



The Toyota Way

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By:

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MY TAKE

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WR7

Toyota deserves respect, not ridicule

BY G. DENNIS BEECROFT

As a quality educator and professional I am very saddened and disappointed by the numerous disparaging articles and news items attacking Toyota's automotive recall to address a problem in several of their models.

No one would disagree it is imperative to address safety issues that result in human injury or death quickly, effectively and responsibly.

Toyota has done this. Toyota is certainly not the first automotive manufacturer with safety issues resulting in product recalls.

Remember the Ford/Firestone tire recall (June 2001) as a result of rollovers of some of Ford's vehicles. It would appear that many are exploiting Toyota's recall to advance their own selfish interest and financial gain.

How quickly we forget our teachers! In 1980 Dr. W. Edwards Deming, one of North America's best known quality gurus, wrote a white paper titled *If Japan Can... Why Can't We?*

It resulted in a television

show broadcast by NBC. This paper and television show have been credited with beginning the Quality Revolution in North America.

As a result of this program, thousands flocked to Japan to study their companies and to understand their techniques and processes that were transforming the auto industry.

In 1990, James P. Womack, Daniel T. Jones, and Daniel Roos published a book *The Machine That Changed The World*. This was the first book to reveal Toyota's lean production system that is the basis for its enduring success.

It was based on the largest and most thorough study ever undertaken of any industry – MIT's five-year, 14-country International Motor Vehicle Program.

This book describes the entire managerial system of lean production. It has provided, and continues to provide, lasting and essential guidance to managers and leaders in every industry seeking to transform traditional enterprises into exemplars of lean success.

A lean production system re-

sults in a higher quality, more cost-efficient product, higher productivity and greater customer loyalty.

The hallmarks of lean manufacturing are teamwork, communication and the efficient use of resources.

Since Deming's white paper in 1980, dozens of other books on quality improvement have been published, capturing and promoting lessons learned from our Japanese teachers.

Much of the quality improvement in the products and services that have been enjoyed in the last 20 years is the result of this learning.

In 1989 while at the University of Waterloo I had the opportunity to attend one of the many seminars on Total Quality Control sponsored by JUSE (Japanese Union of Scientists and Engineers) in Tokyo, Japan.

The chairman of Toyota Gosei, Masao Nemoto, JUSE councilors and university faculty presented the sessions. It was truly a life-changing experience, being able to learn and participate with some of the world's most capable quality professionals.

Shortly after, I met with Ray

Tanguay, current president, Toyota Motor Manufacturing Canada (TMMC), on several occasions, visiting and touring the Cambridge manufacturing facility.

Tanguay also sent me to Toyota's training facility in Kentucky to learn more about the Toyota Production System. The week-long seminar was attended by several other major U.S. organizations.

The primary purpose of the seminar was to expose North American organizations to the "Toyota Way" and to encourage them to adopt it into their organizations.

Toyota provided this, and follow-up training and consulting at no cost, to any organization that would make the long-term commitment required to implement the Toyota production system.

Toyota was prepared to help other organizations improve, including competitors, as they felt, if the overall performance and quality level of organizations could be improved, everyone would gain.

Tanguay wanted our Institute for Improvement in Quality and Productivity at the university to

offer training for local companies. Toyota would be prepared to assist financially and promote the seminars. However, we did not have the teaching resources at the institute and regrettably were unable to proceed.

It is most unfortunate that Toyota finds itself in this current recall position.

Based on all that North America has gained from our Japanese "teachers," the expectation might be for it to support and encourage them toward a speedy and effective solution to their current problems. However, this does not appear to be the case.

As a minimum we should be giving this world leader and "teacher," as well as its many thousands of employees and their suppliers, the encouragement and respect they rightfully deserve.

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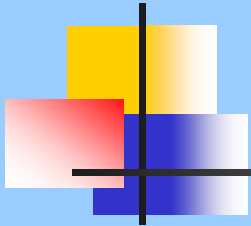


Total Quality “Explosion”



White Paper – If Japan Can Why Can't We?

By Dr. W. Edwards Deming - 1980



International Seminar: TQC

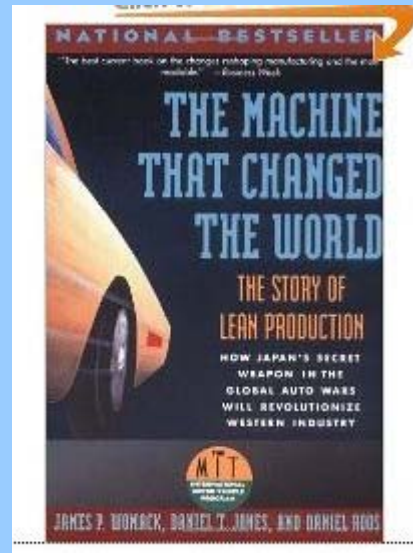
- Attended in October 1989 in Tokyo, Japan
- Union of Japanese Scientists and Engineers – JUSE
- JUSE councilors and university faculty
- Toyota Gosel chairman, Masao Nemota presented
- Limited to 50 English speaking attendees
- Presented in Japanese and simultaneously translated



Seminar Personal Learning's

- Westinghouse reference
- Toyota involvement/influence
- Focus on people/person
 - Workshop
 - Quality Circles
- Prevention vs detection focus
- Unlearn Japanese myths
 - Lights out factory
 - Use of robots
 - Single source suppliers

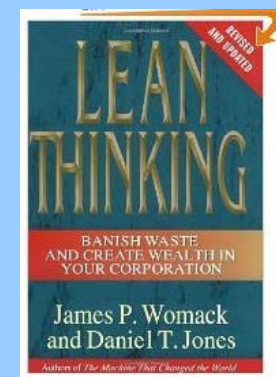
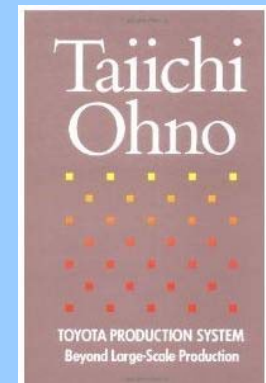
Book



- Published in 1990
- Authors: James P. Womack, Daniel T. Jones, and Daniel Roos, MIT
- First book to reveal Toyota's Lean Production System (TPS)

Lean Thinking - TPS

- A philosophy that focuses on reducing waste (Muda)
- Concept was developed by Toyota
- Efficient operation of the complete value chain
- Focus areas:
 - Removal of non value added activities
 - Reduce cycle time, improve quality
 - Inventory reduction
 - Align production with demand – Takt time
 - Process improvement





Taiichi Ohno (Toyota)

7 Wastes ("Muda"):

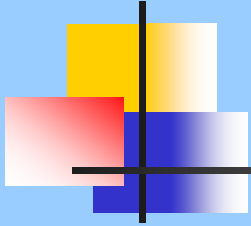
1. **Transport:** Movement of materials is a waste. Minimize the amount of movement by arranging processes in close proximity to each other.
2. **Inventory:** Too little inventory can lose sales, too much inventory can hide problems. Aim for "Just in Time" (JIT) manufacturing to expose problems to be eliminated and reduce cost.
3. **Motion:** Remove unnecessary motion of the operations and improve the ergonomics of the workplace.
4. **Waiting:** Minimize waiting time and maximize "value adding" time. Aim for a smooth flow.
5. **Over Production:** Always aim to make exactly what the customer orders, just in time, to the correct quality standard.
6. **Over Processing:** Use machines which are of an appropriate capacity and capable of achieving the required quality standard.
7. **Defects:** Reducing the number of defects directly reduces the amount of waste. Aim for zero defects.

Reference: The Manufacturing Institute



Japan vs North America

- **ISO 9000**
 - **North America**
 - First edition 1987
 - Product and detection focused
 - Process mentioned first in 2000 edition
 - Special processes
 - Still mainly detection focused
 - **Japan**
 - Not much used



Japan vs North America *- cont'd.*

- **Statistical Process Control (SPC)**
 - **North America:**
 - Mainly product/detection focused
 - However known that most value in process focus
 - “First time through capability”
 - **Japan:**
 - Not used
 - Focus on process and prevention
 - Process 100% capable
 - Other means of detecting “out of control” conditions



Detection

- Focus on product
- After the fact – product already good/bad
- “Can not inspect Quality into a product”
- Does not change the product’s quality
- “Non value added”
- Characteristics easily identified
- Easy to measure
- Very common
- Reinforced by customers i.e. “layered audits”



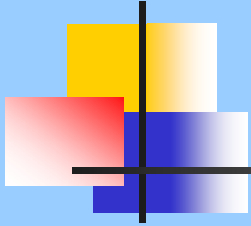
Prevention

- Based on philosophy of not making poor quality
- “Do it right the first time”
- Focus on the processes/methods used to produce the product
- Process characteristics
- Difficult to determine
- Harder to measure
- Customers – mixed messages
 - Error proofing, FMEA, SPC, control plans
 - Correct process **before** the product is made
- Concept well understood however rarely practiced
- “Added value” process as it changes the product quality



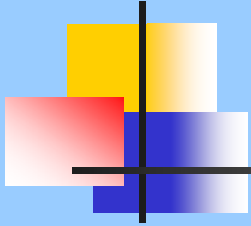
Mistake-Proofing

- **Two approaches to mistake proofing:**
 - **Automatic inspection**
 - Sensors/probes, eddy current detection
 - Practiced most in North America
 - Detection approach
 - **Poka-Yoke**
 - “Can Not Make” – change the process
 - Can only be assembled one way
 - Prevention approach



Japan vs North America *- cont'd.*

- **Continuous Improvement**
 - **North America**
 - Added to “normal work”
 - Assumes infinite capacity
 - No formal plans
 - **Japan**
 - Scheduled into the work day
 - Part of all work
 - Formal plan with objectives/targets



Japan vs North America *- cont'd.*

- **Supplier Problem Resolution**
 - **North America**
 - Imposed additional inspections
 - Financial penalties
 - **Japan**
 - Free training of suppliers
 - Assistance in problem solving at supplier



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- Dennis is President of G. Dennis Beecroft Inc., a management consulting company that specializes in cost of quality, problem solving, quality improvement, training effectiveness and quality management systems. . Dennis is a licensed electrical engineer with the Professional Engineers of Ontario, and Fellow member of the American Society of Quality.
- Prior to starting his own business, Dennis was the Managing Director of the Institute for Improvement in Quality and Productivity at the University of Waterloo for 14 years. He has provided training and consulting for organizations in Canada, United States, Mexico, India, Israel, Singapore, New Zealand, Italy, Korea , China and England. Before joining the University Dennis spent 23 years with Westinghouse Canada in various management positions in manufacturing, engineering, maintenance, project management and quality.
- Dennis is a past Chair of the American Society for Quality's Quality Management Division

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