

The Torch-(Light)-Bearers

- ✓ Executive management
- ✓ Finance
- ✓ Sales
- ✓ Production / manufacturing
- ✓ Production Planning
- ✓ Production Engineering
- ✓ Machine operation
- ✓ Purchasing
- ✓ Quality System
- ✓ R & D New Product Introduction
- ✓ Human Resource
- ✓ Maintenance
- ✓ Industrial and Manufacturing engineering
- ✓ Continuous Improvement (Kaizen) Promotion Office
- ✓ Traffic and Delivery systems

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Where to Start

- The concept of a 'Model Line'
- Where the company's vision is involved
- Where there is a significant need for improvement
- Where there is a good chance for success
- Where the effort won't be viewed as window dressing
- Where the energy is

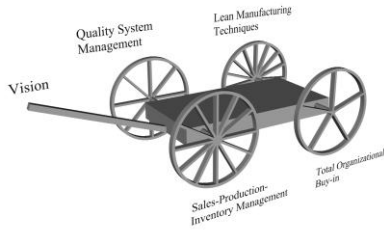
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Phased Project Plan

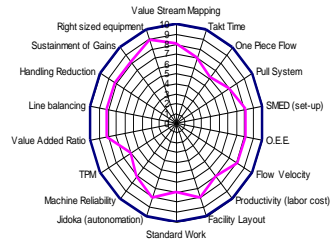
<p>Phase I</p> <ul style="list-style-type: none"> Perform PQR (product-quantity-rating) data analysis Identify the product family types Identify unique value streams (including dog/cats) Select a model line Select a team Train the team to understand the Lean approach Develop current condition statement Develop objective statement Develop action plan (Gantt Chart-project plan) <p>Phase II</p> <ul style="list-style-type: none"> Collect operator cycle times Collect machine cycle times Map the value stream Obtain the best forecast & history information available Develop Takt time for 3 production levels Identify equipment requirements Identify shared equipment Re-engineer product flows on paper <p>Phase III</p> <ul style="list-style-type: none"> Develop a future state map (conceptual) Team training (how to operate as a cell) Construct the team (see training matrix) Virtually link upstream and downstream processes Implement the "buddy check" inspection process Train the team in the Kaizen approach Perform set-up reduction projects Develop set-up reduction charts 	<p>Phase IV</p> <ul style="list-style-type: none"> Develop 1st pass quality process Develop standard work for 3 production levels Educate teams in use of standard work Balance the line Apply 5-S (workplace organization) Assure machine reliability Begin TPM (total productive maintenance) procedures Reduce material handling Implement linearity charts for waste and production <p>Phase V</p> <ul style="list-style-type: none"> Reduce paperwork Develop pull signals Work with vendors to supply raw materials "just in time" Implement standard WIP (or supermarkets) Implement limited FIFO to help smooth the order file Reduce non-value added activities Apply Jidoka techniques (automation) Test the system (run it) Document results <p>Phase VI</p> <ul style="list-style-type: none"> Implement performance based pay Document new "best practices" Second set-up reduction on bottleneck operations Design and build right size the equipment Develop detail layout Execute the move Identify the next value stream and repeat
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The Perfect 'Lean' Vehicle



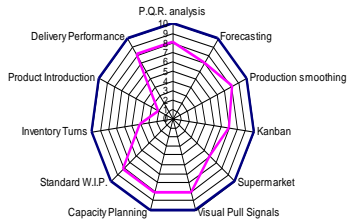
Lean Manufacturing Techniques



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Sales, Production, Inventory Planning



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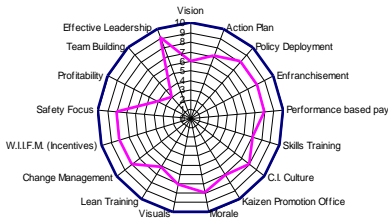
Total Quality Management



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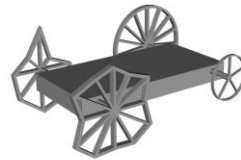
Total Organizational Buy-in



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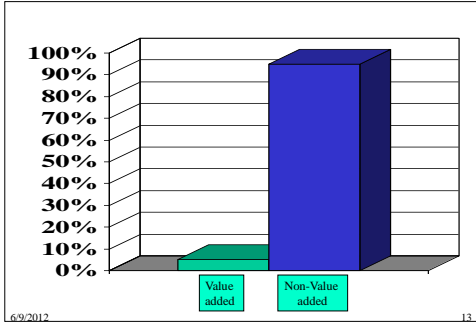
The Not So Perfect Vehicle



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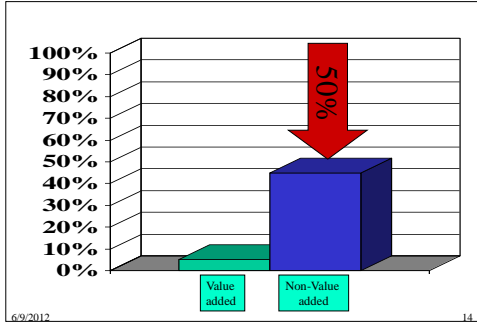
A Lead Time Dilemma



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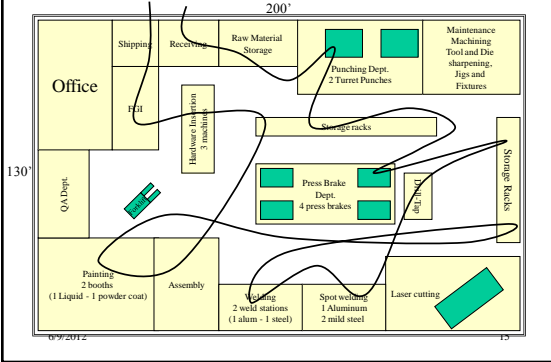
A Lead Time Dilemma



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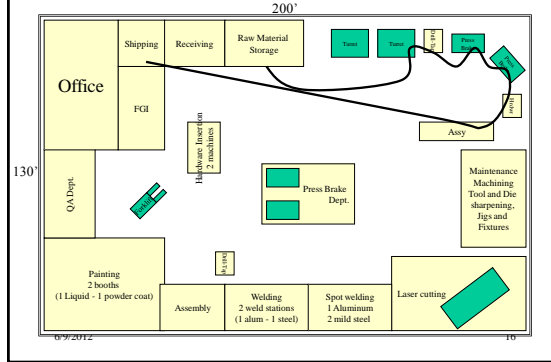
S & F Metal Fab Plant Layout (pg 77)



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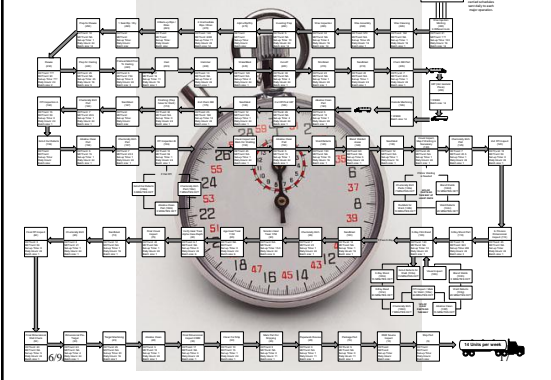
S & F Metal Fab Plant Layout



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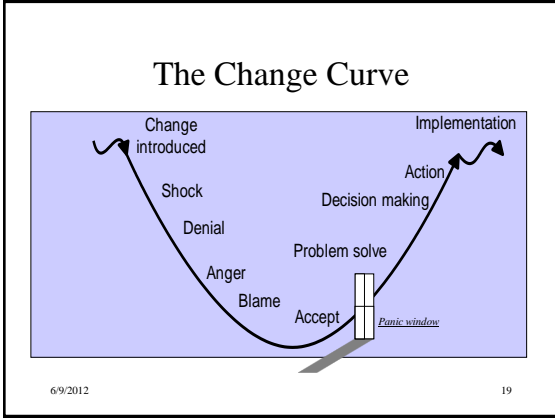
ACME Process Map



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Managing the Human Element



Phased Project Plan

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- ### 8 Basic Forms of Waste
- Transportation
 - Inventory
 - Motion
 - Waiting
 - Over production
 - Over processing
 - Defects
 - Underutilization of Talent
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