

Outsourcing and The Extended Value Stream

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Presentation Agenda

1. Lean and Outsourcing Defined
2. How outsourcing can support and accelerate a lean manufacturing program.
3. How to use value stream analysis to analyze the extended value stream
4. Five steps to improving the extended value stream
5. The benefits of a lean extended value stream
6. A brief case study on outsourcing and lean

Lean Manufacturing Overview

Measure	Initial Lean Conversion	Continuous Improvement
Labor Productivity	Double	Double Again
Production Throughput Times	90% reduction	50% reduction
Inventories Throughout	90% reduction	50% reduction
Errors Reaching Customers	50% reduction	50% reduction
Scrap	50% reduction	50% reduction
Time to Market / New Product Development	50% reduction	50% reduction

Lean Manufacturing Overview

- **Value** - A capability provided to a customer at the right time at an appropriate price, as defined in each case by the customer. Features of the product or service, availability, cost and performance are dimensions of value.
- **Value Stream** - the set of all the actions required to bring a product to the customer.

Lean Manufacturing Overview

- **Waste** - Any activity that consumes resources but creates no value.



8 Types of “Muda” or Waste

- Overproduction
- Waiting
- Transporting
- Inappropriate Processing
- Unnecessary Inventory (WIP)
- Unnecessary / Excess Motion
- Defects
- Underutilization of Employees’ Ideas/Minds



Lean Conversion Process

- Specify value
 - can only be defined by the ultimate customer
- Identify the value stream
 - exposes the enormous amounts of waste
- Create flow
 - reduce batch size and WIP
- Let the customer pull product through the value stream
 - make only what the customer has ordered
- Seek perfection
 - continuously improve quality and eliminate waste
 - Extend this to your suppliers

What does Lean do?



Lean Manufacturing Overview

- Tools
 - Value Stream Mapping (identification and planning)
 - Quick Changeover
 - 5S Visual Workplace
 - Cellular Manufacturing
 - Kanban
 - Total Productive Maintenance
 - Statistical Methods for Process Improvements
 - *Outsourcing?*

What is Outsourcing?

- Outsourcing is not a traditional supplier relationship.
- Outsourcing is a relationship in which *the provider owns most if not all of the people, processes, and technologies* needed to deliver a business process. (*The Outsourcing Revolution*, Michael F. Corbett, 2004)

Relationship between Lean and Outsourcing

- **Myth Number 1:** Lean *is* Outsourcing.
 - *“We’ve outsourced all of our manufacturing; therefore, we are lean.”*
- **Myth Number 2:** Lean and outsourcing are incompatible.
 - *“We do not need lean. We’ve decided to outsource everything instead!”*
- **Reality:** Having someone else do what you did previously does not automatically make it lean nor does it eliminate the need for lean!

Relationship between Lean and Outsourcing

- **Reality:** Outsourcing is a critical part of a lean enterprise.
 - *Everything in the value chain cannot be a core competency.*
 - *Test to determine core competency:*
 1. If you were starting a company today, would you do this yourself?
 2. Would other companies hire you to do this?
 3. Will tomorrow's CEO come from this area?

Relationship between Lean and Outsourcing

- **Reality:** Outsourcing is a critical part of a lean enterprise.
 - *Since everything in the value chain is not core, and lean is about improving the value chain, then outsourcing is critical to the lean enterprise.*

Why work to improve the extended value stream?

- Suppliers will be building in “mass-production” style if you don’t:
 - Pull systems will not be true pull systems which means:
 - Cost targets cannot be met without sacrificing something:
 - Quality
 - On-time Delivery
 - Etc.
 - ***Your company cannot be lean without improving the entire value stream!***

Lean Conversion Process: Extended Value Stream

1. Map your extended value stream(s).
2. Define your core competencies.
3. Rate your key suppliers.
4. Develop a plan.
5. Act on your plan.

Value Stream Mapping

- **Definitions**
 - **Current State Map** – Map showing information and product flow as it is currently done.
 - **Future State Map** - Map showing *an attainable* information and product flow with significantly less waste than that of the current state.

Value Stream Mapping

- **Purpose of Mapping**
 - To identify and eliminate waste in the value stream.
- **End Product of VSM**
 - Picture of “future state” with an action plan to achieve it.
 - Prioritized Projects

Extended Value Stream Mapping

- Map Current State
- Map Future State
- Develop “lower level” (door-to-door and process level maps) to begin improving value streams at individual supplier sites.

Value Stream Mapping: Identifying your value stream for Analysis

- **3 Major Steps**

1. Group your products into product families whenever possible.

	Process Step					
Product	1	2	3	4	5	6,7,8...
A	X		X	X	X	
B		X	X		X	
C	X		X	X	X	
D		X	X		X	
E,F,G...						

Value Stream Mapping: Identifying your value stream for Analysis

2. Select one of your products/product families to be analyzed: longest lead time, highest cost, new product, highest sales \$ volume, etc.
3. Gain an overview of the major processes from your customer back to raw materials (entire supply chain). Higher level analysis than “door-to-door” value stream mapping.

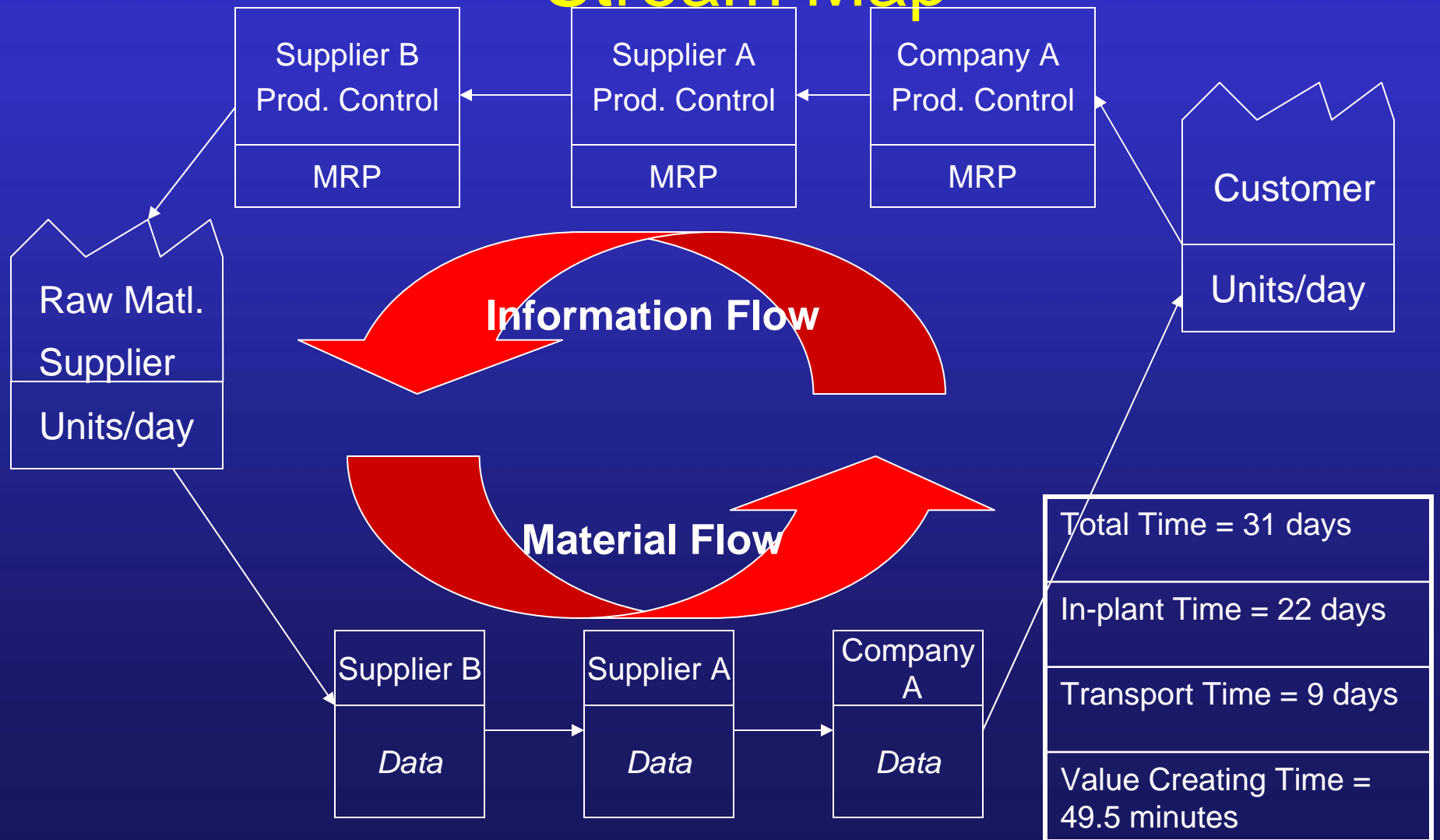
Value Stream Mapping: Current State

- Begin mapping at the end of the process (e.g., end customer) and work backwards through suppliers. Each process box represents a facility with:
 - Cycle Time
 - Lead time
 - Inventory
 - Shipping / Transportation time
 - Defect Rates
- Map physical product flow *and* information flow

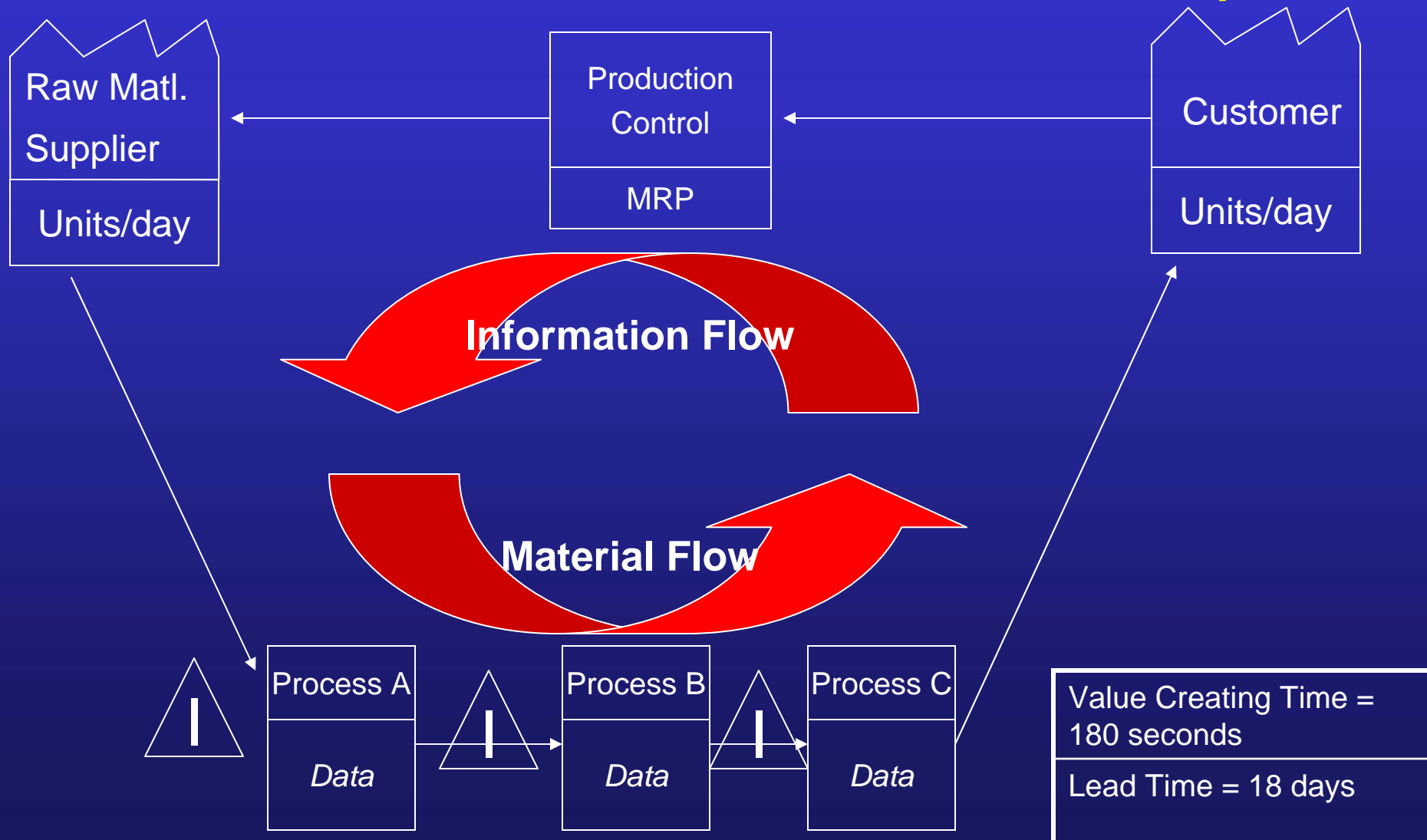
Value Stream Mapping: Current State

- Metrics
 - Total Time
 - In-plant Time
 - Transport Time
 - Value Creating Time
 - *Total Time = In-plant time + Transport Time*

Current State Extended Value Stream Map



Current State Value Stream Map



Value Stream Mapping: Current State

- You will discover waste and sources of waste:
 - Inventory held at multiple places
 - Purchasing the same components (can this be grouped/centralized for economies of scale?)
 - Common Equipment
 - Common Services
 - Waste in suppliers “door-to-door” value streams
 - New suppliers needed in some areas
 - Infrequent shipments leading to high inventory
- Bottom Line: Most companies’ extended value streams are *less than 0.1% value-creating*.

What is a Lean Extended Value Stream?

- Everyone in the value stream knows the rate of customer demand or takt time
- Very little inventory – standard based on:
 - Variability of downstream demand
 - Capability of upstream processes
 - Inventory required between processing steps due to batch sizes and pack sizes (shipping qtys)

What is a Lean Extended Value Stream?

- Fewer transport links – the customer places no value on moving product around.
- Little information processing as possible (one area scheduled, the rest pulled)
- Shortest possible lead time
- Changes introduced to improve flow and eliminate inventory should involve the least possible cost (with no cap inv. if possible)

Value Stream Mapping: Future State

- Map the future state.
 - Level pull within facilities first
 - Use door-to-door maps for suppliers
 - Then, Level pull between facilities
 - Eliminate Redundancies/Waste
 - Increase frequency of deliveries
 - Identify Additional Opportunities

Yearly Value Stream Plan

Yearly Value Stream Plan

2005 Monthly Schedule

Product Family Business Objective	Value Stream Loop	Value- Stream Objective	Goal (Measurable)	1	2	3	4	5	6	7	8	9	10	11	12	Person in Charge	Related Individuals	Review Schedule
Improve Profitability of Product Line A	1	* Single Piece flow in assembly														Jeff S.	David L., Mary G.	Joe, 7/1/05
		* Finished goods pull																
		* Supermar ket between assy cell and stamping operation																
		* Supplier schedule to daily delivery																

Map Your Extended Value Stream

- Key Points
 - Objective is to identify improvement areas. VSM is not an exact science.
 - Future State and Action Plan are most important.
 - Action plan must:
 - Identify specific tasks
 - List responsible individuals

Define Your Core Competencies

Technique	Corbett's Simple Test
Steps	Answer Three Questions: <ol style="list-style-type: none">1. If you were starting a company today, would you do this yourself?2. Would other companies hire you to do this?3. Will tomorrow's CEO come from this area?
Resources	www.firmbuilder.com

Define Your Core Competencies

- Key Points
 - Common Sense needs to apply to the test
 - As a general rule, the Test should be applied to large areas of the value stream- not individual components.
 - The mapping exercise (step 1) should make a lot of the answers obvious.
 - Core Competencies should be defined in conjunction with C.S. Value Stream Mapping.

Rate Your Key Suppliers

Technique	Custom Supplier Rating System
Steps	<ol style="list-style-type: none">1. Identify Key Suppliers (80/20 rule).2. Identify Key Criteria for your company.3. Create Survey/Test.4. Rate Your <i>Key</i> Suppliers.
Resources	www.firmbuilder.com

Rate Your Key Suppliers

- Key Points
 - The most important part is developing the criteria.
 - Rate the *key* suppliers. All of your suppliers need not be rated.

Develop a Plan

Technique	Guidelines Below
Steps	<ol style="list-style-type: none"><li data-bbox="877 630 1640 764">1. Separate keepers from throw-aways<li data-bbox="877 792 1570 1003">2. Decide (among keepers) who will do what.<li data-bbox="877 1036 1381 1101">3. Identify voids.<li data-bbox="877 1133 1493 1263">4. Plan for long-term agreements.
Resources	<p data-bbox="877 1307 1570 1365">www.emsstrategies.com</p> <p data-bbox="877 1393 1472 1451">www.firmbuilder.com</p>

Develop a Plan

- Key Points
 - Steps are guidelines. You must tailor the technique to your company's specific situation.
 - Iterative process likely
 - Process may take several months to a year depending on your business.
 - Multiple future states

Act on Your Plan

1. Develop long-term agreements with the suppliers you plan to keep.
2. Find New Suppliers and make agreements with them.
3. Help them implement lean.
4. Involve them in product design/development.
5. Develop supplier associations (case study)

Benefits

- Buyer
 - Shared Understanding of total value stream
 - Extension/Magnification of lean manufacturing benefits already realized: better quality, less inventory, higher productivity, etc.
 - Greater profitability and cash flow.
 - Potential for success depends on business model
 - More outsourced = Greater Potential \$ benefits
 - More bargaining power with suppliers = Greater Potential for success

Benefits

- Suppliers
 - Shared Understanding of total value stream
 - Shared cost savings
 - Greater Ability to Win Bid Wars
 - Incentive and ability to produce more cost savings for themselves through lean.

Benefits

- Enhanced benefits for both parties come from:
 - Involving Suppliers in Your Product Design/Development (even having them take the lead in this).
 - Developing a Supplier Association (to sustain your program).

Case Study: Toyota

- Virtually Invented Lean (Toyota Production System)
- Known for High Quality/Customer Satisfaction
- Developed the first supplier association in the 1930's.

Case Study: Toyota

- 80% of manufacturing activities done by Tier 1 and Tier 2 suppliers.
- Toyota helps their suppliers go lean
- Toyota's tier 1 and tier 2 suppliers have used their lean-ness to win bid wars (Lean Thinking, Womack and Jones)
- Tier 1 suppliers lead the development efforts for their sub-systems (e.g., braking system)

Case Study: Toyota

- Analysis of Toyota's Supply Chain competitive advantage:
 - Only 18% is derived from their *internal* competitive advantage.
 - 40% is from tier 1 component manufacturers.
 - 42% from lower tier component manufacturers.

Case Study: Toyota

- Conclusion: A lean or (TPS) extended value stream is more important to Toyota.
- They sustain their lean extended value stream by continuing their suppliers' educations through TPS workshops (as part of their supplier association programs).

Case Study: Toyota

- Supplier Integration Activities
 - Top Management Group Meetings
 - Quality Awards
 - One-to-one assistance
 - Quality Audits
 - Automation Workshops
 - Logistics Workshops
 - **Toyota Production System (Lean) Workshops**

Case Study: Toyota

1930's – 1960's	1 st tier Component Suppliers
1970's	Tooling and Capital Equipment Suppliers added
1980's	Fully developed multi-tier association (all key 1 st , 2 nd , 3 rd tier suppliers).
1990's - Present	New overseas supplier association for overseas Toyota facilities

Case Study: Toyota

- “Supplier Parks”
 - Ex- Toyota facility in Mexico
 - Ideal Extended Value Stream
 - Distances minimized – all key suppliers on one campus
 - All suppliers TPS trained

Conclusions

- A Lean Extended Value Stream is critical to competitive advantage.
- To get there:
 - Map your extended value streams and create a picture and plan for your lean extended value stream.
 - Work down to door-to-door and process level within your suppliers' facilities
 - Help them create lean internal value streams
 - Develop a program to sustain their success

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Questions

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