

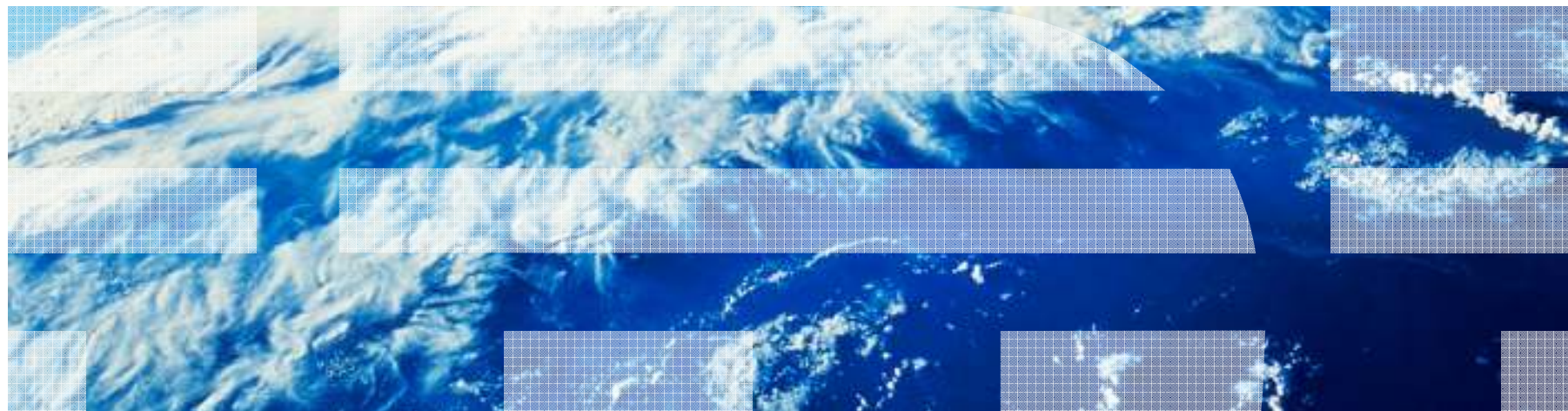
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# Optimize Supply Chain Planning & Execution

**Rahul Jadhav**

Business Manager – Commerce Solutions

23<sup>rd</sup> Nov, 2011



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# Agenda

Supply Chain: Key objectives and Business Challenges

Approach to Maximize Supply Chain Opportunities

Leveraging IBM Solutions

Why Now – Greater ROI !

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Supply Chain: Key objectives and Business Challenges

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## Key objectives

Growth  
(Revenue/Volume)

- **Improve customer Orientation** (service levels, deliver to promise, customer retention etc)
- Leadership through **new products & promotions**

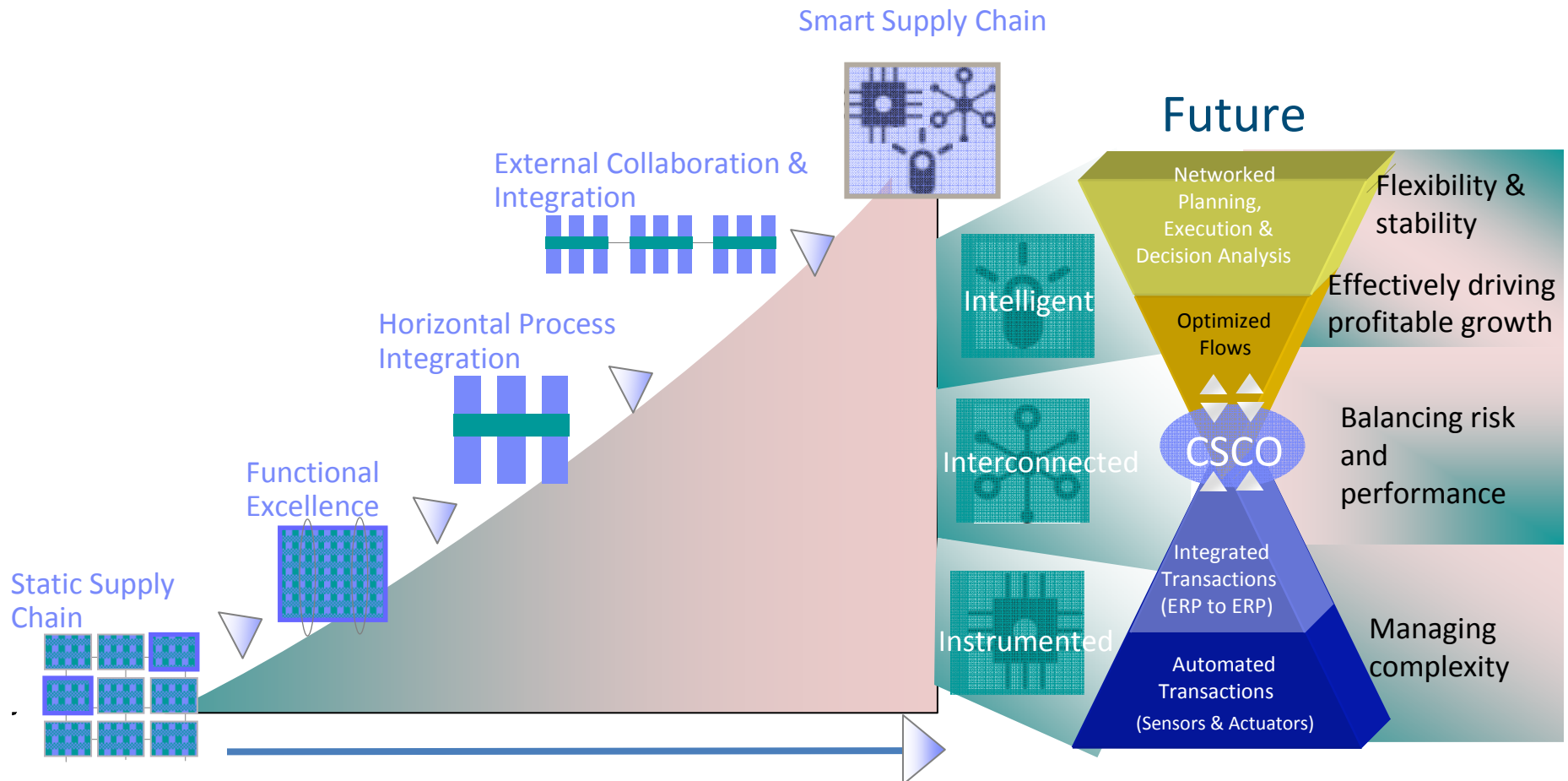
Improve Net  
Realization (EBIDTA)

- **Optimize Total Landed Cost**
- **Reduction in Inventory**
- Optimization of freight costs

Improve Asset  
utilization

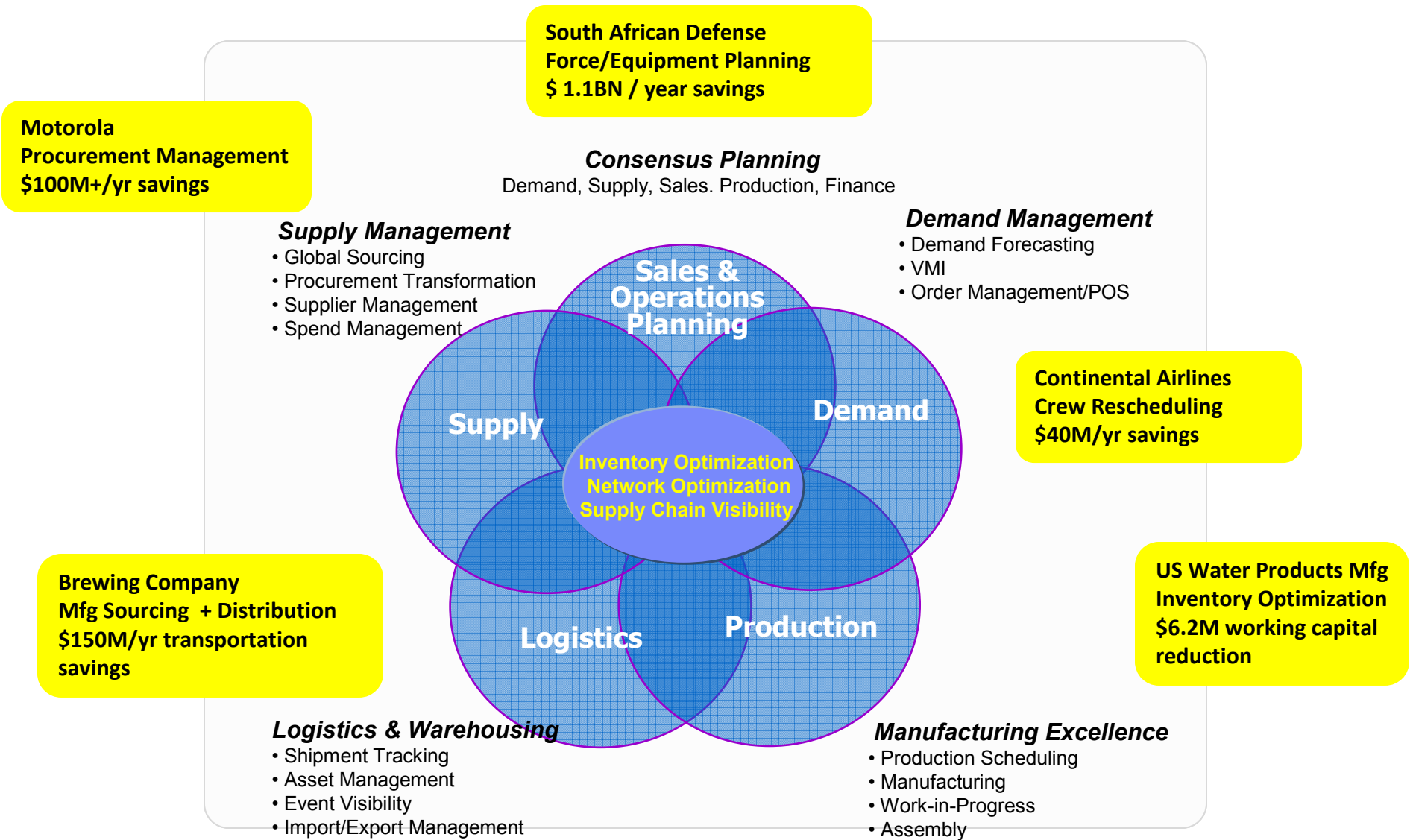
- Improved asset utilization **for plants and logistics**
- Reduced order fulfillment **cycle time**
- Integrate supply chain to **increase velocity**

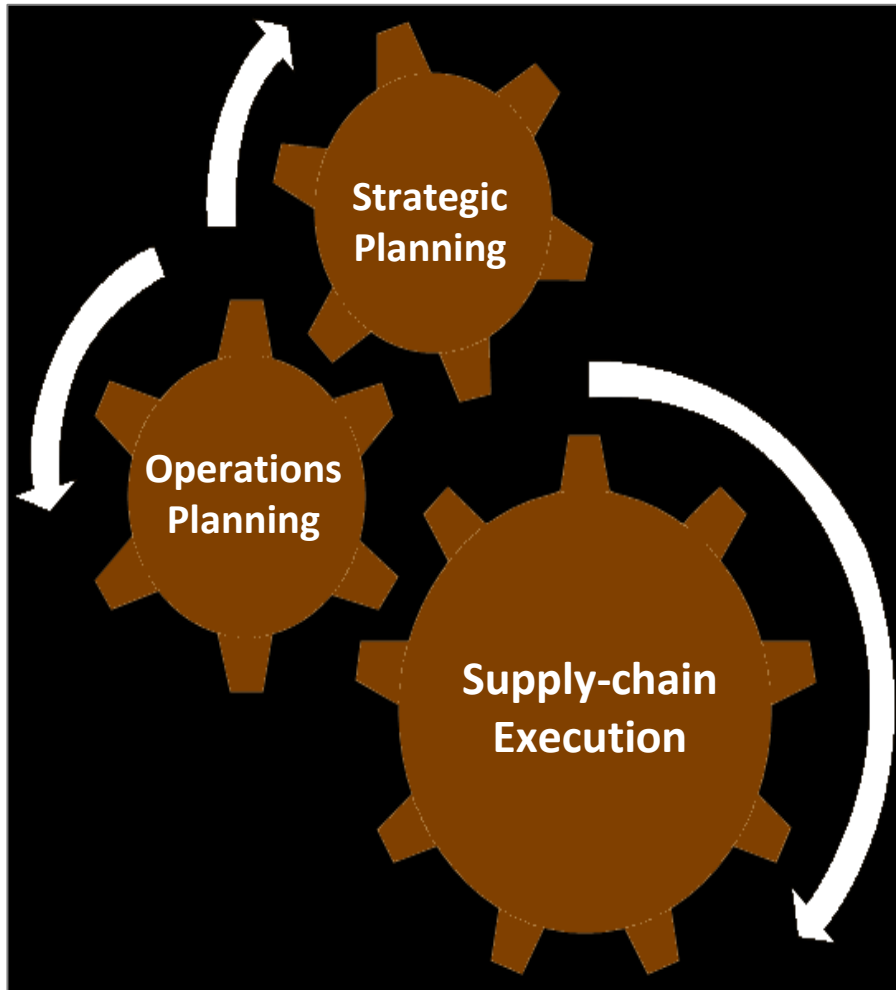
# Our point of view on the progression of supply chain management of the future



**Clients typically find themselves at various points on this journey based on division/business unit, product and/or customer**

# Supply Chain Optimization drives dramatic results





- **Strategic (Long-term) planning** focused on customer, revenue and profits
- **Operations planning** to drive operational efficiencies, reduce waste and improve KPIs
- **Supply Chain Execution** aligned with overall strategy & operations

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Supply Chain: Key objectives and Business Challenges

**Approach to Maximize Supply Chain Opportunities**

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## Three pronged approach:

1. Redesign Supply Chain Network
2. Redefine Inventory Strategy
3. Redefine Transportation Strategy



# Maximize SCM Opportunities: **Strategic Planning**



**Network + Inventory + Transportation Optimization = Significant ROI**

## 3. Transportation Optimization

**Goal - Optimize Cost & Route Planning**

- Evaluate Transportation Strategies
- Multi-modal fleet, Tariff Simulations
- Inbound & Outbound planning

## 1. Network Optimization

**Goal - Optimize Cost & Service Delivery**

- Optimum # of facilities
- Optimum Demand-Supply Linkages
- Sourcing, Capacity mix & Product Mix

## 2. Inventory Optimization

**Goal: Optimize service levels & cost**

- Optimize Inventory positioning
- Inventory Norms
- Service levels – cost trade-off

Continuous  
Improvement

Faster Scenario Analysis  
& Comparison

Smarter Decisions

## 1. Network Optimization

### Strategic Network Design Decisions

- **Optimize locations, capacities of suppliers, plants, DCs, etc.**
- **The best way to assign customers and products to DCs**
- **Optimum demand-supply linkages**
- **What-if scenario analysis for**
  - **Costs and service levels**
  - **Inbound, outbound freight, duties**
  - **Transportation & warehousing costs**

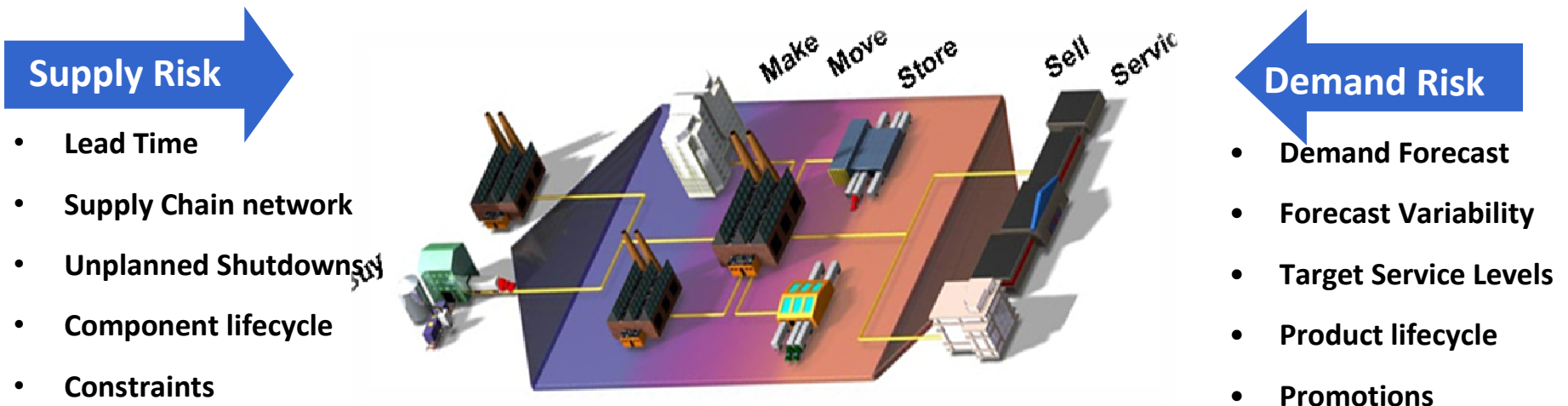
### Manufacturing / Sourcing Decisions

- **Product Mix and Capacity Mix**
- **Single sourcing vs. dual sourcing**
- **Inventory pre-build decisions to address demand seasonality**
- **Impact of changes to production location / capability on overall supply chain costs**
- **Timing of changes in supply chain**

## 2. Inventory Optimization

### Business Challenges

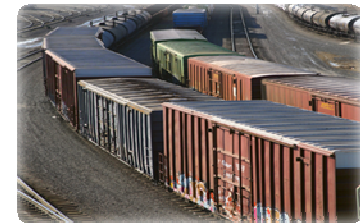
- Complex network, proliferation of SKUs, shorter product lifecycles
- Service expectations despite volatile demand, promotions & seasonality
- Frequent stock-outs despite excess inventory
- Long supply lead times while customer expecting frequent/shorter delivery times



## 3. Transportation Optimization and Route Planning

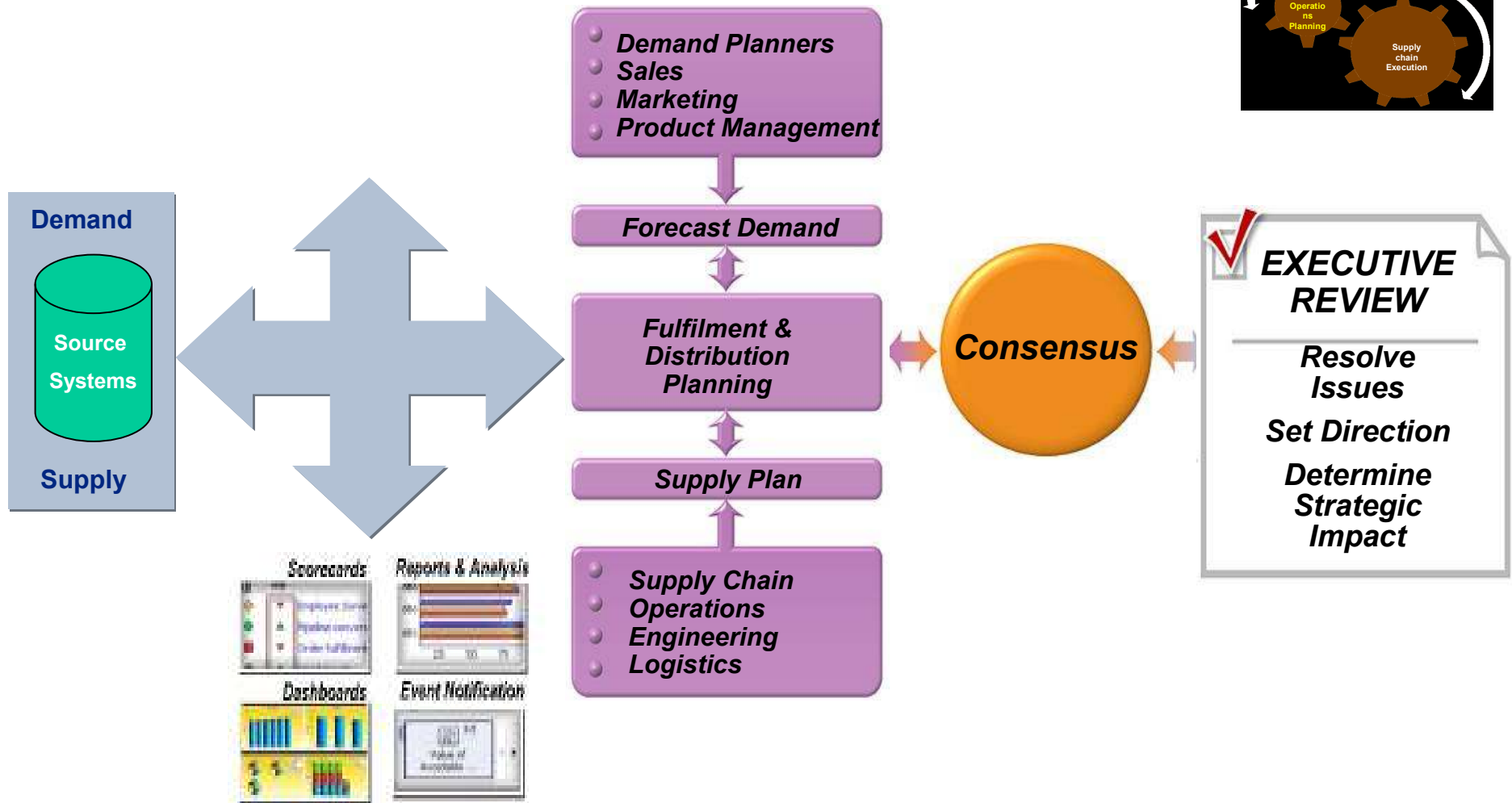
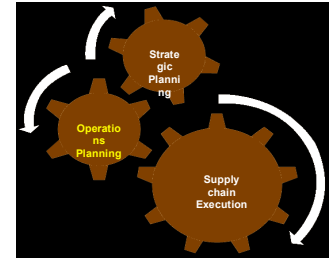
### Transportation Decisions

- Logistics Budget Planning and Strategy decisions
- Targeted **fleet size** and composition
- Dedicated fleet v/s Market Carriers
- Impact of **backhauls – Inbound:Outbound synergy**
- **Hub Strategies** – Consolidation / Deconsolidation
- Fixed Routes v/s Dynamic Routes
- Opportunities for **continuous moves** with multi-pick / drop
- Load consolidation: LTL to FTL
- Optimize for pickup/delivery windows, service times
- Analyze **carbon footprint** of the transportation operations



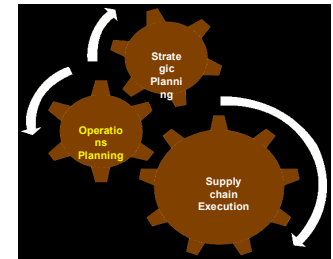
# Maximize SCM Opportunities: Operations Planning

## Sales & Operations Planning

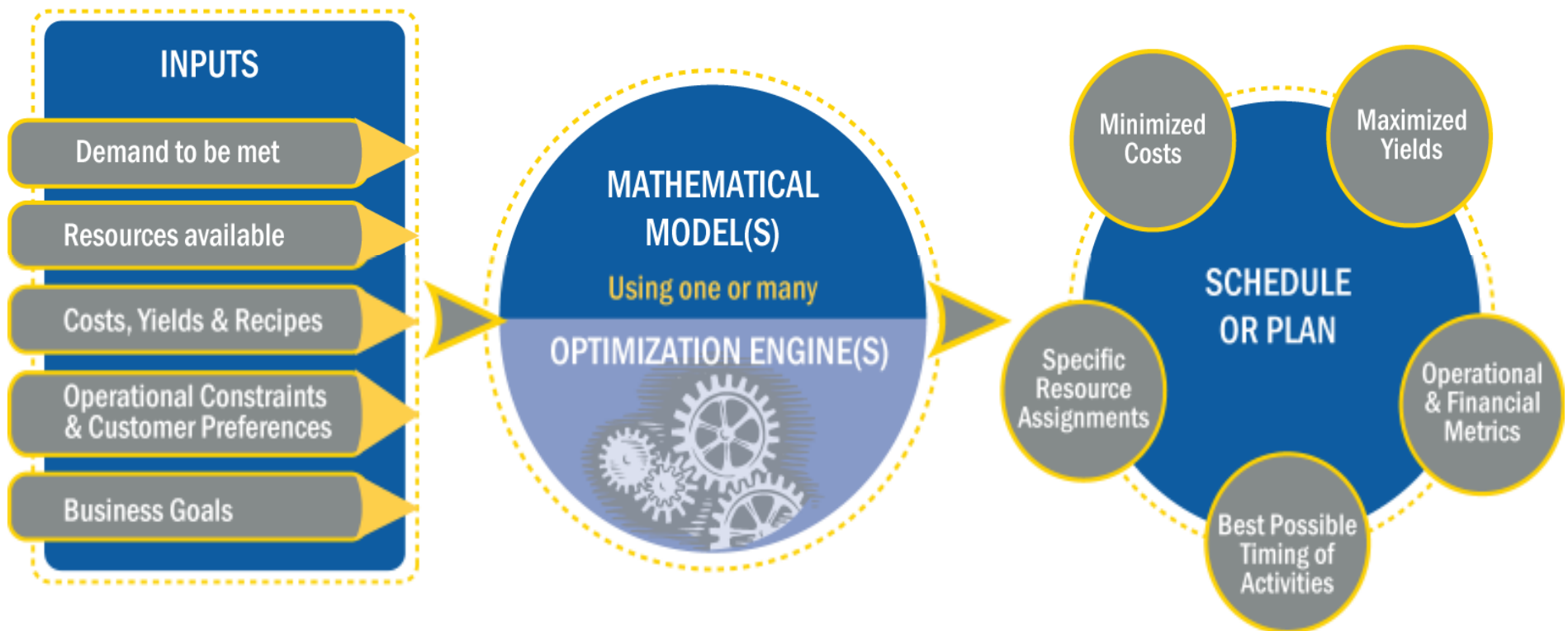


# Maximize SCM Opportunities: Operations Planning

## Production Planning & Scheduling



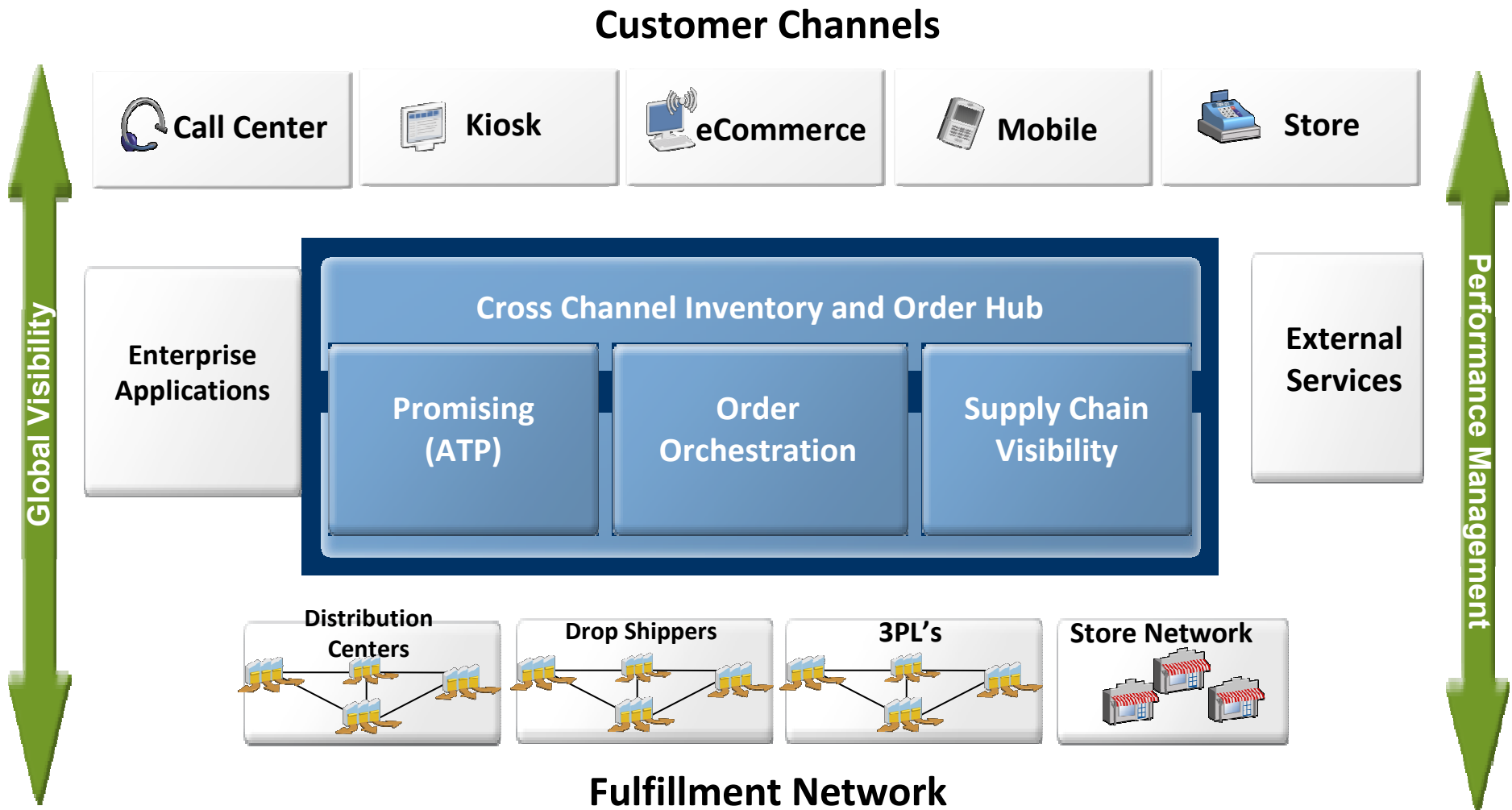
### The Structure of Optimization Models



# Maximize SCM Opportunities: Execution



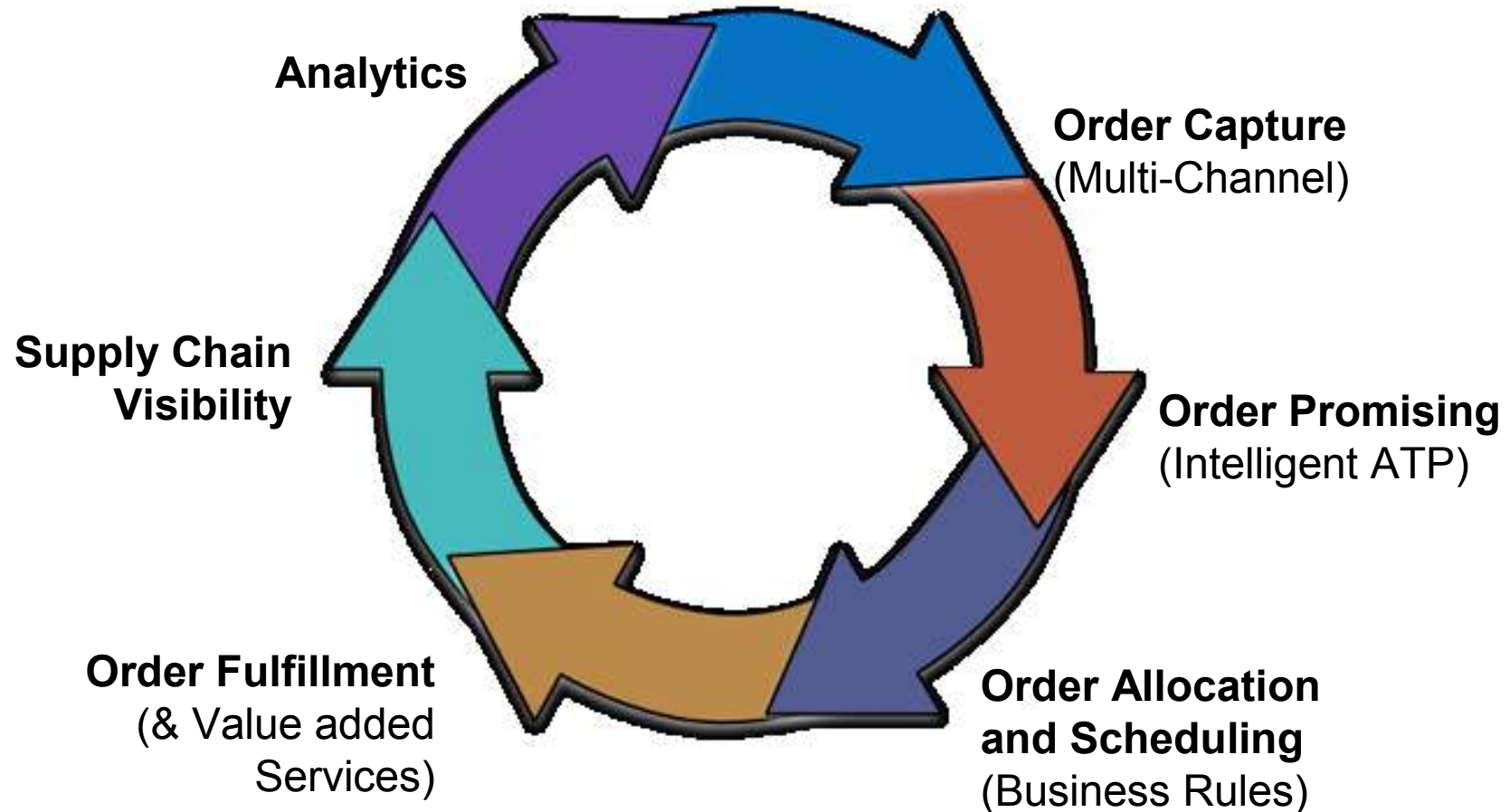
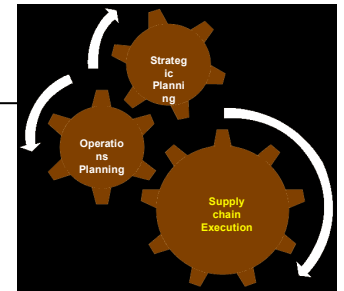
## Multi-channel Selling & Fulfillment





# Maximize SCM Opportunities: **Execution**

Order Capture - Promising - Allocation



# Maximize SCM Opportunities: Execution



## Order Fulfillment

### Inbound Processing

- Receipts, QA
- Returns
- Put away

### Inventory Control

- Locator/Slot/Bin Level
- Serial & Lot Control
- Cycle Counting

### Other Capabilities

- Yard Management
- MHE Integration
- FSL Replenishment



- ✓ Global
- ✓ Multi-Tenant
- ✓ Networked Design
- ✓ Process Centric

### Outbound Processing

- Wave Planning
- Pick/Pack/Stage
- Shipment Planning

### Operational Visibility

- Labor & Task Management
- Productivity Manager
- Event Monitoring

### Value Added Services (VAS)

- Work Order Management
- Assembly, Testing, Kitting, Packaging, Special Processing

# Maximize SCM Opportunities: Execution



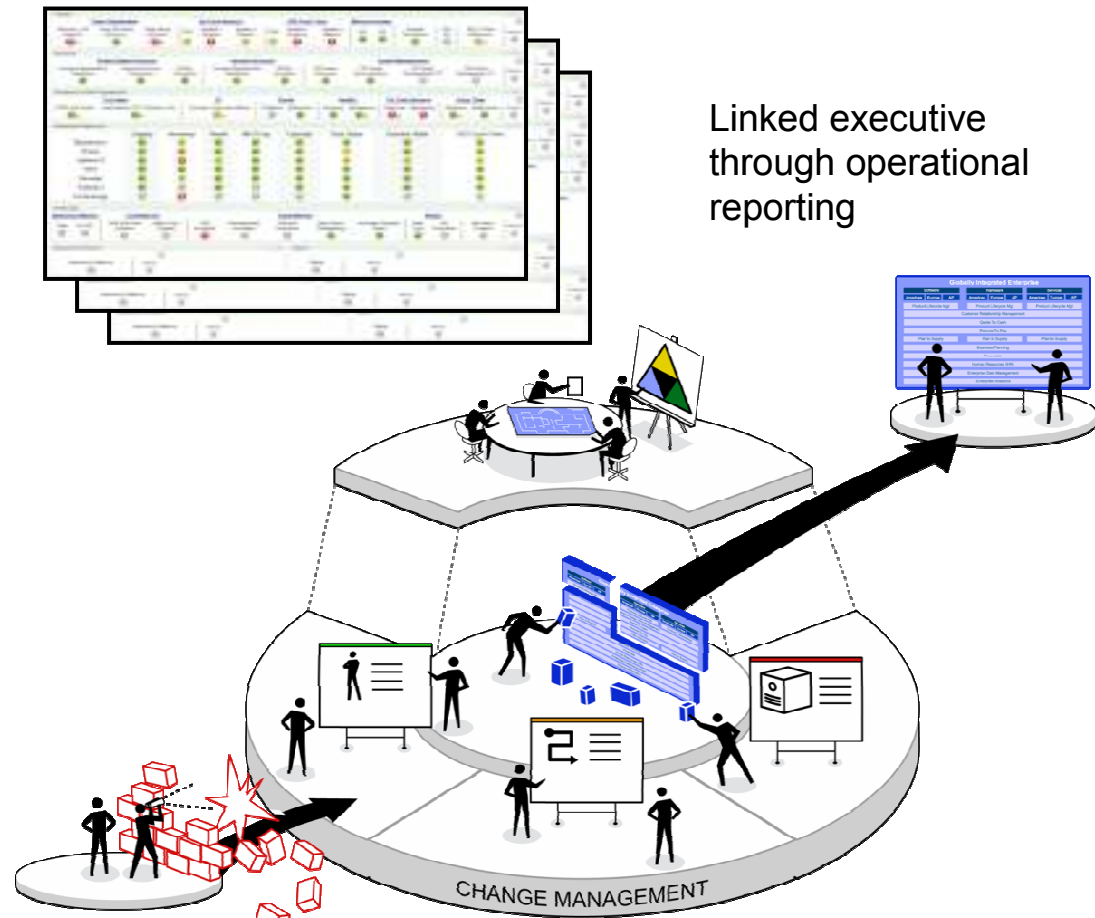
## Supply Chain Visibility and Analytics: Strategic Control Tower

### The Solution

- Integrated Business Analytics
- Predict, identify and manage supply chain constraints and performance issues

### Key Benefits

- Smarter value chains for on-time-ship performance
- Prevent issues, solve constraints & disruptions faster



**Global performance optimization cockpit**

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Approach to Maximize Supply Chain Opportunities

**Leveraging IBM Solutions**

Why Now – Greater ROI!



**Sterling Commerce**  
An IBM Company

## ILOG Supply Chain Solutions

- Strategic Network Optimization
- Inventory Optimization
- Transportation Optimization
- Sales & Operations Planning
- Production Planning & Scheduling
- ILOG CPLEX solver

## Sterling Commerce Solutions

- Sterling Multi-channel Selling & Fulfillment solutions
- Warehouse Management Solution
- Global Supply Chain Visibility
- B2B solutions

## IBM Consulting Experience and Expertise

- IBM solutions being used by thousands of leading companies worldwide
- IBM consultants have unmatched expertise in supply chain planning & optimization

# Customers leveraging ILOG and Sterling Solutions



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**ROI from Supply Chain Optimization**

# Supply Chain Optimization: Great Opportunity, Greater ROI

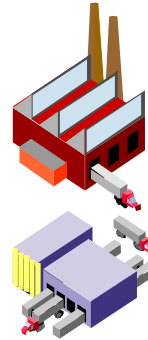
## Typical Potential Quantifiable Benefits



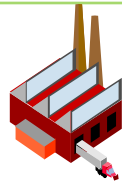
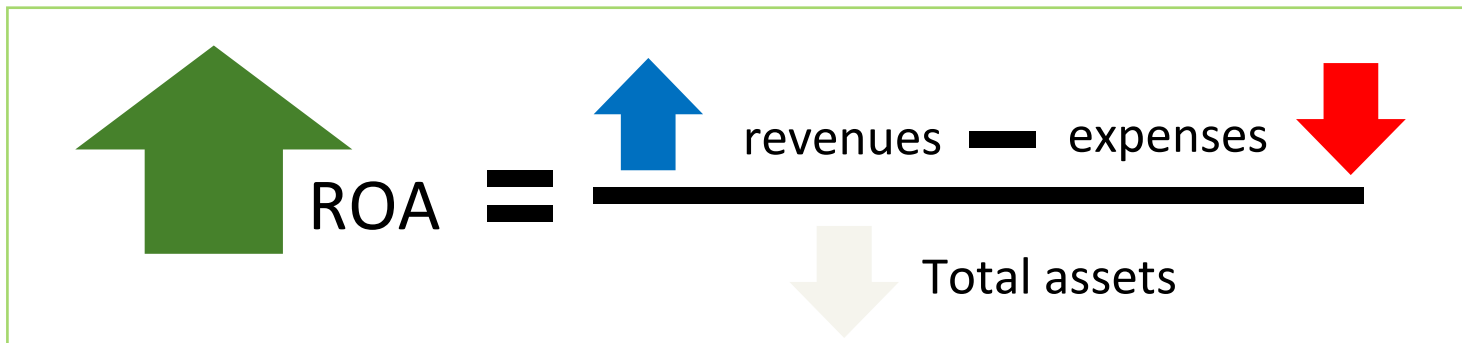
- Increase Sales/Revenue



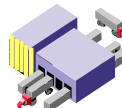
- Increase customer service levels 1% to 5%



- Reduce operating costs (Freight Cost, Handling, Storage Manufacturing, procurement) 5% to 10%



- Reduce fixed assets (consolidate production lines, plants, warehouses) by 5% to 10%



- Reduce total inventory (RM, WIP, FG) by 10% to 15%



# Drive significant impact with IBM Supply Chain Optimization

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## Solutions:

### Typical potential impact through IBM solutions:

- Strategic planning: 10% to 15% improvement
- Operations planning: 5% to 10% improvement
- Execution: <5% improvement



# Appendix

## Success Stories in India

# Case Study – Network Redesign



## Areas:

- Supply Chain Network Design
- Inventory Optimization
- Plant Location Analysis

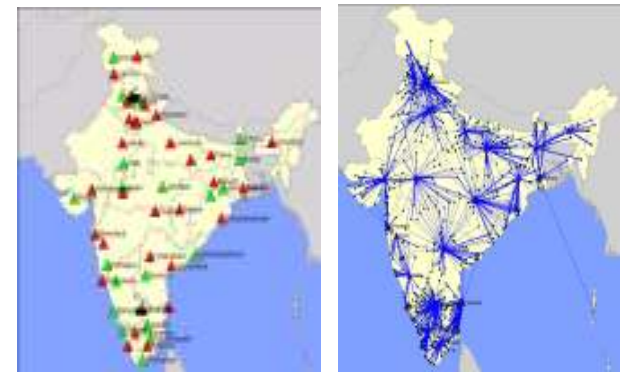
## Objectives:

- Identify network to support GST Implementation
- Recommend Distribution and Inventory Strategy

## Total Savings Summary & Implementation Roadmap

	2010 Implementation Time			
	3 mos	12 mos	2011	2012
DC Consolidation	1.0	0.0	1.8	2.0
Inv. Charges	0.2	0.0	0.4	0.4
Rail	0.6	0.0	1.1	1.2
<b>On-Going Total Log. Savings</b>	<b>1.8</b>	<b>0.0</b>	<b>3.2</b>	<b>3.6</b>
	8.6%	0.0%	11.4%	11.3%
<b>One-Time WC Impact</b>	<b>2.3</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>TOTAL SAVINGS</b>	<b>4.2</b>	<b>0.0</b>	<b>3.2</b>	<b>3.6</b>
Rupee/BSU Log. Savings	0.4	0.0	0.5	0.5

## Candidate Facilities and Final Network



## Solution Summary

- Consulting & Implementation of IBM ILOG tools for strategic network design
- Analysis on working capital impact of network configuration changes

## Business Results

- Possible reduction in number of DCs from 32 to 21 with GST implementation
- Possible reduction in logistics cost by 10%
- Possible Working capital reduction by 14%

# Case Study – Inventory Optimization



- **Objective** - Improve forecast accuracy and optimize inventory level across after-market spare parts supply chain, while meeting targeted service levels
- **Inventory issues**
  - Use of sub-optimal inventory buffers leading to excess inventory / poor service levels
  - Absence of “what-if “analysis & limited visibility in inventory performance measures
- **Forecasting issues**
  - Basic extrapolation technique of moving average causing forecast to lag actual demand
  - High deviation between tentative and firm plan given to suppliers & measurement process

Benefit Area	Description
Improved Forecast Accuracy	Significant improvement in forecast accuracy across different category of parts
Optimized Inventory Levels	Reduction in inventory levels for Spare Parts SKUs for targeted service level. through optimal setting of inventory parameters
Consistent Service Levels	Solution has helped in achieving consistent service levels
Supply Chain Flexibility	Solution provides flexibility in evaluating various “what-if” scenarios and comprehensive results analysis

# Case Study – Transportation Route Planning



- **Objective:** To perform tactical level planning to estimate fleet requirements and operation planning to derive optimal route planning
- **Challenges:**
  - Around 650 dealers spread across 500 towns across India. Planning to expand the dealer network to various towns. Hence route planning need was highlighted
  - Tactical planning to estimate transportation needs and optimal route planning
  - Evaluation of various scenarios (direct delivery, DC to DC deliveries, multi-stop routing etc)

Benefit Area	Description
Improved Tactical planning / estimation	Evaluate and design optimum routes Estimate fleet requirement (number & type of vehicles) by time
Optimal Route Planning	Daily planning & dispatches to derive optimal multi-stop routing
Reduced Transportation cost	Helps in optimizing fleet as well as reduction in transportation variable cost due to route optimization
Supply Chain Flexibility	Solution provides flexibility in regularly evaluating various “what-if” scenarios and selecting the better parameters

## Thank you! Next steps:

Visit the IBM Smarter Commerce Booth or contact us to learn more about how IBM can optimize your supply chain rahuljad@in.ibm.com | +91 9880001431

Learn how other IBM clients are benefiting from IBM Supply Chain Solutions

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