

Component Making in Cleveland: Kaizen & Arm's-Length Relationships

Susan Helper and Janet
Kiehl

Case Western Reserve
University



Supply Chain Governance

- How do suppliers learn new production techniques?
 - Toyota, Honda
 - Long-term hands-on tutoring by OEMs
 - Italy, Germany, Wisconsin
 - government-aided consortiums
- *Can a more market-based model work?*

Methods

- Interviews and plant tours at 27 plants in Northeast Ohio (Cleveland area)
 - Length: from two hours to many days
 - Talked with company presidents, sales managers, plant managers, engineers, and (a few) operators
 - Sales range from < \$3 million to > \$6 billion
 - Firms supply autos, aerospace, appliances, lawn and garden...
 - Chosen based on convenience, but representative of population's size and product

'Lean': A key production technique

- Inventory reduction
- Search for continuous improvement ('kaizen') through collaboration with suppliers, customers, and workers
- Leads to significant reductions in cost, defects, lead time—key in a competitive industry
- *How have NE OH component makers learned about lean?*

NE OH lacks supplier development institutions

- Little help from customers
 - Only one of 27 firms currently received any technical assistance from any customer
 - Only 3 had received such assistance in the past
- Weak non-profit intermediaries
 - CAMP (Cleveland's manufacturing extension program) receives small and declining subsidies
 - 3 firms had worked with CAMP; 1 currently is
 - Of 3 firms of CAMP board members, only 1 is working with CAMP

So how do NE OH firms adopt lean?

- Many don't
 - 9/27 had no evidence of lean initiatives
 - 4 others (all parts of billion-dollar corporations) started only in the past 3 years
 - Note: *The Machine That Changed the World* published in 1990

Primary Sources of Lean Assistance

- Consultants:
 - Used by at least 4 of 18 adopters
- CAMP, community colleges
 - Used by 3 of 18, for individual projects
- Hiring individuals with lean experience
 - 5 brought in people from elsewhere in corporation and/or outside
- Significant help from customers (1)
- Misc. methods
 - Convincing Toyota to help (tho no Toyota business) (1)
 - Reading by top management (2)
 - Participation in users' groups (2)
 - Unknown (4)

Impacts of Using Markets for Lean

- Compared to being trained by a customer
 - Can't start implementation until a market for lean services exists
 - People trained at Honda, Toyota leave
 - Books are written to codify the system
 - Financing is difficult
 - Projects are done slowly, often without larger vision
 - Projects emphasize inventory reduction to obtain cash to finance the program
 - Less emphasis on employee involvement, finding root cause
 - Maintaining focus is hard
 - ***But, training is not specific to one customer***
 - Supplier can achieve its own identity, escape dependence

Impacts of Using Markets for Lean

- Compared to being trained by a non-profit
 - Can't start until a market for lean services exists
 - People trained at Honda, Toyota leave
 - Books are written to codify the system
 - Financing is difficult
 - Projects are done slowly, often without larger vision
 - Projects emphasize inventory reduction to obtain cash to finance the program
 - Less emphasis on employee involvement, finding root cause
 - **Maintaining focus is hard for both market and non-profit methods**
 - **Training is not specific to one customer for both methods (though supplier has more independence with markets)**

How do they do it? *Large firm example*

Background

- Founded in early 1900's, Ohio.
- \$6B sales; 8 groups, 122 divisions, 45k people, 46 countries.
- 76% sales from N.A., balance international.
- 1400 product lines.
- Highly entrepreneurial, strong culture company.

History of lean initiatives

- **Started with Honda's BP program in late 1980s**
 - Lots of Honda in-plant support
 - BP projects continue for 13 years (with reduced Honda involvement)
 - Big improvements in lead time, quality, but little impact on bottom line
 - Little impact on non-automotive divisions, or corporate decision-making
 - Inventory still treated as an asset
- **Brought James Womack to work with headquarters in early 1990s**
 - Focus on identifying bottlenecks and improving flow there
- **Late 1990's – "lean culture"**
 - "an organized systematic means of executing rapid change through the elimination of waste." (value stream v. isolated).
 - 1998, lean;
 - 2000, network procurement, vendor managed inventory, commodity council (auction), "partnership";
 - 2001 strategic pricing;
 - 2002 Kaizen with quotas!

Motivation, funding for lean initiatives

- Motivated by
 - “burning platform,” plant closing, delivered by executives (decentralized).
 - firm’s customers “suggesting” ISO certification for suppliers.
- Outside experts (commercial consultants) in lean and procurement used on temporary basis.
 - Assessed personnel, trained, tailored a “packaged” process, implemented on site.
- Broad plant participation - all workers on a team (> 200), trained, and included in team meetings. All. Engineering, accounting, production workers, “coaches,” maintenance, quality, human resources.
- Division level expertise on-site first 6 months.
- Continual reinforcement of “team,” results, open communication, trust.
- Funded by “corporation” and locally attracted grant (state).

Lean initiatives

- Improve operating performance: results
 - *Results at one plant (change since fall 1999)*
 - WIP (throughput) improved from 12.7 to 8.1 days
 - WIP down 70% in dollar value, down 47% in use of floor space
 - Freed up 70,000 square feet, now being used for hose assembly.
 - Freed up 70k sq. feet; now being used for hose assembly business.
 - Increased machine capacity by 16%.
 - Reduced scrap from 12% to 8%.
 - Reduced finished goods inventory from 2.7 months to 2.2 months, in a down market.
- **Improve Procurement: goals**
 - Reduce 1) cost of procurement, 2) purchases as % of COGS and sales, and 3) size of supplier base
 - Make procurement a core competency; global “best in class ” by establishing partnerships with suppliers.
 - No e-auctions
 - Contracts for life of model
 - Suppliers participate on Kaizen teams