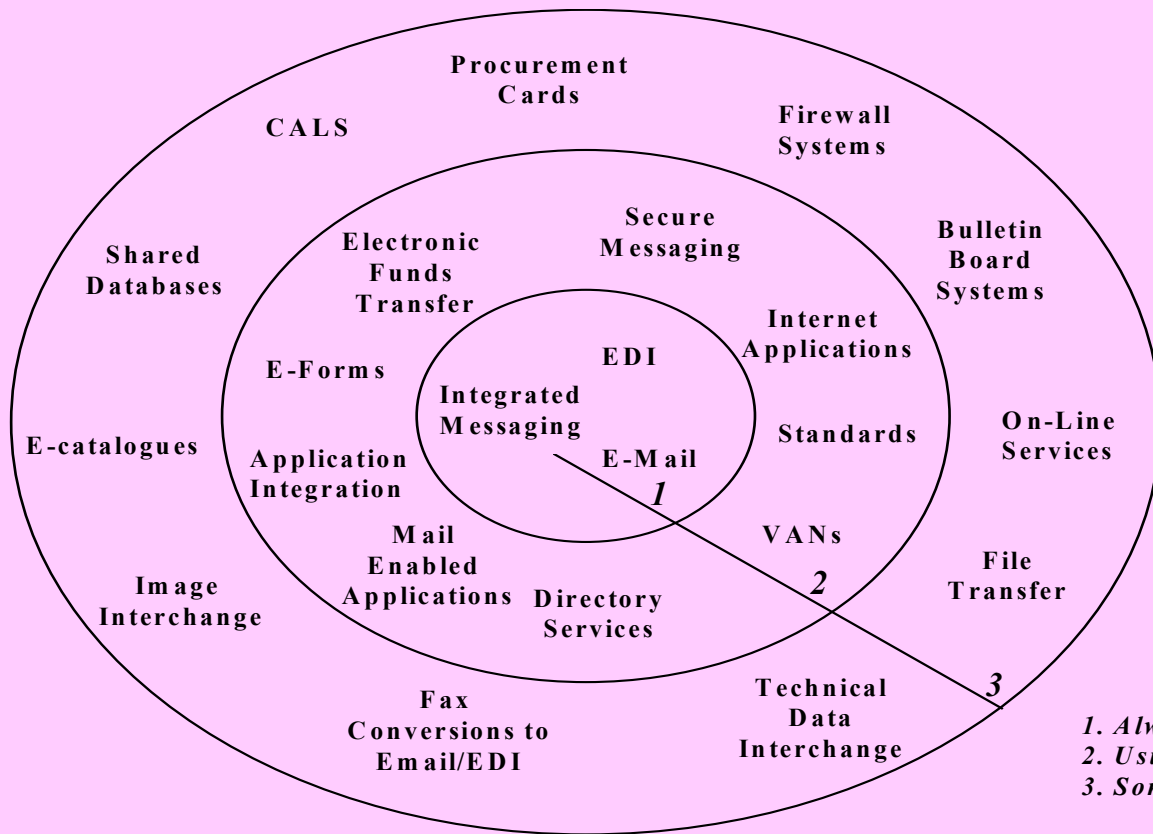
EC Growth - Email and EDI in the Next 5 years



Relationship of E-Commerce to Industry Verticals



Components of Electronic Commerce



Canadian Supply Chain Initiatives



***Efficient Consumer Response
Grocery***



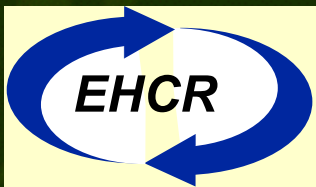
***Efficient Consumer Response
Drug***



Efficient Foodservice Response



Canadian VICCS Council



Efficient Healthcare Response