Applying the Toyota Production System Beyond Cars

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Toyota’s North American Headquarters for:

- Manufacturing
- Vehicle Development
- Engineering Design
- Advanced Research

Ann Arbor, Michigan

Erlanger, Kentucky
12 Locally Produced Vehicles

- Avalon/Avalon Hybrid
- Camry/Camry Hybrid
- Corolla
- Highlander/Highlander Hybrid
- Lexus RX 350
- Matrix
- RAV4
- Sequoia
- Sienna
- Tacoma
- Tundra
- Venza
Mission

Toyota Production System Support Center

Contribute to society by sharing Toyota’s manufacturing know-how with public institutions and improving the general level of the manufacturing industry in North America.
Based on interest in North America, Toyota’s TSSC is established

- TPS & Toyota Way introduced at Georgetown, Ky.
- Interest in Toyota Production System (TPS) is generated from popular published books.

April 2011, TSSC became Non-Profit

MIT global study highlighting the principles of TPS (The Machine that Changed the World)
TSSC Project Summary

Industries served: Auto, Education, Food, Furniture, Healthcare, Non-Profits

Cumulative Total: 216

* 'project' denotes each of the organizations (profit/nonprofit) that TSSC partners with throughout the year.
FY’14 Cumulative number of projects
(as of January 31, 2014)

- Manufacturing
- Mining
- Recycling

General Industries
48%
$n=21$

Registered Non Profit Organizations
52%
$n=23$

- Disaster Recovery
- Hunger Relief
- Healthcare
- Education
- Government
Toyota Production System

... An Integrated System
Technical Elements: TPS House

- Just-in-time
  - Continuous Flow
  - Takt Time
  - Pull System

- Jidoka
  - Stop and notify of abnormalities
  - Separate man’s work from machine’s work

- Heijunka
- Standardized Work
- Kaizen
- Stability

High Quality, Low Cost, Short Lead Time
Who is Herman Miller?
> Founded in 1923  > 13 locations globally
> $1.3 billion sales  > 5000 employees

What do they make?
➢ Furniture for office, health care, education and home applications

Where are they?
Headquarters in Zeeland, Michigan
5 Manufacturing facilities in Michigan

Why did they seek a relationship with TSSC?
Crisis created in 1995 when major customer demanded:
- 30% reduction in price
- Lead time reduction from 10 days to 3
- Improved quality
  … OR… risk LOSING 40% of business
Important Benefits of TPS Implementation at Herman Miller

Company-Wide IMPROVEMENT

Quality (ppm)

On-Time Delivery

16,000 ppm to <1500 ppm

65% to 100%

60 70 80 90 100

1995 2000 2005 2010

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Current Project Examples

Social Contribution Projects

**Food Bank for NYC Headquarters** (NY, NY) w/ special project in support of *Meals per Hour* 2-5. NYC Food Bank ‘model agencies’:
- Bed Stuy Campaign Against Hunger (Brooklyn)
- River Fund (Queens)
- Project Hospitality (Staten Island)
- POTS (Bronx)

**St. Bernard Project** (New Orleans, LA)
*Post Katrina volunteer based home reconstruction*

**Cincinnati Children’s Hospital** (Cincinnati, OH)
*Pharmacy: missing medications*

**American Red Cross** (Washington, DC) w/ special project at the Kentuckiana Region (Louisville, KY)

Small-Mid Sized Manufacturing

**Deublin** (Waukegan, IL)
*Rotating unions for wind turbines, machine tools etc.*

**S&C Electric** (Chicago, IL)
*Large electrical gear for utilities and buildings*

**KSS** (Lakeland, FL)
*Airbag deployment modules*

**DTE Energy** (Detroit, MI)
*Large electric and natural gas utility company*
TSSC’s Learnings

1. Blindness to improvement potential and opportunities

2. Lead time can have a major impact on revenue growth and margins

3. To get sustained results, TPS must be a corporate strategy with strong leadership
Support Material

Massachusetts Institute of Technology

Making in America
From Innovation to Market
Suzanne Berger

Production in the Innovation Economy
Edited by Richard M. Locke and Rachel L. Wellhausen
Small Changes, Big Impact: The Toyota Production System