Improvement Kata Fast Start

Striving and Achieving Challenges

May 2, 2014

Presented by Rick Fleming

Toyota Kata content by Mike Rother

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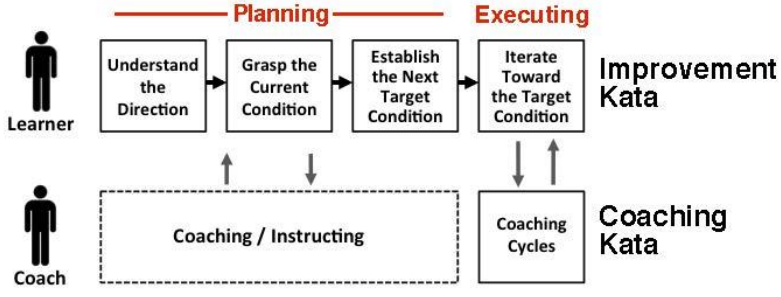
Workshop Objective

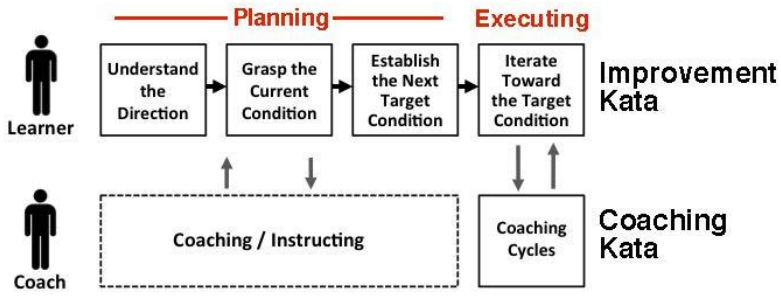
Provide a compressed 3-hour exposure to the 5 basic IK/CK Routines



REMEMBER – This is a very brief introduction to the Kata approach
The idea is to learn by doing, experimenting in a safe environment.

The Point of Today

1. To get you thinking about your improvement method
2. Compare IK/CK approach to your current way of working



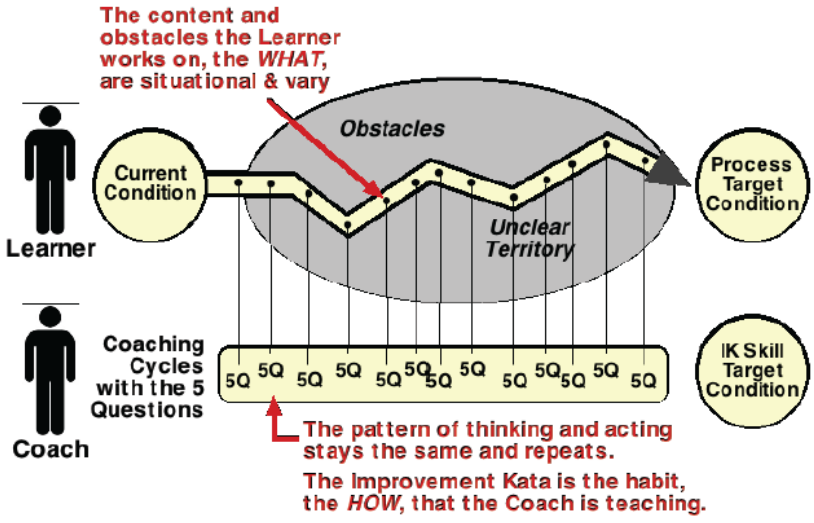
REMEMBER – This is a very brief introduction to the Kata approach
The idea is to learn by doing, experimenting in a safe environment.

FOCUSING ON HOW PEOPLE WORK

- The Improvement Kata / Coaching Kata are a repeatable management model to produce continuous improvement, adaptation & innovation.
- The Learner iterates his way forward, instead of "deciding" the way forward. It's the *action of innovation*.
- You're equiping people with a pattern and mindset that's not solution oriented but discovery oriented. By teaching the Improvement Kata & Coaching Kata patterns you build an organization that can successfully deal with challenges and uncertainty.

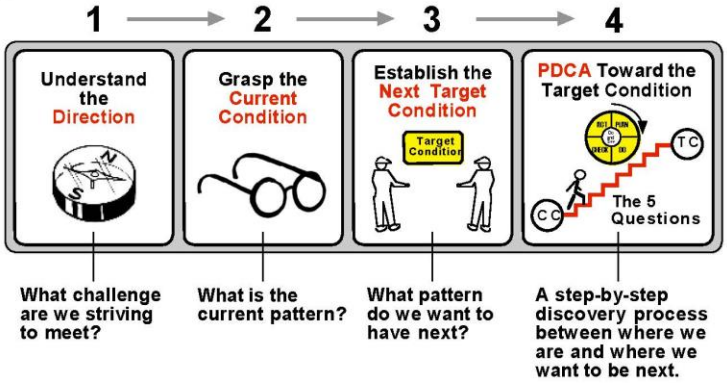
DEVELOPING A META HABIT THROUGH PRACTICE

WHAT you're working on: The focus process provides the content
HOW you're working: The Improvement Kata provides the form



KEY CONCEPT

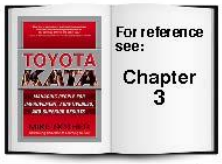
THE PATTERN OF THE IMPROVEMENT KATA



The Improvement Kata

Step 1: UNDERSTAND THE DIRECTION / CHALLENGE

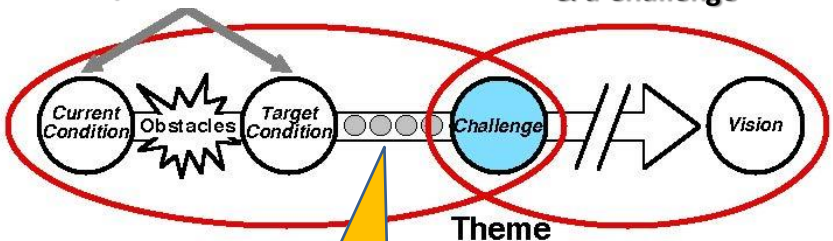
Practice this Routine



THE IMPROVEMENT KATA MUST INVOLVE LEADERSHIP AND MANAGEMENT!

A Task for *MANAGERS*
Teaching the Improvement Kata

A Task for *LEADERS*:
Establishing Direction & a Challenge



Execution

Theme

Strategy

Many T/Cs needed to achieve a Challenge

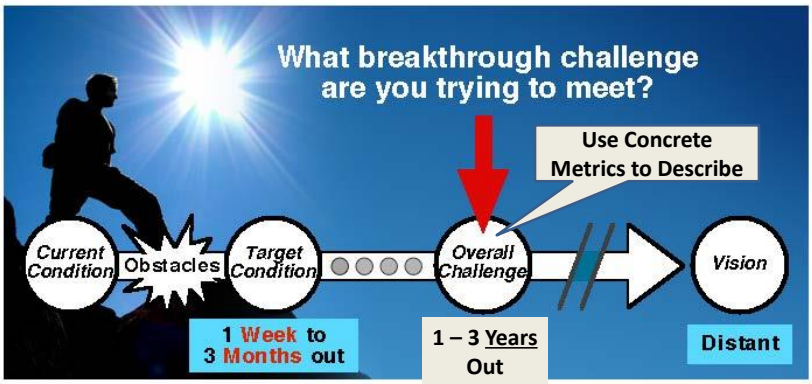
Direction & Challenge

Example Challenge *Wouldn't it be great if we could...*	Example Challenge Statement / Theme
• ...machine parts 1x1 directly in the assembly process.	*"Machine to assemble"*
• ...paint parts 1x1 directly in the assembly process.	*"Paint to assemble"*
• ...build one customer kitchen at a time and put it right on the truck.	*"Build to truck, kitchen at a time"*
• ...have lab-test results done in 45 minutes, with no errors.	*"Know in 45"*
• ...take 7 days from new patient referral to evaluation.	*"Just a week"*
• ...assemble the day ordered, and ship the next day.	*"Same day, next day"*

© *Mike Rother* / Improvement Kata Handbook Iterate Toward the Target Condition

KEY CONCEPT

THE PURPOSE OF THE IMPROVEMENT KATA IS TO HAVE A SYSTEMATIC WAY TO STRIVE FOR AND MEET CHALLENGES



Having an overall challenge is important, so individual process target conditions are connected and meaningful. It's difficult for people to get engaged by something that doesn't have a purpose.

© *Mike Rother* TK Quick Start 10

The Improvement Kata

Step 2: GRASP THE CURRENT CONDITION

The Improvement Kata Process Analysis

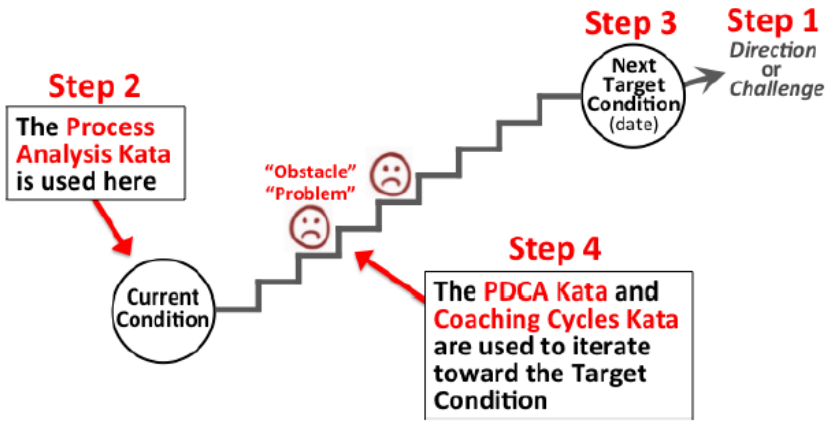
Practice this Routine

The Purpose of this Step

Grasping the current condition means immersing yourself in the focus process to analyze and understand how it currently operates.

- Obtain facts and data you need in order to describe an appropriate target condition.
- Find the current pattern of operation, so you can establish a desired pattern of operation (a target condition).
- Follow a standard 5-step routine for Process Analysis.

WHERE THIS PROCESS ANALYSIS FITS IN



THE FIVE STEPS OF THE IK PROCESS ANALYSIS

Step ① **Customer Demand & Planned Cycle Time**
What is a task unit and how much time do we have to complete it? (Calculate)

Step ② **Characteristics of the Current Process**
What are the typical patterns of work? (Sketch)
How is the process currently operating? (Data)

Step ③ **Equipment Capacity**
Do we have any machine constraints? What are they? (Data)

Step ④ **Necessary Number of Operators (if the process were stable)**
How many people are necessary? (Calculate)

Step ⑤ **Outcome Metrics**
How is the process performing over time? (Data)

THE STEPS FOR MANUFACTURING PROCESSES

Right side of table →

Step ①	**Customer Demand & Planned Cycle Time** What is a task unit and how much time do we have to complete it?	· Customer takt · Planned cycle time · Number of shifts currently running
Step ②	**Characteristics of the Current Process** · Sketch the current work pattern. · Measure & graph fluctuation. · Record bullet-point observations.	1) Get to know the process by sketching a block diagram of it. What are batch sizes? Where does WIP accumulate? 2) How much does the process fluctuate? Time and graph 20-30 exit cycles of each operator's work. Are each operator's work steps the same from cycle to cycle? 3) Note other details about current operating pattern
Step ③	**Equipment Capacity** Are there any equipment constraints? What are they?	· Can the automatic equipment support the planned cycle time? · How close are we to current machine capacity limit? · What is the fastest Pc/t the equipment can currently support?
Step ④	**Necessary Number of Operators** How many people are necessary if the process were stable? (Calc)	· Calculate number of operators
Step ⑤	**Outcome Metrics** How is the process performing over time? (Graph outcome metric)	· Graph (a) output per shift, (b) overtime and any other desired outcome metrics (quality, etc.)

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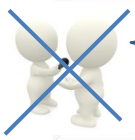
Step ② CHARACTERISTICS OF THE CURRENT PROCESS

Learn to see and understand for yourself

· **Get to know the process by sketching it**
- Define the start & end points of the process.
- What are batch sizes at the processing steps?
- Where does WIP accumulate?

· **How much does the process fluctuate?**
- Time & graph 20-30 exit cycles for each operator.
- Are each operators' work steps the same from cycle to cycle?

· **Note other details about the current operating pattern**
- These are not issues *good* or *bad*.
- Simply describe aspects of the current work pattern.



You may ask others about process details, BUT do not interview or ask about process problems or potential improvement ideas.

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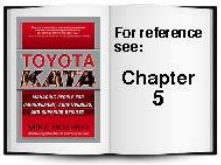
The Improvement Kata

Step 3: ESTABLISH THE NEXT TARGET CONDITION

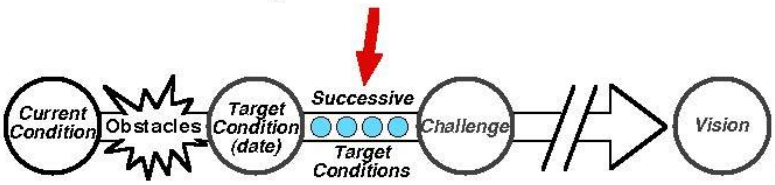
Practice this Routine



THERE WILL BE SEVERAL TARGET CONDITIONS ON THE WAY TO THE CHALLENGE

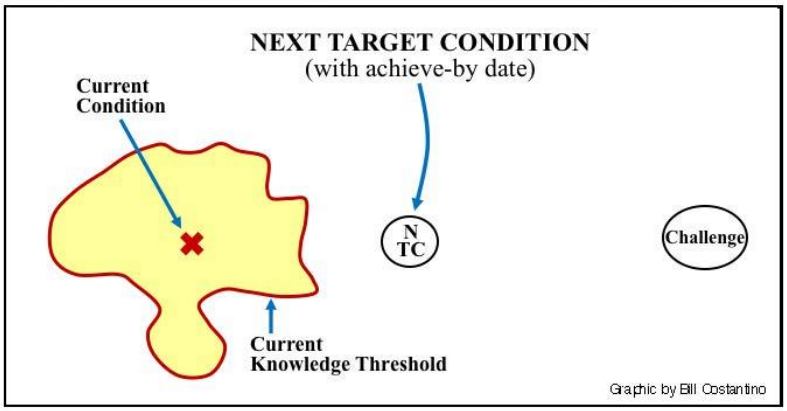
The exact series of target conditions required to meet the overarching challenge can't be defined in advance

When you reach one target condition you'll know a lot more about what the next target condition needs to be



WHAT IS A TARGET CONDITION?

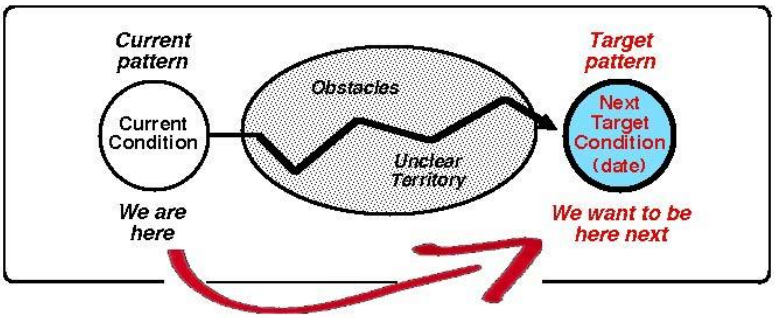
A target condition describes a desired future state that lies beyond your current knowledge threshold. It has a specified achieve-by date usually between 1 week and 3 months out.



NOTE: A target condition is a description of where we're going to be, not of how to get there.

ESTABLISHING A TARGET CONDITION IS LIKE TIME TRAVEL

If we fast forward to the achieve-by date and look at the focus process, the target condition is your description of what we would see



A target condition answers questions like:

- *How do we want this process' operating pattern to be by (date)?*
- *What pattern do we want to have next? What is the target pattern?*
- *Where do we want to be next?*

'BEYOND YOUR KNOWLEDGE THRESHOLD' MEANS YOU DON'T ALREADY KNOW HOW YOU WILL REACH IT

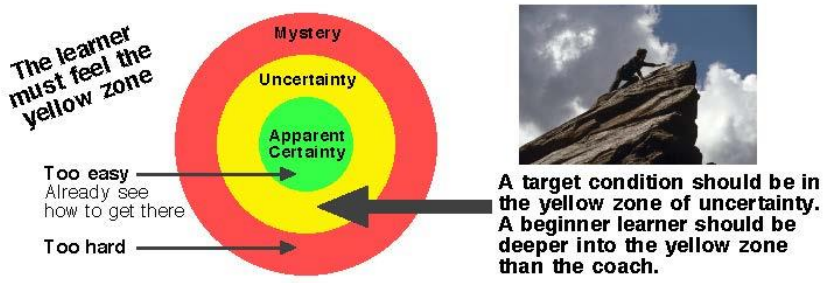
A target condition that you can already or quickly see how to reach - one that involves little trial and error - is not a good target condition. A good target condition requires experimentation and learning to reach it.

The greater danger for most of us lies not in setting our aim too high and falling short; but in setting our aim too low, and achieving our mark.

~ Michelangelo

Threshold of Knowledge

Remember, learning new skill and making progress requires stretching and experiencing small failures. It's better to fail to achieve a target condition once in a while than to stay in the green apparent certainty zone.



A target condition should be in the yellow zone of uncertainty. A beginner learner should be deeper into the yellow zone than the coach.

It's important that you are challenged, so you experience sense of accomplishment in applying the IK pattern.

THE INFORMATION IN A TARGET CONDITION

A target condition should name the focus process, specify the achieve-by date and include these categories of information

Focus Process:
Achieve-by Date:

- ☐ DEMAND & PLANNED CYCLE TIME
- ☐ PROCESS STEPS, SEQUENCE & TIMES
- OTHER PROCESS CHARACTERISTICS
- ☐ PROCESS METRIC

How the game is played

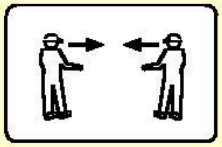
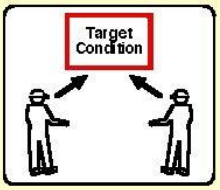
- ☐ OUTCOME METRIC(S)

The score

A target condition is a multifaceted description of a desired condition. You want these conditions to exist *simultaneously*.

- ☑ **That makes the target condition challenging**
- ☑ **That makes the target condition useful as a reference point for more clearly and specifically discovering what you *need* to work on**
- ☑ **That makes the target condition a learning task**

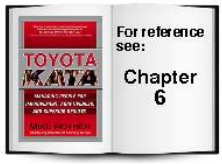
A TARGET CONDITION ENABLES TEAMWORK

WITHOUT a Target Condition	*WITH* a Target Condition
Exchange of opinions. Debate about my idea versus your idea. *"Who's right?"*	**What do we need to test next to reach our objective?**
	

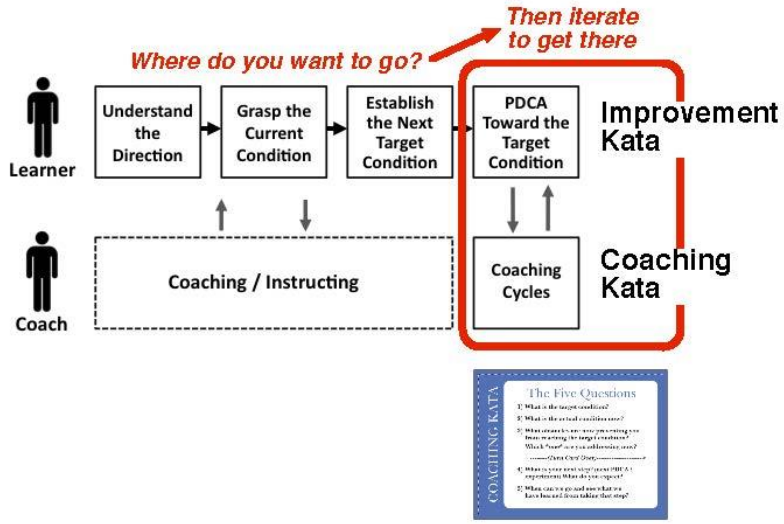
The Improvement Kata

Step 4: ITERATE TOWARD THE TARGET CONDITION

Practice this Routine



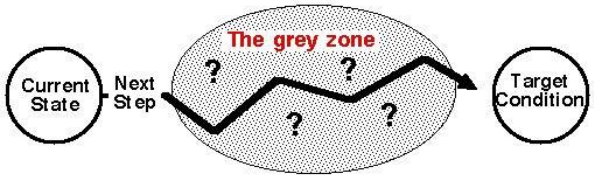
PART II: *NOW ITERATE TO GET THERE*



Most Important:
ASSUME THE PATH IS UNCLEAR

We make plans and intend to execute them. But reality is neither linear nor predictable enough for this alone to be an effective means for achieving our target conditions.

With complex, dynamic systems we cannot plan or aim so well up front as to hit the target condition. Regardless of how well you planned, the path to achieving the target condition is somewhat of a grey zone.



The Target Condition you established in the last step is a setup for experimenting at your Threshold of Knowledge.

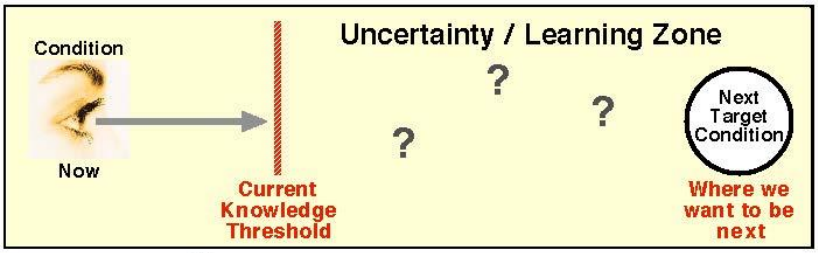
TIME TO PUT ON YOUR SCIENTIST HAT...

...AND WATCH FOR KNOWLEDGE THRESHOLDS

DURING A COACHING CYCLE, ALWAYS LOOK FOR THE CURRENT THRESHOLD OF KNOWLEDGE

The threshold of knowledge is the point at which the learner has no facts or data and starts guessing

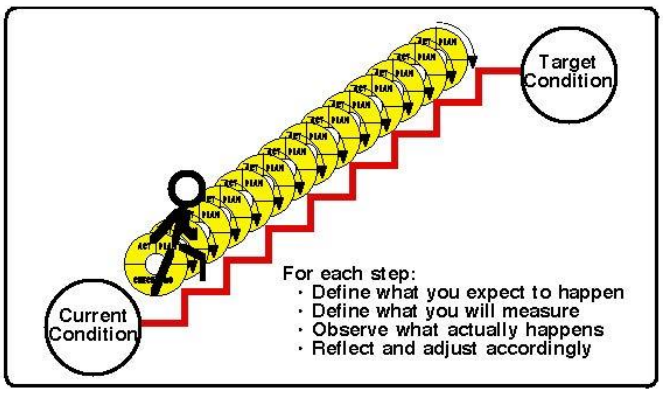
Example: *You don't actually know what tomorrow's weather will be.*
Example: *You plan a step, but you don't actually know what the result of that step will be.*



There are knowledge thresholds in every coaching cycle.

When you hit a knowledge threshold, plan the next PDCA cycle!

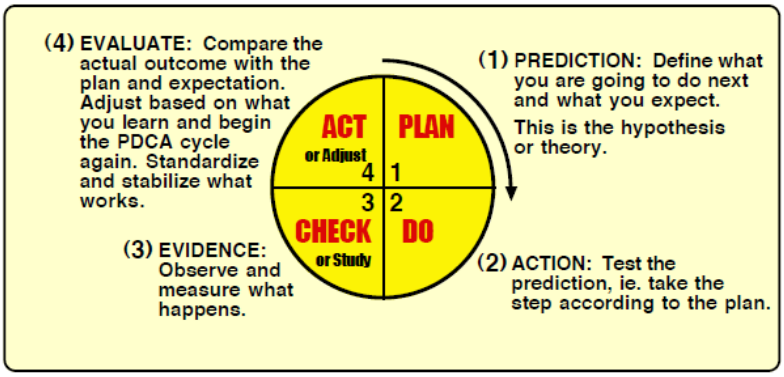
EACH STEP YOU TAKE = A PDCA CYCLE



A PDCA cycle may take only minutes. Suppose we decide, in pursuit of a target condition, to move some work elements from one operator to another.

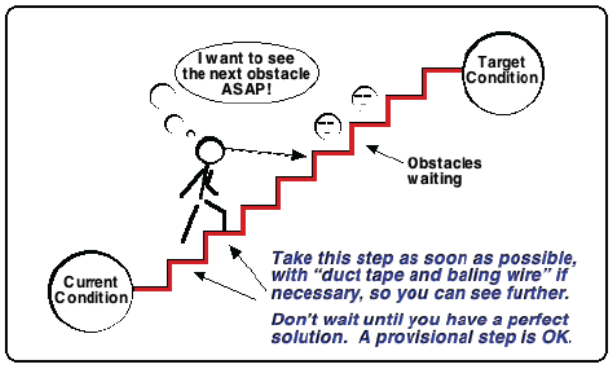
We take that step, observe that the outcome is not what we expected, but then recognize something else that could generate the desired effect. That was a PDCA cycle.

THIS CYCLE OF ITERATION IS OFTEN CALLED:
"Plan-Do-Check-Act" (PDCA)
-- or --
"Plan-Do-Study-Adjust" (PDSA)



Conduct each experiment as cheaply and quickly as possible

Since you can only see the next true obstacle after you take a step, do the experiment now with whatever you have

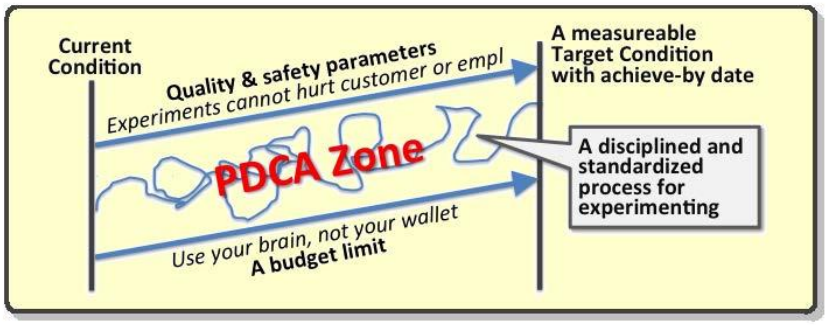


DO YOUR EXPERIMENTS IN THE *PDCA ZONE*

The Target Condition is measureable and has a hard achieve-by date. There are budget constraints and quality & safety parameters. There's a disciplined, standardized process for carrying out the experiments.

It's *within* these constraints that you and your team design and conduct frequent, rapid, cheap, non-harmful, successive experiments toward the target condition.

For example, experiments are done as cheaply and quickly as possible. Think *hold* before *tape* before *weld*.



Some different kinds of PDCA experiments

1) Go and See

Direct observation and data collection, without changing anything, to learn more about a process or situation.

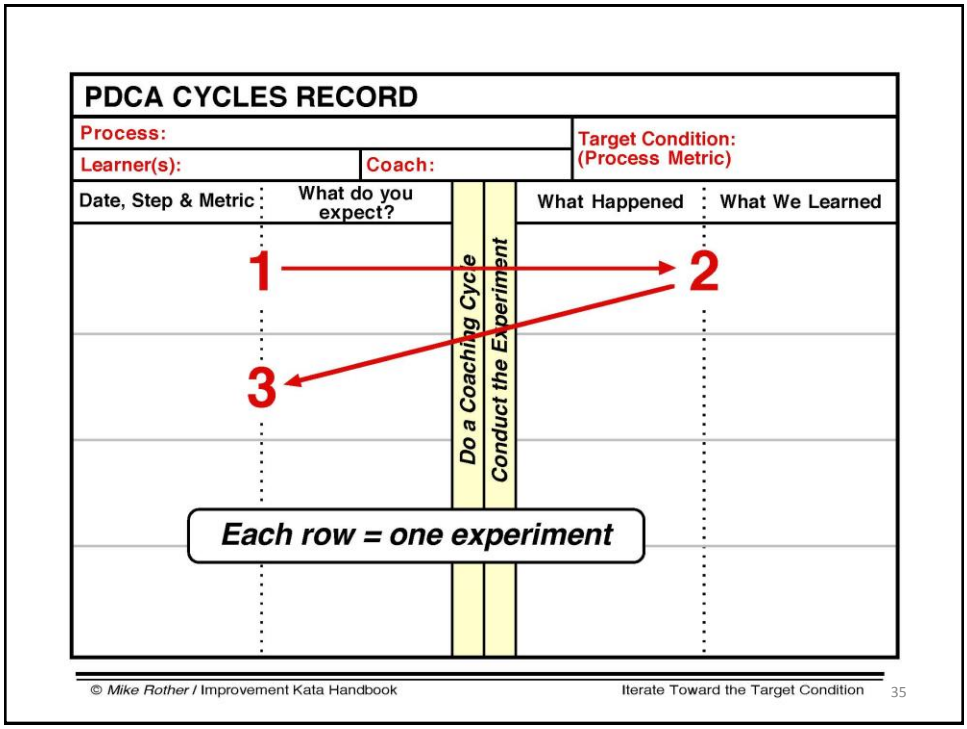
2) Exploratory Experiment

Introducing a change in a process to see, via direct observation, how the process reacts. Done to help better understand the process.

Example: Try to run a process as specified in the target condition in order to see what happens. This is often an early experiment.

3) Testing a Hypothesis

Introducing a change, ideally in only a single factor, together with a prediction of what you expect to happen.


PDCA CYCLES RECORD
Process:
Learner(s):
Coach:
Target Condition:
(Process Metric)
Date, Step & Metric
What do you expect?
Do a Coaching Cycle
Conduct the Experiment
What Happened
What We Learned
1
2
3
Each row = one experiment
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Iterate Toward the Target Condition
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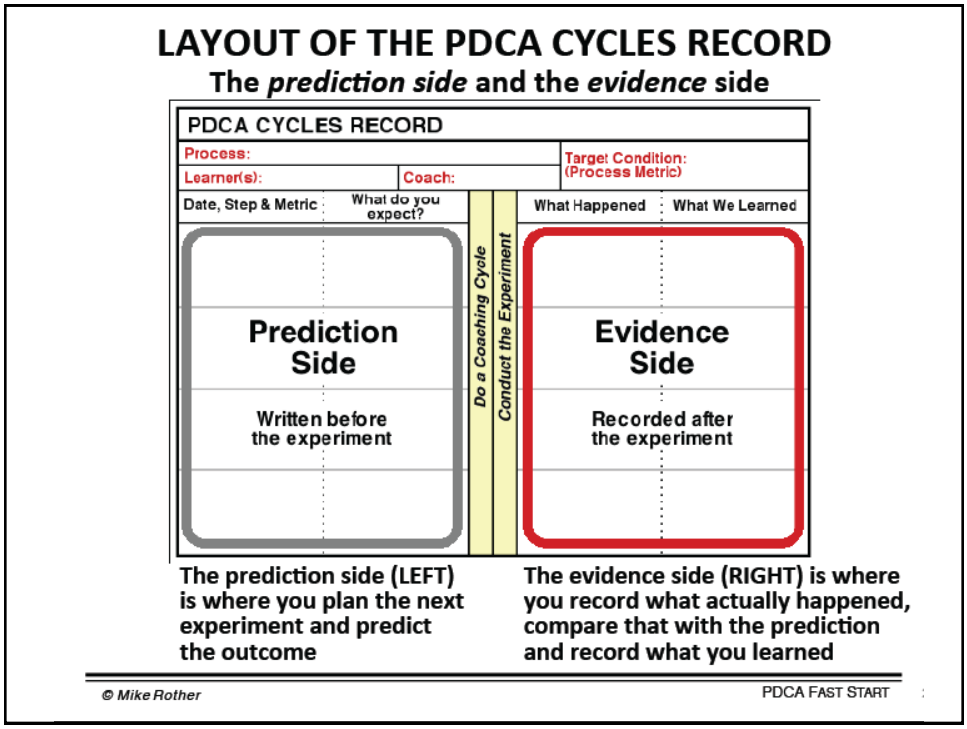
LAYOUT OF THE PDCA CYCLES RECORD
The prediction side and the evidence side
PDCA CYCLES RECORD
Process:
Learner(s):
Coach:
Target Condition:
(Process Metric)
Date, Step & Metric
What do you expect?
Do a Coaching Cycle
Conduct the Experiment
What Happened
What We Learned
Prediction Side
Written before the experiment
Evidence Side
Recorded after the experiment
The prediction side (LEFT) is where you plan the next experiment and predict the outcome
The evidence side (RIGHT) is where you record what actually happened, compare that with the prediction and record what you learned
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PDCA FAST START

HOW TO DO A COACHING CYCLE WITH THE FIVE QUESTIONS

Practice this Routine

SEE
COMPARE
INSTRUCT

1 2 3 4 5

(1) THE FIVE-QUESTION CARD FOR THE COACHING KATA

Available as a free download on the Toyota Kata Website

COACHING KATA

The Five Questions

1) What is the **Target Condition**?
2) What is the **Actual Condition** now?
——(Turn Card Over)——————>
3) What **Obstacles** do you think are preventing you from reaching the target condition?
Which *one* are you addressing now?
4) What is your **Next Step**? (next PDCA / experiment) What do you expect?
5) When can we go and see what we **Have Learned** from taking that step?

*You'll often work on the same obstacle for several PDCA cycles

Back of card - Reflection Section

Reflect on the Last Step Taken

Because you don't actually know what the result of a step will be!

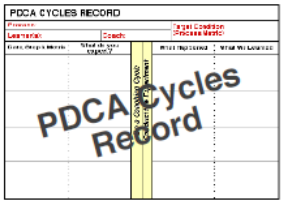
1) What was your **Last Step?**
2) What did you **Expect?**
3) What **Actually Happened?**
4) What did you **Learn?**

----------> *Return*

Card is turned over to reflect on the last step

TWO TOOLS & POWERFUL ROUTINES FOR ACHIEVING ANY TARGET CONDITION

The **Learner** uses this tool while conducting experiments toward the target condition.



Used by the Learner

Target Condition

Current Condition

Used by the Coach

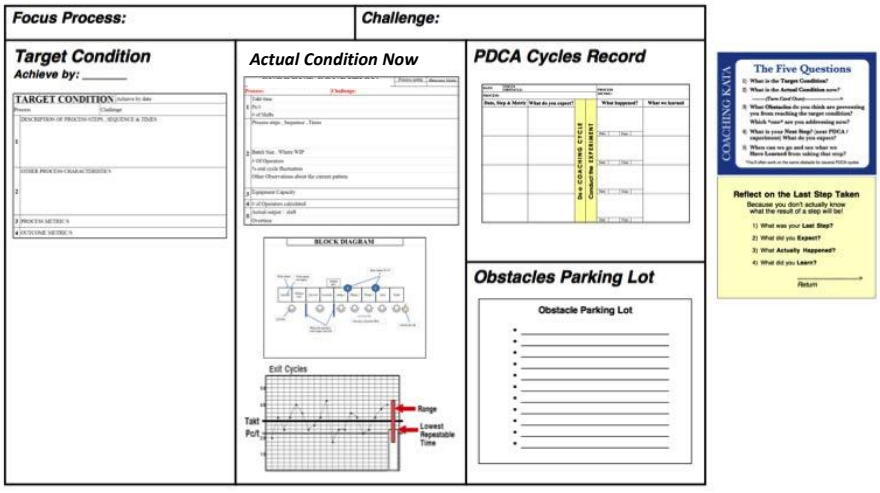
The **Coach** asks the 5 Questions in a coaching cycle dialog, before each step (experiment) the Learner takes.

Forms available in the Appendix & on the Toyota Kata Website

DO COACHING CYCLES AT THE LEARNER'S STORYBOARD

And as close to the focus process as possible

WHERE THE FORMS GO ON THE LEARNER'S STORYBOARD



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Coaching Guidelines

- **Stick to the Pattern!**
- **It takes Two People to Practice –**
  –A Learner + A Coach
- **Practice Every Day!!!**

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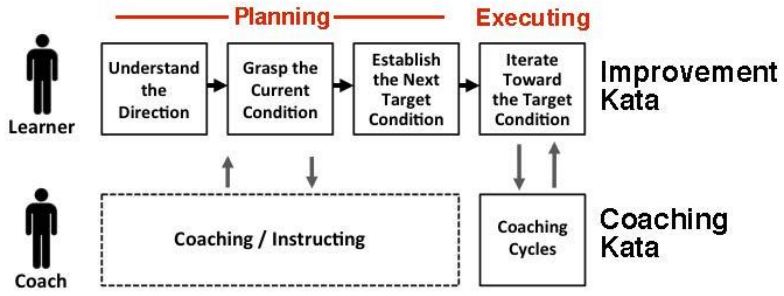
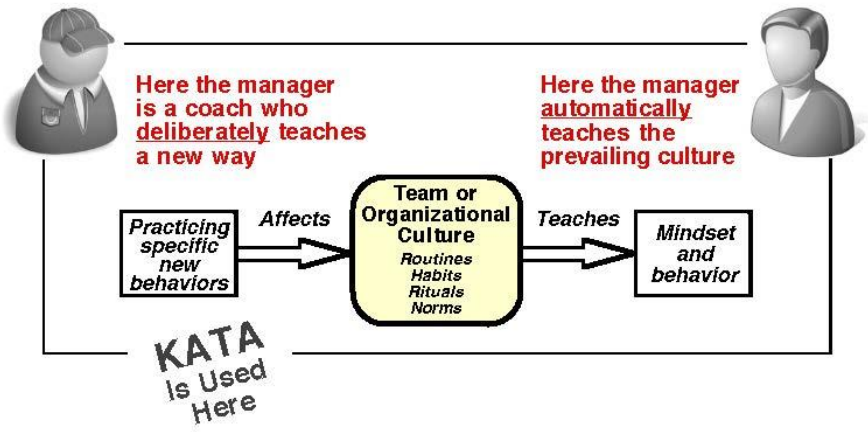
The Point of Today

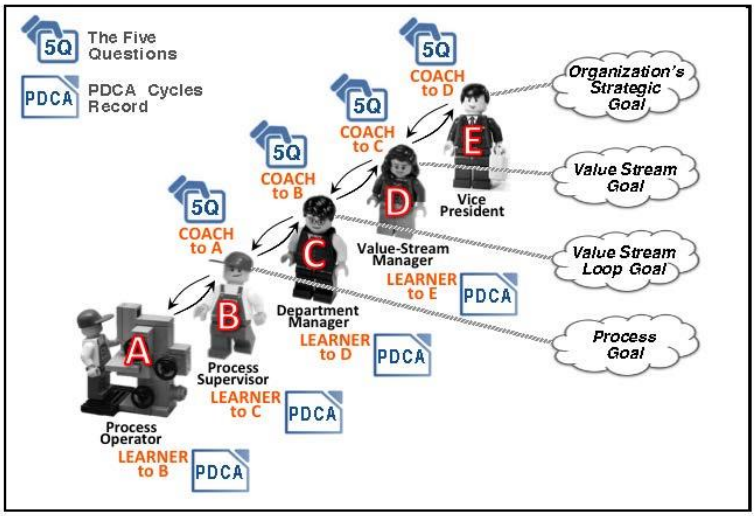
1. **To expose you to the TK Routines**
2. **To get you thinking about your improvement method**
3. **Compare TK approach to your current way of working**



DELIBERATE versus AUTOMATIC TEACHING



WHAT USING THESE TWO ROUTINES LOOKS LIKE UP AND DOWN AN ORGANIZATION



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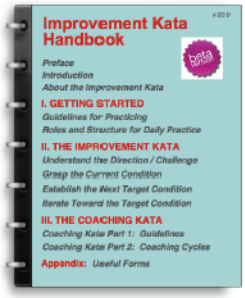
IF YOU WANT MORE DETAIL:

On the *"Toyota Kata Website"*

TOYOTA KATA HOME	1. Improvement Kata	2. Coaching Kata	3. Kata Creates Culture	4. Neuroscience	5. Getting Started	6. Challenge
	Materials to Download	News and Links	Presentations	Value Stream Mapping	Extras	What is a Kata?

Improvement Kata Handbook



The continually-evolving online Improvement Kata Handbook is *the* resource for anyone who wants to practice or coach the Improvement Kata's scientific pattern of thinking and acting

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