

A lush green forest with a wooden boardwalk covered in moss. The boardwalk is made of wooden planks and is surrounded by dense foliage, including ferns and moss-covered trees. The scene is brightly lit, suggesting a sunny day in a tropical or subtropical environment.

# Lean & Green Workflow Improvement The 8 Wastes

# Lean & Green Workflow Improvement

## The 8 Wastes

### **Kjell van Zoen**

Lean efficiency consultant @ vanZoen LLC

brand ambassador for PortlandMade.com

married to PhotosbyKim.com

co-founder of Plywerk.com

### **Brion Hurley**

Lean Six Sigma consultant @ Rockwell Collins

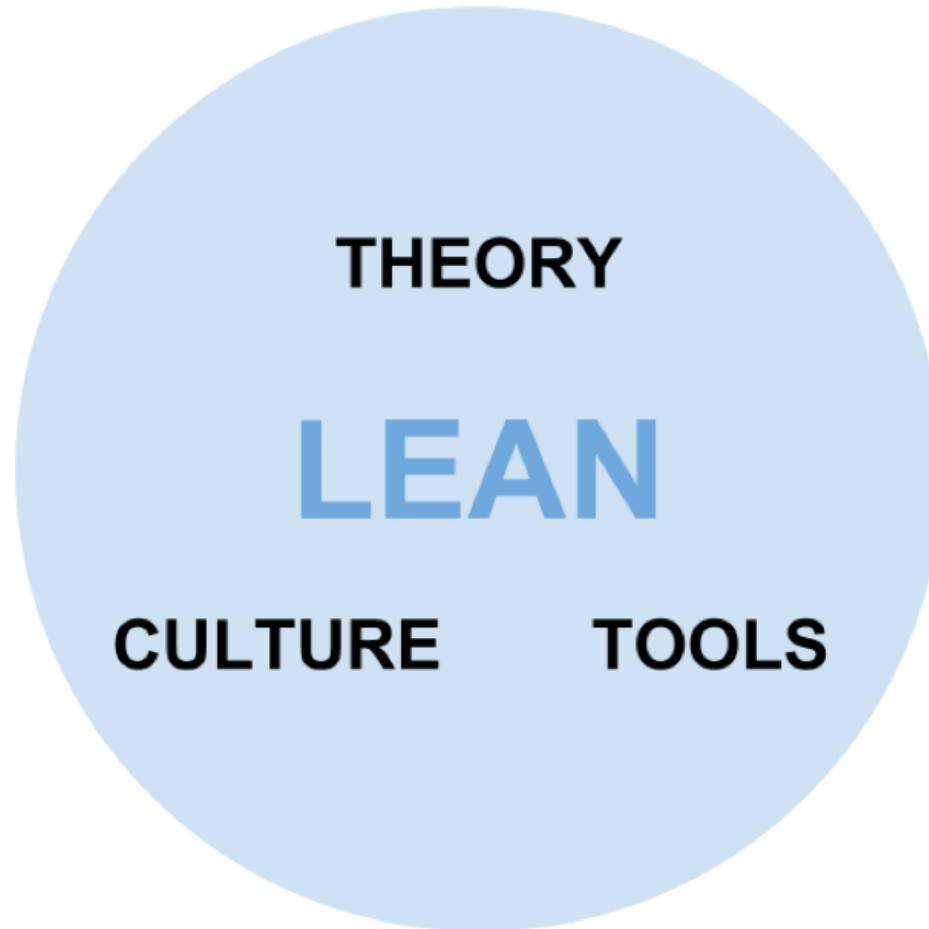
founder of Business Performance Improvement (BPI)

# What is lean?

aka agile

aka six sigma

# A holistic operational template.



A way to create

**more value**

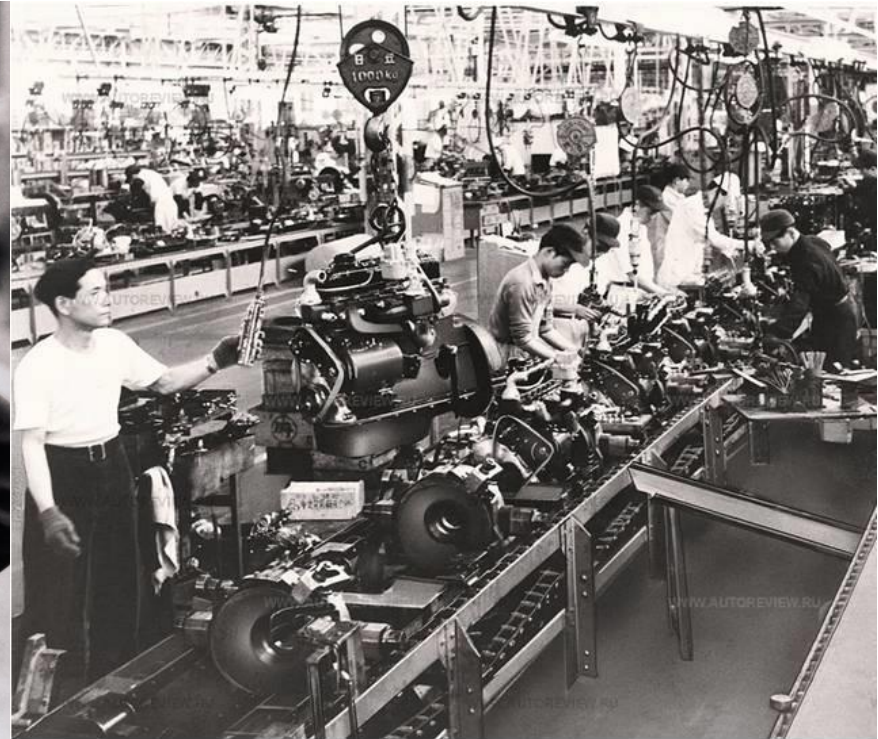
for customers using

**fewer resources.**

Like **feng shui** for business;  
how ideas, people, their  
energy, information,  
materials and cash  
**flow** through the  
organization in the  
most **harmonious and**  
**efficient** way possible.



# a brief history...



**Taiichi Ohno**  
industrial engineer, Toyota  
1912-1990

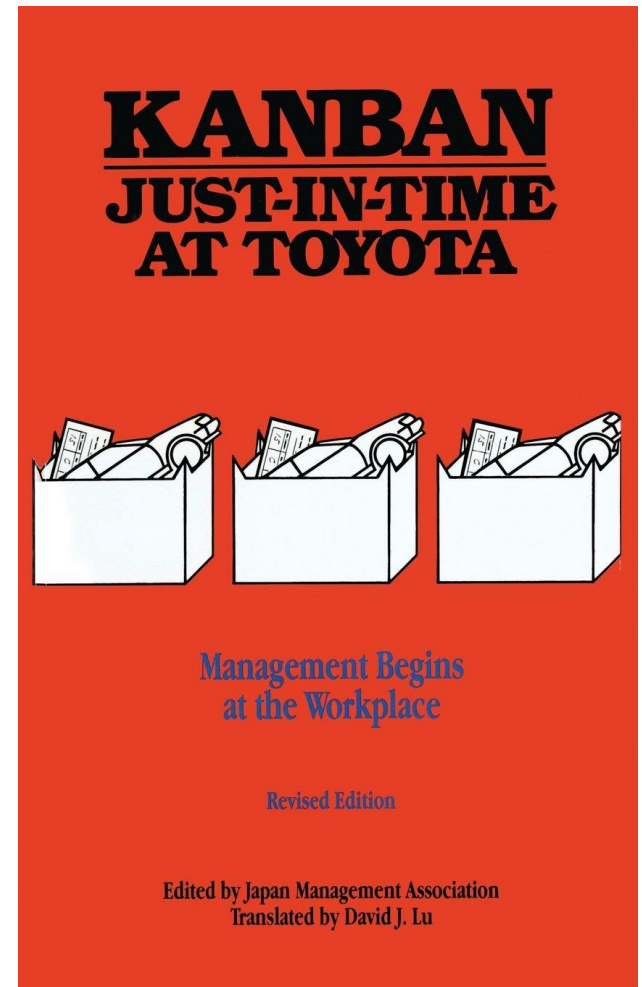
“Employees give their valuable energy and time to the company.

If they are not given the opportunity to serve the company by working effectively, there can be no joy.

For the company to deny that opportunity is to be against the principle of **respect for humanity**.

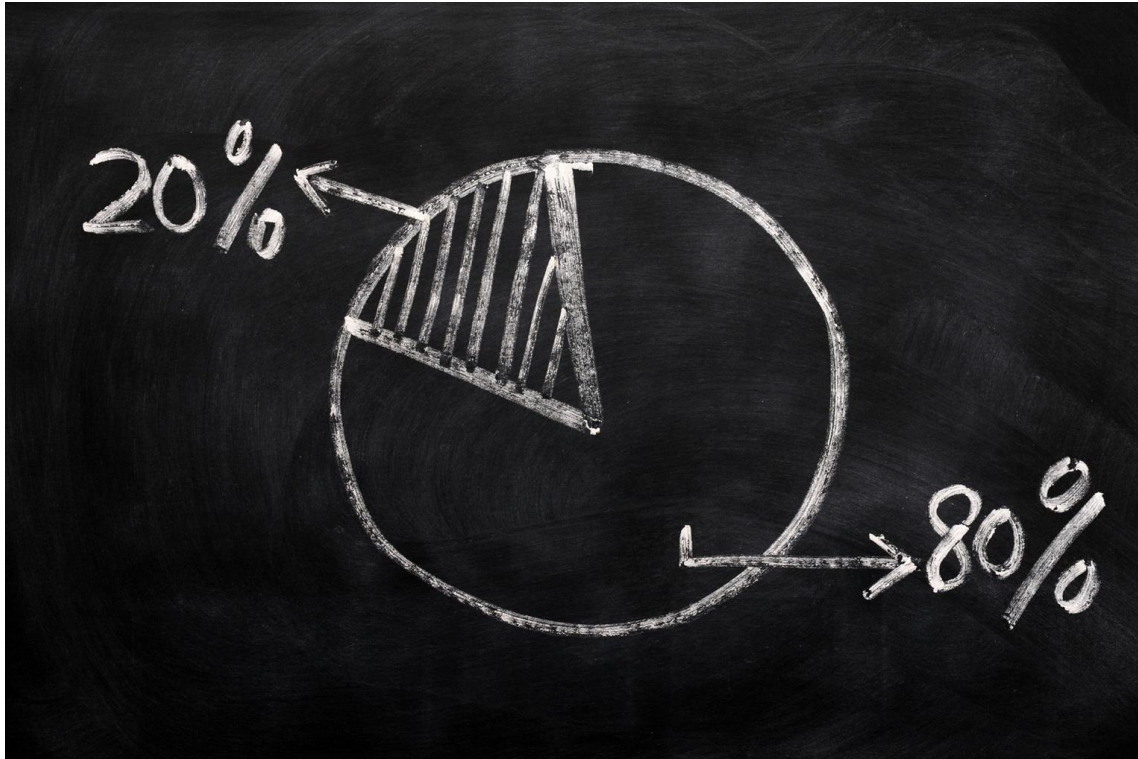
People’s sense of value cannot be satisfied unless they know they are doing something worthwhile.”

*Taiichi Ohno*



# Nothing is black & white.

i.e. it's ok if it only applies 80% of the time



# Single piece flow and the value stream.



The deeper the water, the more we consume.

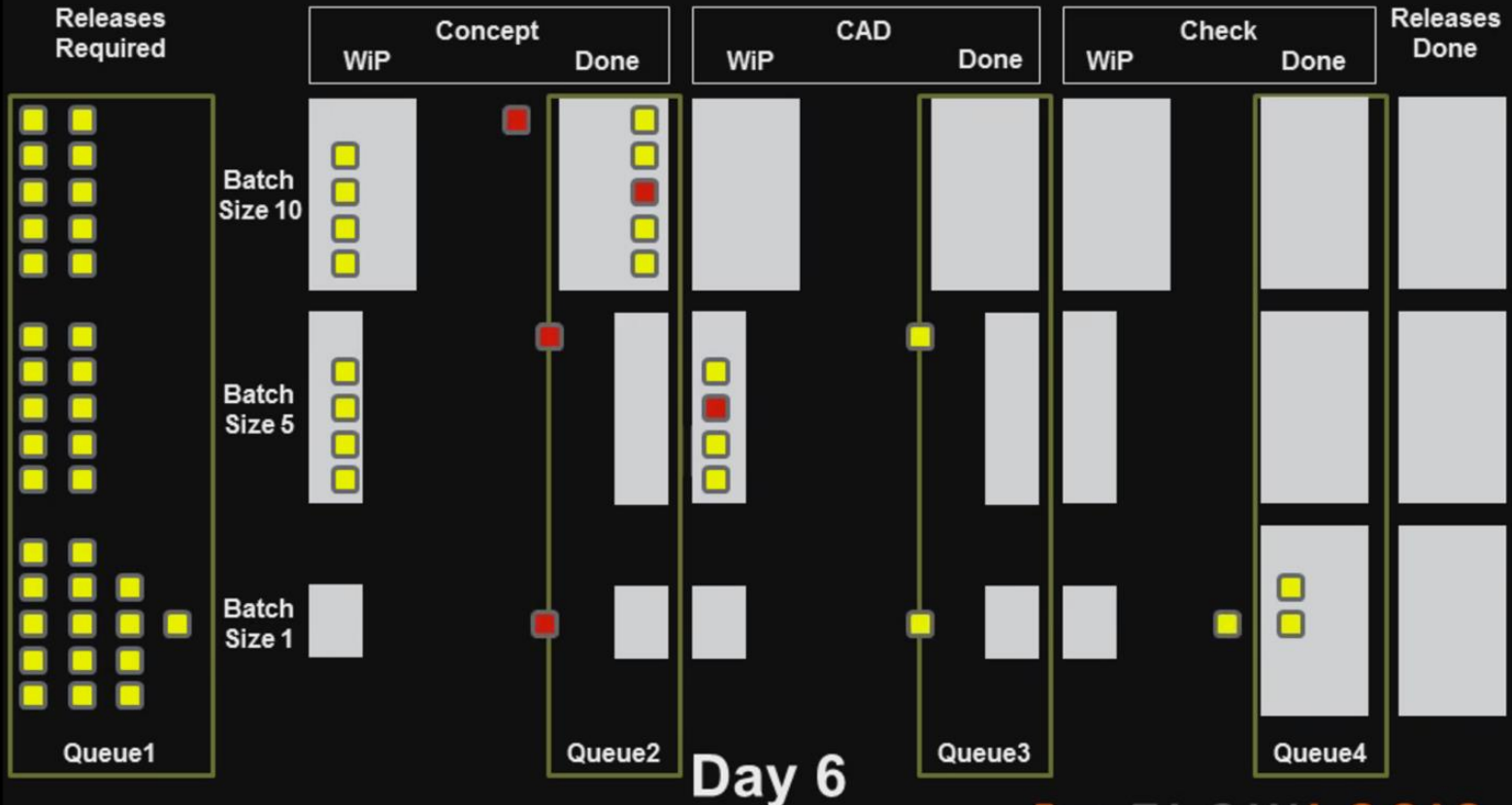
Never too early, never too late, **just in time**.



The earlier we consume the faster we consume.

# Effect of Batch Size on Throughput

■ Defect



Flowlogic.co



00:14

FLOWLOGIC HD

<https://vimeo.com/163151099>

# Work

Making an advance in the process while enhancing the added value.

# Value Added Work

Anything the customer is willing to pay for.

# Waste...

Non value added work OR anything the customer does not want to pay for.

# The 8 Wastes of Lean & Green

**TIM WOODS**

**T**ransportation

**I**nventory (RAW, WIP, FGI, info)

**M**ovement

**W**aiting

**O**verproduction (worst waste)

**O**verprocessing

**D**efects

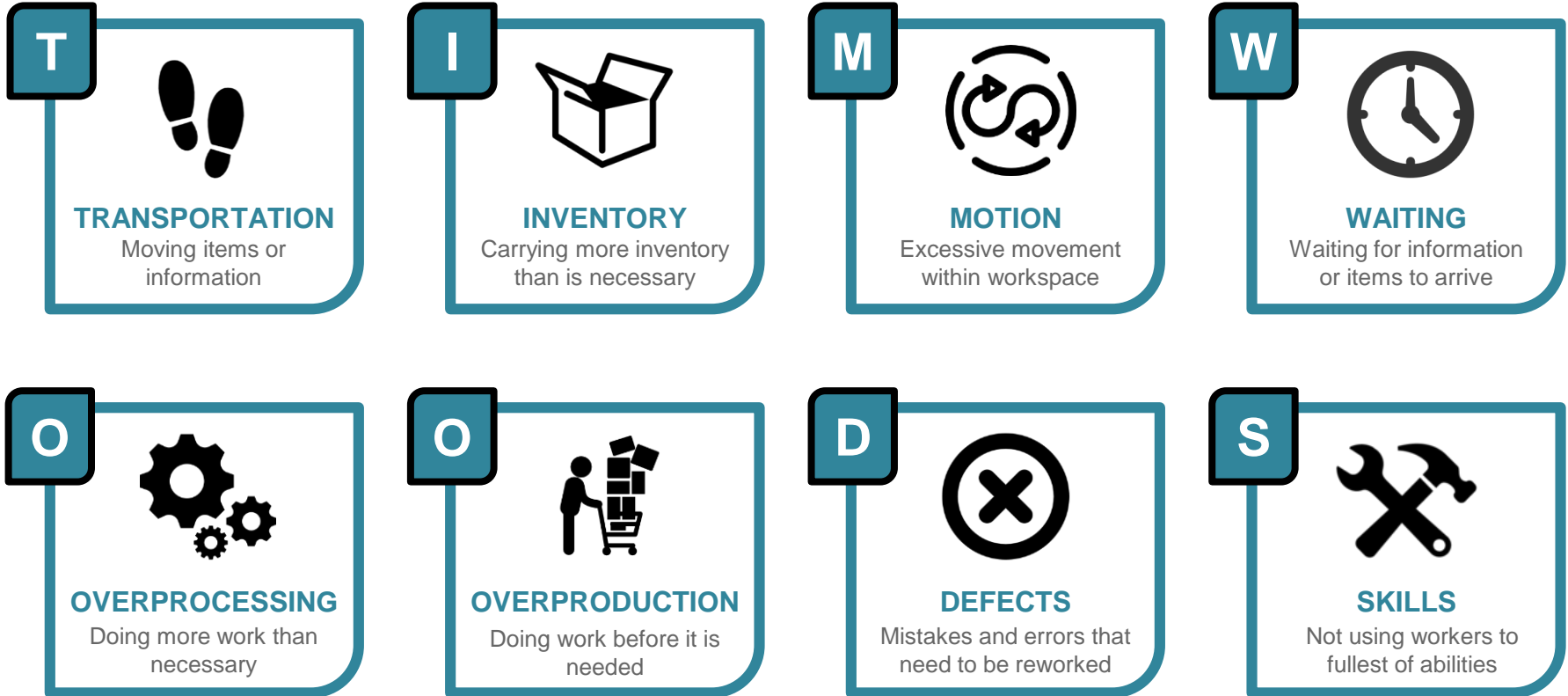
**S**kills

# 8 Waste Video Bingo



[www.youtube.com/watch?v=EedMmMedj3M](http://www.youtube.com/watch?v=EedMmMedj3M)

# Did you see TIM WOODS?



# T



## TRANSPORTATION

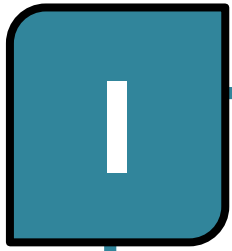
Unnecessary transportation of information or material by mail, cart, conveyor, or foot travel

**Mfg:** Carrying product between work cells, moving parts into storage

**Service:** Sending emails around to find right person, moving files to different locations, getting physical signatures



**Environment:** Fuel to move products, packaging to protect parts



## INVENTORY

Material or information that is waiting for processing

**Mfg:** Products in queue for machine, parts in warehouse waiting to be built

**Service:** To-do list, unread emails, voice mail messages



**Environment:** Inventory may require packaging and storage space (heating/cooling and lights)

# M



## MOTION

Any motion that does not add value to product or service (within workspace)

**Mfg:** Reaching/searching for tools, ergonomic issues

**Service:** Switching between computer programs, searching for files, using mouse VS keyboard shortcuts, not using text expanders



**Environment:** Delays lead to overtime, leaving lights and equipment on longer

# W



## WAITING

Time spent waiting on items required to complete task (i.e., information, material, supplies, etc.)

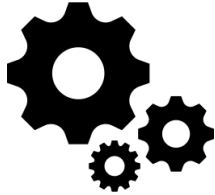
**Mfg:** Waiting for parts to arrive, waiting for confirmed orders

**Service:** Waiting for approvals, delays in getting all to a meeting, waiting for files to download



**Environment:** Inventory may require packaging and storage space (heating/cooling and lights)

# O



## OVERPROCESSING

Excess effort & time spent processing information or material that is not adding value (extra steps)

**Mfg:** Cleaning parts multiple times, duplicate data entry, adding more quality than required by customer and/or internal guidelines

**Service:** Too many approvers, reviewing all work with manager



**Environment:** Wasted materials, equipment energy usage, extra paperwork

# O




## OVERPRODUCTION

Producing more information or product than the ultimate customer requires

**Mfg:** Building ahead of the schedule or trigger, anticipating customer requests, working around problems

**Service:** Completing reports before requested

 **Environment:** Might have to throw away excess, discontinued, unneeded or damaged items

# D



## DEFECTS

Time spent repairing or reworking material or information

**Mfg:** Put on wrong part, put part on incorrectly, used dull blade, add wrong label, failed inspection

**Service:** Sent paperwork to wrong email, missing information in form, typos



**Environment:** Throw away defective items or parts, stay late to fix problems (lights/energy)

# S



## SKILLS AKA PEOPLE

Not taking advantage of the skills, knowledge and ideas of the workers

### Mfg, Service & Environment:

Not asking for improvement suggestions, not allowing people to transfer to other departments (too valuable but risky), only looking at salary not years of experience for cost savings, not teaching or educating workforce

# LEAN GAME

if time permits ;)

Changing culture leads to



# Building culture leads to



# Gemba = Going to where the work is.



# Kaizen

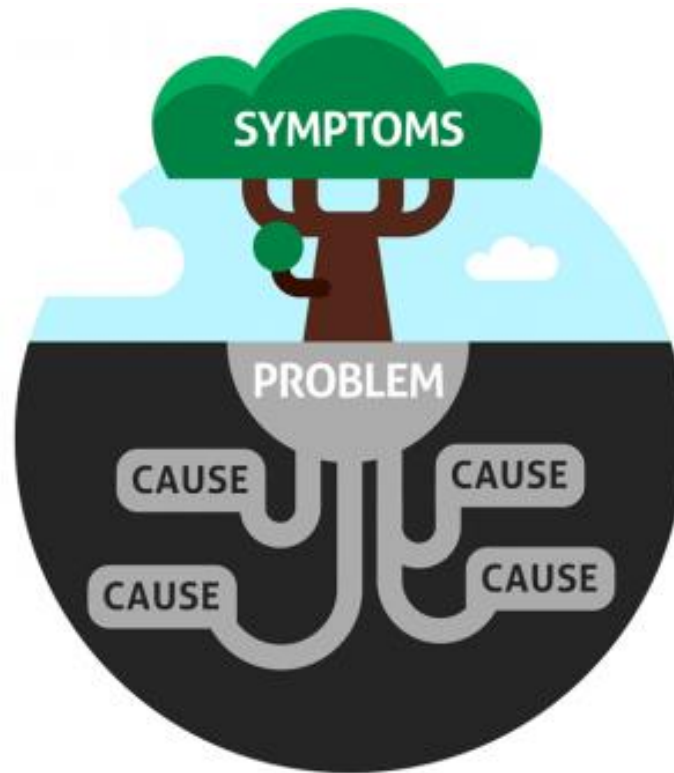
= Continuous Incremental Improvements



**NO BLAME**

only opportunity

# 5 Whys = easy(er) / honest root cause analysis



# 5S... *like feng shui for the workplace*

1. **Sort** keep only what you “need”
2. **Set In Order** arrange tools/desk to promote efficient workflow
3. **Shine** keep workplace & tools neat, clean & serviced
4. **Standardize** checklists (**NOT** training manuals)
5. **Sustain** ... and continuously improve all of the above



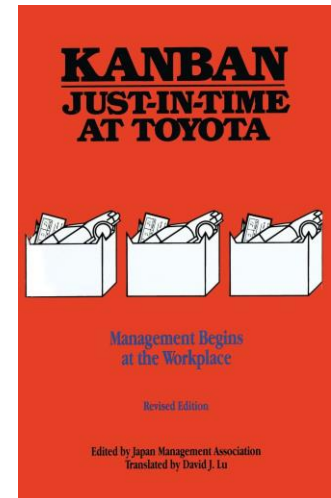
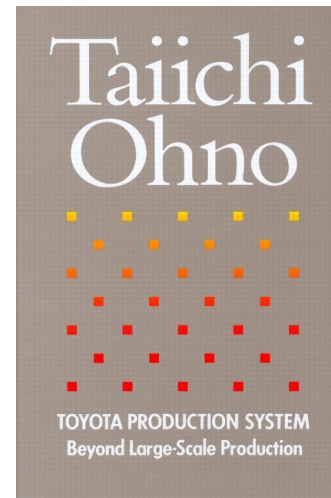
# 5S



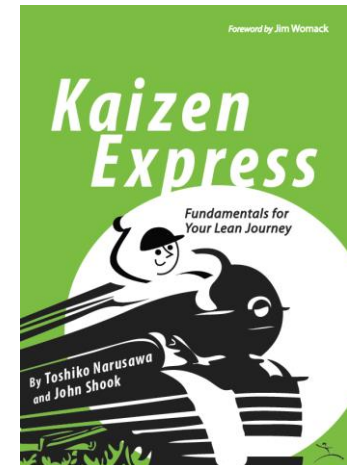
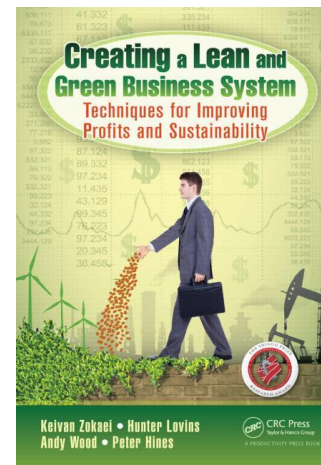
# Q&A

# Next steps?

- Hang up 5S & 8 Waste posters
- 5S most-used/messy workstations/area's
- Start with everyday tasks and create Standard Operating Procedures that consider 8 wastes
- Setup kanban cards to control inventory levels /
- Bring down the level of the value stream to expose waste & opportunities  
by reducing & limiting work-in-process (WIP) batch sizes
- Kaizen & 5 Why all of the above
- No blame, only OPPORTUNITIES
- Don't change, but BUILD culture



used at Powell's or on Amazon



new on Amazon

# Resources

- [Lean.org](http://Lean.org) > books, newsletter, blog, forum
- [Leanandgreenbusiness.com](http://Leanandgreenbusiness.com)
- [vanZoen.com](http://vanZoen.com)
- [biz-pi.com](http://biz-pi.com)