

4 Types of Problem

What problems to solve now
and what can wait

Learning Session Outline

- Background
- 4 Types of Problem Situations
 - Type 1 – Troubleshooting
 - Type 2 – Gap from Standard
 - Type 3 – Target State
 - Type 4 – Innovation
- Summary

Background - Lean / Toyota



Toyota Kamigo
Overhead



Kamigo
Entrance



Taiichi
Ohno



Precision & Machine
Intensive

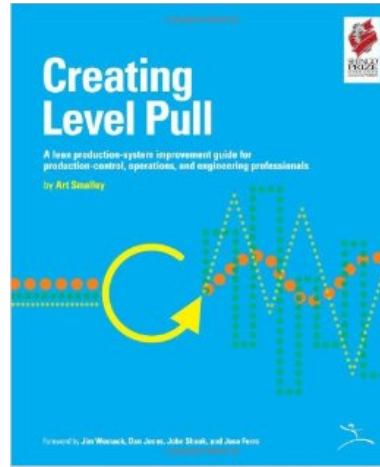
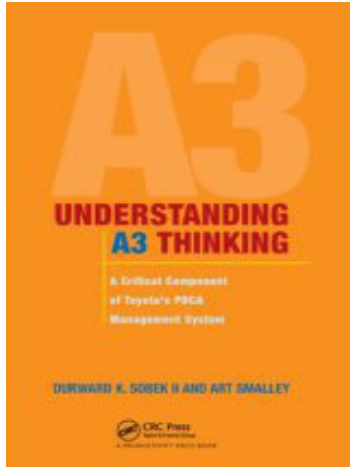


Lower Volume &
Higher Mix



High Volume &
Lower Mix

Other Background - Work



HOME | ARTICLES | DOCUMENTS | CONTACT US | SERVICES | ART SMALLEY

Art of Lean

Website for Art of Lean, Inc. Information pertaining to Lean Thinking and the Toyota Production System

Subscribe to Blog via Email

Enter your email address to subscribe to this blog and receive notifications of new posts by email.

Subscribe

Lean Leadership and Special Forces 2

I was honored to receive a request to visit United States Special Operations Command and deliver a talk on Toyota Style Shop Floor Leadership Practices at Camp Mackall outside of Fort Bragg, North Carolina. The talk was filmed and a couple of short excerpts were made available for viewing at the following Special Operations Command Website (click for link).

Search Art of Lean Site

Recent Posts

February 2026

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29						

« Oct

Archives

Archives

Select Month

Share this:

Print | Email | Facebook | Google | LinkedIn

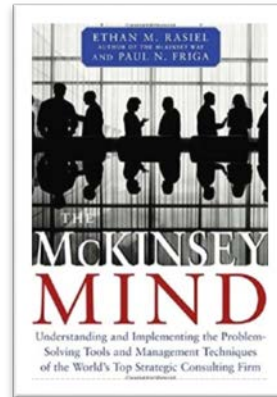
Categories

- Articles (1)
- Book Reviews (1)
- Coaching (1)
- Hoshin Kamei (1)
- Jidoka / Build in Quality (5)
- Just in Time (4)
- Kaizen (6)
- Leadership (6)
- Lean Edge Response (54)
- Management (12)
- Multi-Process Handling (1)
- PDCA (2)
- Presentation Material (5)
- Problem Solving (3)
- QC Circles (2)
- Respect for people (1)
- Set Up Reduction (1)
- Sourcing Decisions (1)
- Standardized Work (3)
- TWS History (3)
- TWS Job Instruction (6)
- TWS Job Methods (3)
- TWS Job Relations (5)

www.artoflean.com



Other Background - Stuff



TPS Development Timeline

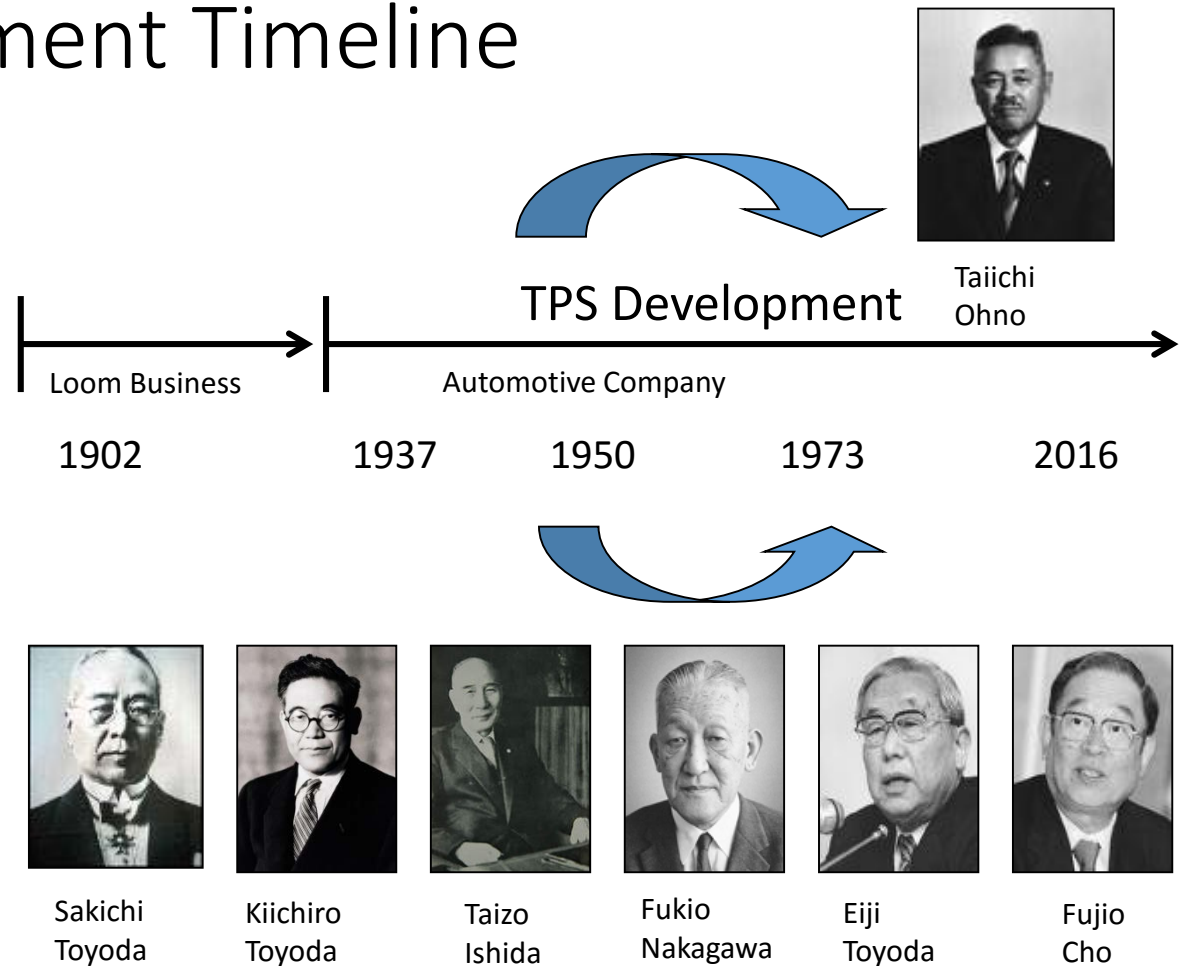
Western Influences:

Mass Production & moving conveyor lines

Scientific Principles Of Management

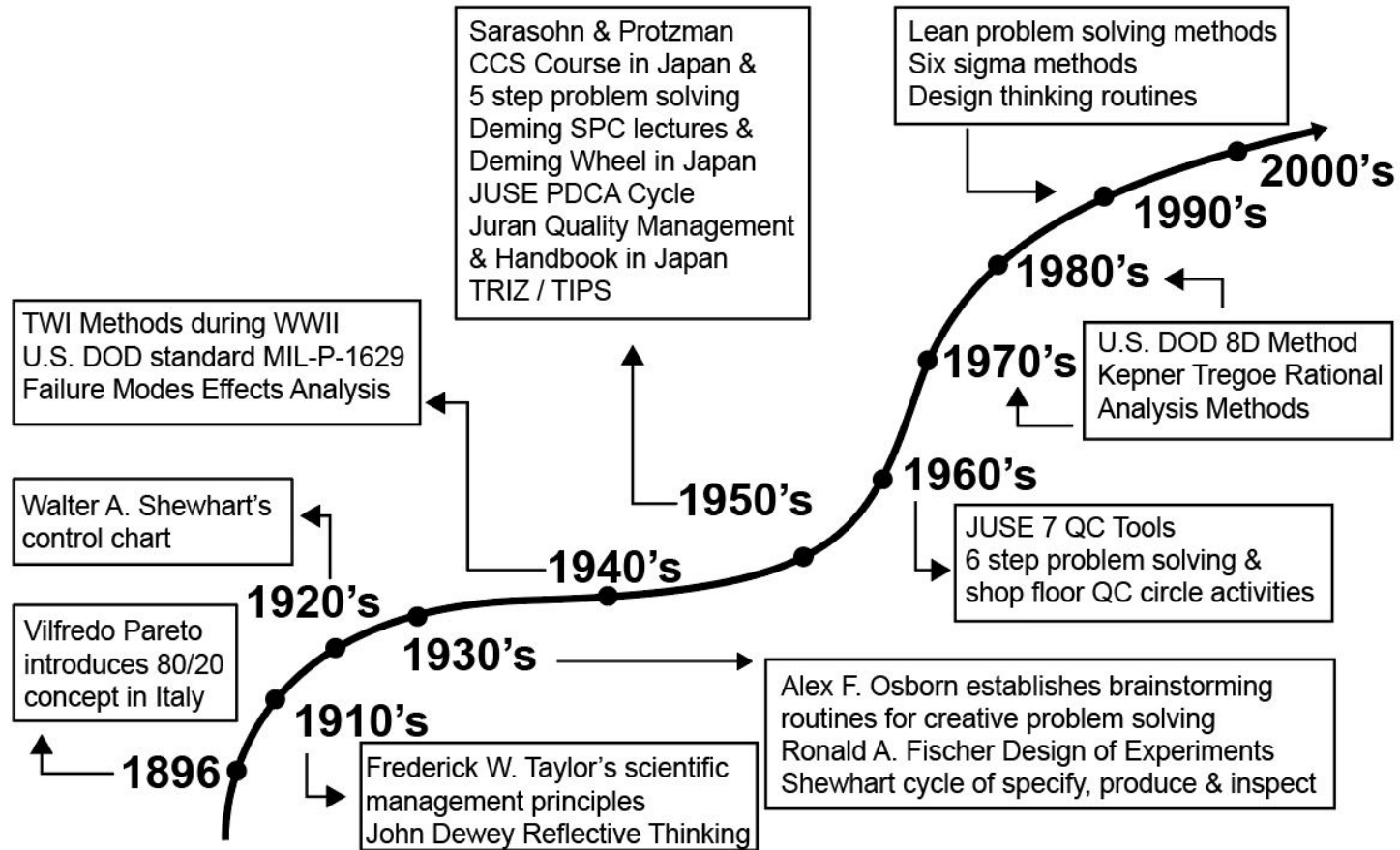
Standardization Of Parts

Many Others....



Various parties and key individuals involved over a long period of time

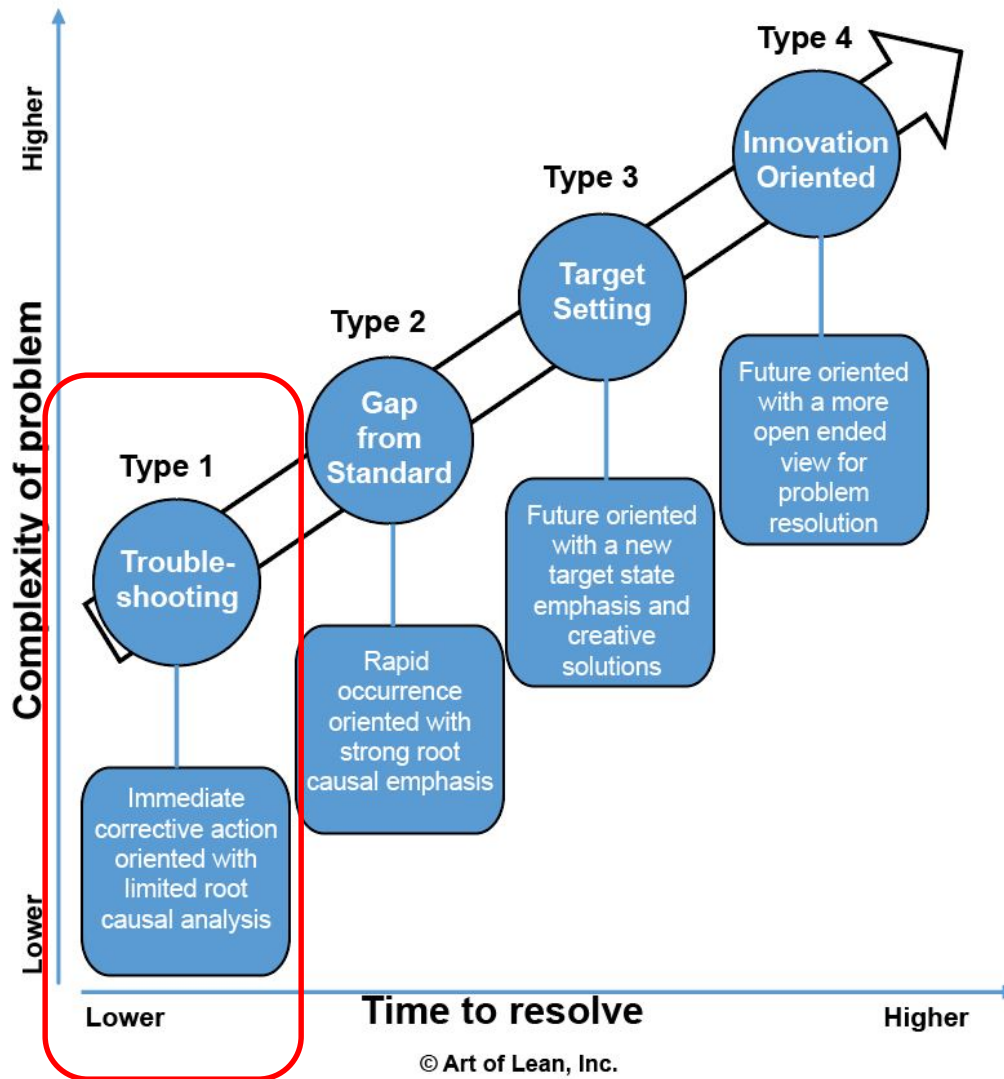
20th Century & Problem Solving



General Inputs:
Scientific Method &
Critical Thinking Routines



4 Types of Problem Situations



4 Types & Benkei Analogy

Benkei



7 QC Tools

1. Data Collection / Check sheets

2. Cause-and-effect diagram

3. Flow charts

4. Histogram

5. Pareto chart

6. Control chart

7. Scatter diagram

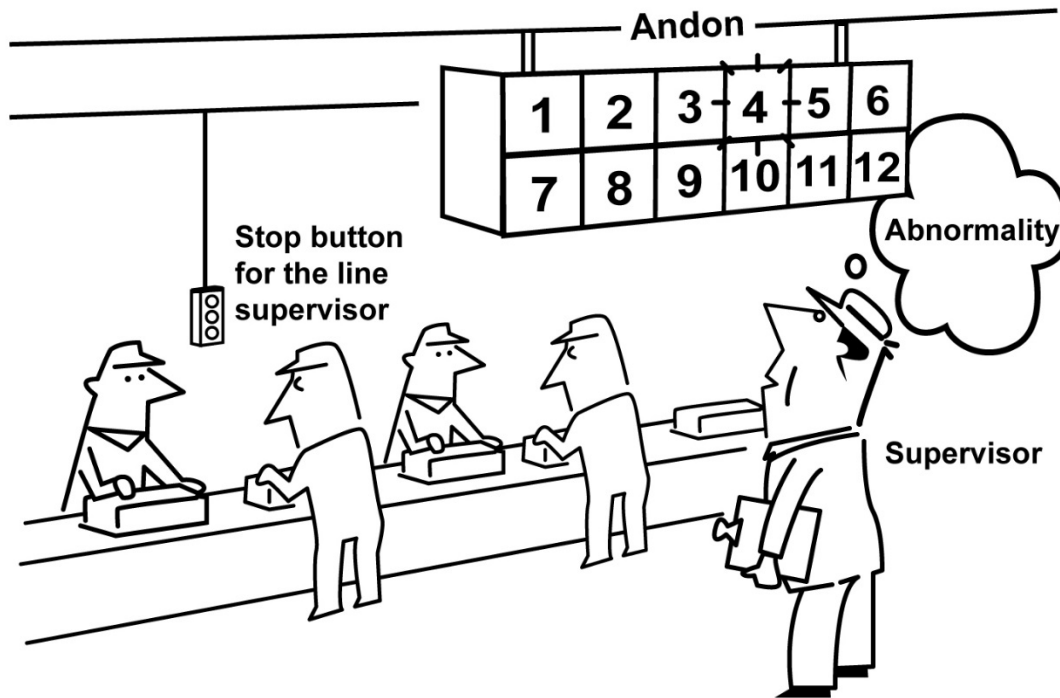
Kaoru Ishikawa



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.

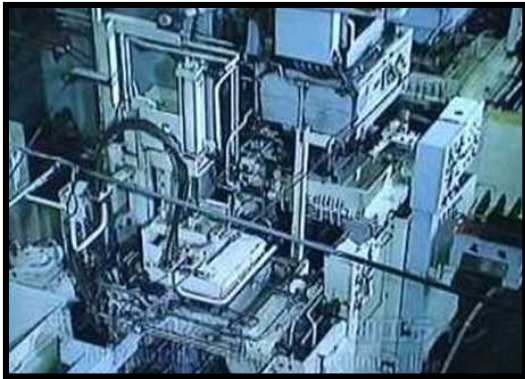
Professor Emeritus
University of Tokyo

Type 1 – Troubleshooting



**Condition based trigger
Either human or machine**

Andon Response Example



1. Automated process cycling normally



2. Mechanical probe detects broken cutting tool and stops the machine



3. Probe signals an “andon” board for visual display



4. The operator **immediately takes corrective action** and confirms good products to the following process

Type 1 – Troubleshooting

Production Analysis Board

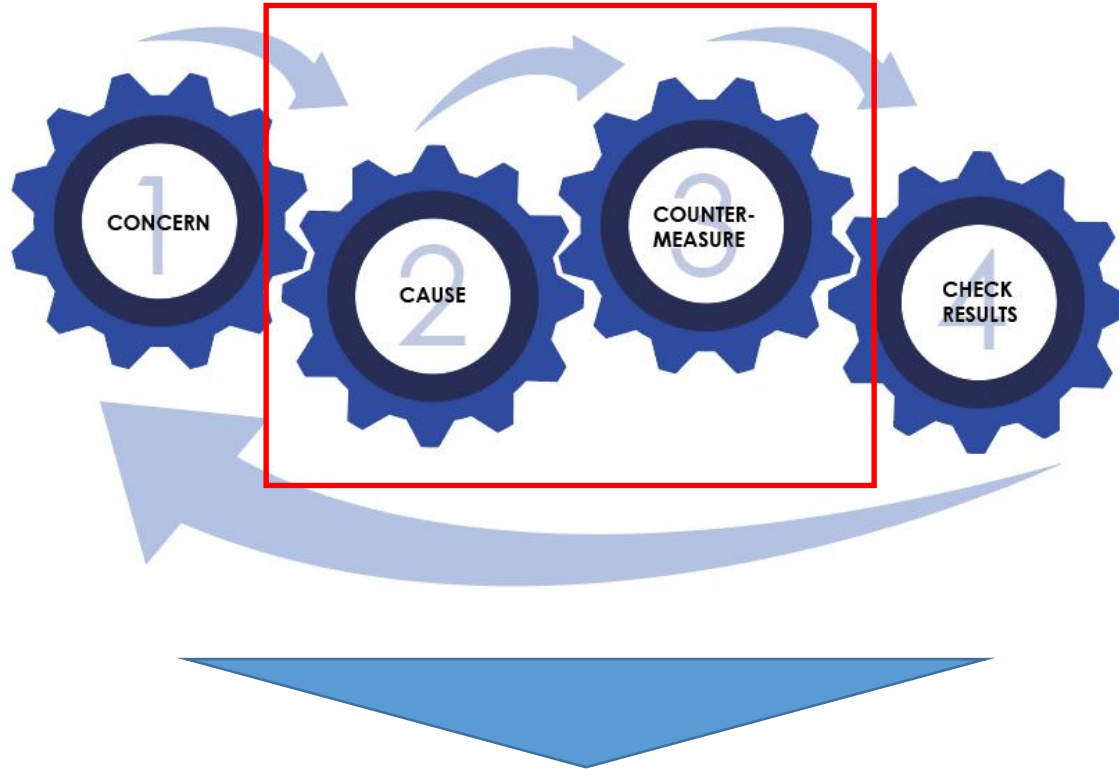
Line/Cell Name:		Team Leader:		Date:	
Quantity Required:		Takt Time:		Shift:	
				Num of Operator:	
Time	Hourly	Cumulative	Problem/Causes	Sign-off	
	Plan / Actual	Plan / Actual			
: ~ :	/	/			
: ~ :	/	/			
: ~ :	/	/			
: ~ :	/	/			
: ~ :	/	/			
: ~ :	/	/			
: ~ :	/	/			
: ~ :	/	/			
: ~ :	/	/			
: ~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

Rapid Problem Solving

- Concern
- Cause
- Countermeasure
- Check

Time & quantity
based triggers
Reviewed hourly by
supervisor

4 C's Thinking



Minimal (if any) documentation involved. No A3's.
Mainly discussion, thinking, rapid action & follow up.

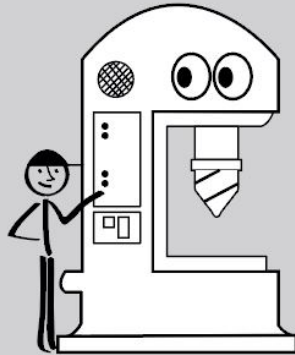
Yes - 5 Why is the Ideal

Situation: A machine tool has stopped working halting production.

- 1) “Why did the machine stop working?”
 - “Because the machine overloaded blowing the fuse in the control panel.”
- 2) “Why did the overload condition result?”
 - “Because there was insufficient lubrication to the spindle bearing.”
- 3) “Why was there insufficient spindle bearing lubrication?”
 - “Because there was insufficient lubrication drawn up by the pump.”
- 4) “Why was there insufficient lubrication draw from the pump?”
 - “Because the pump shaft was worn and rattling.”
- 5) “Why was the pump shaft worn?”
 - “Because there was no strainer on the lubrication device inlet port, and small metal cutting chips entered the system causing damage.”

Key Point is the Countermeasure!

FIRST WHY



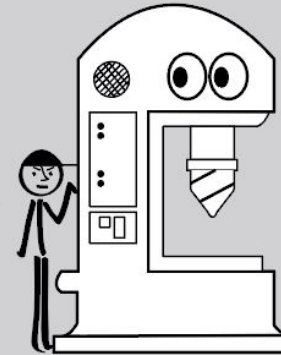
Q: **WHY** has machine stopped?
A: There was an overload and the fuse blew.

SECOND WHY



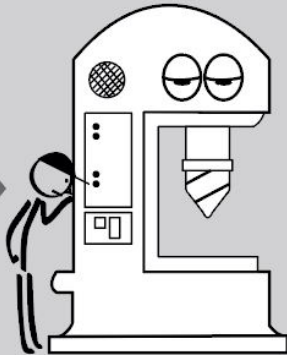
Q: **WHY** was there an overload?
A: The bearing was not sufficiently lubricated.

THIRD WHY



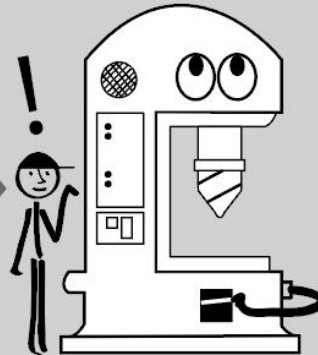
Q: **WHY** was it not lubricated?
A: The lubrication pump was not pumping sufficiently.

FOURTH WHY



Q: **WHY** was it not pumping sufficiently?
A: The shaft of the pump was worn and rattling.

FIFTH WHY

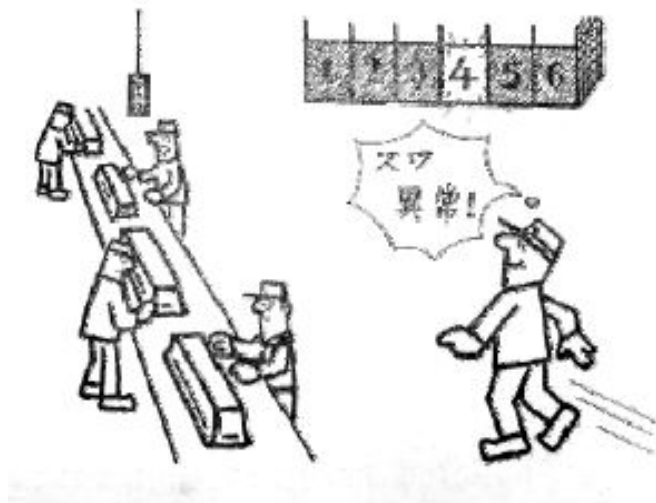


Q: **WHY** was the shaft worn out?
A: There was no strainer attached and metal scraps got in.

**RECCURENCE PREVENTION
COUNTERMEASURE:**

Add fine mesh strainer to inlet port to prevent cutting chips from entering the system.

Toyota Supervisor Image



Rapid response to problems and abnormal conditions by production

-Team Member

-Team Leader

-Group Leader

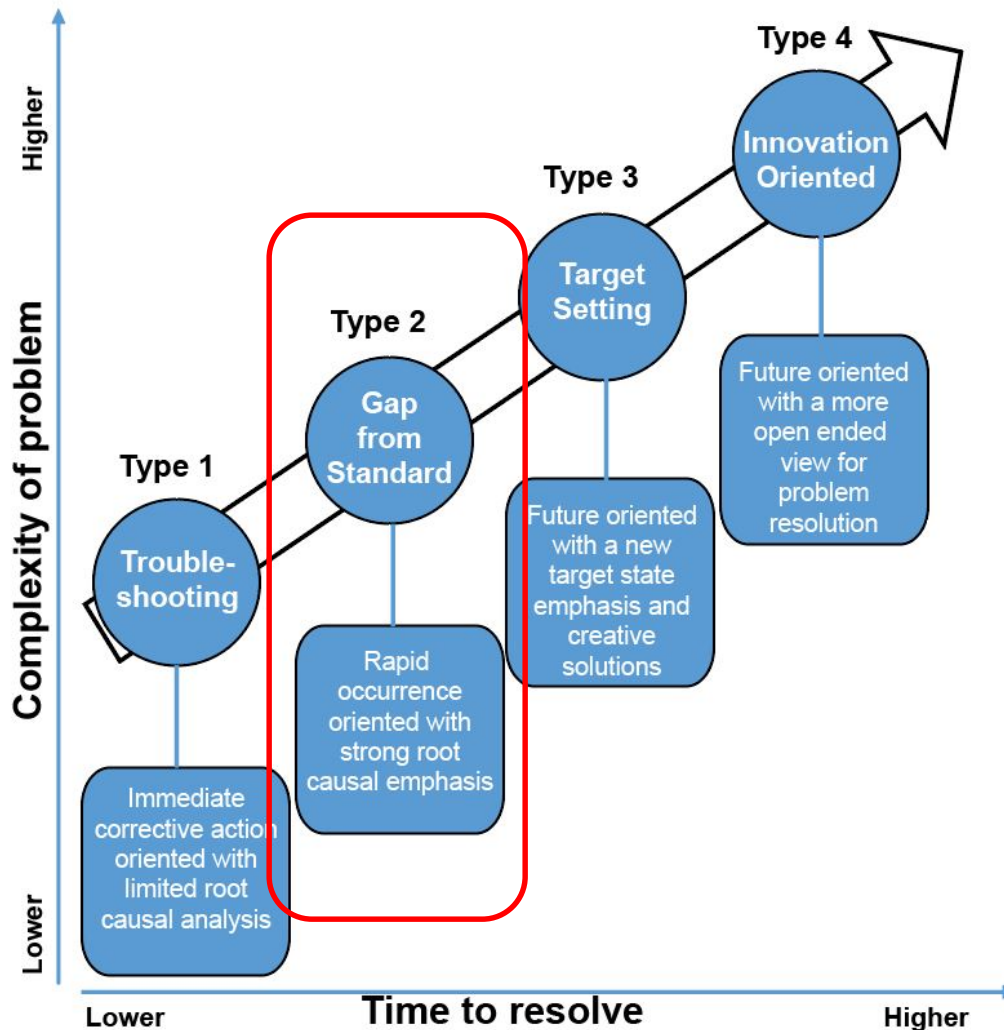
-Manager

-Plant Manager

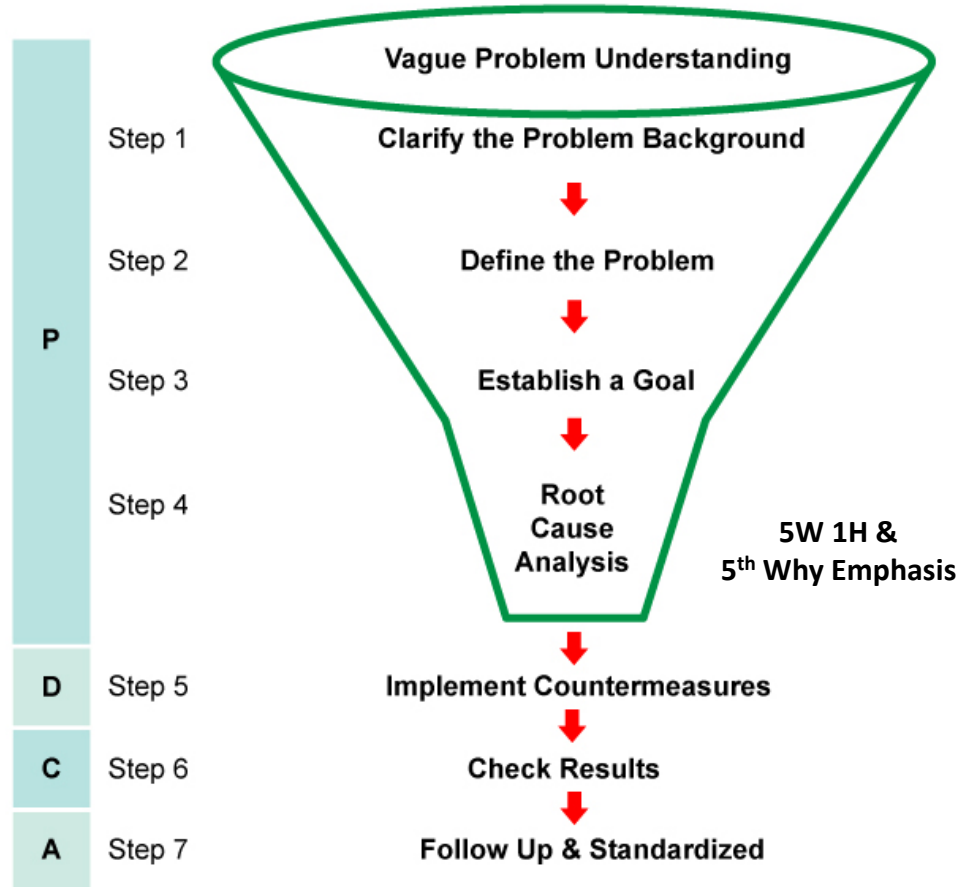
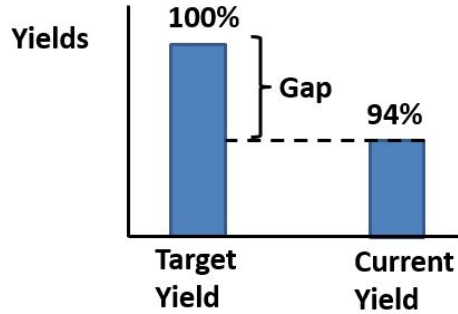
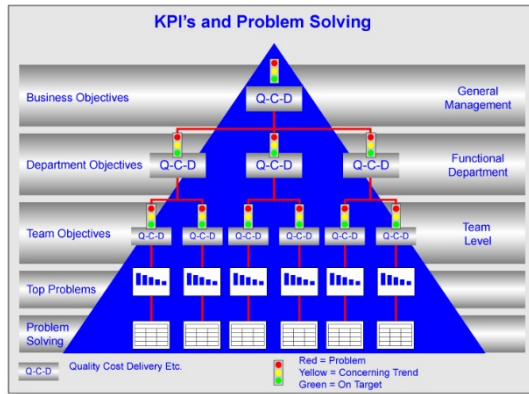
“All Mighty” Supervisor Image

1. Safety
2. Job Ability
3. Team Leadership
4. Kaizen Skills / Problem Solving
5. Technical Knowledge
6. Human Relations

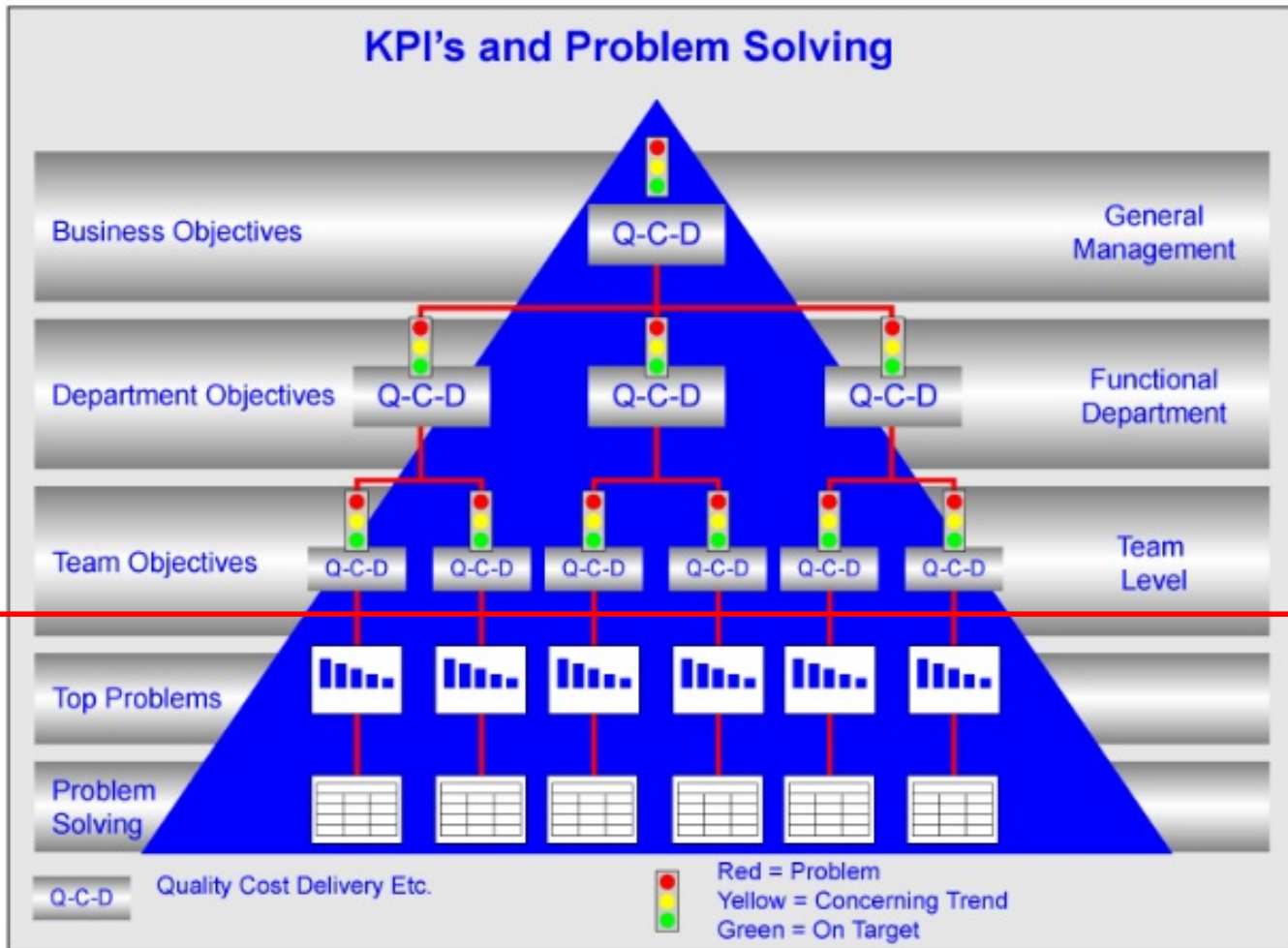
4 Types of Problem Situations



Type 2 – Gap from Standard



KPI's & Problem Solving



Daily Meeting



Start of 8 hour shift

Daily performance trend

Major problem communication

Departmental coordination

Priority alignment & clarification

Hop topics, etc.

May or may not have problem type A3's posted here

Shop Floor Management Board

	SAFETY	QUALITY	PRODUCTIVITY	ORGANIZATION																																																																																																																
PLAN	<p>TREND</p> <p>BREAKDOWN</p> <p>HIRA HCCOYD</p>	<p>ACTUAL</p> <p>STANDARD</p> <p>TOP 5</p>	<p>STANDARD</p> <p>ACTUAL</p> <p>TOP 5</p>																																																																																																																	
DO	<table border="1"> <thead> <tr> <th>Concern</th> <th>Cause</th> <th>C/M</th> <th>Check</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table> <p>AUDIT AND ACTIVITIES</p>	Concern	Cause	C/M	Check																									<table border="1"> <thead> <tr> <th>Concern</th> <th>Cause</th> <th>C/M</th> <th>Check</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table> <p>AUDIT AND ACTIVITIES</p>	Concern	Cause	C/M	Check																									<table border="1"> <thead> <tr> <th>Concern</th> <th>Cause</th> <th>C/M</th> <th>Check</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table> <p>AUDIT AND ACTIVITIES</p>	Concern	Cause	C/M	Check																									<table border="1"> <thead> <tr> <th>Concern</th> <th>Cause</th> <th>C/M</th> <th>Check</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table> <p>AUDIT AND ACTIVITIES</p>	Concern	Cause	C/M	Check																								
Concern	Cause	C/M	Check																																																																																																																	
Concern	Cause	C/M	Check																																																																																																																	
Concern	Cause	C/M	Check																																																																																																																	
Concern	Cause	C/M	Check																																																																																																																	
CHECK	<table border="1"> <thead> <tr> <th>ITEM</th> <th>TL CHECK</th> <th>RESULT</th> </tr> </thead> <tbody> <tr><td>1.</td><td> </td><td>○</td></tr> <tr><td>2.</td><td> </td><td>×</td></tr> <tr><td>3.</td><td> </td><td>△</td></tr> <tr><td>4.</td><td> </td><td>●</td></tr> </tbody> </table>	ITEM	TL CHECK	RESULT	1.		○	2.		×	3.		△	4.		●	<table border="1"> <thead> <tr> <th>ITEM</th> <th>TL CHECK</th> <th>RESULT</th> </tr> </thead> <tbody> <tr><td>1.</td><td> </td><td>○</td></tr> <tr><td>2.</td><td> </td><td>×</td></tr> <tr><td>3.</td><td> </td><td>△</td></tr> <tr><td>4.</td><td> </td><td>●</td></tr> </tbody> </table>	ITEM	TL CHECK	RESULT	1.		○	2.		×	3.		△	4.		●	<table border="1"> <thead> <tr> <th>ITEM</th> <th>TL CHECK</th> <th>RESULT</th> </tr> </thead> <tbody> <tr><td>1.</td><td> </td><td>○</td></tr> <tr><td>2.</td><td> </td><td>×</td></tr> <tr><td>3.</td><td> </td><td>△</td></tr> <tr><td>4.</td><td> </td><td>●</td></tr> </tbody> </table>	ITEM	TL CHECK	RESULT	1.		○	2.		×	3.		△	4.		●	<table border="1"> <thead> <tr> <th>ITEM</th> <th>TL CHECK</th> <th>RESULT</th> </tr> </thead> <tbody> <tr><td>1.</td><td> </td><td>○</td></tr> <tr><td>2.</td><td> </td><td>×</td></tr> <tr><td>3.</td><td> </td><td>△</td></tr> <tr><td>4.</td><td> </td><td>●</td></tr> </tbody> </table>	ITEM	TL CHECK	RESULT	1.		○	2.		×	3.		△	4.		●																																																				
ITEM	TL CHECK	RESULT																																																																																																																		
1.		○																																																																																																																		
2.		×																																																																																																																		
3.		△																																																																																																																		
4.		●																																																																																																																		
ITEM	TL CHECK	RESULT																																																																																																																		
1.		○																																																																																																																		
2.		×																																																																																																																		
3.		△																																																																																																																		
4.		●																																																																																																																		
ITEM	TL CHECK	RESULT																																																																																																																		
1.		○																																																																																																																		
2.		×																																																																																																																		
3.		△																																																																																																																		
4.		●																																																																																																																		
ITEM	TL CHECK	RESULT																																																																																																																		
1.		○																																																																																																																		
2.		×																																																																																																																		
3.		△																																																																																																																		
4.		●																																																																																																																		
ACT	<table border="1"> <thead> <tr> <th>Action</th> <th>Date</th> <th>Result</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	Action	Date	Result													<table border="1"> <thead> <tr> <th>Action</th> <th>Date</th> <th>Result</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	Action	Date	Result													<table border="1"> <thead> <tr> <th>Action</th> <th>Date</th> <th>Result</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	Action	Date	Result													<table border="1"> <thead> <tr> <th>Action</th> <th>Date</th> <th>Result</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	Action	Date	Result																																																																
Action	Date	Result																																																																																																																		
Action	Date	Result																																																																																																																		
Action	Date	Result																																																																																																																		
Action	Date	Result																																																																																																																		

Problem Investigation

TPS

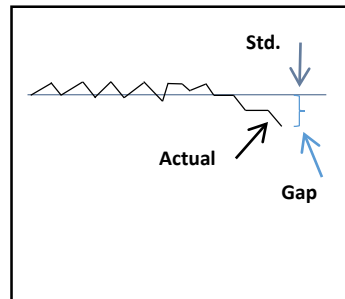
TPS



A. Immediate abnormality signal



B. Go to actual machine and see status

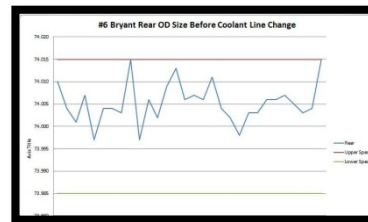
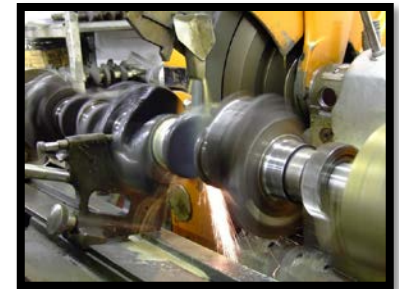


C. Ascertain actual problem situation

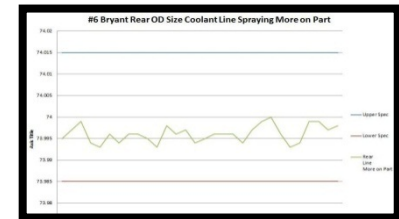
TPS

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
9. Measure spindle run out
10. Coolant check
 - Flow rate / pressure
 - Nozzle condition and direction
 - Temperature
 - Concentration



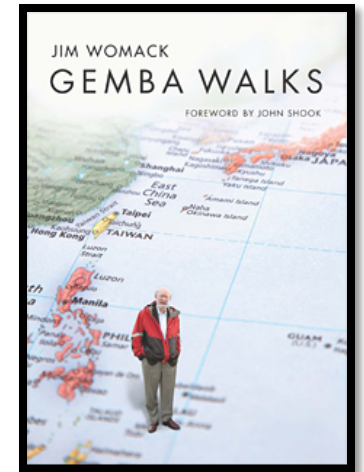
Cpk 1.15



Cpk 2.33

Dig Deeper! 8G's

- Genba 現場 Actual Place
- Genjyou 現状 Actual Condition
- Genchi 現地 Actual Location
- Genbutsu 現物 Actual Object
- Genjitsu 現実 Actual Facts
- Genji 現時 Actual Time
- Genpo 現法 Actual Method
- Genin 現因 Actual Cause

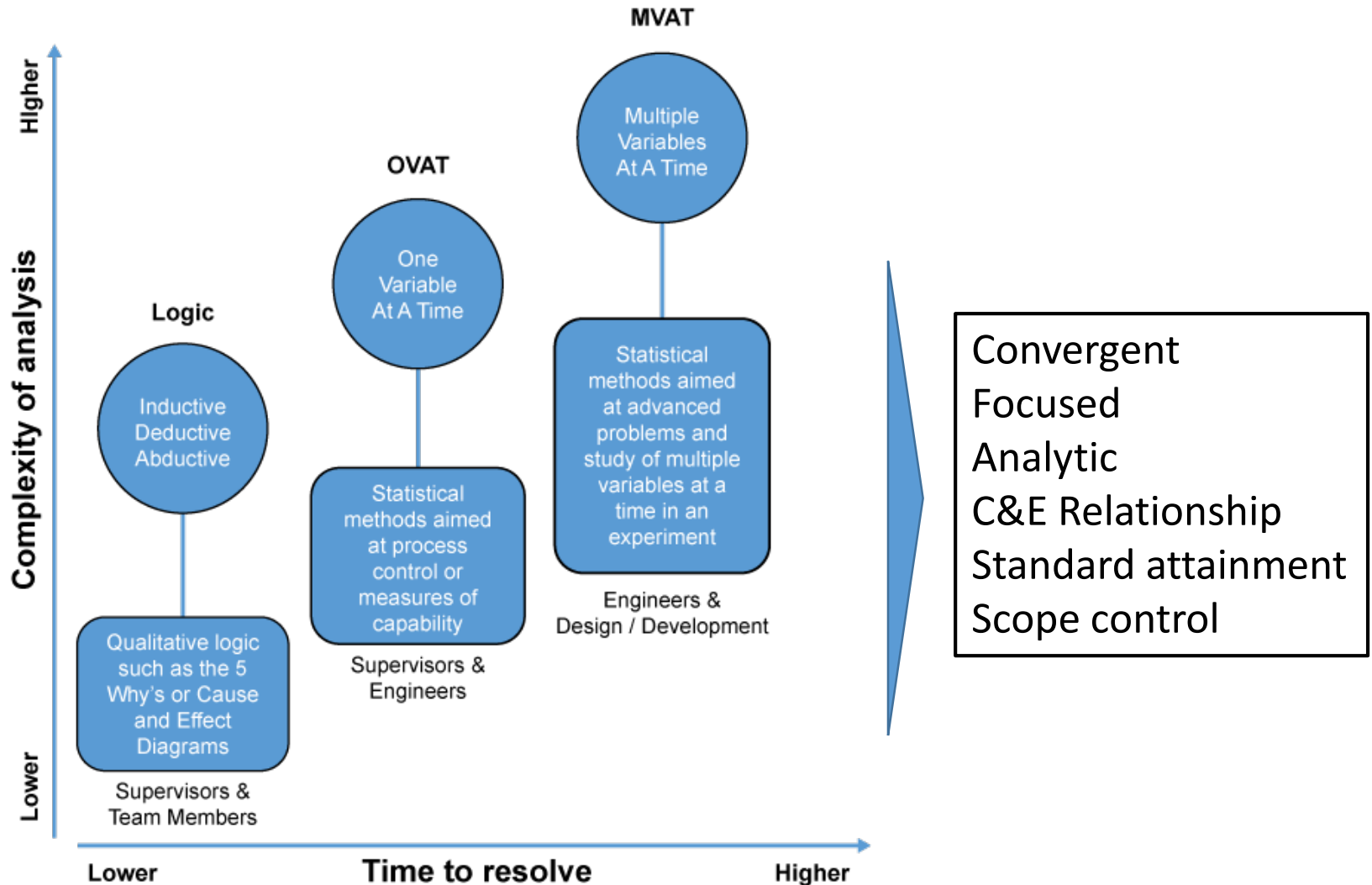


現地現物
Genchi Genbutsu - "Go and See"

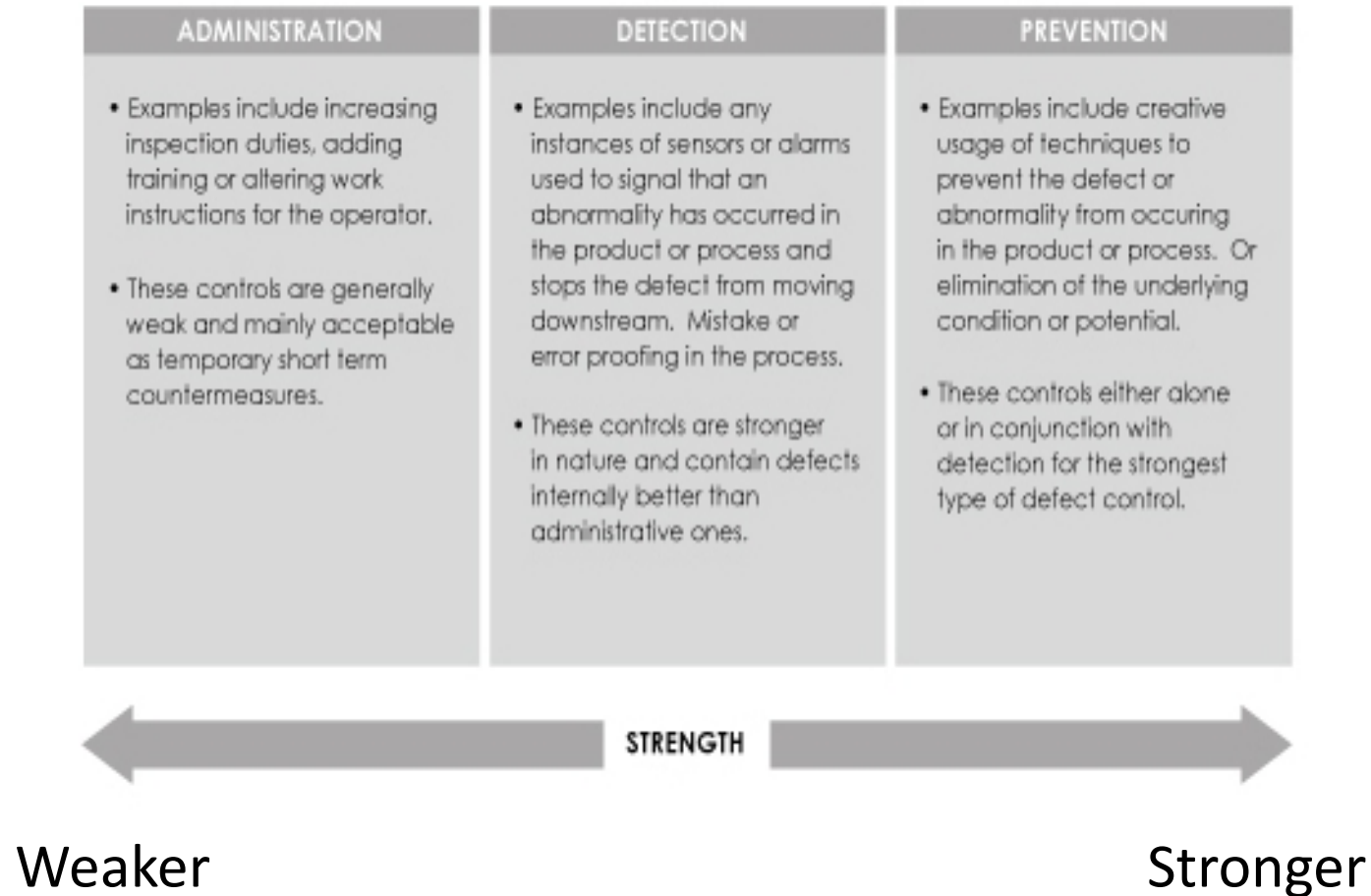
Dig Deeper! Plain English

5W 1H	Level 1	Level 2	Level 3	Level 4	Level 5
Who?	Site	Department	Group	Team	Individual
When?	Day	Shift	Hour	Minute	Actual instant of occurrence
Where?	General area	Specific production line level	Specific process	Actual location in the process	Actual point of occurrence
What?	Occurrence	Symptom	Broad problem	Categorical problem	Specific problem
Why?	1 st cause	2 nd cause	3 rd cause	4 th cause	5 th cause
How / How much?	Non-conformance issue	Dimensional variation	Above standard allowed	Comparison to actual Standard	Gap from actual standard: e.g., .001 mm

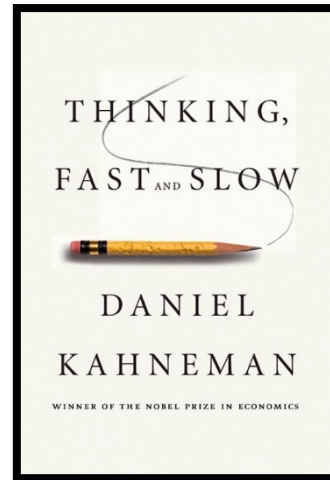
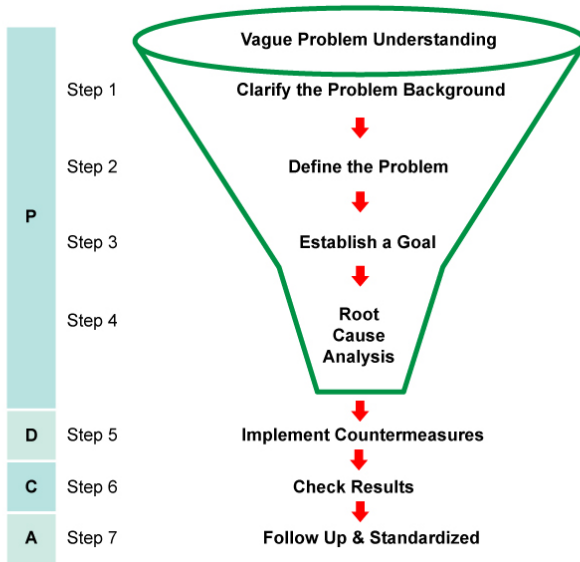
Type 2 – Analysis Types



Type 2 – Countermeasure Types



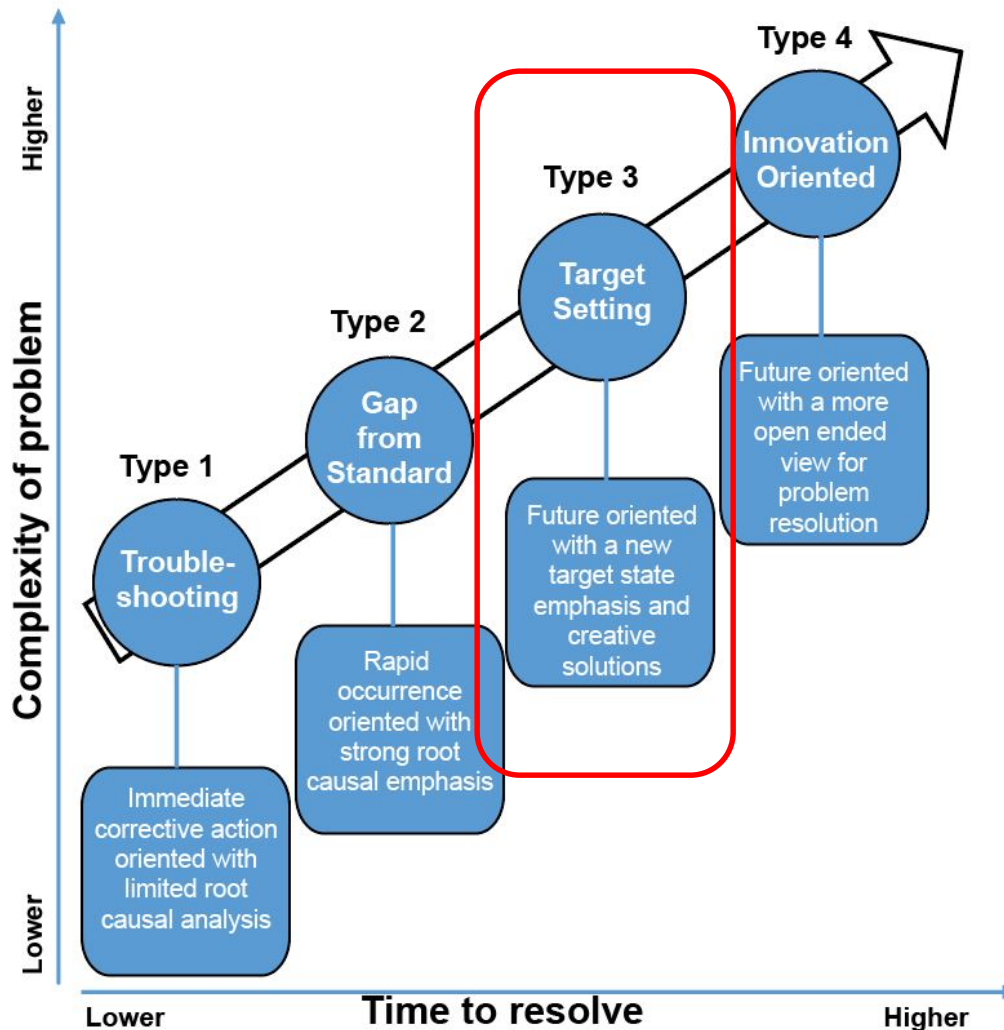
Type 2 Summary



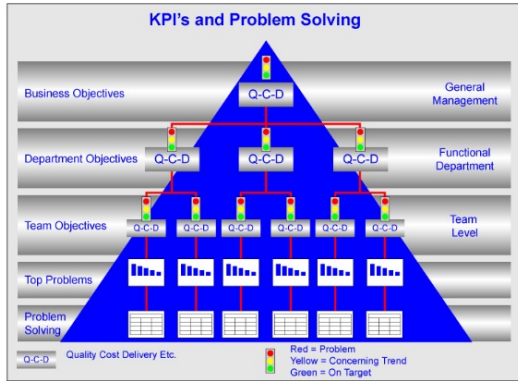
Type 1 Troubleshooting is about rapid action and response to the abnormal condition...an analogy is thinking fast.

Type 2 Gap from standard problem solving is about being more deliberate and slowing down to consider what is the **real problem** or **root cause**...an analogy is thinking slow.

4 Types of Problem Situations



Type 3 – Target State



Acceptable (Current State) Situation

(Future) Ideal Situation

GAP

Normal Status

Current Situation

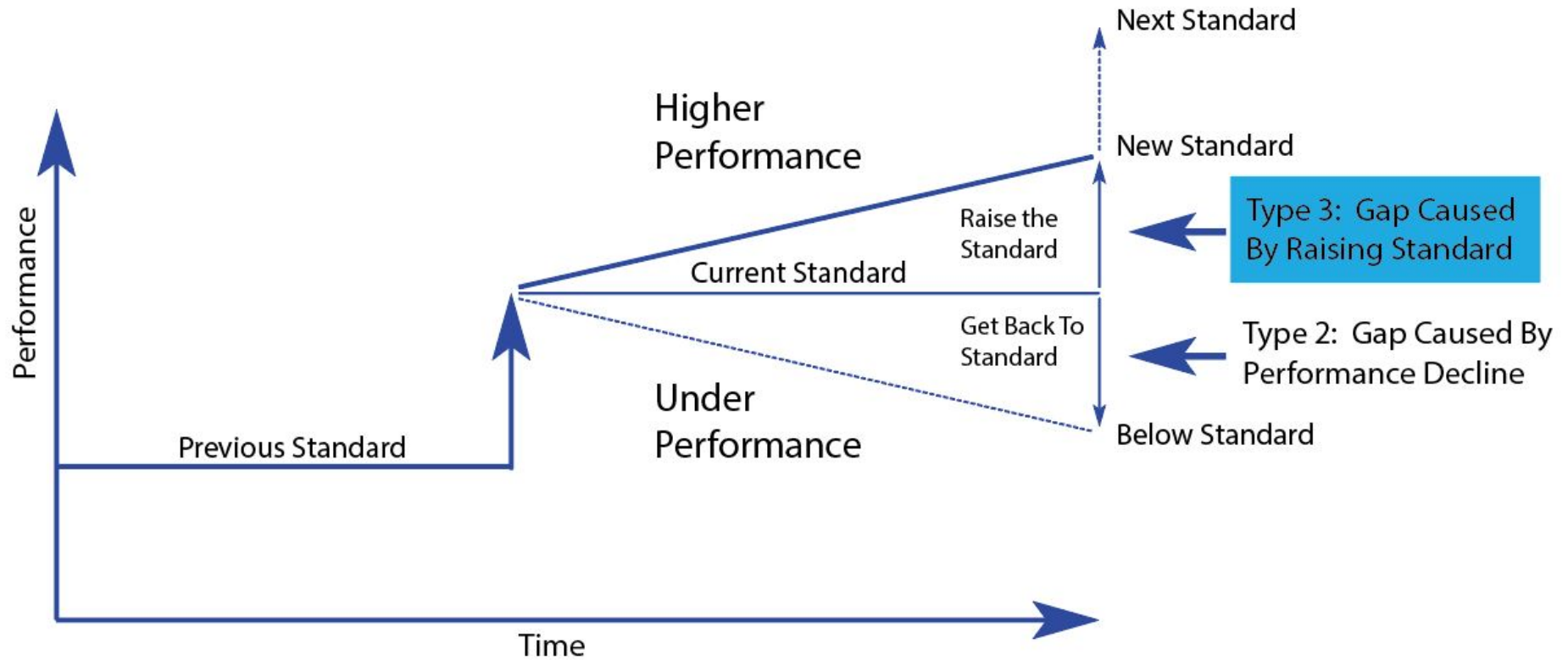
Type 2 - "Gap from Standard"

Kaizen Methods
改善方法

Type 3 - "Target State"

問題解決
Problem Solving

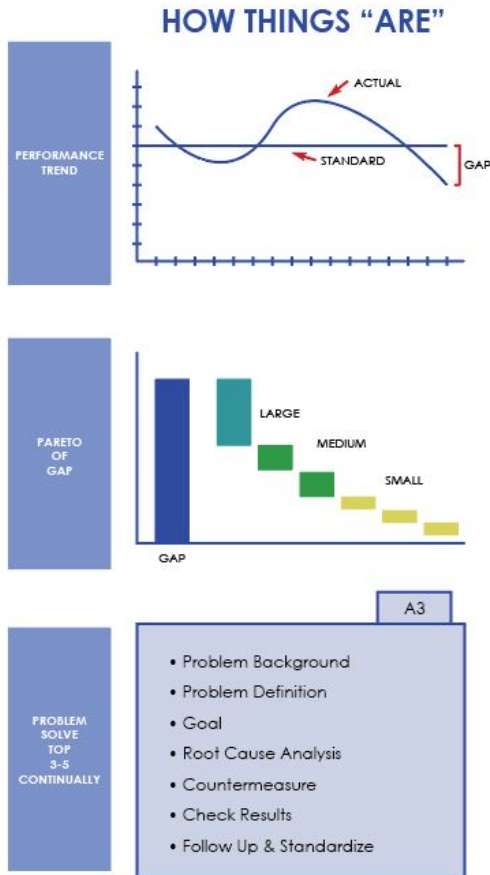
Type 3 – Raise the Bar



Target State Concept (Time Frame)

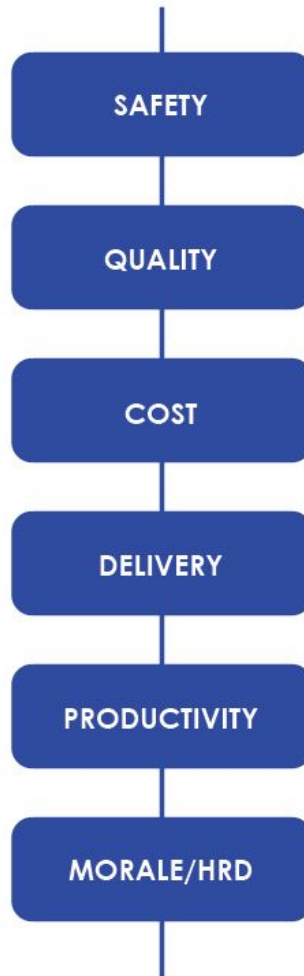
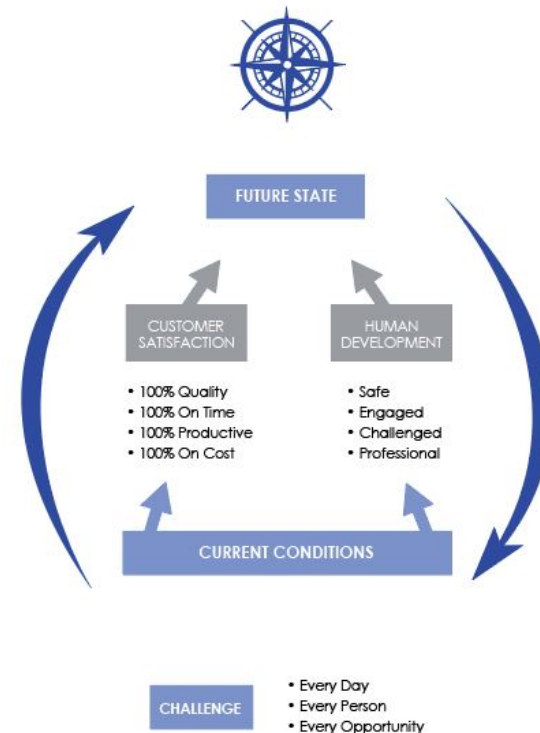
KEY PERFORMANCE INDICATORS

Type 2 Problems & Gap From Standard



Type 3 Problems & Target State Setting

HOW THINGS "SHOULD BE"



Two Types of Thinking

TWO KINDS OF THINKING

Critical Thinking

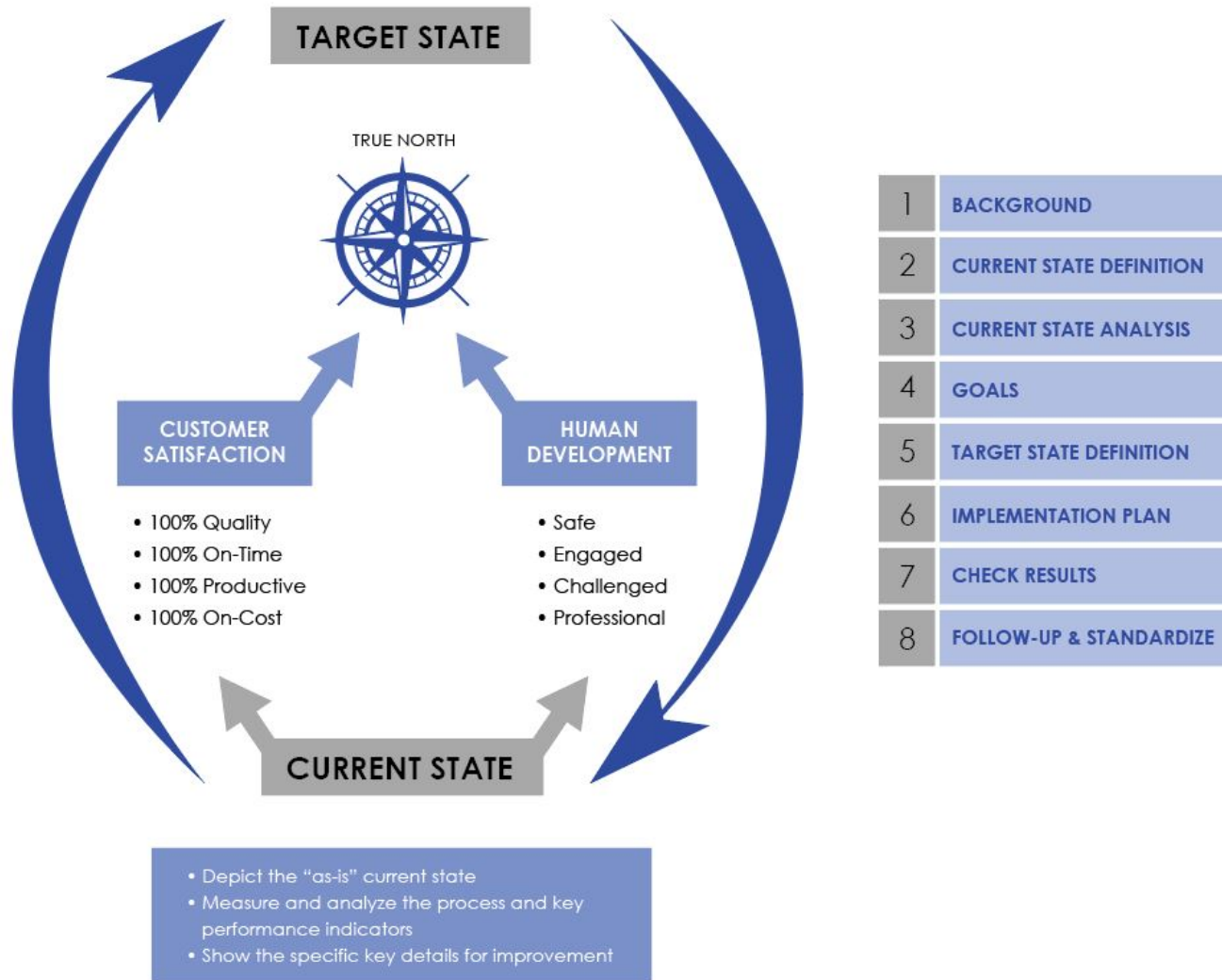
- analytic
- convergent
- vertical
- probability
- judgment
- focused
- objective
- answer
- left brain
- verbal
- linear
- reasoning
- yes but



creative Thinking

- generative
- divergent
- lateral
- possibility
- suspended judgment
- diffuse
- subjective
- an answer
- right brain
- visual
- associative
- richness, novelty
- yes and

Target State Improvement Steps



Process Example SMED Example



Dedicated Press
Part A



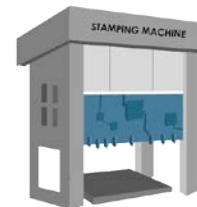
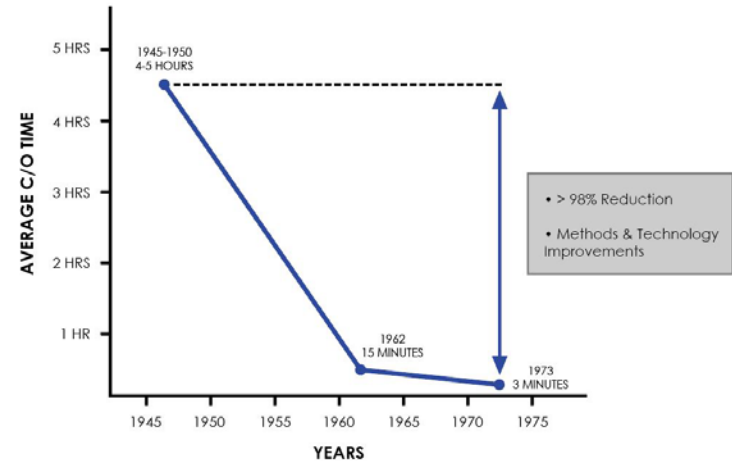
Dedicated Press
Part B



Dedicated Press
Part C

3 Dedicated Machines
No Flexibility
Each 30% Utilization
Make lots of inventory!

TOYOTA'S SET UP REDUCTION TIMELINE



Flexible Press
Parts A, B, & C

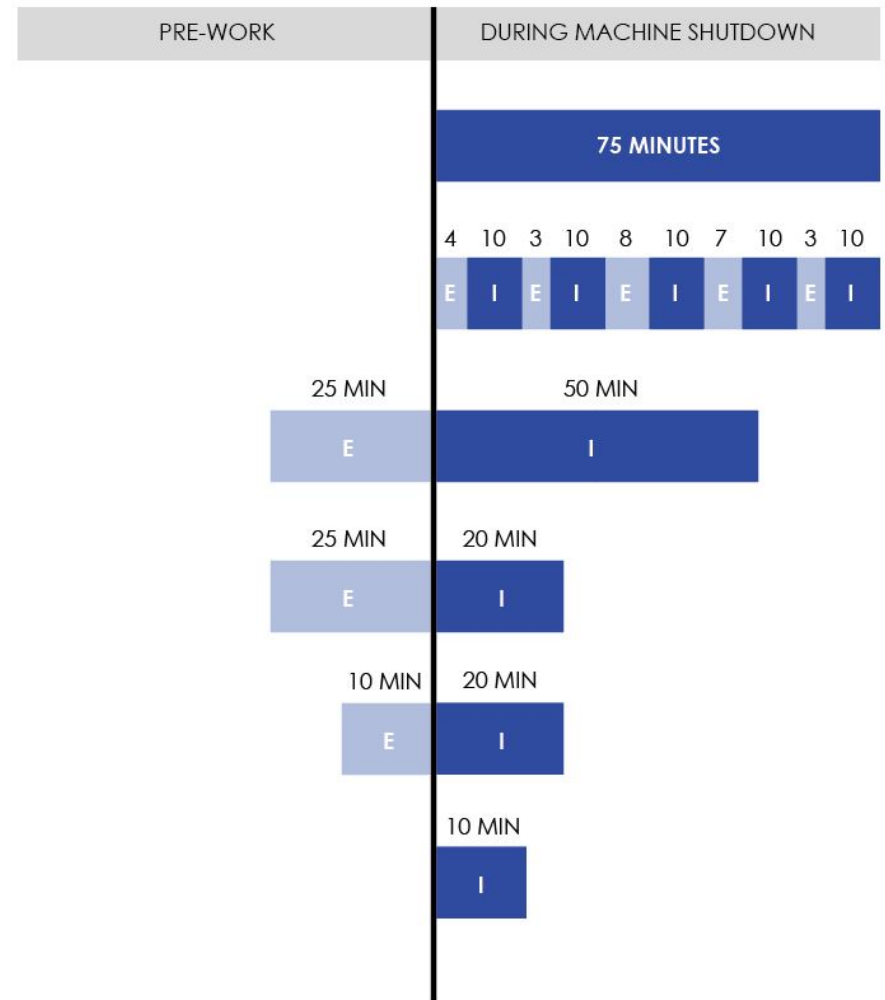
1 Machine / 3+ Tools
Change Over Flexibility
90% Utilization
Run more JIT style

Set Up Reduction

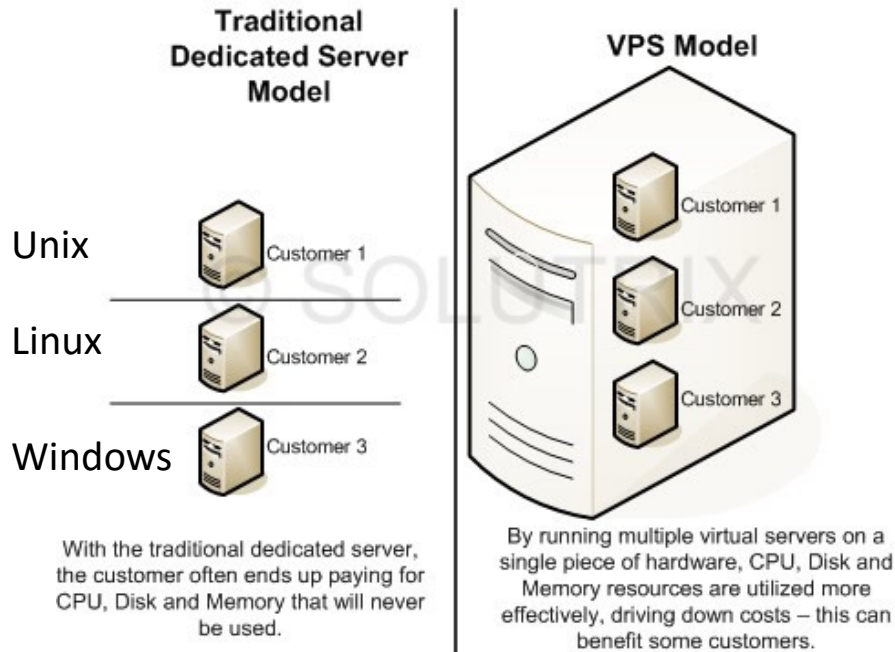
METHODS: CHANGEOVER REDUCTION STEPS

E = External • I = Internal

- 1** Measure total time required for changeover. Video tape is best.
- 2** Identify internal versus external elements and calculate individual times
- 3** Take the external elements and make sure they are done before the machine stops
- 4** Reduce and eliminate the internal elements (i.e. adjustments & fastener items in particular)
- 5** Reduce the time required for external elements
- 6** Standardize and improve the new procedure over time



Software Example



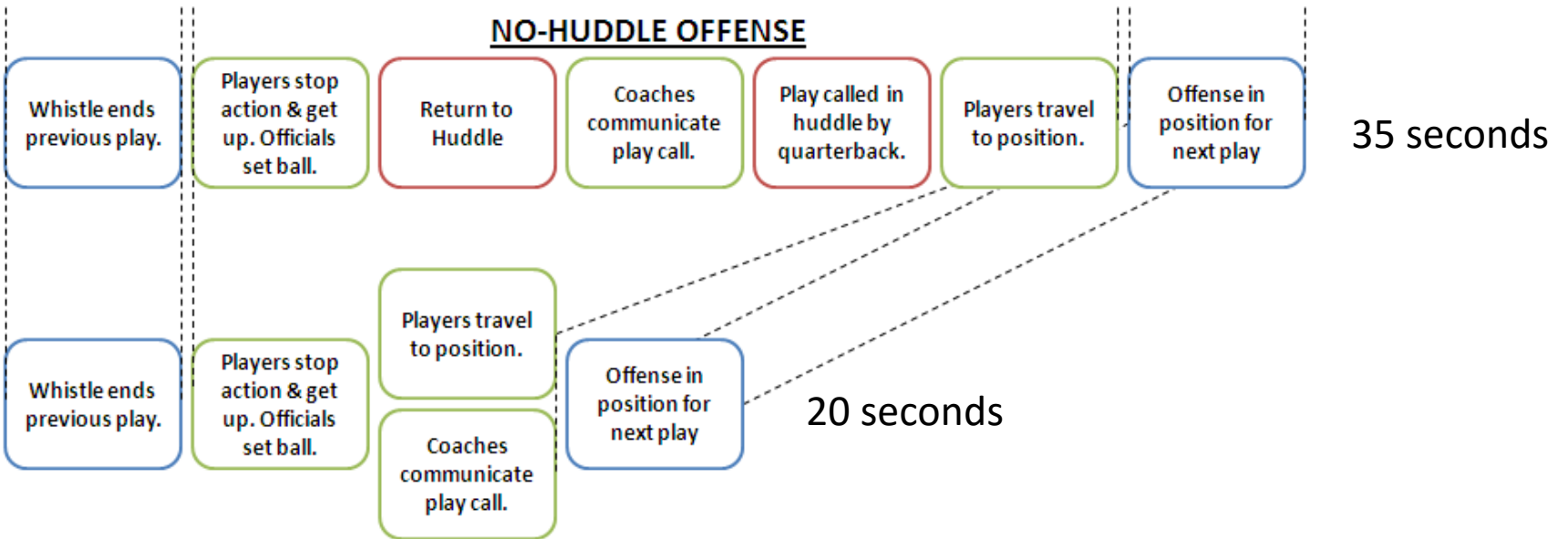
Same basic principle as SMED in die exchange...

Key here is not the time change over aspect but the software ability to act and host multiple server types...

3 Dedicated Servers
Each 30% utilized
No flexibility
Stranded resources

1 Virtual Server
Now 90% utilized
Flexibility
Less waste

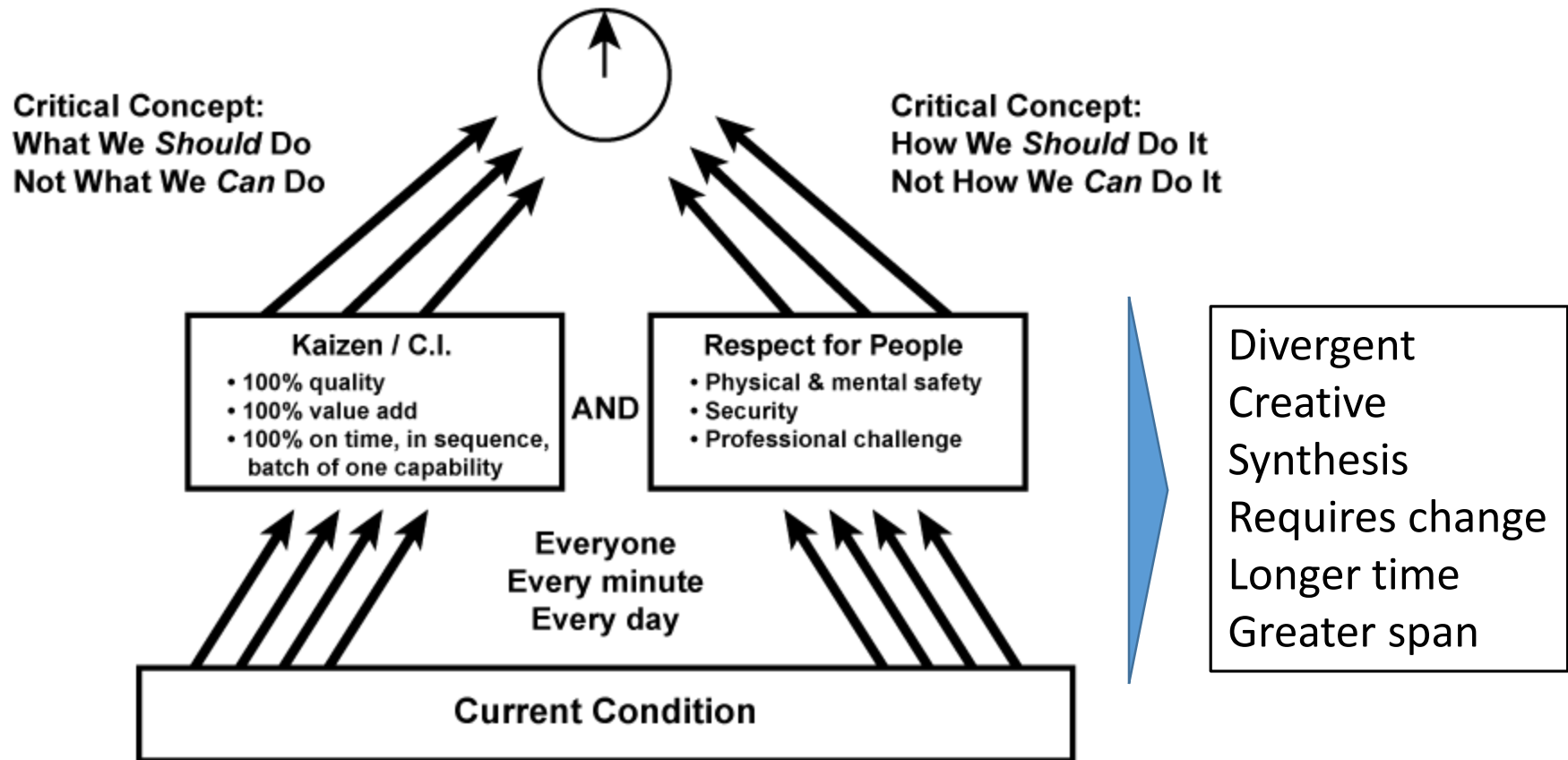
Sports Example



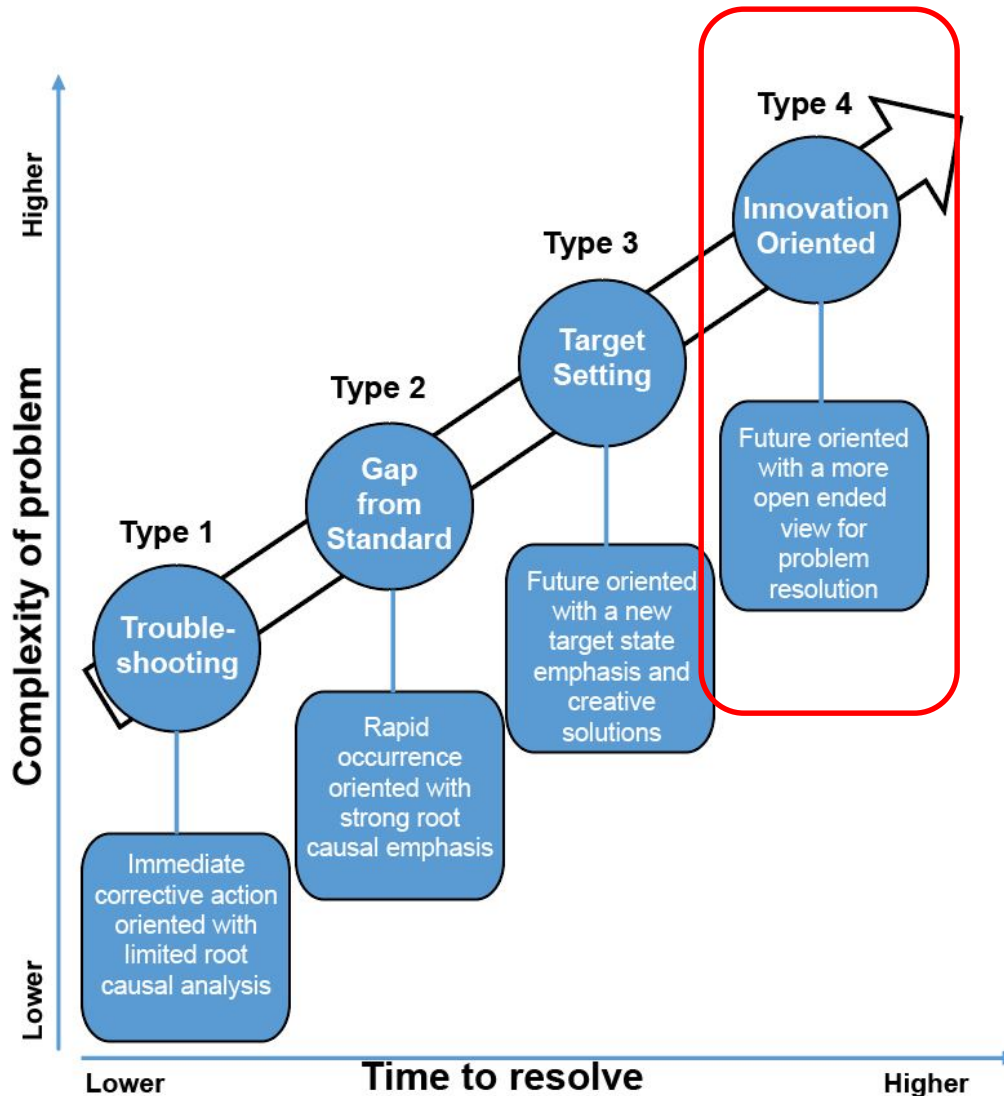
Also teams now run as many different plays as possible from one basic formation. SMED for sports.

Type 3 – Target State Summary

Arubeki Sugata / Ideal State



4 Types of Problem Situations

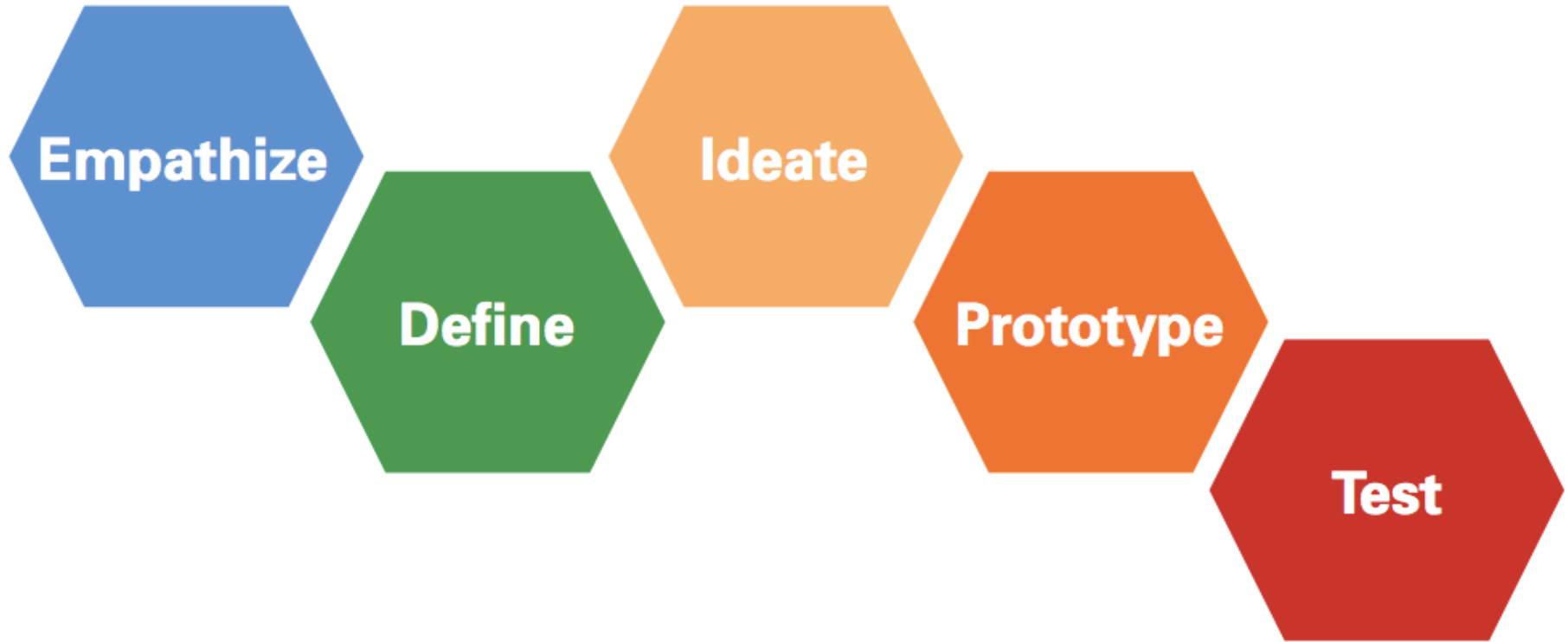


Type 4 – Vision / Innovation

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

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

Design Thinking



Three Phases of Design Thinking

**Extreme
Empathy**

**Extreme
Experimentation**

Understand

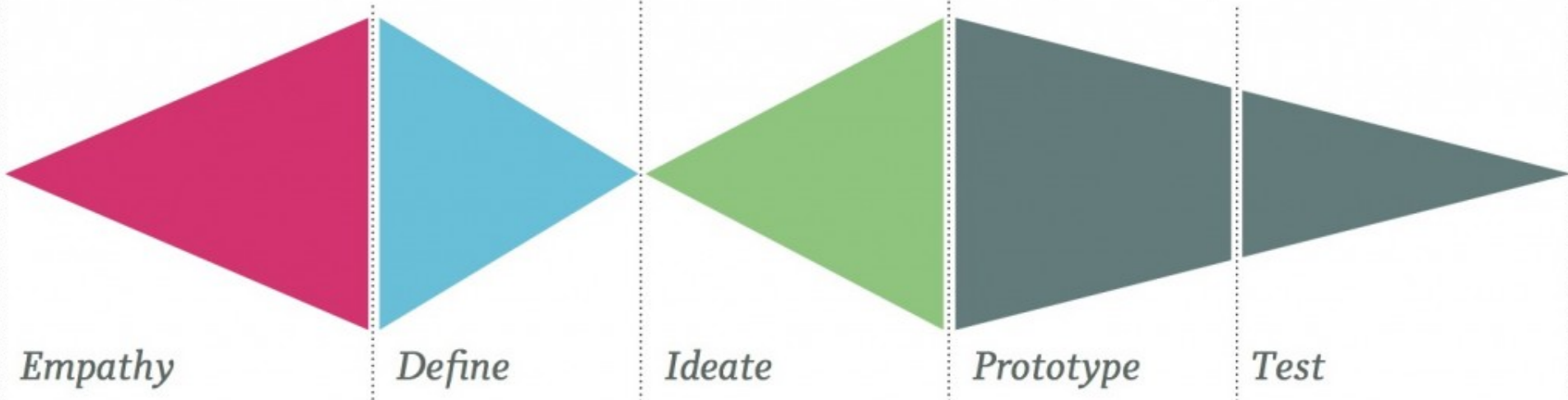
Create

Deliver

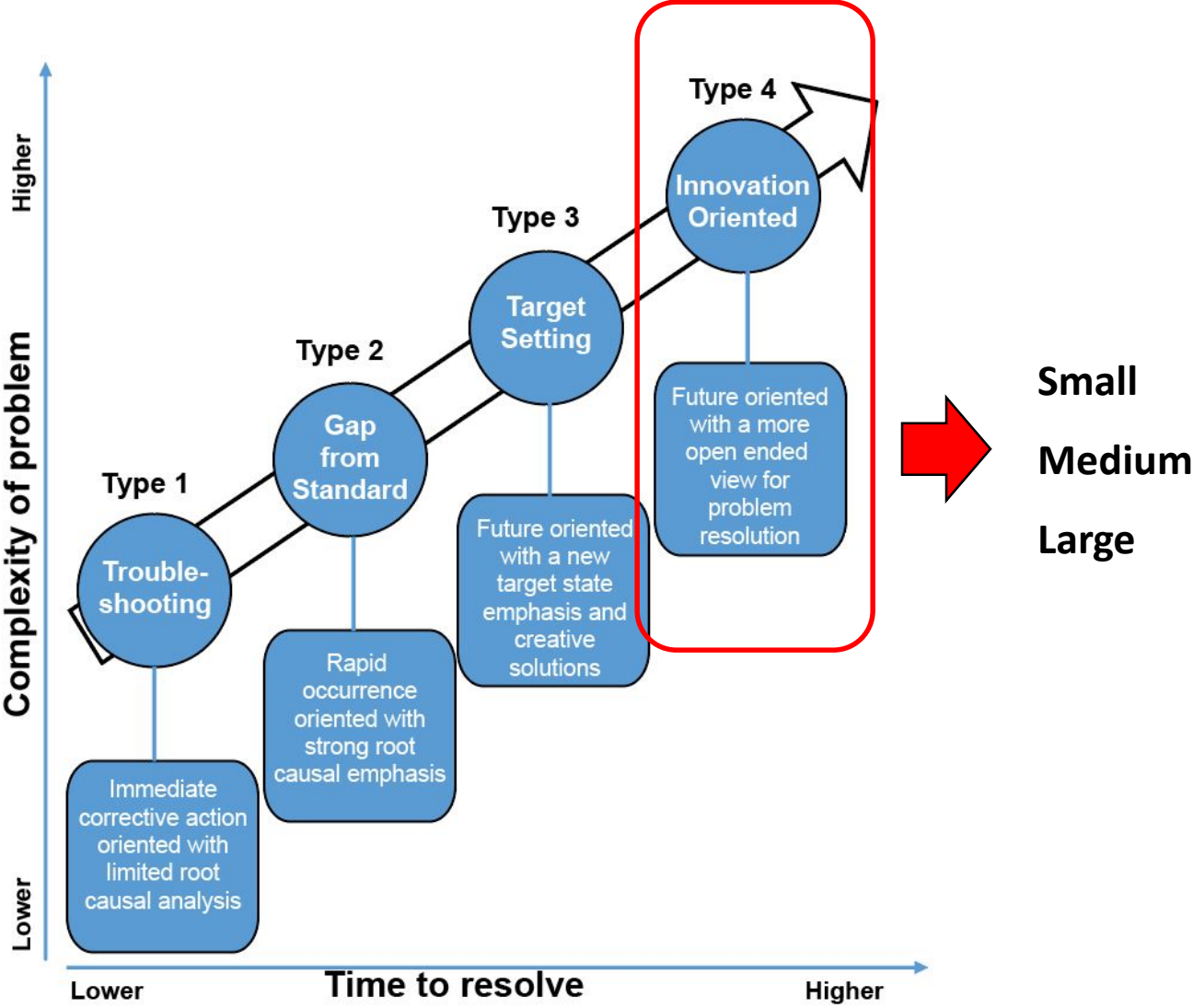
Understanding ends in **Insight**.

Creation ends in **ideas**.

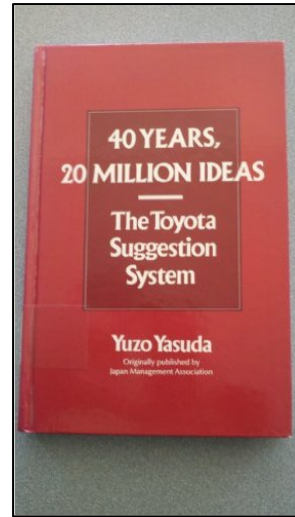
Delivery ends in **reality**.



4 Types of Problem Situations



Toyota Suggestion System 1951



The system was introduced by Managing Director Eiji Toyoda in 1951 when it became clear during the post Second World War economic recovery that Toyota's production facilities needed improvement. Toyoda took the idea of TCISS (the creative ideas suggestion system) from a Ford Motor Company plant which he had visited in July 1950.

Although the TCISS offered incentives to employees, the real value of the system was that it provided motivation to employees by focusing on their skills and creativity. The TCISS systemized the practices that had been customary since the time of Toyota Motor Corporation founder Kiichiro Toyoda: respecting opinions from production and sales and conducting spontaneous on-site inspections while simultaneously inviting suggestions for improvements.

Washer Process Innovation



Entry View

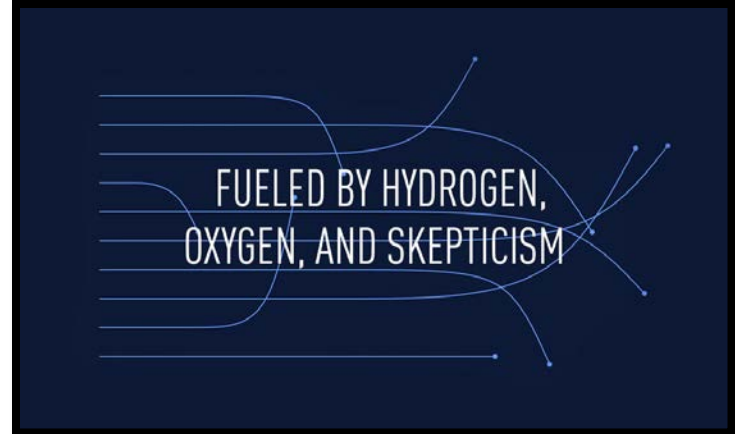


Front View

Employee Improvement Idea

- “It occurred to me that the thought of putting the cylinder head through a large box shaped industrial washer was inherently a bad idea...blasting it from the outside with dozens of high pressure nozzles only pushed some cutting chips, dirt, and contaminants father into the holes and ports, etc.”
- “It also occurred to me that just dunking the cylinder head into a series of 55 gallon sized dunk tanks via a robotic arm would work better. Plunging action into the tank with an agitator style of motion would drop the chips and contaminants out with less time, energy, cost, maintenance, and higher end quality...”

Prius, Lexus, & Mirai



5 Why Example Revisited

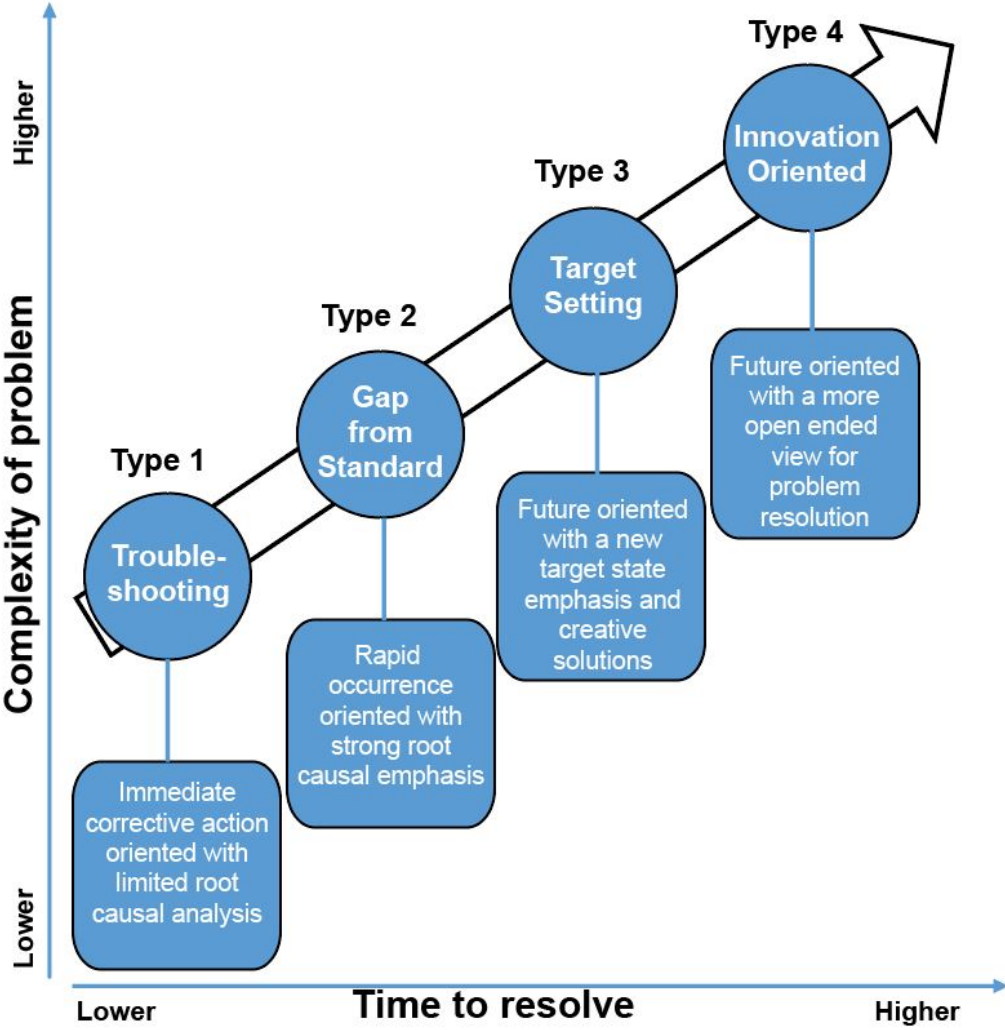
Situation: A machine tool has stopped working halting production.

- 1) “Why did the machine stop working?”
 - “Because the machine overloaded blowing the fuse in the control panel.”
- 2) “Why did the overload condition result?”
 - “Because there was insufficient lubrication to the spindle bearing.”
- 3) “Why was there insufficient spindle bearing lubrication?”
 - “Because there was insufficient lubrication drawn up by the pump.”
- 4) “Why was there insufficient lubrication draw by the pump?”
 - “Because the pump shaft was worn and rattling.”
- 5) “Why was the pump shaft worn?”
 - “Because there was no strainer on the lubrication device inlet port, and small metal cutting chips entered the system causing damage.”

5 Why Revisited

- **Type 1** - Troubleshoot cutting chips by daily cleaning and maintenance of the machine for immediate relief.
- **Type 2** – Put the strainer on the inlet port in the previous example for recurrence prevention.
- **Type 3** – Evacuate the cutting chip better by breaking the cutting chips smaller, with better coolant systems, chip breakers, and better tooling conditions. Also improve machine guards and tank covers for a more creative solution.
- **Type 4** – Tooling innovation, chip formation optimization, cutting condition innovation, washer process redesign, and upstream die casting optimization for process innovation. Material and product innovation are also possible angles.

4 Types of Problem Situations



4 Types & Benkei Analogy

Benkei



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

Baka / バカ / 馬鹿

馬鹿の一つ覚え
[ばかのひとつおぼえ,
baka no hitotsu-oboe

A fool remembers only
one thing

A fool knows only one way
of doing things

Session Summary

- Benkei vs. Baka analogy and be careful of experts who only know one way
- Each type has a different cadence and focal point
- Learning by doing is key for all four types
- Reflection after doing is key as well. However you can't just "think" your way to improvement
- Problem solving, innovation and improvement require perspiration and willingness to fail more than once

Appendix

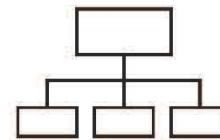
1 PURPOSE



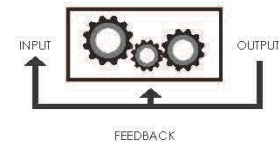
2 ENVIRONMENT



3 STRUCTURE



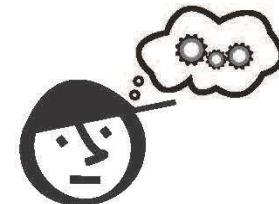
4 SYSTEMS/TOOLS



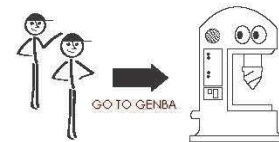
5 COMMUNICATIONS



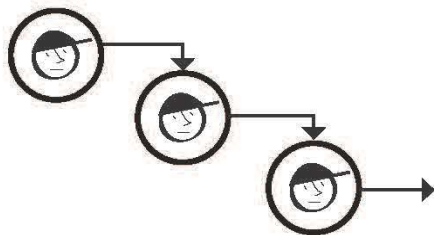
6 THINKING PATTERNS



7 BEHAVIORS & ACTIONS

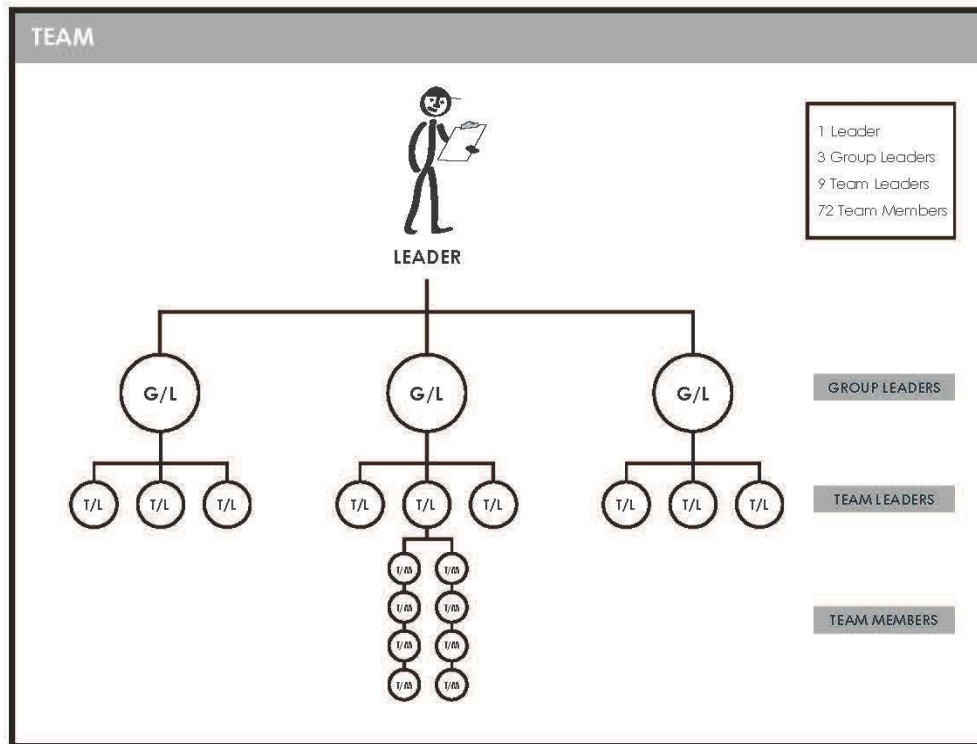


LEADERSHIP WORKS THROUGH LEVELS



LEADERS OBTAIN RESULTS THROUGH PEOPLE & PROCESSES

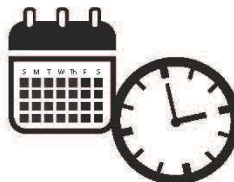
- METRICS
- ATTITUDES
- RELATIONSHIPS



10 RESOURCES & SUPPORT



9 TIME FRAME



8 PROCEDURES & STANDARDS

