

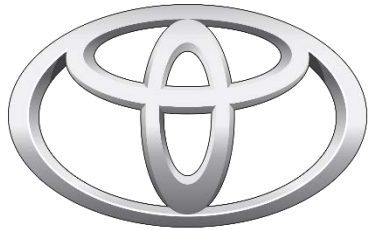
# Lean Problem Solving

Coaching Problem Solving &  
Developing People Toyota Style

# Presentation Outline

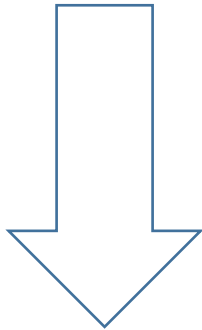
- Background on Problem Solving & Coaching
- 4 Types of Problem Situations
- 4 Aspects of Coaching Situations
- Summary / Q&A

# Background on Problem Solving

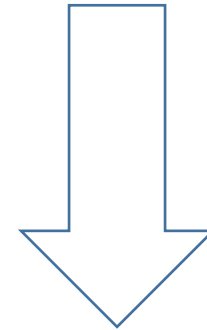
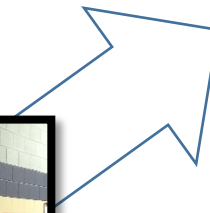
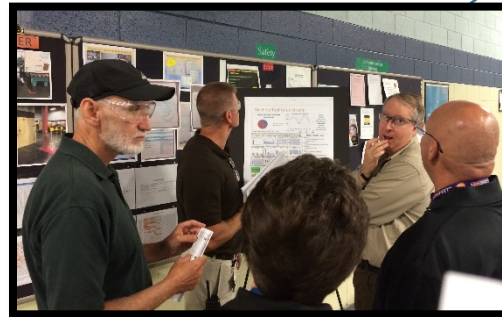


**TOYOTA**

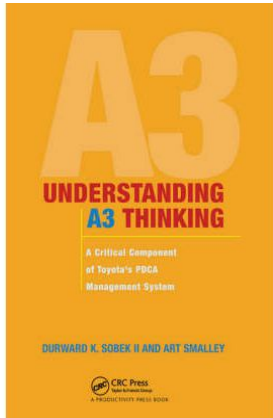
McKinsey & Company



**Donnelly  
Corporation**



# Background on PS Coaching



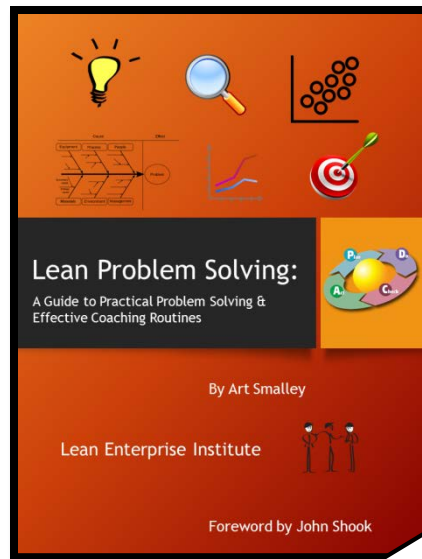
Sandia  
National  
Laboratories



**2015** Lean Coaching Summit

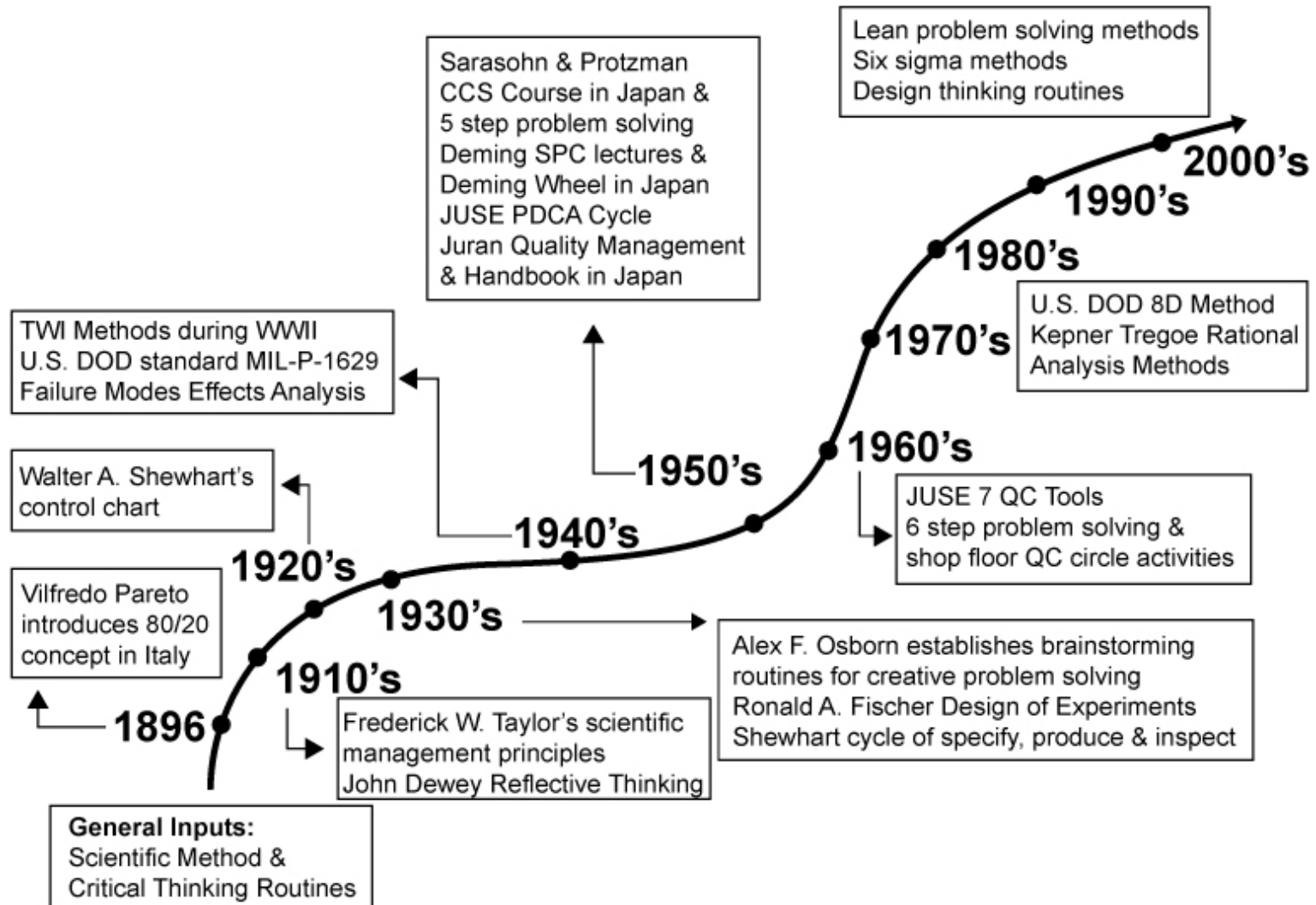
JULY 20-23 - SEATTLE, WA

# Lean Problem Solving



***Lean problem solving** refers to how we solve problems in the shortest lead-time, with maximum sustainable results, at lowest possible cost, with highest possible quality, and with the maximum feasible development of individual and team skills.*

# 20<sup>th</sup> Century & Problem Solving



# Benkei Analogy

## Benkei



## 7 QC Tools

1. Data Collection / Check sheets

2. Cause-and-effect diagram

3. Graphs / flow charts

4. Pareto chart

5. Control chart

6. Histogram

7. Scatter diagram

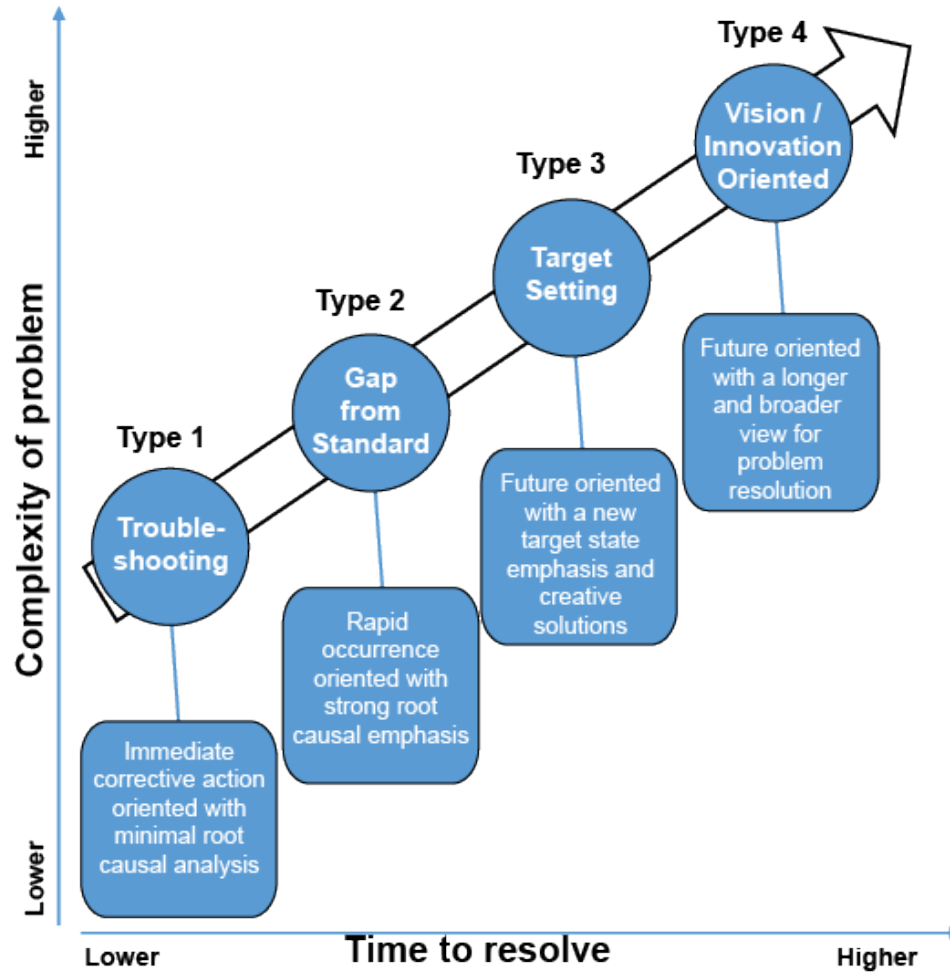
## Kaoru Ishikawa



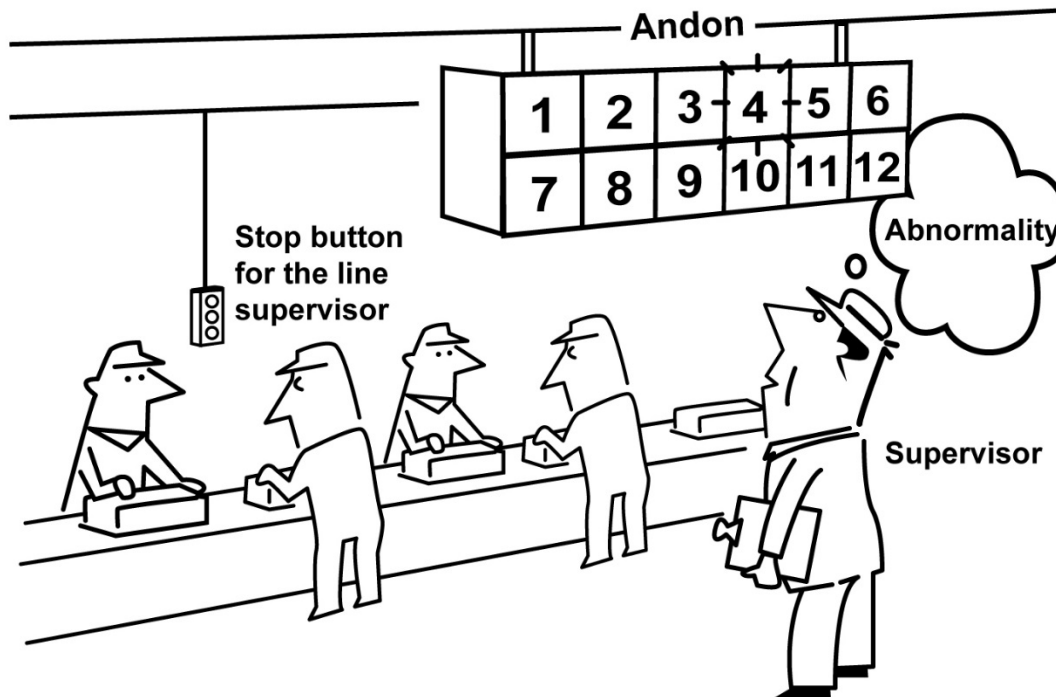
The term “7 QC tools” is named after the seven tools of Musashibo Benkei the famous warrior monk. Benkei owned seven weapons which he used to win all his battles. Similarly from my own experience you will find that you will be able to solve 95% of the problems you face if you properly use the 7 QC tools.

Professor Emeritus  
University of Tokyo

# 4 Types of Problem Situations



# Type 1 – Troubleshooting



# Type 1 – Troubleshooting

## Production Analysis Board

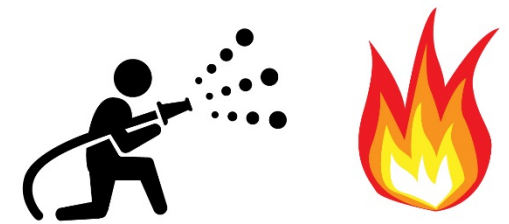
Line/Cell Name:		Team Leader:		Date:		
Quantity Required:		Takt Time:		Shift:		
				Num of Operator:		
Time	Hourly		Cumulative		Problem/Causes	Sign-off
	Plan / Actual	Plan / Actual	Plan / Actual	Plan / Actual		
: ~ :	/	/				
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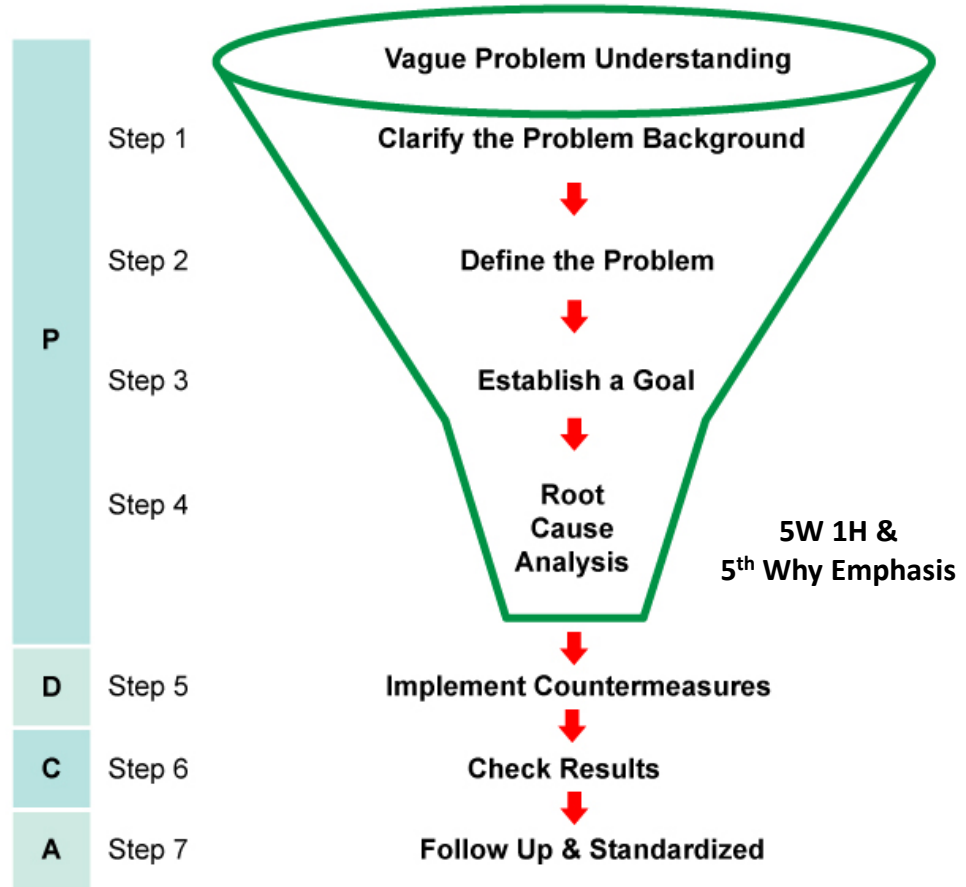
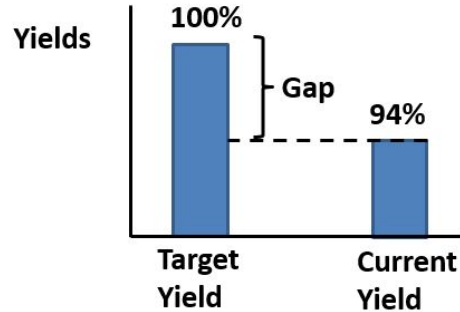
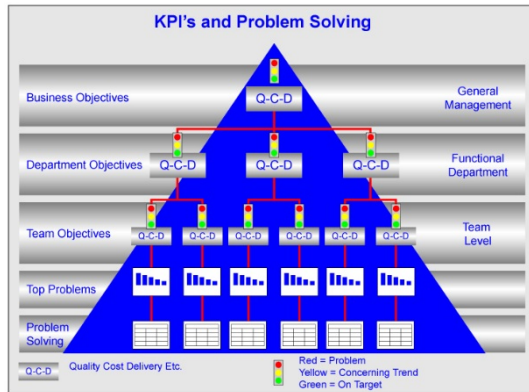
## Rapid Problem Solving

- Concern
- Cause
- Countermeasure
- Check

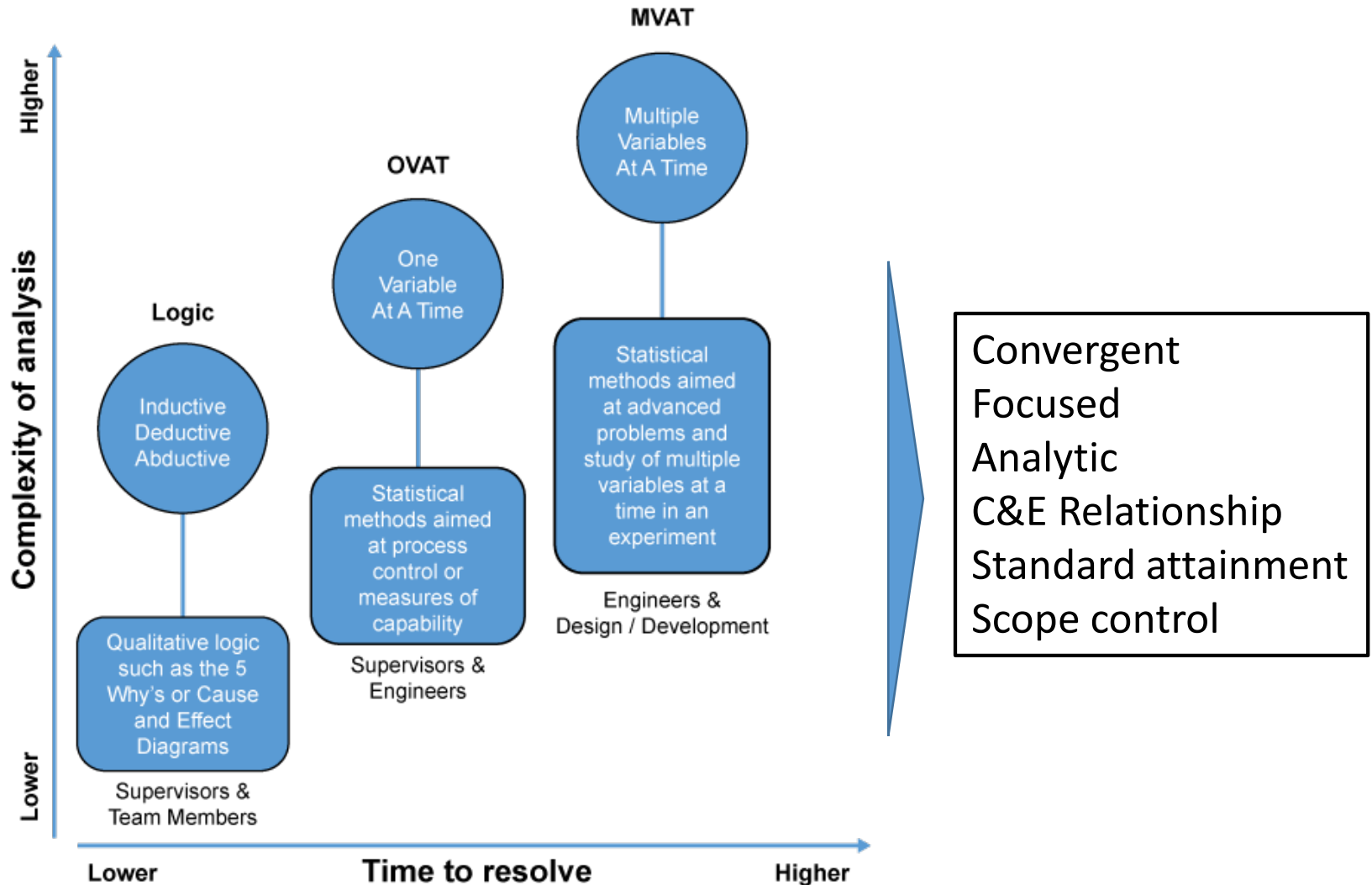
### Troubleshooting



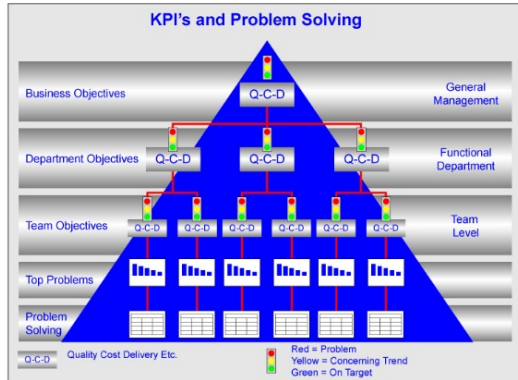
# Type 2 – Gap from Standard



# Type 2 – Analysis Types



# Type 3 – Target State



Acceptable (Current State) Situation

(Future) Ideal Situation

GAP

Normal Status

GAP

Current Situation

Type 2 - "Gap from Standard"

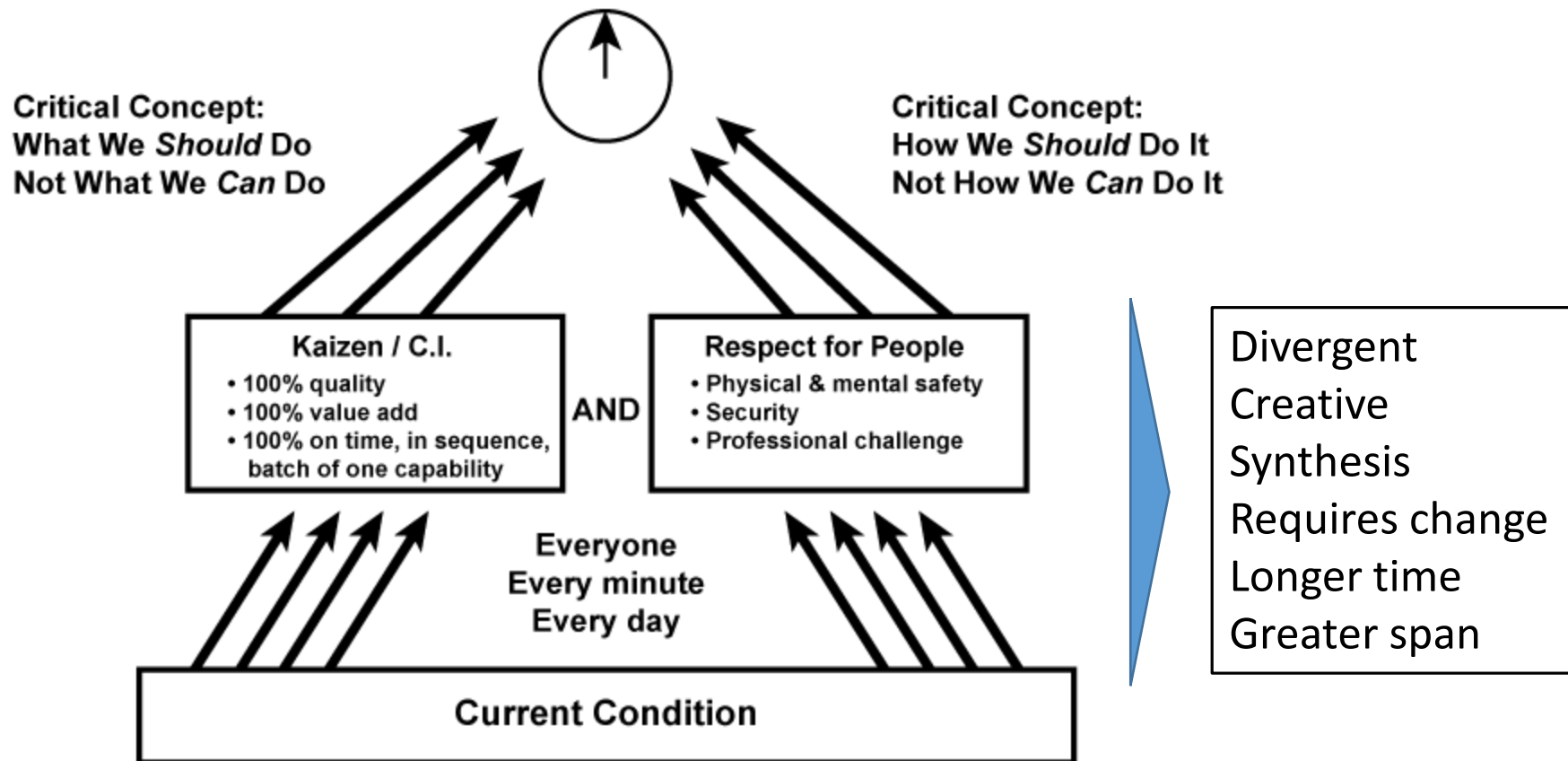
Kaizen Methods  
改善方法

Type 3 -  
"Target State"

問題解決  
Problem Solving

# Type 3 – Target State

*Arubeki Sugata / Ideal State*



# Type 4 – Vision / Innovation

		How you?	
<b>CONFIGURATION</b>	<b>Profit Model</b>	Make money	Gillette, Hilti
	<b>Network</b>	Connect with others to create value	UPS, GSK, Toshiba
	<b>Structure</b>	Align your talent and assets	Mc Do, Fabindia
	<b>Process</b>	Use Superior methods to do your work	Zara Ikea
<b>OFFERING</b>	<b>Product Performance</b>	Employ distinguish features and functionality	Dyson, Mars, Inuit
	<b>Product System</b>	Create complementary products and services	Microsoft, Scion
<b>EXPERIENCE</b>	<b>Service</b>	Support and enhance the value of your offering	Zappos, Car Glass, Sysco
	<b>Channel</b>	Deliver your offering to your customers and users	Nespresso Amazon
	<b>Brand</b>	Represent your offering and business	Intel, Virgin
	<b>Customer Engagement</b>	Foster interaction	Apple Foursquare

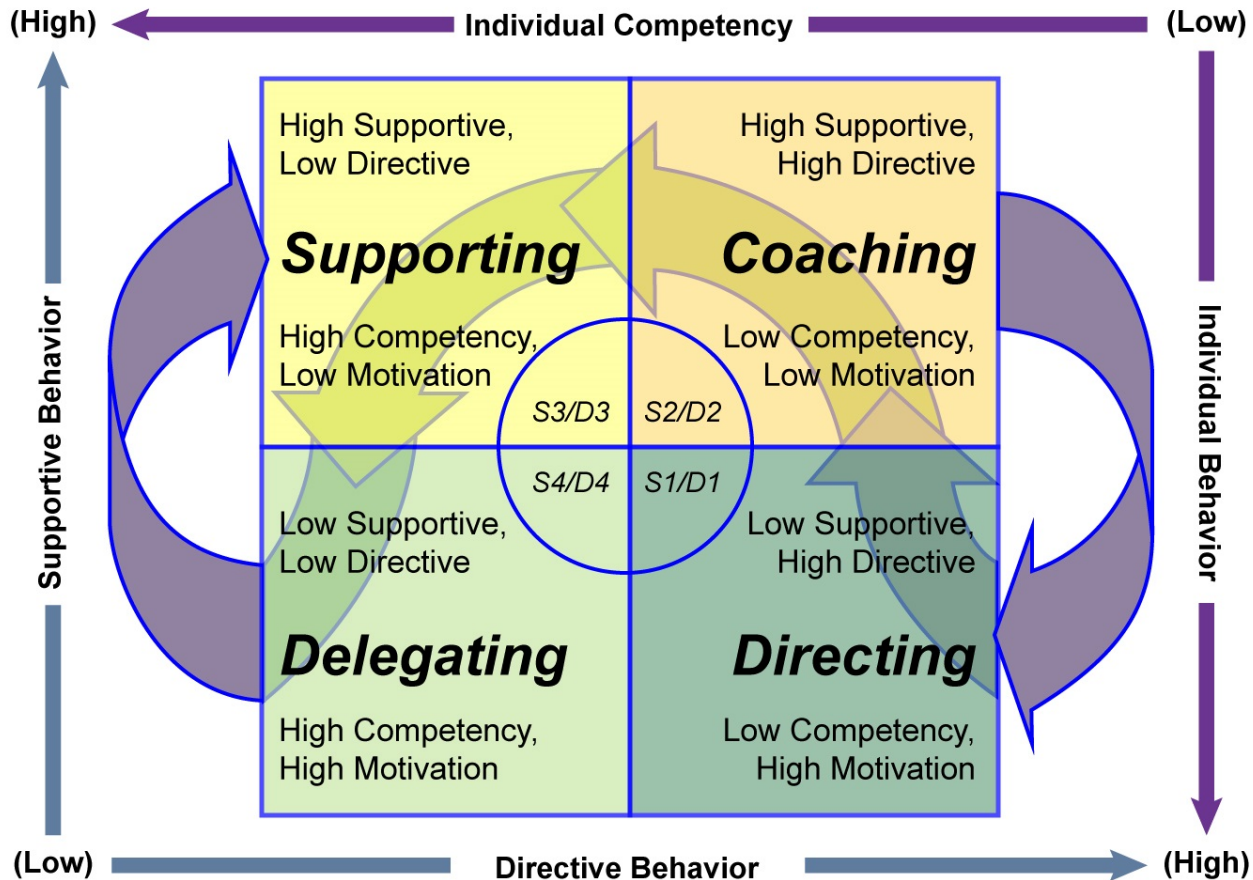
Doblin: 10 Types of Innovation: The Discipline of Building Breakthroughs

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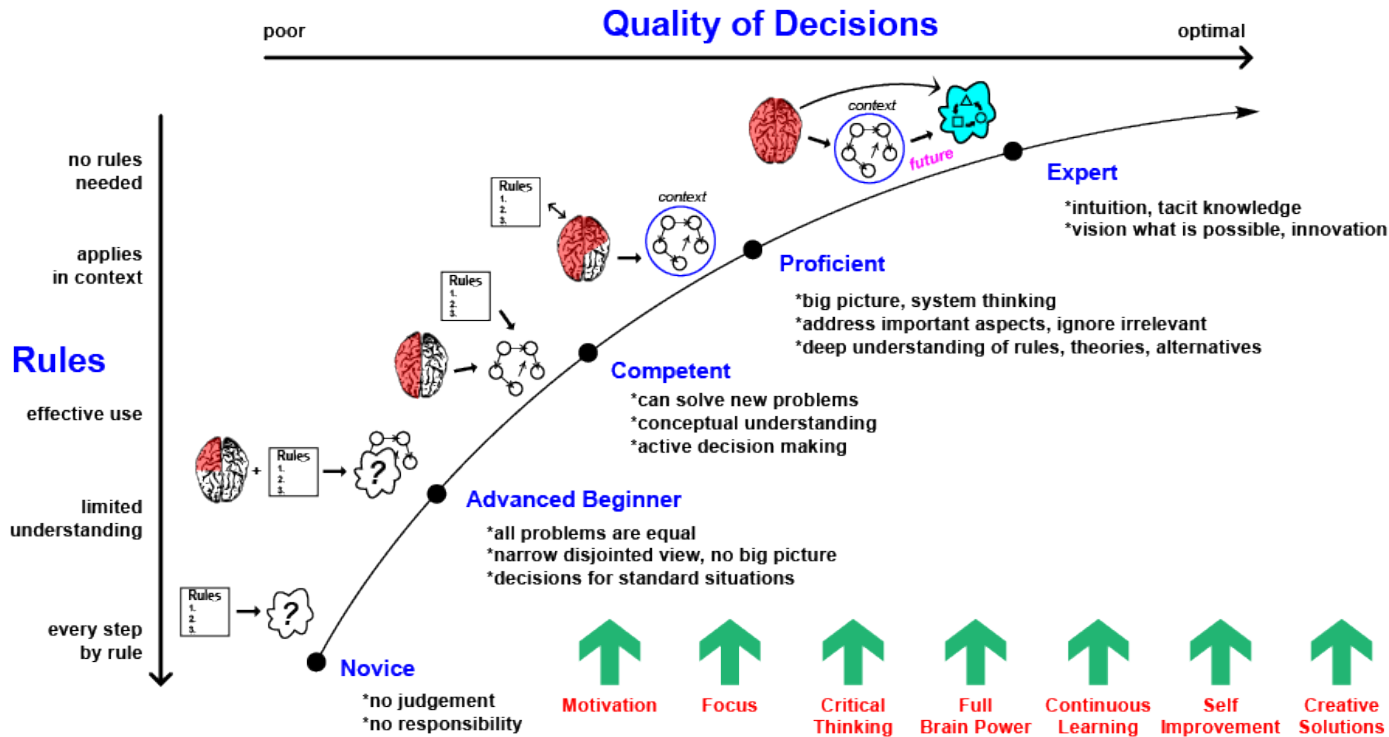
# CP1: Skill versus Will



**Ken Blanchard  
& Paul Hersey  
Situational  
Leadership Model**

# CP1: Novice to Expert

## Development of Problem Solving Skills



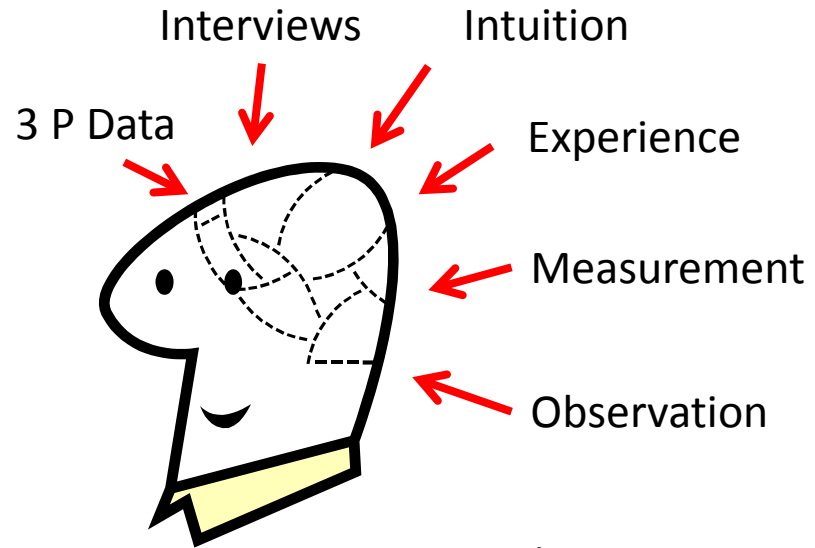
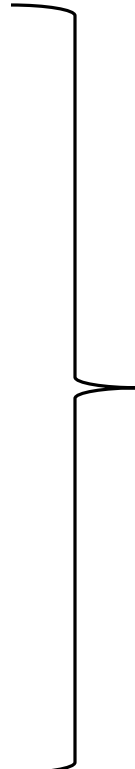
Adapted from Dreyfuss Model of Skills Acquisition

# CP2: Process Navigation

T1? T2? T3? T4?



1. Problem Background
2. Problem Definition
3. Establish Goal
4. Cause Analysis
5. Countermeasure
6. Check Results
7. Follow Through



Process Assistance:  
Navigating the process  
Probing questions  
Technical insight  
Align experts  
Remove barriers  
Alternative methods  
Similar experiences  
Other ideas

# CP3: Problem Expertise

TPS

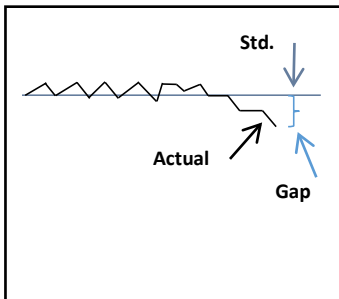
TPS



**A. Immediate abnormality signal**



**B. Go to actual machine and see status**

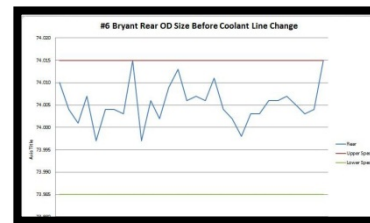


**C. Ascertain actual problem situation**

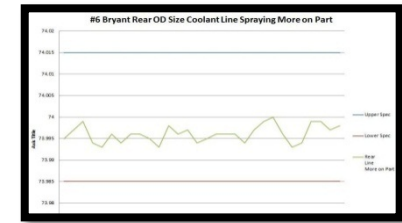
TPS

## D. Coaching Investigation Sequence

1. Measure actual dimensional extent of problem
2. Look for obvious contamination or abnormalities
3. True and re-dress grinding wheel and observe status
4. Check actual grinding wheel (check "pores")
5. Confirm actual (not theoretical) stock removal
6. Send part to QC Mat'l lab for hardness and HT depth check
7. Check actual cutting conditions
  - Wheel RPM
  - Feed Rate, Depth of Cut, etc.
  - SFPM
8. Confirm status of datum features and clamp mechanisms
9. Measure spindle run out
10. Coolant check
  - Flow rate / pressure
  - Nozzle condition and direction
  - Temperature
  - Concentration

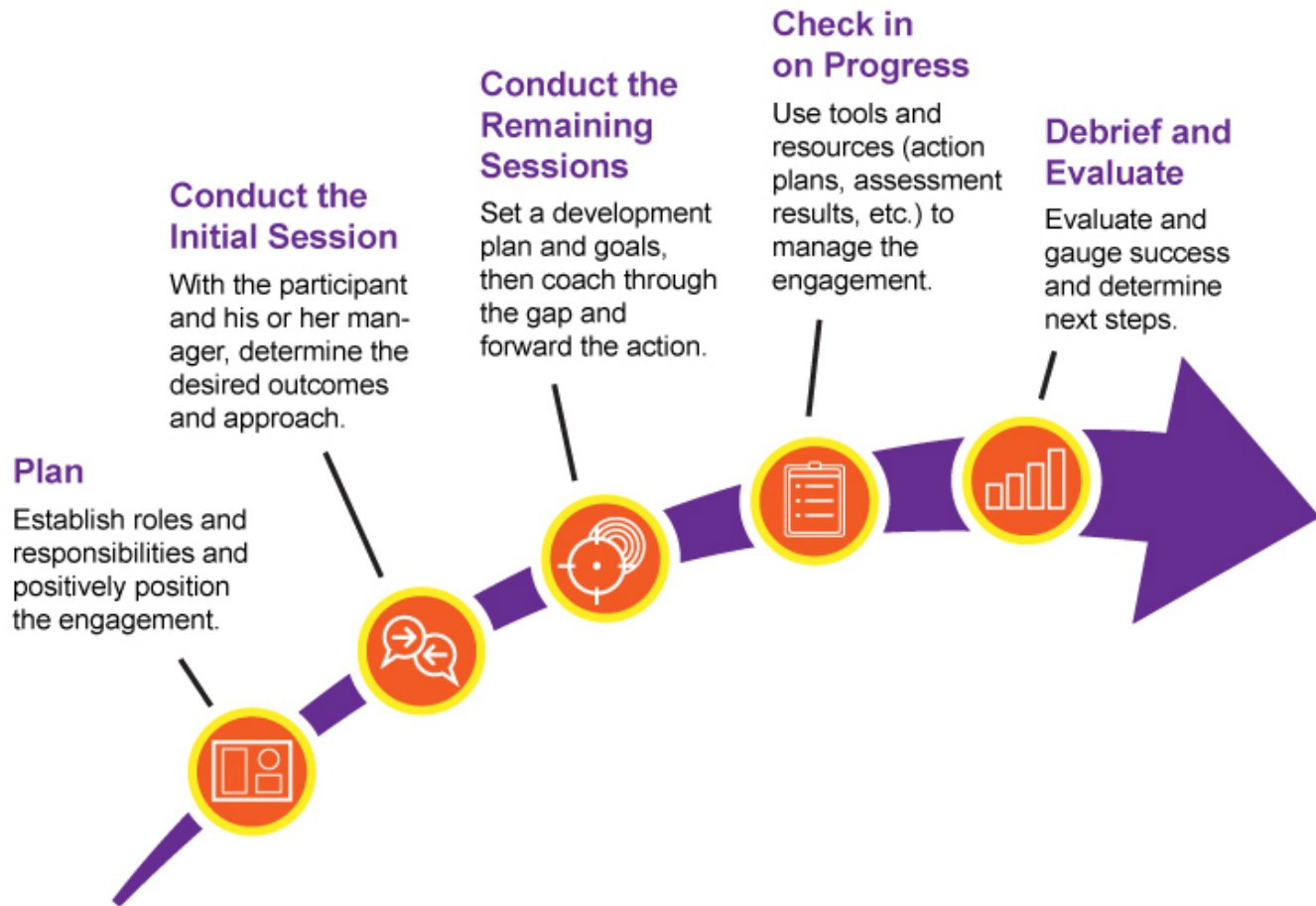


Cpk 1.15



Cpk 2.0

# CP4: Overall Coaching Plan



# CP4: Detailed Coaching Plan

120 Minutes  
 = 12 x 10 Minutes  
 = 6 x 20 Minutes

6 Coaches / 72+ Players  
 =Offense Drills  
 =Defense Drills  
 =Special Teams Drills

Position Groups  
 =QB's  
 =RB's  
 =WR's & TE's  
 =Offensive Line

Practice  
 = 1x1  
 = 2x2  
 = 7x7  
 =11x11

Intermediate Practice Plan #2

Date Used: \_\_\_\_\_ Coach: \_\_\_\_\_ Team: \_\_\_\_\_

TIME	DRILL	COACHING TIPS
00:00 - 00:10	Warmup: Passing, catching, sprints	Loosen up and work on skills
00:10 - 00:15	Team Stretch	Captain leads
00:15 - 00:25	Jog around the field	Limbering up and prep for drills
00:25 - 00:35	1.2 Foot fire and drop (all players)	Or introduce new plays
00:35 - 00:45	2.7 10-yard drive (OL) 3.7 Progression drill (QB, WR) 4.4 Cut and switch (RB) 5.6 Hold and tackle (DL, LB, DB)	Drive the attacker 10 yards back Release ball within 3 seconds of drop Transfer ball to the outside arm Stay engaged until runner reaches pylon
00:45 - 00:55	2.8 Pancake drill (OL) 3.8 Cones and cuts (QB, WR, RB) 5.3 D-Line Fight drill (DL) 5.5 Attack the QB (LB) 6.5 Jump timing (DB)	Solid base, arms extended, feet moving Quick fake before making the cut Start flat on stomach w/ head up Use tackling dummy for the QB Watch trajectory to time your jump
00:55 - 01:00	Water break	Players sprint back to coaches location as soon as whistle is blown
01:00 - 01:10	7.1 Fire drill (special teams)	Or review special teams plays and substitutions
01:10 - 01:25	8.6 Fire out from the 30 (OL & DL) 9.7 Sideline Running (QB, RB, WR vs LB, DB)	Explode off the line Pop the ball carrier (don't tackle)
01:25 - 01:30	Water break	Players sprint back to coaches location as soon as whistle is blown
01:30 - 01:50	11.7 Open the hole (offense vs defense) 11.11 First to the QB (defense)	Or practice plays from playbook
01:50 - 02:00	Cool down	Light stretching, warm down

Coaches Notes:

WWW.FOOTBALLTUTORIALS.COM

# Summary

## Exhibit

Four kinds of behavior account for 89 percent of leadership effectiveness.

### Top kinds of leadership behavior<sup>1</sup>

1 Be supportive	11 Keep group organized and on task
2 Champion desired change	12 Make quality decisions
3 Clarify objectives, rewards, and consequences	13 Motivate and bring out best in others
4 Communicate prolifically and enthusiastically	14 Offer a critical perspective
5 Develop others	15 Operate with strong results orientation
6 Develop and share a collective mission	16 Recover positively from failures
7 Differentiate among followers	17 Remain composed and confident in uncertainty
8 Facilitate group collaboration	18 Role model organizational values
9 Foster mutual respect	19 Seek different perspectives
10 Give praise	20 Solve problems effectively

<sup>1</sup>Based on a survey of 81 organizations that are diverse in geography (eg, Asia, Europe, Latin America, and North America), industry (eg, agriculture, consulting, energy, government, insurance, mining, and real estate), and size (from ~7,500 to 300,000 employees).

Source: McKinsey's Organizational Health Index

# Summary

- Coaching & Problem Solving Expertise
  1. Benkei
  2. Baka
- 4 Types of Problem Situations
  1. Troubleshooting
  2. Gap from Standard
  3. Target State
  4. Vision / Innovation
- 4 Aspects of Coaching Situations
  1. Coach the Person
  2. Coach the Process
  3. Coach the Problem
  4. Coach the Plan
- Summary / Q&A