Learning and Practicing Toyota Kata

A paradigm shift in our understanding of managing and sustaining continuous improvement.

Beth Carrington

Rev. 4

Beth Carrington

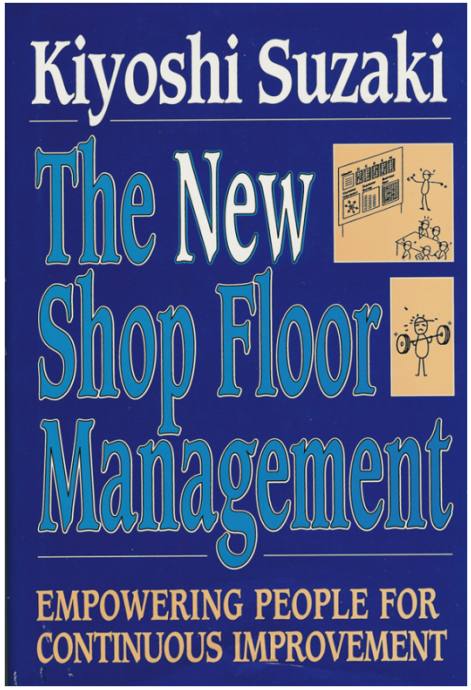
- 25 years experience in operations and staff leadership
- Consultant and trainer since 1999
- One of 3 CPD

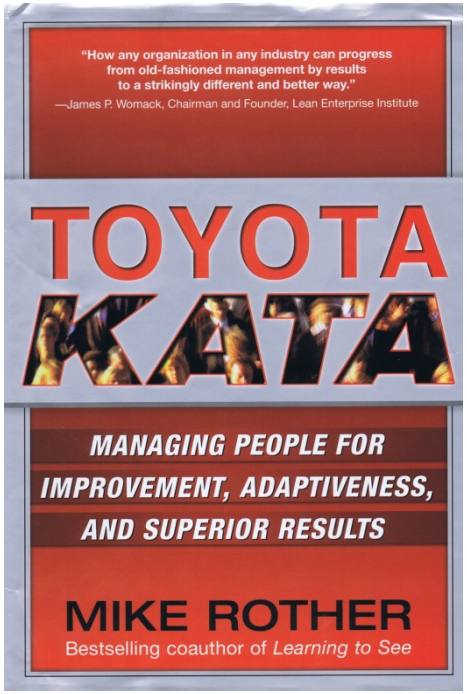
TK Instructors
- W3 Group LLC Partner and Consultant

W3 GROUP LLC

LEAN TRANSFORMATION

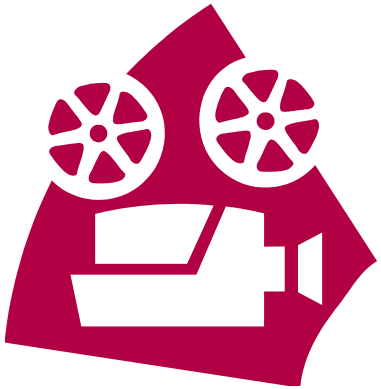
LASTING CULTURAL CHANGE



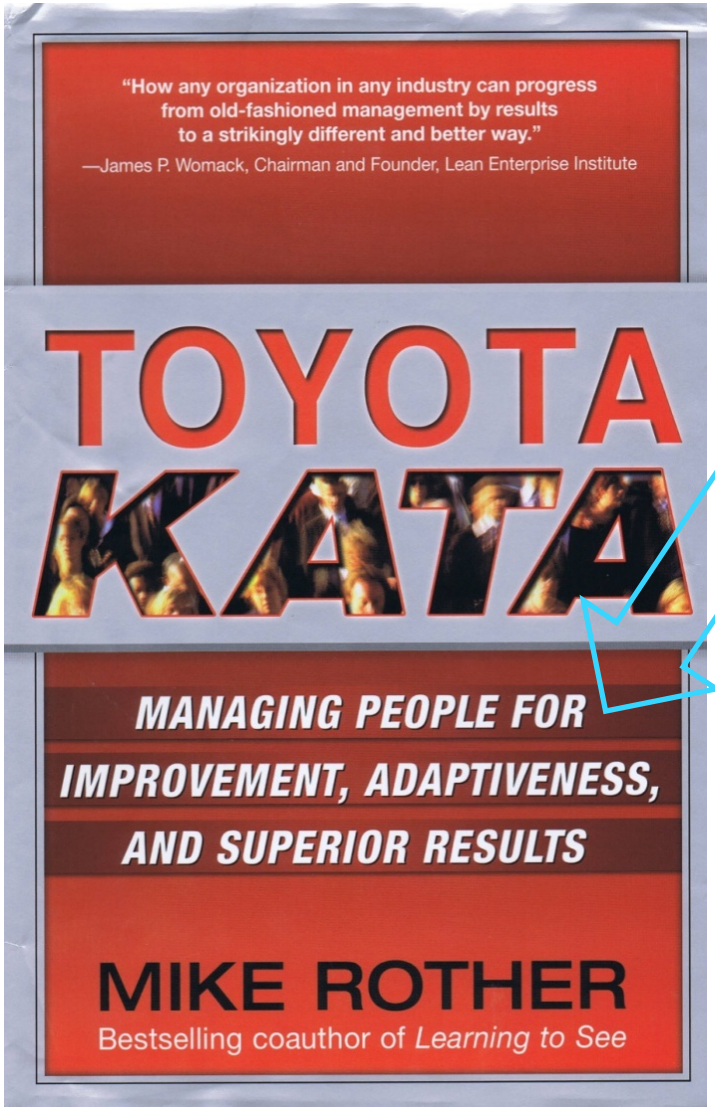


An Argument for Adaptiveness

http://www.youtube.com/watch?v=cL9Wu2kWwSY&feature=player_embedded



Toyota Kata ADAPTIVENESS

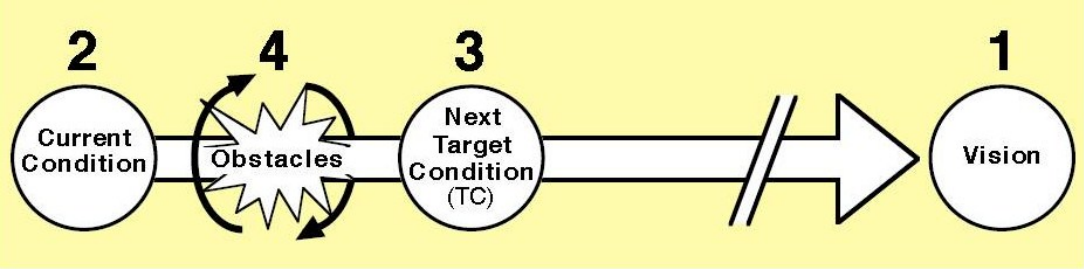


- 6 years of Toyota research and global experimentation by author, Mike Rother
- Highly successful organization's leadership model has been dissected and analyzed
- Great news! Model can be taught and, with practice, perfected
- Culturally and sustainably obtain true continuous improvement.
- Leadership practices which lead to adaptive thoughts and behaviors utilized to achieve superior results in our rapidly changing environment and business climate.

Presentation

- Toyota Kata
  - What is a Kata?
  - How can it be used to operationalize continuous improvement in an organization?

- Improvement Kata Routines



- Coaching Kata and Coaching
  - KEY to sustainability

Purpose of Today's Presentation

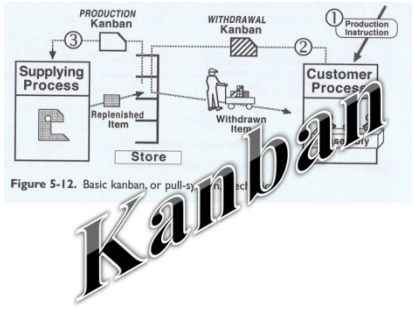
- Awareness; not skill development
- Sense of the subtle yet powerful nuances Toyota Kata
- A paradigm shift in your thinking about your role as a manager and how continuous improvement is achieved and sustained.

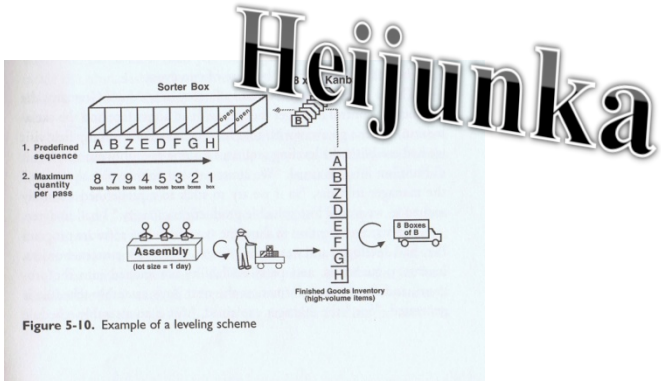
Lean and Toyota Kata

Typical Lean

Focus is on tools and techniques.

What you see when you go on benchmarking trips.





Toyota Kata

Focus is on what you can't see.

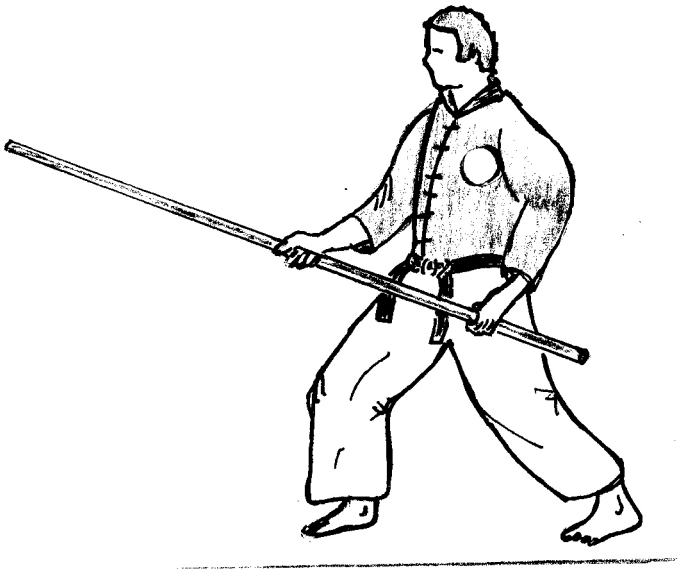
Behaviors of managers and subordinates in their daily routines.

Utilizing tools and techniques when needed to eliminate obstacles.

Kata

Martial Arts routines repeated over and over, until they become second nature.

Performed without cognitive thought.



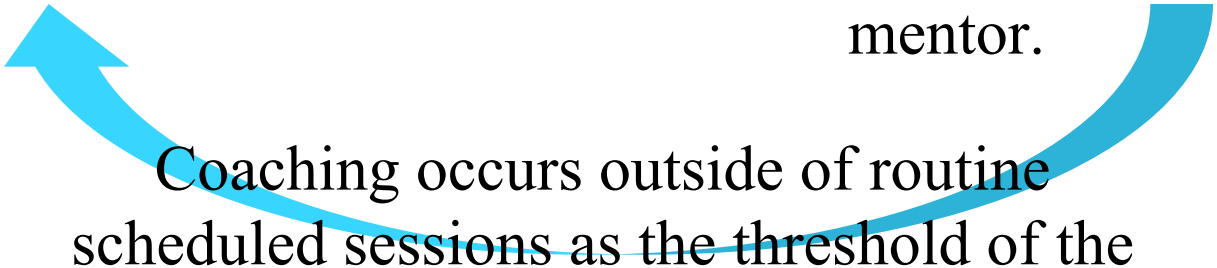
Toyota Kata

Improvement Kata

- Routines performed by a mentee (learner) while being coached by a mentor.

Coaching Kata

- Scheduled and structured coaching routines performed at the Gemba (workplace) between mentee and mentor.



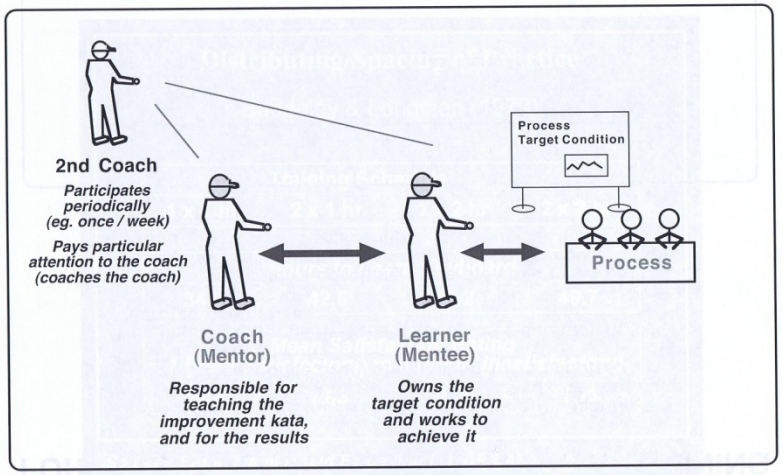
Coaching occurs outside of routine scheduled sessions as the threshold of the mentee's knowledge and ability has to be extended.

Operationalize the Kata

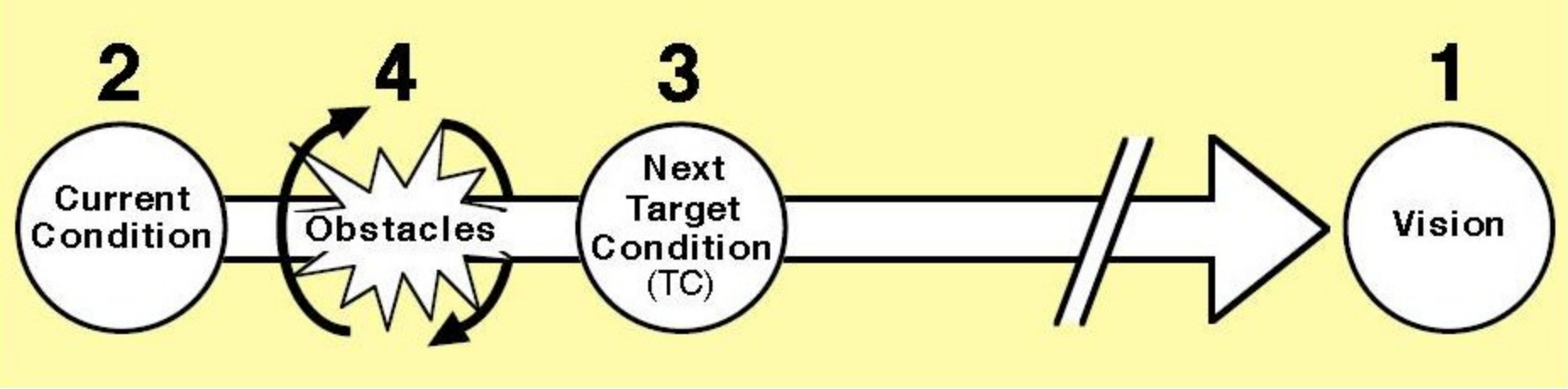
Kata becomes the daily management behavior to activate human capability

To learn new routines and behaviors apply a kata approach, a routine to practice

Way of changing thought and behavior



The Four Routines of the Improvement Kata



Vision: Sense of Direction

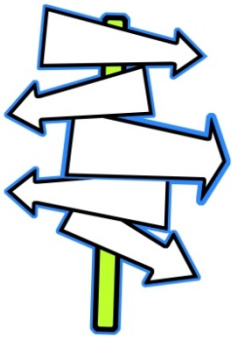
One by one flow at lowest cost to the customer

Toyota's "True North"

Gives direction to the organization

The road is not defined

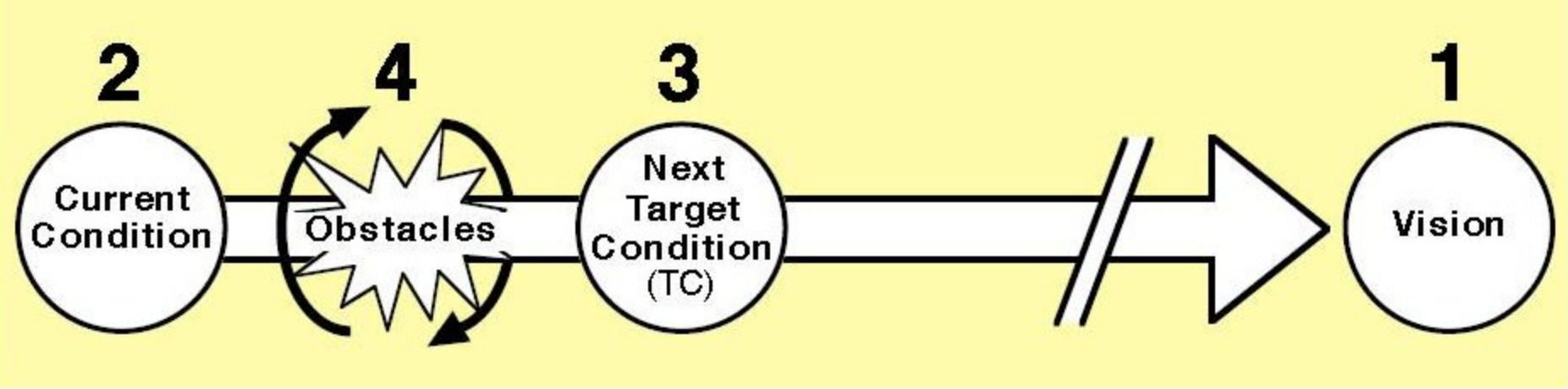
The vision is vague & far away



Without a sense of direction

- Discussions of **<u>what</u>** and **<u>if</u>** we should do things e.g. "small batch sizes vs. more material handling"
- Sub-optimization

The Four Routines of the Improvement Kata



Current Condition Routine

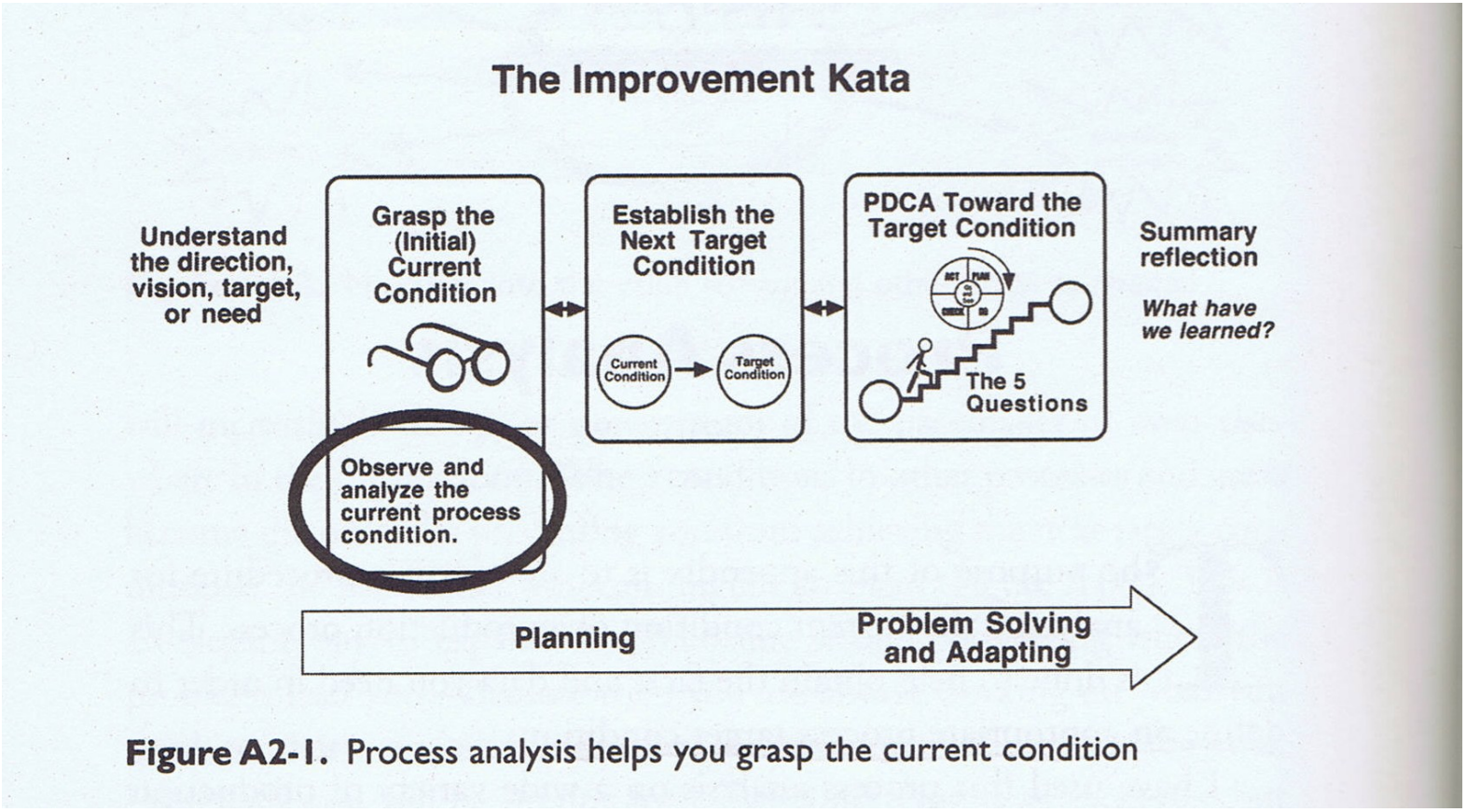
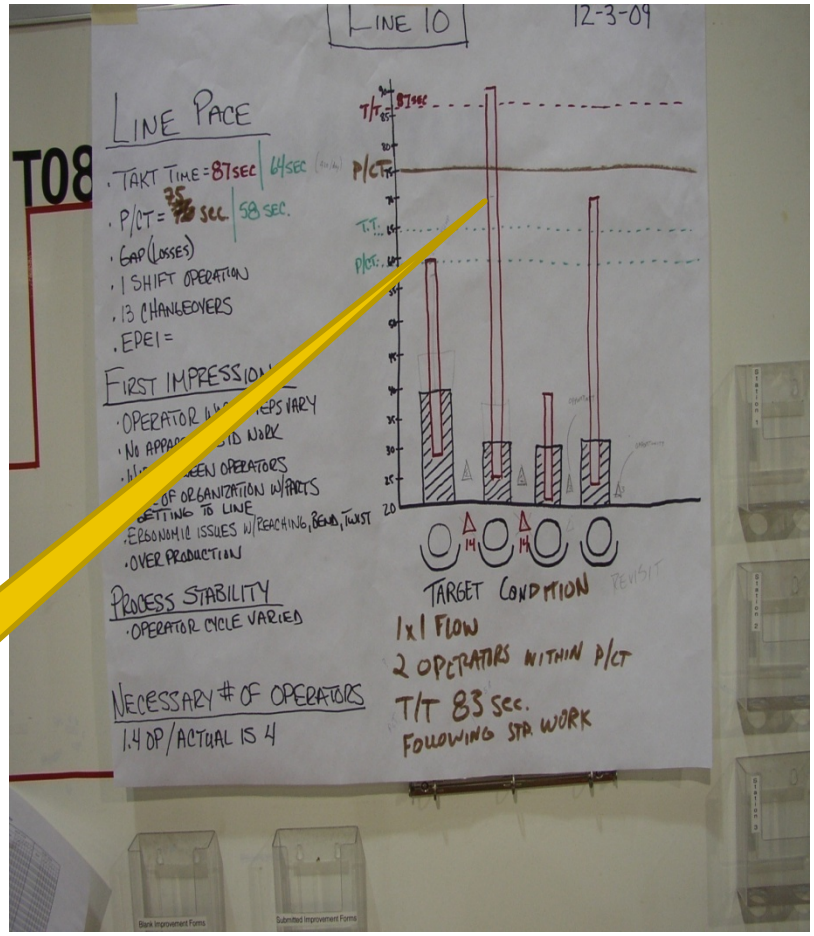


Figure A2-1. Process analysis helps you grasp the current condition

Grasp Current Condition

- Real time
- Quick Cycle
- Actual observation based
- Stability



Process Variation

Grasp the Current Condition

- Standardized format
  - Routine
  - Guides you on what to look for

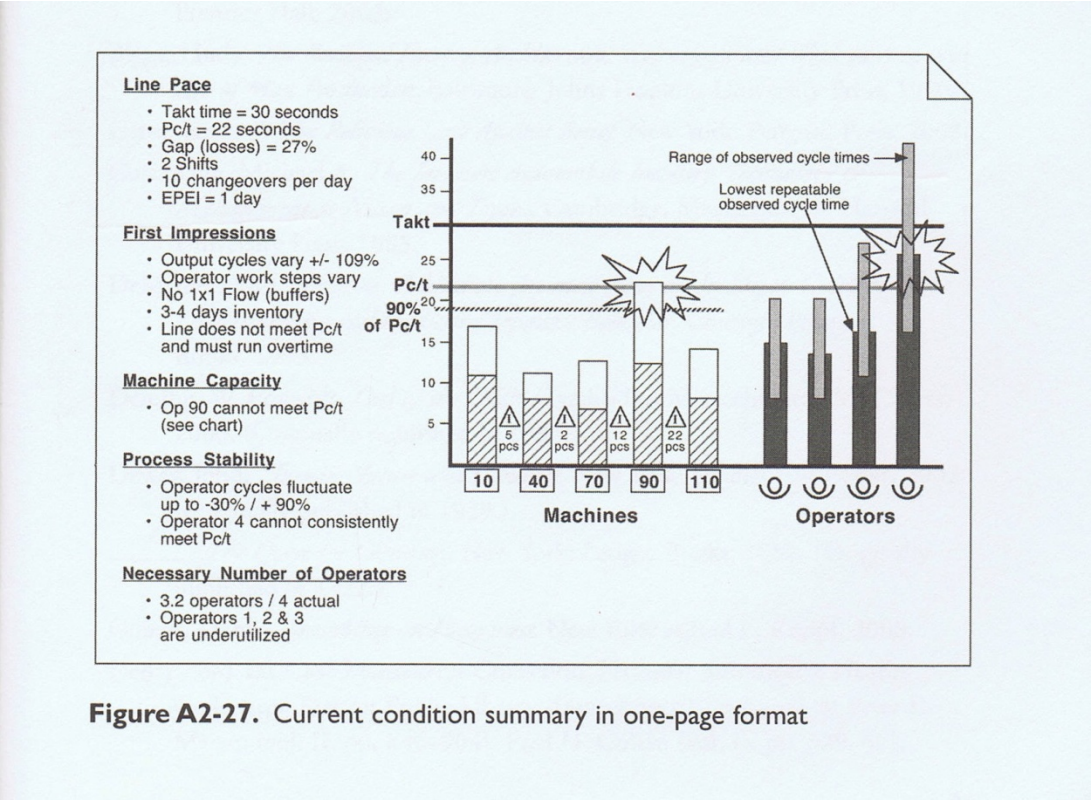


Figure A2-27. Current condition summary in one-page format

Line Pace

- Takt time = 30 seconds
- Pc/t = 22 seconds
- Gap (losses) = 27%
- 2 Shifts
- 10 changeovers per day
- EPEI = 1 day

First Impressions

- Output cycles vary +/- 109%
- Operator work steps vary
- No 1x1 Flow (buffers)
- 3-4 days inventory
- Line does not meet Pc/t and must run overtime

Machine Capacity

- Op 90 cannot meet Pc/t (see chart)

Process Stability

- Operator cycles fluctuate up to -30% / + 90%
- Operator 4 cannot consistently meet Pc/t

Necessary Number of Operators

- 3.2 operators / 4 actual
- Operators 1, 2 & 3 are underutilized

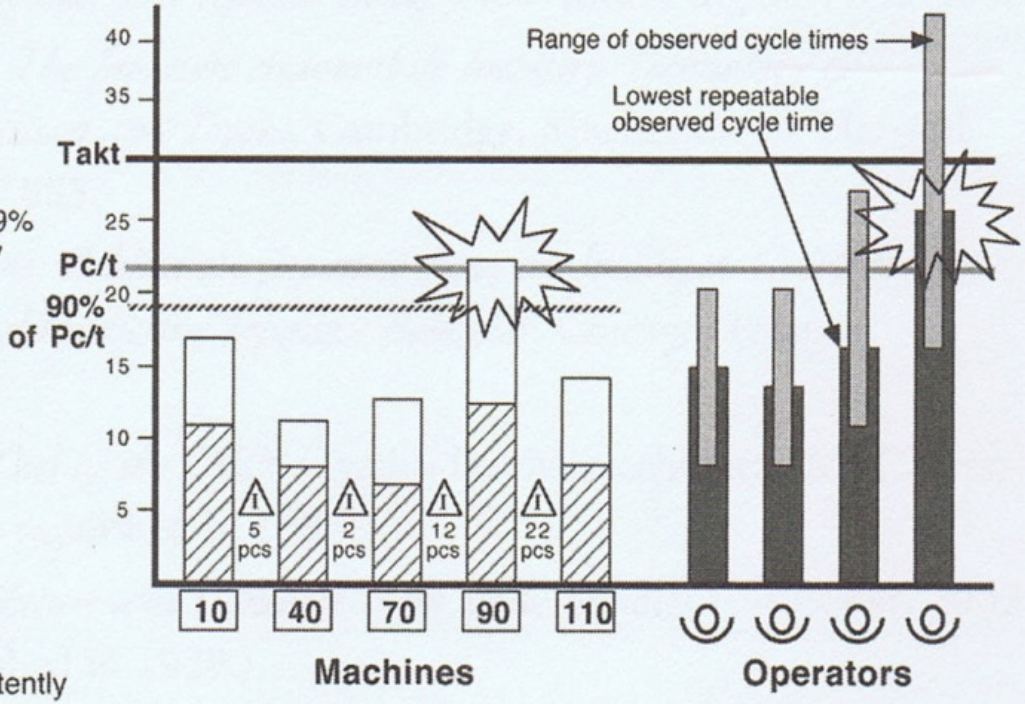
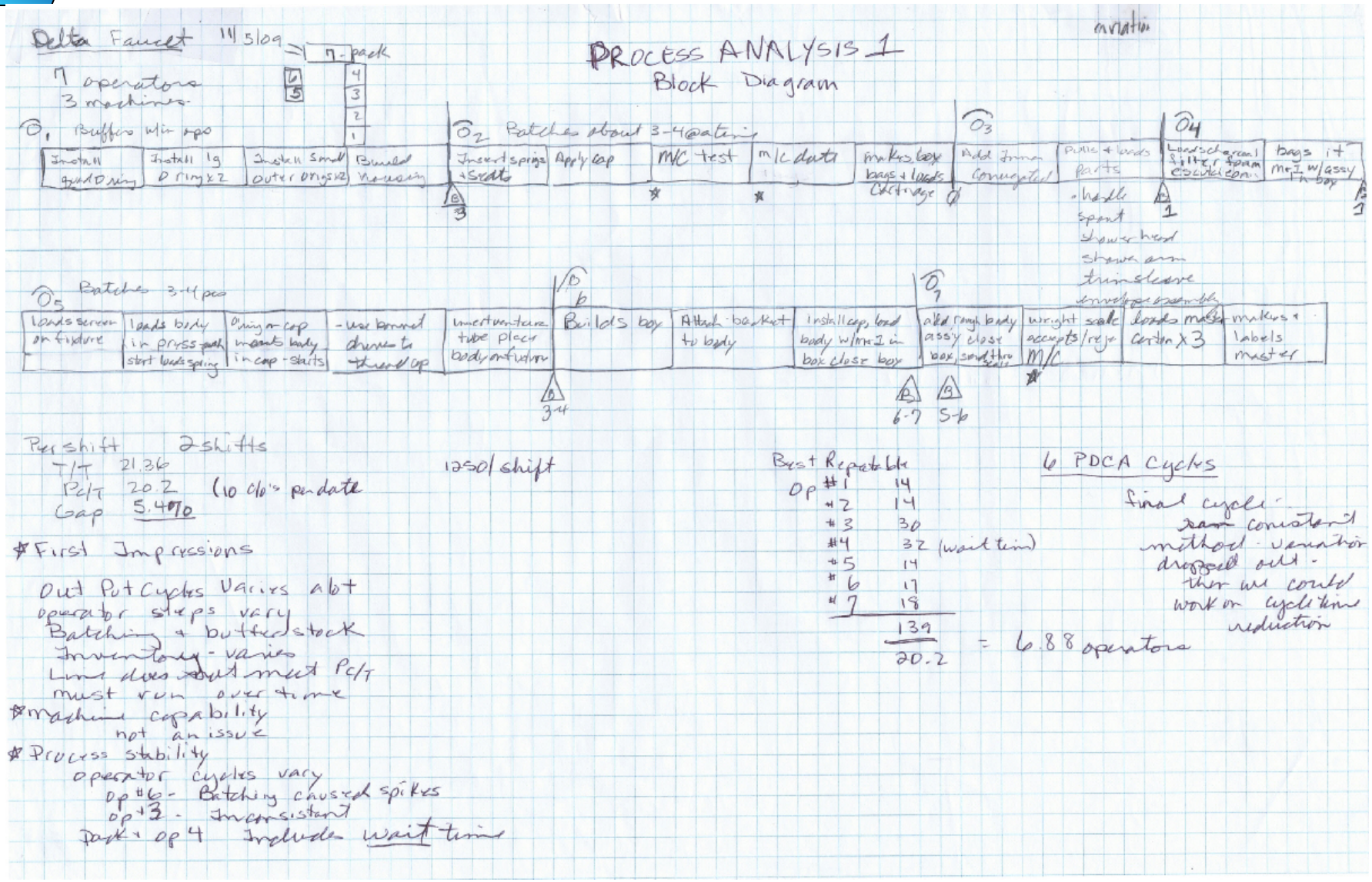
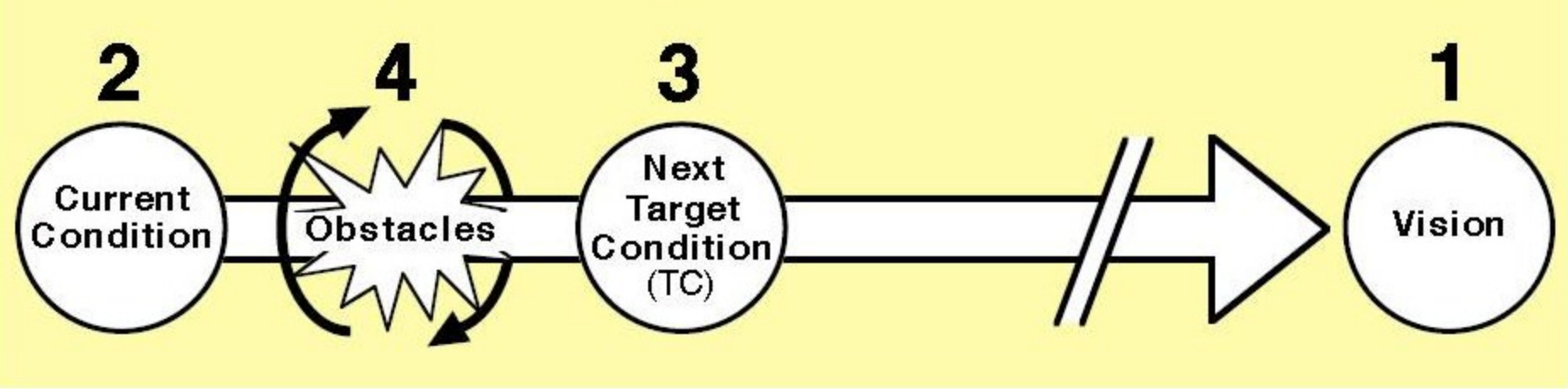


Figure A2-27. Current condition summary in one-page format

Effective Target Condition



The Four Routines of the Improvement Kata



Setting Target Conditions

Not setting a goal but rather describing how the process should run!

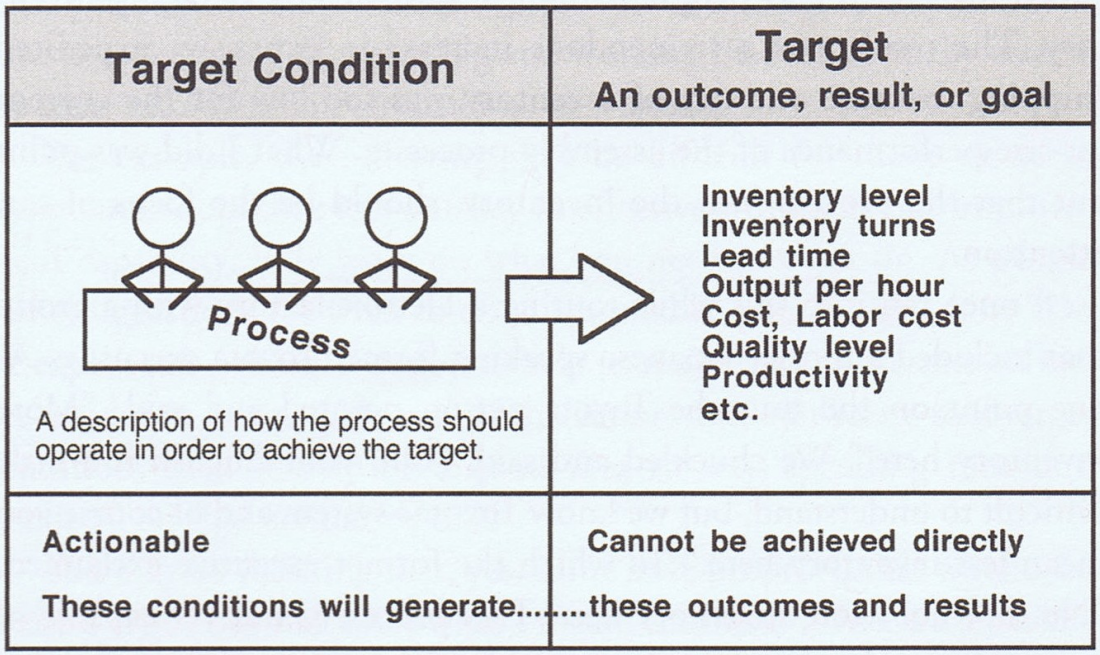


Figure 5-17. Difference between a target condition and a target

Typical Box Scorecard Approach

BOX SCORECARD - 2008

GROWTH		Jan	Feb	Mar	Apr	May	Jun
Monthly MSI Produced	Plan	5,665,666	5,665,666	7,082,082	5,665,666	5,665,666	7,082,082
	Actual	5,591,197	9,894,404	4,719,064	9,567,324	7,179,096	9,848,916
Trial Response (Days)	Plan	20.3	20.3	20.3	20.3	20.3	20.3
	Actual	22.2	15.2	31.96	19.27	29.50	26.00
Internal Film Purchases	Plan	67.0%	67.0%	67.0%	67.0%	67.0%	67.0%
	Actual	35.9%	68.7%	41.1%	66.7%	73.3%	72.2%
CUSTOMER FOCUSED QUALITY		**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**
Complaint Occurrences/$MM	Plan	2.86	2.86	2.86	2.86	2.86	2.86
	Actual	3.10	4.5	5.1	2.8	2.3	2.8
Return Dollars % of Sales	Plan	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%
	Actual	0.60%	0.82%	1.14%	0.55%	0.18%	0.02%
On-Time Delivery vs Request	Plan	69.0%	69.0%	69.0%	69.0%	69.0%	69.0%
	Actual	55.8%	71.4%	67.6%	65.4%	54.6%	47.7%
On-Time Delivery vs Acknowledge	Plan	96.5%	96.5%	96.5%	96.5%	96.5%	96.5%
	Actual	87.3%	96.6%	95.9%	91.4%	92.9%	84.9%
Lead-Time	Plan	22.5	22.5	22.5	22.5	22.5	22.5
	Actual	35	33	30	29	27	33
ISO 9001 Implementation	Plan	10.00%	20.00%	25.00%	35.00%	45.00%	55.00%
	Actual	10%	12%	28%	29%	29%	35%
ERP Implementation	Plan	Q2	Q2	Q2	Q2	Q2	Q3
	Actual	In progress	20%	50%	55%	55%	60%
OPERATIONAL EXCELLENCE		**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**
Cost/Eq Unit Measure 2006= .075, 2007= 0.105	Plan	0.0860	0.0860	0.0860	0.0860	0.0860	0.0860
	Actual	0.122	0.074	0.152	0.073	0.100	0.099
Effective Feet/Minute (asset adjusted rate)	Plan	197	197	197	197	197	197
	Actual	216	193	169	192	186	175
% Scrap	Plan	10.30%	10.30%	10.30%	10.30%	10.30%	10.30%
	Actual	11.50%	8.45%	11.60%	8.53%	9.91%	13.29%
Changeover Time/Color (Min)	Plan	20.0	20.0	20.0	20.0	20.0	20.0
	Actual	26.1	28.5	33.5	31.3	31.6	32.9
Inventory Days On Hand	Plan	61.0	61.0	61.0	61.0	61.0	61.0
	Actual	71.2	72.5	71.9	70.5	69.4	68.7
SAFETY/ENVIRONMENT		**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**
OSHA Incident Rate	Plan	1.00	1.00	1.00	1.00	1.00	1.00
	Actual	0.00	0.00	0.00	0.00	0.00	0.00
CMS Implementation	Plan	10.00%	20.00%	30.00%	40.00%	50.00%	60.00%
	Actual	0%	0%	10%	10%	10%	10%
ISO 14001 Implementation	Plan	10.00%	20.00%	30.00%	40.00%	50.00%	60.00%
	Actual	20%	20%	30%	40%	45%	55%
PEOPLE		**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**

How was that calculated?

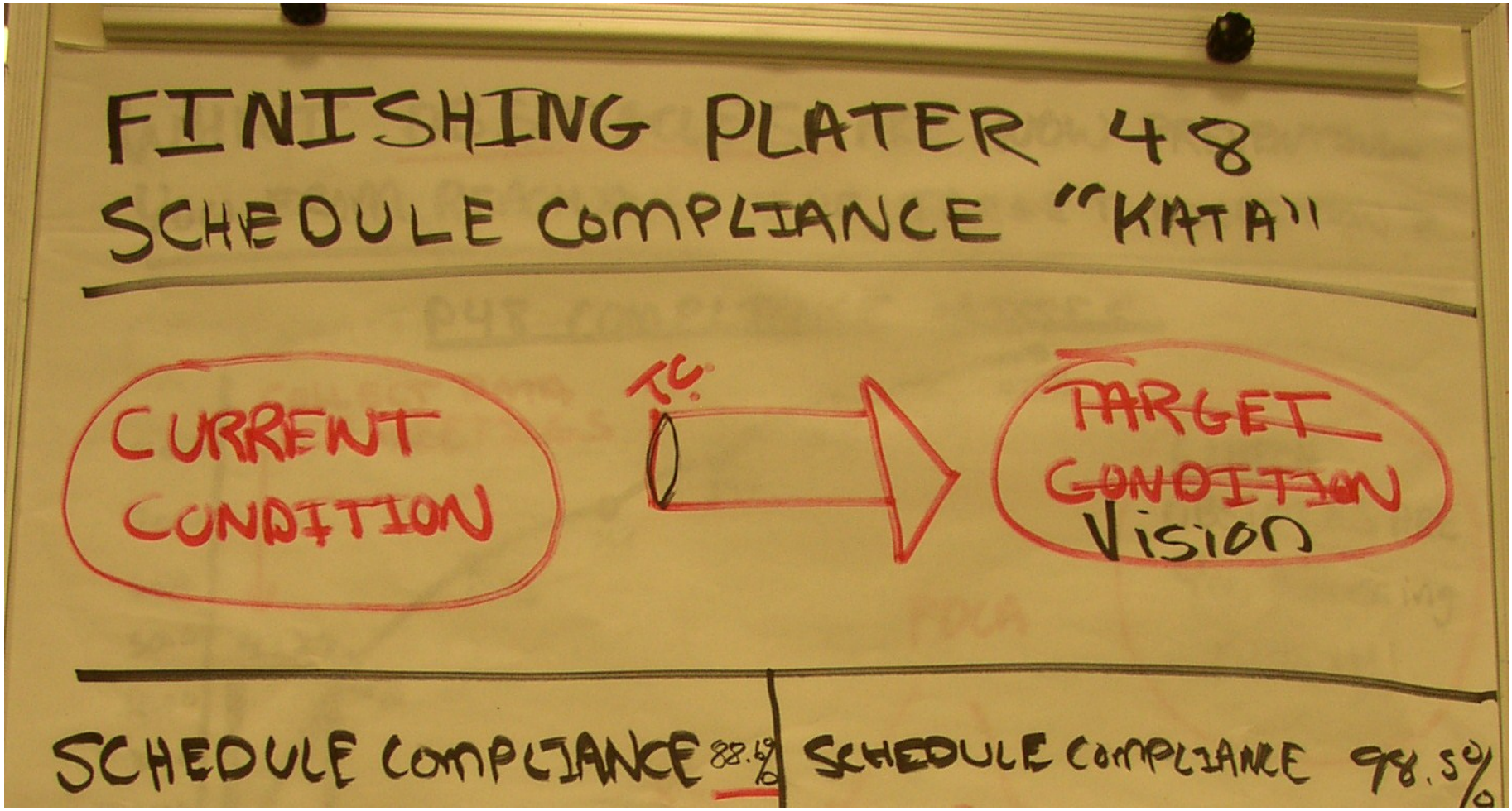
84.9% OTD Last Period

Backward looking

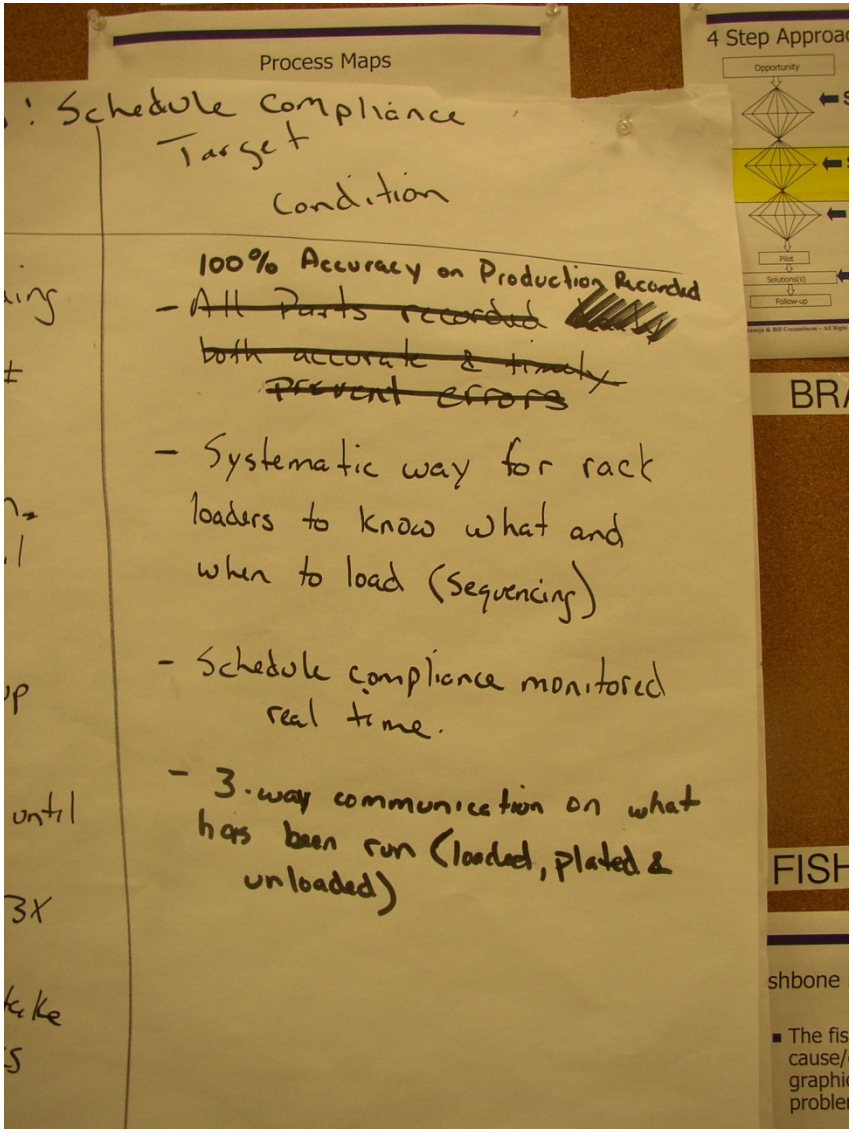
vs.

Strive for a future reality

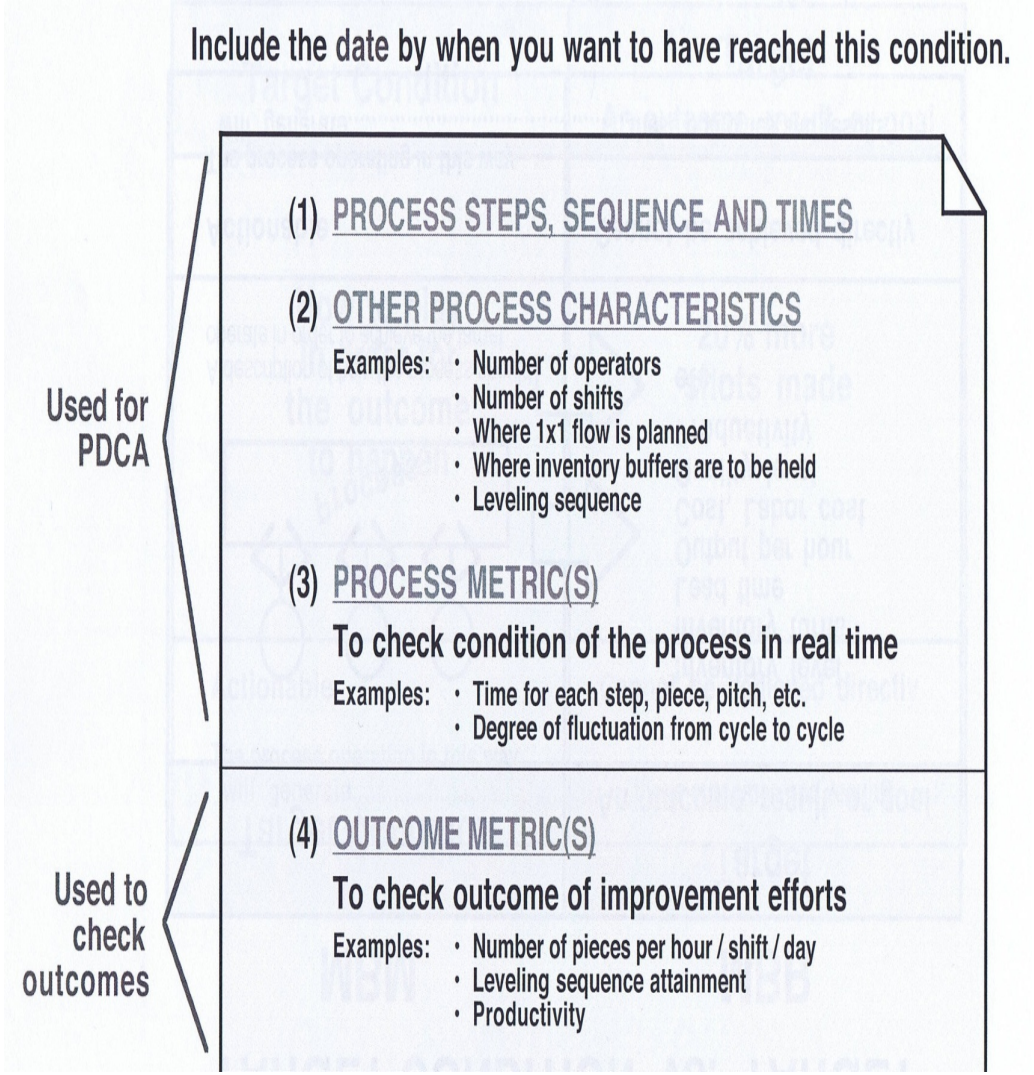
Initial Target Condition



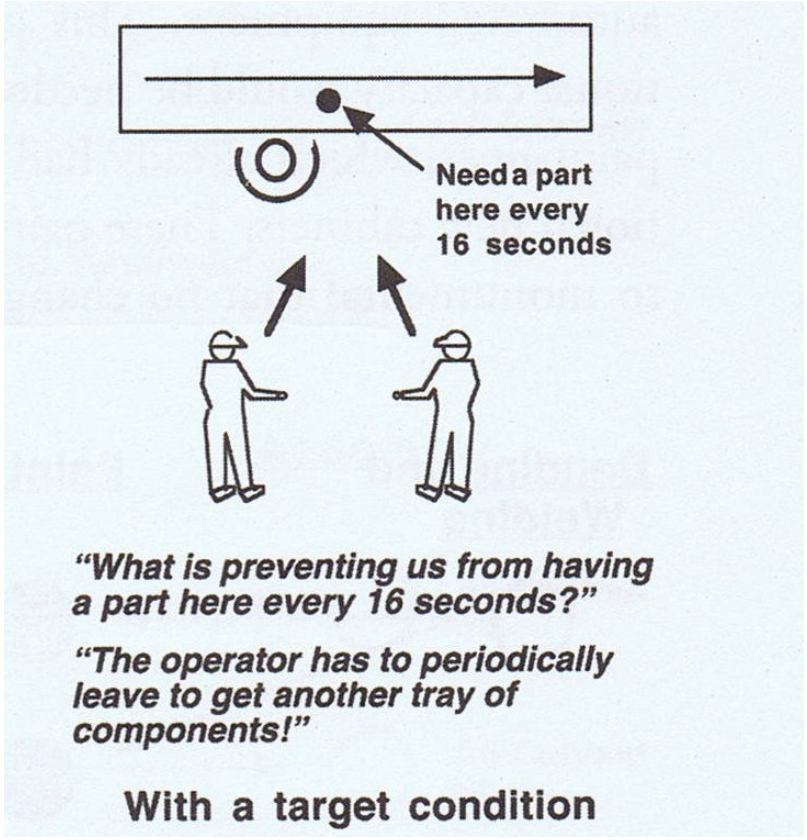
Developing Target Conditions



Setting Target Conditions



Everyone's attention turns…

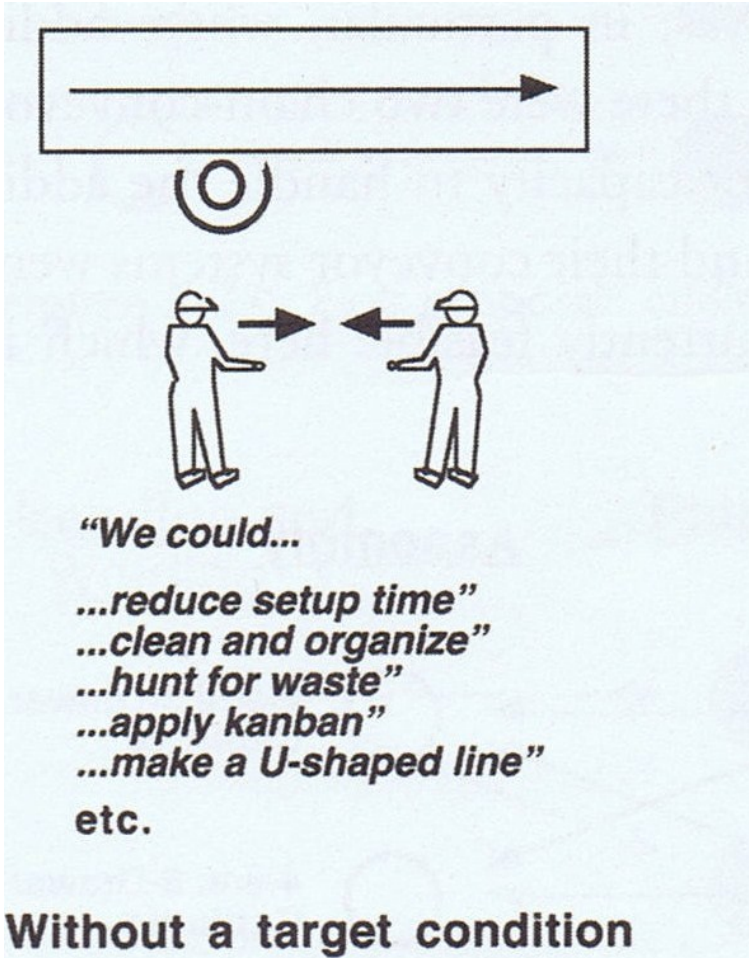


What do we NEED to do? Not. What could we do?

Without a Target Condition

You could end up with…

- laundry list of improvement opportunities
- debates on which item on the list is more important
- lists of waste observations



Target Condition

Don't know how we'll get there!

- "Over the horizon"
- Past the light beam of the flashlight.
- With practice people learn to adapt; work their way through the unknown

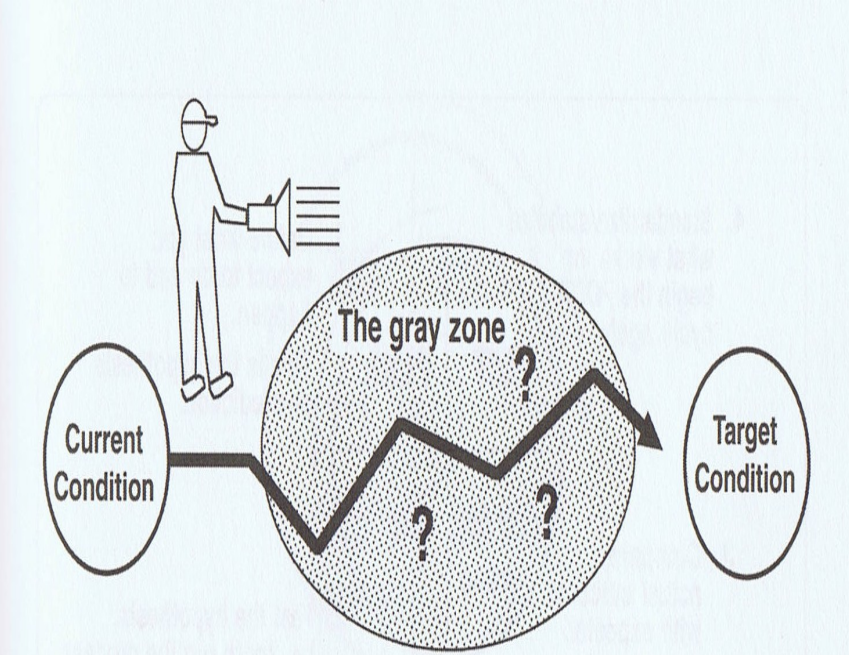
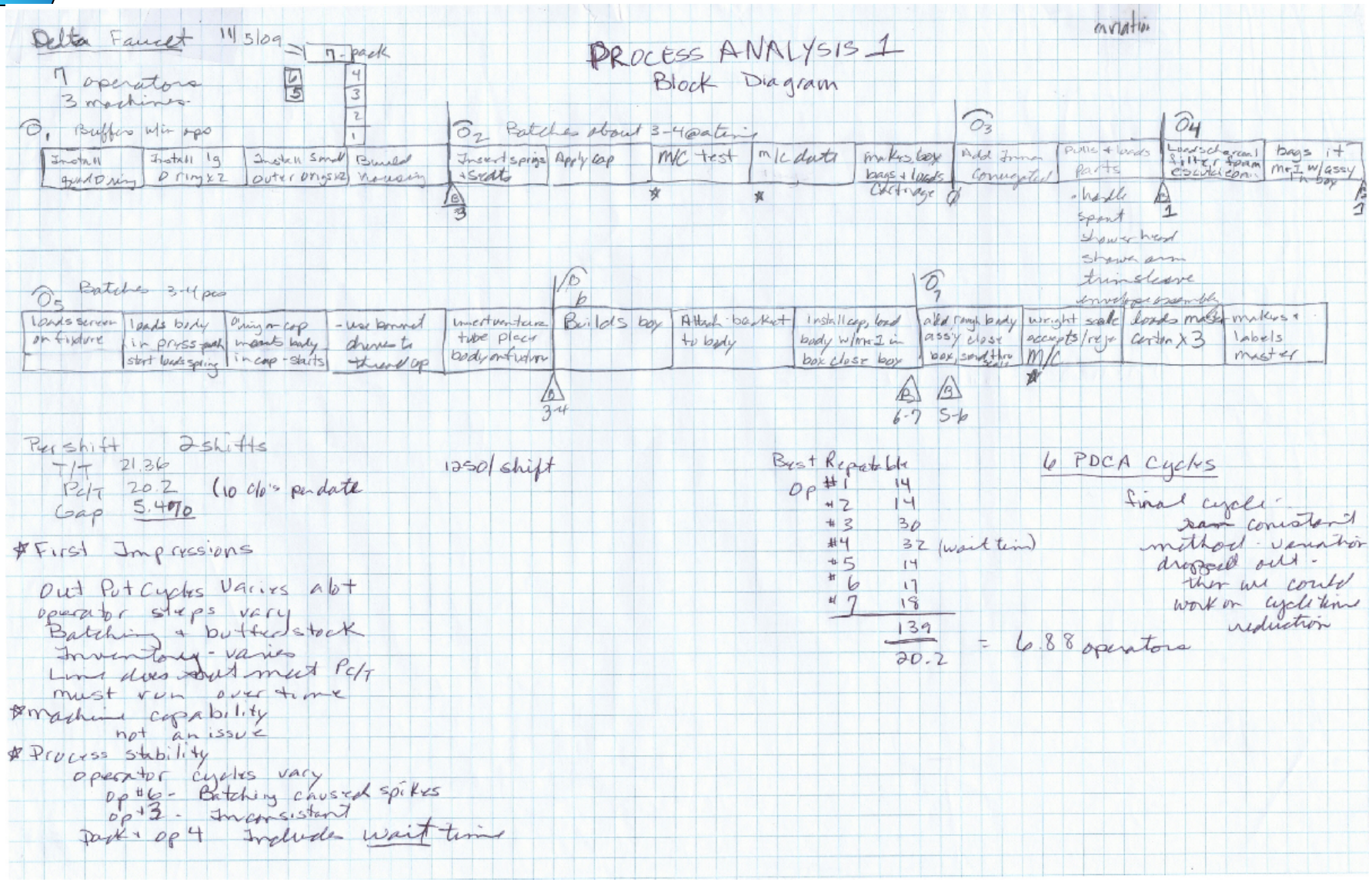


Figure 6-5. The flashlight analogy

Effective Target Condition



- ***Cell- TGC-4***
- ***Component – 4105***

Current and Target Condition

Vission – To achive 200 Pcs shift output.

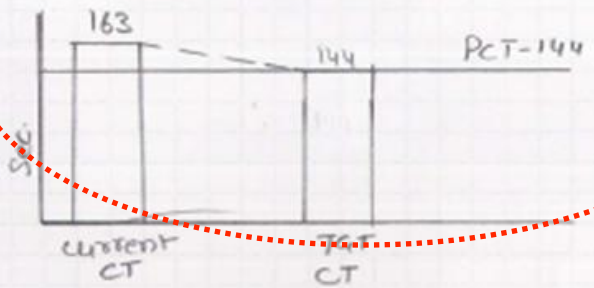
Current condition

1. HB-36^CT is higher than PCT

2. shift operating pattren- 3shifts
3. shift output- 160 Pcs/shift
4. Changeover time - 180 Mins/setup
5. No. of operators - 1/shift

Target condition

1. To achive CT below PCT – (163 to 144sec)

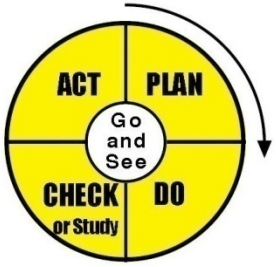


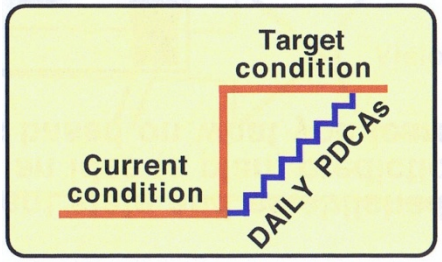
2. shift operating pattren – 3shifts
3. shift output - 180 Pcs/shift
4. Changeover time- 180 mins/setup
5. no. of operators – a/shift

- **Focus in this cycle of improvement kata**

Take a step toward the Target Condition

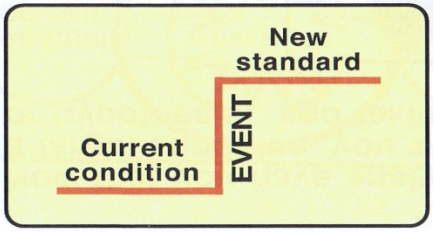
PDCA Cycles Small & Frequent





versus

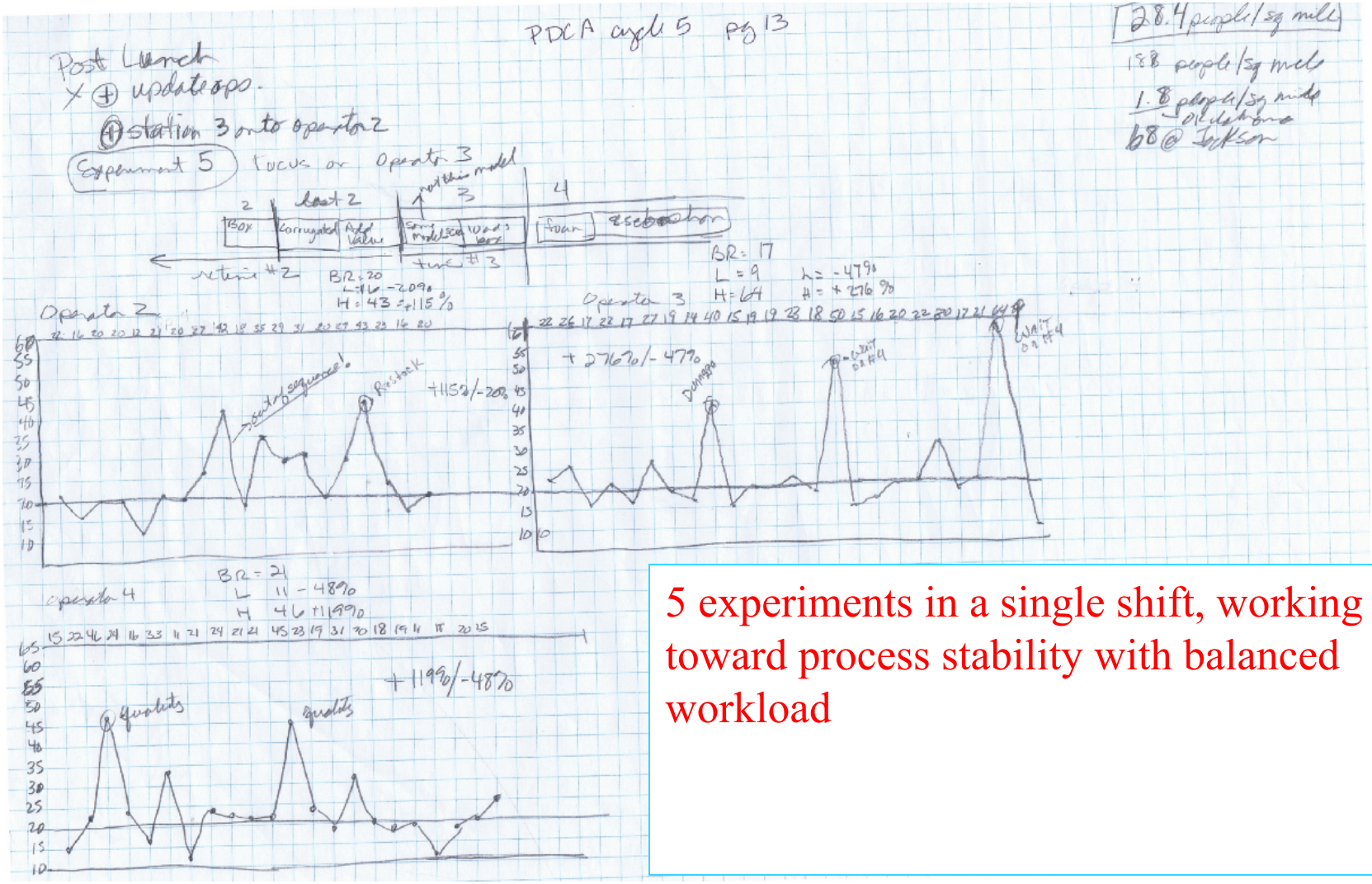
Kaizen Blitz



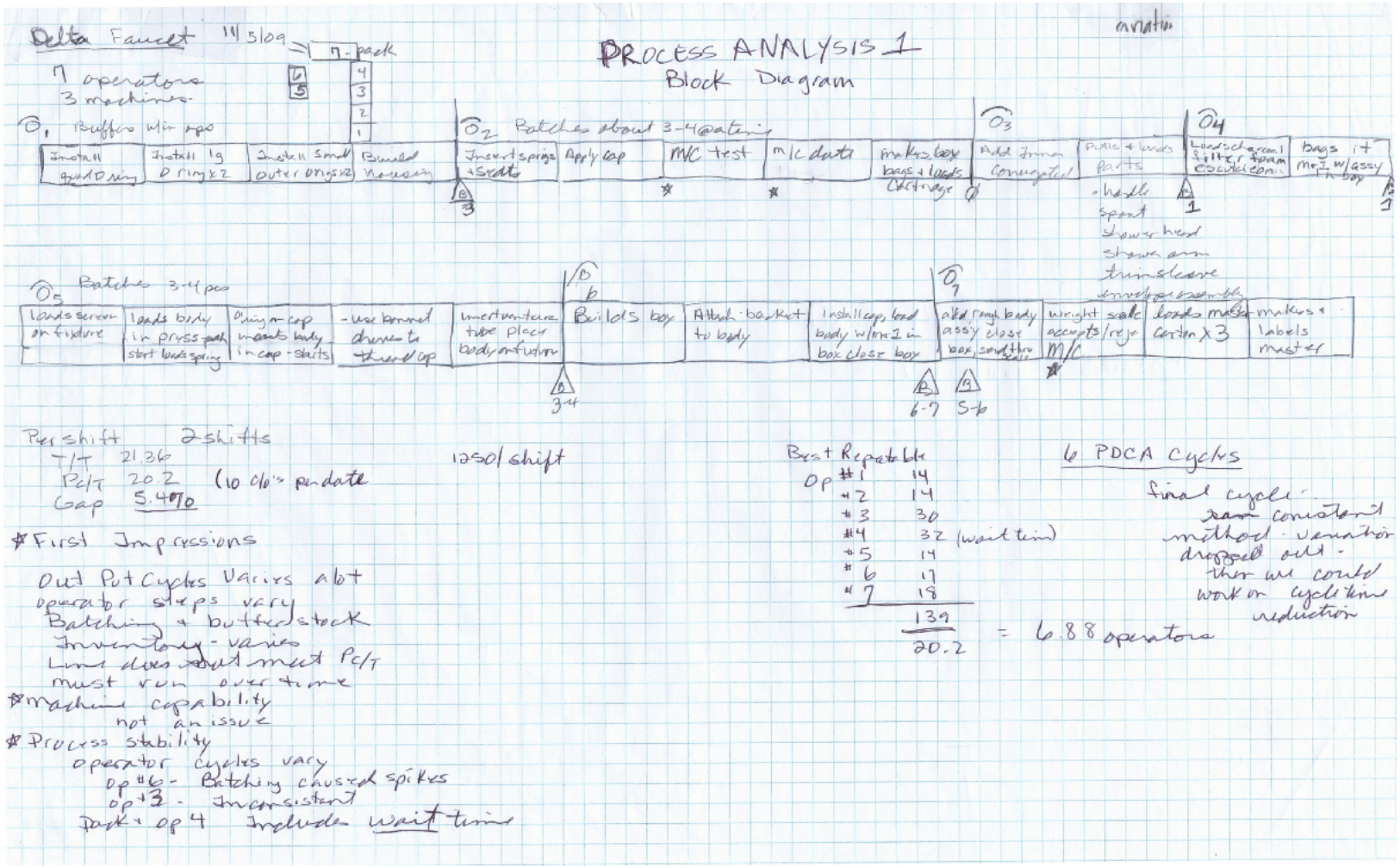
Small & Frequent PDCA Cycles

- Scientific method;
  - Hypothesize
  - Experiment (test it)
- Risk of failure low
- Learning maximized
- Quick cycle, see effects real-time
- One thing at a time, cause and effect
- Unbelievable results achieved in very short period of time

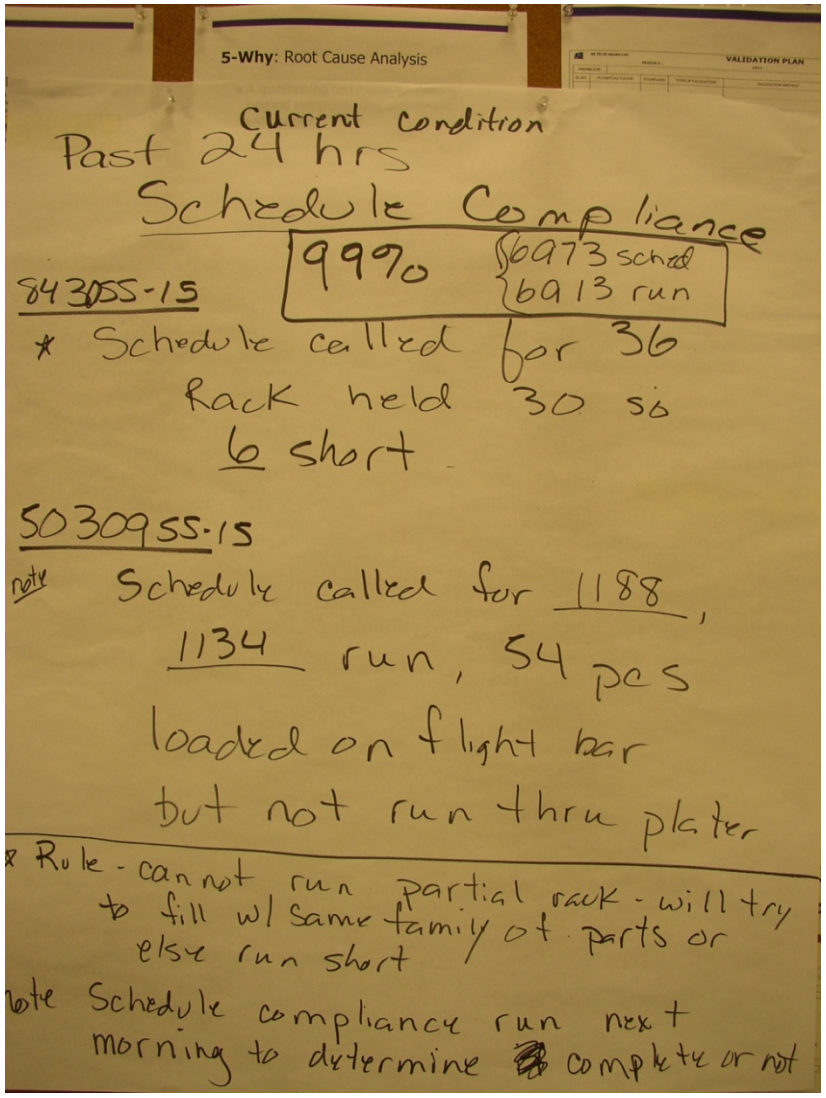
5 PDCA cycles in 1 day



Block Diagram

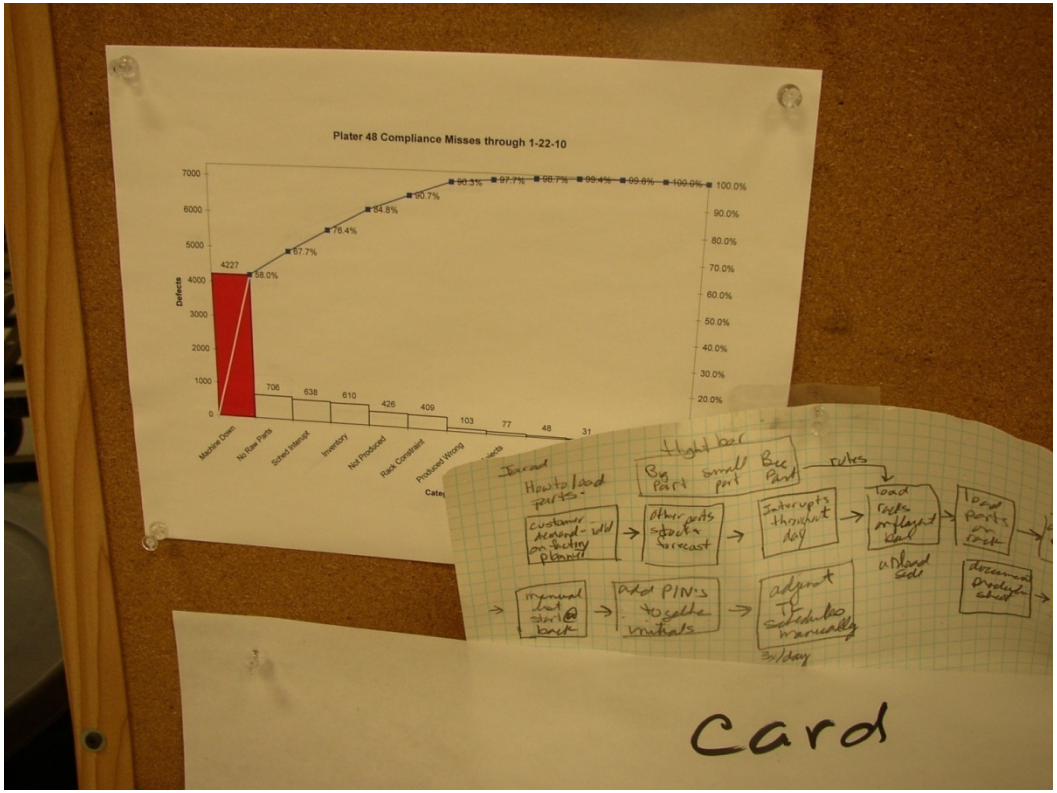


Real Time, Direct Observations

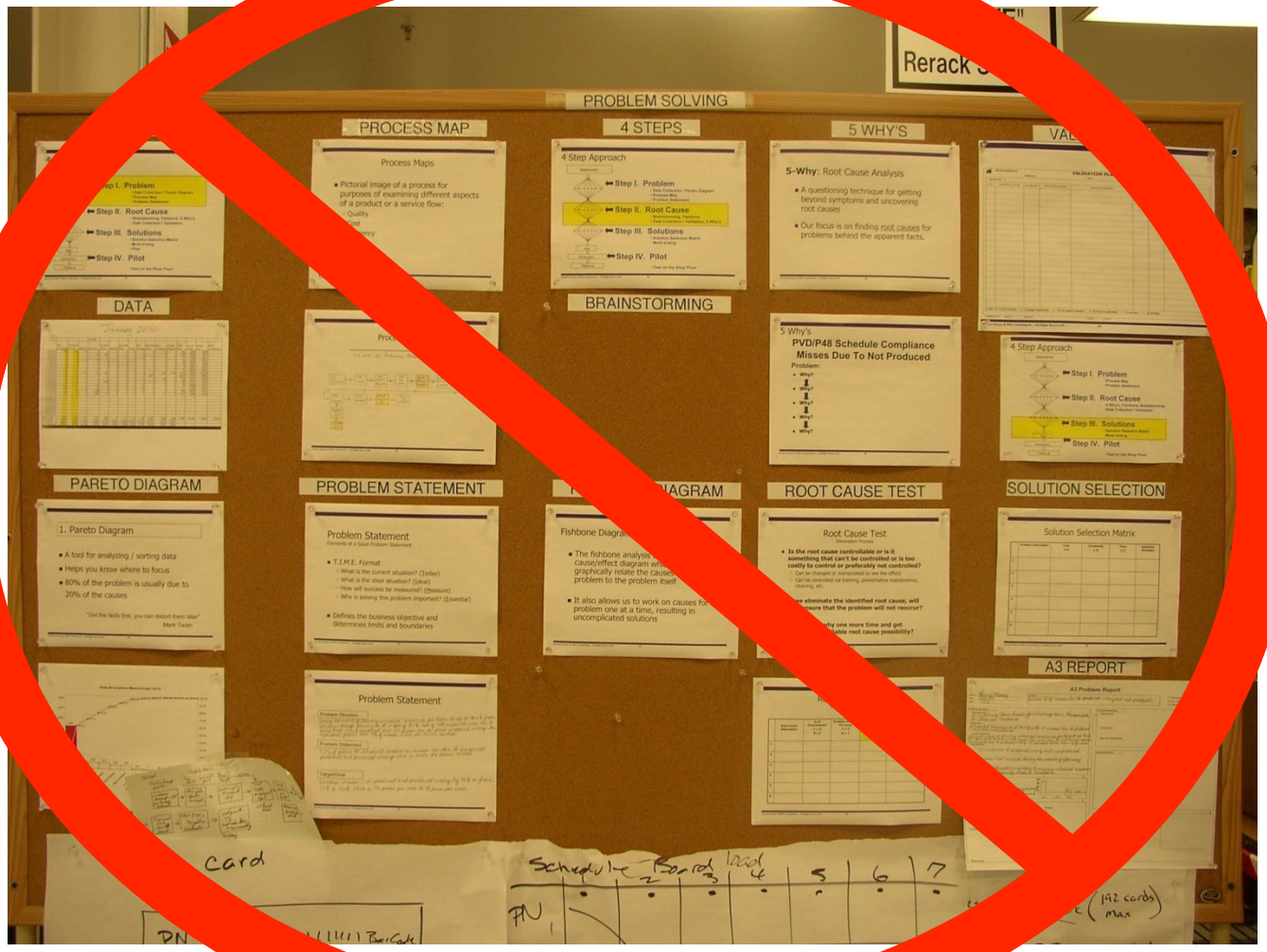


Overcome CURRENT obstacle

- Current obstacle not the biggest and baddest

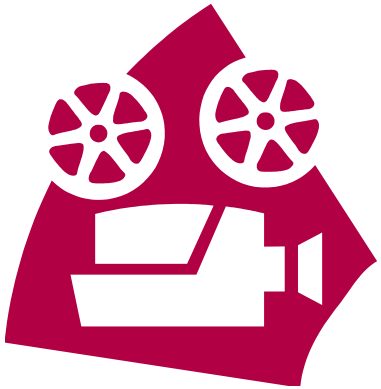


Six Sigma Work

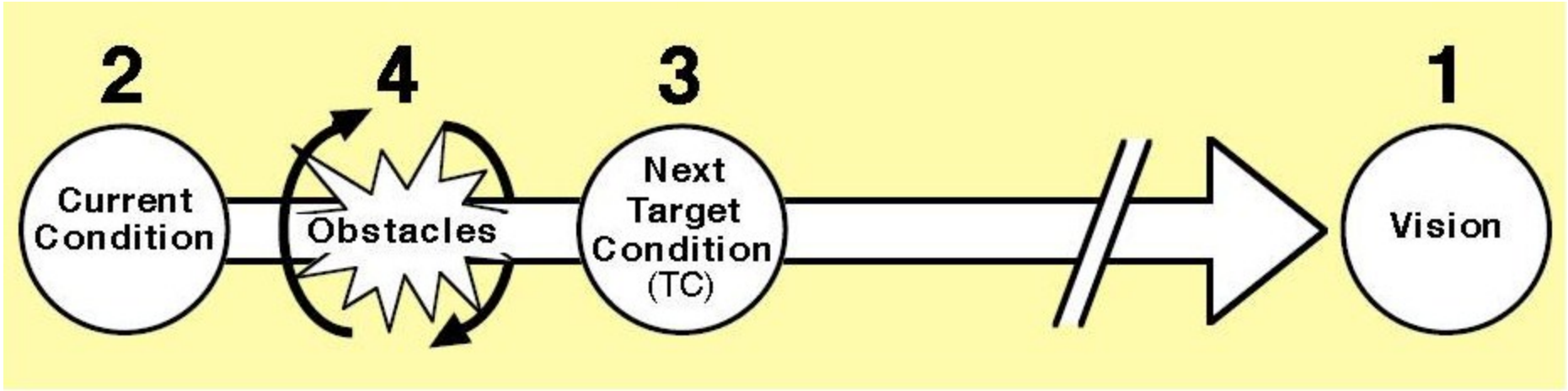


Iterative Learning

http://www.youtube.com/watch?v=COKqiFaHm1s



The Four Routines of the Improvement Kata



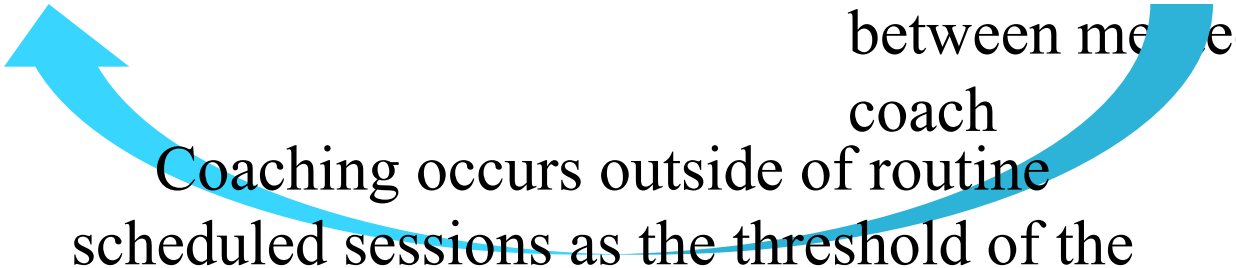
Toyota Kata

Improvement Kata

- Routines performed by a mentee (learner) while being coached by a mentor

Coaching Kata

- Scheduled and structured coaching routine performed at the "Gemba" (workplace) between mentee and coach



Coaching occurs outside of routine scheduled sessions as the threshold of the mentee knowledge and ability has to be extended

Coaching Kata

Team Leader (Mentee)

Production Manager (Second Coach)

Group Leader (Coach/ Mentor)

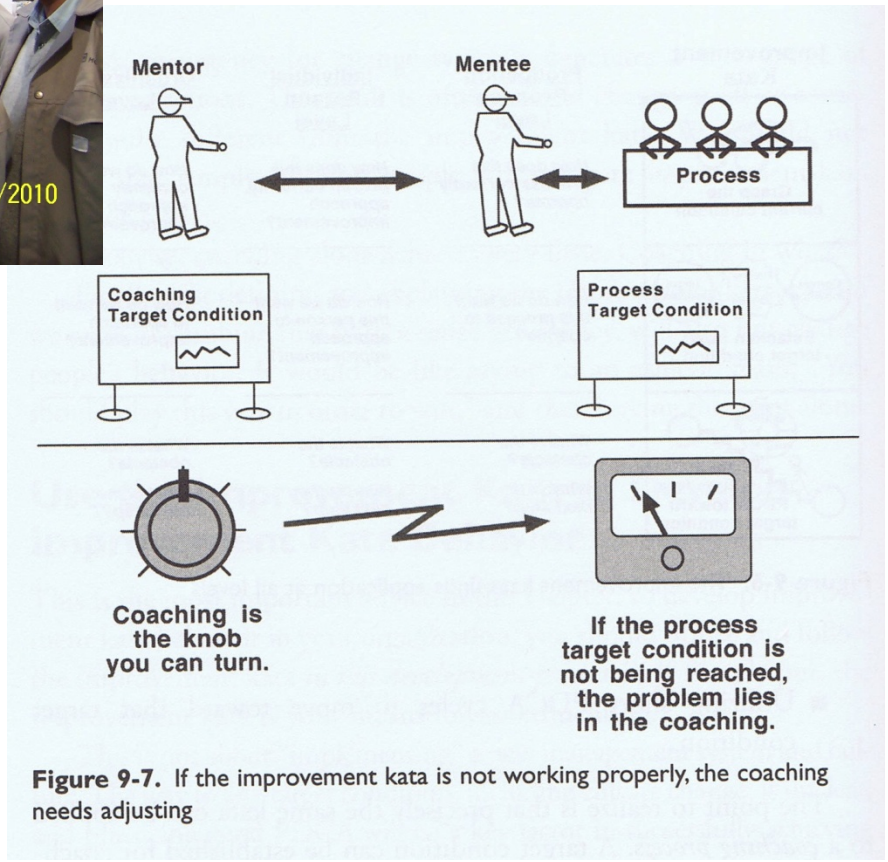
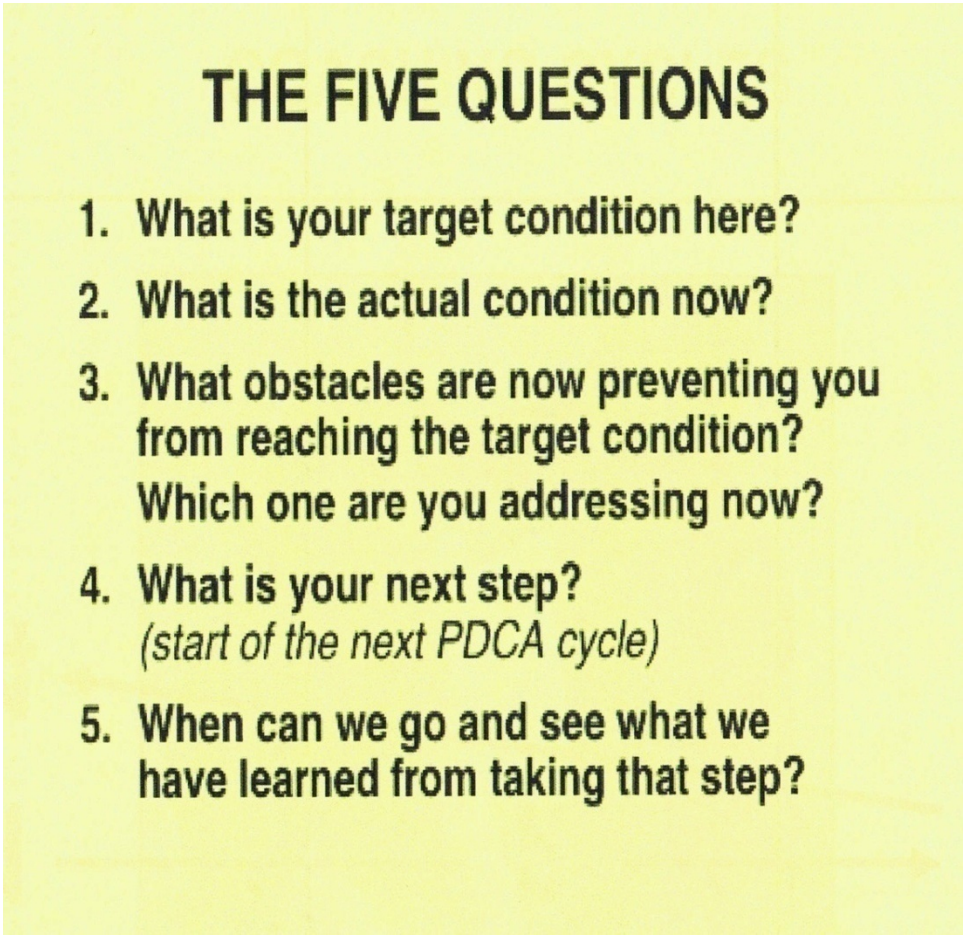


Figure 9-7. If the improvement kata is not working properly, the coaching needs adjusting

"Coaching Cycles"

Five questions asked in a specific order; it is a kata, a practice, a routine.

It's deep practice that builds new patterns and establishes new behavior.



Coaching

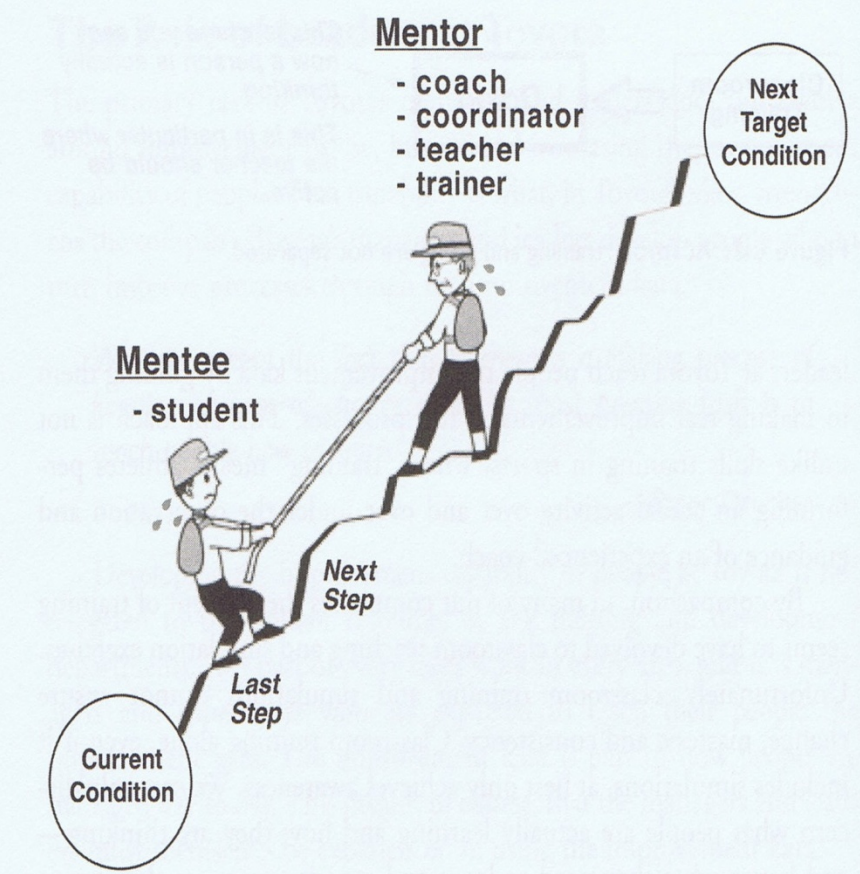


Figure 8-2. Toyota's classic depiction of its mentor/mentee approach
Note: Labels and current- and target-condition circles were added by the author.

It's about developing people, not solving the problem or overcoming the obstacle

Let the learner make a mistake, we learn best on the edge of our knowledge.

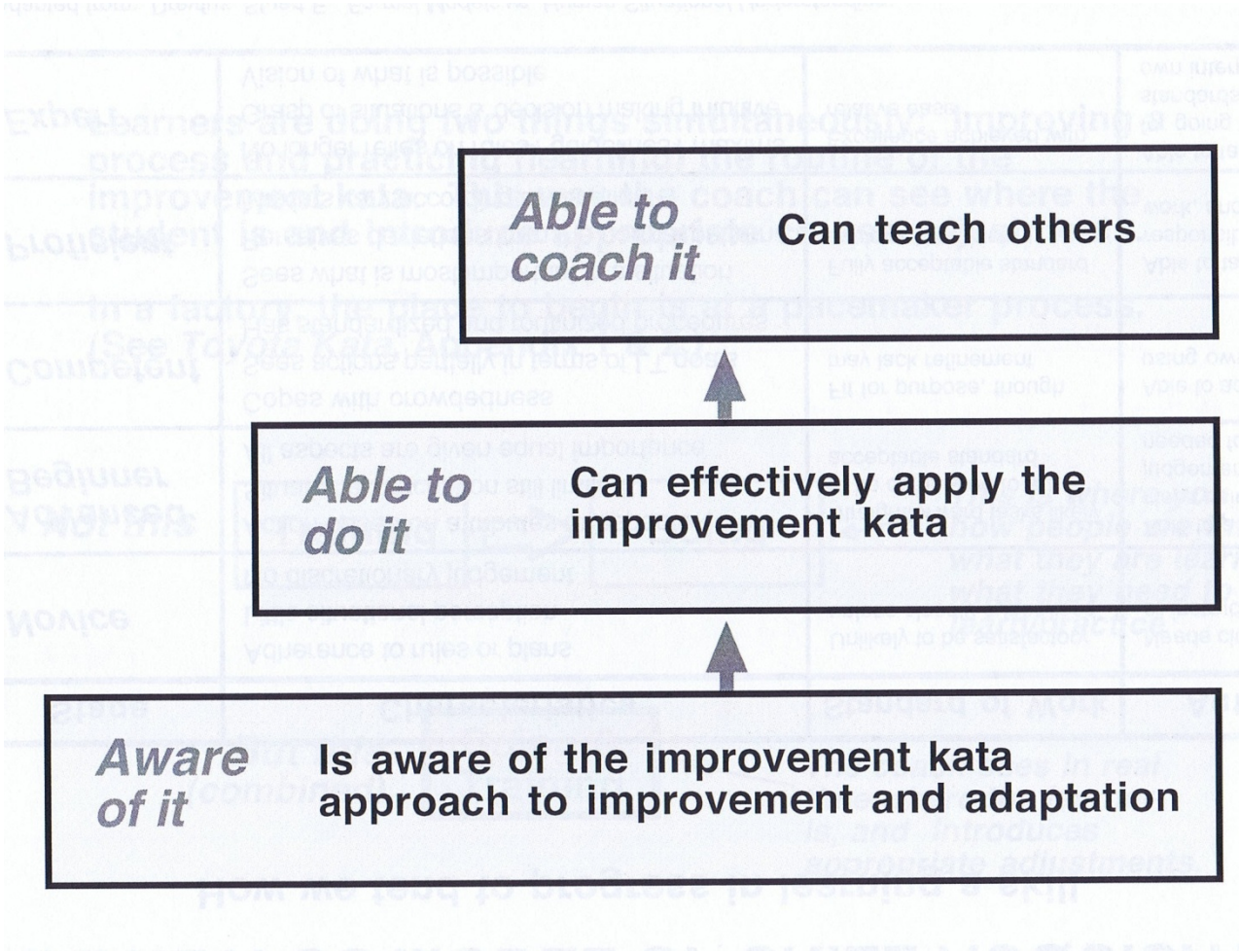
Toyota Kata

Not an implementation process, as in a tool of lean. It is a way of changing behavior and mindset.

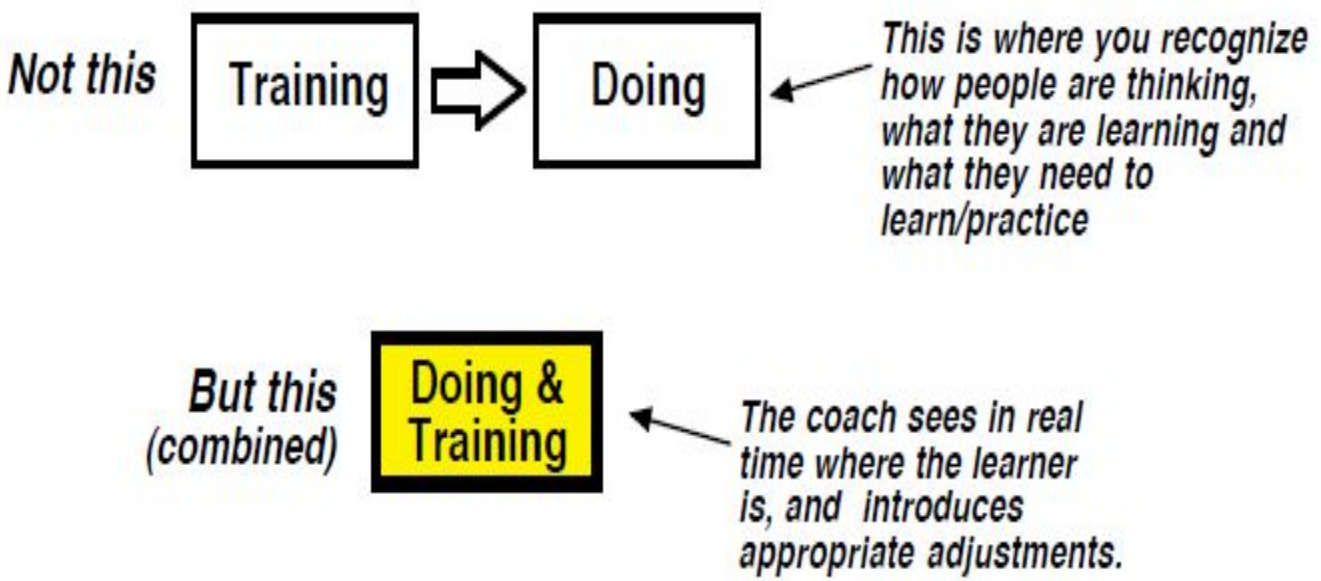
Establishing new thought and behavior takes practice and coaching.

Fixed Mindset Avoids uncertainty	Adaptive Mindset Accepts uncertainty
• Try to have path defined before starting	• Plan is made, but actual path is determined along the way
• Financial metrics used to determine direction	• Financial metrics used to determine where refinement is needed
• Hang on to a status quo as long as possible	• Working toward a long-term goal (thinking beyond the familiar, toward a vision)
• Change is occasional, with attempts at leaps to catch up	• Change is frequent and normal, typically in small steps
• Mistakes & problems = failure Finding them is considered detrimental	• Mistakes & problems = normal Finding them is considered useful for learning (on a small scale!)

Toyota Kata Learning Progression



Combine training and doing!



Dreyfus Model

HOW WE TEND TO PROGRESS IN LEARNING A SKILL

The Dreyfus Model of Skill Acquisition

Stage	Characteristics	Standard of Work	Autonomy
Novice	Adherence to rules or plans Little situational perception No discretionary judgement	Unlikely to be satisfactory unless closely supervised	Needs close supervision or instruction
Advanced Beginner	Action based on attributes or aspects Situational perception still limited All aspects are given equal importance	Straightforward tasks likely to be completed to an acceptable standard	Able to achieve some steps using own judgement, but supervision needed for overall task
Competent	Copes with crowdedness Sees actions partially in terms of LT goals Has standardized and routinized procedures	Fit for purpose, though may lack refinement	Able to achieve most tasks using own judgement
Proficient	Sees what is most important in a situation Perceives deviations from the normal pattern Maxims vary according to situation	Fully acceptable standard achieved routinely	Able to take full responsibility for own work, and coach others
Expert	No longer relies on rules / guidelines / maxims Grasp of situations & decision making intuitive Vision of what is possible	Excellence achieved with relative ease	Able to take responsibility for going beyond existing standards and creating own interpretations

Able to coach others

Adapted from: Dreyfus, Stuart E., *Formal Models vs. Human Situational Understanding: Inherent Limitations on the Modelling of Business Expertise*, University of California, Berkeley, 1981

Skill Develoment Plan

EXAMPLE SKILL DEVELOPMENT PLAN

READ

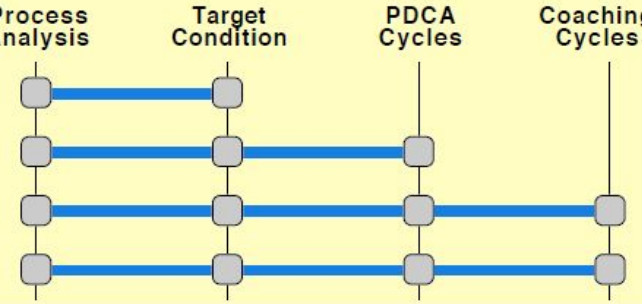
Read the books *Toyota Kata* & *The Talent Code*

INTRODUCTORY PRACTICE

See the whole thing (~3 days)

Objective	Activities
Introduction to Toyota Kata thinking and methodology Familiarity with the 4 routines	Classroom overview session + An initial hands-on practicing of all four routines

CHUNKED PRACTICE



DAILY COACHING CYCLES

Apply the improvement kata in daily work, with daily coaching checks and guidance

In Conclusion

Toyota Kata is a management system.

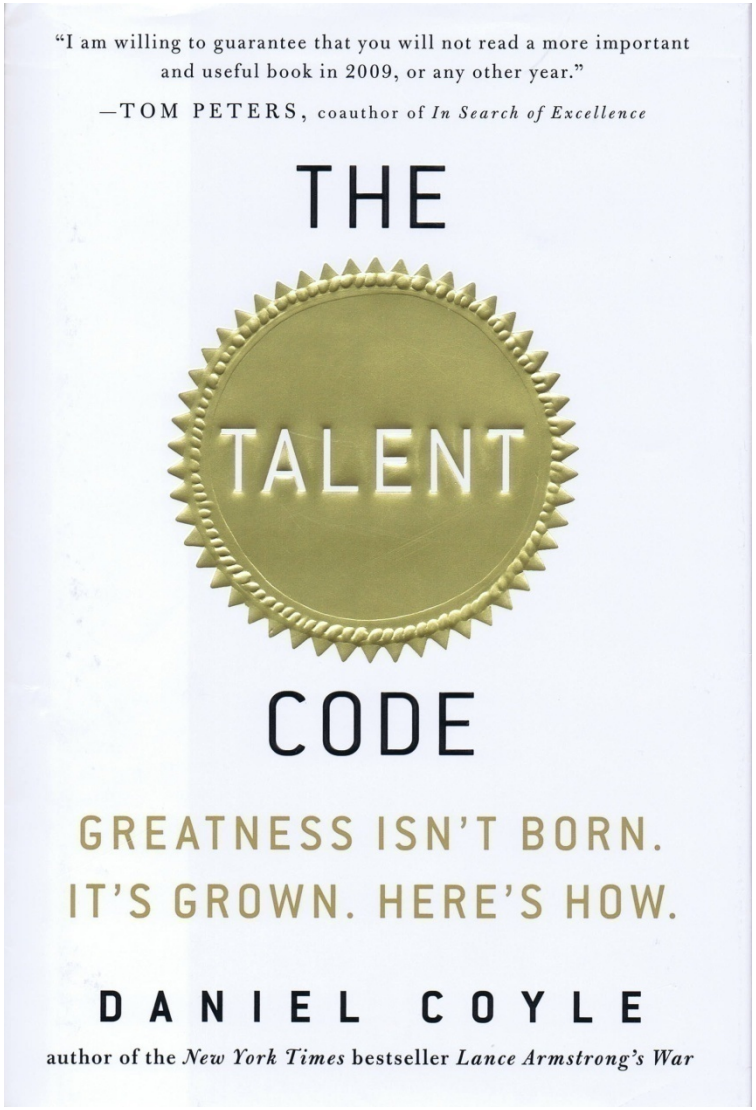
- Managers coach others to drive continuous improvement and the achievement of challenging objectives in all aspects of an organization.
- It is a system of leadership practice which drives adaptive thought and behavior.

The Talent Code

- Truly a companion read to Toyota Kata.

- The Talent Code answers the question:

"How do we learn new behaviors, skills?"



Slide Share

- This presentation is available on slide share, and as you will notice it has already been updated since your handouts were printed.

http://www.slideshare.net/bcarrington/toyota-kata-presentation-382011