The Wiremold Company

Case Study of a Lean Transformation

Orest Fiume
Vice President-Finance,
Retired
The Wiremold Company
Wiremold Background

• Before we started our Lean Journey…for real…the company was driving Deming and TQM…lots of training
• 1988-1990 Attempted new MRP implementation and JIT
• Cut inventory for JIT without making necessary operational improvements

Result: Business performance declined and customer service suffered . . . We didn’t know what we were doing.
Wiremold Results:
1987 - 1990

Sales \uparrow 20%  
Operating Profit \downarrow (82%)
Wiremold’s Status in 1990-1991

- Low Profits
- No Cash
- Bad Customer Service
- Losing Market Share
- But…
  - We did raise the awareness of everyone (including the union) of the need for change
  - We believed that the Toyota way of doing business was the right way

Sept 1991: Hired Art Byrne as President
LEAN

A Business Strategy

*Not*

A Manufacturing Tactic

*Not*

A Cost Reduction Program
Time-Based Strategies
Lead-Time Reduction

Critical for driving improvement to your customers

Source: TBM
Lean is **Not** something you do while you run your business...
Lean is the Way you run your business

The Goal is Not to implement Lean...it is to accelerate operational excellence to create sustainable competitive advantage
Why Doesn’t Everyone Do “Lean”?

- Easy to Agree With
- Hard To Do

Why Is It So Hard?
Most Companies View “Lean” as Some Manufacturing Thing

- Just an Element of Strategy
- Delegate it Down in the Organization - But Don’t Remove the Barriers
  - Make the Month
  - Absorption Accounting
  - MRP and Other Computer Systems
  - Inappropriate Performance Measurement

Must Be Company Strategy To Be Successful
All Our Current Processes are built for Batch

- Forecasting Systems
- Factory Layouts and Equipment Base
- Computer Programs/Systems
- Accounting Systems

*Accounting and computer systems are biggest hurdles*
Implementing Lean Thinking

It is a Cultural Change That Requires Leadership… Because in the End It’s All About People
Companies are just collections (teams) of people trying to outperform other collections of people to satisfy a set of customers.
CEO’s Role

• Learn Lean Thinking
• Out Front - Hands On - Don’t Delegate
• Have a “no-layoff” policy
• Organize around Value Streams
• Change Metrics and Set Stretch Goals
• Change to Lean Accounting
Wiremold’s Lean Strategy

Be the leading supplier in the industries we serve and one of the top ten time-based competitors globally

- Constantly strengthen our base operations
  - 100% Customer service
  - 50% Annual reduction in defects
  - 20% Annual productivity gain
  - 20x Inventory turns
  - 20% Profit sharing
  - Visual Control and “5 S’ s”

- Double in size every 3-5 years
  - Pursue selective acquisitions
  - Use QFD to introduce new products every month
Flow Production Exposes Waste

From
Batch Production
Push Scheduling

To
Flow Production
Pull Scheduling

Objective is one piece flow
Three Key Principles

• Work to TAKT time
• Implement one-piece flow
• Use pull system
Starting a Lean journey . . .

Can Deliver tremendous results

*in the first 12 to 18 Months!*
First-Year Space Savings

- Main factory – freed up 40%
- Closed 70,000 sq. ft. master warehouse
- Philadelphia plant – freed up 50%
- Chicago plant – freed up 45%
The Key is to reduce Setup Times
(First year results)

<table>
<thead>
<tr>
<th>Setup Time (minutes)</th>
<th>Before</th>
<th>After</th>
<th>Reduction %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rolling Mill</td>
<td>720</td>
<td>34</td>
<td>95</td>
</tr>
<tr>
<td>150 Ton Press</td>
<td>90</td>
<td>5</td>
<td>94</td>
</tr>
<tr>
<td>P.M. Punch Press</td>
<td>52</td>
<td>5</td>
<td>90</td>
</tr>
<tr>
<td>Hole Cut on Mill 1228</td>
<td>64</td>
<td>5</td>
<td>92</td>
</tr>
<tr>
<td>2-1/2” Extruder</td>
<td>180</td>
<td>19</td>
<td>89</td>
</tr>
</tbody>
</table>
Lead Time Reductions

• From 4 to 6 weeks ⇒ to 45 minutes to 2 days

• Machines that changed 3 to 4 times per week ⇒ to 20 to 30 changes per day

“Make Every Product Every Day”
Sustainable Results!

Over the long term
Improved Inventory Turnover

Number of Turns Per Year


Number of Turns Per Year

18
16
14
12
10
8
6
4
2
0

3.4 4.6 8.5 10 12 14.9 14.3 15.3 16.2 15.8
Strong Employee Productivity

Core business
Sales Per Employee

<table>
<thead>
<tr>
<th>Year</th>
<th>Thousand of Dollars</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>92</td>
</tr>
<tr>
<td>1991</td>
<td>104</td>
</tr>
<tr>
<td>1992</td>
<td>130</td>
</tr>
<tr>
<td>1993</td>
<td>140</td>
</tr>
<tr>
<td>1994</td>
<td>176</td>
</tr>
<tr>
<td>1995</td>
<td>188</td>
</tr>
<tr>
<td>1996</td>
<td>216</td>
</tr>
<tr>
<td>1997</td>
<td>226</td>
</tr>
<tr>
<td>1998</td>
<td>238</td>
</tr>
<tr>
<td>1999</td>
<td>241</td>
</tr>
</tbody>
</table>
Dramatic Gross Margin Improvement

Wire Management

<table>
<thead>
<tr>
<th>Year</th>
<th>Gross Margin</th>
<th>% Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>37.8%</td>
<td>-</td>
</tr>
<tr>
<td>1992</td>
<td>39.9%</td>
<td>2.1%</td>
</tr>
<tr>
<td>1993</td>
<td>44.3%</td>
<td>6.5%</td>
</tr>
<tr>
<td>1994</td>
<td>45.0%</td>
<td>7.2%</td>
</tr>
<tr>
<td>1995</td>
<td>47.4%</td>
<td>9.6%</td>
</tr>
<tr>
<td>1996</td>
<td>49.7%</td>
<td>11.9%</td>
</tr>
<tr>
<td>1997</td>
<td>50.4%</td>
<td>12.6%</td>
</tr>
<tr>
<td>1998</td>
<td>50.0%</td>
<td>12.2%</td>
</tr>
<tr>
<td>1999</td>
<td>50.8%</td>
<td>13.0%</td>
</tr>
</tbody>
</table>
Lean Transformation

We needed to change Behaviors. . . .
The Winners Will Be Companies Who Focus On Their Processes, Not Their Results!

Easy to say but, Hard for Managers to truly act that way!
What is Process Focus

• Focus of a Traditional Company
  – Results, Results, Results

• Focus of a Lean Company
  – Process, Process, Process…and Results

• Lean Companies care about how they get Results in order to make them **Repeatable**

• Therefore…most metrics should be process oriented metrics, not financially oriented metrics
Why are Metrics Important?

• Metrics send a message to employees as to what management thinks is important
• Employees want to appear to be doing what management wants them to do
• METRICS SHAPE BEHAVIOR
When Should Metrics be Addressed?

AT THE BEGINNING OF THE LEAN TRANSFORMATION
Who are the Principal Users of Metrics

The Workers
How should Management use metrics?

“Leaders may be judged by the numbers they deliver, but that’s not the way they should run the company”
– Rowan Gibson

We don’t want to be a “make-the-month” company
Wiremold’s Lean Strategy

Be the leading supplier in the industries we serve and one of the top ten time-based competitors globally

• Constantly strengthen our base operations
  
  • 100% Customer service
  • 50% Annual reduction in defects
  • 20% Annual productivity gain
  • 20x Inventory turns
  • 20% Profit sharing
  • Visual Control and “5 S’s”

• Double in size every 3-5 years
  
  • Pursue selective acquisitions
  • Use QFD to introduce new products every month
“Corporate management accounting systems are inadequate for today’s environment”

Relevance Lost
The Rise and Fall of Management Accounting
H. Thomas Johnson
Robert S. Kaplan
1987
Lean Accounting

• Apply Lean Concepts to All Accounting and Business Processes

• Change from Standard Cost to Plain Language Financial Statements
Can You Tell Why We Didn’t Make Any More Money?

<table>
<thead>
<tr>
<th></th>
<th>This Year</th>
<th>Last Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Sales</td>
<td>100,000</td>
<td>90,000</td>
</tr>
<tr>
<td>Cost of Sales:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard Costs</td>
<td>48,000</td>
<td>45,000</td>
</tr>
<tr>
<td>Purchase Price Variance</td>
<td>(3,000)</td>
<td>10,000</td>
</tr>
<tr>
<td>Material Usage Variance</td>
<td>(2,000)</td>
<td>5,000</td>
</tr>
<tr>
<td>Labor Efficiency Variance</td>
<td>7,000</td>
<td>(8,000)</td>
</tr>
<tr>
<td>Labor Rate Variance</td>
<td>(2,000)</td>
<td>9,000</td>
</tr>
<tr>
<td>Overhead Volume Variance</td>
<td>2,000</td>
<td>2,000</td>
</tr>
<tr>
<td>Overhead Spending Variance</td>
<td>(2,000)</td>
<td>8,000</td>
</tr>
<tr>
<td>Overhead Efficiency Variance</td>
<td>16,000</td>
<td>(17,000)</td>
</tr>
<tr>
<td>Total Cost of Sales</td>
<td>64,000</td>
<td>54,000</td>
</tr>
<tr>
<td>Gross Profit</td>
<td>36,000</td>
<td>36,000</td>
</tr>
<tr>
<td></td>
<td>This Year</td>
<td>Last Year</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-----------</td>
<td>-----------</td>
</tr>
<tr>
<td>New Sales</td>
<td>100,000</td>
<td>90,000</td>
</tr>
<tr>
<td>Cost of Sales</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Materials:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Purchases</td>
<td>28,100</td>
<td>34,900</td>
</tr>
<tr>
<td>Scrap</td>
<td>2,600</td>
<td>4,000</td>
</tr>
<tr>
<td>Inventory (Incr)Decr: Mat'l Content</td>
<td>3,600</td>
<td>(6,000)</td>
</tr>
<tr>
<td>Total Materials</td>
<td>34,300</td>
<td>32,600</td>
</tr>
<tr>
<td>Processing Costs:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Factory Labor</td>
<td>11,400</td>
<td>11,500</td>
</tr>
<tr>
<td>Factory Salaries</td>
<td>2,100</td>
<td>2,000</td>
</tr>
<tr>
<td>Factory Benefits</td>
<td>7,000</td>
<td>5,000</td>
</tr>
<tr>
<td>Services &amp; Supplies</td>
<td>2,400</td>
<td>2,500</td>
</tr>
<tr>
<td>Equipment Depreciation</td>
<td>2,000</td>
<td>1,900</td>
</tr>
<tr>
<td>Total Processing Costs</td>
<td>24,900</td>
<td>22,900</td>
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<tr>
<td>Occupancy Costs:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Building Depreciation/Rent</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>Building Services</td>
<td>2,200</td>
<td>2,000</td>
</tr>
<tr>
<td>Total Occupancy Costs</td>
<td>2,400</td>
<td>2,200</td>
</tr>
<tr>
<td>Total Manufacturing Costs</td>
<td>61,600</td>
<td>58,000</td>
</tr>
<tr>
<td>Manufacturing Gross Profit</td>
<td>38,400</td>
<td>32,000</td>
</tr>
<tr>
<td>Inv Incr(Decr): Labor &amp; Overhead Content</td>
<td>(2,400)</td>
<td>4,000</td>
</tr>
<tr>
<td>GAAP Gross Profit</td>
<td>36,000</td>
<td>36,000</td>
</tr>
<tr>
<td>GAAP Gross Profit %</td>
<td>36.0%</td>
<td>40.0%</td>
</tr>
</tbody>
</table>
CHANGE THE FOCUS

• From profitability of individual products
  – To profitability of product groups

• From standard costs & variance analysis
  – To actual costs & segregation of assignable and allocated costs
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• Double in size every 3-5 years
  • Pursue selective acquisitions
  • Use QFD to introduce new products every month
Lean really is a Growth strategy

**Competing on Time...**

**ASK. . . Can we grow our business By:**

- Significantly reducing Lead times? (quote, order, submittals, quote to cash)
- Offering a wide range of configurations fast and low cost?...
- Increasing quality, reducing customer downtime?
- Bringing new innovations to the market based on real customer needs in half the time?
- Bringing new tack-on acquisitions in existing facilities?
For Developing New Products...
Quality Function Deployment ("QFD")

A disciplined product development methodology aimed at getting the “voice of the customer” into our designs.

Quality Function Deployment

QFD Drives Rapid New Product Introductions
QFD Results

- Cut average product development time by 50-75%
- New product introductions from 2-3 per year to 2-3 per month
- Better acceptance of products once introduced
- Gaining market share in key growth markets
Lean Thinking In An Acquisition Mode
Wiremold Acquisitions
1993 - 1999

• 17 acquisitions in 6 years
  • 10 U.S. - 7 Foreign
• All implementing Lean
• All strengthened market position while contributing growth and cash flow
## Inventory Reductions

### Finance Growth

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1993 inventory at 1990 turnover rate</td>
<td>16.7 million</td>
</tr>
<tr>
<td>Actual 1993 inventory</td>
<td>5.6 million</td>
</tr>
<tr>
<td>Cash flow savings</td>
<td>11.2 million</td>
</tr>
<tr>
<td>Cost of first 5 1993 acquisitions</td>
<td>10.0 million</td>
</tr>
</tbody>
</table>

*Cycle time reductions = $24 million in new sales*
## Acquisition DL

<table>
<thead>
<tr>
<th></th>
<th>1997</th>
<th>1998</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Space</td>
<td>100%</td>
<td>40%</td>
<td>- 60%</td>
</tr>
<tr>
<td>Inventory</td>
<td>100%</td>
<td>49%</td>
<td>- 50%</td>
</tr>
<tr>
<td>Head Count</td>
<td>88</td>
<td>55</td>
<td>- 38%</td>
</tr>
<tr>
<td>Op. Profit</td>
<td>- 5%</td>
<td>14%</td>
<td></td>
</tr>
</tbody>
</table>
## Acquisition B

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 5</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>$ 14.8 M</td>
<td>$ 23.3 M</td>
<td>+ 57%</td>
</tr>
<tr>
<td>Operating Income</td>
<td>$ - 0.7 M</td>
<td>$ 4.8 M</td>
<td></td>
</tr>
<tr>
<td>Sales Per Employee</td>
<td>$ 98 K</td>
<td>$ 167 K</td>
<td>+ 70%</td>
</tr>
<tr>
<td>Inventory Turnover</td>
<td>4.1 x</td>
<td>27.9 x</td>
<td>+ 580%</td>
</tr>
</tbody>
</table>
Our Lean Strategy worked

• **In the Market...**
  – Grew the market category significantly
  – Grew share
  – Grew in new, adjacent market segments
  – Set the performance level for others

• **Internally**
  – Freed up cash, facility and human resources
  – Achieved high productivity
  – Changed Culture

**Achieved sustained top and bottom line Growth!**
Market leading results

1992 to 2000
– grew sales 4.5 X’s to $450 MM
– Operating profit grew 14+X’s overall
– EBITDA margin grew from 6% to 21% for the core business

How ...
– Driving Lean thinking across the company
– Setup & cycle time reductions
– Aggressive new products & services
– Driving supply chain behavior to match customer needs
– People culture to embrace change and raise the bar
## Wiremold Before and After Lean

<table>
<thead>
<tr>
<th></th>
<th>1990</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assessed Value</strong></td>
<td>$30 Million</td>
<td>$770 Million</td>
</tr>
<tr>
<td><strong>West Hartford:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sales per Employee</td>
<td>$90K</td>
<td>$240K</td>
</tr>
<tr>
<td>Gross Profit</td>
<td>37.8%</td>
<td>50.8%</td>
</tr>
<tr>
<td>Throughput Time</td>
<td>4-6 Weeks</td>
<td>1 Hours – 2 Days</td>
</tr>
<tr>
<td>Product Dev’l Time</td>
<td>2-3 Years</td>
<td>3-12 Months</td>
</tr>
<tr>
<td># Suppliers</td>
<td>320</td>
<td>43</td>
</tr>
<tr>
<td>Inventory Turns</td>
<td>3.4</td>
<td>17.0</td>
</tr>
<tr>
<td>Working Cap % Sales*</td>
<td>21.8%</td>
<td>6.7%</td>
</tr>
</tbody>
</table>

* W/C = A/R + Inv – Trade Payables

1990-2000 Wiremold Stock CAG = 34.7% per year
1990-2000 S&P500 CAG = 15.5% per year
WIREMOLD
IN A DOWN YEAR
2001

Sales - 14%
Operating Income - 25%
Inventory Reduction - 31%
Account Receivable Reduction - 19%
Cash Flow + 22%
Ask Yourself:

Are you
A Lean Organization
Or
An Organization
Just Doing Lean Stuff?
“It is not the strongest species that survives, or the most intelligent but the most responsive to change”

-Charles Darwin

“It is not necessary to change...survival is not mandatory”

-W. Edwards Deming
THANK YOU

ojfiume@comcast.net
• www.lean.org
  – (go to Store,
  – then Lean Applications)
• www.amazon.com