

Performatica Webinar

Constraint Management in Supply Chains

Followed by a Panel Discussion

Agenda

SPEAKERS



Dr. Mandyam Srinivasan
Keynote Speaker

Pilot Corporation Chair of Excellence (Emeritus), University of Tennessee, Knoxville



Ratan Bhagat
Moderator

Principal, Operations, Performatica, Managing Director, FedEx (Retired)



John Baumgartner
Panelist

Industry Advisor, Finance, Energy & Power, Ex- Chief of Staff, CTO, BP

Subject	Speakers	Timeline
Introduction	Murthy Divakaruni	-
Supply Chain	Ratan Bhagat	10 mins
Theory of Constraints (TOC)	Dr. M Srin	35 mins
Panel Discussion, Q&A	John Baumgartner	30 mins
Key Takeaways	Murthy Divakaruni	-

Performatica - Introduction

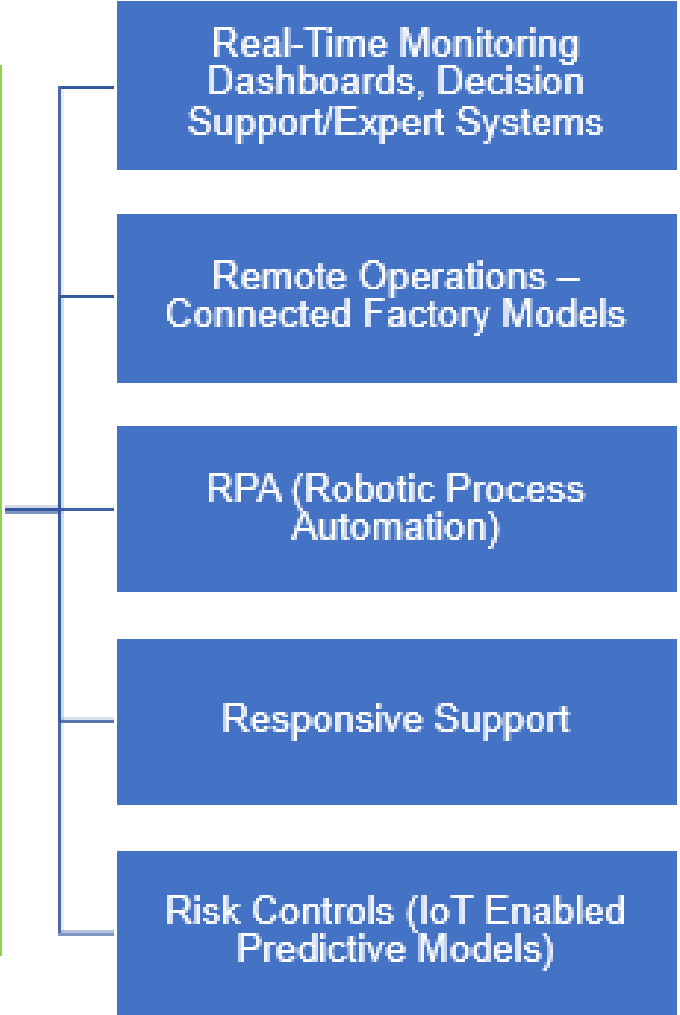
Management Consulting

- Advisory Services
- Business Performance
- Vertical Solutions
- Design Thinking for Smart Organization

Technology Consulting

- Energy & Sustainability
- Power & Renewables
- Manufacturing & Industrials
- Connected Healthcare

Industry 4.0 → 5.0 ("New Normal")



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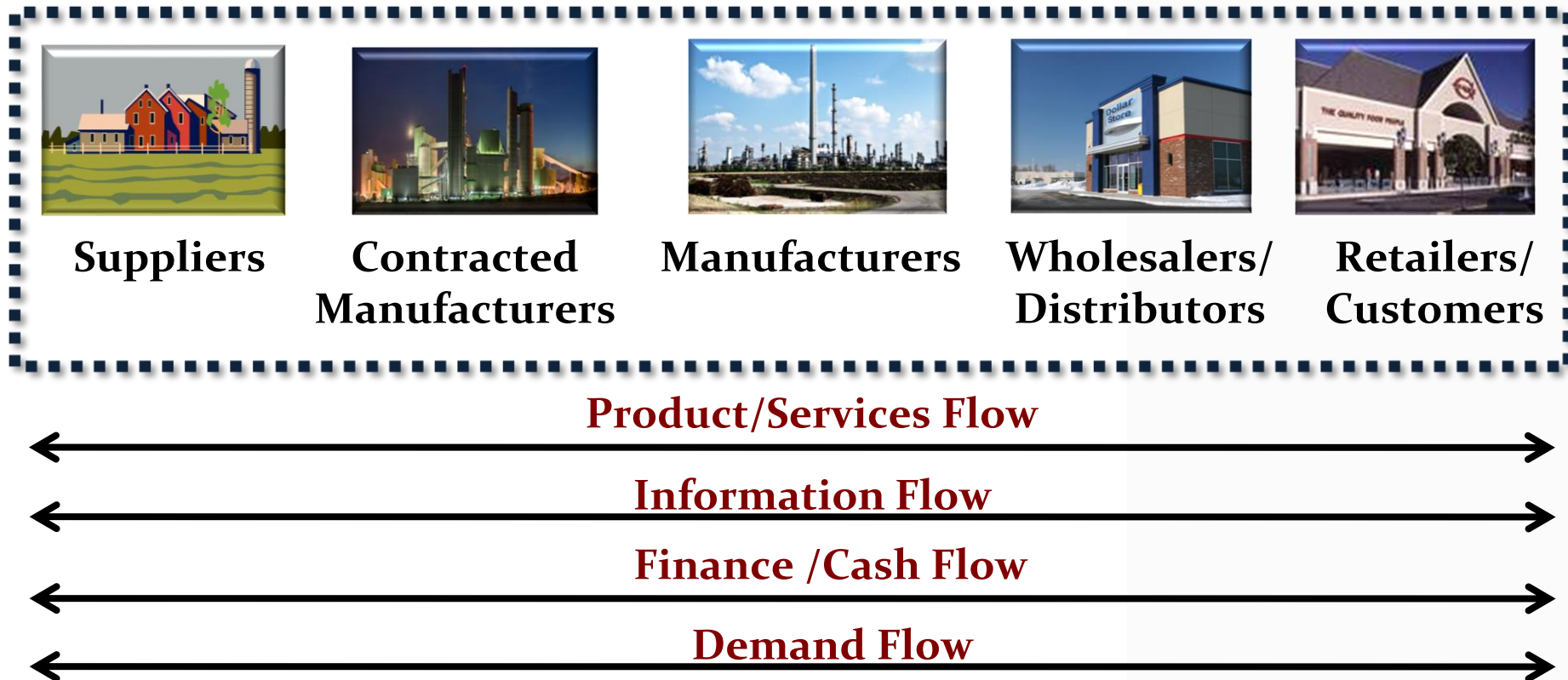
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Integrated Supply Chain

SCM is the art and science of integrating the flows of products, information and financials through the entire supply pipeline from the supplier's supplier to the customer's customer.



Objective of any Supply Chain

"Right Product Right Channel Right Time Right Price
Right Place"

Covid19 Crisis and Supply Chain Awareness !!

- N95 Masks, Ventilators, Groceries, On-line shopping , etc.

Peek into Supply Chain Constraints

MANUFACTURING

- **SOURCING** AVAILABILITY OF RAW MATERIALS
- **MANUFACTURING** ... PLANT CAPACITY, WHAT / WHEN TO MANUFACTURE
- **IB/ OB TRANSPORTATION** RAIL , AIR, TRUCK ETC.
- **WAREHOUSING**... CAPACITY, LOCATION,
- **EQUIPMENT, EMPLOYEES** ETC.
- **DISTRIBUTION**.... BULK AND LAST MILE
- **RETAIL STORE** ... SPACE, LOCATION

SERVICE .. E.G. HEALTHCARE

- **PROVIDER LOCATION** URBAN , RURAL, CONCENTRATED, DISPERSED LEADING TO EASE OF ACCESS
- **PROVIDER CAPACITY** .. # OF BEDS, # OF PHYSICIAN'S DRIVES WAIT TIMES
- **RESOURCE AVAILABILITY** PHYSICIAN OFFICE, OPERATING ROOMS, DIAGNOSTIC CAPABILITIES, MEDICATIONS, ETC.
- **PATIENTS PAYING ABILITY**... INSURANCE, DIRECT PAYMENTS ETC.

A Picture is Better than 1000 Words !

Supply Chain Management Challenge is to Match Supply and Demand, profitably for products and services



SUPPLY SIDE



DEMAND SIDE

- achieves



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Presentation Outline

- An application of the Theory of Constraints (TOC) in supply chain management
- The TOC Methodology, and an understanding of the constraints in the system
 - Examples of how these constraints are addressed
- A process to identify and overcome constraints

A Supply Chain Application



Supplier



Factory



Customer



End User

Problems in the Supply Chain

Factory's Problems

Factory is experiencing declining markets & revenues

Factory is unable to estimate customer demand

Factory is hit by infrequent orders from Customer

Factory is carrying large inventory levels

Factory is experiencing stock outs

Customer is seeking other sources for its needs

Factory is under pressure to cut costs

Factory is pressed to reduce inventories

Suppliers do not always deliver on time

Supplier lead times are long

Customer's Problems

Customer is unable to estimate end-user demand

Customer is carrying large inventories

Customer is resorting to sales promotions

Customer is experiencing stock outs

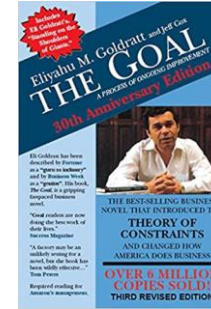
Customer is placing rush orders on Factory

Results of the Analysis

- Applied the Thinking Processes – a suite of TOC analytic tools designed to identify and eliminate constraints
- The analysis revealed constraints caused by policies aimed at reducing costs
 - A policy practiced by the Factory
 - A policy practiced by the Customer
- Resolved these constraints amicably

Constraint Management

- Eli Goldratt and *The Goal*



- The “Theory of Constraints” (TOC): A very innovative perspective on managing organizations, based on two premises:
 - ❑ The Goal of an organization is to achieve sustainable growth with stability, ... now and into the future.
 - ❑ The system’s constraint(s) determine how well it meets this goal.

TOC and Systems Thinking

- TOC: an approach that makes you **focus**:
 - On the **system**, rather than on its components
 - Where you **focus** on **possibilities** rather than **limitations**.
- Eli Goldratt: “Your goal should be to make a profit equal to today’s gross revenue in four years” → “*The Viable Vision*”
- Henry Ford: “If you think you can, you can. If you think you cannot, you are right.”



Types of Constraints

□ Market Constraints

- Demand for the company's products and services is less than the capacity of the organization, or it is not in the desired proportion

□ Physical Constraints

- Physical, tangible: Machine capacity, material availability, space availability, etc.

□ Policy Constraints

- Not physical in nature. Includes entire system of measures and methods and even mindset that governs the strategic and tactical decisions of the company

Addressing the Market Constraint

- Present a Mafia offer to the customer
 - an offer so compelling that it is very hard to turn it down
 - The Ford Motor Company (Cost)
 - Standard Aero (Lead Time, On-Time Delivery)
 - Delta Airlines (Lead Time, On-Time Delivery)
 - Dell (The Direct to Customer Model)
 - Apple (Innovation and Supply Chain Execution)
 - Godrej Group (“Make to Availability” or MTA promise)
 - Titan Jewelers, Madura Coats, Riachelou, ...



Policy Constraints

■ Mindset Constraints

- A constraint if thought process or culture of the organization blocks design & implementation of measures & methods required to achieve goals

■ Methods Constraints

- A constraint when procedures and techniques used result in actions incompatible with goals

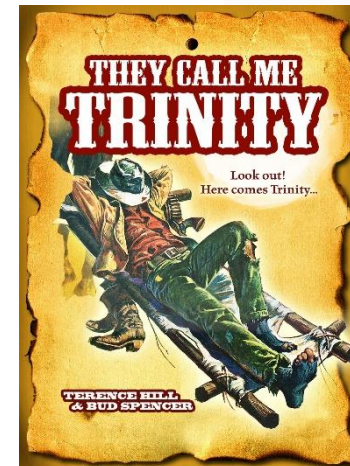
■ Measures Constraints

- A constraint if they drive behaviors that are incongruous with organizational goals 

Policy Constraints and “The Trinity”

The Trinity:

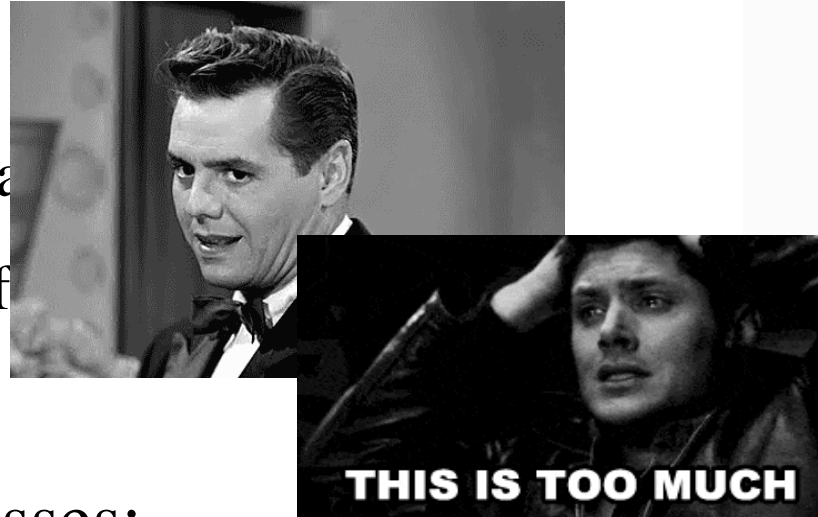
1. You Don’t Understand
2. We Are Different
3. That Won’t Work Here!



How can we address Policy Constraints?

- Too many problems to resolve:

- Lots of “constraints!”
- Changing nothing → stagnation
- But how to *focus* change effort?
- Where do you begin?

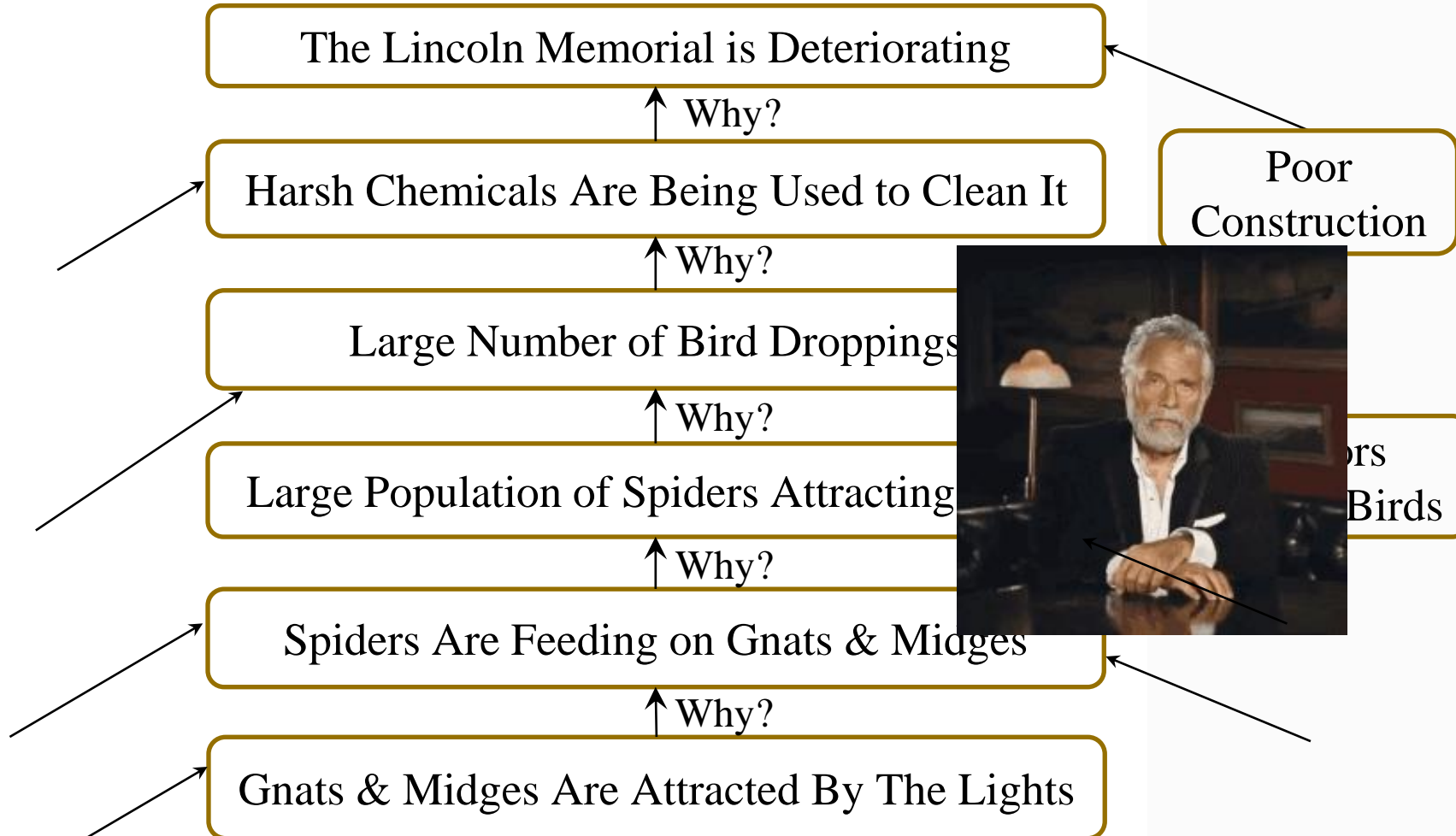


- The TOC Thinking Processes:

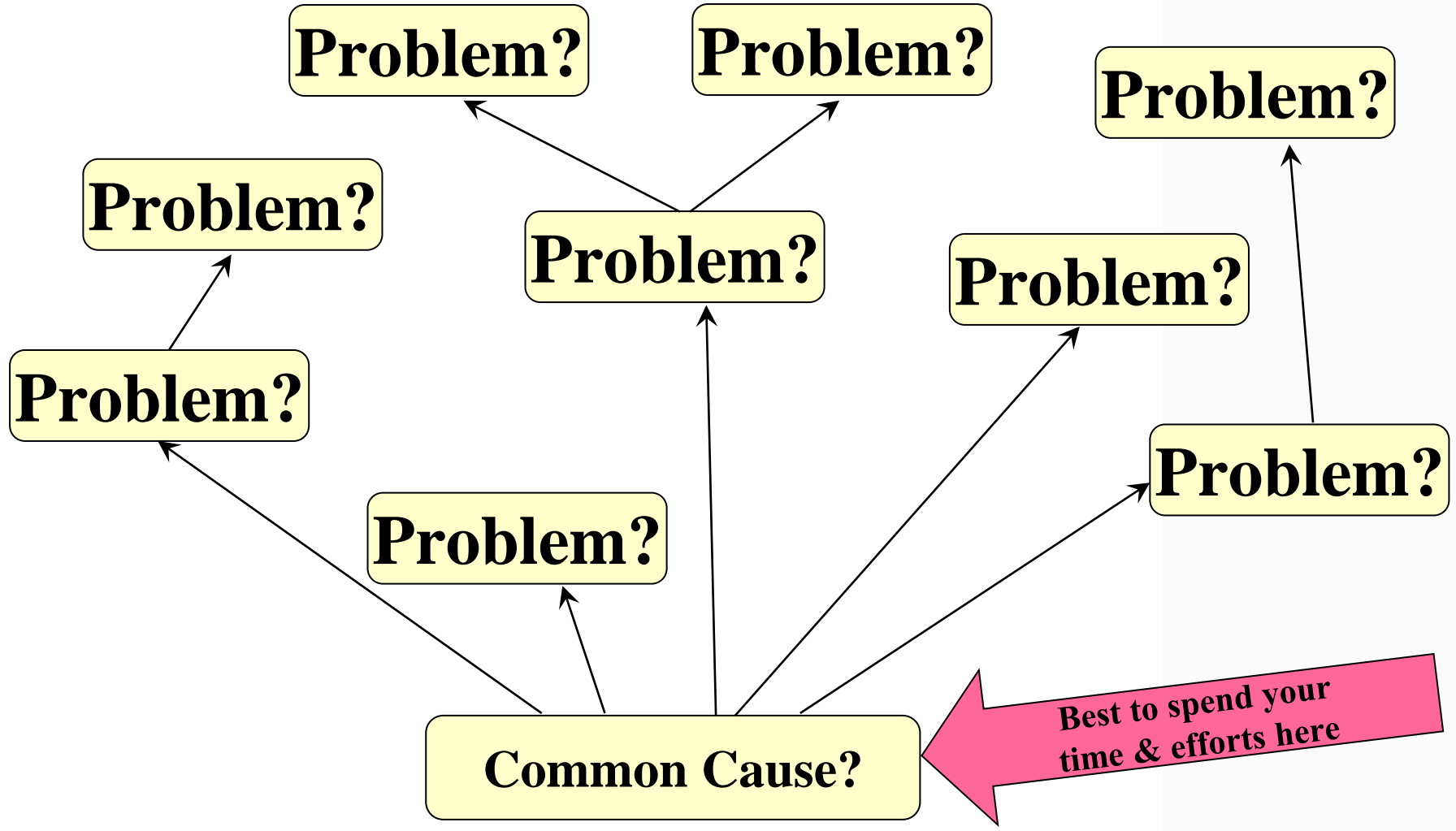
- Helps you identify and solve the *core* problem
- Uses cause-effect analysis
- Starting point: The *Current Reality Tree*

Root Cause Analysis and the 5 whys

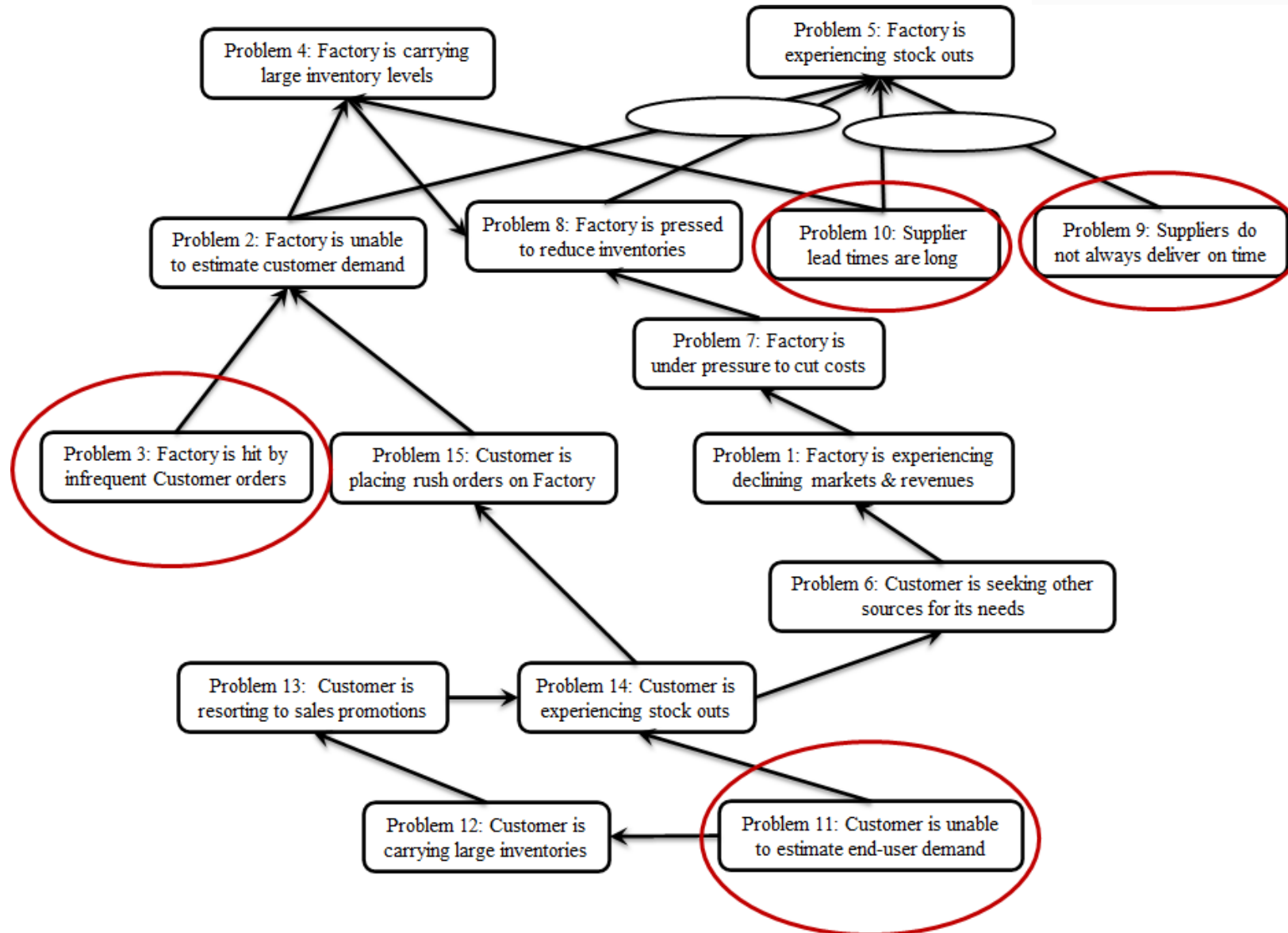
The Lincoln Memorial Example



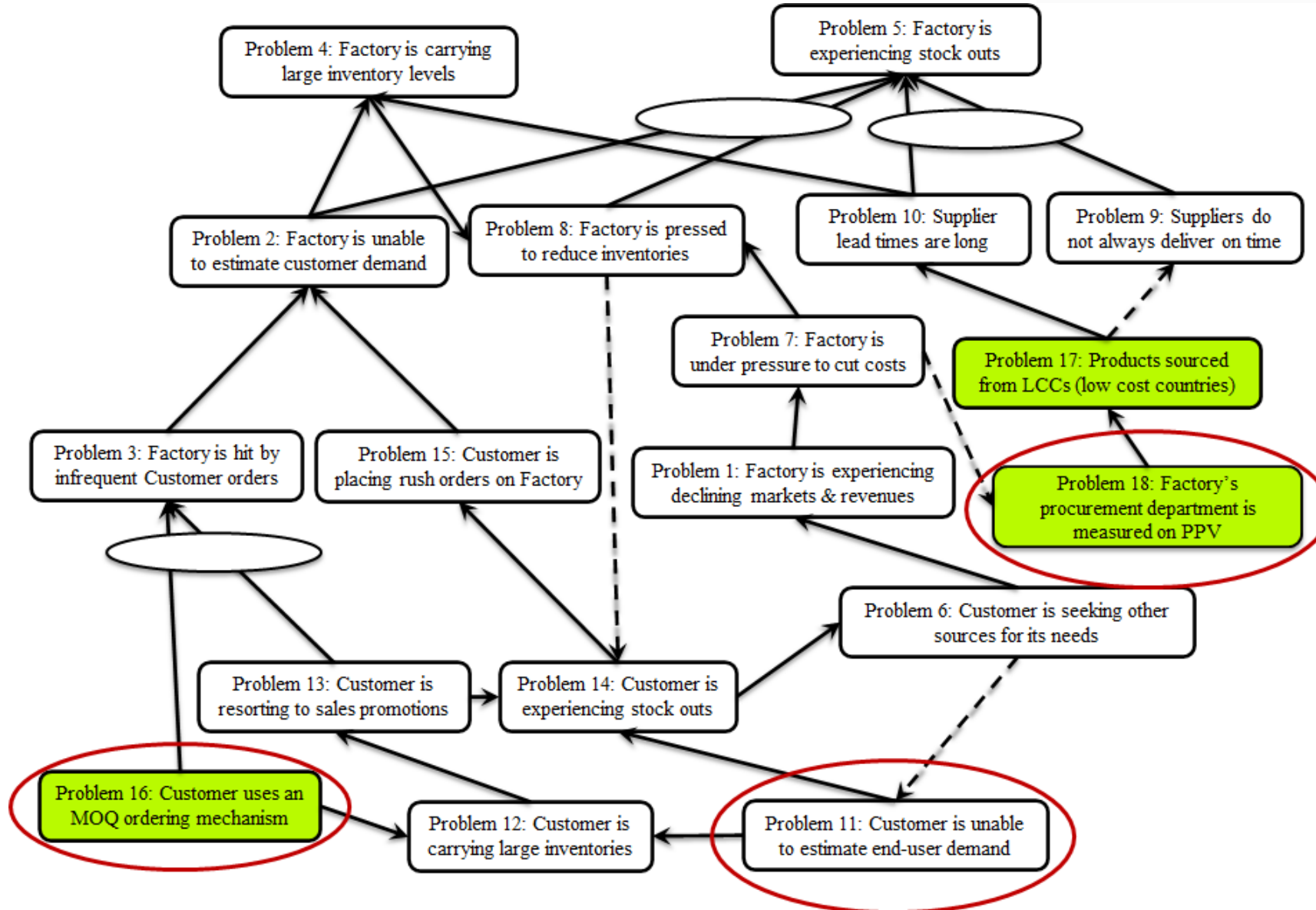
The Current Reality Tree – Concept



The Current Reality Tree – Concept



The Current Reality Tree – Concept



Conclusions from the Analysis

- The constraints were caused by policies aimed at reducing costs: the PPV (Purchase Price Variance) and the Minimum Order Quantity (MOQ) policies
 - PPV metric was revisited. Some items were re-sourced using the TCO (Total Cost of Ownership) method.
 - The MOQ policy was revisited. MOQ used only for commodity items. The Factory began to supply other items on an MTA basis. That also helped the Factory get better visibility on actual customer demand

Key Takeaways

- The Theory of Constraints helps *focus* organizational efforts on the Goal
- To achieve the goal requires you to move from a cost-world mindset to a throughput-world mindset

*“Yes, there are two paths you can go by,
But in the long run,
There’s still time to change the road you’re on.”*

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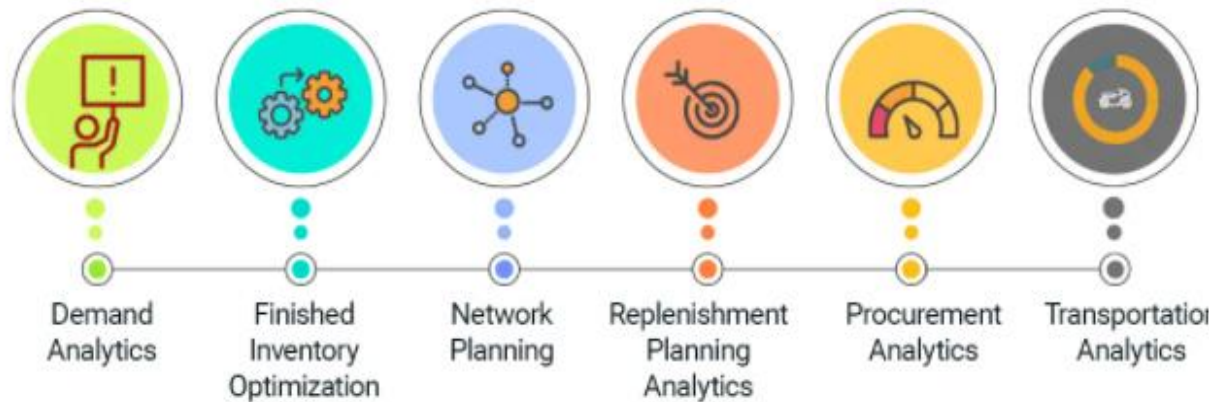
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Panel Discussion

Supply Chain Management : Applying the latest techniques

Applications of Data Science in Supply Chain



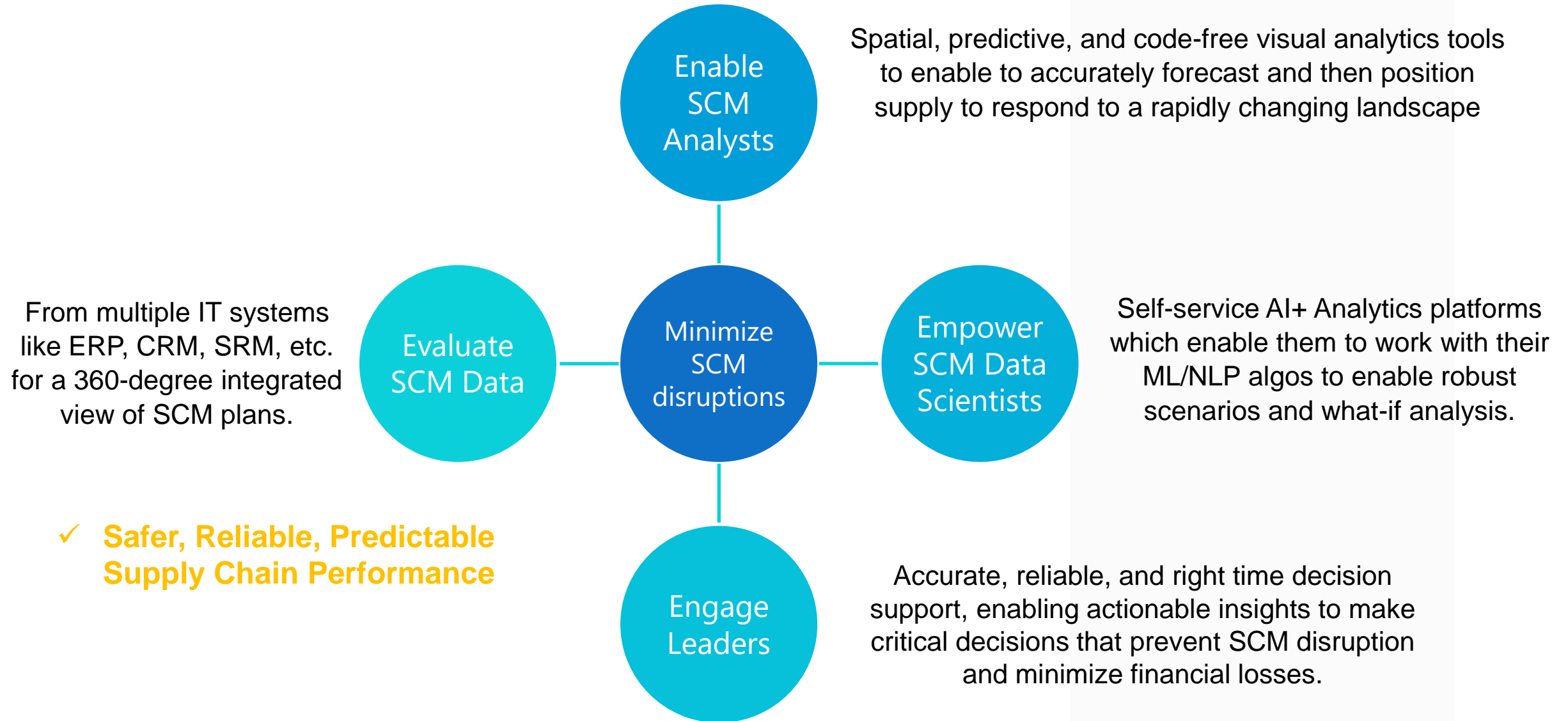
Technology

- **AUTOMATION** - Leverage the advancements in automation and remote SCM operations
- **SIMULATION** - Utilize What-If Analysis, SCM Scenario analysis for enhanced operational knowledge, prioritization and business outcomes
- **PREDICTIVE ANALYTICS & INSIGHTS** - Benchmarking operational safety & risk management in SCM performance

Management

- **SUPPLY CHAIN MANAGEMENT** – SCM KPIs to be integrated with production schedules to respond to market opportunities
- **CHANGE MANAGEMENT** - Manage change across SCM business processes with minimal disruptions and risks
- **DESIGN THINKING** - Factor in multiple SCM perspectives in steering through volatile environments

Supply Chain Management : Applying AI/ML/NLP



✓ **Safer, Reliable, Predictable Supply Chain Performance**

Thank you



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