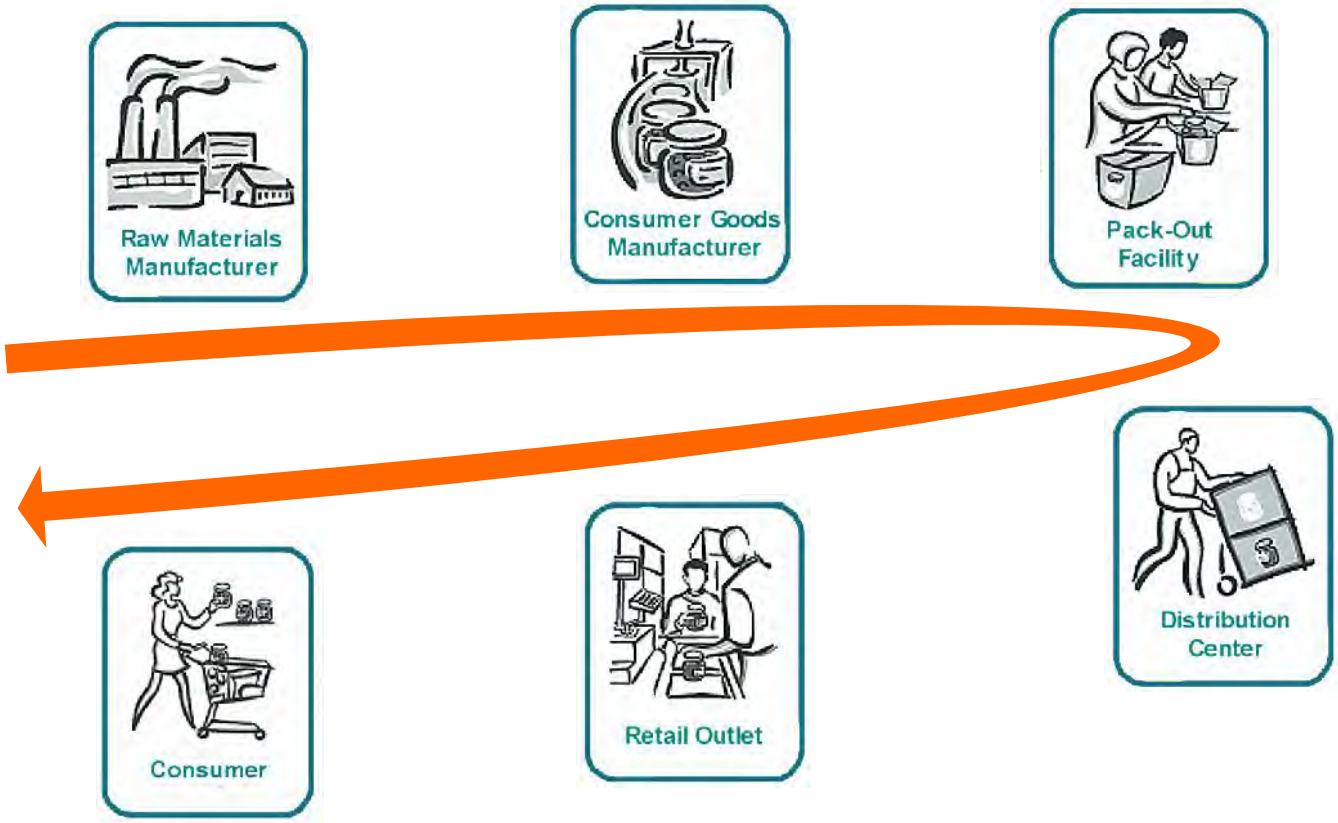
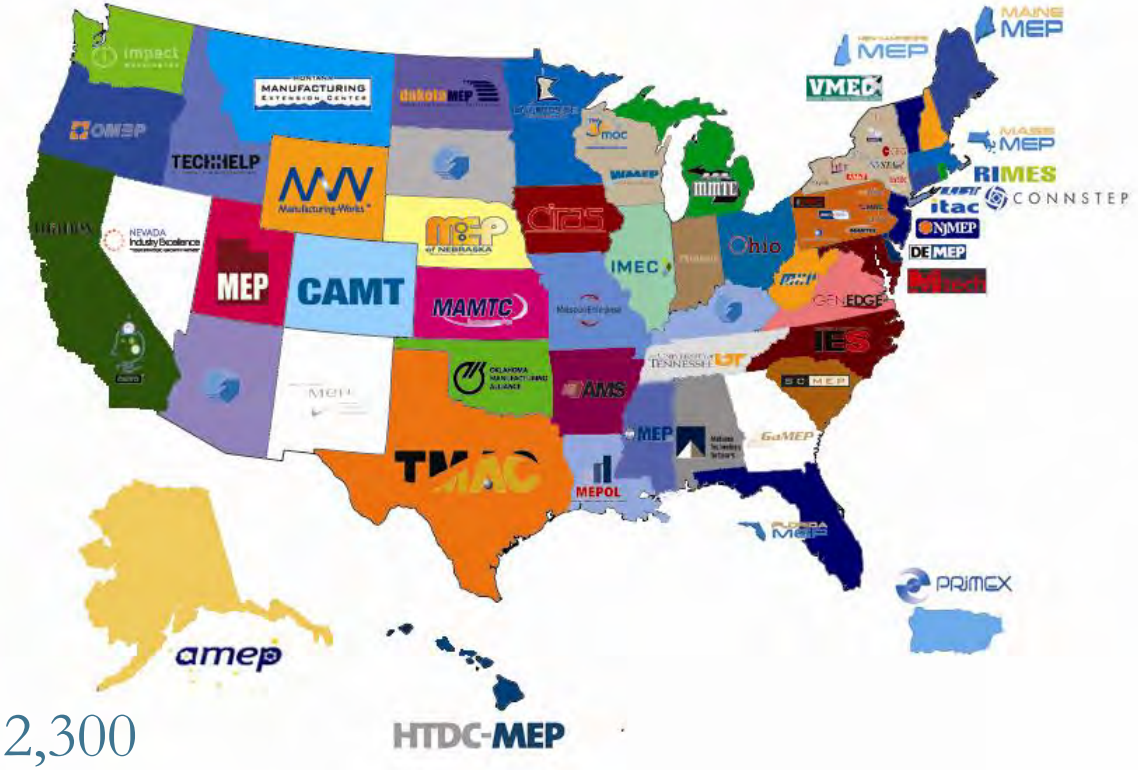
LEAN SUPPLY CHAIN MANAGEMENT



MANUFACTURING GROWTH THROUGH INNOVATION

OMEP Organization

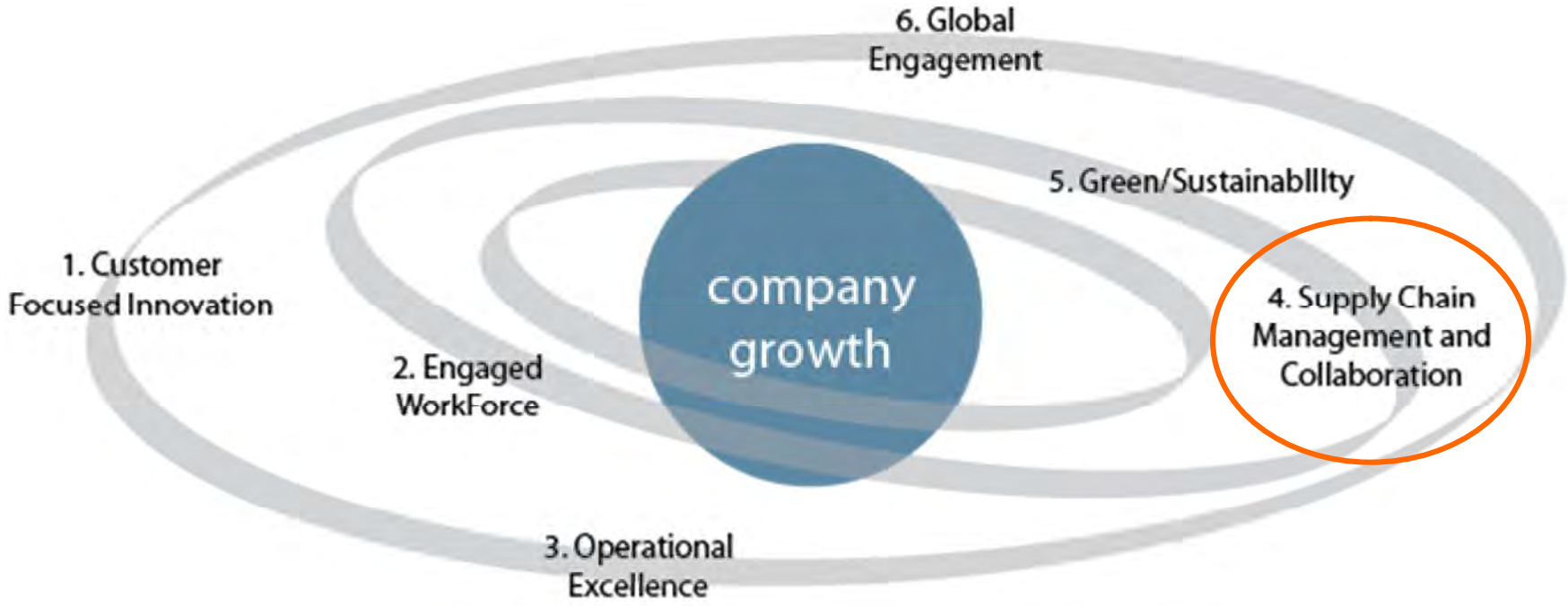
- Nationwide
- 60 MEP Centers
- 373 field locations
- Over 1,300 staff
- Contracting with over 2,300 third party service providers



OMEP delivers best-in-class solutions.

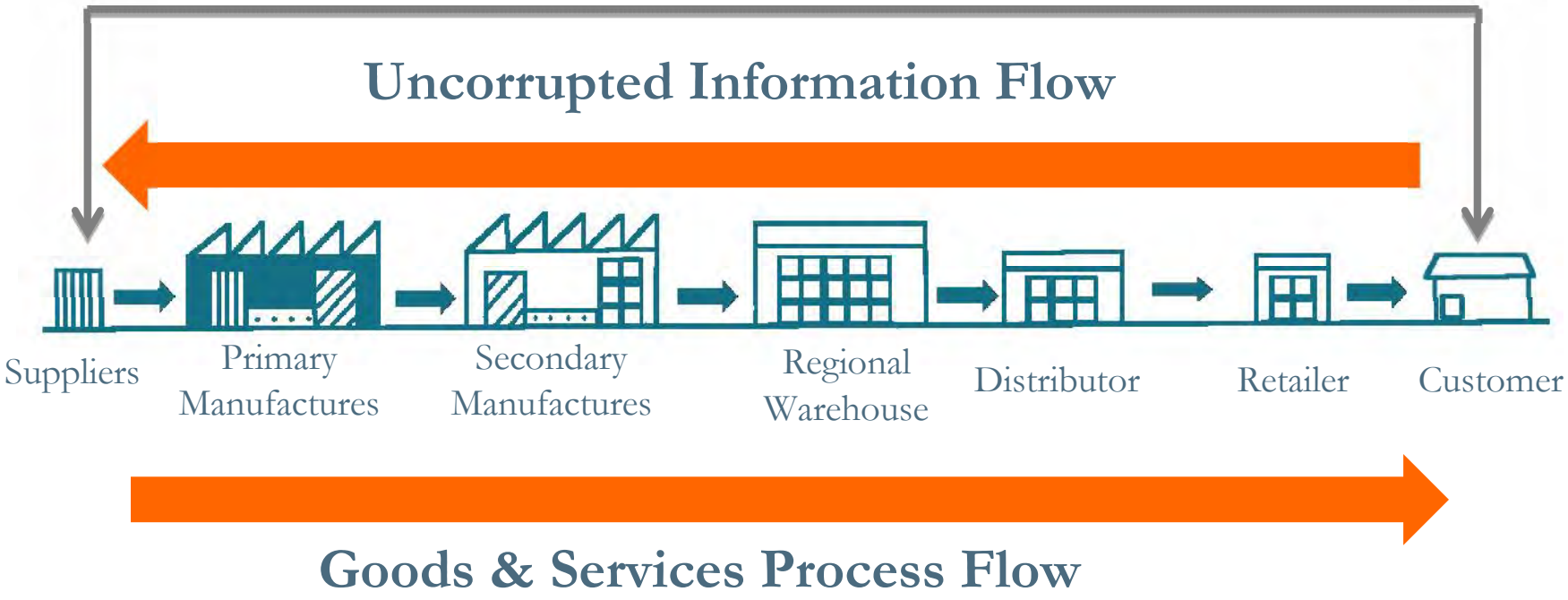
MANUFACTURING GROWTH THROUGH INNOVATION

MISSION: Create a stronger Oregon economy by helping small to mid-sized Oregon manufacture transform the way they do business to become more competitive in the global marketplace.



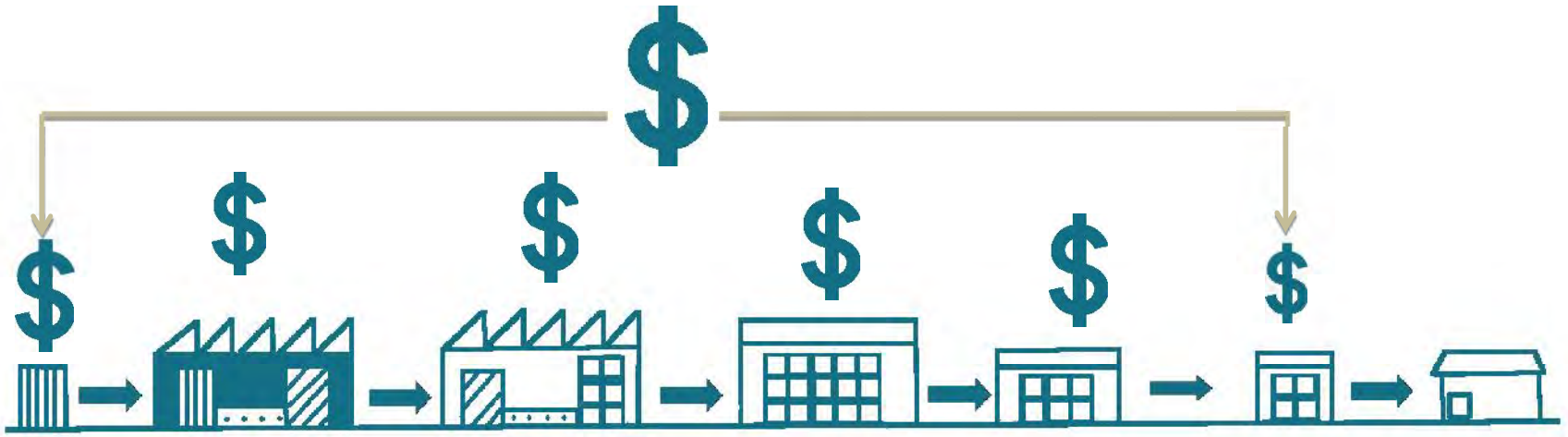
SUPPLY CHAIN MANAGEMENT SCOPE

SCOPE – From Suppliers to Customers



LEAN SUPPLY CHAIN MANAGEMENT GOAL

The goal of the lean supply chain is to deliver products at the **lowest total cost** while developing value-added processes (as defined by the customer).



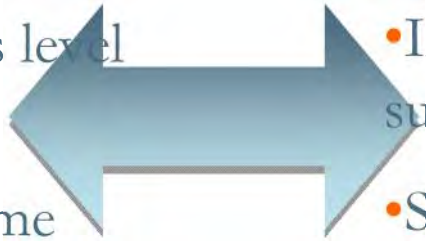
IDEAL LEAN SUPPLY CHAIN

- Minimal or no inventories in the system
- Minimal amount of warehousing space
- Optimized shipments to reduce the cost of moving inventory
- Long-term, stable supply contracts with the lowest cost
- Consistent product flow
- Single tier suppliers
- Little or no changes to production quantities
- No changes to delivery destinations
- No defects – no quality issues

SUPPLY CHAINS NEED TO FIT THE COMPANY

Efficient Supply Chain

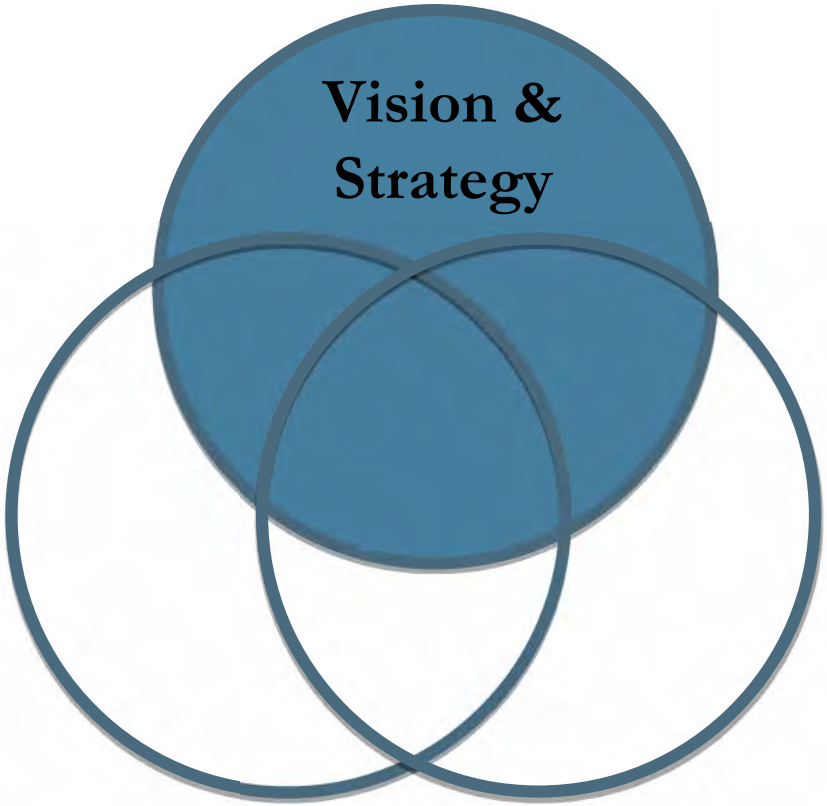
- Constant product demand
- Long product life cycle
- Long fulfillment order lead time
- Make to stock products
- Inventory at finished goods level
- Suppliers provide low cost, consistent quality, and on-time delivery
- Predictable market demand.



Agile Supply Chain

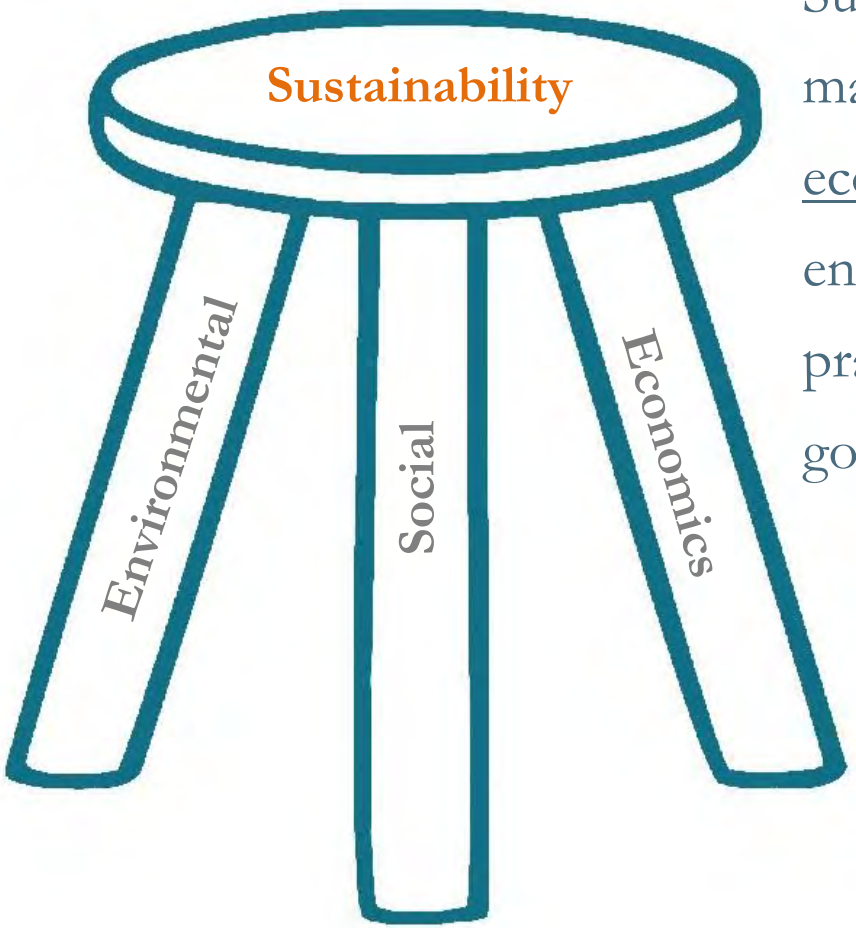
- Fluctuating product demand
- Short life cycle
- Short order lead time
- Make/build to order
- Inventory in parts, components or sub-assemblies
- Suppliers with flexibility, fast delivery, high-performance design quality
- Volatile market demand.

BUSINESS STRATEGY DRIVES THE SUPPLY CHAIN



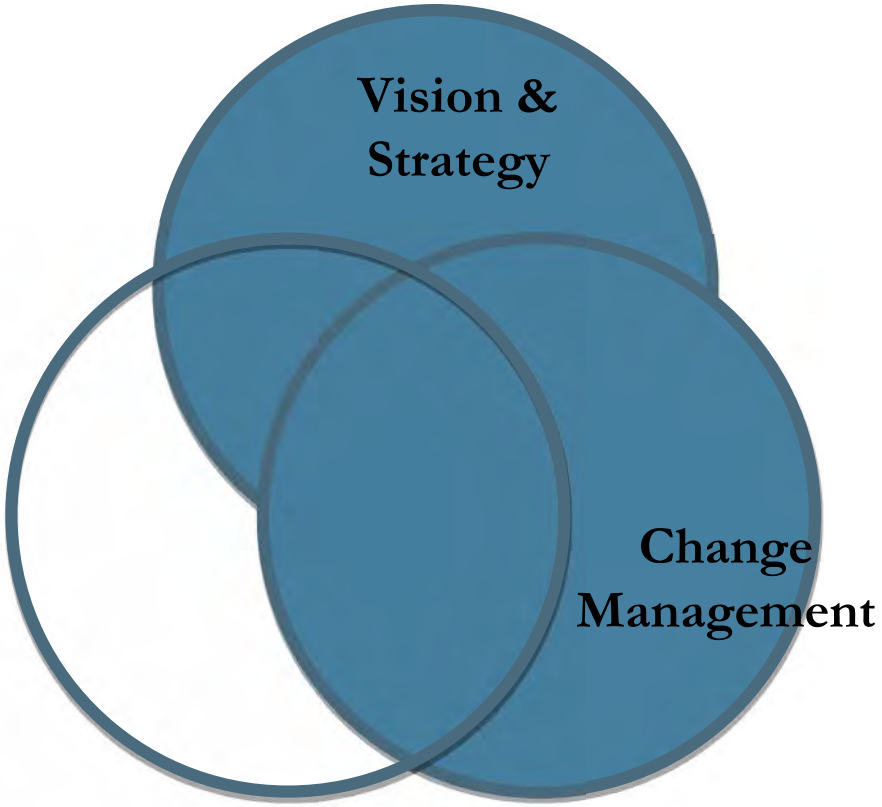
- What does the customer want/need?
- What is the risk aversion level of the company?
- What do the competitor's offer?
- What are the supply chain cost as a percentage of sales revenue?
- How close to "Efficient" supply chain can we move to, without sacrificing customer demands?
- What is the company willing to do to assure ***sustainable*** resources?

WHAT IS SUPPLY CHAIN SUSTAINABILITY?



Supply chain ***sustainability*** is the management of environmental, social and economic impacts, and the encouragement of good governance practices, throughout the lifecycles of goods and services.

ALIGN THE ORGANIZATION FOR CHANGE

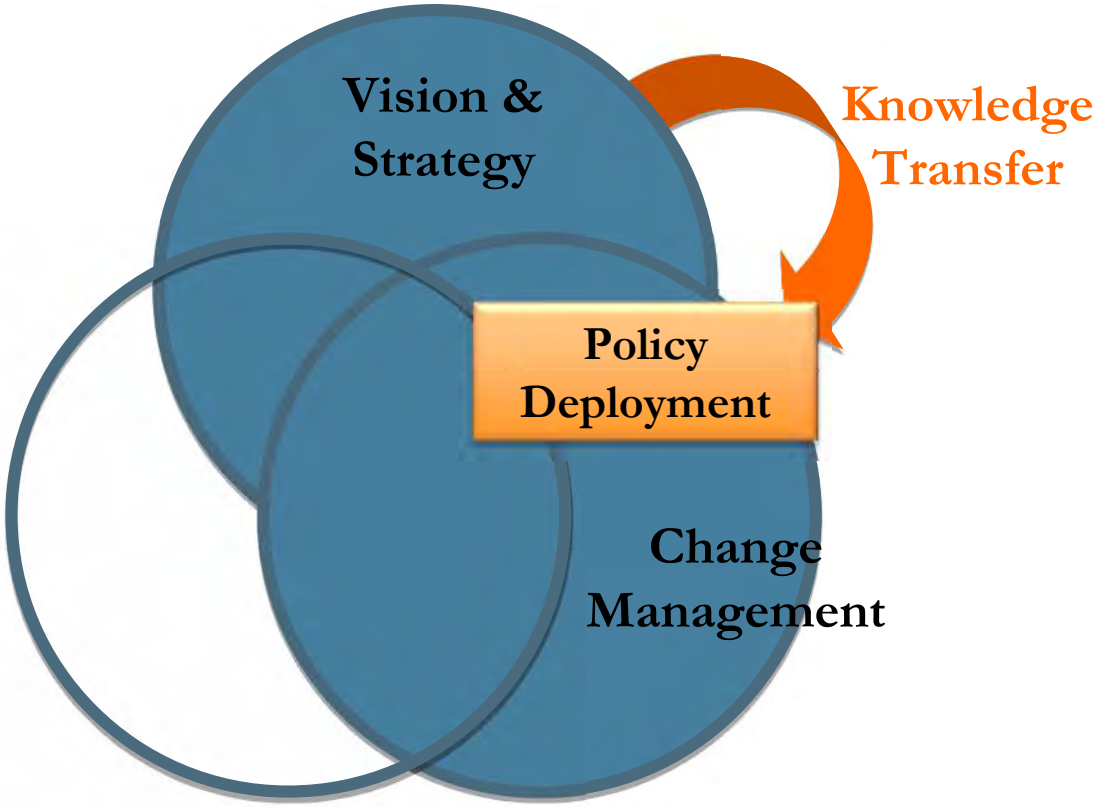


- Is the company committed to the changes required?
- How comfortable is the company in sharing information?
- What is the tolerance for collaboration with suppliers?
- How well do employees trust management?
- Are employees willing to change roles?
- What new incentives need to be put in place?

REASONS FOR FAILURE

- Upper management does not stay involved
- Strategy message is not clearly defined
- Measurement are not put in place (or monitored)
- Lack of supplier trust (info)
- Employees fear of change
- Key employees not "incentivized" correctly

KNOWLEDGE MAKES THE CHANGE POSSIBLE

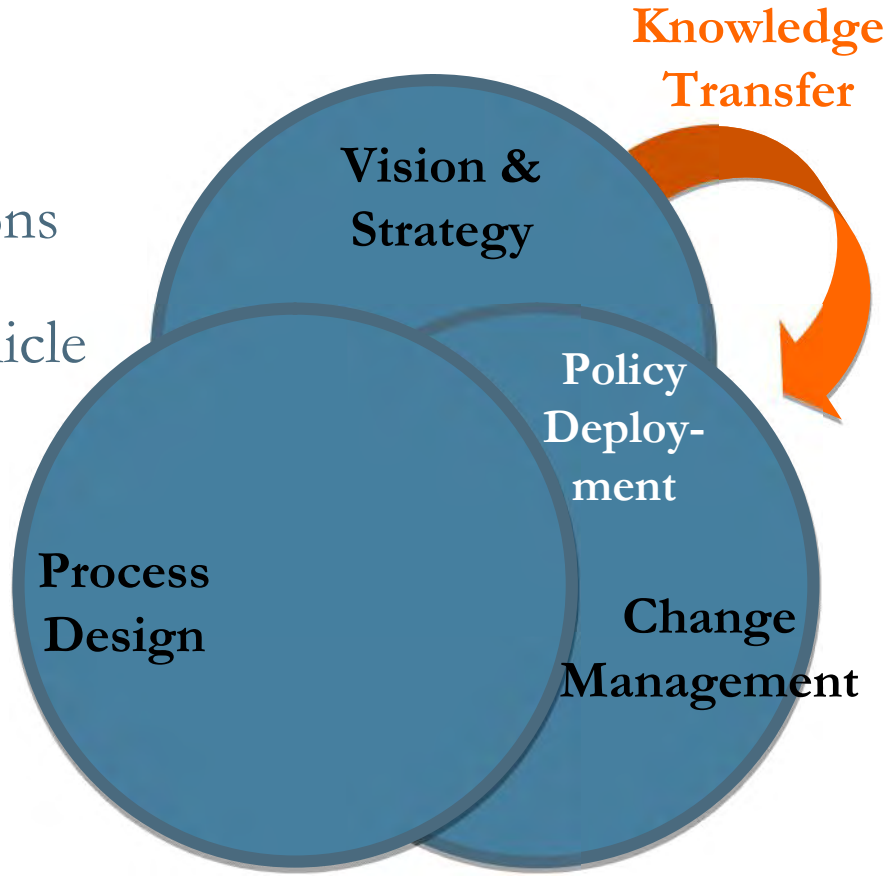


- Start with the vision (based on customer needs)
- Develop support policies
- Transfer the vision & strategy to the organization.
- Manage the required organizational changes
- Insure key suppliers understand and concur.

Company Vision → Policy → Incentives → Change

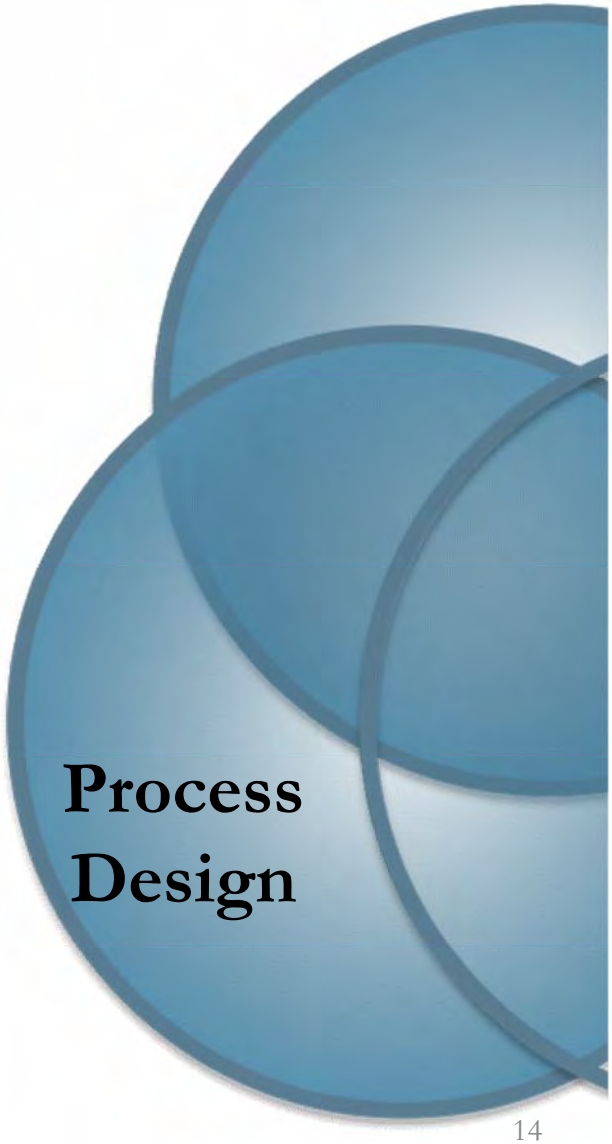
DEVELOP THE SUPPLY CHAIN PROCESS

- Analyze current practices
- Analyze risk assessment
- Implement supplier qualifications
- Determine communication vehicle
- Collaborate with suppliers
- Establish production rules
- Establish measurements



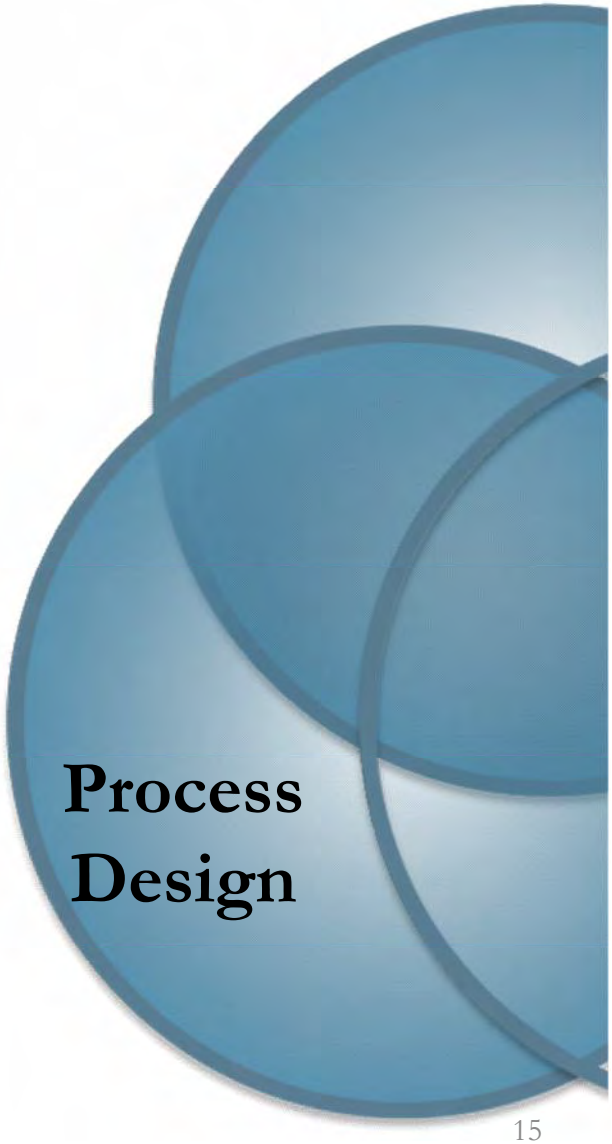
KEY PRINCIPLES OF LEAN SUPPLY CHAINS

- **Value** – Define value from the perspective of the customer
- **Responsiveness** – Be able to respond to change
- **Pull** – Initiate work only when requested by the customer
- **Flow** – Understand the process and clear any obstacles that don,t add value
- **Perfection** – Continuously refine the process to improve efficiency, cycle times, costs and quality



CHALLENGES OF LEAN SUPPLY

- **Improved demand management**
- Cost and waste reduction
- Process standardization
- Industry standards adoption
- Cultural change agent

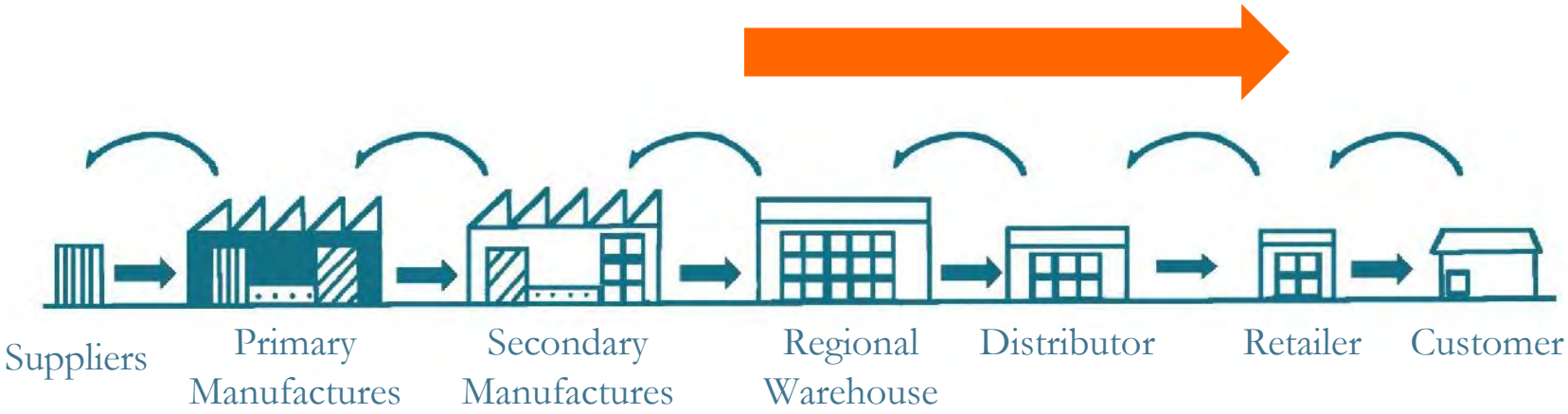


PRODUCT DEMAND MANAGEMENT

Traditional supply chains amplify instability of demand at each stage.

IMPROVE PRODUCT DEMAND MANAGEMENT

Design the supply chain to produce as close to the end customer as possible to smooth production.



IMPROVE PRODUCT DEMAND MANAGEMENT

Plan and produce as close to the end customer as possible to smooth production.

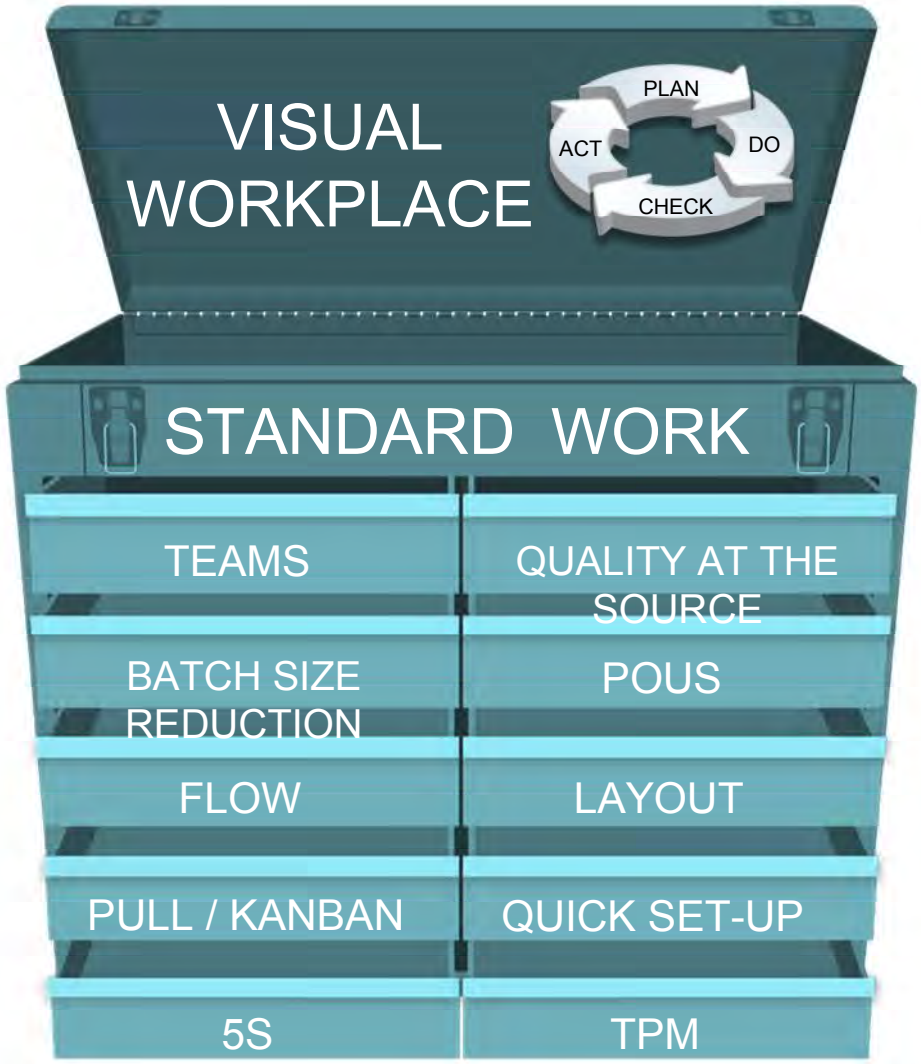
Plan & produce

Communicate needs to all players ASAP

"Pull vs. Push"

COST AND WASTE REDUCTION THROUGH LEAN

Apply the right tools to transform to a Lean company.

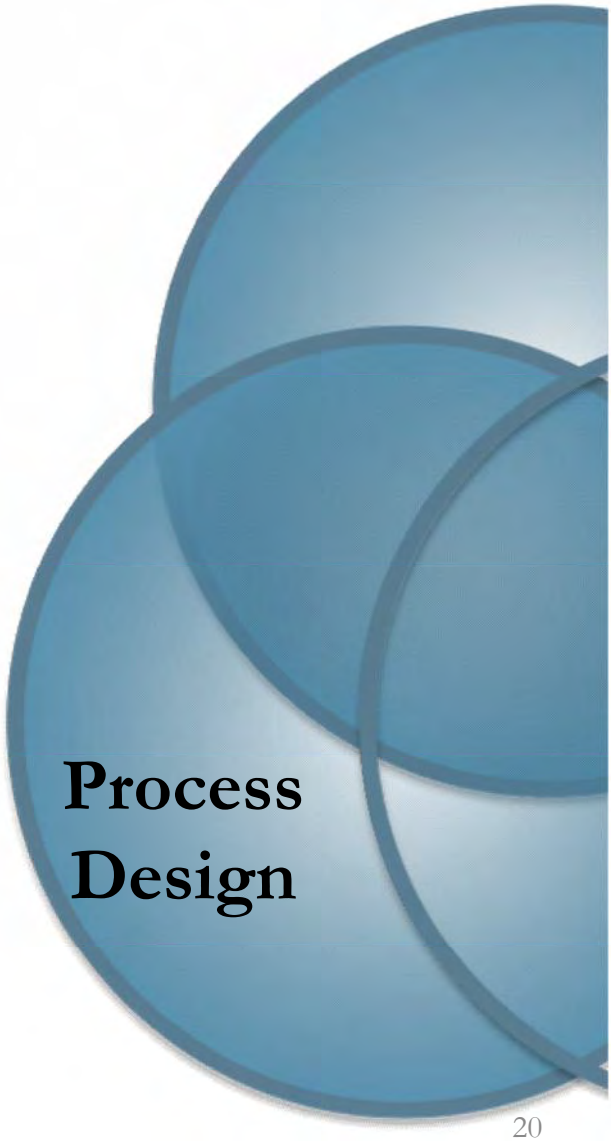


Analysis Tools:

- Process Activity Mapping
- Supply-Chain Response Matrix
- Production-Variety Funnel
- Quality-Filter Mapping.
- Demand-Amplification
- Value-Analysis Time Profile

THE LEAN SUPPLY FOCUS

- **Improved demand management**
- **Cost and waste reduction "Lean"**
- Process standardization
- Industry standards adoption
- Cultural change agent

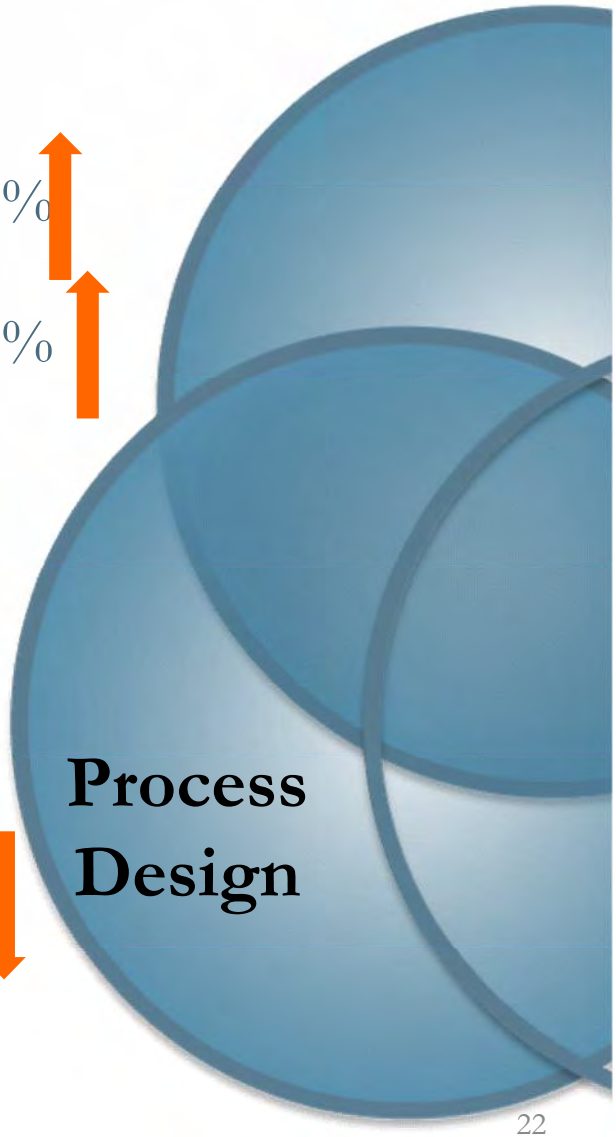


LEADERSHIP SUSTAINS THE PLAN

- Leadership drives the plan
- All levels of the organization must be involved.
- Sustainability is the charge of top management.
- Measure and post results for all to see.
- Share results with suppliers.
- Purchasing personnel move towards "suppler manger" responsibilities.

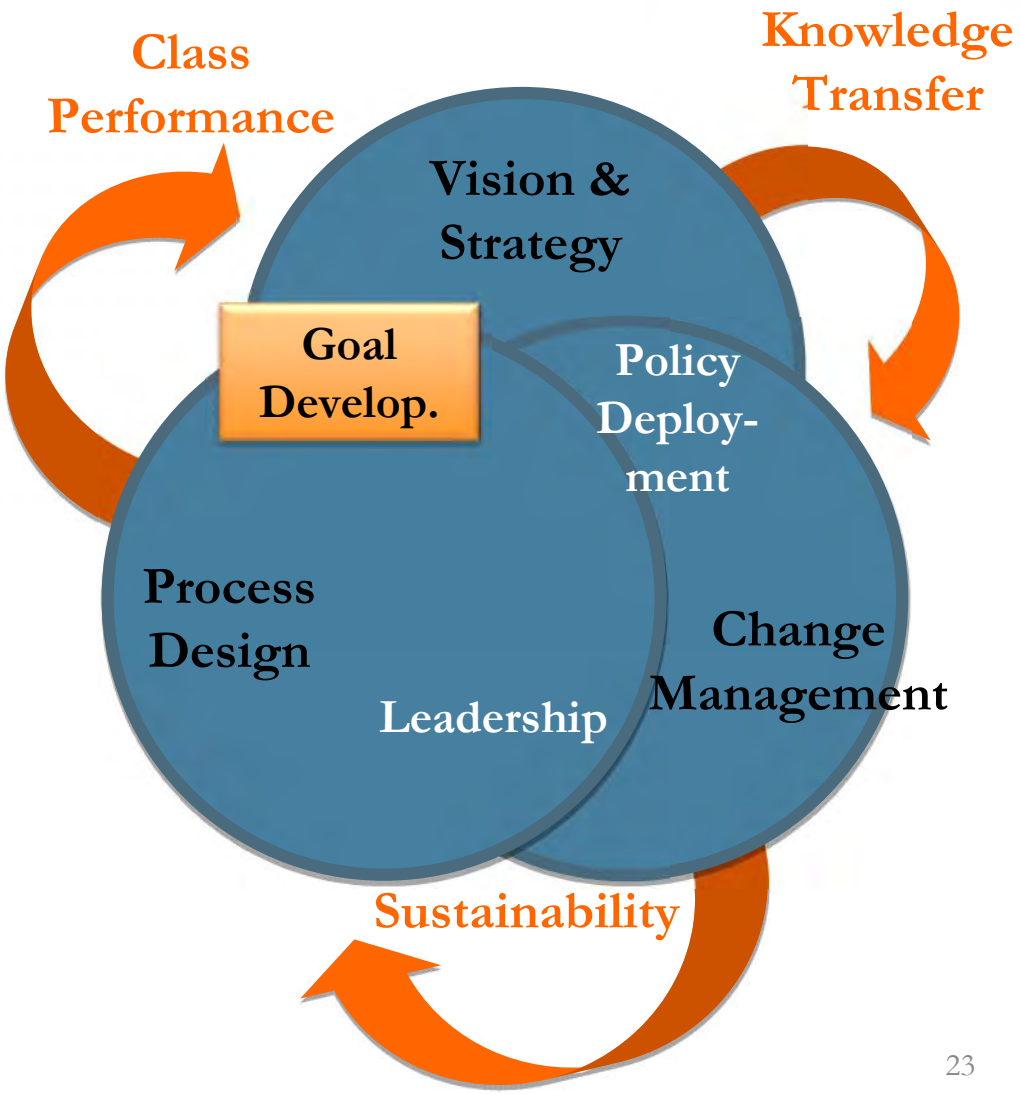
OBTAINABLE SUPPLY CHAIN RESULTS

- Inventory turns 11 – 47%
- On Time Shipments (Out) 75.2% to 97.3%
- On Time Shipments (In) 77.2% to 96.3%
- Logistics Cost 18 – 20 %
- Days Sales Outstanding (A/R) 19 – 24%
- Total Supply Chain Costs 9.6%
- Reduction in Suppliers 23% to 38%



GOALS AND MEASUREMENTS - STRATEGY

- Goals and measurements tie the strategy together with the achieved performances.



TYPICAL SUPPLY CHAIN MEASUREMENTS

The measurements usually cover 4 areas:

1. **Financial** – Total cost of goods, manufacturing, warehousing, transportation

2. **Customer** - Order Fill Rate, Backorder Levels, On-Time Delivery to Customer

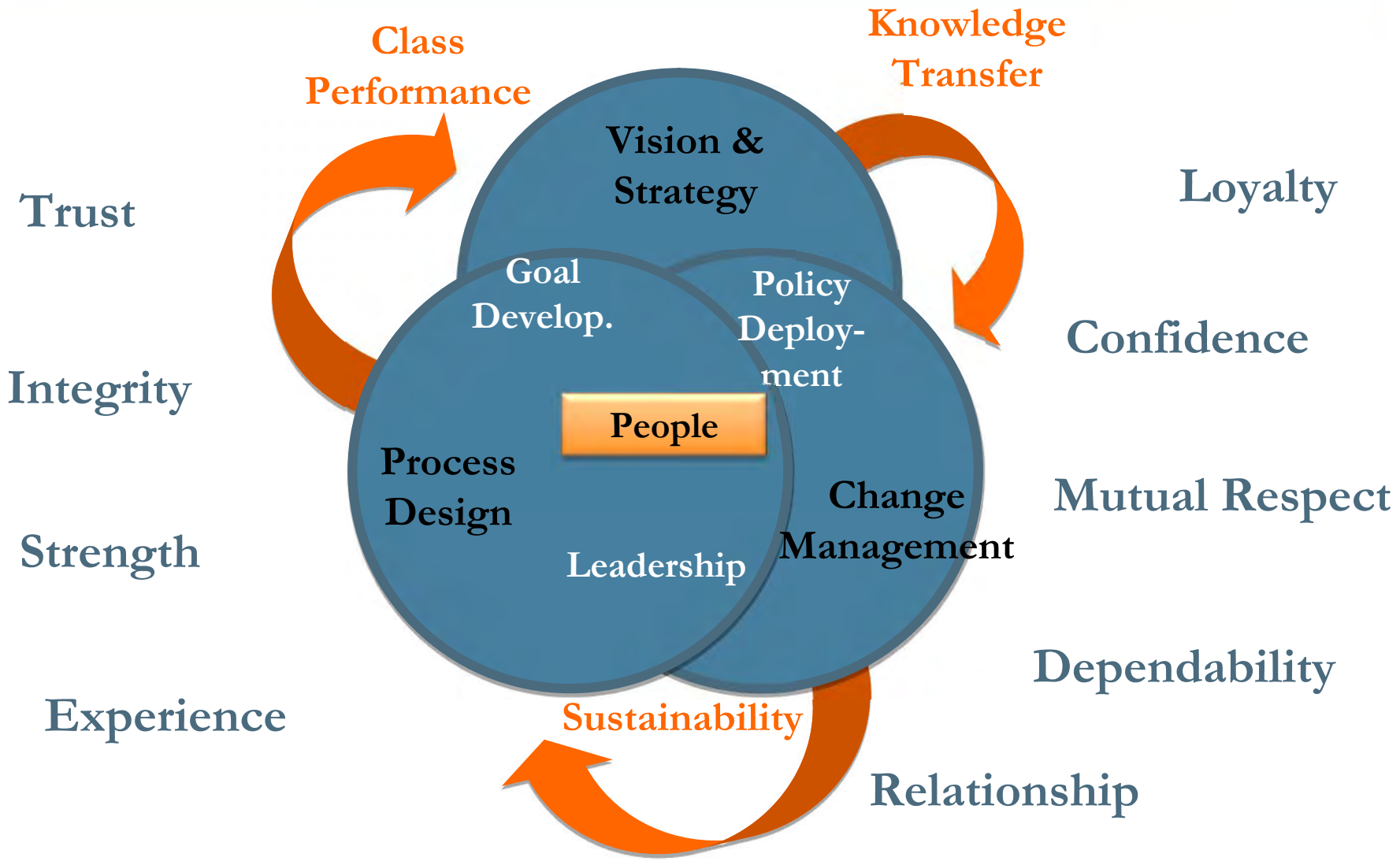
3. **Internal Business** - Adherence-To-Plan, Forecast Error , Defect Rate

4. **Supplier** – On-time Delivery, Sharing of Cost Reductions, Consolidation of Services

SUPPLY CHAIN SOFTWARE PROVIDERS

SAP	Oracle
JDA Software	RedPrairie
Manhattan Associates	i2 Technologies
Retalix	IBS
Epicor	Aldata
HighJump	Swisslog
CDC Software	Descartes
Servigistics	Infor
QAD	Applied Materials
19 Sterling Commerce	IFS

PEOPLE MAKE THE SUPPLY CHAIN WORK



OMEP CONTACTS – SUPPLY CHAIN IMPLENTATION

Chris Scherer
President - OMEP
Tel: (503) 406-3775
cscherer@omep.org

Larry Pederson
Business Development Manager
Tel: (503) 406-3776
lpederson@omep.org

Jim Wehrs
Consultant
Cell: (503) 789-9357
jwehrs@omep.org