

# Improvement Kata Handbook



*Preface*

*Introduction*

*About the Improvement Kata*

## **I. Getting Started**

*Roles and Structure for Daily Practice*

*Guidelines for Practicing*

## **II. Where Do We Want to Go?**

*Understand the Direction*

*Grasp the Current Condition*

*Establish the Next Target Condition*

## **III. How to Get There**

*PDCA Toward the Target Condition*

*Coaching Kata: Coaching Cycles  
with the Five Questions*

**Appendix:** *Useful Forms*



# ABOUT THIS PROTOTYPE VERSION OF THE IMPROVEMENT KATA HANDBOOK

**While we further develop and test the Improvement Kata Handbook it's also available online, for you to use in applying, practicing and teaching the Improvement Kata.**

**The beta version is intended for sharing things we're learning. It's updated periodically... check the version number on the cover.**



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These materials are updated periodically and are intended to support persons who are teaching, practicing or interested in the Improvement Kata.

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# PREFACE

## Patterns to Practice, to Create the Future

This handbook guides you through patterns to practice and teach in order to develop scientific and effective habits for improving, adapting and innovating.



Consider this:

- ▶ The people in every organization acquire work habits. Those habits constitute the organization's culture.
- ▶ All managers are teachers, whether consciously or not. With their everyday words and actions managers teach their people a mindset and approach, which determines the organization's capability.

For these reasons it makes sense to ask:

*What patterns of thought and action are we practicing and reinforcing every day in our organization?*



# THE IMPROVEMENT KATA

This handbook is about the **Improvement Kata**, which is a group of patterns used to make striving and scientific working a daily habit. Practicing the Improvement Kata helps people get better at navigating unknown territory and meeting challenges, in business and any other endeavor.

To be effective the Improvement Kata should be practiced and coached every day. For this purpose the handbook also describes a well-tested **Coaching Kata**.



# WHAT THIS HANDBOOK SHOWS YOU

## How to apply, practice and teach the Improvement Kata pattern

- ▶ **How to use the Improvement Kata routines to improve, adapt and innovate, by walking you through them step-by-step.**
- ▶ **How to operate a daily Coach <-> Learner teaching routine to bring the pattern of Improvement-Kata thinking and acting into your team's or organization's culture. This is the Coaching Kata.**
- ▶ **How to acquire new skills and change thinking through deliberate practice.**
- ▶ **How to align team efforts and make teams more successful in achieving goals and meeting challenges.**
- ▶ **How to achieve continuous improvement.**



## WHO THIS BOOK IS FOR



**The Improvement Kata Handbook is for any group of people who want to learn and master achieving sustainable continuous improvement, adaptiveness and innovation in a systematic, effective and scientific way.**

**One audience is the “Coach,” i.e., anyone who manages people. Once you’ve internalized the Improvement Kata pattern yourself, this book shows you how to teach the pattern to others via the Coaching Kata. In fact, the pattern of the Improvement Kata is a way of managing people and nearly any human enterprise.**

**The other audience is the “Learner,” i.e., anyone who wants to practice and become proficient in the pattern of the Improvement Kata.**

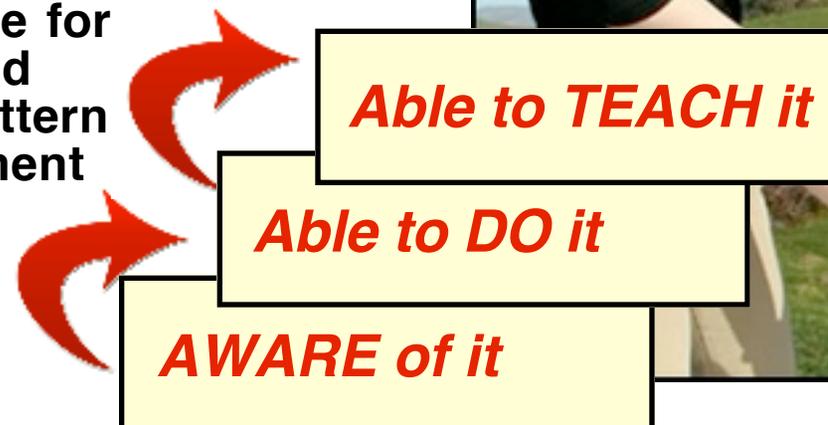
# TWO PURPOSES FOR THIS HANDBOOK

## 1) *Practice Guide:*

To as quickly and effectively as possible make you proficient enough to apply and coach the Improvement Kata, enabling you to teach it in your organization with minimal reliance on outside expertise.

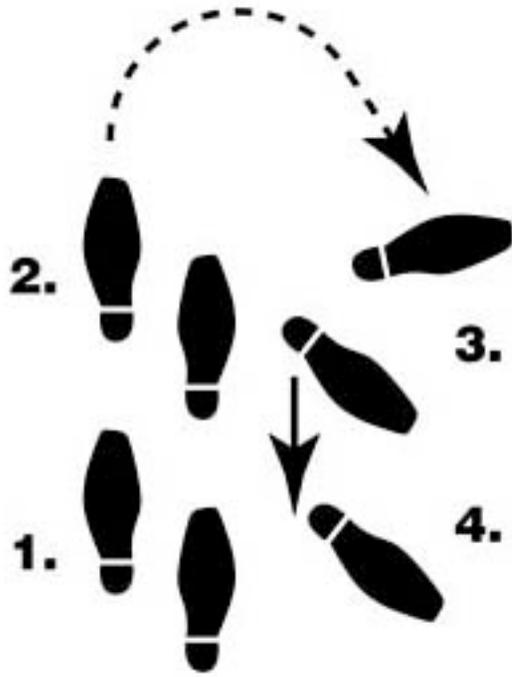
## 2) *User Guide:*

To be a reference for both applying and coaching the pattern of the Improvement Kata.



The goal is to codify the Improvement Kata enough that it can be learned by anyone; to turn continuous improvement, adaptation and innovation into a routine and skill that can be deliberately taught, practiced and transferred.

# OVER TO YOU



**Think of this handbook as a book of dance steps that you are going to practice and learn.**

**There are steps for the Improvement Kata and steps for the Coaching Kata.**

**Your goal is to dance smoothly and confidently in your own style, but to get there you first have to spend time practicing the steps exactly as they are prescribed here.**

**This is no different from practicing in sports and music.**

# TABLE OF CONTENTS

**Preface**

**Introduction**

**About the Improvement Kata**

## **I. Getting Started**

**Roles and Structure for Daily Practice**

**Guidelines for Practicing**

## **II. Where Do We Want to Go?**

**Understand the Direction**

**Grasp the Current Condition**

**(The Toyota Kata Process Analysis)**

**Establish the Next Target Condition**

## **III. How to Get There**

**PDCA Toward the Target Condition**

**Coaching Kata: Coaching Cycles  
with the Five Questions**

**Appendix: Useful Forms**

## Collaborators

My colleagues Bill Costantino and Gerd Aulinger have been instrumental in working with me to practice and evolve the material in this handbook.

I also thank Beth Carrington for her collaboration on the “TK” topic and material.

## Contributors

Several persons have contributed ideas to this handbook:

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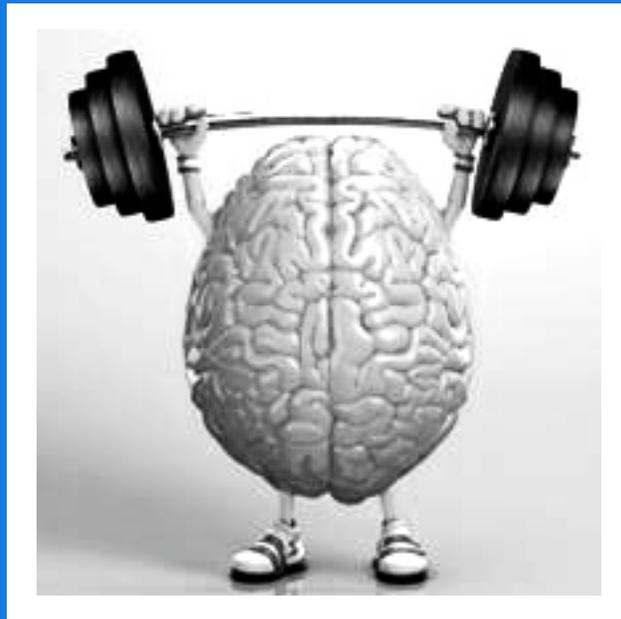
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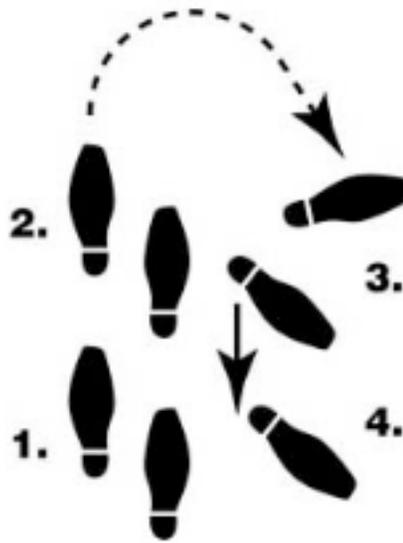
# INTRODUCTION





# WHAT IS A KATA?

**A kata is a routine you practice deliberately, so it's pattern becomes a habit**



**Through practicing, the pattern of a kata becomes second nature - done with little conscious attention - and readily available.**

**Examples include riding a bicycle, driving a car, typing. Once you've learned to drive you don't think much about using the car's controls and can focus your attention on the situational aspects of navigating the road.**



# CONDITIONS AROUND US ARE DYNAMIC AND UNPREDICTABLE

- **Conditions are always changing**
- **It's impossible to know how they will develop**
- **If you fall behind it can be difficult to catch up**



**But we can train ourselves to execute successfully in this environment.**

**There's a kata for that!**

# MANAGING FOR IMPROVEMENT, ADAPTIVENESS AND SUPERIOR RESULTS

Coaching and practicing the Improvement Kata  
gives your team and your organization an advantage



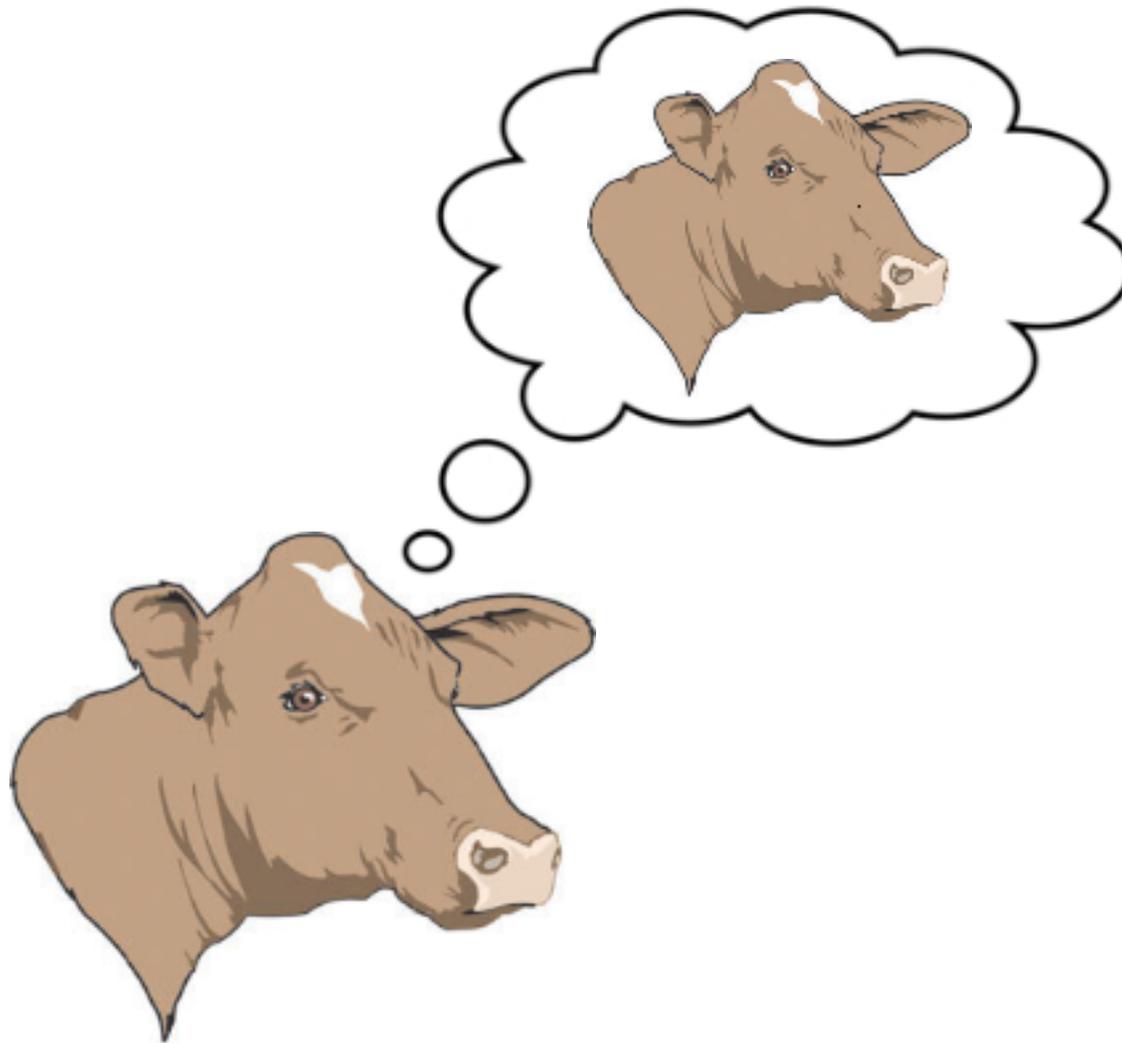
*“In times of change the learners will inherit the earth; while the learned find themselves beautifully equipped to deal with a world that no longer exists”*

~ Eric Hoffer

**The ability to meet challenges and improve -- to learn, adapt, grow and evolve -- is a critical 21st century task throughout society.**

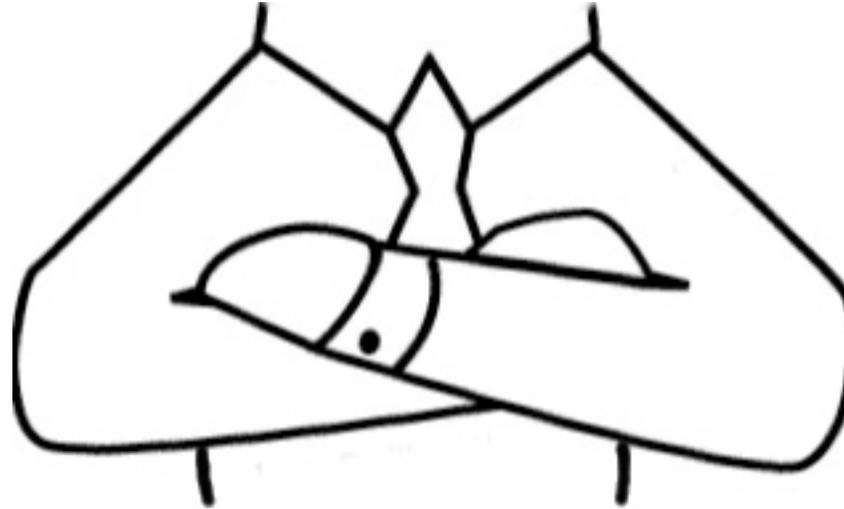
# WHAT IS *METACOGNITION*?

It's a big word for *thinking about how you think*



# A QUICK EXPERIMENT

Take a moment... please cross your arms.  
Then re-cross them the other way.



*How did it feel the second time compared to the first?*



For most of us the second time feels odd. You have to consciously think about it and be more deliberate.

*What would happen if you practiced folding your arms the other way every day?*



It would become normal; something you can do without thinking about it.

**You just did a bit of metacognition!**

# MUCH OF WHAT WE DO IS HABITUAL

**Like crossing our arms, performed almost without thinking**

Habits are behaviors that have been repeated regularly and occur unconsciously. The repeated behavior develops neural pathways in the brain, making the behavior easier to complete.

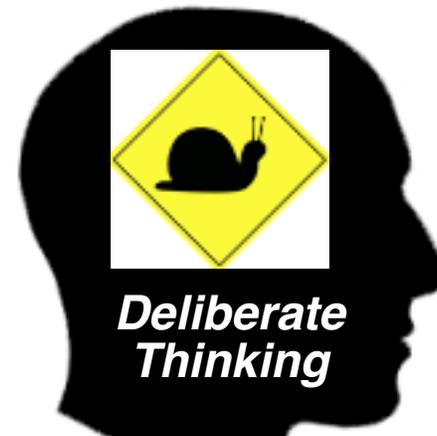
Our brain creates habits for efficiency; to free up capacity for when deliberate decision making is necessary. Unconscious thinking enables you to get through the day by taking care of routine decisions with minimum fuss.



***However, a pitfall of many habits is that the past experiences that created them do not necessarily represent future situations***

# OUR UNCONSCIOUS HABITS ARE FAST & POWERFUL

Our brain avoids conscious, deliberate thinking if it can, because that kind of processing consumes more energy and has a slow reaction time. Unconscious thinking is fast and instinctive, while deliberate thinking is slow and intentional.



The subconscious is powerful. It can process billions of bits of information per second, while our deliberate mind can only process a few thousand per second.

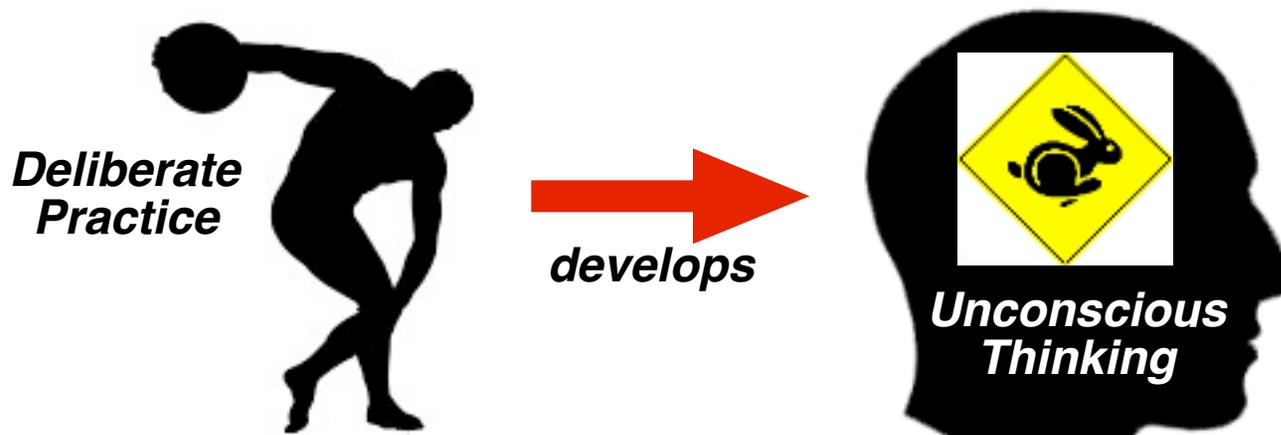


# WE HAVE THE ABILITY TO CHANGE OUR AUTOPILOT

**Humans have the power to develop new habits**

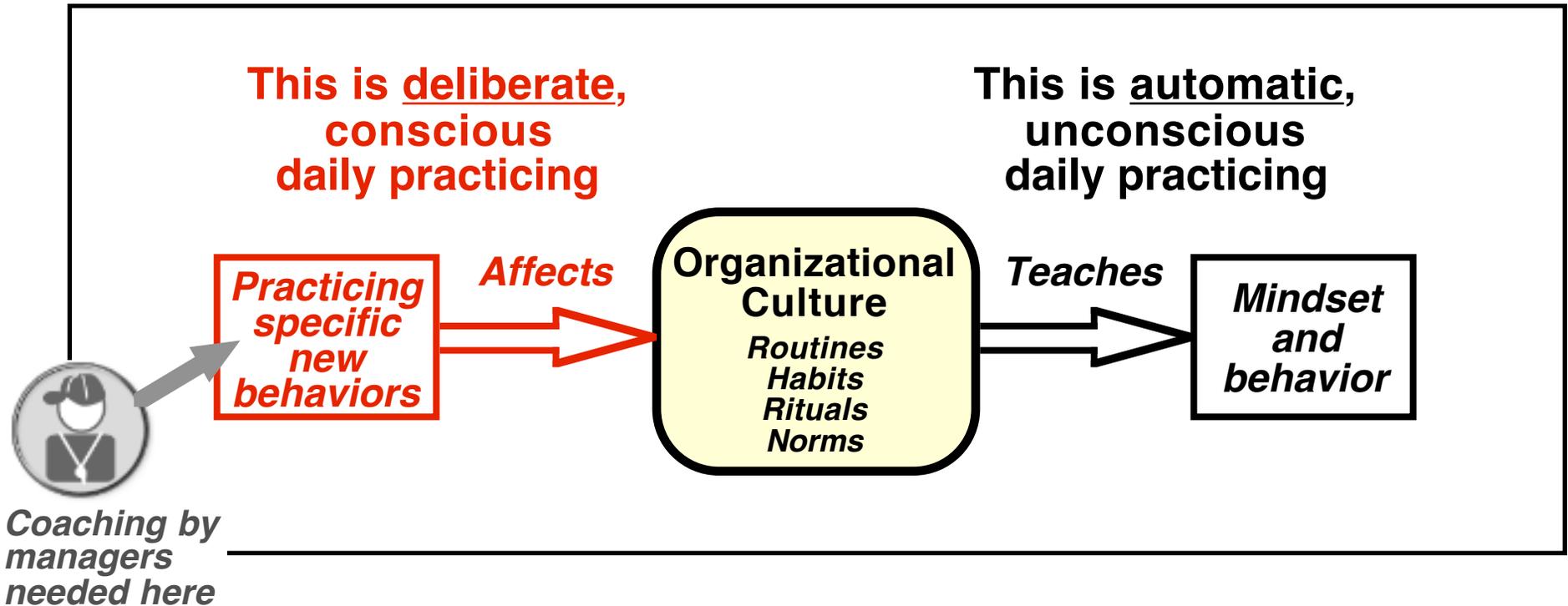
The brain is *plastic*, meaning it can be molded and formed, which allows you to learn throughout your lifetime. You can rewire your thinking and habits by deliberately (consciously) practicing a different behavior pattern.

Because initial practicing is deliberate it uses your slower conscious mind. But once the pattern you're practicing enters your unconscious it gets smoother and faster and becomes the normal, habitual way you operate.



***You can change the culture of an organization, and even an entire society, this way.***

# KATA CREATES CULTURE



What organizational culture, mindset and behavior do you want?

What do you want your managers to be teaching / coaching?

Every manager is automatically a teacher, because they teach & reinforce your organization's prevailing culture.

# DEVELOPING NEW SKILLS & MINDSET

We may have grown up thinking all skill and behavior is innate -- that you're either born with it or not -- but that's not 100% correct.

Much of what happens in organizations and society is a consequence of the habits people acquire through practice, whether deliberately or by happenstance.

*Constantly  
under  
construction*





## WE ALSO HAVE COGNITIVE BIAS

**A tendency to draw incorrect conclusions in certain circumstances based on cognitive factors rather than evidence**



**Our habits work well under many circumstances, but in certain cases they lead to errors known as *cognitive biases*.**

**To navigate the world our brain tries to create a coherent interpretation of reality from the inputs it receives, but it hides from us the inferences it's making.**

**Because our unconscious responses are automatic, hidden from us, emotional and potentially biased they may not always lead us where we would like to go.**



# DEVELOPING MORE EFFECTIVE HABITS FOR IMPROVEMENT, ADAPTIVENESS AND INNOVATION

*How can we be creative and effective in dynamic conditions if we tend to automatically apply old thinking & solutions to new situations?*

The subject of the book *Toyota Kata* and the *Improvement Kata Handbook* are the unconscious routines, known as *heuristics* or rules-of-thumb, that we use for dealing with problems and challenges.

Your teams can work iteratively, adapt, achieve goals and meet challenges with confidence -- along uncertain paths -- when they've practiced and learned a way of doing that.

The trick is to develop well-worn mental circuits not for solutions, but for a systematic, scientific way of *developing* solutions. **That's what practicing the pattern of the Improvement Kata is about.**

This content-free meta skill can then be applied to an endless number of situations. That's important because we don't know what challenges are coming in the future.

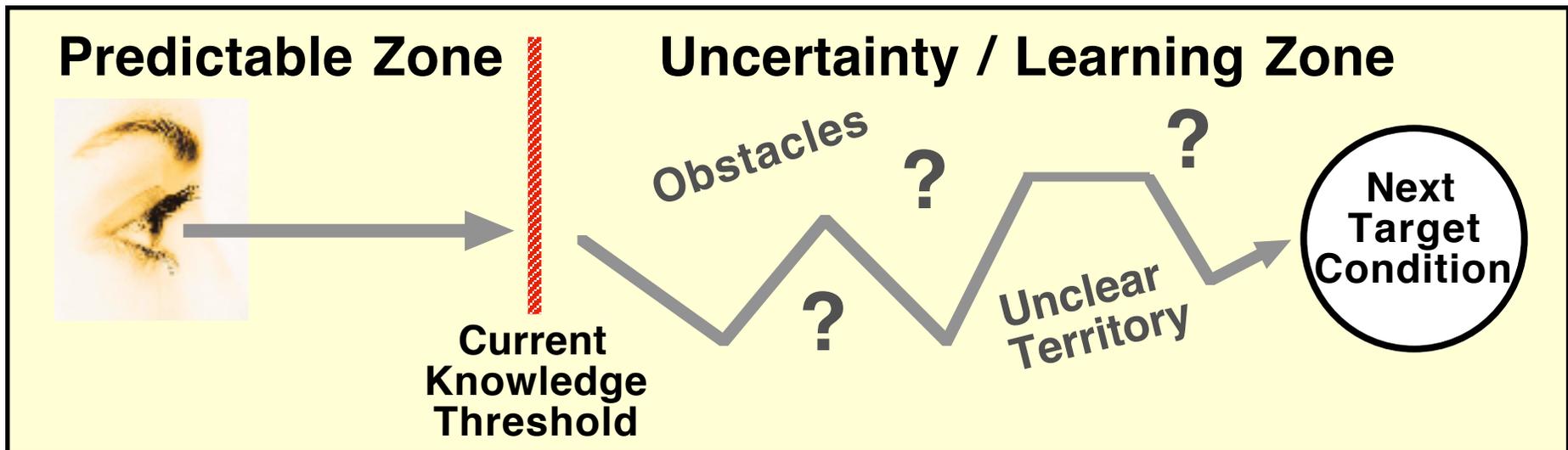
# THE SKILL PATTERN (KATA) YOU'RE TRYING TO LEARN AND TEACH



The **Improvement Kata** is a systematic and scientific way for people to successfully navigate through unknown territory together

Reality is complicated. The way forward involves iteration and experimentation, aimed at a desired condition we don't know in advance exactly how we will achieve. We don't know what's going to happen and no plan will cover everything. But that's OK.

The goal of practicing the Improvement Kata is to make scientific thinking and working a habit. This makes teams more effective and allows them direct attention and ingenuity to the situational details that require conscious thought.



# AND THE **COACHING KATA** IS A ROUTINE FOR TEACHING THE IMPROVEMENT KATA

The Coaching Kata is a set of coaching routines to practice in order to develop effective coaching habits. It's a coaching pattern to help you teach the Improvement Kata thinking pattern.

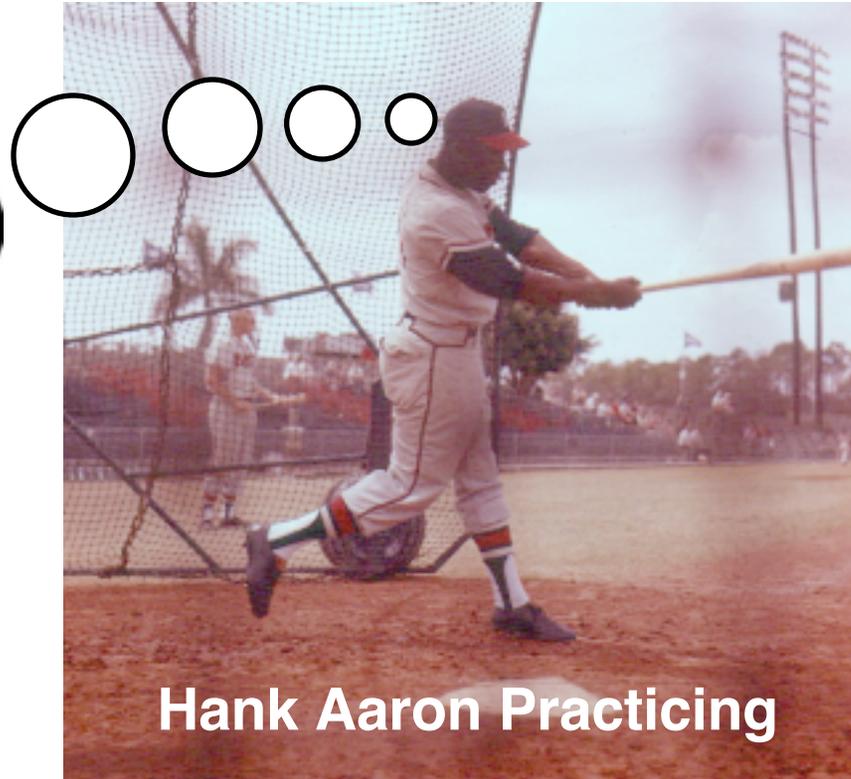
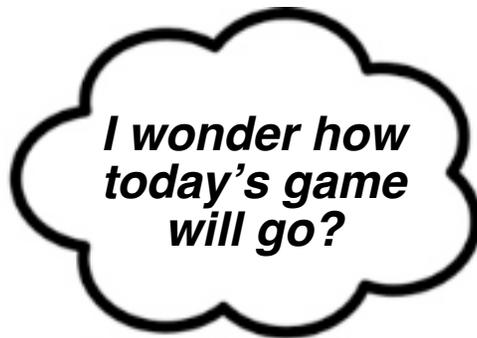
The Coaching Kata gives managers and supervisors a standardized approach to facilitate Improvement Kata skill development in daily work.



***The coach needs to know both the Improvement Kata and the Coaching Kata!***

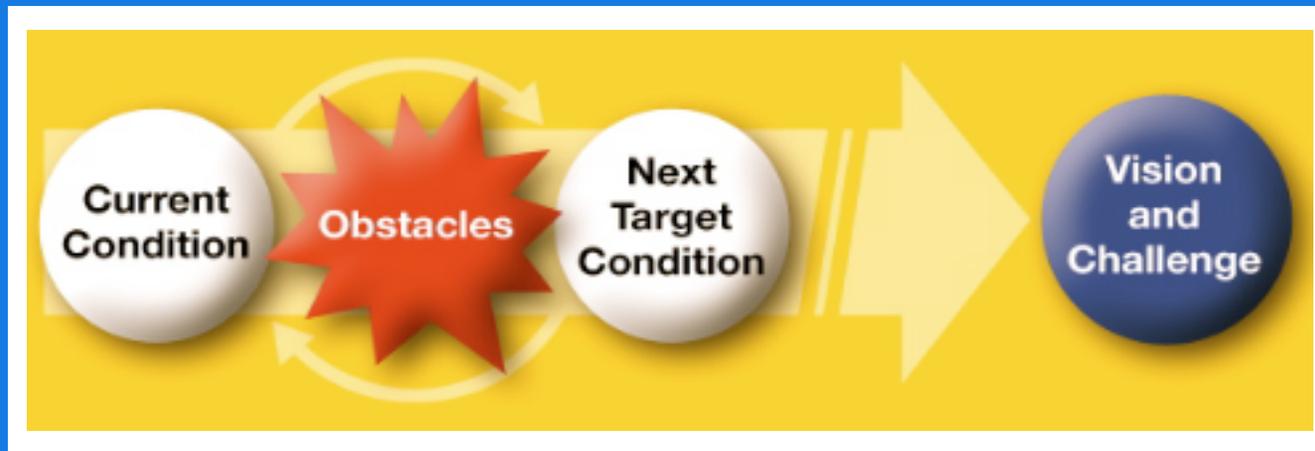
# DELIBERATE PRACTICE

**It's commonplace in sports and music.  
Why not also in business & society!**



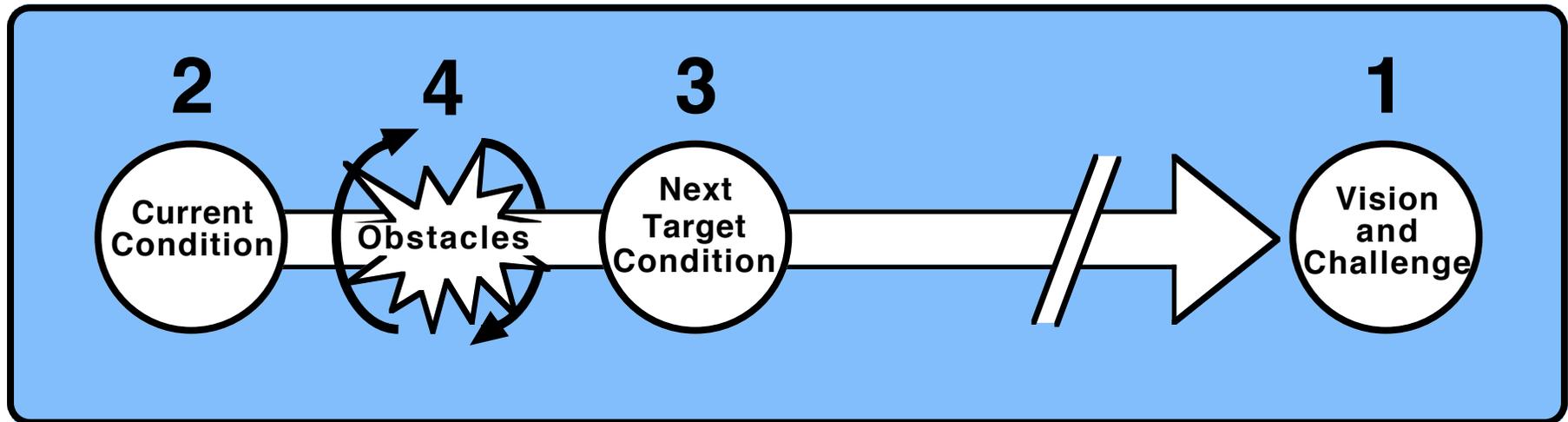
**Rather than trying to hold onto a sense of certainty based on one's perspective, we can derive confidence from practicing a kata for how to work through uncertainty.**

# ABOUT THE IMPROVEMENT KATA



# WHAT IS THE IMPROVEMENT KATA?

It's a 4-step routine that's practiced to make striving and scientific working a daily habit

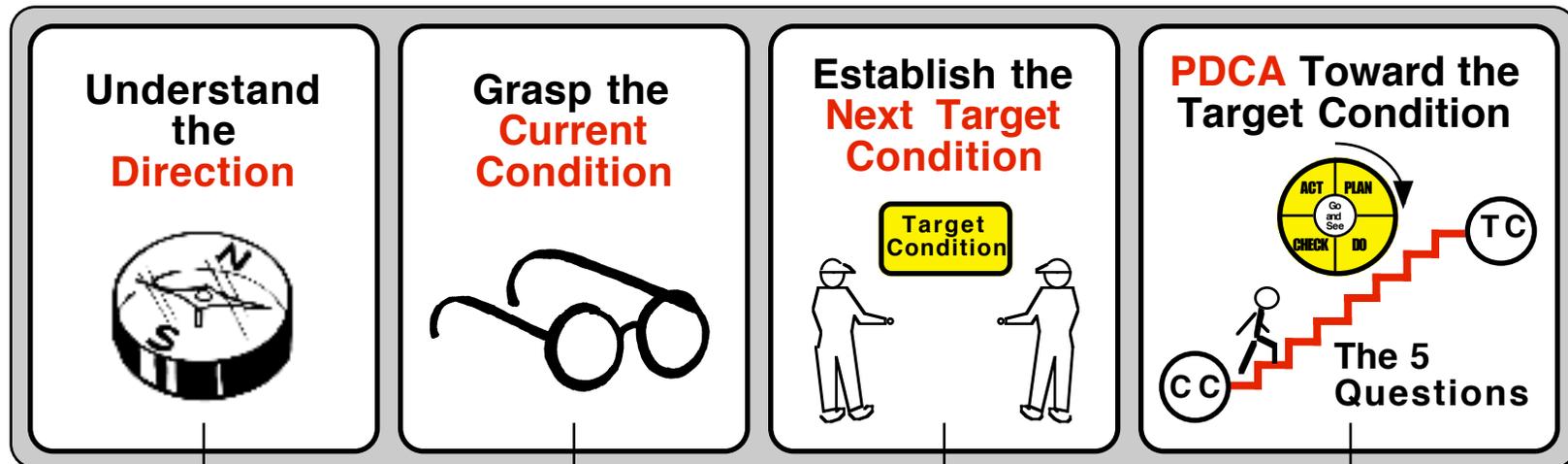


- 1** In consideration of a vision and challenge...
- 2** Grasp the current condition.
- 3** Define the next target condition.
- 4** Move toward that target condition with PDCA, which uncovers obstacles that need to be worked on.



# THE FOUR STEPS OF THE IMPROVEMENT KATA SEQUENCE

1 → 2 → 3 → 4



What challenge are we striving to meet?

What is the current pattern of operating?

What pattern of operating do we want to have next?

A step-by-step discovery process between where we are and where we want to be next.



# THE IMPROVEMENT KATA IS A META ROUTINE

It's working on how you think



Every organization has work routines. The pattern of the Improvement Kata is a different and particularly powerful routine because it's a *meta routine*. It's a "meta-habit" that aims to change your mental operating system so your human capabilities come to greater fruition.

To understand this, separate **WHAT** you're working on from **HOW** you're working on it. The Improvement Kata focuses on the HOW. That is, the improvement kata is a content-free pattern for *how* to go about improving, adapting and innovating.

Skills are usually domain-specific. You don't learn to play baseball by practicing soccer. But the pattern of the Improvement Kata is a way of working toward any objective. Practicing the pattern of the Improvement Kata develops mindset and habits for achieving challenging goals. It creates a change in your organization's culture that facilitates continuous improvement.

# WHAT PRACTICING THE IMPROVEMENT KATA GIVES YOU

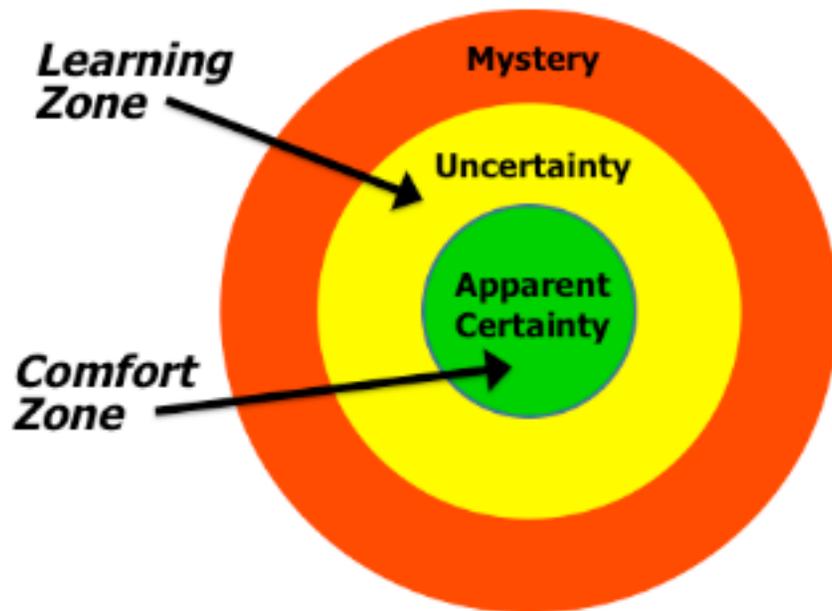
The patterns in the Improvement Kata are used by teams to:

- ▶ **Set and achieve objectives that lie beyond their current capabilities**
- ▶ **Overcome obstacles and meet challenges**
- ▶ **Commonize how they improve, adapt and innovate**
- ▶ **Generate true continuous improvement**
- ▶ **Face evolution and change with a positive sense of *we can do it***

The Improvement Kata provides a common protocol; a teachable routine for commonizing how members of an organization work together.

# THE IMPROVEMENT KATA GIVES US SOMETHING TO HANG ONTO WHEN THE PATH IS UNCERTAIN

It's a kind of security blanket



The Improvement Kata gives us a way of having more confidence while navigating unclear territory. *"I've never done that before, but I know how to figure it out and find the way."* It helps us experience uncertainty more as an opportunity.

# THE CHAIN REACTION WE'RE LOOKING FOR

Practicing the Improvement Kata moves people from a predictable-zone mindset to an exploratory mindset

***Increased Skill***



***Self Efficacy***



***Openness to Challenges***

When teams practice the Improvement Kata they become more skillful and competent at meeting challenges...

... because they learn to work iteratively and scientifically.

As a result, they grow more comfortable with unpredictable paths



Which allows them to be more open to new challenges!

**Self-Efficacy = The belief that you can master a situation**

**Self-Efficacy is learned!**

# THE IMPROVEMENT KATA IS TOYOTA'S FUNDAMENTAL WAY OF CONTINUOUSLY IMPROVING

There are several ways the Improvement Kata pattern is practiced and reinforced at Toyota, including in daily management, daily problem solving, quality circles, improvement events, standard work, “Toyota Business Practices” and A3s. The Improvement Kata pattern is embedded in each of these activities and, ultimately, taught to everyone at Toyota.



# THE IMPROVEMENT KATA & COACHING KATA ARE THE LESS VISIBLE PART OF LEAN

Practicing the Improvement Kata embeds improvement, adaptiveness and innovation in daily work

If we teach Lean solutions without also teaching the Improvement Kata routine, we're unlikely to develop the disposition for continuous improvement that characterizes Toyota and Lean.

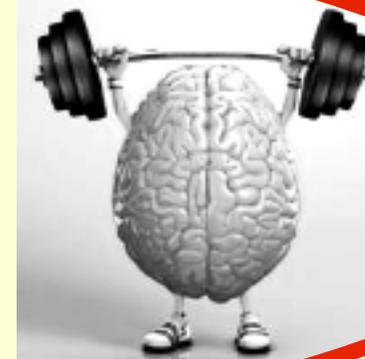
## **Visible**

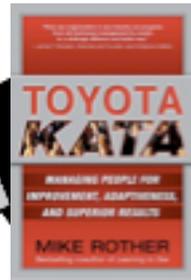
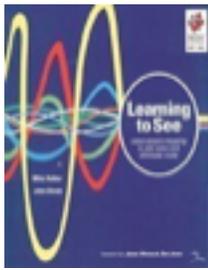
Lean solutions (tools, techniques and principles) to improve quality, cost, delivery



## **Less Visible**

- The Improvement Kata routine of thinking & acting
- Managers as coaches for practicing that routine

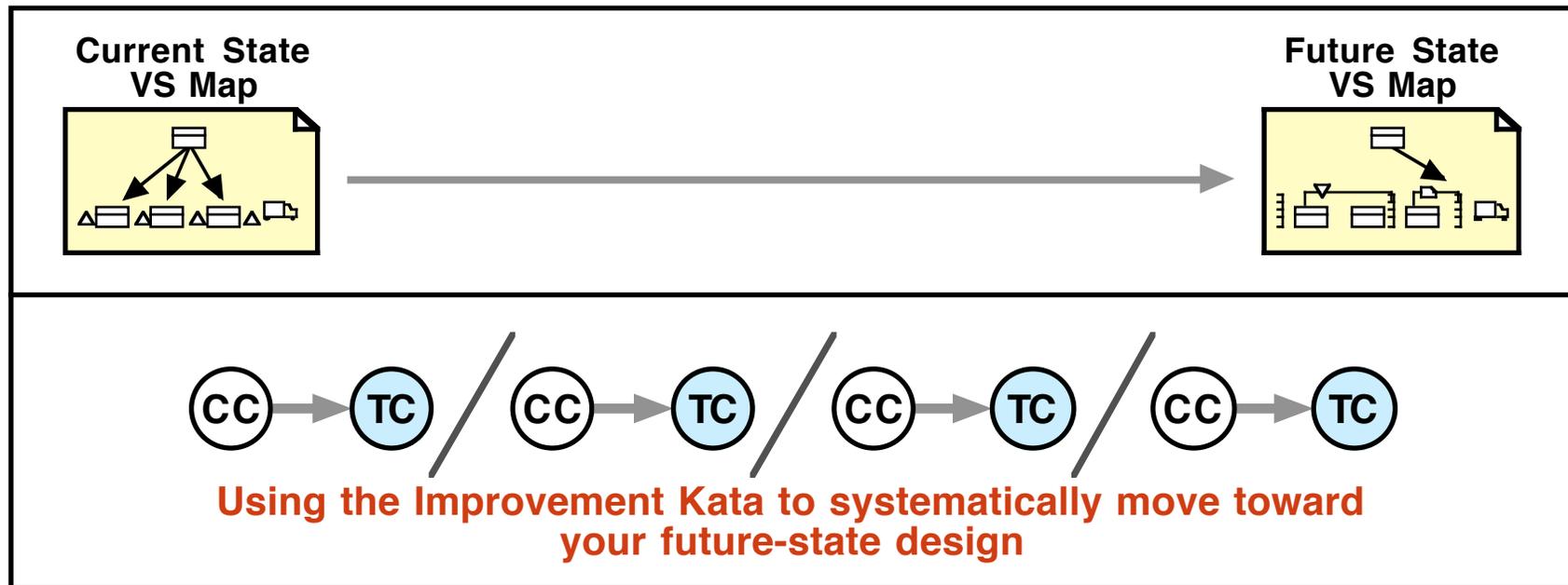




# FOR VALUE STREAM MAPPERS

The pattern of the Improvement Kata is how to achieve your future-state map!

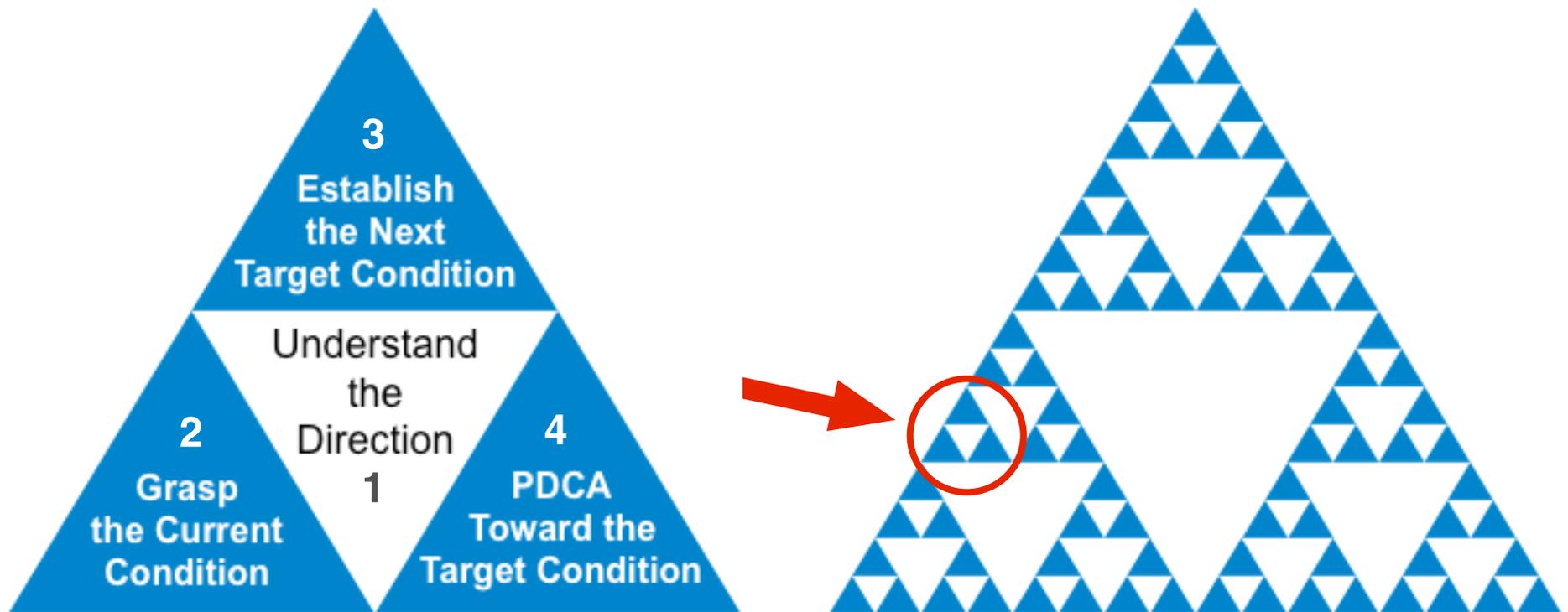
Don't just draw a current-state map, highlight problems and go after them. Draw a future-state map of how you want the value stream to flow, and then use the pattern of the Improvement Kata to get the value stream to function that way.



CC = Current Condition, TC = Target Condition

# THE IMPROVEMENT KATA IS FRACTAL

It can be practiced anywhere in an organization

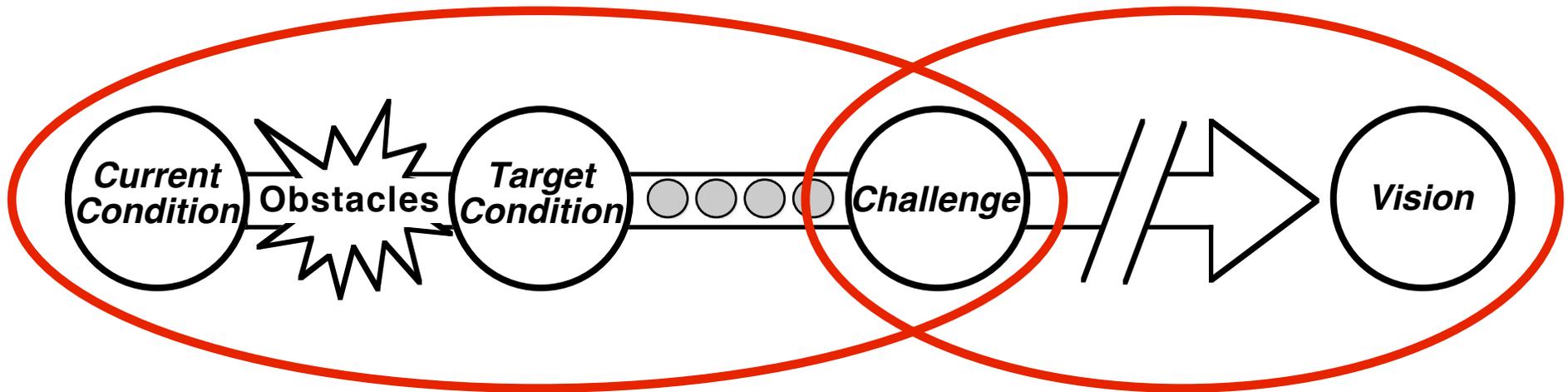


Fractal depiction by Mr. Emiel van Est

# THE IMPROVEMENT KATA CONNECTS THE STRATEGIC AND THE OPERATIONAL

Coaching the Improvement Kata is middle management's job

Establishing direction is part of leadership

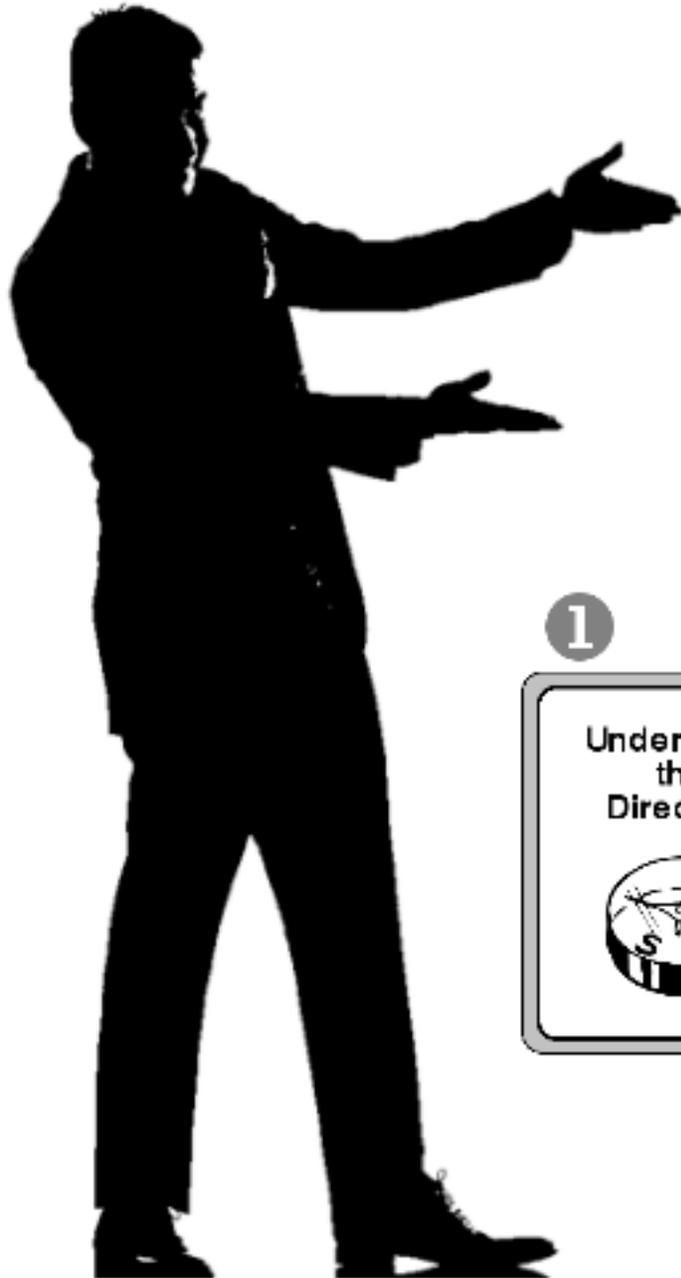


**Managing**

Daily striving to achieve the next target condition, through cycles of experimentation.

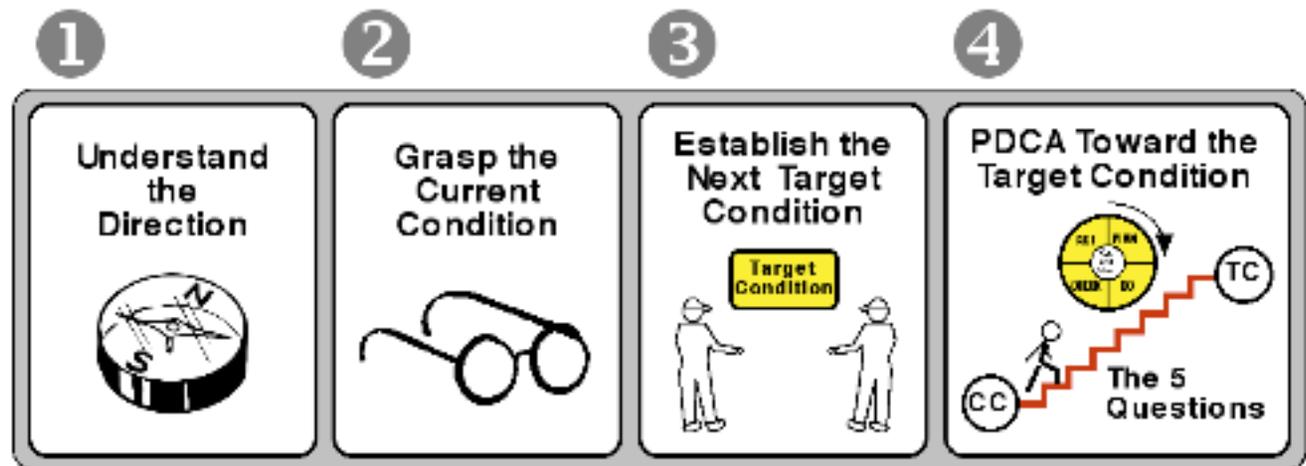
**Leading**

Concentrating on strategic vision & setting challenges, and ensuring managers teach the Improvement Kata pattern.



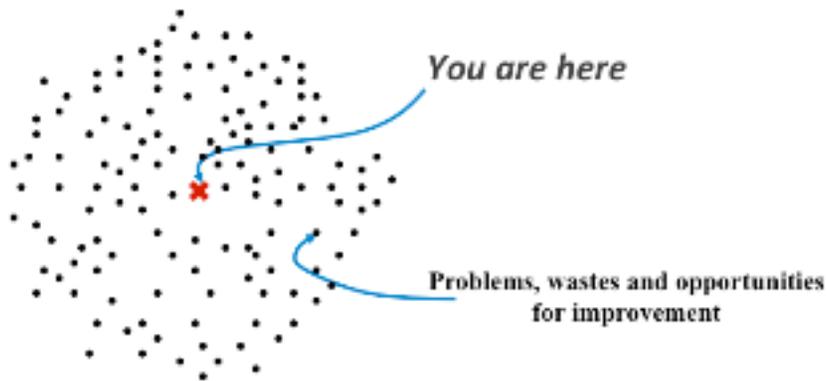
# Let's take a look at the pattern of the Improvement Kata

To get a sense for its overall routine before going into the details.

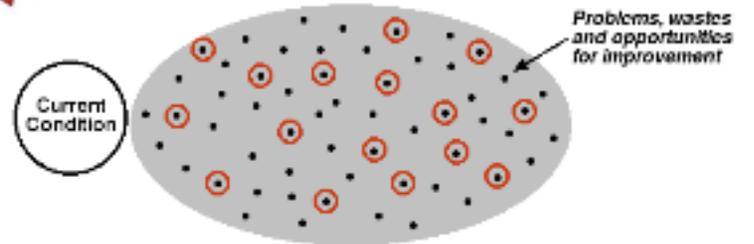


*The following panels were created by Bill Costantino and Mike Rother*

**STARTING POINT.** There are always problems, wastes and opportunities for improvement around us. With the Improvement Kata you don't go on waste walks to see them, don't make pareto charts to prioritize them and don't just go after them.

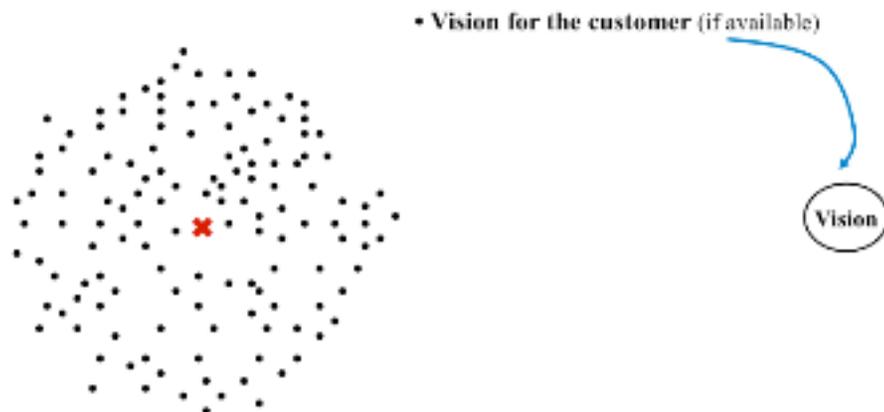


**Old Way** **HOW DO WE TEND TO TRY TO IMPROVE?**  
 We hunt for wastes or react to problems, and try to eliminate them

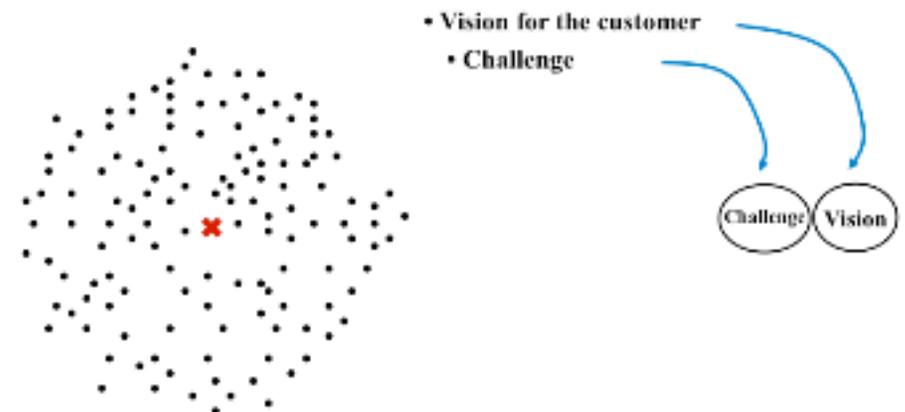


This scattershot approach may not achieve meaningful improvement that moves the organization forward.  
 It misspends our limited capacity for making improvements.  
 We don't learn much, because we're not experimenting.

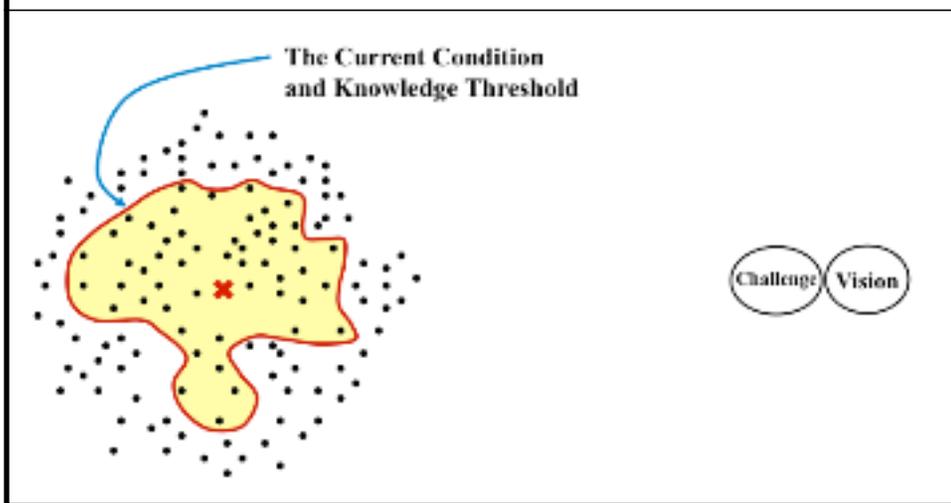
**UNDERSTAND THE DIRECTION.** Before taking action ideally you should understand your organization's long-term vision for the customer. The vision is vague and long-term.



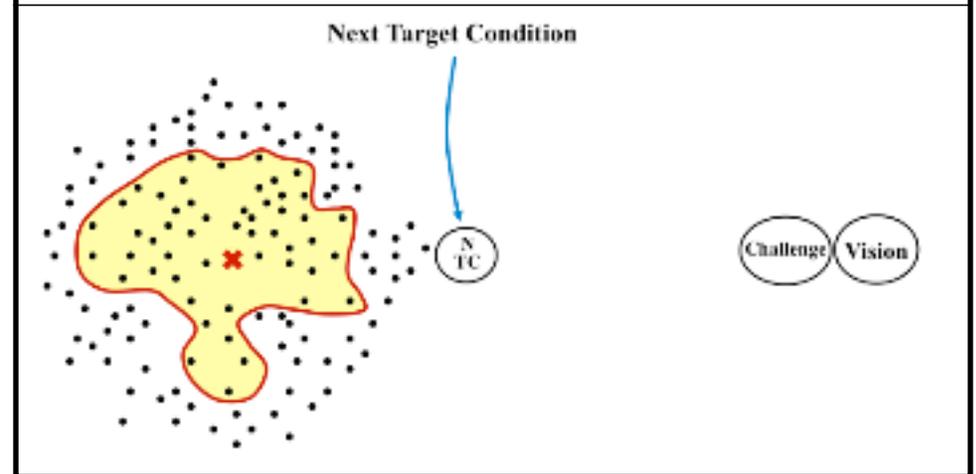
**UNDERSTAND THE DIRECTION.** To provide a tangible objective to focus on, set a specific challenge in the direction of the vision. A challenge typically has a time frame of 1-3 years out and often comes from your future-state value stream map.



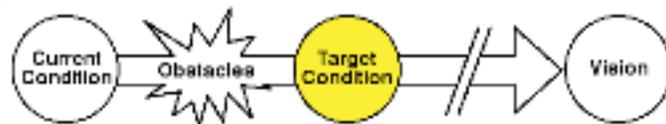
**GRASP THE CURRENT CONDITION.** Now take a step back and study the current condition in detail, following the steps of the TK “Process Analysis.” This represents your current knowledge threshold about whatever you’re looking at.



**ESTABLISH THE NEXT TARGET CONDITION.** The purpose of studying the current condition is to obtain the facts and data you need in order to describe the next target condition in the direction of the challenge. The target condition has a specified date 1 week to 3 months out and lies outside your current knowledge threshold.



**THE IMPROVEMENT KATA IS FOCUSED**

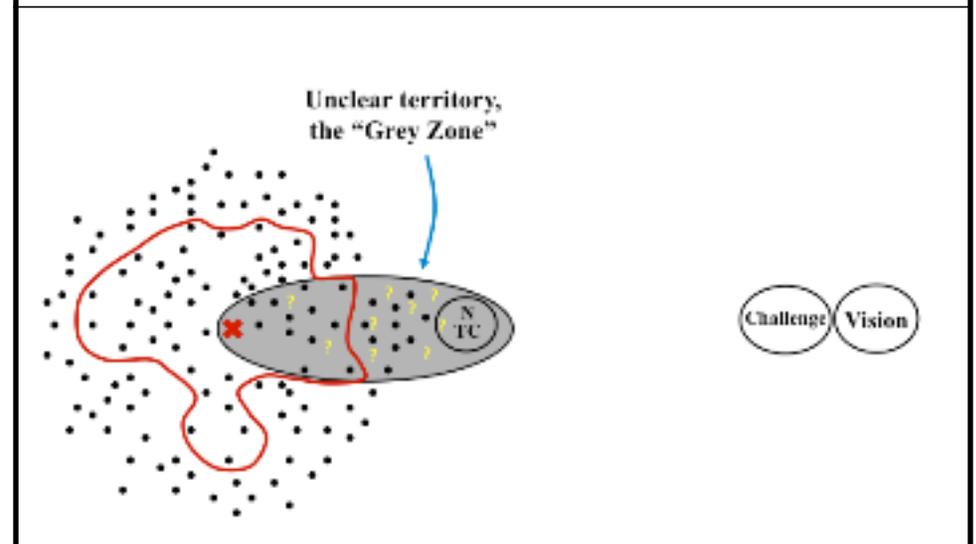


First agree on a target condition to focus people’s attention, give the team directional guidance and have something to scientifically test against.

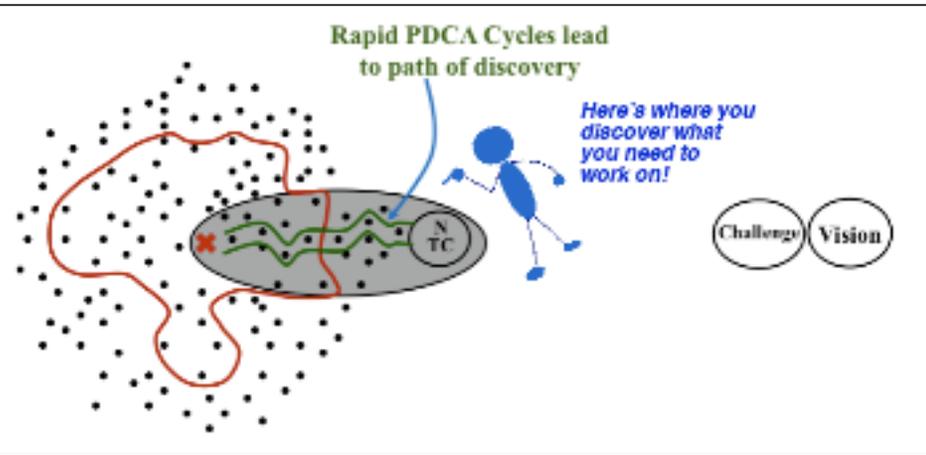
A target condition describes characteristics you aspire to have in place 1 week to 3 months in the future.

By describing a target condition and then trying to achieve it, you learn why you cannot. That tells you what work on next.

So now there is a grey zone, which is the “Learning Zone.” You don’t know exactly how you are going to get to the target condition by its specified date.

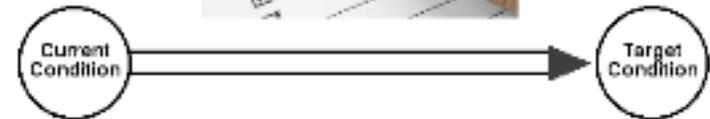


**PDCA TOWARD THE NEXT TARGET CONDITION.** Use the two daily IK routines of rapid PDCA experiments (Learner) + the dialog of the Five Questions (Coach). From each experiment you gain new information and adjust your next step accordingly, to iteratively find your way to the target condition within the desired time frame. You only work on obstacles you sequentially find are preventing you from reaching the target condition.



**HOW DO WE TEND TO TRY TO REACH AN OBJECTIVE?**

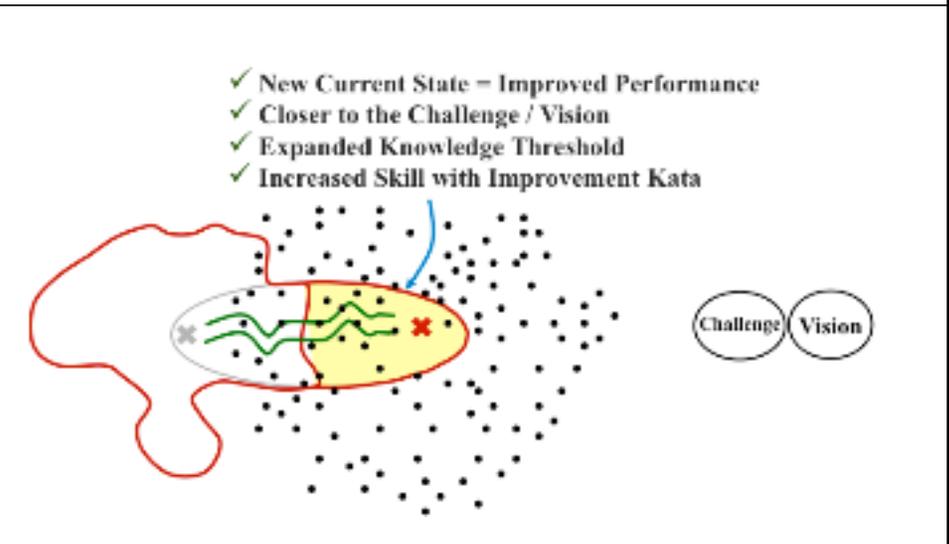
We try to make the best plan, and then implement it



We think we know how we will get there, but both your knowledge and the situation change as you move forward!

With this approach we're not doing enough experimenting, learning and adapting.

**NOW YOU ARE HERE.** There is a new threshold of knowledge and a new current condition. And the Learner has gotten more skillful in applying the Improvement Kata pattern.



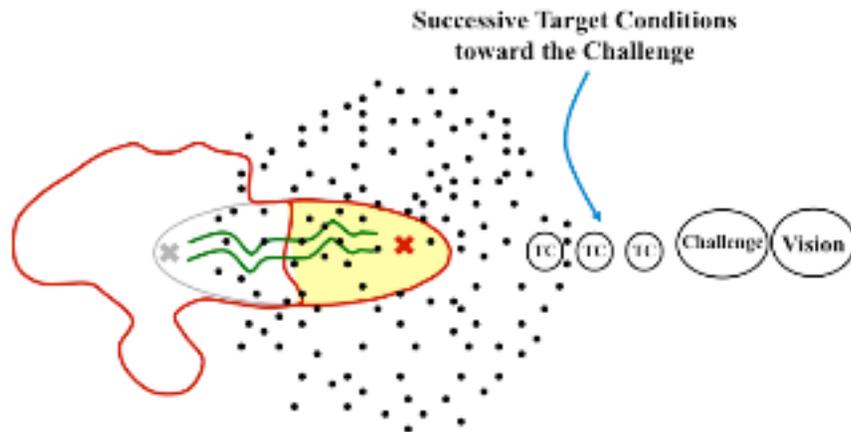
**THE IMPROVEMENT KATA IS ITERATIVE**



Rather than trying to wholly predict the path, the Improvement Kata spurs discovery and adaptation along the way.

Teams using the Improvement Kata learn as they strive to reach an objective, and adapt based on what they are learning.

**REPEAT THE PATTERN.** The pattern of the Improvement Kata repeats as you strive to achieve your next target condition toward the challenge. It takes a series of target conditions to reach the challenge.



## THE IMPROVEMENT KATA IS A DIFFERENT APPROACH

It's scientific, purpose-driven thinking and acting.

With the Improvement Kata you work iteratively toward a target condition, learning along the way. You work on those things that you discover you need to work on to reach the target condition.

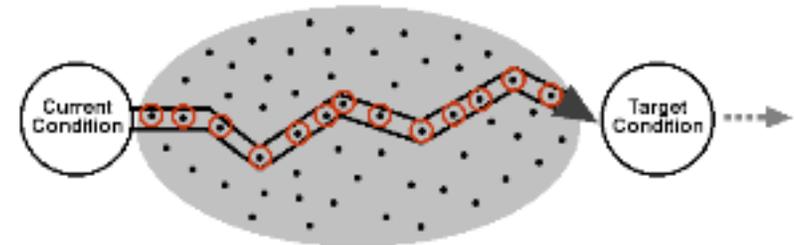


Diagram by Mr. Joel Martinek



# THE IMPROVEMENT KATA IS ABOUT SCIENTIFICALLY STRIVING FOR A NEW STATE, NOT JUST REACTING OR HUNTING

## “Troubleshooting”

- Reacting to problems. You have to do this because problems happen, but it’s not enough for competitiveness.
- Reacting to improvement opportunities someone sees.



## Scientific Striving

- A step-by-step process aimed at a particular target condition. Each step is taken relative to a hypothesis (prediction), and what you learn from that step influences the next step.



# THE DIFFERENCE BETWEEN STRIVING AND TROUBLESHOOTING

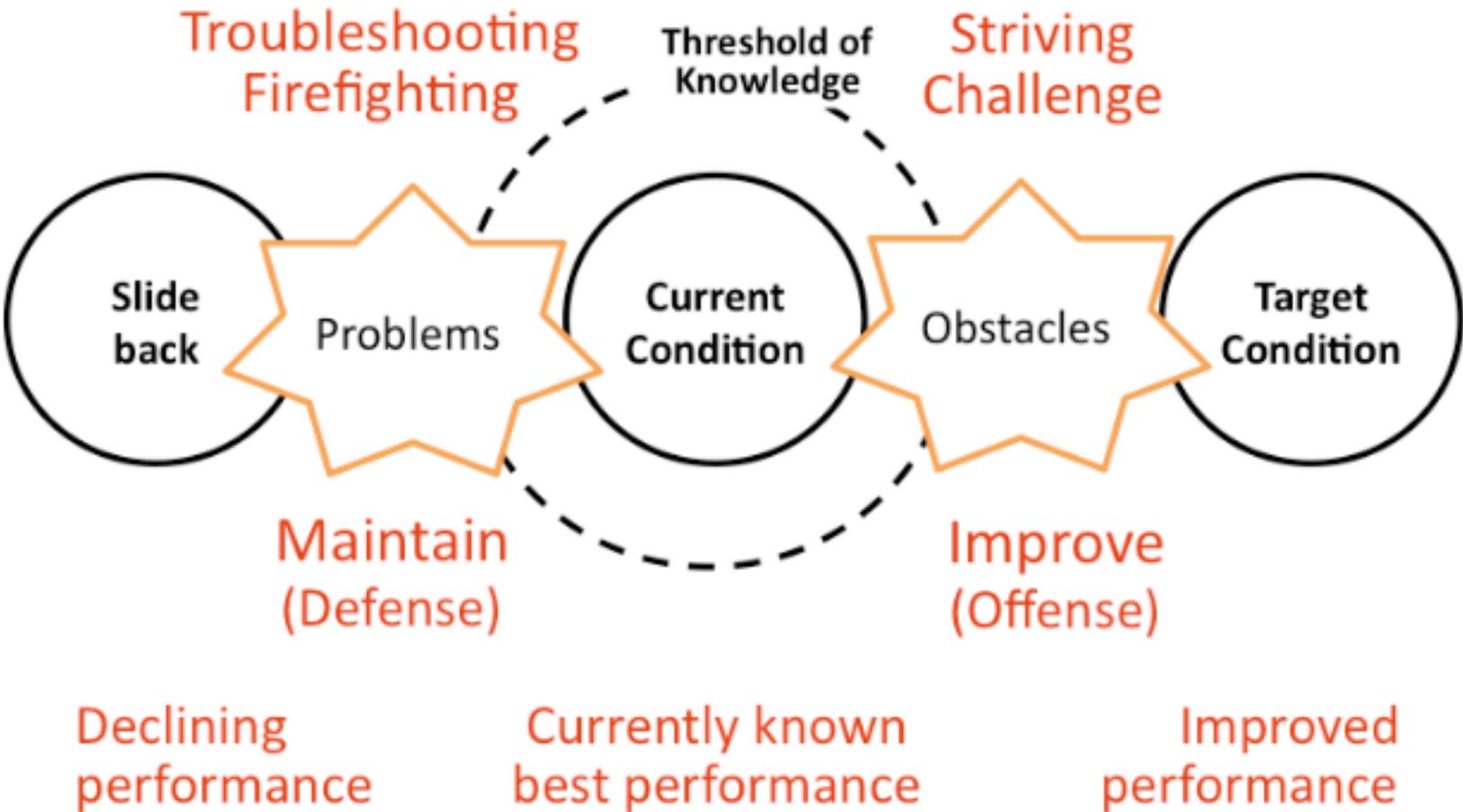


Diagram by Emiel Van Est



# CONTINUOUS IMPROVEMENT REQUIRES STRIVING!

Thriving in unpredictable, competitive circumstances involves systematically striving toward something, not just reacting to problems. Reacting to problems (“troubleshooting”) is necessary, but alone is not sufficient for sustained competitiveness.

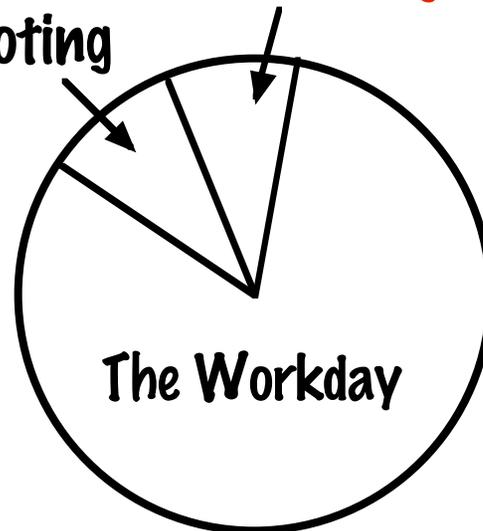
To achieve continuous improvement, adaptation and innovation a portion of everyone’s workday should involve striving toward the next challenge and target condition

Reacting &  
Troubleshooting



*Troubleshooting mostly means trying to maintain*

Striving



*Striving brings you to knowledge thresholds and forces you to learn & adapt*

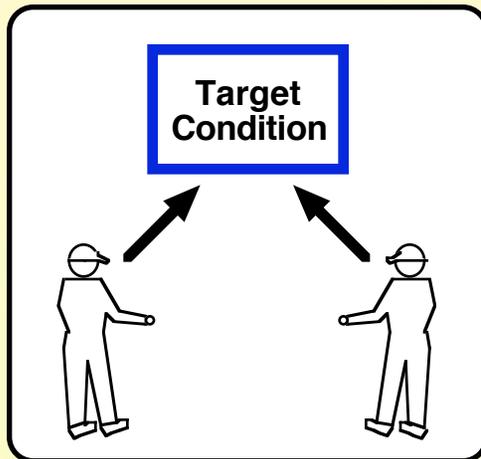
**Note:** The striving activity described in this guide only takes up a small portion (a slice) of each day, and the individual steps can be small.

## KEY POINT

# FOR MORE EFFECTIVE TEAMWORK

Don't ask a team, *“What can or should we improve here?”* Don't go on a waste hunt.

Whenever we do something we are creating neural pathways and, ultimately, habits. It may seem like a good idea to begin with waste walks or waste hunts in order to sensitize people about waste. But what you are actually doing is starting a mental habit of making random improvements. That may not lead your organization to sustained competitiveness.



**First take time to consense on a target condition.**

(This will require you to understand the desired direction and to grasp the current condition.)

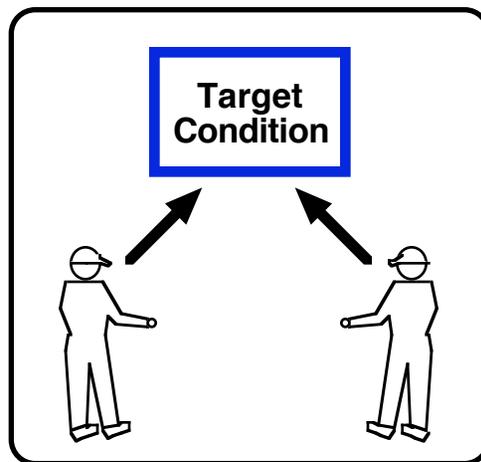
**Then work together to overcome the obstacles to that target condition, one obstacle and one step at a time, following the PDCA cycle.**

# WHAT **CAN** WE IMPROVE? versus WHAT DO WE **NEED** TO IMPROVE?

Simply asking people, “*What can we improve?*” is not an effective way of continuously improving, generating teamwork and empowering people:

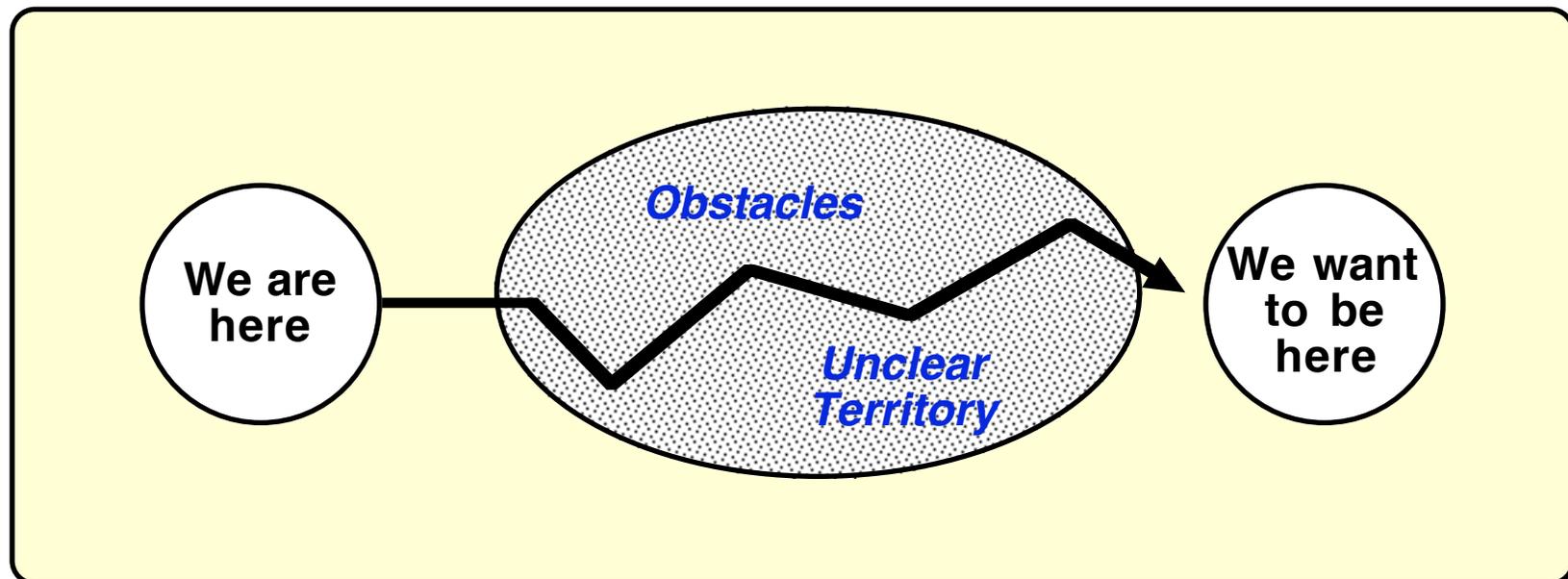
- Everyone’s viewpoint is naturally limited and biased
- We quickly get overwhelmed with diverse action items
- There’s only limited time each day for improvement

Try instead to focus on what you *need* to do to improve. The Lean revolution means kaizen everywhere, but not *everything*. It involves working on those things that move a work process from its current condition to a defined next target condition.



Tackling the obstacles to an agreed-upon target condition is a great place to bring everyone’s ideas into play!

# THE PATTERN OF THE IMPROVEMENT KATA PUTS YOU ON A JOURNEY OF PRACTICE AND DISCOVERY



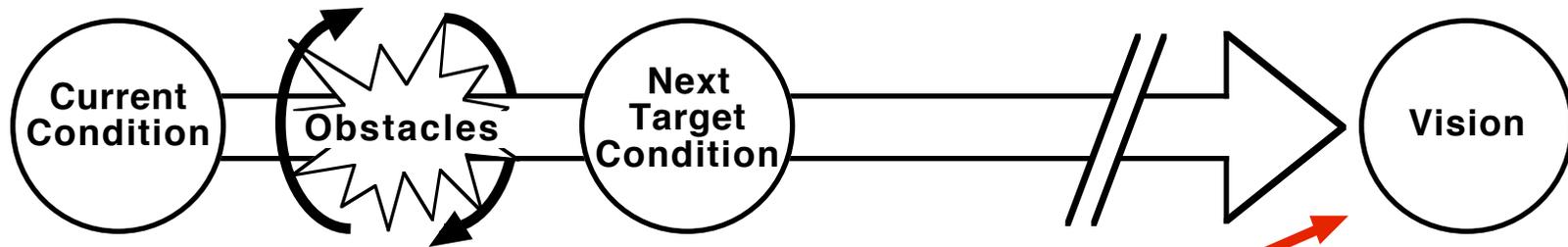
# ONE MORE THING

Once you start applying the Improvement Kata to a process,  
you shouldn't stop



# DISASSEMBLING THE IMPROVEMENT KATA

**PARTS II and III of this handbook will take you through the details of the Improvement Kata in these four stages**



**1: Understand the Direction**

**3: Establish the Target Condition**

**4: Move Toward the Target Condition  
with PDCA and Coaching Cycles**

**2: Grasp the Current Condition**

# **PART I**

## **Getting Started**

**Two Chapters:**

- **Roles and Structure for Daily Practice**
- **Guidelines for Practicing**

# ROLES AND STRUCTURE FOR DAILY IK PRACTICE



**This chapter describes a basic setup you'll need  
for doing the practicing described in Parts II and III**

# ORGANIZING A MENTOR/MENTEE PROCESS

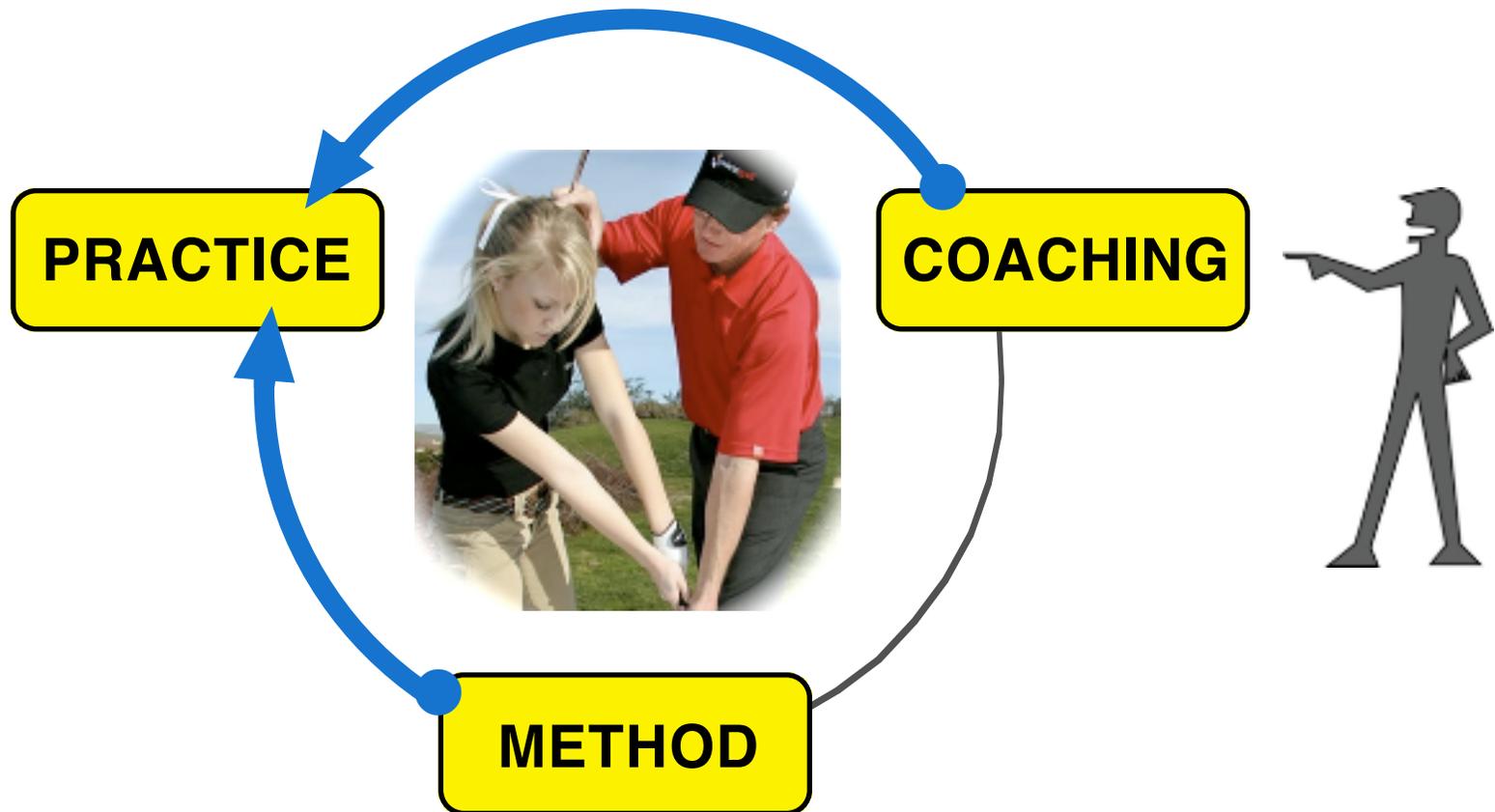
To coach people in practicing the Improvement Kata pattern



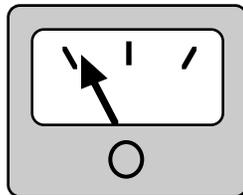
**The routine of the Improvement Kata isn't inherently difficult, but it can be difficult to practice, because we're not used to it and default to the familiar.**

**As in sports and music, practicing a skill should be done under periodic observation and guidance of an experienced coach. Without coaching we lose our way and don't practice the right pattern, or practice ineffectively. Without coaching, a change in the our mindset -- in our brain's wiring -- is unlikely to occur.**

# COACHING IS THE KEY VARIABLE



**Practice with corrective feedback is the most important part of effective skills training.**



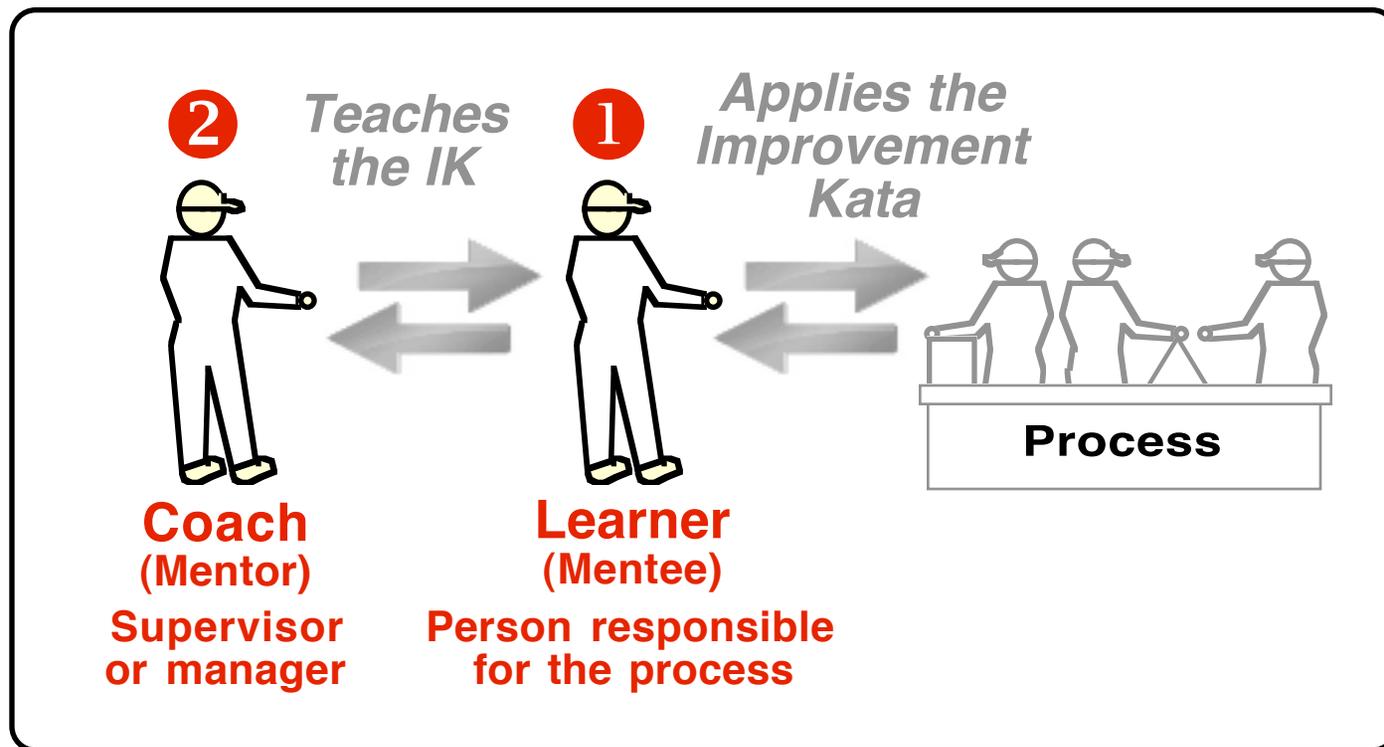
**If the Learner is not learning the Improvement Kata or if the target condition is not being reached, examine the coaching.**

# The Roles



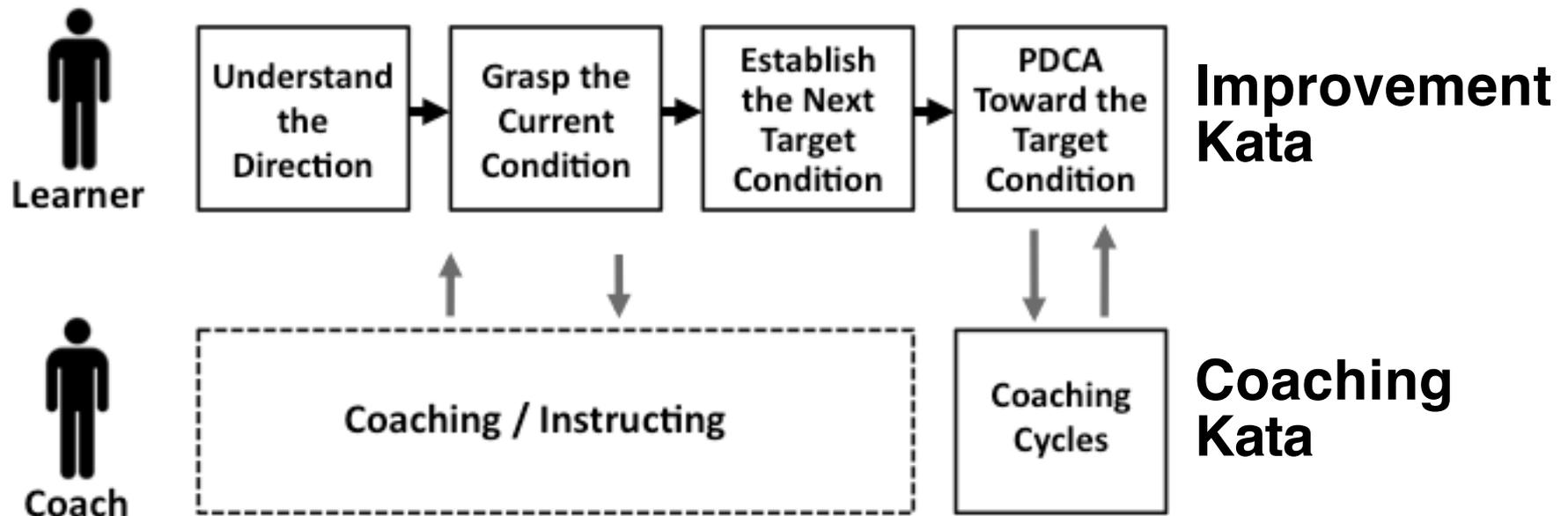
# THE TWO CORE ROLES ARE *COACH & LEARNER*

- SETUP** ►
- These roles typically mirror a reporting relationship, though there are exceptions.
  - Coaching is done one-on-one; one learner, one coach.
  - Learner applies the Improvement Kata to a real process.



Throughout this Handbook we'll refer to the Mentee as the "Learner" and the Mentor as the "Coach."

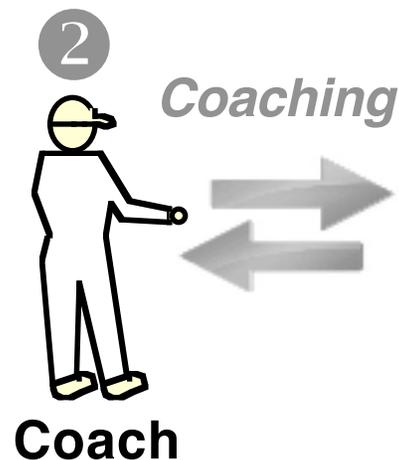
# THE COACH WILL ACCOMPANY THE LEARNER THROUGH THE ENTIRE PROCESS



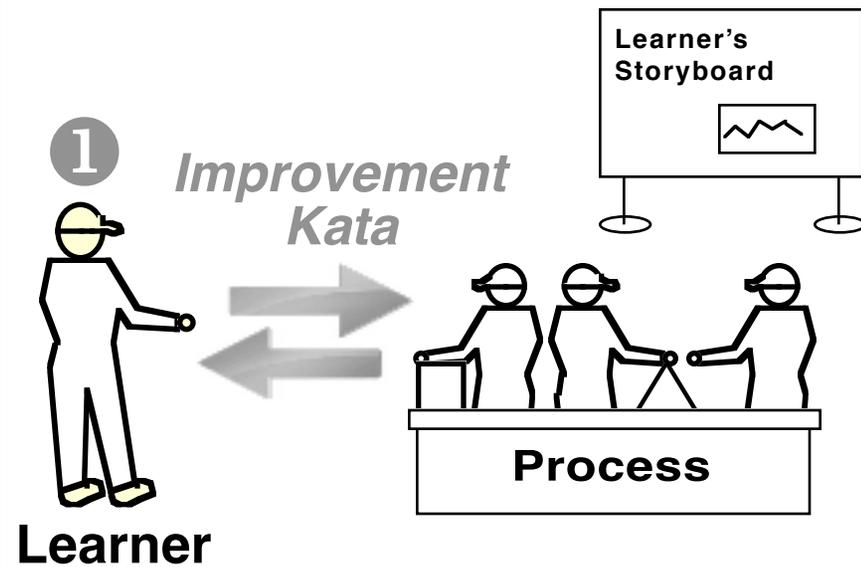
# TWO DIFFERENT FOCAL POINTS

The Learner's goal is to achieve the target condition. The Coach's goal is to increase the Learner's skill in applying the Improvement Kata pattern.

The task here is developing the Learner's ability to meet challenging objectives using the Improvement Kata pattern, by engaging and guiding the Learner in practicing the Improvement Kata pattern.



The task here is to use the pattern of the Improvement Kata to achieve a target condition & meet a challenge.



## KEY POINT ABOUT THE LEARNER AND THE COACH

There is a special overlap of responsibility between the coach and the learner. They're in it together.



The **Learner** is responsible for the doing.

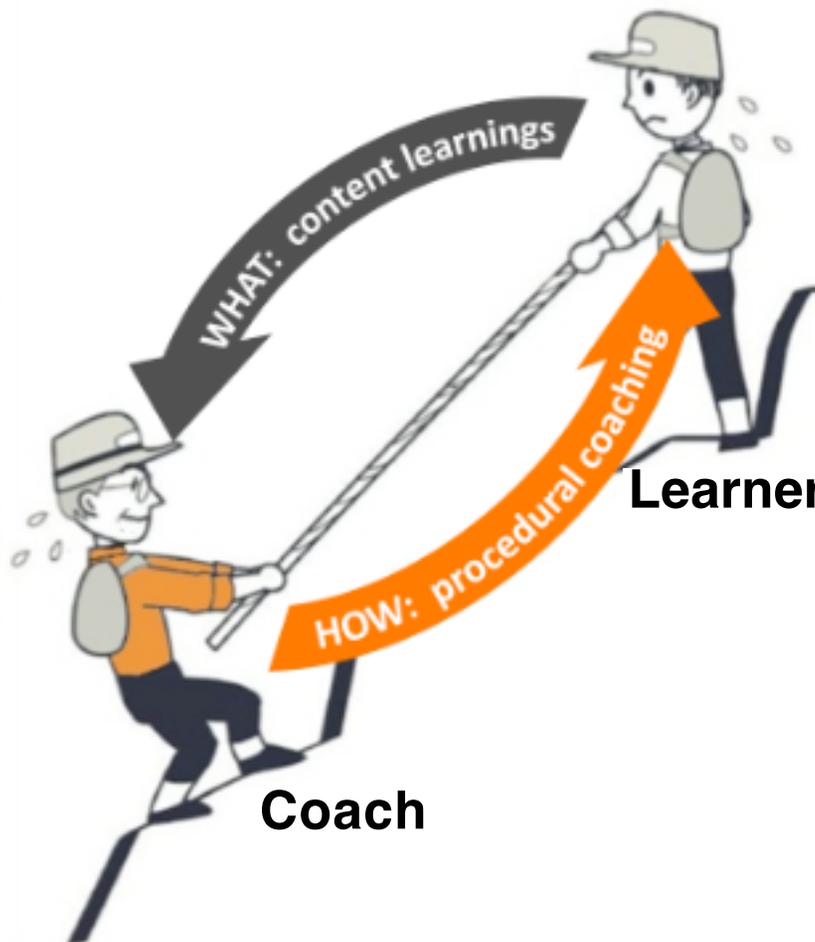
The **Coach** is responsible for the results, but cannot give content solutions to the learner. Why? Because the solutions aren't known yet, and because giving solutions short-circuits the learner's learning.

This overlap creates interdependency between the coach and learner, like two runners in a three-legged race. The learner is working on the steps to the target condition (the **what**), while the coach is working on **how** the learner is approaching it.

# THE INTERDEPENDENCE BETWEEN COACH & LEARNER

The coach guides the learner on *procedure*, but is dependent on the learner to take steps toward the target condition along an unknown path. The learner pulls the coach and the team forward on the learning path to the target condition.

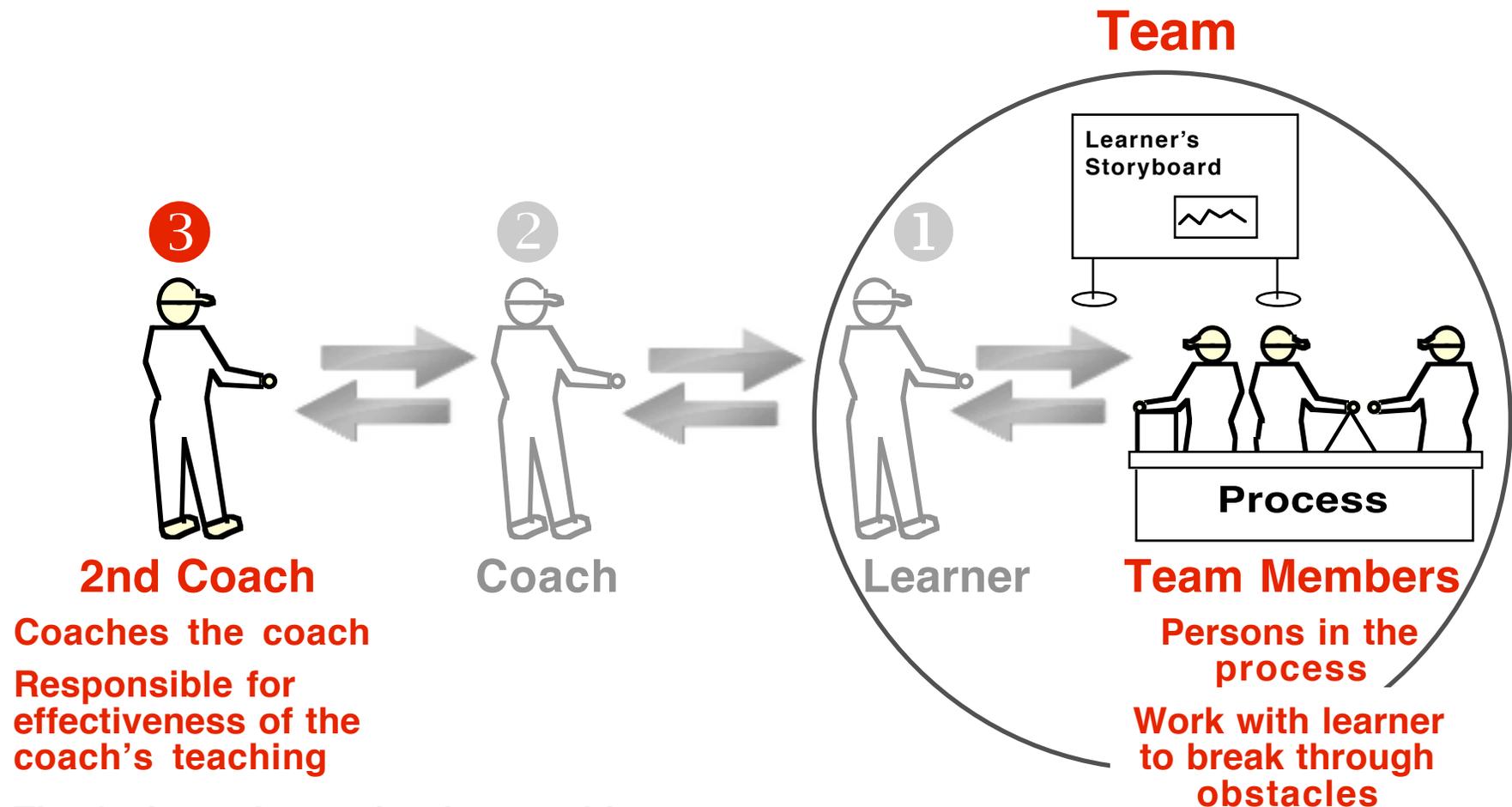
The coach guides primarily the process, not the content, of the learners actions. The coach asks procedural questions and gives procedural guidance...



...the learner works toward the target condition and shares learnings from the last step on the path. The learner will often be ahead of the coach on the content of what's being worked on.

# TWO ADDITIONAL ROLES

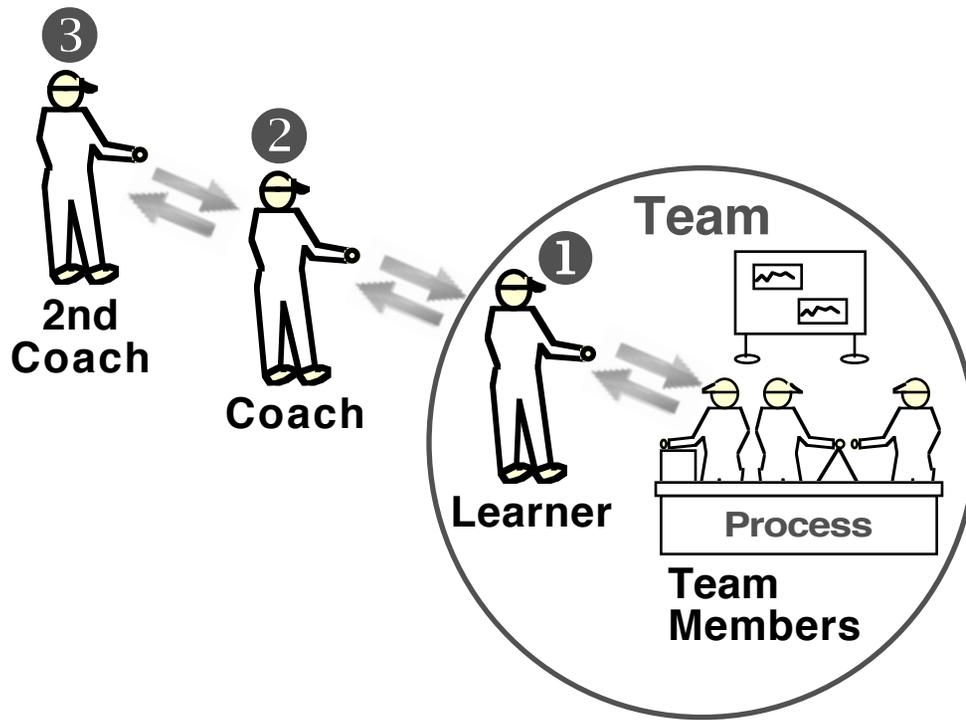
## 2nd Coach and Team Members



The 2nd coach may be the coach's superior, or a staff specialist (eg. a Lean staff person). Like the coach, the 2nd coach must have experience with the Improvement Kata.

A coach sticks with the learner for a longer time, but the 2nd coach can rotate periodically.

# ROLE TASKS



## **Learner and Team (*The Process Owners*):**

Apply the Improvement Kata to establish and work toward the target condition. Learner conducts experiments with PDCA and develops solutions to obstacles, in dialog with the process operators and the coach.

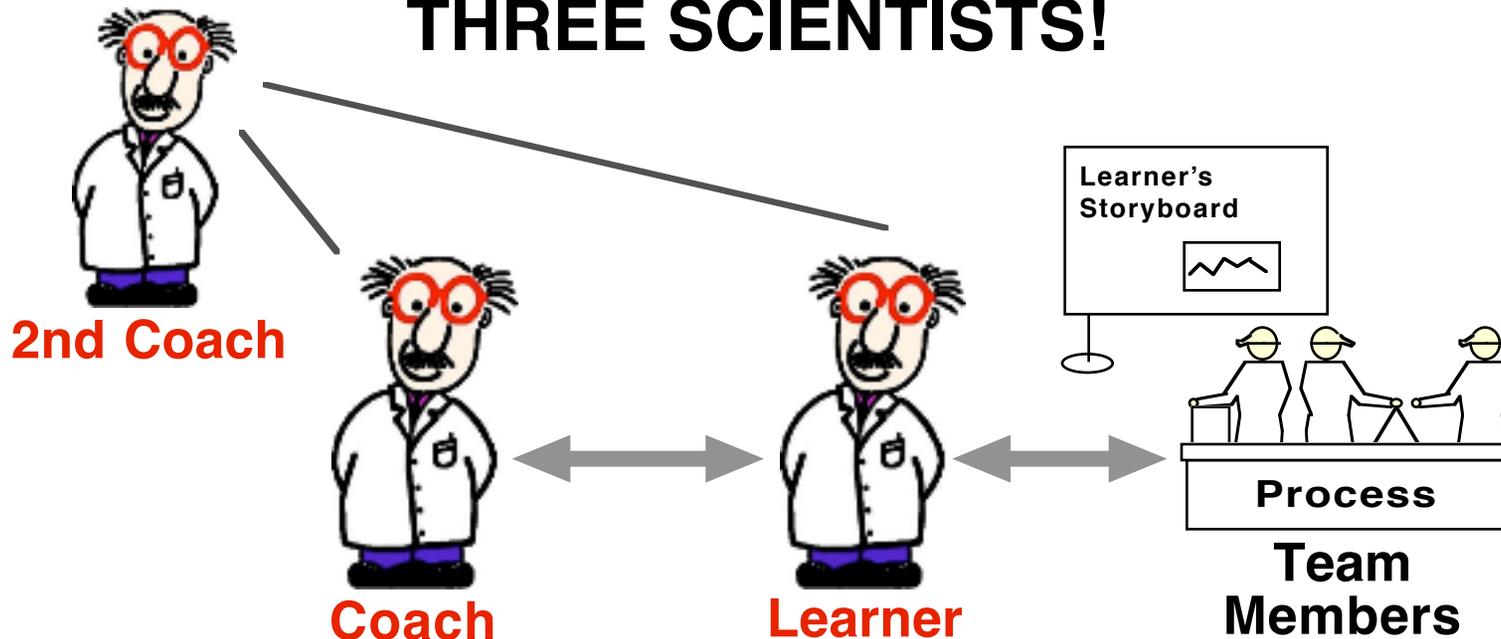
## **Coach / Line Manager (*The Teacher*):**

Conducts coaching cycles daily using the 5 questions. Ensures the learner is working and practicing scientifically and experimentally according to the improvement kata pattern. The coach's job is to develop the learner by guiding the learner on Improvement Kata procedure, not to improve the process.

## **2nd Coach:**

Coaches the coach. Regularly observes coaching cycles and tracks progress of both coach and team. Helps the manager develop his or her coaching skills. Ensures that the team's target condition ties in to a larger challenge or future-state value stream design. Ensures that the environment (time, organizational structure, etc.) is supportive.

# THREE SCIENTISTS!



The **Learner** is trying to be scientific in striving toward the Challenge, by using the Improvement Kata as described in Part I. The Learner is looking for cause-and-effect between steps taken and progress toward the current target condition.



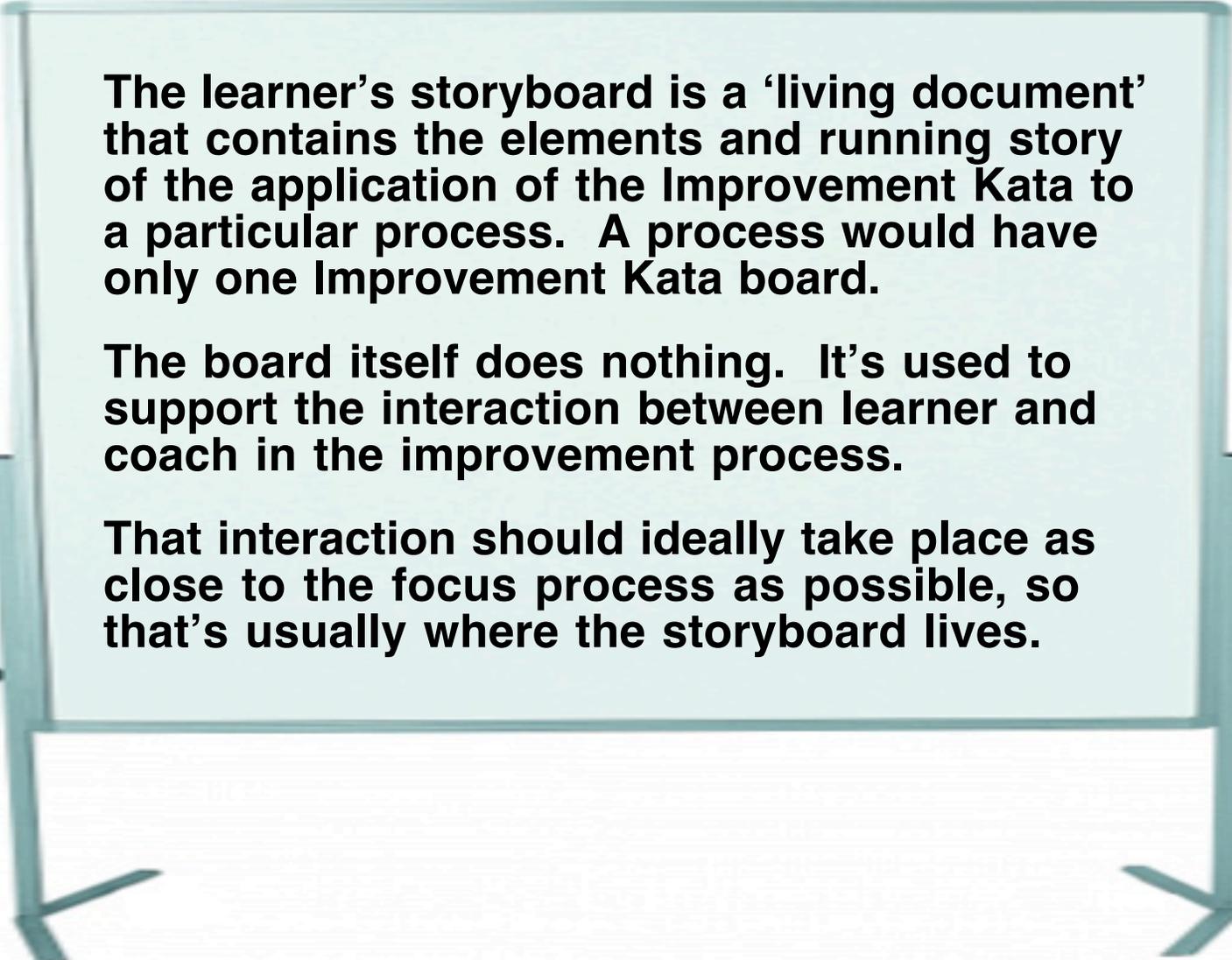
The **Coach** is trying to be scientific in having the Learner practice and internalize the pattern of the Improvement Kata, following the Coaching Kata described in this section (Part II). The Coach is looking for cause-and-effect between the Learner's approach and progress toward the current target condition.



The **2nd Coach** is trying to be scientific in helping the Coach practice and learn effective coaching skills. The 2nd Coach is looking for cause-and-effect between the Coach's actions and the Learner's skill growth in applying the Improvement Kata pattern.

# The Learner's IK Storyboard





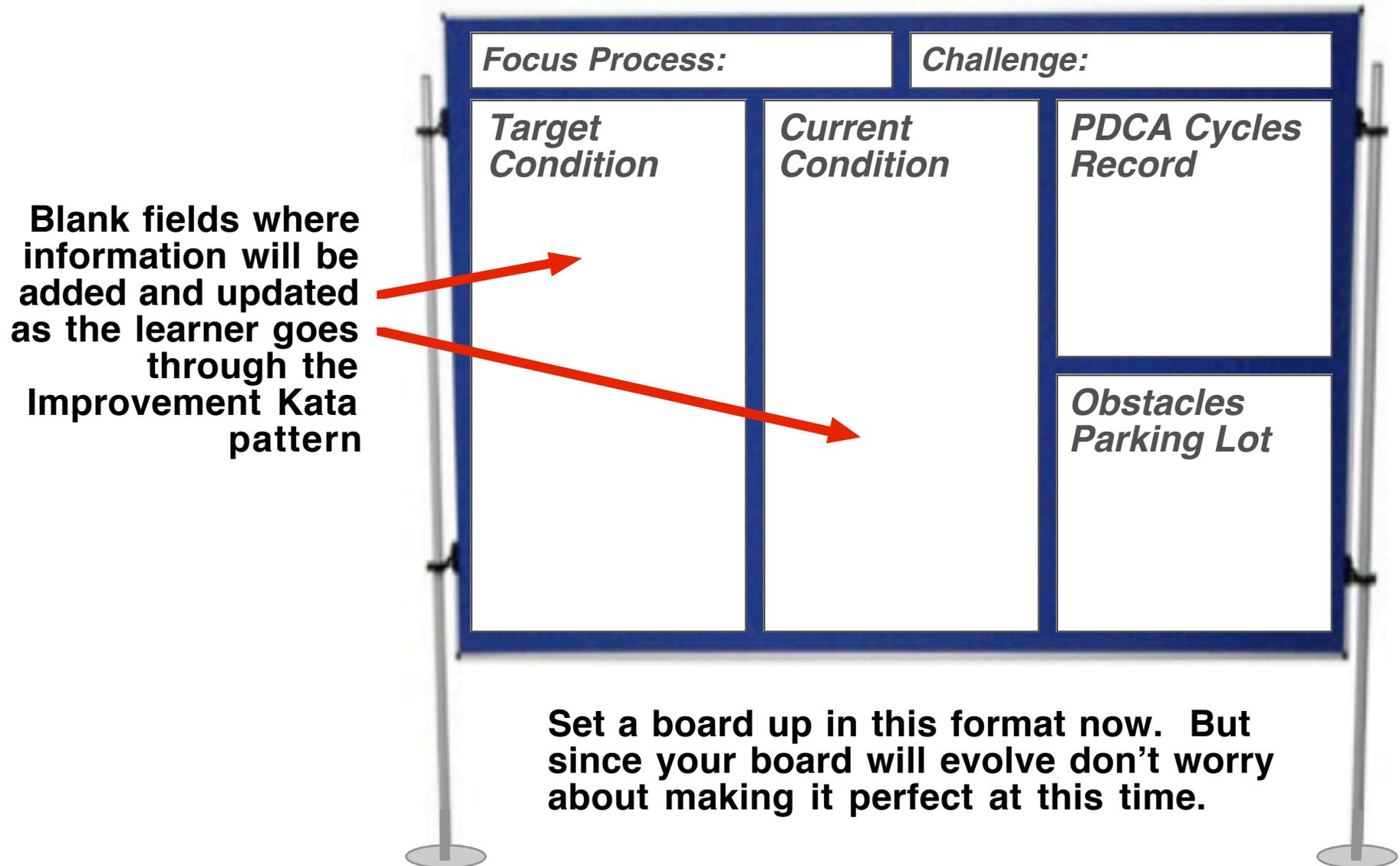
**The learner's storyboard is a 'living document' that contains the elements and running story of the application of the Improvement Kata to a particular process. A process would have only one Improvement Kata board.**

**The board itself does nothing. It's used to support the interaction between learner and coach in the improvement process.**

**That interaction should ideally take place as close to the focus process as possible, so that's usually where the storyboard lives.**

# LEARNER'S STORYBOARD - STARTING POSITION

Begin with a board that has these six fields and headings

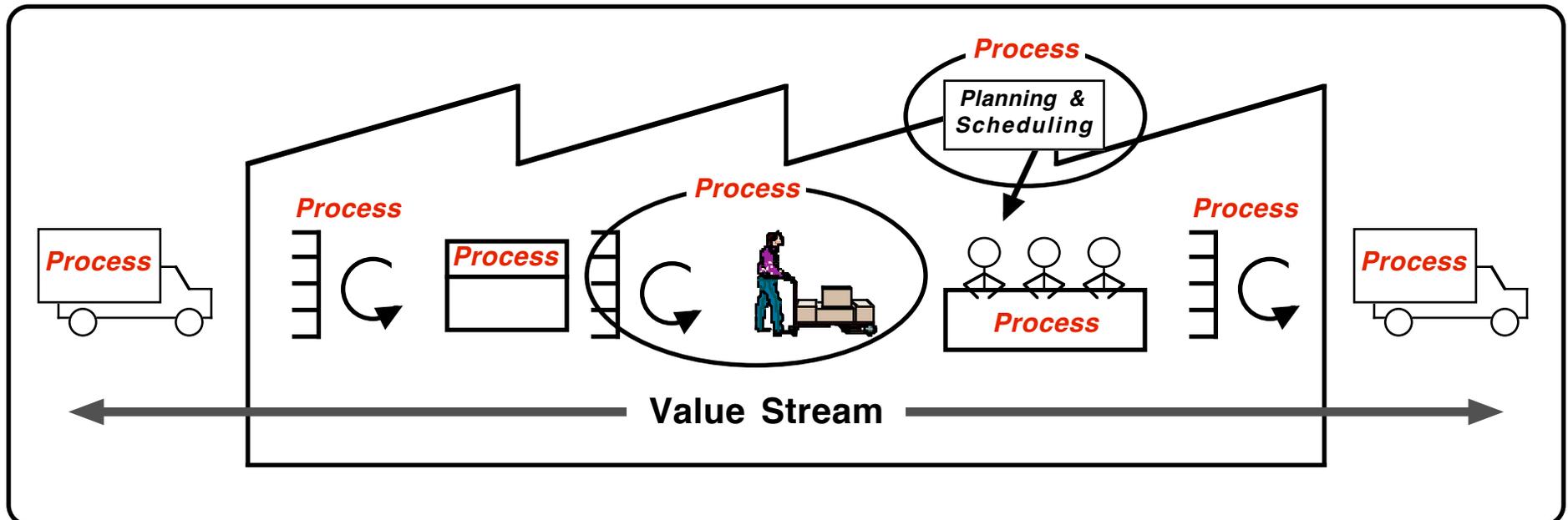


# FOCUS PROCESS

There are many processes in a value stream

The word “process” refers to several kinds of activity, not just production processes. Material handling, order-entry, lab procedures, handling customer returns, etc.

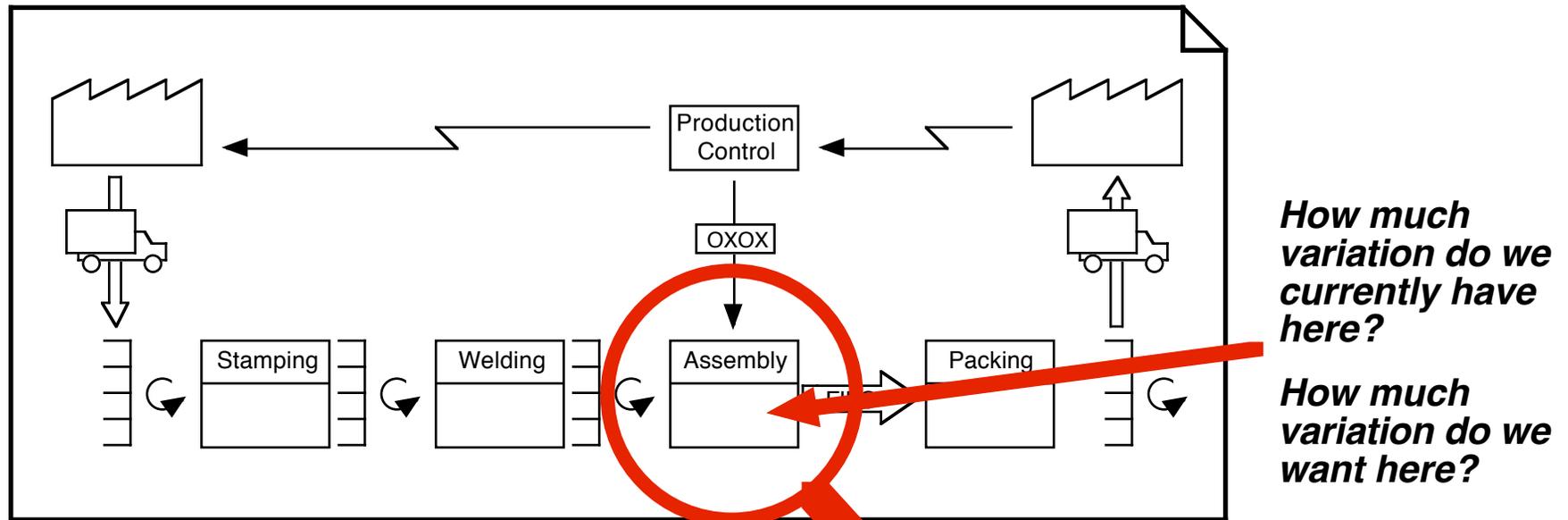
Think of processes as the chainlinks of a value stream that serves a customer.



# YOU OFTEN START AT THE “PACEMAKER PROCESS”

This is at the downstream, customer-end of the value stream

(refer to Appendix 1 in *Toyota Kata* and page 90 in *Learning to See*)



This is the ‘pulling’ process in a value stream and variability here adversely affects upstream processes, which makes the causes of problems upstream harder to understand. A good approach is to strive to reduce variation in the downstream pacemaker process and see where else in the value stream that effort leads you.

However, with beginners it’s more important to select an easy-to-understand process for initial practicing, so they can concentrate on the pattern of the Improvement Kata. Once a learner is at *competent* level you can pick the focus process more in line with business objectives.

# LEARNER'S STORYBOARD

Learner and coach are now concentrating on this field **X**

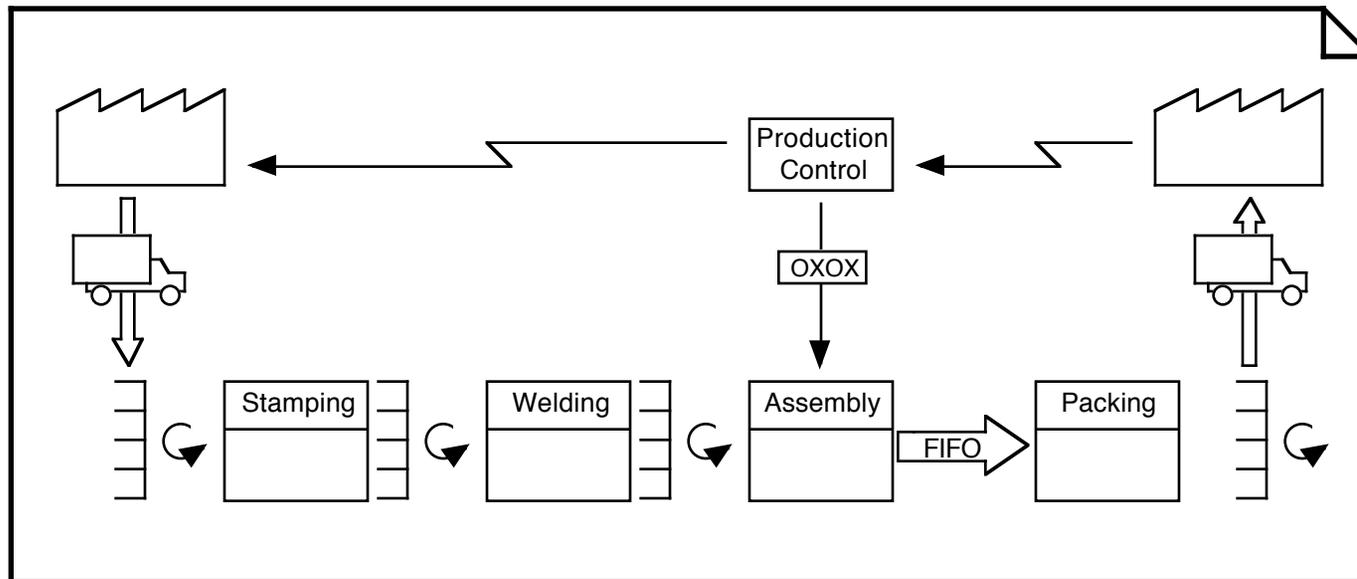


<i>Focus Process:</i> <b>X</b>		<i>Challenge:</i>
<i>Target Condition</i>	<i>Current Condition</i>	<i>PDCA Cycles Record</i>
		<i>Obstacles Parking Lot</i>

# THE VALUE STREAM VIEW

When you select a focus process we assume you have drawn or will draw a current-state value-stream map and develop a future-state map for the product family. For details on how to create current- and future-state value stream maps see the book *Learning to See*.

- A) Walking the value stream and drawing a **current-state map** helps you understand the overall flow and identify the segments, or “loops,” of the value stream.
- B) Your **future-state design** (map) describes in a graphic format how you would like this value stream to function in 1-3 years.



# Deploying the Improvement Kata



*Who should be the first Learners,  
and who will coach them?*



## *Lessons Learned*

## **SOME LESSONS LEARNED ABOUT DEPLOYING THE IMPROVEMENT KATA**

- To bring the pattern of the Improvement Kata into the operation of your organization, ultimately mid-level management will have to actively coach it every day.**
- A gating factor is how much Improvement-Kata coaching capability you are developing in your organization. You cannot expand wider and faster than your coaching capability.**
- To be able to coach the Improvement Kata, a person first has to learn how to do the Improvement Kata.**
- You may think deploying simply means getting people in the organization to start practicing the Improvement Kata, but in our experience an effort to deploy the Improvement Kata must be guided. Establish an 'Advance Group' as described in the following pages.**

# START WITH A SMALL “ADVANCE GROUP”

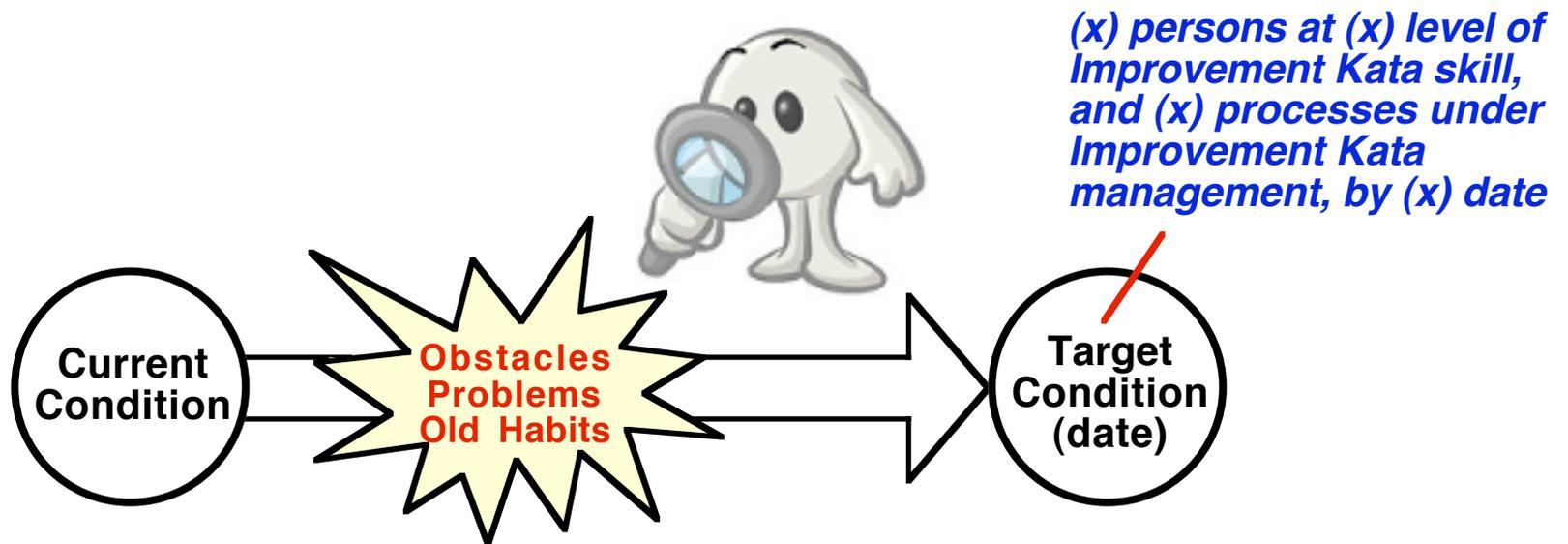
## AKA “The Shepherds”

***Advance Group*** refers to a team of 3-5 people who shepherd the deployment of Improvement Kata thinking and acting in an organization or site. There can be one advance group for the overall organization, and an advance group at each local facility.

- The Advance Group is not responsible for conducting all coaching and training, nor for making improvement happen at all processes. That will be the responsibility of line managers and leaders who coach in their areas.
- The Advance Group subsequently teaches the next set of learners/managers in the organization.
- The Advance Group includes a senior executive (*the* senior executive in small and mid-sized companies, and at smaller local sites).
- The Advance Group is *not* a lean staff group, although a lean staff member can be on the advance group. If you have a lean staff, their role may migrate toward being “master coaches” for line managers, who are the heart of the lean effort.
- The advance group will probably need guidance from an external coach, which can be an outside consultant.

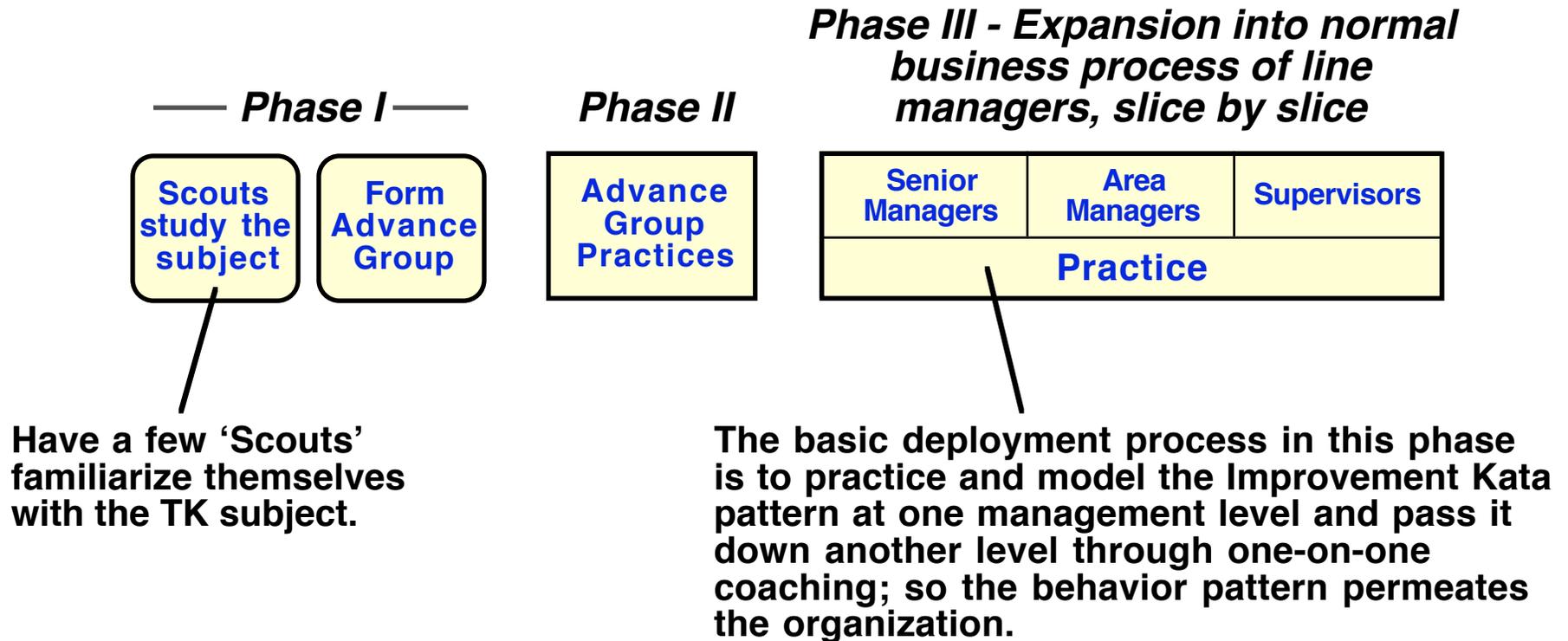
# WITHOUT AN ADVANCE GROUP TO SHEPHERD IT, YOUR DEPLOYMENT IS UNLIKELY TO SUCCEED

Planning a perfect deployment of new skills is impossible, so it will be important to sense obstacles, problems and weaknesses as they arise, learn from them and adapt the deployment plan accordingly. That's the responsibility of the Advance Group.



You're working on a change in how your organization manages people, so there's a need for high-level PDCA. The Advance Group does this high-level reflecting and adjusting.

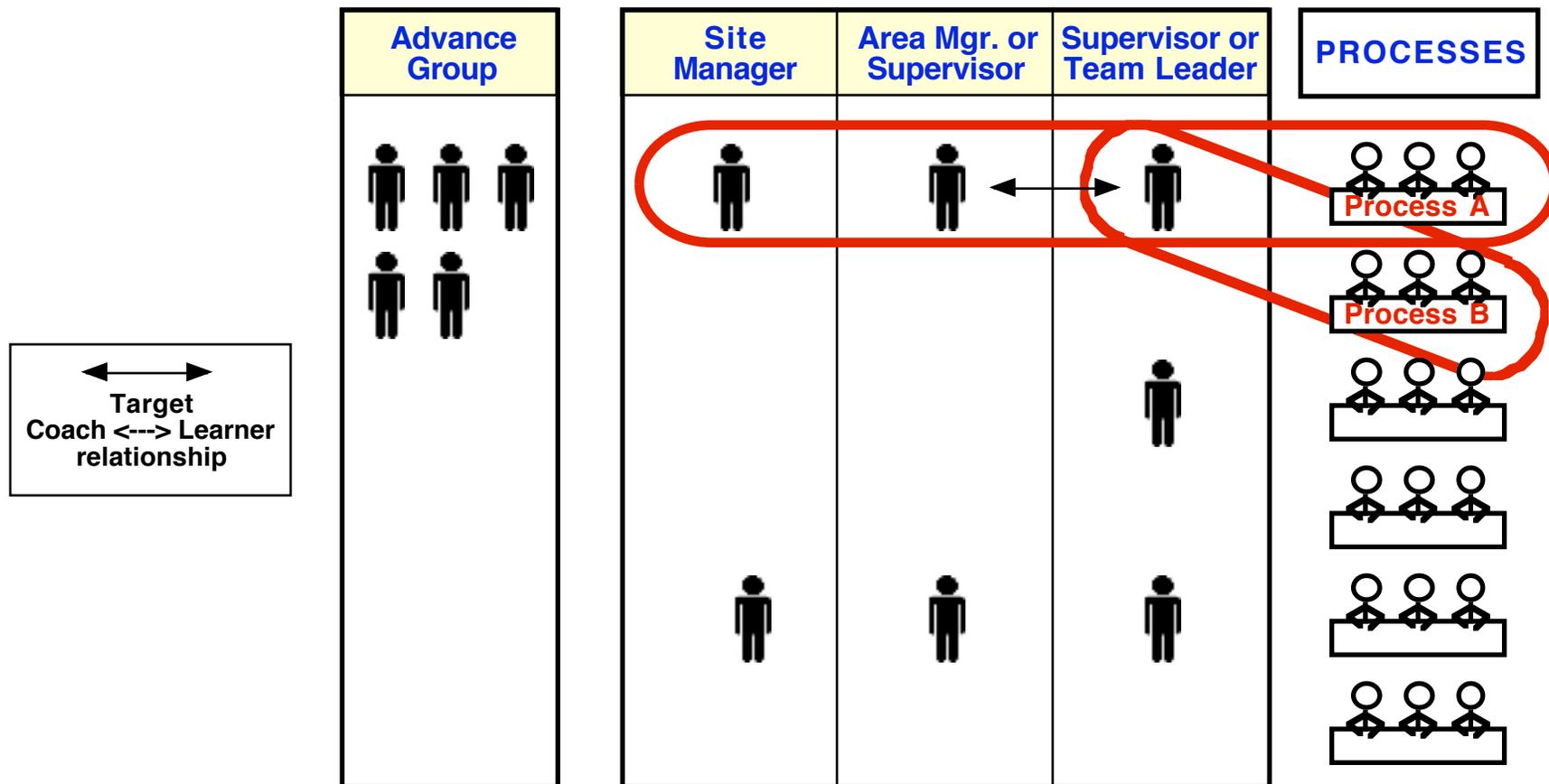
# A THREE-PHASE DEPLOYMENT APPROACH



# EXPANDING SLICE BY SLICE

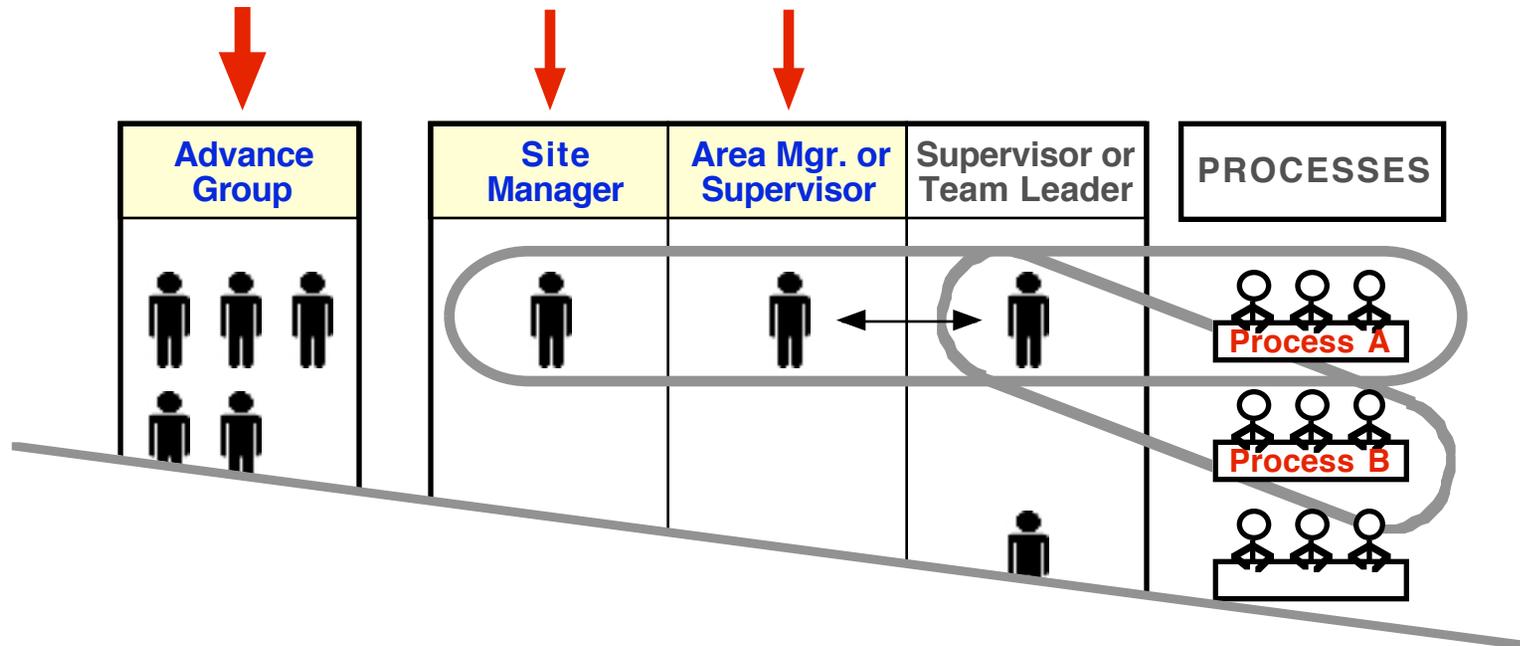
## To what process will the learner apply the Improvement Kata?

- A *slice* = a process and it's associated chain of persons.
- Add slices only as your coaching capacity permits.
- Once you start applying the Improvement Kata to a process you should never stop. So it's better to start too small than to involve too many people too quickly.



# WHO GOES FIRST

The **Advance Group** and perhaps some **selected managers** are the first learners. They practice the Improvement Kata on artificially-selected processes to quickly gain some skill



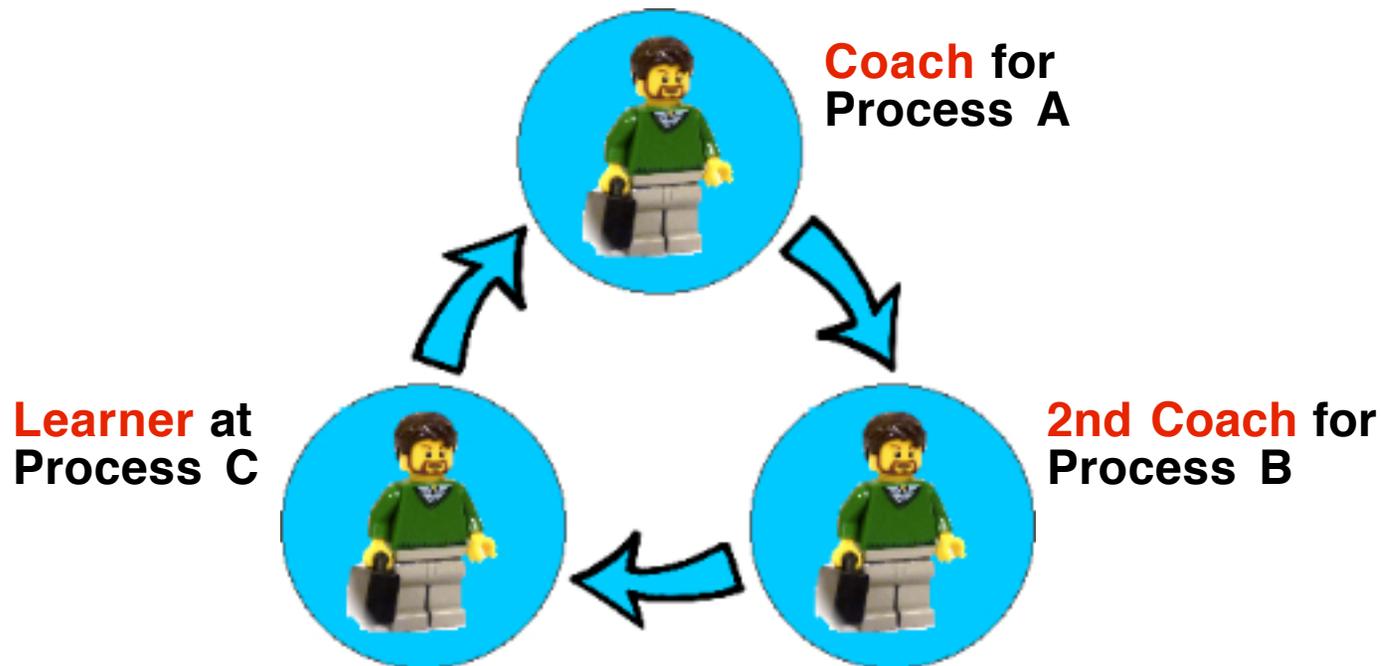
**Why?** Whether they realize it or not, by virtue of what they say and do all leaders and managers are teaching and reinforcing habits of thinking and acting. Whatever behavior leaders and managers model is likely to be the behavior pattern that their people internalize. If you start IK projects but they are surrounded by a different behavior pattern, the pattern in the projects is unlikely to endure.

# ROTATION TACTIC FOR DEVELOPING YOUR FIRST COACHES

Experienced IK coaches are a scarce resource at the start

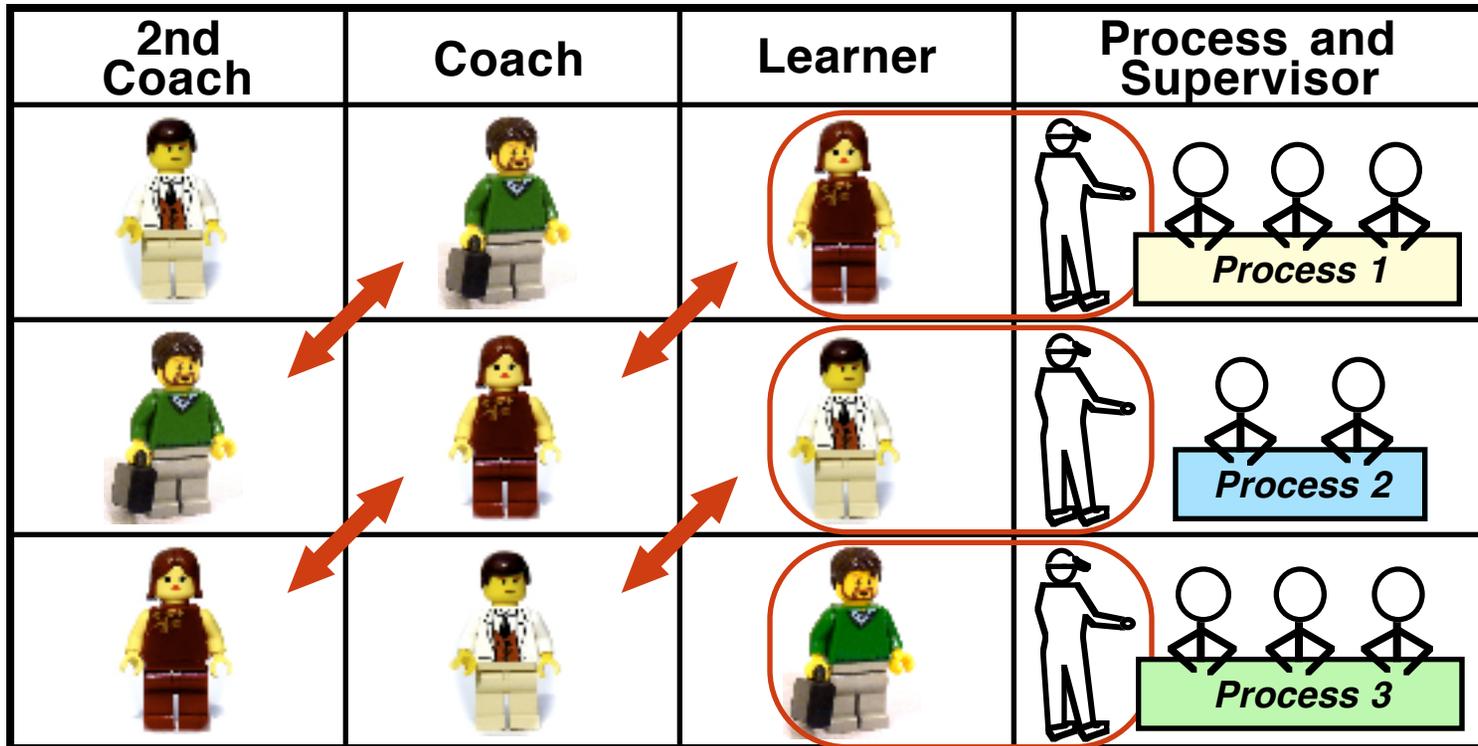
At the start there are no experienced coaches. To get through this problem you can do the initial practicing in one of the following **two rotation approaches**, whereby each person in a coaching practice group experiences all three roles.

These are temporary, artificial structures for practicing so you can quickly develop some skill and some coaches.



# Rotation Model One: For 3 or 4 Persons

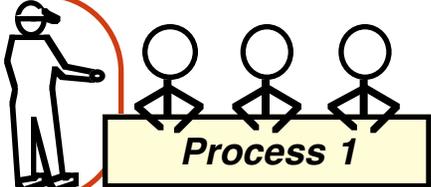
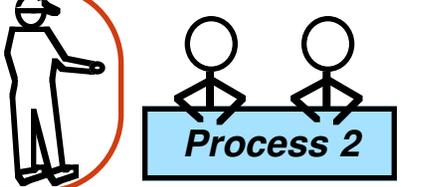
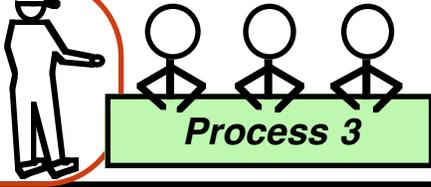
- The Learner pairs with the process Supervisor to apply the Improvement Kata to the process.
- In this model members practice each role every day.



In each coaching cycle there should only be one learner and one coach, but it's OK to have two 2nd coaches observing. In a four-person rotation model each coaching cycle would have two 2nd coaches observing.

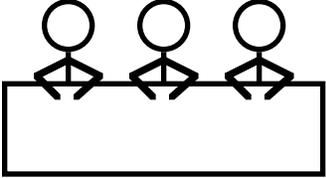
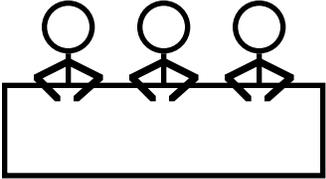
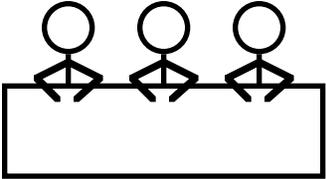
# Rotation Model Two: For 6 or 9 Persons

- Select 2 or 3 processes, with 3 person practicing per process. A total of 6 or 9 persons practicing, in two or three groups. (The Advance Group members + additional coaches in training.)
- The Learner pairs with the process Supervisor to apply the Improvement Kata to the process.
- In this model, members in each group rotate their role within their group every 1-3 weeks.

	2nd Coach	Coach	Learner	Process and Supervisor
Group 1				
Group 2				
Group 3				

# PLANNING FORM

Fill in persons and processes for initial practicing

Practice Dates	Start:	Rotation Model
	End:	
Who will be practicing	Actual process Supervisor (pairs with Learner)	Focus Process
		
		
		

# GUIDELINES FOR PRACTICING Learning New Skills



# IT TAKES PRACTICE TO ACQUIRE A NEW SKILL AND MINDSET

How do you internalize a thinking and behavior pattern like that represented by the Improvement Kata? Brain research is clear: To develop new habits you need to practice new routines.

The ultimate goal of practicing the Improvement Kata is to understand and internalize its pattern, so you can apply it in many different situations without thought or hesitation.



This is a Handbook about practicing the Improvement Kata, but before we get going let's talk a little about *practicing*.

# THE TK ROUTINES TO PRACTICE

(Coach needs to know both Improvement Kata and Coaching Kata)

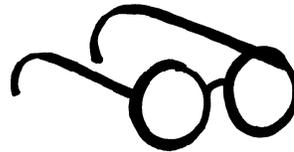
## Learner - Improvement Kata



Understand the Direction



Grasp the Current Condition

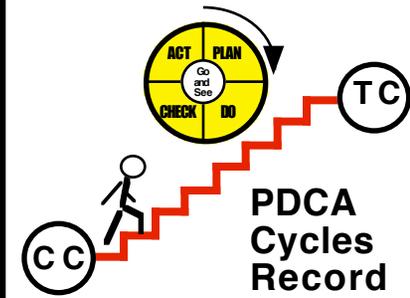


Establish the Next Target Condition

Target Condition



PDCA Toward the Target Condition

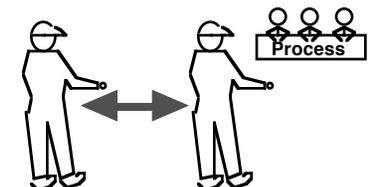


## Coach - Coaching Kata



Coaching / Instructing

Coaching Cycles



Coach Learner

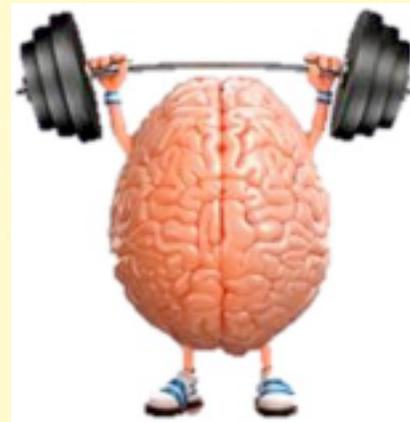
The 5 Questions

# KEY POINTS FOR IMPROVEMENT KATA PRACTICE

- ❑ Make practicing part of normal daily work, not a special event.

According to neuroscience, to develop new habits and maintain them it's generally better to train for a short time frequently, than in massed training sessions.

Skills are best learned when practice sessions are short and frequent, so be sure to make practicing the Improvement Kata part of every workday.



***Note that this may lead you to shift emphasis away from periodic training or improvement efforts led by lean staff or consultants, and more onto daily practice and improvement coached by your line managers.***

# KEY POINTS FOR IMPROVEMENT KATA PRACTICE

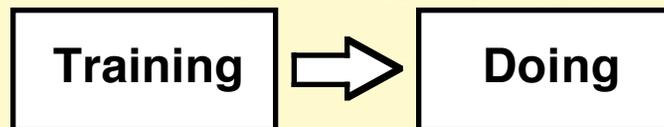
- ❑ In teaching/learning the Improvement Kata pattern you combine training and doing.

In sports and music the activities of training and performance are typically separated, with performance being maybe only 10%. This ratio is not financially workable in business.

In addition, we find that IK practice is more likely to generate mindset change when the learner is working on something real, as opposed to a fictitious example.

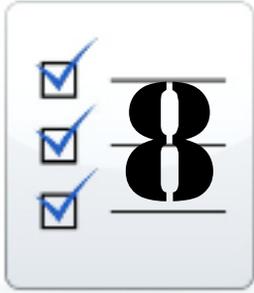
In the model of practice presented in this handbook learners do 2 things simultaneously every day: Strive for a real target condition + practice the pattern of the Improvement Kata.

*Not this*



*But this  
(combined)*





# EIGHT GUIDELINES FOR PRACTICING THE IMPROVEMENT KATA

How well you master a skill like the Improvement Kata pattern depends more on *how* you practice than on merely repeating the routine a large number of times. Here are eight guidelines for your practicing:

- 1) **Get an Overview of What You're Trying to Learn**
- 2) **Find a Coach**
- 3) **Be Enthusiastic About Practicing**
- 4) **Break the Skill Pattern into Pieces, and Practice Only One or Two Pieces at a Time**
- 5) **Deliberately Follow the Prescribed Pattern Exactly at First**
- 6) **Practice a Little Every Day**
- 7) **Practice on Something Real**
- 8) **Practice at the Edge of Your Capability**

These guidelines are based on several sources, including: *The Talent Code* by Daniel Coyle, *Talent is Overrated* by Geoff Colvin, *Human Memory: Theory and Practice* by Alan Baddeley, and the Bjork Learning and Forgetting Lab at UCLA.

Practice Guideline	Details
<p><b>1) Get an Overview of What You're Trying to Learn</b></p>	<ul style="list-style-type: none"> <li>• Get a picture of the parts of the Improvement Kata and how they come together as a whole in correct performance of the skill.</li> <li>• Explain the coaching method to the learner beforehand, so s/he can understand what is taking place.</li> </ul>
<p><b>2) Get a Coach</b></p>	<ul style="list-style-type: none"> <li>• You'll need periodic input and guidance from someone who observes you, detects your errors and gives you advice on how to correct them.</li> <li>• An experienced Improvement Kata coach may or may not be available. If not, grab someone else who is practicing the Improvement Kata and coach one another.</li> <li>• Once you master the Improvement Kata you can coach others.</li> </ul>

<p><b>3) Be Enthusiastic About Practicing</b></p>	<ul style="list-style-type: none"><li>• New neural pathways won't form if you practice with a negative attitude. You gotta wanna.</li><li>• There will be plateaus when it seems like you aren't making progress. Keep your chin up and keep practicing. Listen to your coach for advice.</li></ul>
<p><b>4) Break the Skill Pattern into Pieces, and Practice Only One or Two Pieces at a Time</b></p>	<ul style="list-style-type: none"><li>• Kata are usually practiced in pieces, until the whole sequence is learned. This is called <i>chunking</i>.</li><li>• Do not try to master too many chunks at once. The coach should determine what the learner is ready to practice next.</li></ul>

## 5) Deliberately Follow the Prescribed Pattern Exactly at First

\* *Have beginners practice on processes that are easy to understand and where it is easy to see how to apply the Improvement Kata pattern.*

*This is like training in music and sports, where beginners don't start on a difficult piece.*

- The first stage of practicing is to try to copy the pattern exactly; to replicate the kata in a deliberately precise way. Think of it as *going slow to get fast*.

Initial practicing is deliberate and uses your conscious mind, which is slow. Once the pattern enters your unconscious and becomes a normal, habitual way of working it gets faster, smoother, and easier. And then you can coach others.

- For beginners what is most important is practicing the desired pattern as closely as possible, not going fast or being efficient.\* Speed follows.

The slowness at beginner levels may lead people to think it's not working. This is a mistake that can lock you into your current skillset.

<p><b>6) Practice a Little Every Day</b></p>	<ul style="list-style-type: none"><li>• Short daily practice is better than massed practice. This is called <i>spacing</i>.</li><li>• Your practicing only has to be a slice of the workday. You should have at least one Coaching Cycle every day.</li></ul>
<p><b>7) Practice on Something Real</b></p>	<ul style="list-style-type: none"><li>• What the learner is working on must be meaningful to the learner and the organization. The Improvement Kata pattern should be seen as a means to a desired objective. The learner must solve real problems on the way to a real target condition.</li><li>• Learners are doing two things simultaneously: Improving a process and learning the pattern of the Improvement Kata.</li></ul>

**8) Practice at the Edge of Your Capability**

- Learning a skill requires making small errors and then working to correct those points.
- Target those aspects of the skill pattern that currently give you the most difficulty. Deliberate practice aimed at remedying weaknesses is a better predictor of expertise than raw number of hours.

# THERE IS A SKILL-LEARNING PROGRESSION

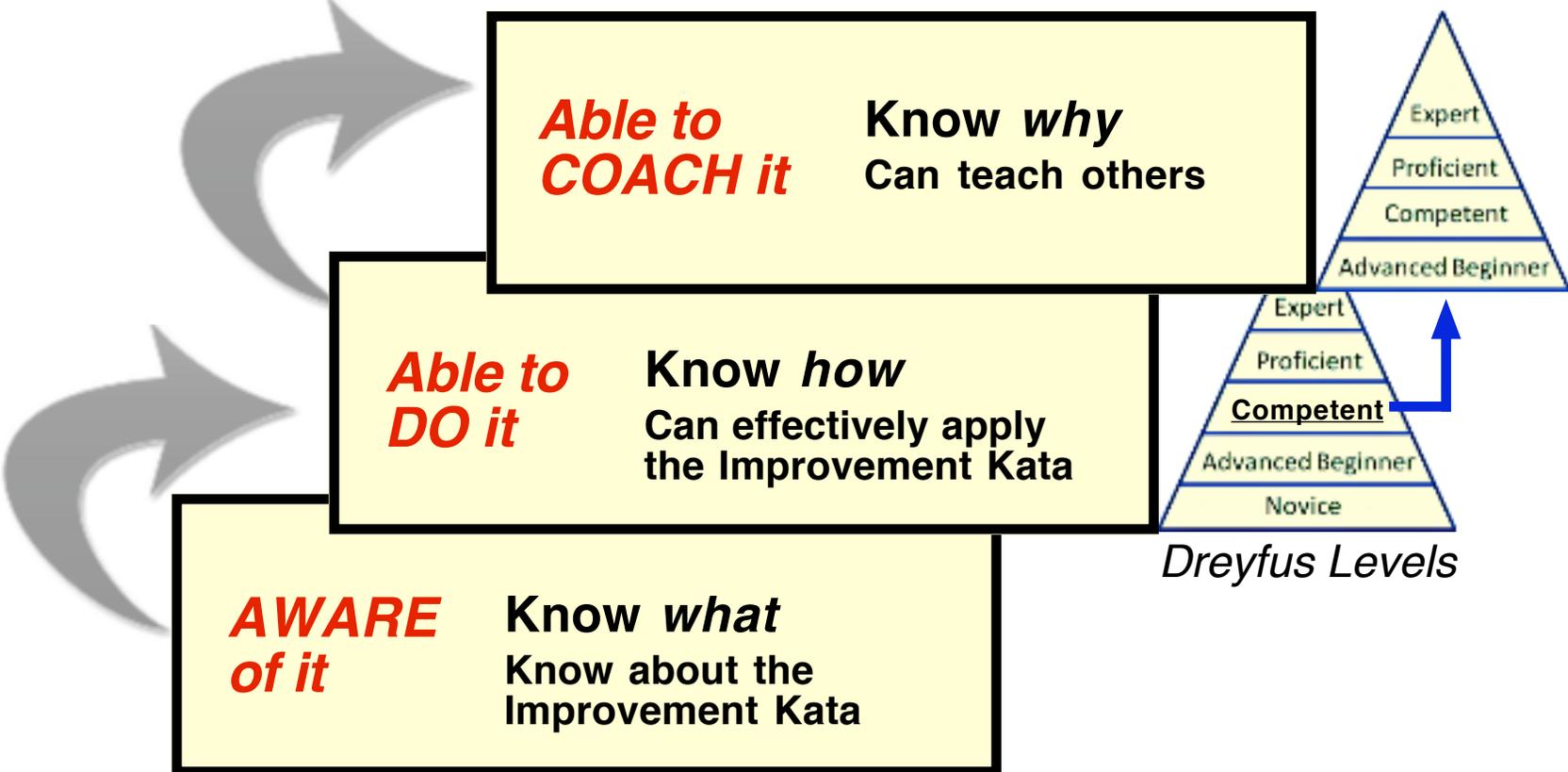
The *Dreyfus Model of Skill Acquisition* describes learning a skill through practice as passing through these five stages

Stage		Characteristics	Standard of Work	Autonomy
5	<b>Expert</b>	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
4	<b>Proficient</b>	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
3	<b>Competent</b>	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
2	<b>Advanced Beginner</b>	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
1	<b>Novice</b>	Adherence to rules or plans Little situational perception No discretionary judgement	Unlikely to be satisfactory unless closely supervised	Needs close supervision or instruction

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

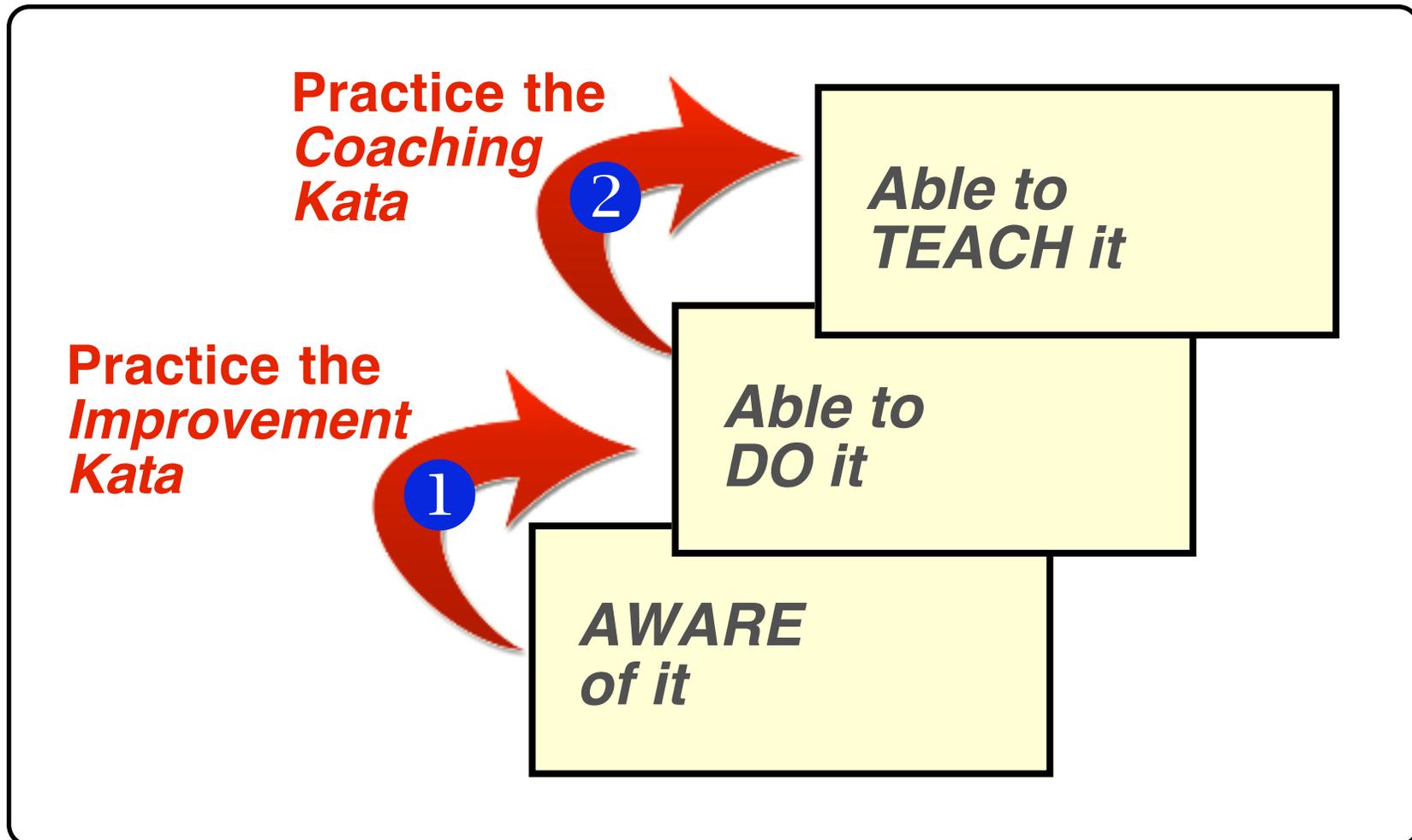
**Note that the Dreyfus model measures skill level, not the person**

# LEVELS OF LEARNING THE IMPROVEMENT KATA



Dreyfus level “Competent” in the Improvement Kata seems to be a prerequisite for starting to coach others.

# TWO OVERALL PHASES OF PRACTICE



# YOU CAN PRACTICE IK *THINKING* EVERY DAY

Every time you do or think something, you're more likely to do that again

Here's a way to help rewire your own thinking and habits toward the scientific pattern of the Improvement Kata: Mentally refer to these Five basic Coaching Kata questions every time you're involved in a team effort.

The pattern of these questions is easy to learn, and each time you think through them and apply them it can strengthen the pattern of the Improvement Kata in your brain's wiring.



## Five Basic CK Questions

1. What are we trying to achieve?
2. Where are we now?
3. What's currently in our way?
4. What's our next step, and what do we expect?
5. When can we see what we've learned from taking that step?

## **KEY POINTS**

### **ABOUT PRACTICING KATA**

- ❑ **Beginners stick closely to the form prescribed by a kata in order to burn in it's pattern. Think of a keyboard student deliberately and repeatedly typing, "*The quick brown fox...*"**
- ❑ **Once you become skillful you can back off the formal kata, because a kata is a teaching tool; a shell.**

**Proficient students who have internalized the kata's pattern to their unconscious can then vary the pattern to fit different situations. The kata almost disappears and new skill is left behind. Once you've learned to touch type on a keyboard you no longer type, "*The quick brown fox...*" It's the resulting capability and habits that are ultimately decisive, not that kata.**

**-> Focus of a beginner's activity: 90% Kata, 10% Situational**

**-> Focus of an expert's activity: 10% Kata, 90% Situational**

**Once you absorb the scientific principles embedded in the Improvement Kata you'll find yourself applying that pattern of thinking and acting in the pursuit of many goals.**

- ❑ **Note that the kata doesn't go away entirely. Just like athletes, even advanced students (including senior leaders) continue practicing the kata they learned, perhaps less frequently, under guidance of a coach. It's like keeping a tool sharp.**

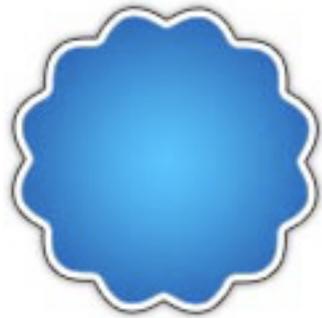
# EXAMPLES



## Beginner Practice

This is like playing your scales in music.

Practice applying individual parts of the Improvement Kata to a simple work process. For example, practice Process Analysis.



## Intermediate Practice

This is like playing an entire but easier song in music.

Apply the entire Improvement Kata to a simple work process.



## Advanced Practice

This is like playing an entire more difficult song in music.

Apply the entire Improvement Kata to a more difficult work process.



# THE SPIRIT OF KATA PRACTICE

When people ask, “*What is kata?*,” a typical answer is, “*A set of prearranged moves to practice to various levels of mastery.*” But there’s more to the purpose and essence of kata...

- **Kata is a method of training that leads to an end result. The kata in itself is not the end result.**
- **A kata is like a book of short stories. One set of techniques leads to a next chapter of techniques.**
- **Systematic practice does not mean permanently rigid. A goal is to internalize the movements and techniques so you can then adapt them under different circumstances.**
- **Ultimately the goal is to internalize the thinking behind the kata. Once you start to recognise the 'invisible' ideas through the 'visible' techniques you'll be able to rely on them in many situations.**

# STEP AT A TIME

It's a good idea to familiarize yourself with the topic by first reading through the whole handbook. But keep in mind that you'll then need to take the practice / learning process a step at a time. That's how the handbook will walk you through it.



# WHAT WILL BE YOUR PATH?

For practicing and internalizing the routines  
of the Improvement Kata and Coaching Kata



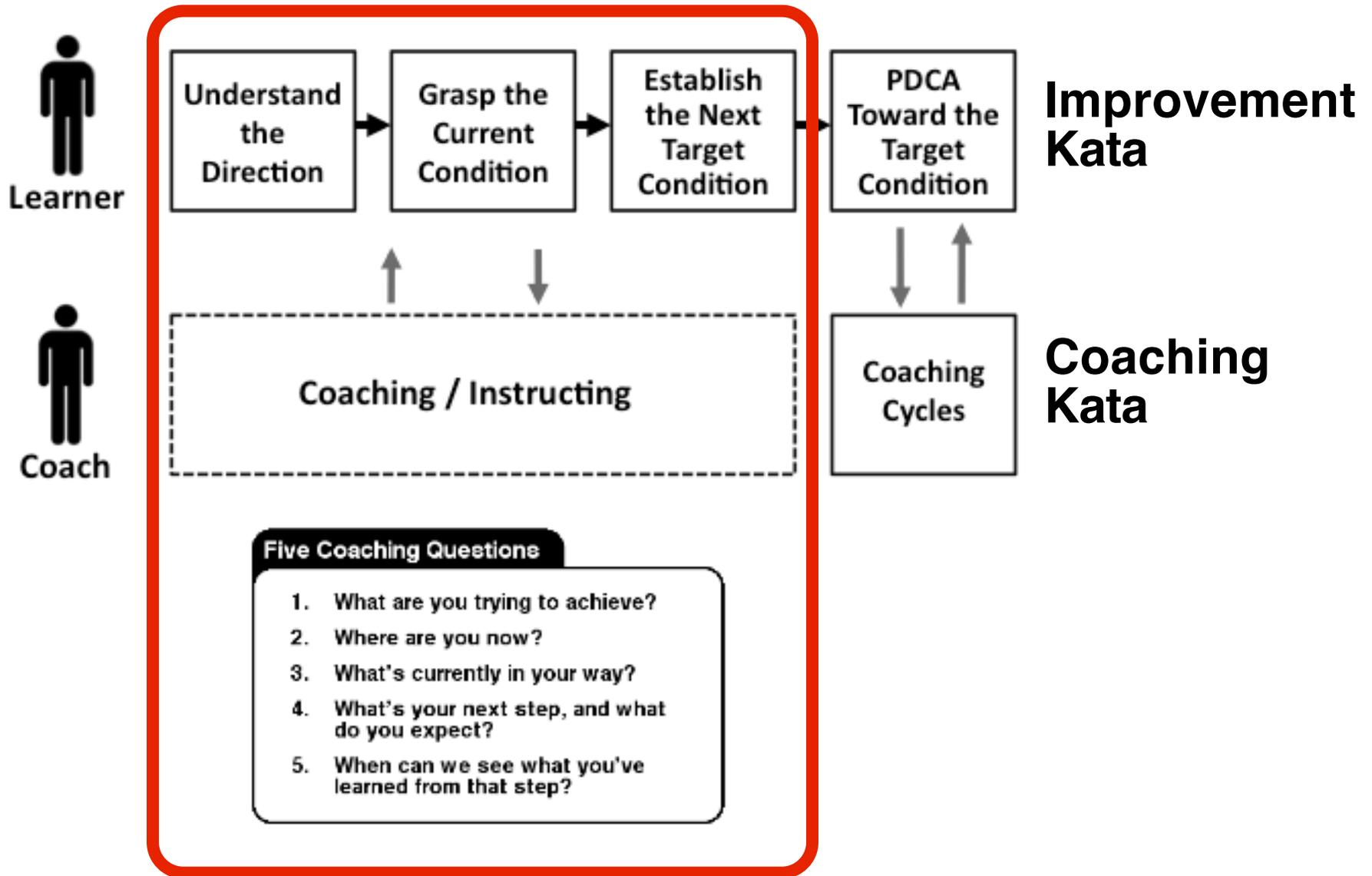
# **PART II**

## **Where Do We Want to Go?**

**Three Chapters:**

- **Understand the Direction**
- **Grasp the Current Condition**
- **Establish the Next Target Condition**

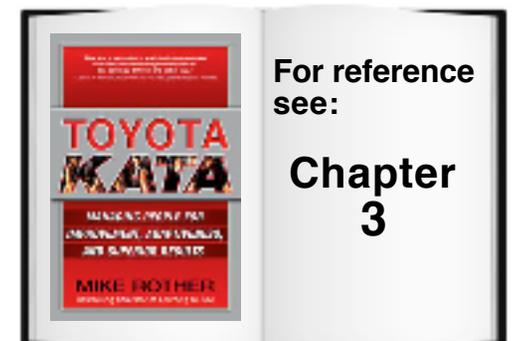
# PART II



# The Improvement Kata

## UNDERSTAND THE DIRECTION

Practice  
this  
Routine



# ORIENTATION

You are here

Understand the Direction



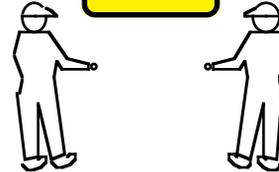
What challenge are we striving to meet?

Grasp the Current Condition



Establish the Next Target Condition

Target Condition



PDCA Toward the Target Condition



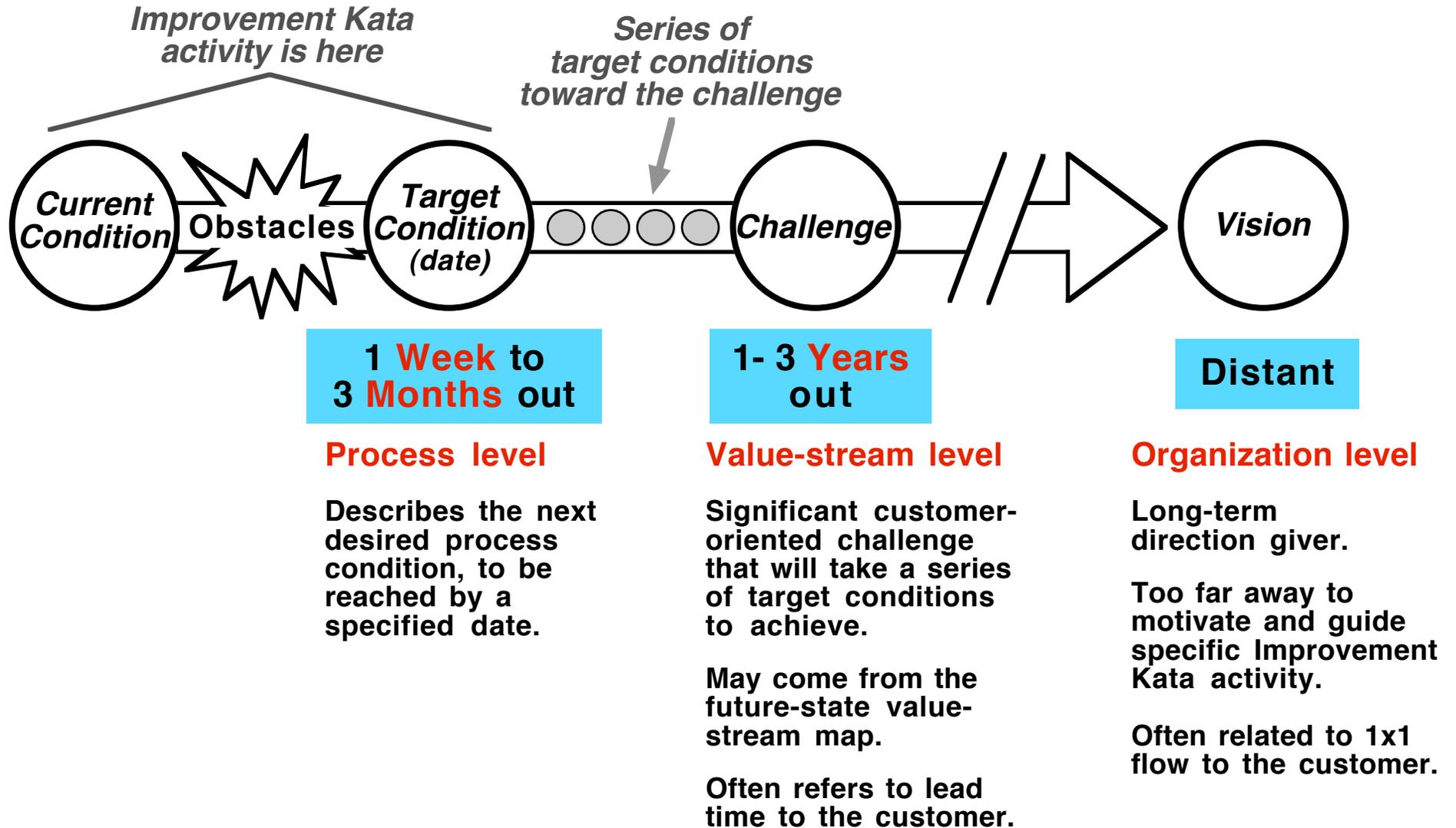
# LEARNER'S STORYBOARD

Learner and coach are now concentrating on this field 

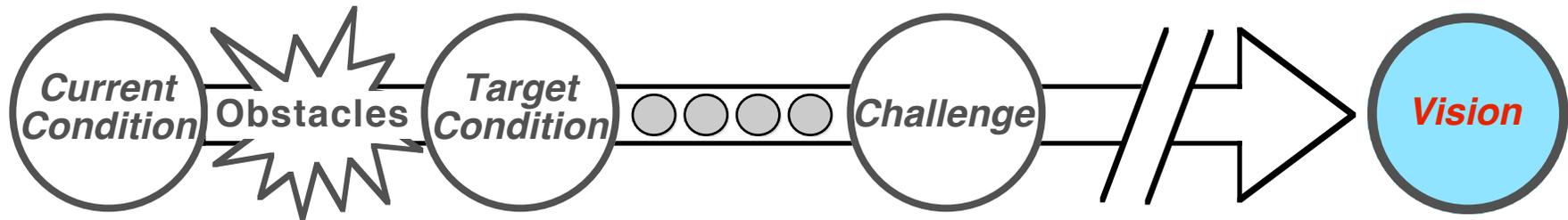
<i>Focus Process:</i> 	<i>Challenge:</i> 	
<i>Target Condition</i>	<i>Current Condition</i>	<i>PDCA Cycles Record</i>
		<i>Obstacles Parking Lot</i>

# A CONNECTED IMPROVEMENT TRAJECTORY

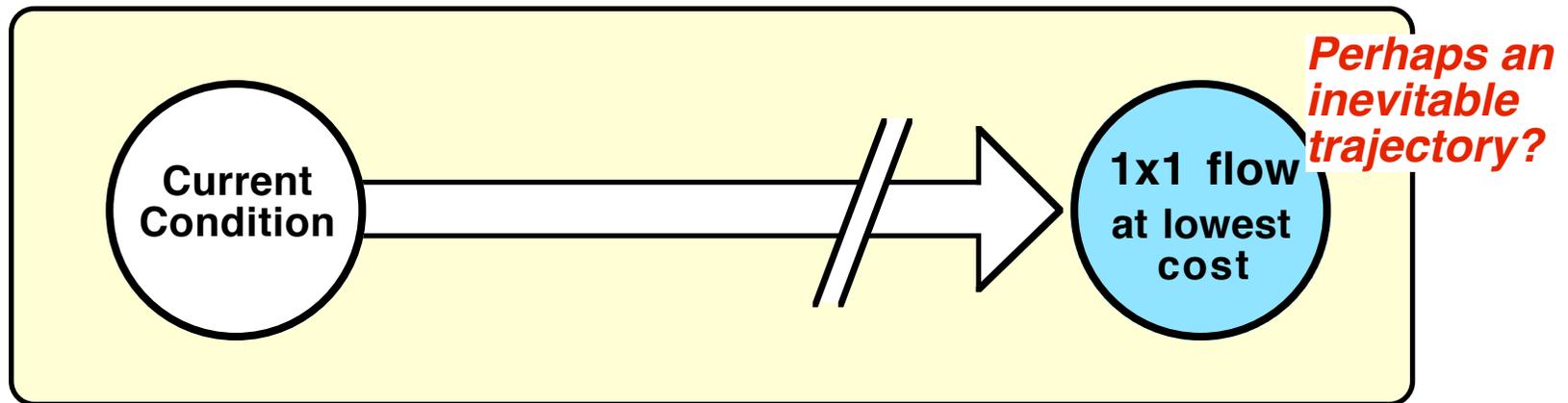
The Improvement Kata pattern is purpose-driven activity



# WHAT SHOULD THE VISION BE?



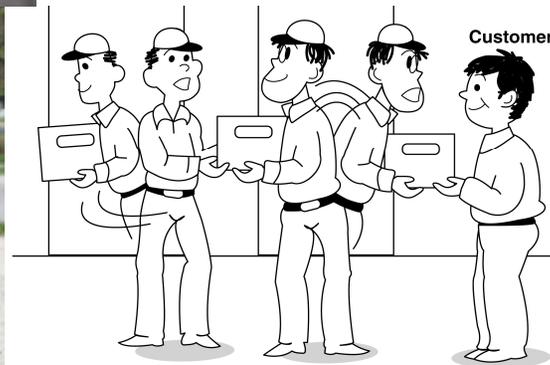
This is a company-specific leadership question that's beyond the scope of this handbook. For our purposes, consider using “*1x1 flow at lowest cost*” as a vision. Why? Because humans have been striving toward greater 1x1 flow for centuries, if we define it as: *Getting what is wanted or needed, when and where it's wanted or needed*



We can use this universal vision now and get going

# THE 1x1 VISION: SOMEDAY IN THE FUTURE...

...a customer will want **one** unit of your product or service, and a company will make it for them then, at the right quality & price



The only question open to you is, do you want to be that company or will it be someone else? Either you strive for it or some other organization will.

## **KEY POINT**

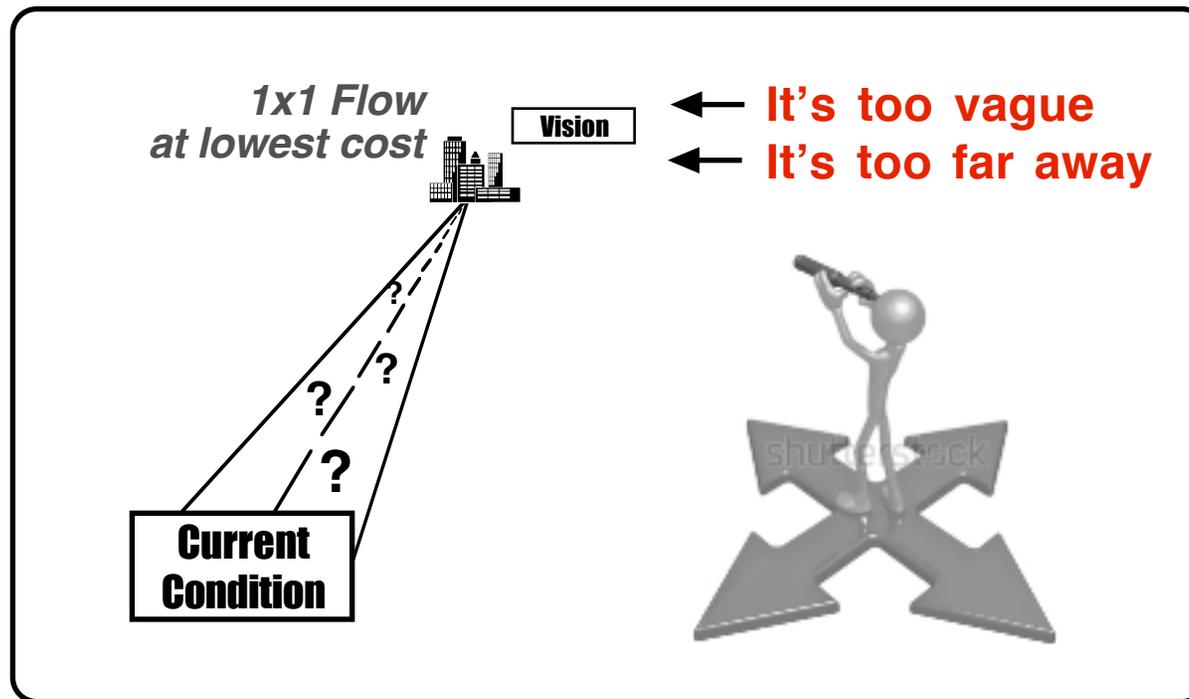
### **ABOUT THE 1x1 FLOW VISION**

**You don't have to be at '100% there.' In fact, it's unlikely you ever will be there.**

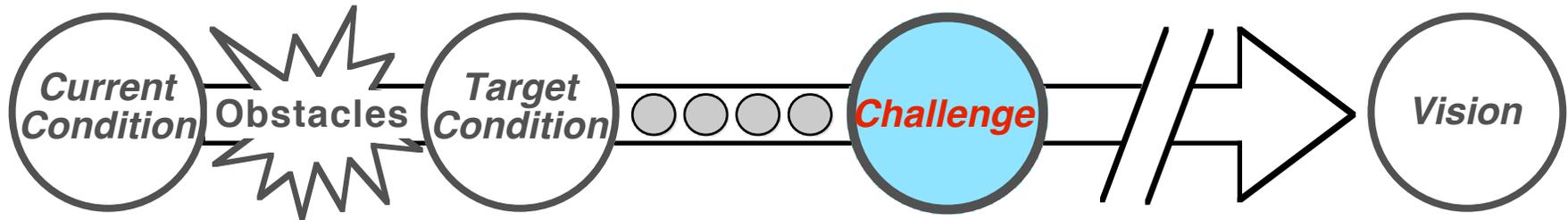
**The important thing is to keep moving in that direction -- continually shortening the lead time for making and providing one 'unit' of whatever the customer wants -- and thereby staying ahead of competitors.**

However...

# A VISION IS LONG-TERM DIRECTION GIVER NOT A GUIDE FOR DAILY IMPROVEMENT EFFORTS



# SO A CLOSER AND MORE SPECIFIC CHALLENGE IS THE KEY DIRECTION-GIVER



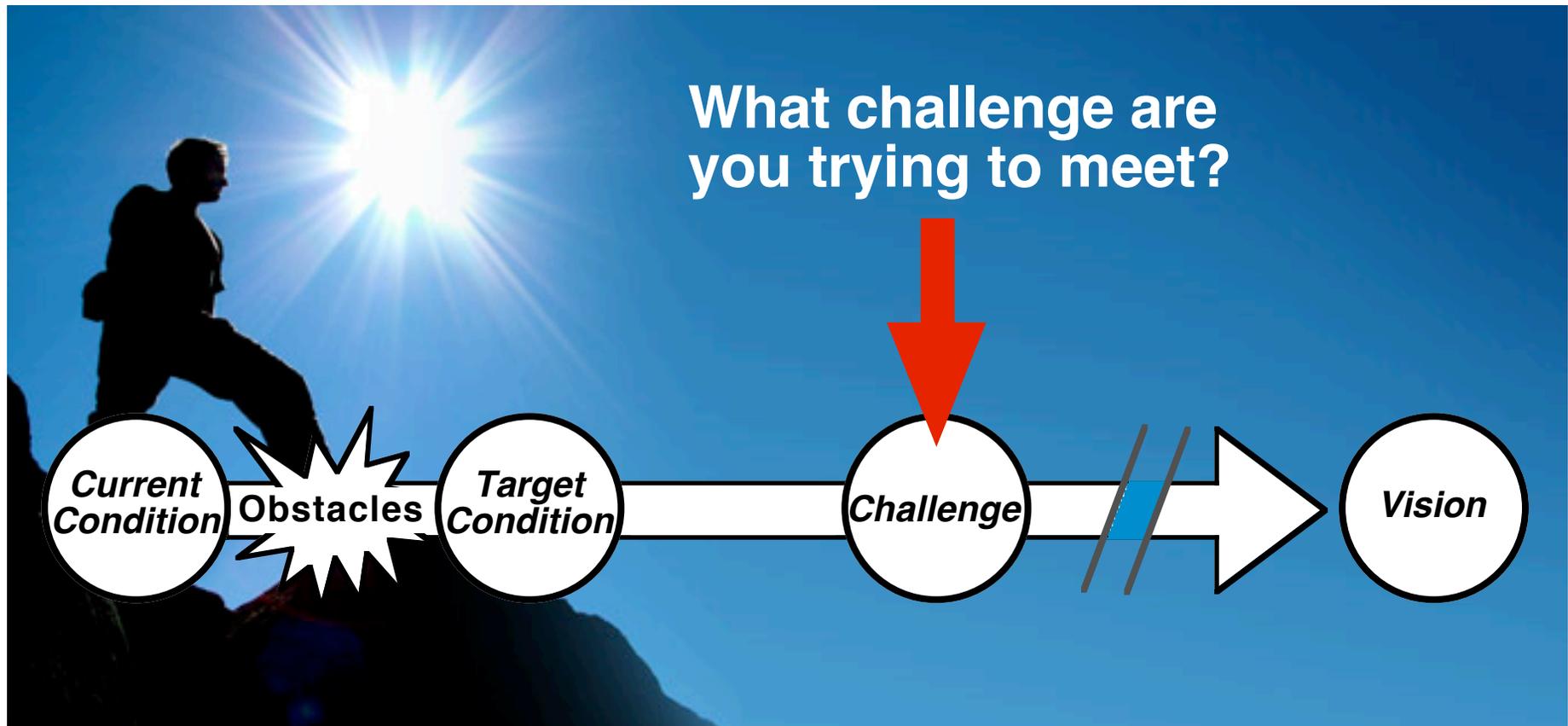
**The challenge ensures that process-level improvement efforts have a focus and fit together. Without a challenge...**

- **The organization is unaligned. Improvement efforts and proposals are evaluated independently, instead of as part of reaching for something. We tend to use short-term cost/benefit analysis to decide what to do, which dangerously keeps us inside our current knowledge threshold.**
- **We jump from one direction to another in trying avoid obstacles, rather than working through obstacles. We don't use obstacles to guide us to the learning vectors, innovations and important competencies of tomorrow.**
- **Improvement efforts focus on reacting to daily problems (“troubleshooting”) and trying to maintain the current level of performance, rather than reaching for a next, new level of performance.**



# DON'T GO FORWARD WITHOUT A CHALLENGE

The purpose of the Improvement Kata is to have a systematic way for teams to strive to meet challenges



Having an overall challenge is important so that individual process target conditions are seen as meaningful. It's difficult for the learner to get engaged by something that doesn't have a purpose.



## WHAT IS A CHALLENGE?

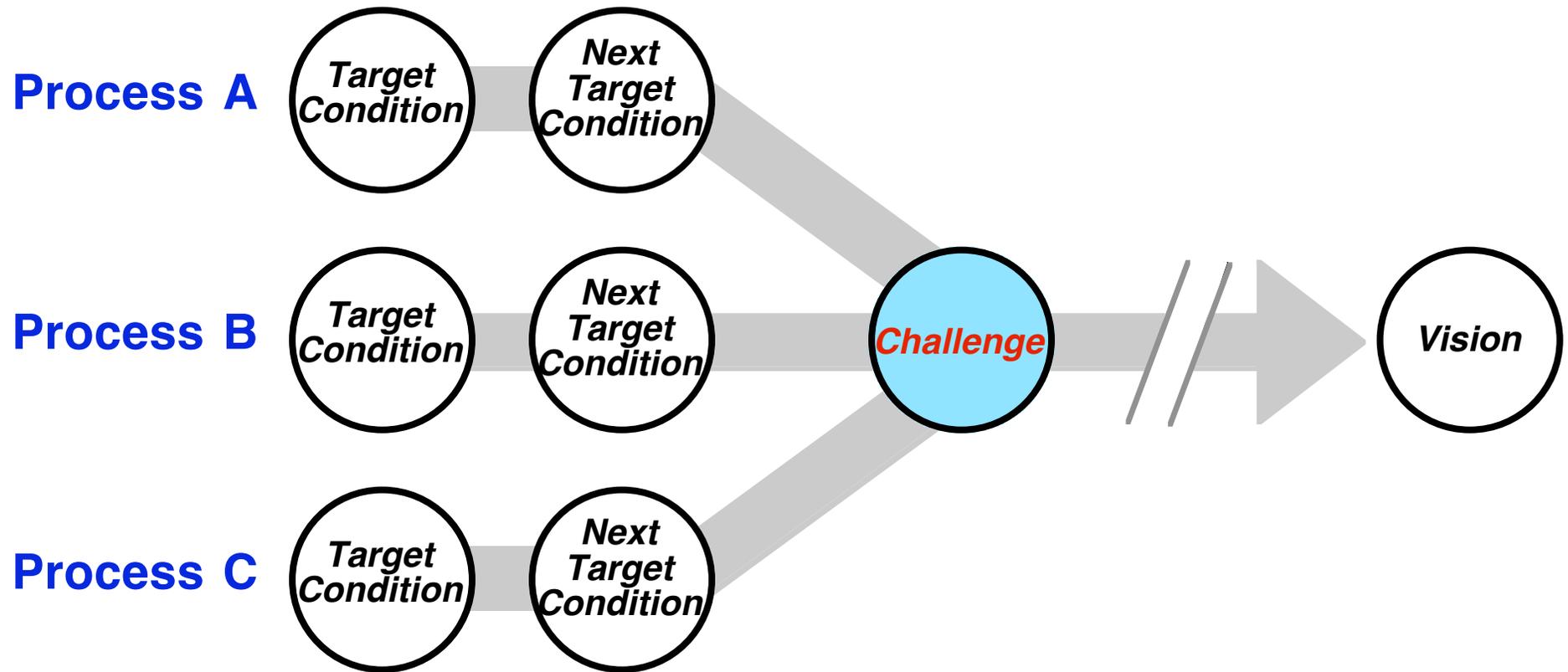
Think of a challenge as a sentence beginning with the words,  
*“Wouldn’t it be great if we could...”*

### **A challenge is:**

- **Going beyond what’s currently possible or being done.**
- **A non-negotiable objective related to better serving the external customer. It’s often a lead-time goal.**
- **Often between 1-3 years out.**
- **Achievable, but we don’t know in advance how we will achieve it. You don’t need to figure out now how to get there. That’s what the rest of the Improvement Kata is for.**
- **Not easy, but not impossible.**
- **A step toward to the vision, but much closer in.**

# A CHALLENGE USUALLY PERTAINS TO MORE THAN ONE PROCESS

It's typically at a value-stream level

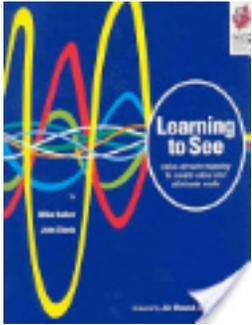


# A CHALLENGE SHOULD BE A RALLYING POINT

A challenge should be a description - a statement - of a desired state that people can rally around, not just a number. A good challenge focuses a team's attention and effort. Examples:

<p style="text-align: center;"><b>Overall Challenge</b></p> <p style="text-align: center;"><i>Wouldn't it be great if we could...</i></p>	<p style="text-align: center;"><b>Rallying Statement</b></p>
<ul style="list-style-type: none"> <li>• <i>"...machine parts directly in the 1x1 assembly flow"</i></li> <li>• <i>"...paint parts directly in the 1x1 assembly flow"</i></li> <li>• <i>"...build one customer kitchen at a time and put it right on the truck"</i></li> <li>• <i>"...have lab-test results done in 45 minutes, with no errors"</i></li> <li>• <i>"...take only 7 days from new patient referral to evaluation"</i></li> <li>• <i>"...assemble the day ordered, and ship the next day"</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>"Machine to assemble"</i></li> <li>• <i>"Paint to assemble"</i></li> <li>• <i>"Build to truck, kitchen at a time"</i></li> <li>• <i>"Take 45"</i></li> <li>• <i>"Just a week"</i></li> <li>• <i>"Same day, next day"</i></li> </ul>

# A CHALLENGE CAN COME FROM A FUTURE-STATE VALUE STREAM MAP



The loops of a future-state value stream map provide guidance for process-level improvement efforts

The future-state characteristics you design for a loop of a value stream can be a challenging *hoshin* for improvement at the processes inside that loop.

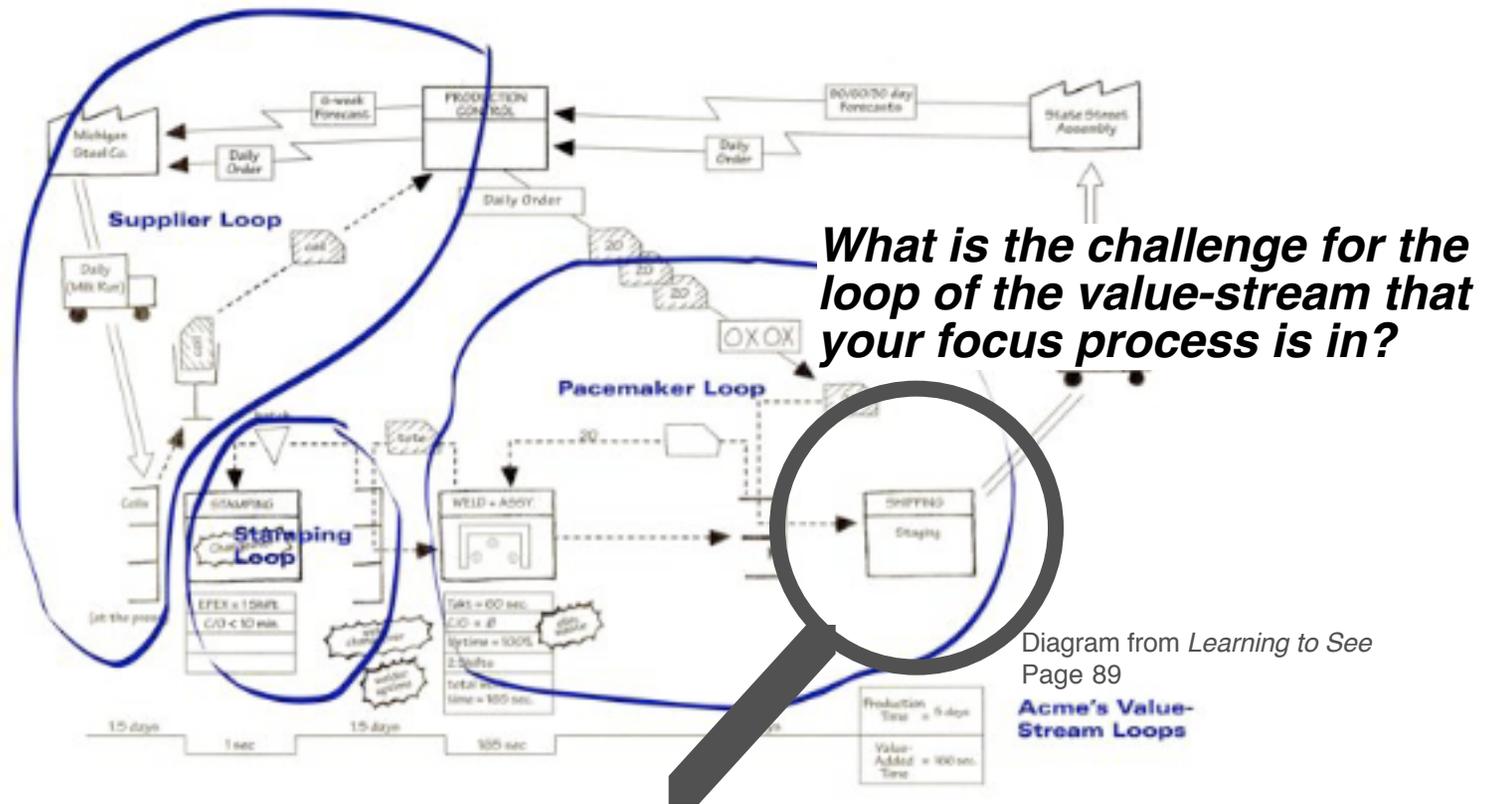
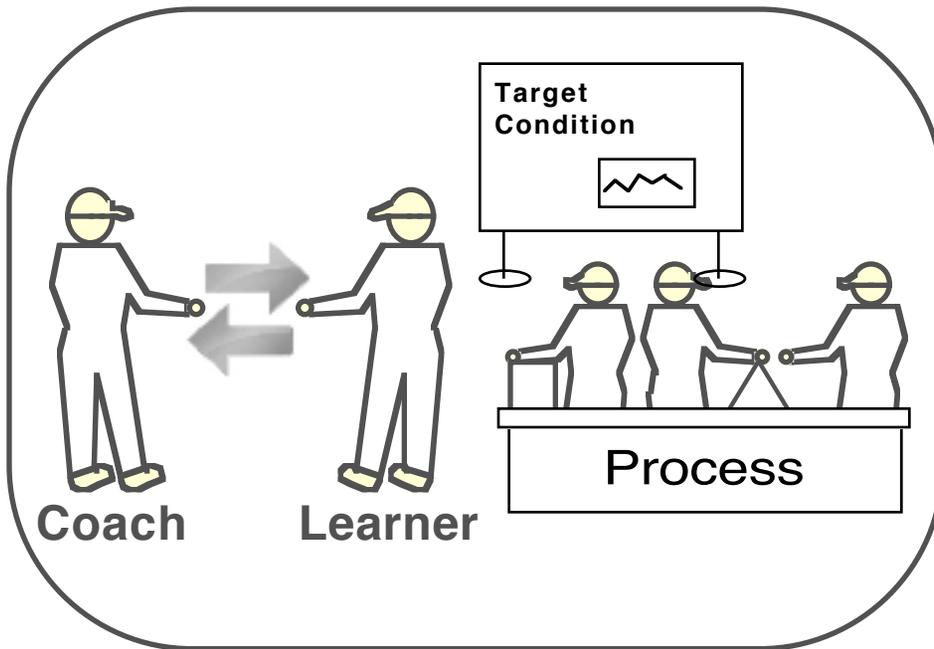
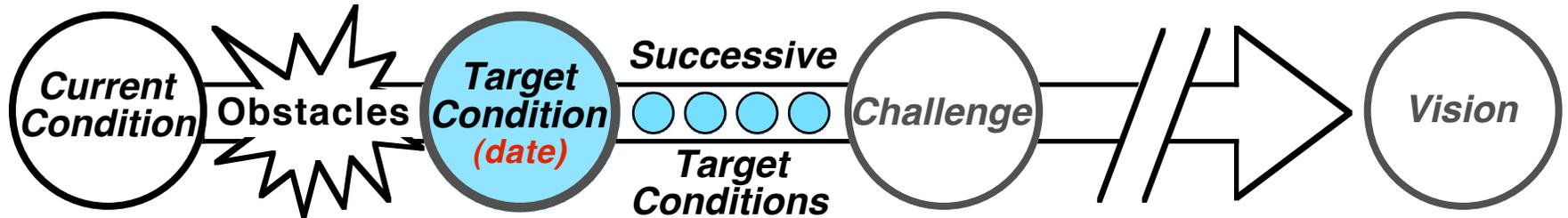


Diagram from *Learning to See*  
Page 89

**Acme's Value-Stream Loops**

However...

# SPECIFIC PROCESS TARGET CONDITIONS ARE WHERE ACTUAL IMPROVEMENT ACTIVITY IS



# WHAT IS A TARGET CONDITION?

**A target condition is:**

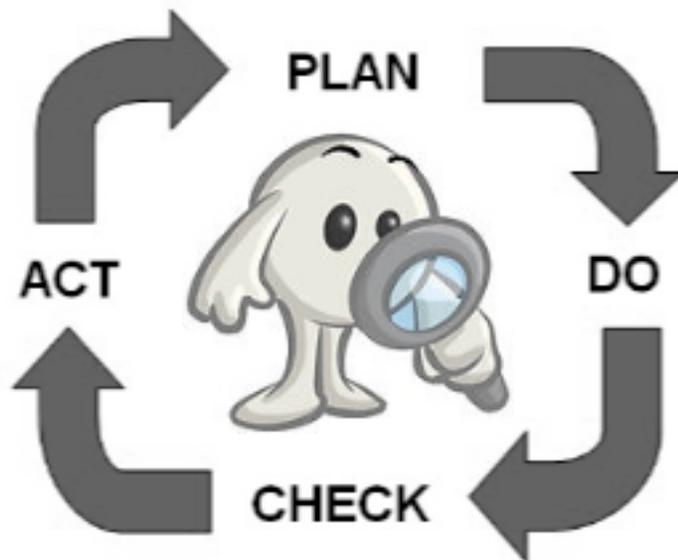
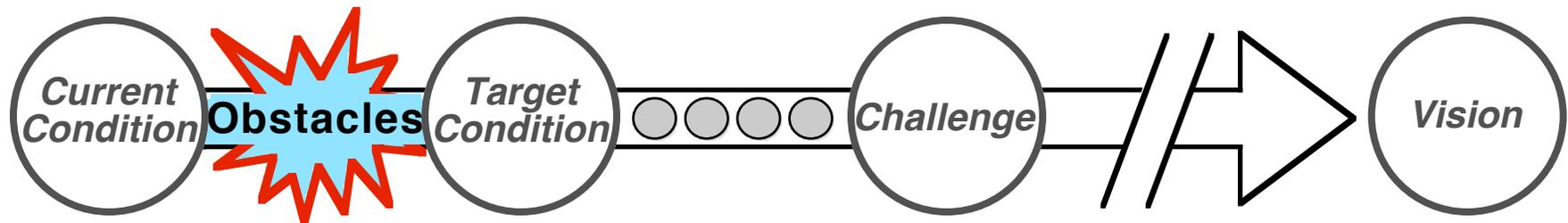
- **A nearer-term desired state that is defined in much more detail than the challenge.**
- **Typically at the individual process level.**
- **A step toward the challenge.**
- **Includes a specified target date, typically between 1 week to 3 months out.**

**The challenge comes from leadership. Target conditions are developed by the learner in dialog with the coach and the process team.**

**These are two different things developed by two different groups.**

And...

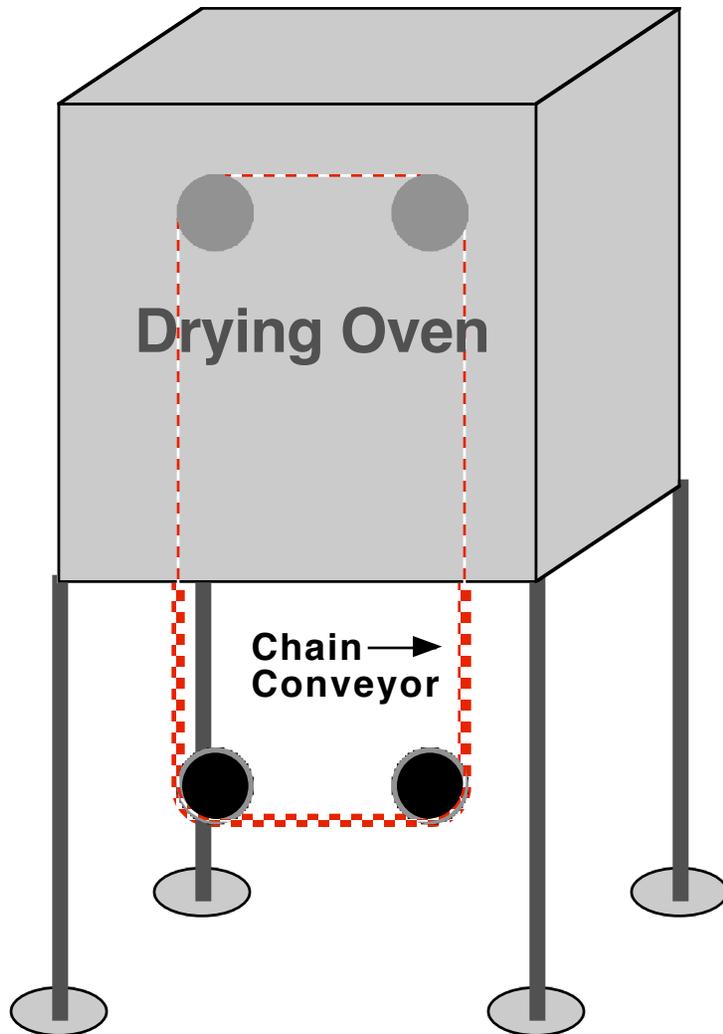
**OBSTACLES TO THE TARGET CONDITION  
ARE WHERE DAILY RAPID PDCA CYCLES HAPPEN**



**Here we've reached the level in an organization where the process of improvement, evolution and innovation takes place**

# EXAMPLE OF THE IMPROVEMENT TRAJECTORY

Developing a compact, in-line paint drying oven



VISION	<i>1x1 Flow</i>
CHALLENGE	<i>Paint in Line</i>
TARGET CONDITION	<i>In-Line Oven (attributes defined)</i>
OBSTACLE	<i>Chain Derails</i>

*More General*



*More Specific*

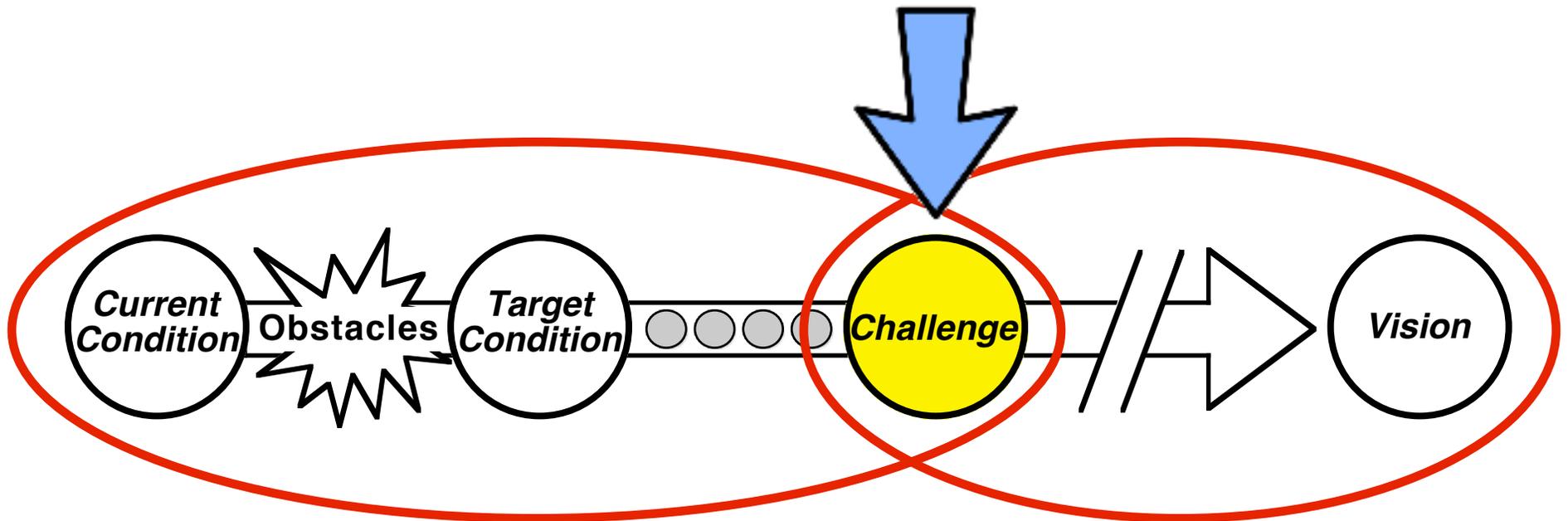


**Detailed PDCAs are here**

**Current Obstacle:**  
Chain conveyor derails when parts are hung on it

# SUMMARY

A challenge is a link between process-level improvement (using the Improvement Kata) and organization strategy

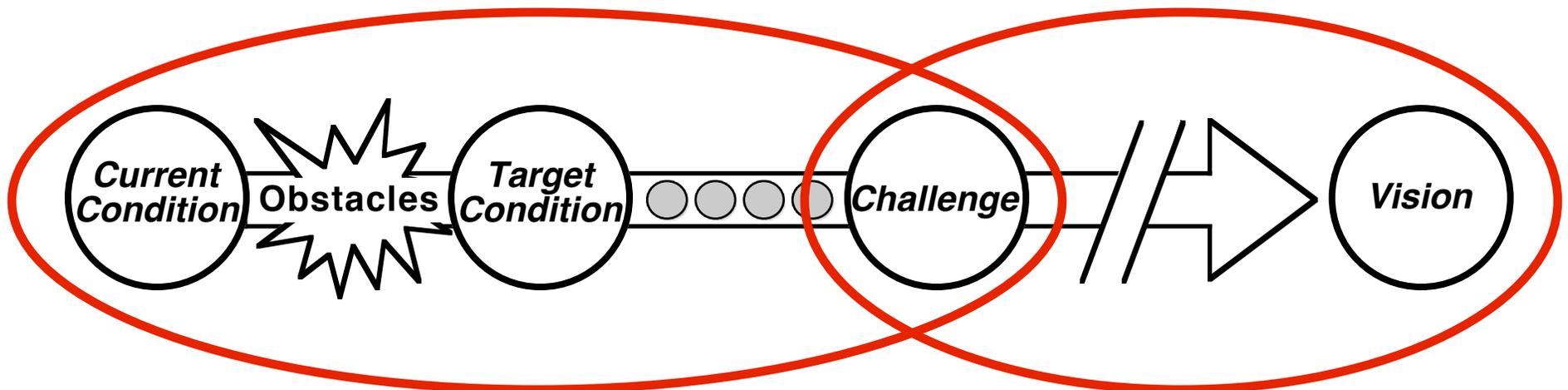


# IT TAKES MANAGEMENT AND LEADERSHIP

It takes both sides to make improvement, adaptiveness and innovation a systematic, scientific activity

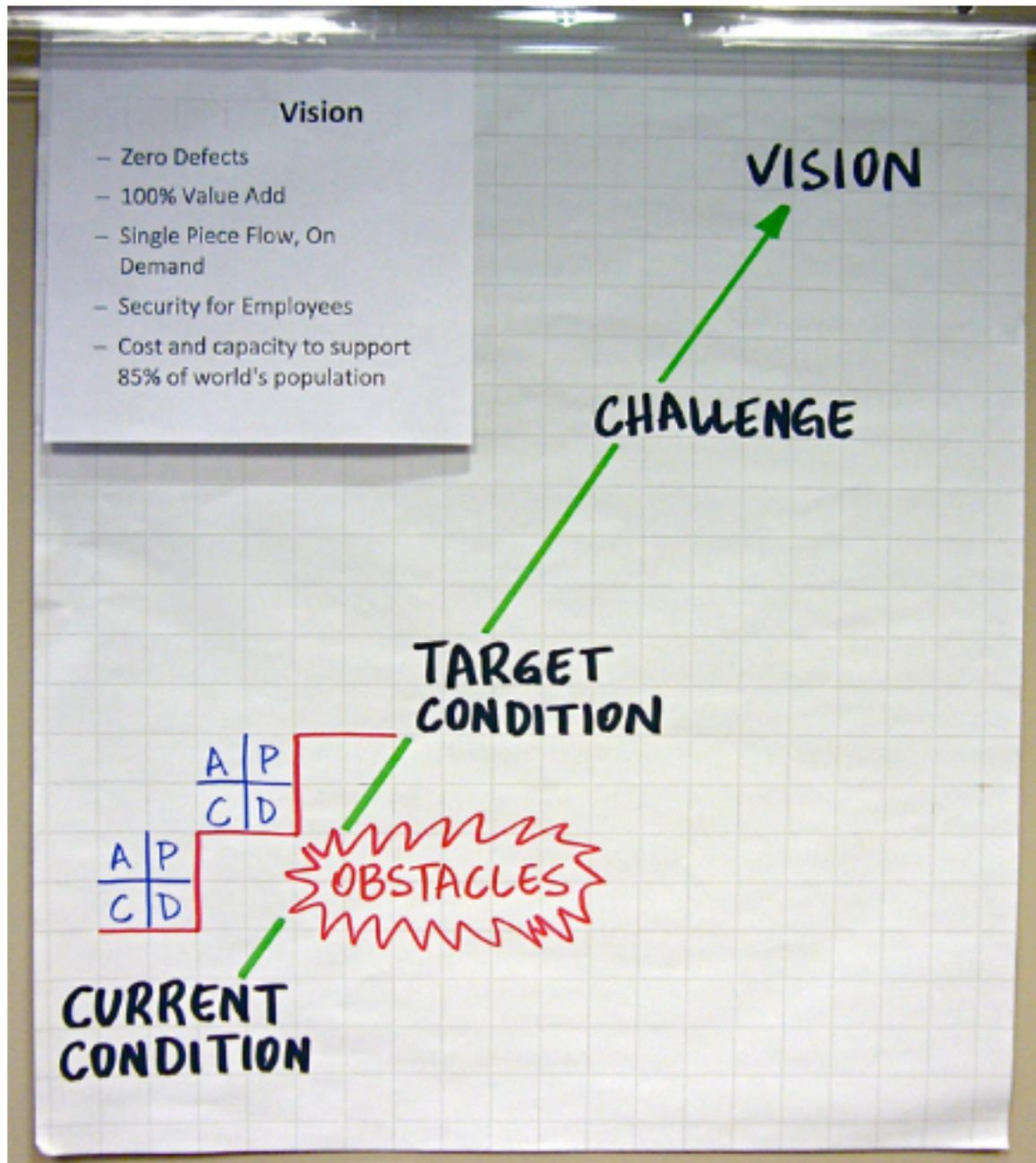
Coaching the development of IK skills is management's job

Establishing direction is part of leadership



**IF A TEAM HAS DEVELOPED IMPROVEMENT KATA SKILL AND A SENSE OF SELF-EFFICACY...**

**...THEN A CHALLENGE CAN BE MOTIVATING**



## The Improvement Kata

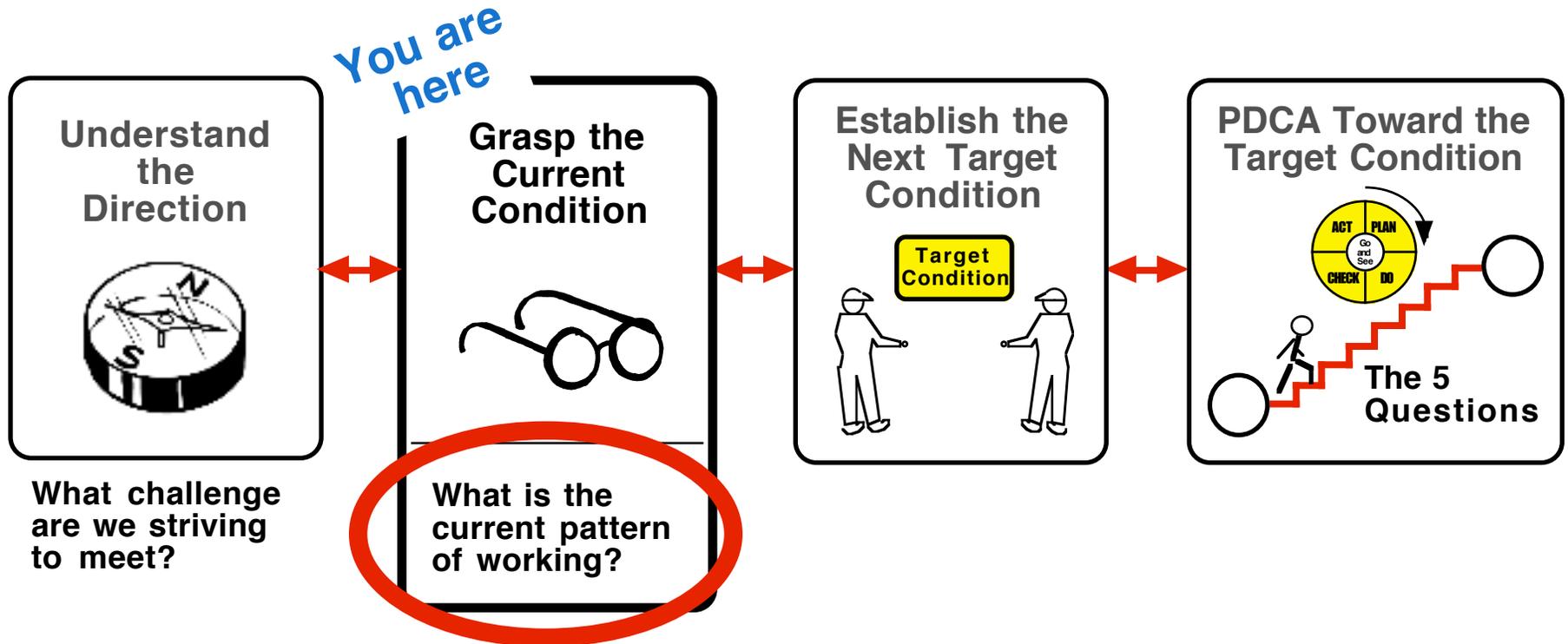
# GRASP THE CURRENT CONDITION

## The Toyota Kata Process Analysis

**Practice  
this  
Routine**



# ORIENTATION

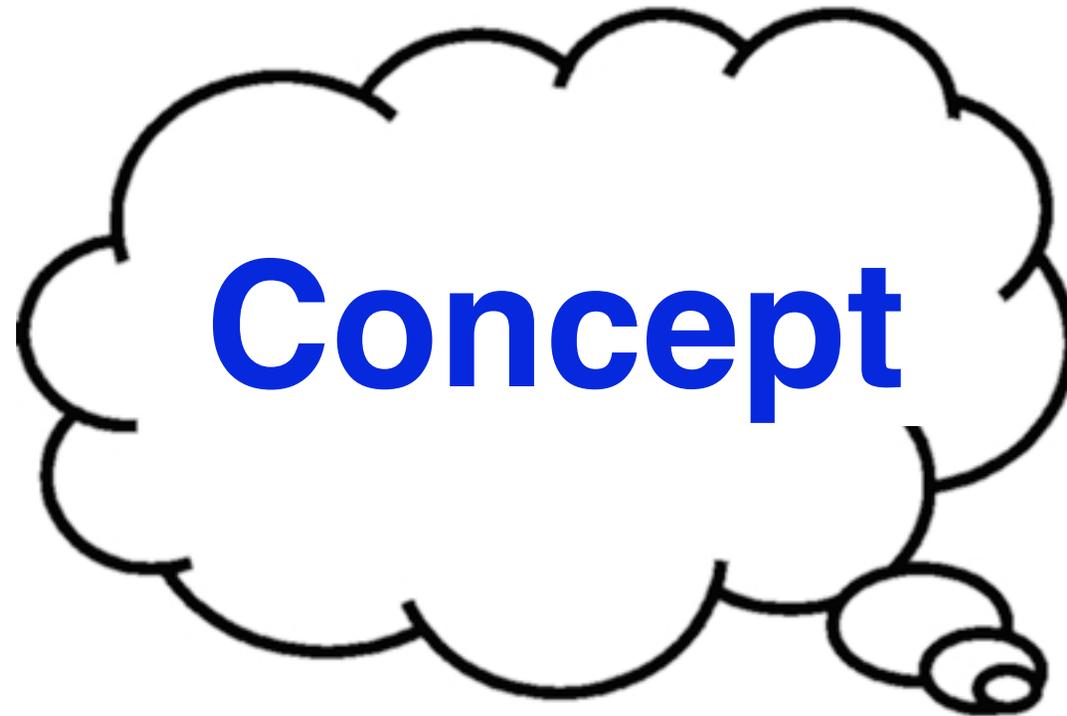


# LEARNER'S STORYBOARD

Learner and coach are now concentrating on this field



<i>Focus Process:</i> 	<i>Challenge:</i> 	
<i>Target Condition</i>	<i>Current Condition</i> 	<i>PDCA Cycles Record</i>
		<i>Obstacles Parking Lot</i>





# THE PURPOSE OF THIS PROCESS ANALYSIS

The purpose of the Toyota Kata process analysis is **not** to uncover problems, wastes or potential improvements

Analyzing the current condition is done to obtain the facts & data you need in order to then describe an appropriate next target condition. *What you're doing is trying to find the current pattern of operation, so you can establish a desired pattern of operation (a target condition).*

You won't know what to work on until you have established a target condition. Once you have a target condition and strive to move toward it with PDCA cycles you'll discover what you need to work on.

Grasping the initial current condition is a step toward establishing a first target condition. Note that when you are ready to establish a second target condition for the same process you will have learned a lot about the process through your PDCA cycles. The process analysis for the second target condition may therefore proceed more quickly, since you are not starting over.

# WHY HAVE A SYSTEMATIC, STANDARDIZED PROCESS ANALYSIS?

Being able to grasp the current condition / carry out a process analysis is a fundamental skill. The Toyota Kata process analysis is a structured way (a kata) to observe and analyze current process condition. The benefits of this are:

- (1) It makes the approach teachable and transferrable across your organization.
- (2) This analysis approach is fast and efficient.
- (3) Communication and coaching are easier and more effective when you have a common way of analyzing and talking about your work processes.

Begin by practicing the process analysis as it is described here. As enough people in your organization become proficient you can then evolve your own process-analysis kata for your organization.

The TK process analysis can be adapted to almost any process. Adjustments may be necessary to fit it to the characteristics of various processes, but the **five steps** of the analysis are usually about the same.

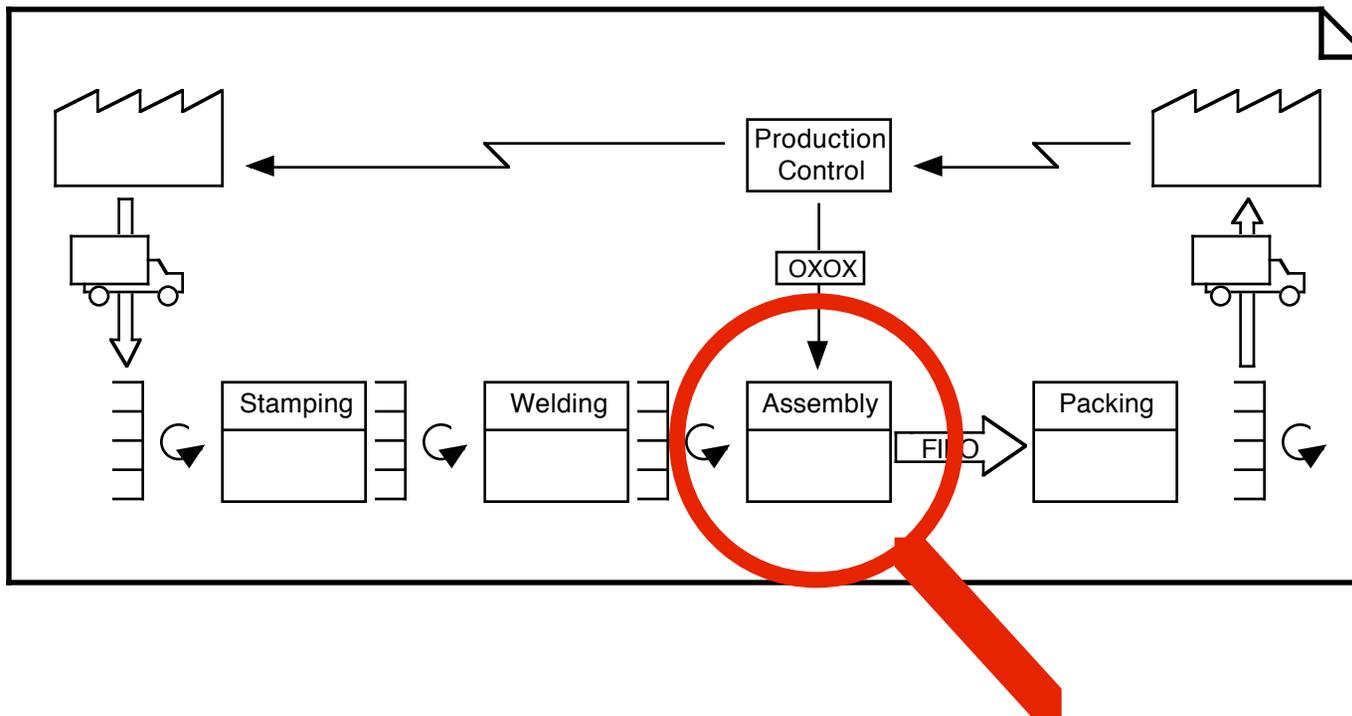


# GUIDELINES FOR THE COACH: INSTRUCTING PROCESS ANALYSIS

- For novice learners, choose a process that is easier to understand and analyze. The first goal is to learn the routine of process analysis, not to tackle the most important process to improve. Once the learner has developed competency they can apply the process analysis to more difficult processes.
- Have the learner follow the process analysis steps as closely as possible. Don't let the learner jump ahead, because you're trying to imprint a pattern. Competent-level learners can start to vary the process analysis somewhat according to the situation at hand.
- However, as the learner moves through the analysis steps s/he will often have to go back to review or recalculate an earlier step based on what they are learning. That's normal. One can't get each step right the first time.
- "Chunk" the practicing:
  - Have the learner complete one process analysis step at a time.
  - After each step have the learner summarize on a flipchart & present.
  - The learner should present information in the order shown in the steps table on page 11. Each time the learner presents, have him or her begin again at Step 1.
- The coach must go along during the process analysis, and should also analyze the process at the same time, not in advance. This way the coach will be in a good position to evaluate what the learner is doing.
- At the beginning, a process analysis can easily take a couple of days. As one gains experience, you can often do it in a few hours. Pick another process and do it again. For practice it can be fun to set an increasingly shorter time to do a process analysis. Can you get to two hours?



# PROCESS ANALYSIS IS DONE AT THE INDIVIDUAL PROCESS LEVEL



# THE FIVE STEPS OF THE TK PROCESS ANALYSIS

(The shaded fields are universal and apply to any work process)

Step  
①

## Customer Demand and Planned Cycle Time

- Customer takt
- Planned cycle time
- Number of shifts currently running

Step  
②

## Characteristics of the Current Process

- 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 the current operating pattern

Step  
③

## Equipment Capacity

- Can the automatic equipment support the planned cycle time?
- How close are we to our current machine capacity limit?
- What is the fastest Pc/t the equipment can currently support?

	
No	Yes

Step  
④

## Necessary Number of Operators (if the process were stable)

- Calculate number of operators

Step  
⑤

## Outcome Metrics

- Graph (a) output per shift, (b) overtime and any other desired outcome metrics

# A GENERIC WAY TO LOOK AT IT

To fit a wider range of processes

Step

①

Customer Demand and 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? (Diagram)  
How is the process currently operating? (Data)

Step

③

Equipment Capacity

Do we have any machine constraints?  
What are they? (Data)



No



Yes

Step

④

Necessary Number of Operators (if the process were stable)

How many people are necessary? (Calculate)

Step

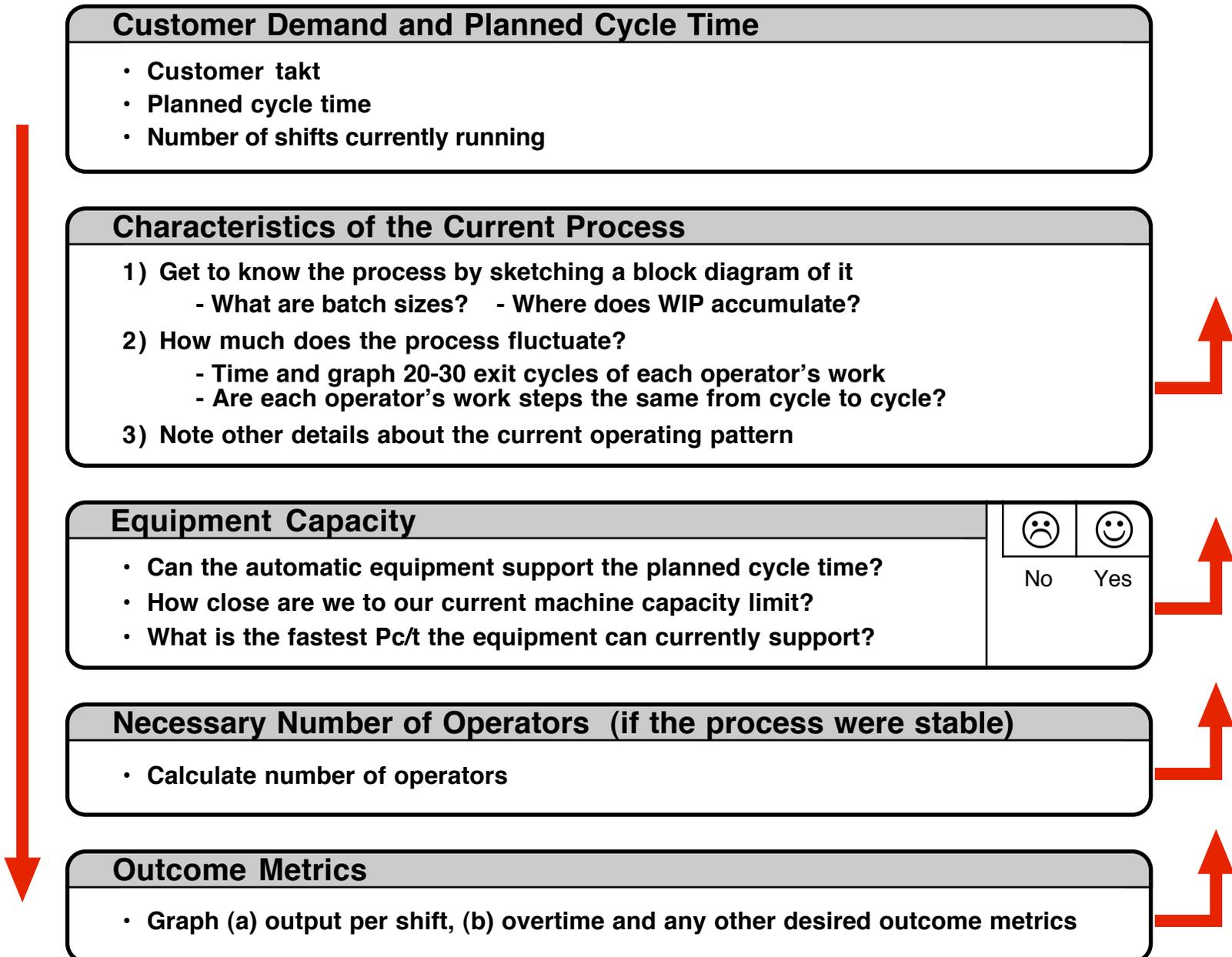
⑤

Outcome Metrics

How is the process performing over time? (Data)

# PROCESS ANALYSIS IS LINEAR BUT ITERATIVE!

What you learn in one step may influence a prior step. That's normal.



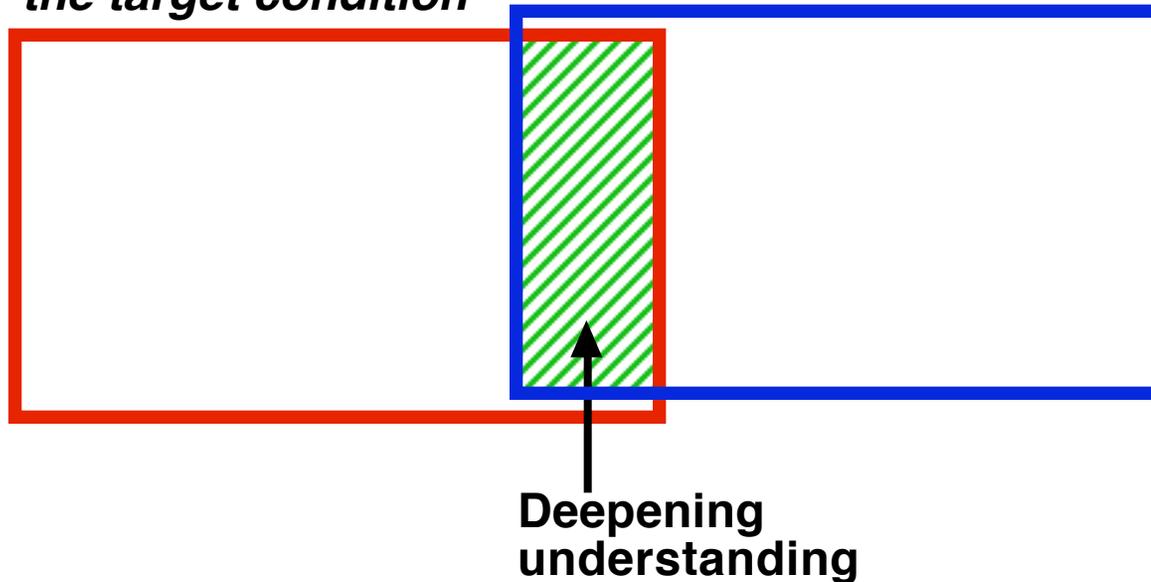
# AND YOU DON'T HAVE TO GET A PERFECT UNDERSTANDING OF THE CURRENT CONDITION

Don't try to understand everything about the process before you establish a first target condition and get going with PDCA cycles toward that target condition.

As you conduct PDCA cycles you will iteratively deepen your understanding of the process. That's normal, especially with your first few target conditions.

*Grasp the current condition & establish the target condition*

*PDCA Cycles*



## • EQUIPMENT •

- Stopwatch that measures in seconds
- Graph paper
- Pencil, eraser & ruler
- Calculator

## • SHOP FLOOR COURTESY •

- Approach the process via the Team Leader or Supervisor
  - Introduce yourself
  - Explain what you are doing
  - Do not interrupt the operators while they are working
- Explain that you are watching the work, not the operator
- Show any notes you've taken
- Say *thank you* before you leave
- Hands out of pockets

Step  
①

### Customer Demand and Planned Cycle Time

- Customer takt
- Planned cycle time
- Number of shifts currently running

### Characteristics of the Current Process

- 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 the current operating pattern

### Equipment Capacity

- Can the automatic equipment support the planned cycle time?
- How close are we to our current machine capacity limit?
- What is the fastest Pc/t the equipment can currently support?

	
No	Yes

### Necessary Number of Operators (if the process were stable)

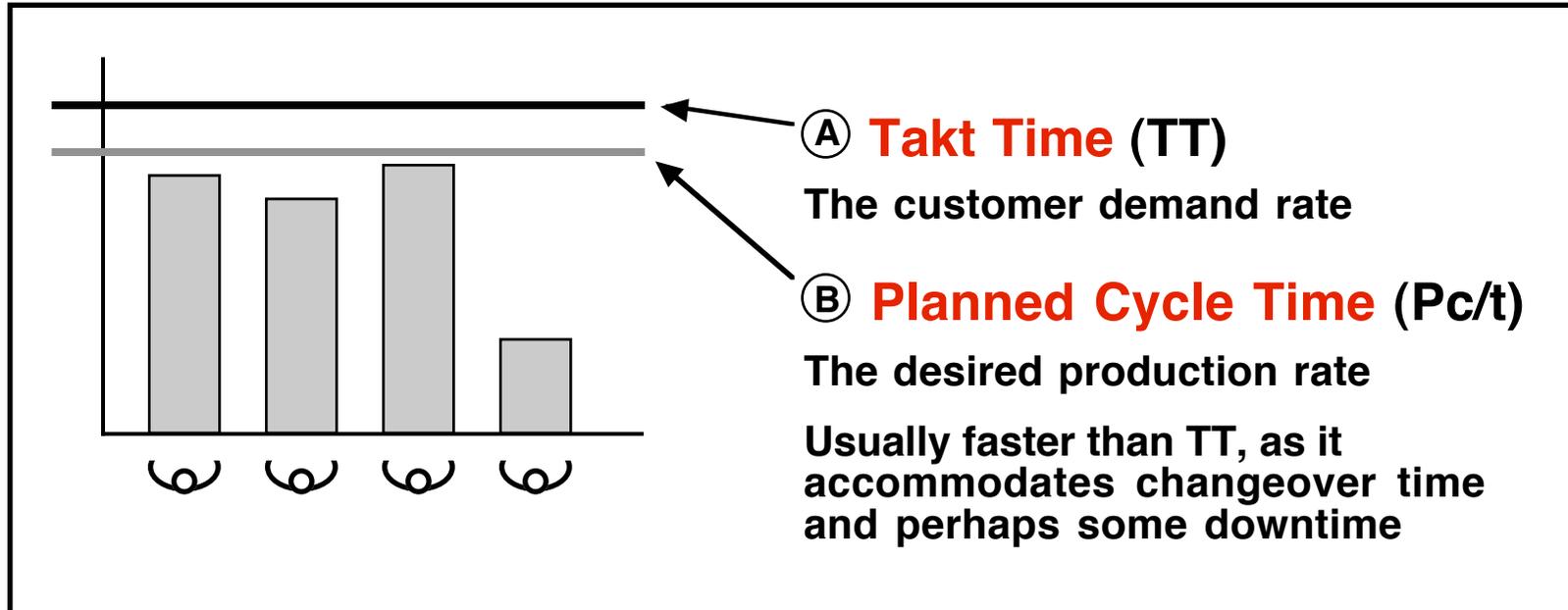
- Calculate number of operators

### Outcome Metrics

- Graph (a) output per shift, (b) overtime and any other desired outcome metrics

# ①

## CUSTOMER TAKT & PLANNED CYCLE TIME

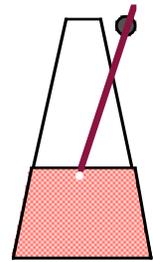


Any Takt Time and Planned Cycle Time numbers you initially calculate may turn out to be wrong, but they are usable enough for a starting point. As you get deeper into the work process you will recognize additional factors that need to be considered for arriving at a more accurate TT & Pc/t.

## Ⓐ CUSTOMER TAKT

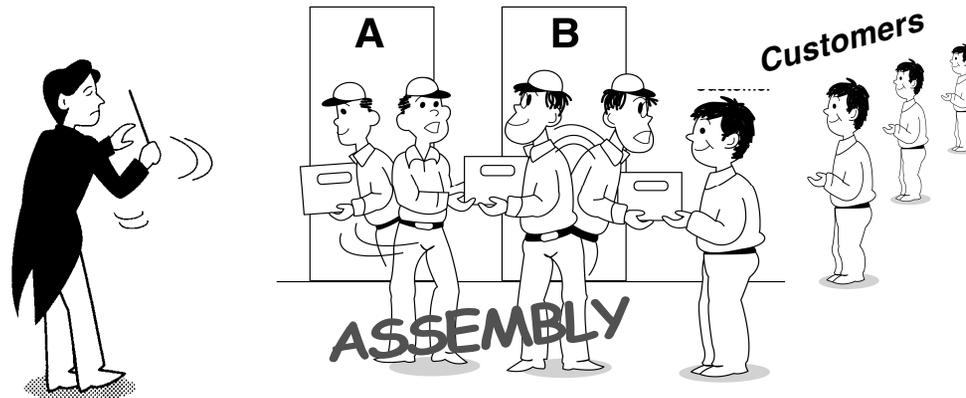
Provides a picture of the rate of customer demand on a process over a period of time (eg: 2-4 weeks).

Calculate takt if possible



**Takt Time =  $\frac{\text{your effective operating time / shift or day}}{\text{quantity customer requires per shift or day}}$**

**Example**  $\frac{26,100 \text{ seconds available time}}{450 \text{ pieces required}} = 58 \text{ seconds takt time}$

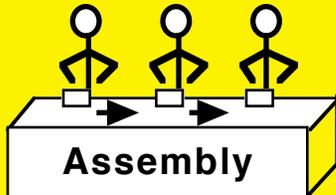


**Note: Customer demand changes. Review this number every 2 weeks.**

# EXERCISE: CALCULATING CUSTOMER TAKT

*Example*

*Your calculation*



Assembly

- 1840 pieces/day total
- 2 Shifts, 8 hours each
- 2 x 10 min break/shift
- 10 changeovers / day
- C/O Time = 15 min per c/o
- Unplanned Downtime = 10%

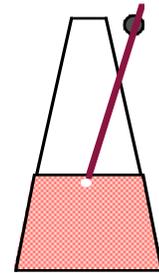
**TAKT =**

***But, can we cycle this process at takt?***



## Ⓑ PLANNED CYCLE TIME

The actual pace at which you want the process to run



Once you have calculated takt, subtract changeover time and other losses such as unplanned downtime and scrap & rework rates from available time to arrive at the *planned cycle time* (Pc/t). This is the actual speed at which the line should be running.

- (A) Changeover time. Make your first Pc/t calculation simply using the number of changeovers currently done per day, and their current times. You can also calculate again with other numbers of changeovers and different changeover times, in order to explore what might be reasonable possibilities.
- (B) Downtime. There are two kinds of downtime: Short stoppages throughout the day that add up, and rarer but catastrophic failures. In calculating Pc/t we are concerned with the small stoppages. You cannot cover for catastrophe with a faster Pc/t.

Toyota considers changeover time in Pc/t calculations but not downtime, as Toyota plants usually have a gap between shifts and use that time to make up for small stoppages.

**-15%**

One useful tactic is to set Pc/t at 15% faster than Takt, and strive to fit changeovers and other losses within that 15%



## WHEN YOU CAN'T CALCULATE TAKT TIME

In these cases you can set a Planned Cycle Time increment yourself using demand (*What is a task unit and how much time do we have to complete it?*) and/or natural increments of capacity, called “toggles”



If you can't calculate takt, work instead with increments of process staffing and output, called *toggles*.

For example, alter the number of operators and/or shifts to arrive at different increments (toggles) of capacity.

Often there are three natural toggles: Low / Medium / High

Each toggle = a Planned Cycle Time

## Customer Demand and Planned Cycle Time

- Customer takt
- Planned cycle time
- Number of shifts currently running

Step  
②

## Characteristics of the Current Process

- 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 the current operating pattern

## Equipment Capacity

- Can the automatic equipment support the planned cycle time?
- How close are we to our current machine capacity limit?
- What is the fastest Pc/t the equipment can currently support?

	
No	Yes

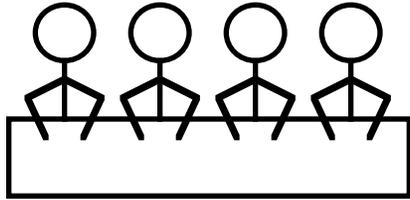
## Necessary Number of Operators (if the process were stable)

- Calculate number of operators

## Outcome Metrics

- Graph (a) output per shift, (b) overtime and any other desired outcome metrics

## ② CHARACTERISTICS OF THE CURRENT PROCESS



**WHAT DO YOU SEE?**

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

Learn to see and understand for yourself.

### The Three Main Tasks in This Step

#### 1) Get to know the process by sketching a block diagram of it.

- Define the start & end points of the process.
- What are batch sizes at the processing steps?
- Where does WIP accumulate?

#### 2) 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?

#### 3) Note other details about the current operating pattern.

- Not issues *good* or *bad*.
- Simply describe aspects of the current work pattern.

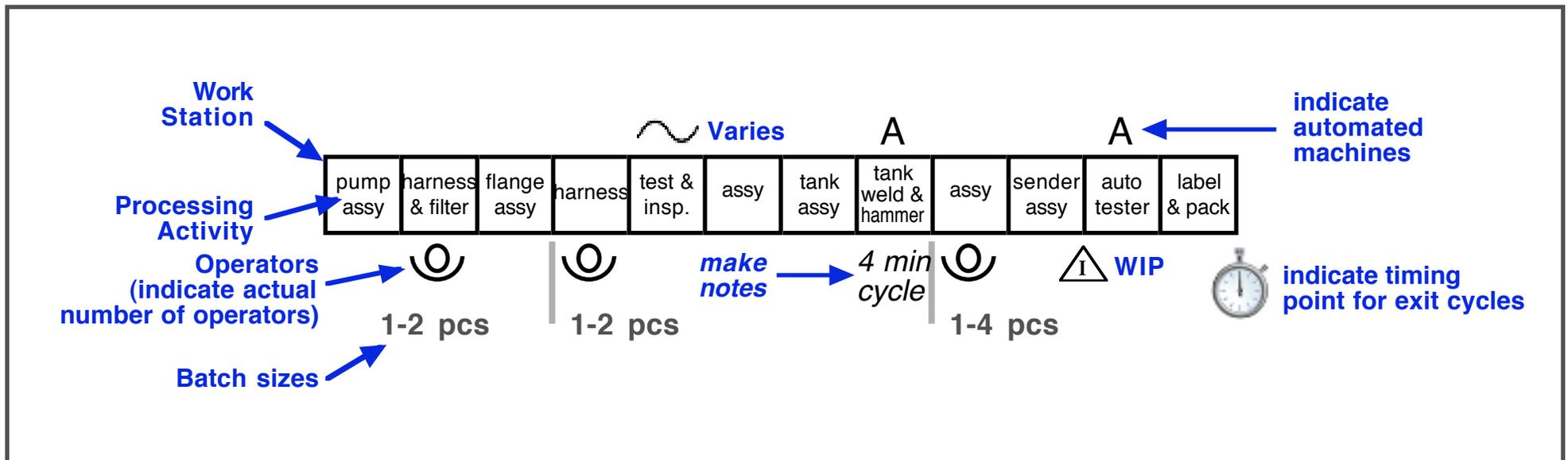
**Everyone  
Draw!**

# 1) SKETCH A BLOCK DIAGRAM OF THE CURRENT PROCESS

At this stage you're trying to figure out the current work pattern and flow, not the physical layout

Draw a straight-line sketch of the workstations in the process. The drawing does not resemble the actual layout. It shows the work flow. Each box simply = a workstation, table, fixture or machine.

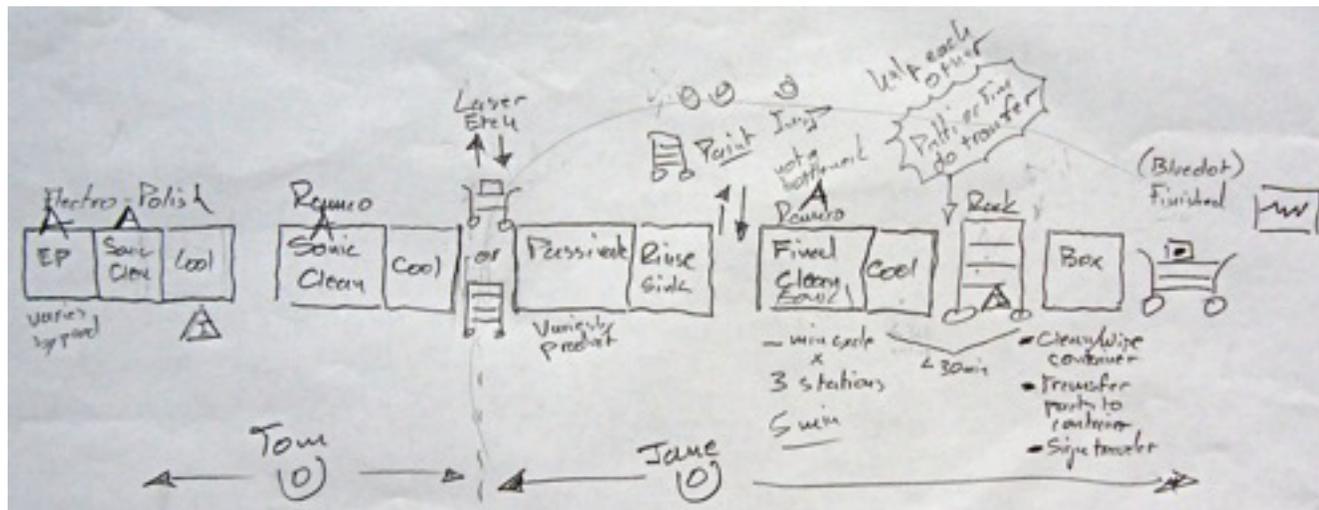
Do not draw to scale or worry about the actual shape, ie. layout, of the line. Simply make each box the same size.



You can keep adding detail to your block diagram as you go through the steps of the process analysis

# THE BLOCK DIAGRAM GETS MESSY

That's normal

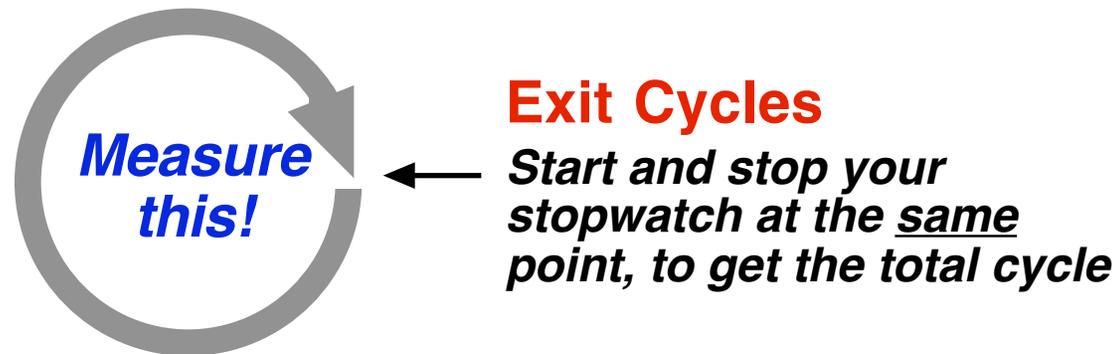


**Note:** The block diagram is a process-level diagram, *not* a value-stream map

## 2) TIME 20-30 EXIT CYCLES FOR EACH OPERATOR

An 'exit cycle' is how often a piece is finished

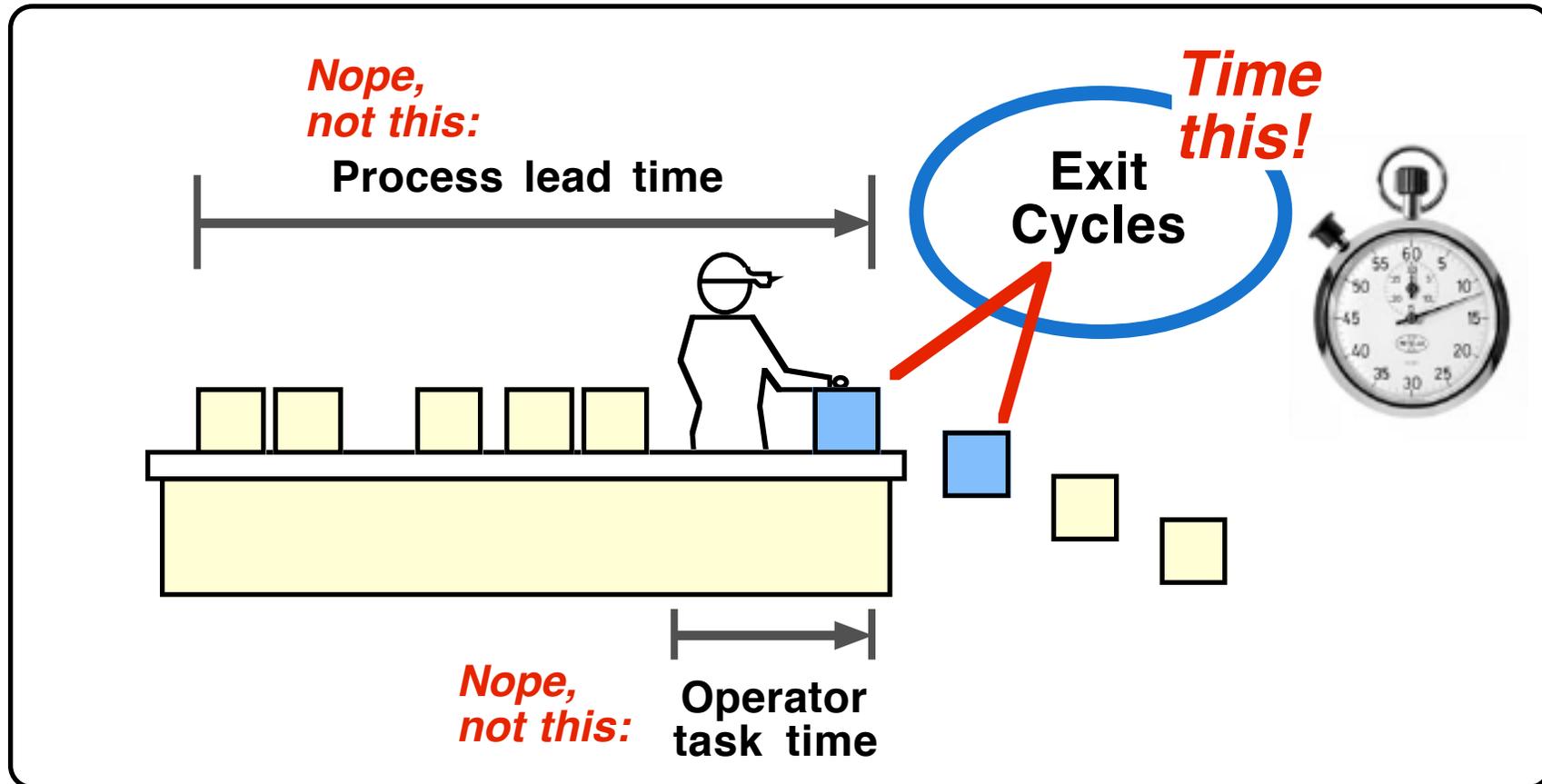
- Select a reference point in the operator's work cycle.
- Start your stopwatch when the operator gets here and let the stopwatch run until the operator returns to this point, no matter what takes place. You are timing "full cycles."
- Record these cycle times on the worksheet on page 28.
- Record any significant wait time or out-of-cycle work in the "notes" area of the worksheet.
- Remember... you're timing the process, not the operator



The last in-cycle workstation in the process = exit cycles and fluctuation for the overall process. If the very last work step happens to be out-of-cycle work (such as a periodic packout) move upstream a bit to where the work is cyclical and time there.

# PROCESS EXIT CYCLES

This is the time between units coming off the end of a process step. It's not how long, but *how often* a piece arrives.



At this stage of analysis you don't have to worry too much about operator task time

# WORKSHEET FOR TIMING CYCLES

Unit of measure	
-----------------	--

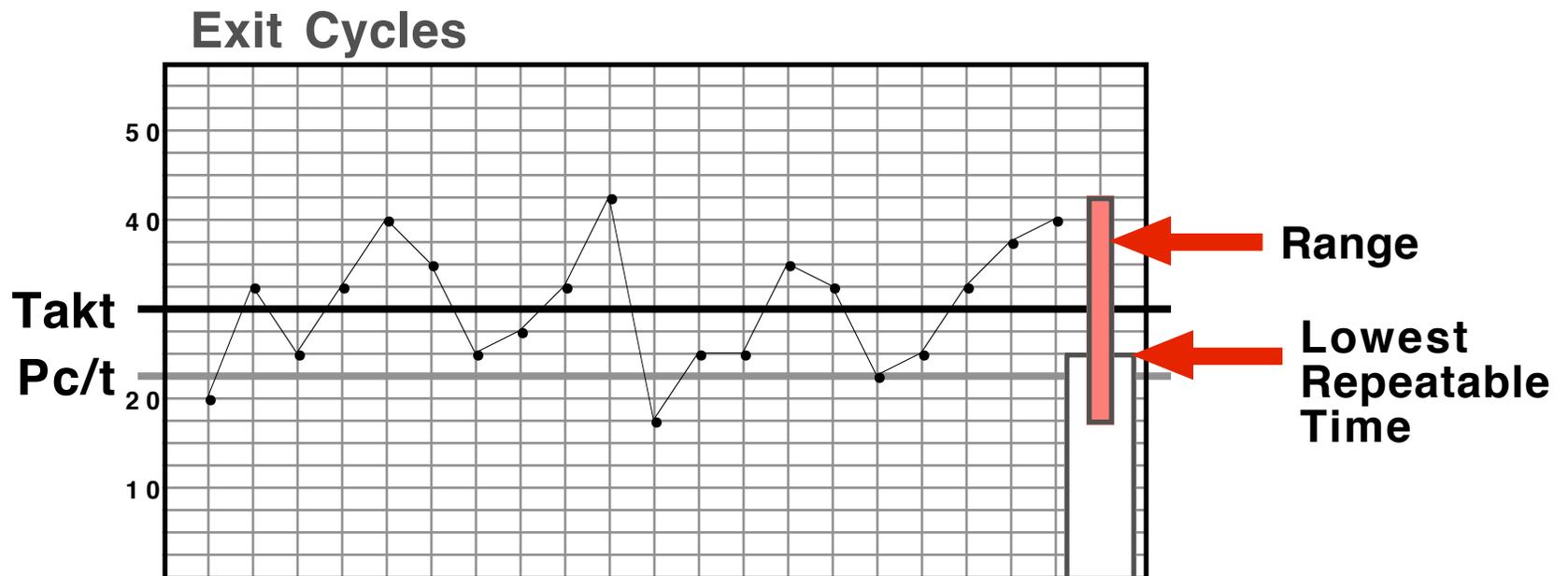
	Times	Notes
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		

# DRAW A RUN CHART OF THE DATA POINTS

To help you see and understand process variation

A run chart is a graph that displays observed data in time sequence. The graph represents some aspect of the performance of a process.

Run charts are an excellent way to gather and communicate current-state information.

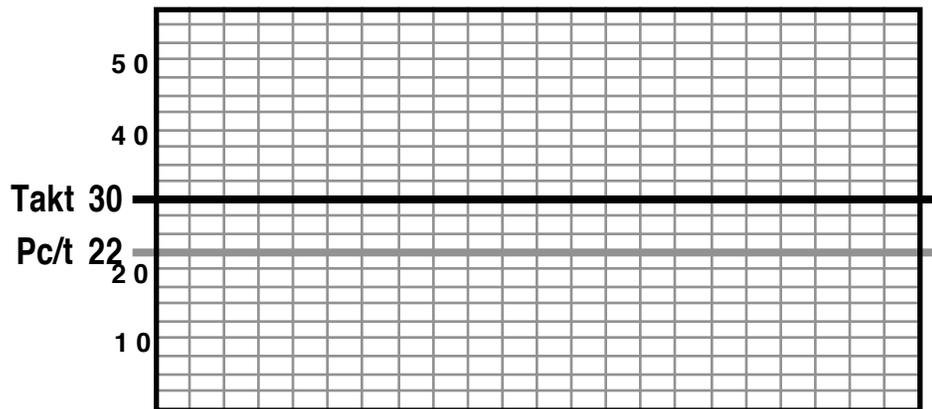


***You can make a run chart for almost any work process, because there is a pattern in almost every work process. Sometimes it can be difficult to see and measure the pattern.***

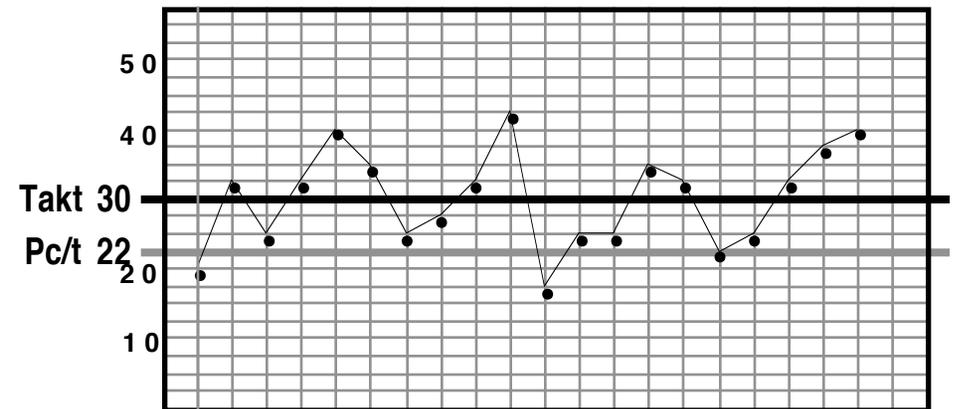
# MAKING A RUN CHART - Step by Step

It doesn't work well to simply tell someone to *"make a run chart."* Draw their first run chart together with them. Here's how.

## Step 1



## Step 2



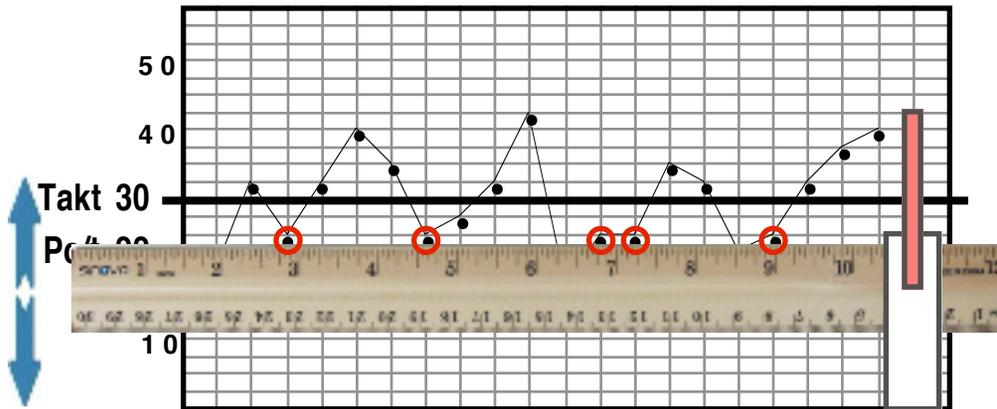
1) If you have a Takt Time and/or Planned Cycle Time for the process, draw horizontal lines for them on the chart

2) Plot & connect the data points

- Note:
- Do not use averages because they obscure variation
  - Include all data points

# RUN CHART - Step by Step

## Step 3



3) Find the *lowest repeatable time* by moving a ruler up from the bottom until data points start repeating.

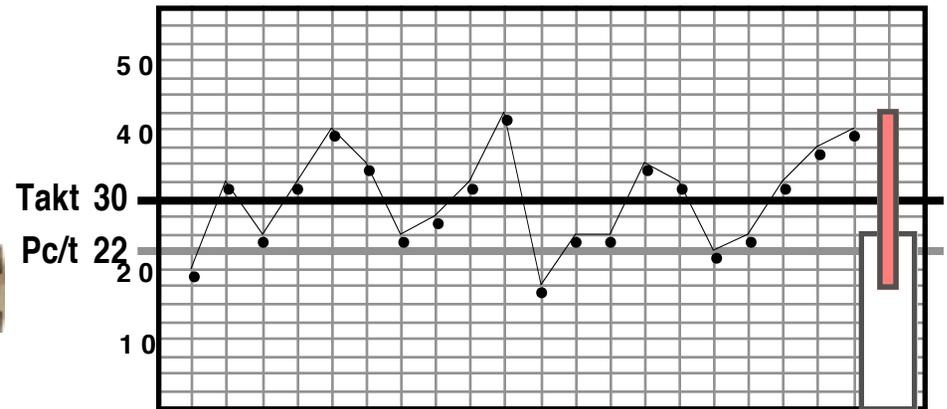
Draw the bar to show the lowest repeatable time + the thinner bar to show the range.



You'll get two pieces of information from the run charts:

1. Variation in operator cycles
2. The lowest repeatable time = *estimated* operator time for each operator's set of tasks (be sure to subtract significant wait time)

## Step 4



4) Calculate current +/- % variation

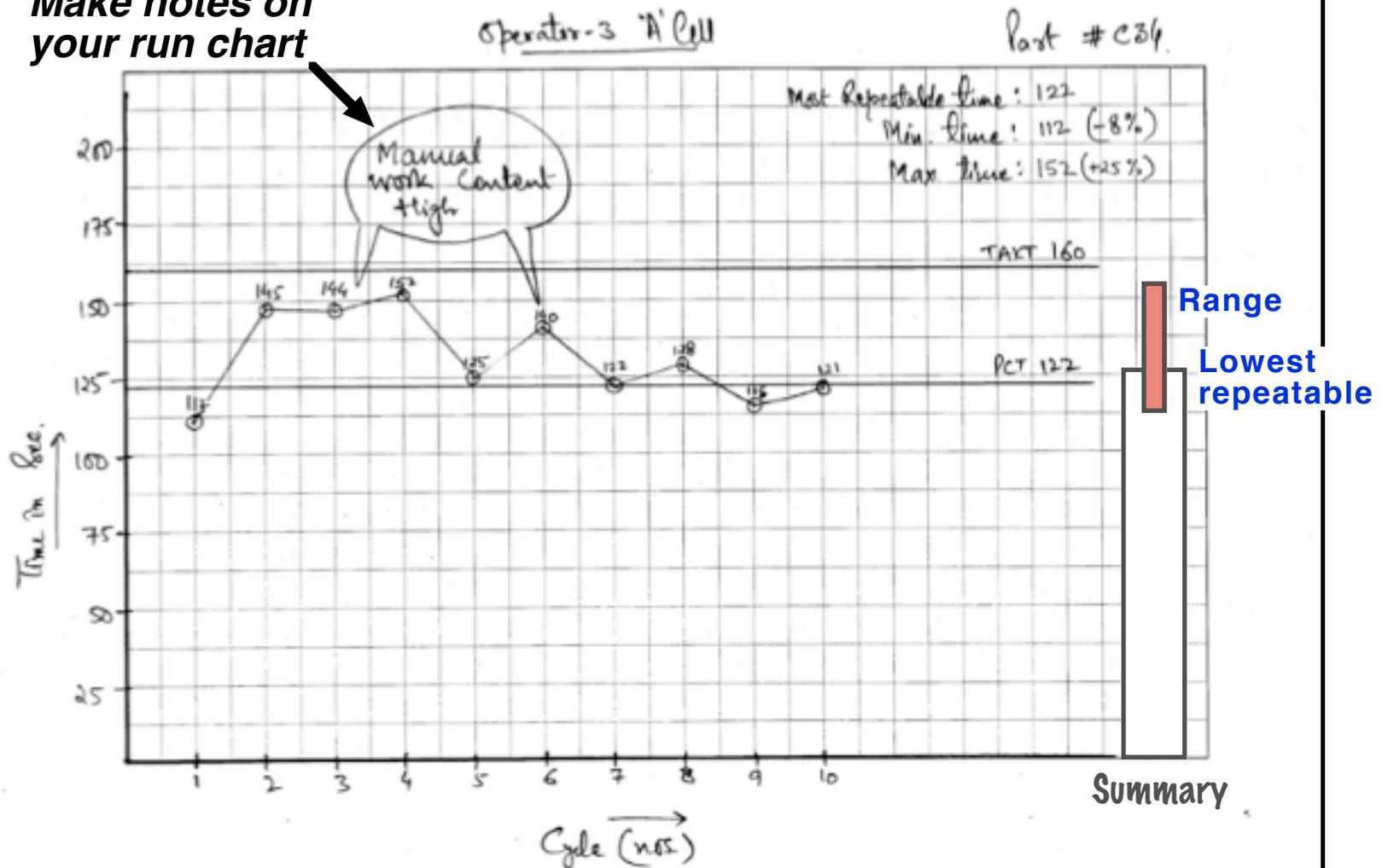
**%+ Var:**  
 $(\text{Highest point} - \text{Pc/t}) \div \text{Pc/t}$

**%- Var:**  
 $(\text{Lowest point} - \text{Pc/t}) \div \text{Pc/t}$

# EXAMPLE RUN CHART OF EXIT CYCLES

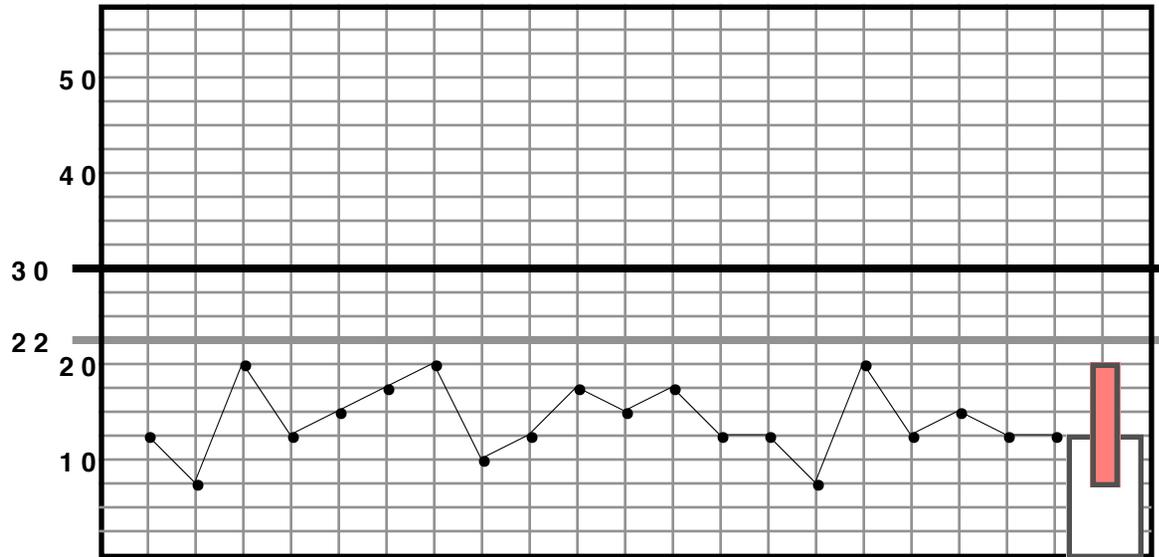
Operator 3 = last workstation

Make notes on your run chart



# MORE EXAMPLES

**Operator X**

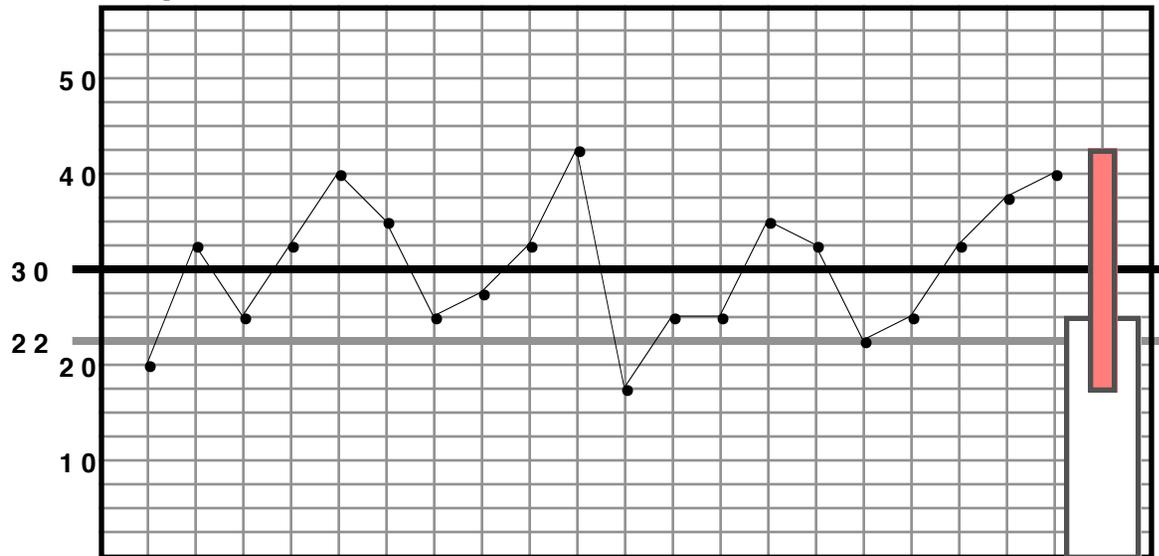


**Range = 8-20 seconds**

**% Variation compared to Pc/t = + 0% / - 63%**

**Lowest repeatable = 13**

**Operator Y**



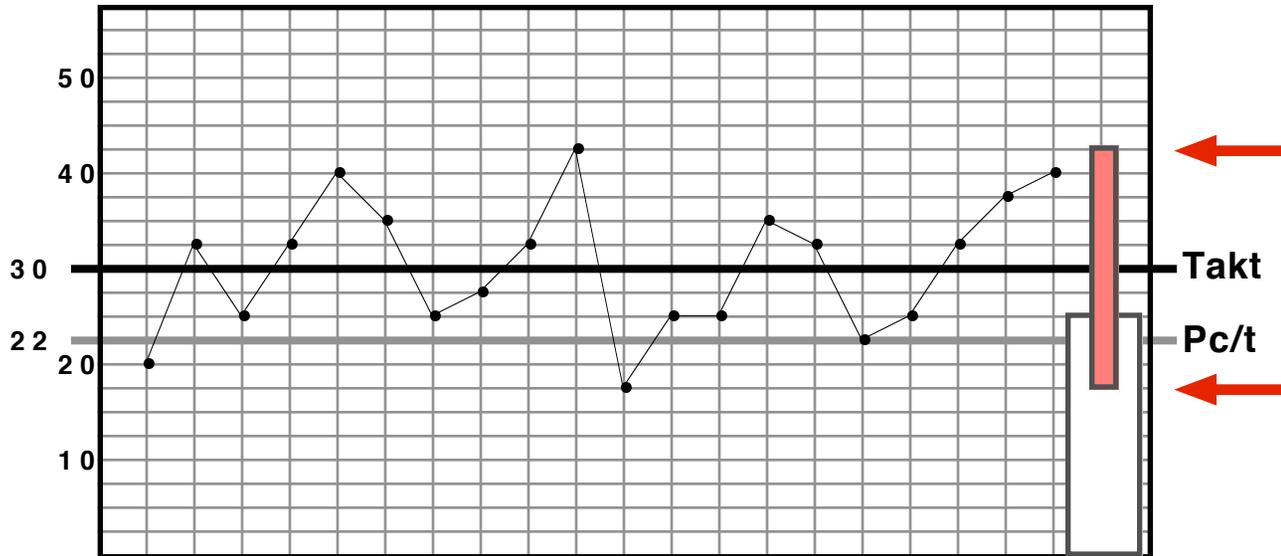
**Range = 18-42 seconds**

**% Variation compared to Pc/t = + 91% / - 18%**

**Lowest repeatable = 25**

# AMOUNT OF FLUCTUATION

Operator cycles (time from one piece to next piece)



## Too much fluctuation

No improvement.  
Causes of problems  
always changing.

Inability to meet  
customer requirement  
without overtime

No rhythm. Sometimes  
rush, sometimes wait.  
Standardized work not  
possible.

Difficult to develop  
skills. Always changing.  
Inconsistent quality.

If the process is not cycling within desired limits or unable to meet customer quality or quantity requirements, address this obstacle before trying to introduce other improvements.

### 3) OTHER DETAILS ABOUT THE CURRENT OPERATING PATTERN

As you draw your block diagram and collect exit cycles, what else do you notice about the pattern of how the process is currently being operated?

These are not issues to address but simply characteristics of how the focus process currently works.

Note your observations in bullet form.



### Customer Demand and Planned Cycle Time

- Customer takt
- Planned cycle time
- Number of shifts currently running

### Characteristics of the Current Process

- 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 the current operating pattern

Step  
③

### Equipment Capacity

- Can the automatic equipment support the planned cycle time?
- How close are we to our current machine capacity limit?
- What is the fastest Pc/t the equipment can currently support?

	
No	Yes

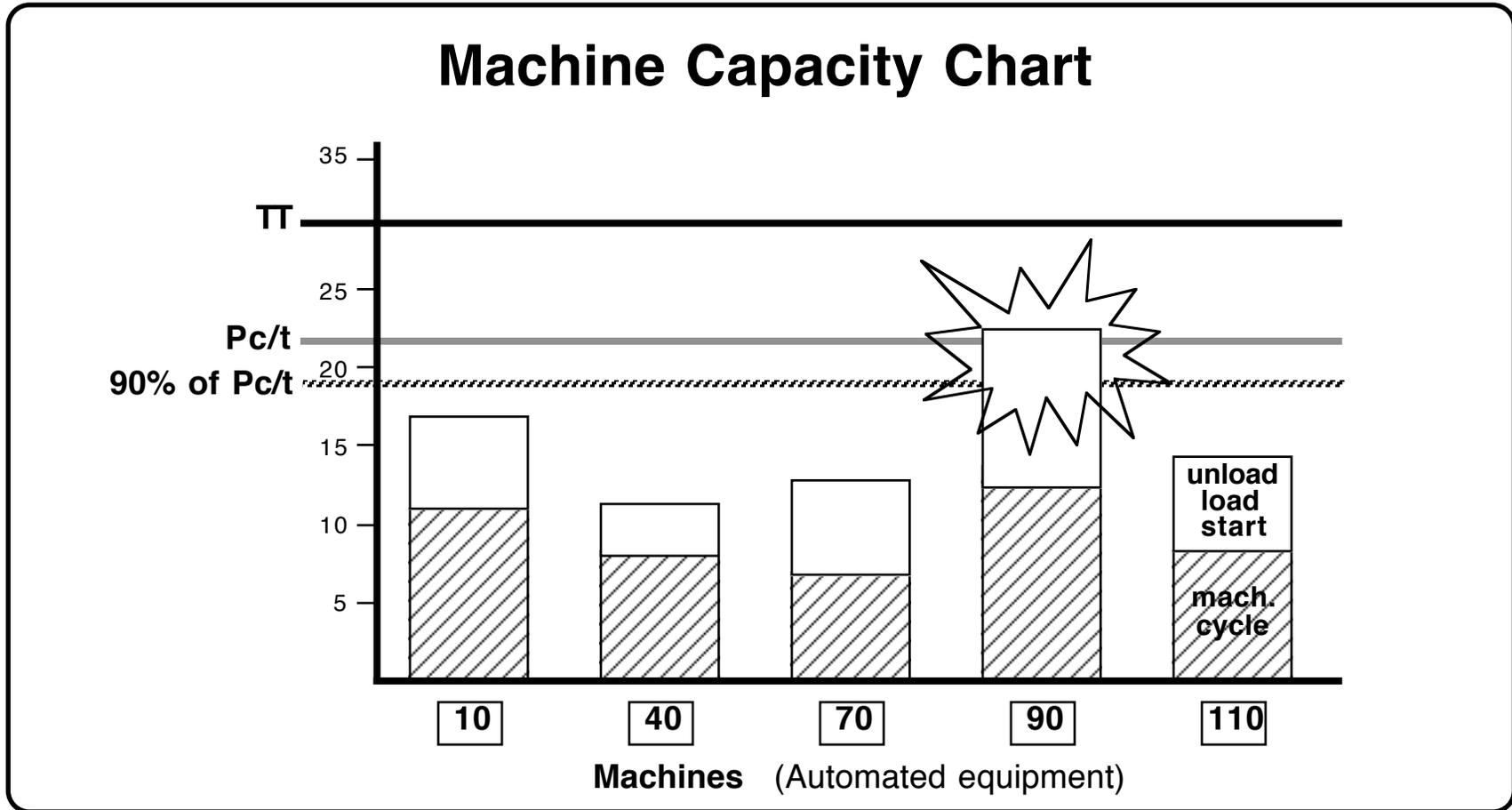
### Necessary Number of Operators (if the process were stable)

- Calculate number of operators

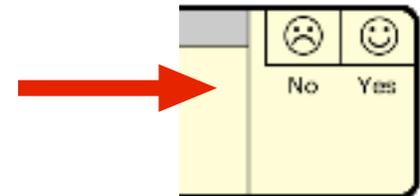
### Outcome Metrics

- Graph (a) output per shift, (b) overtime and any other desired outcome metrics

### ③ EQUIPMENT CAPACITY



This is an important check for processes that have automated equipment. If equipment cannot cycle fast enough to meet the planned cycle time you must address this obstacle.



# MACHINE CYCLE 90% GUIDELINE

This guideline applies only to *automated machines* that are able to cycle while the operator does something else. Do not include machines that require operator guidance, such as hand tools, hand welders, arbor presses, etc. Those cycles are naturally included when you measure operator times.



The basic point: It's OK for a machine to finish cycling and wait for the operator to return, but an operator should never have to wait for a machine to finish. A machine only needs to cycle once per takt.



Total machine cycle should be no > 90% of Pc/t in order to make a consistent 1x1 flow possible. (In fully automated lines 95% of Pc/t may be acceptable.) **[This guideline applies to machines, not operators.]**

1. If machine utilization is too high workstations become close-coupled and small cycle variations telegraph up- and downstream. This causes instability and leads to buffers.
2. If machine utilization is too high operators will have to wait for a machine to finish at some workstations, which interrupts their work cycle and causes instability.



The fastest Pc/t a line can run a 1x1 flow (current capacity) is:

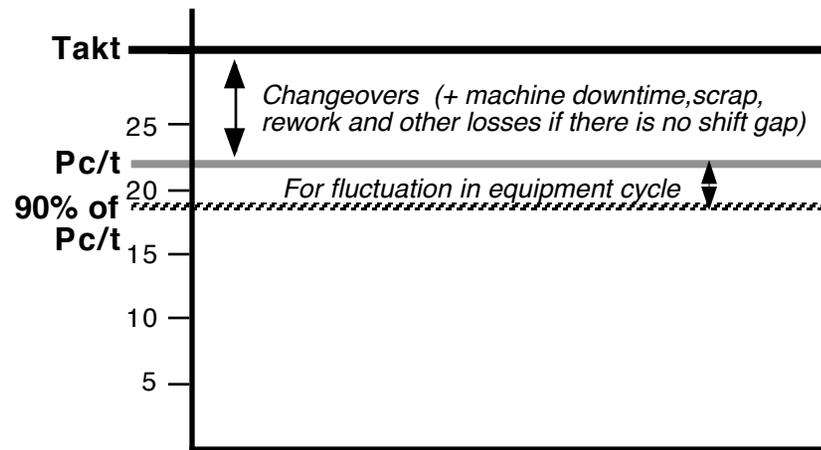
Longest total machine cycle time

0.90

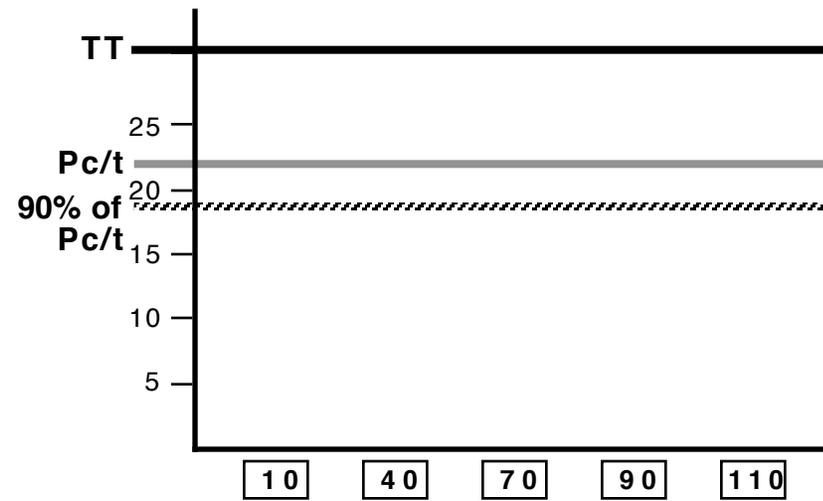
# MAKING A MACHINE CAPACITY CHART

## Step by Step

Accuracy is important in these charts

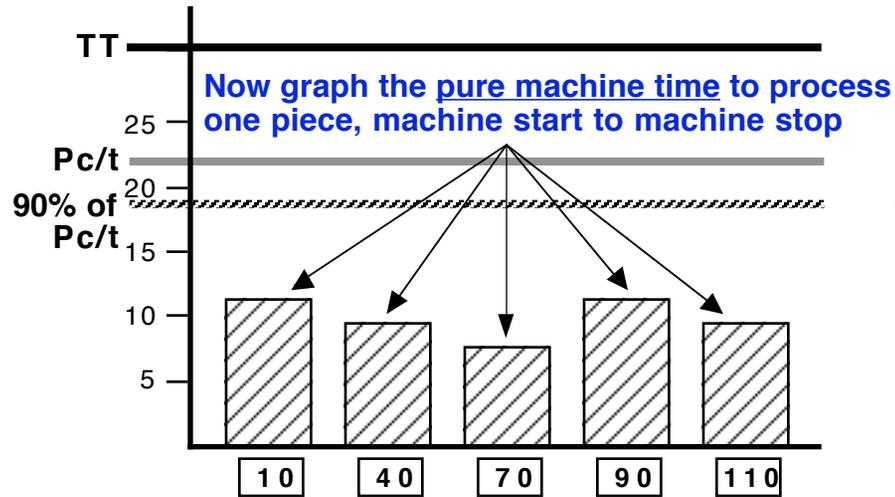


First draw in lines for the takt time (if calculated), planned cycle time, and 90% of planned cycle time.



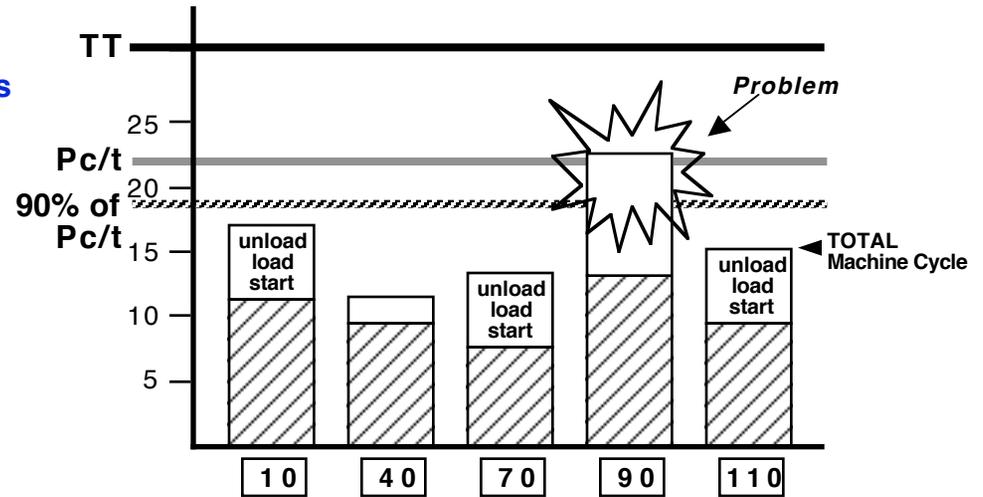
Next list the automated machines in the process (machines that can cycle without an operator).

# MACHINE CAPACITY CHART - Step by Step



Pure machine time is only the time the machine takes from the cycle start to the end of the automatic cycle.

Note: You usually only need to measure a few cycles to obtain this number, since machine cycle times are often relatively consistent.



Finally, add unload and load times to the machine times. This is the time it takes to unload and load the machine, if the machine has to wait during unloading and loading.

The sum of:

Pure machine cycle + unload/load time

Equals the:

Total machine cycle time (TMc/t)

# WORKSHEET FOR RECORDING MACHINE TIMES

You don't need to time many cycles when timing machine cycles

Machine	
1	
2	
3	
4	
5	

Machine	
1	
2	
3	
4	
5	

Machine	
1	
2	
3	
4	
5	

Machine	
1	
2	
3	
4	
5	

### Customer Demand and Planned Cycle Time

- Customer takt
- Planned cycle time
- Number of shifts currently running

### Characteristics of the Current Process

- 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 the current operating pattern

### Equipment Capacity

- Can the automatic equipment support the planned cycle time?
- How close are we to our current machine capacity limit?
- What is the fastest Pc/t the equipment can currently support?



No



Yes

**Step**

**4**

### Necessary Number of Operators (if process were stable)

- Calculate number of operators

### Outcome Metrics

- Graph (a) output per shift, (b) overtime and any other desired outcome metrics

## **④ CALCULATED NUMBER OF OPERATORS** **If the process were stable**

- This is not about reducing the number of operators, but determining the correct number of operators... if the process were stable and there is no out-of-cycle work.**
- We'll use the sum of the lowest repeated times from the run charts (from Step 2) to make this calculation.**
- Note that this calculation is only an estimate for getting started.**
- The calculated number of operators will only work if you are able to achieve a limited range of fluctuation in the process. The more fluctuation there is in a process, the more extra operators will be needed.**



# THE CALCULATION

Operator time and machine time are two different things. We're looking only at operator time here.

Operator (or task)	Lowest repeatable operator cycle	Notes
1	15 seconds	
2	13 seconds	
3	16 seconds	
4	25 seconds	
	$\Sigma = 69 \text{ sec}$	Estimated total in-cycle operator work time to process one piece

$$\text{Necessary number of operators} = \frac{\text{Total operator time to process 1 piece}}{\text{Planned cycle time}}$$

$$\frac{69 \text{ sec. total cycle time}}{22 \text{ sec. Pc/t}} = 3.2 \text{ operators}$$

**Remember:** If you observed consistent wait time in an operator's cycle, subtract that wait time from the lowest repeatable time. This gets you closer to the actual task time



## WHY IS IT OK TO USE LOWEST REPEATABLE TIME?



**Because these times & the number-of-operators calculation are just a starting point for PDCA!**

**This approach is acceptable if you plan to work with rapid PDCA cycles (as with the improvement kata) and will do so daily. PDCA starts early.**

**Then the initial times don't need to be exact, because you will notice analysis errors and other problems along the way, and adjust as you move forward.**

**You're not setting a standard at this point. You're getting current-condition information & data to establish your first target condition. As you move toward that first target condition:**

- **You'll learn more about the process, which can be incorporated into the next target condition**
- **You can get more detailed times for the work elements if necessary**

### Customer Demand and Planned Cycle Time

- Customer takt
- Planned cycle time
- Number of shifts currently running

### Characteristics of the Current Process

- 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 the current operating pattern

### Equipment Capacity

- Can the automatic equipment support the planned cycle time?
- How close are we to our current machine capacity limit?
- What is the fastest Pc/t the equipment can currently support?



### Necessary Number of Operators (if the process were stable)

- Calculate number of operators

**Step**  
**5**

### Outcome Metrics

- Graph (a) output per shift, (b) overtime and any other desired outcome metrics

## ⑤ GRAPH OUTCOME METRICS

This addresses the question of how well the process is delivering and performing over time

(1) Output per Shift



(2) Overtime



**Additional outcome metrics include productivity, quality, labor cost, etc.**

# SUMMARIZING THE INITIAL CURRENT CONDITION

## Customer Demand and Planned Cycle Time

- Customer takt
- Planned cycle time
- Number of shifts currently running

## Characteristics of the Current Process

- 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 the current operating pattern

## Equipment Capacity

- Can the automatic equipment support the planned cycle time?
- How close are we to our current machine capacity limit?
- What is the fastest Pc/t the equipment can currently support?



No



Yes

## Necessary Number of Operators (if the process were stable)

- Calculate number of operators

## Outcome Metrics

- Graph (a) output per shift, (b) overtime and any other desired outcome metrics

The learner or team should use exactly these headings and subheadings in compiling and presenting their analysis summary.

This reinforces the analysis pattern and makes it easier for a coach to go from team to team.

## Summary Example 1:

The learner can post the information as a storyboard on a flat surface, such as a wall or board.

Use the headings!

## Summary Example 2: Generic Headings

### Customer Demand and Planned Cycle Time

**What is a task unit and how much time do we have to complete it? (Calculate)**

### Characteristics of the Current Process

**What are the typical patterns of work? (Diagram)  
How is the process currently operating? (Data)**

### Equipment Capacity

**Do we have any machine constraints?  
What are they? (Data)**



No



Yes

### Necessary Number of Operators (if the process were stable)

**How many people are necessary? (Calculate)**

### Outcome Metrics

**How is the process performing over time? (Data)**

## Summary Example 3

This form can be a preparation aid  
and report-out script for the learner

<b>SUMMARY OF INITIAL CURRENT CONDITION</b>		<b>Date:</b>
<b>Process:</b>		
<b>1</b>	Takt time	
	Pc/t	
	# of Shifts	
<b>2</b>	Diagram of process steps, sequence, times	
	Batch size. Where WIP. (show on diagram)	
	# of Operators (actual)	
	% exit cycle fluctuation (show run charts)	
	Other observations about the current pattern →	
<b>3</b>	Equipment capacity (show machine capacity chart)	
<b>4</b>	# of Operators (calculated)	
<b>5</b>	Actual output / shift (show run chart)	
	Overtime (show run chart)	

# Summary Example 4

## Customer Demand / Line Pace

- Takt Time = 30 seconds
- PC/T = 22 seconds
- Gap = 27%
- Running 2 Shifts + overtime
- 10 changeovers per day

## Process Characteristics

- Output cycles vary +91%/-18%
- Operator work steps vary
- 4 operators
- Operator 4 cannot consistently meet Pc/t
- Line does not meet Pc/t
- WIP (as shown)

## Equipment Capacity

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

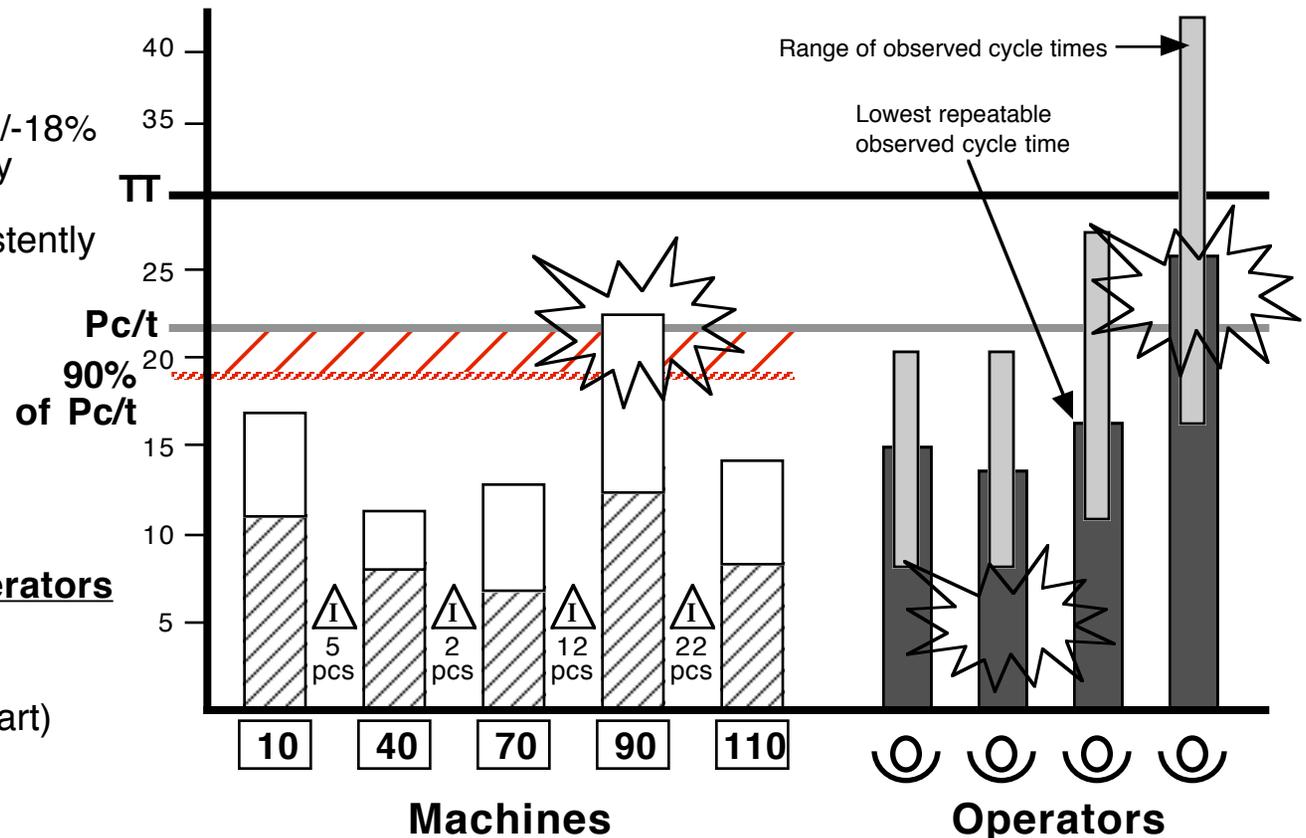
## Necessary Number of Operators

- 3.2 operators / 4 actual
- Operators 1, 2 & 3 are underutilized (see chart)

## Outcome Metrics

- See graphs
- Line must run overtime

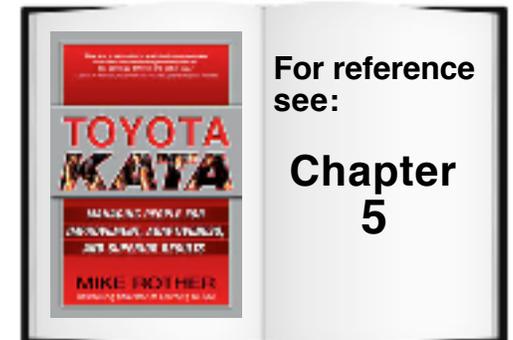
INITIAL CURRENT CONDITION	
Process	
Date	



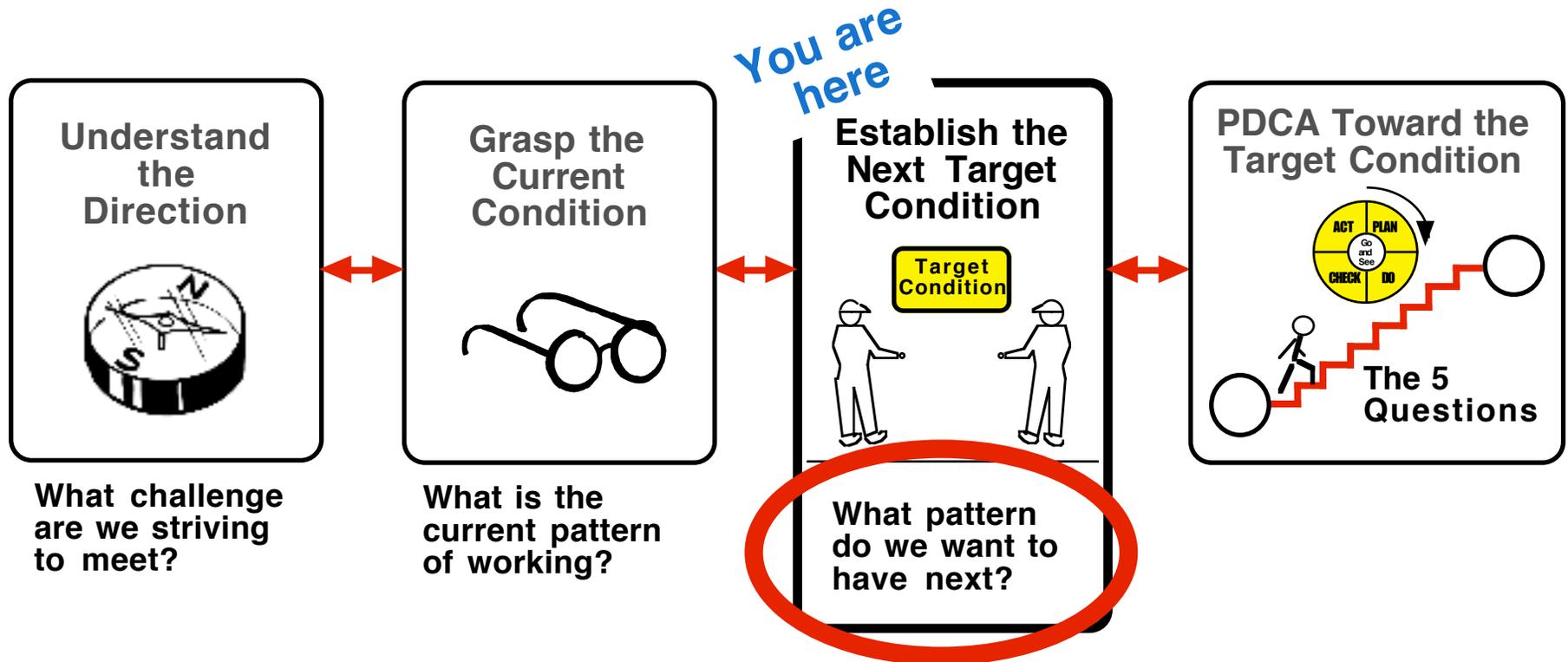
# The Improvement Kata

## ESTABLISH THE NEXT TARGET CONDITION

Practice  
this  
Routine



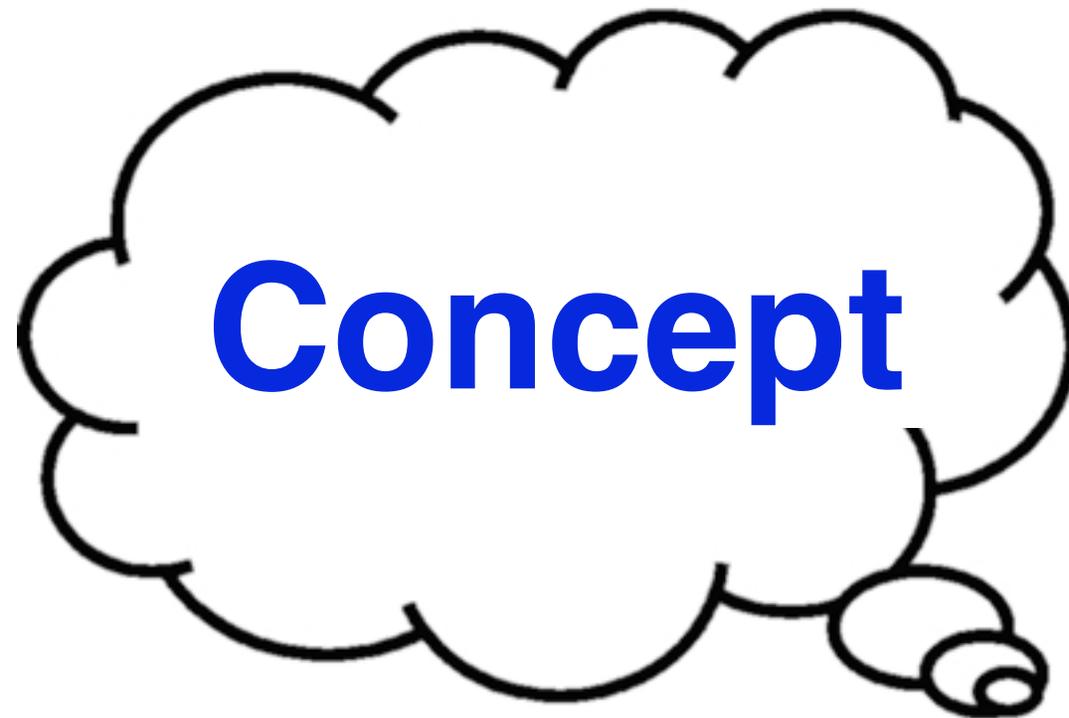
# ORIENTATION



# LEARNER'S STORYBOARD

Learner and coach are now concentrating on these two fields 

<i>Focus Process:</i> 	<i>Challenge:</i> 	
<i>Target Condition</i> 	<i>Current Condition</i> 	<i>PDCA Cycles Record</i>
		<i>Obstacles Parking Lot</i> 

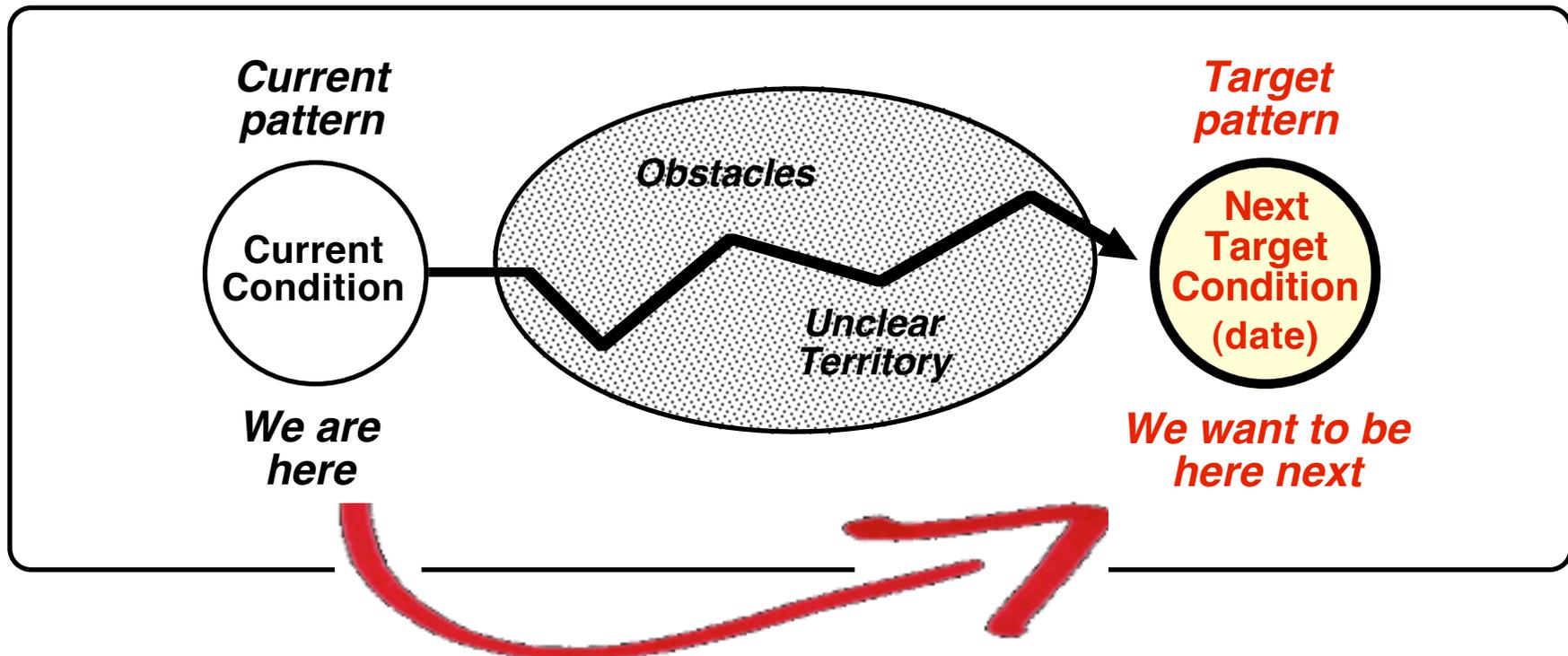


# WHAT IS A TARGET CONDITION?

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.

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

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



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

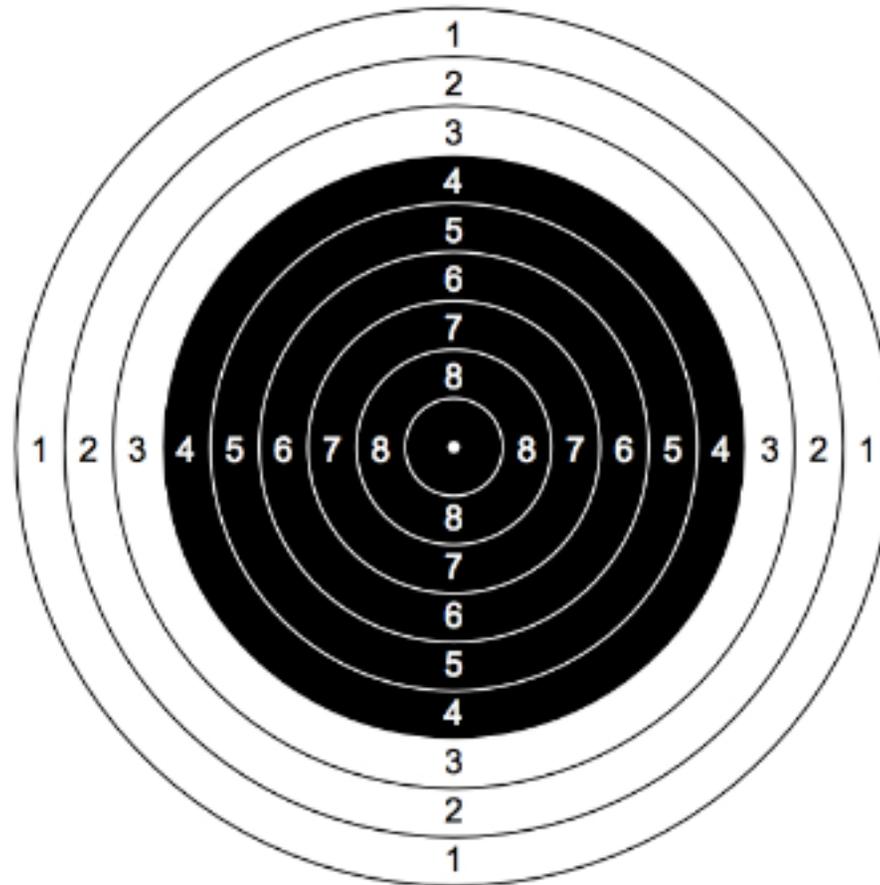
A target condition that you can already or quickly see how to reach - one that involves little trial and error - is not a good target condition. A good target condition requires experimentation and learning to reach it.



*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

# YOU CAN THINK OF A TARGET CONDITION AS A *TARGET PATTERN* YOU'RE AIMING FOR

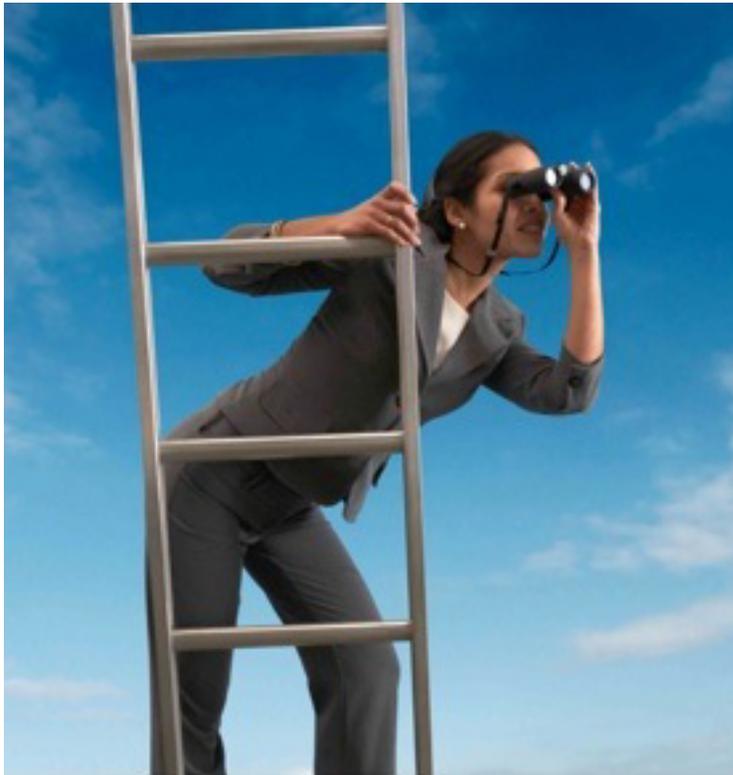


Important

**A target condition is not about the highest payoff or lowest-risk option. It's something you need to strive for on the way to a challenge you're trying to meet.**



# A TARGET CONDITION IS AN ESSENTIAL ELEMENT FOR ACTIVATING HUMAN INGENUITY IN TEAMS



**A target condition is a forward-looking challenge rather than a backward reflection of problems. It's about moving toward something as a path to achievement.**

**A target condition prompts us to consider a different set of circumstances from those that currently exist.**

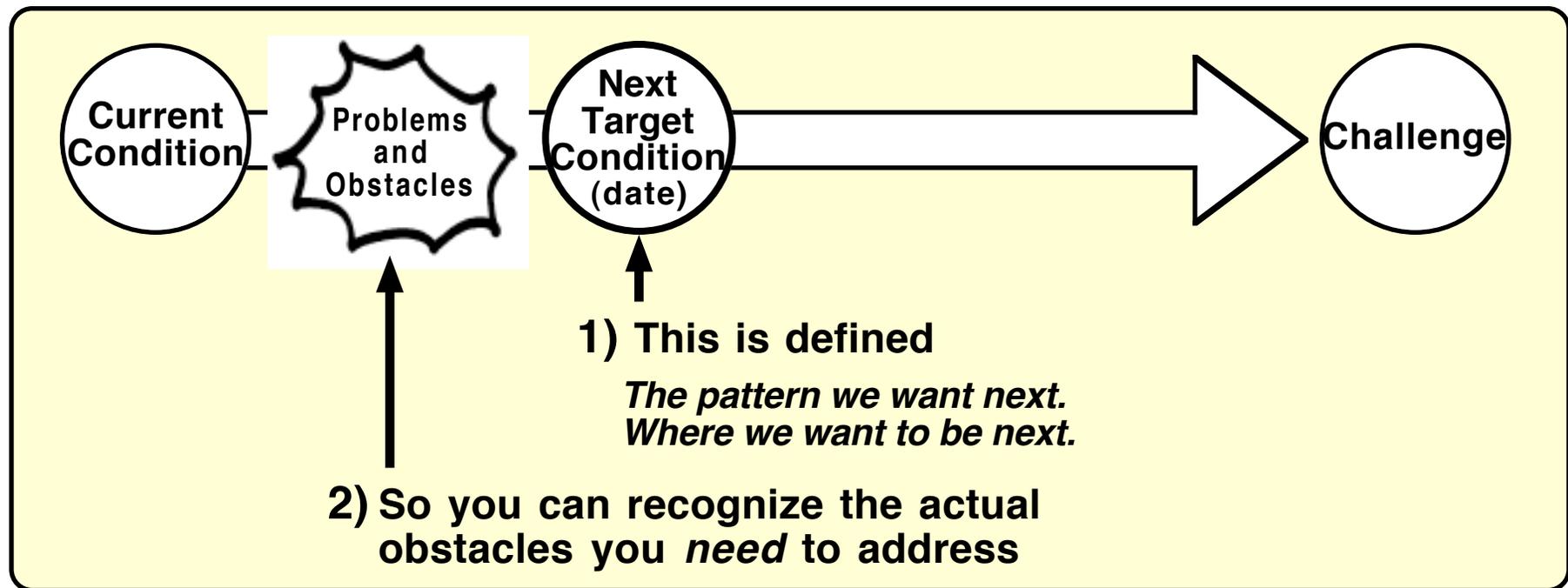
**A target condition is an essential element of the creative process. Think of it as mutual effort toward a mutual end.**

# THREE REASONS FOR SETTING A TARGET CONDITION

Once you've experienced the role of a target condition you'll find it difficult to work without one!

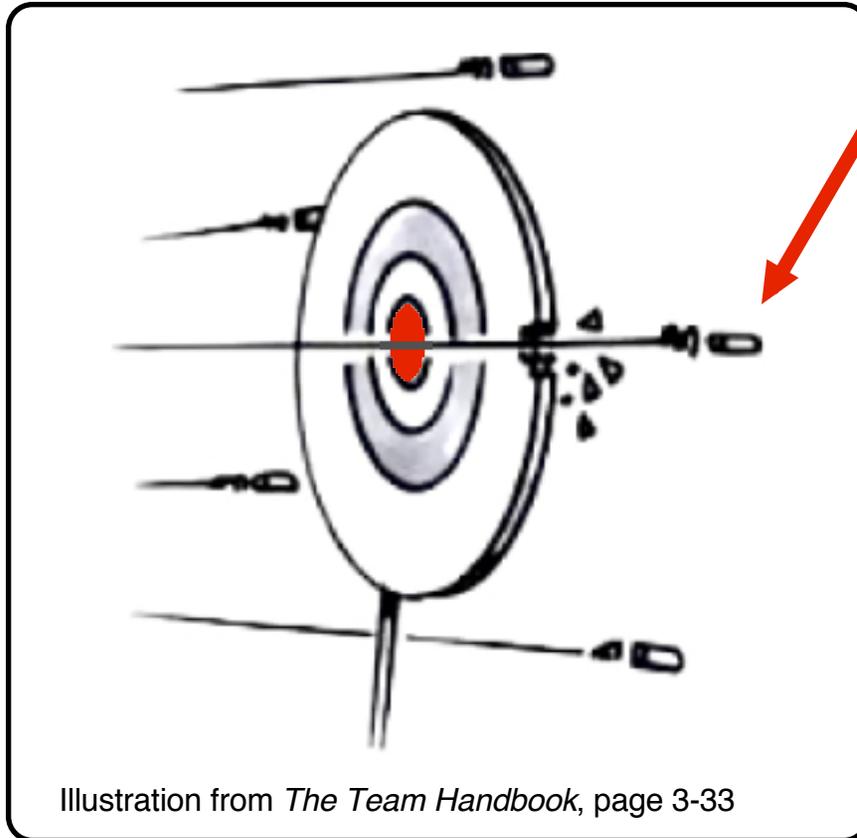
## (1) A target condition allows you to work scientifically

By setting an objective and then trying to hit it you learn why you cannot. That's what you then work on.

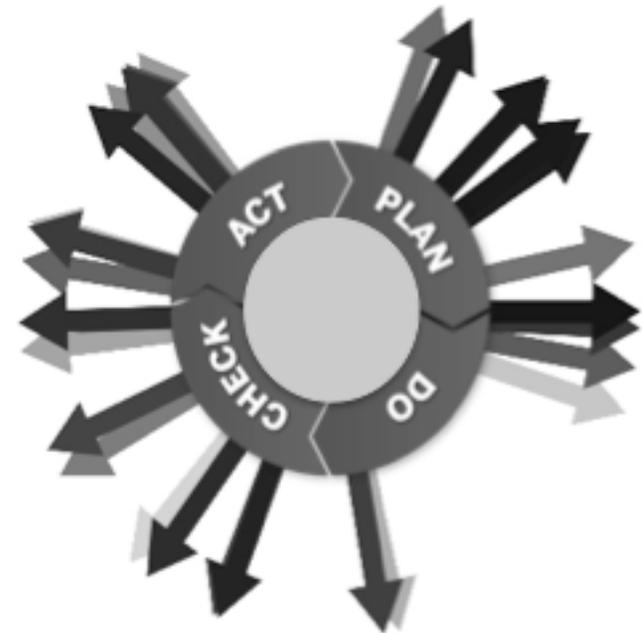


The improvement kata involves going after only the problems, the obstacles that prevent you from getting to the specific target condition you are striving to reach -- one at a time. There will be many things you *don't* work on.

**A target condition is like an overall hypothesis you test against in order to reveal key obstacles, using this question: “*What is now preventing us from working according to the target pattern?*”**



**In contrast, PDCA without a target condition is like trying to learn from randomness**



## **(2) A target condition helps you beat entropy**

**Without something to strive for, a process naturally tends to degrade**

**ENTROPY  
HAPPENS**

**Deming estimated that 80-95% of process variation is random, or *common cause* variation. These are systemic problems.**

**Examining each failure and searching for the root cause in order to solve the problem (“troubleshooting”) is the wrong approach for systemic problems. What you’re doing is trying to stay in place, which entropy says is not possible.**

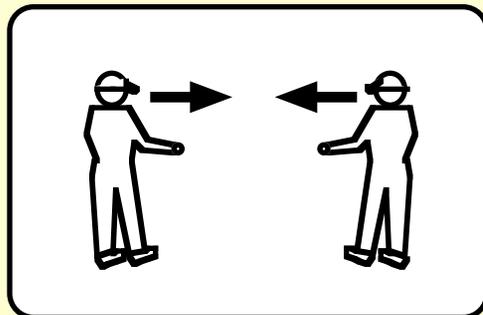
**In order to take action against the results of common cause variation, the performance of the system itself must be changed. A systemic improvement is needed.**

**That’s what a target condition represents.**

### (3) A target condition enables teamwork

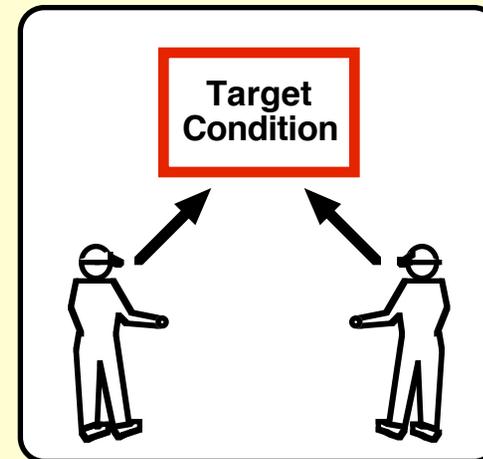
#### ***WITHOUT* a Target Condition**

Disorganized discussion.  
Exchange of opinions.  
My idea versus your  
idea. *“Who’s right?”*  
Prioritization by  
dominant individuals.  
No PDCA.



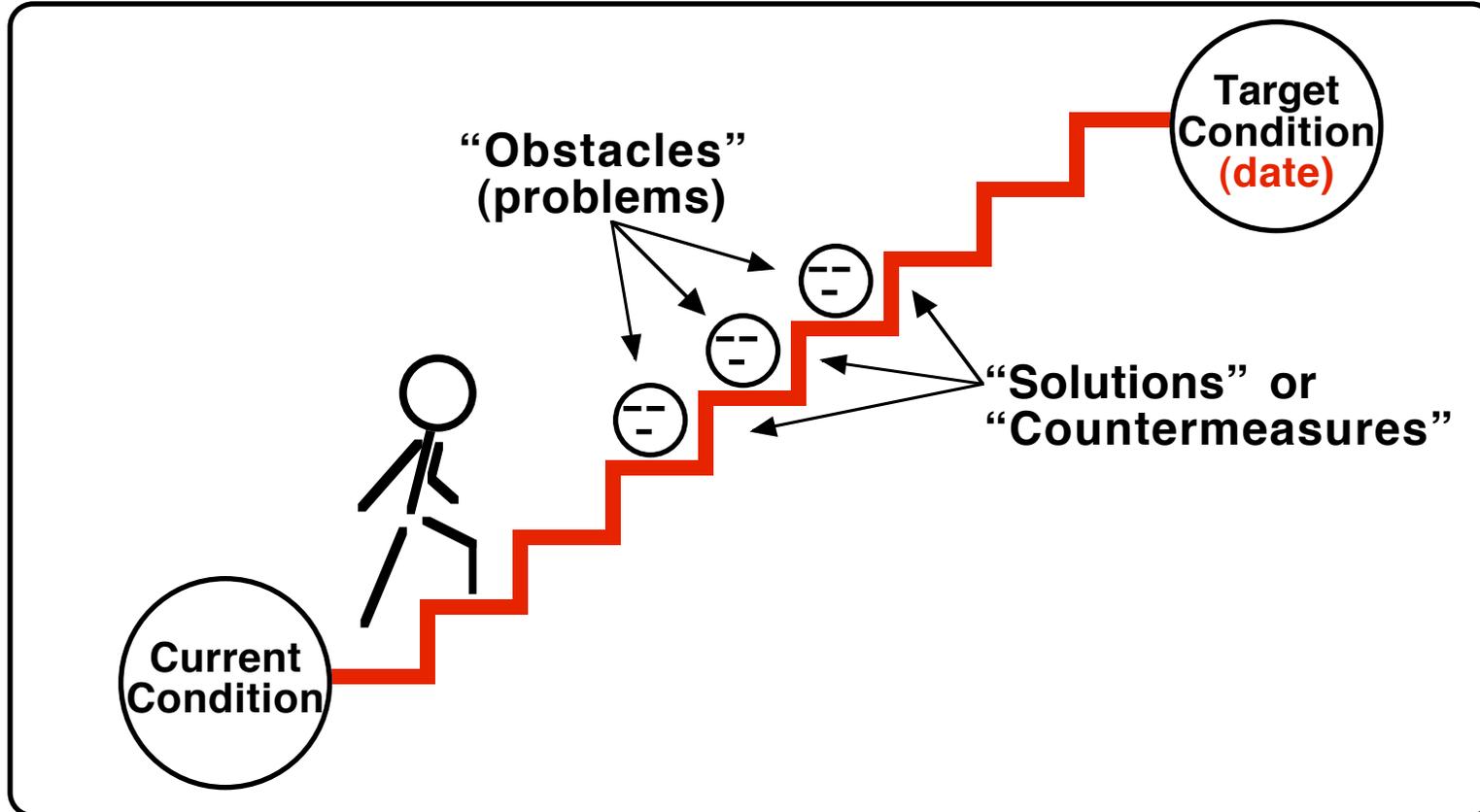
#### ***WITH* a Target Condition**

Structured approach.  
What do we need to  
do next to reach our  
objective?



# TERMINOLOGY

- A **target condition** is not a **solution**. It's something you are striving to reach by a specified date
- What you do to overcome **obstacles** (problems) on the way to a target condition are **solutions** or **countermeasures**
- **Adaptiveness** happens as you work step-by-step toward the target condition and adjust based on what you learn along the way





# What's in a Target Condition





# THE INFORMATION IN A TARGET CONDITION

A target condition should name the focus process, specify a date, and include four categories of information

**Focus Process:**

**Achieve-by Date:** (1 week - 3 months in the future)

(1) **DESCRIPTION OF PROCESS STEPS, SEQUENCE & TIMES**

Depict the pattern of how you want the focus process to be operating on the achieve-by date

(2) **OTHER PROCESS CHARACTERISTICS**

Examples:

- Number of operators
- Number of shifts
- Where 1x1 flow is desired / standard WIP
- Amount of cycle fluctuation
- Production sequence and lot sizes

(3) **PROCESS METRIC(S)**

For checking process behavior in real time

Examples:

- Time for each step, piece, pitch, etc.
- Degree of time fluctuation from cycle to cycle

(4) **OUTCOME METRIC(S)**

May be related to the challenge. A target.

Examples:

- Number of pieces per hour or shift
- Overtime
- Productivity

How the game is played

The score

# A TARGET CONDITION IS A **MULTIFACETED** DESCRIPTION OF A DESIRED CONDITION

**Focus Process:**  
**Achieve-by Date:**

(1) **PROCESS STEPS, SEQUENCE & TIMES**

(2) **OTHER PROCESS CHARACTERISTICS**

- Number of operators
- Amount of cycle fluctuation
- Where 1x1 flow is desired / standard WIP

(3) **PROCESS METRIC**

- Degree of operator cycle fluctuation

(4) **OUTCOME METRIC(S)**

- Pieces per hour
- Productivity

**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



# GUIDELINES

Words that should not be in the operating description	WHY
<p>“Minimize” “Reduce” “Improve” “Increase”</p>	<p>No verbs in a target condition! That’s for how to get there, which comes later.</p> <p>A target condition describes a desired pattern at a future point in time, not actions. Transport yourself to the future and state the target condition as if you are already there.</p>
<p>“Apply 5S” (Housekeeping &amp; workplace organization) “Install a barcode system” “Change the layout”</p>	<p>These are countermeasures, which should not be confused with a target condition. First describe how the process should operate. Countermeasures are then developed <i>as needed</i> as you strive to reach that target condition.</p>
<p>“A pull system” (kanban) “Milk-run material delivery”</p>	<p>Not enough detail. A kanban or material-delivery system can be a target condition, but you need to describe the pattern of how you want the specific system to operate.</p>



# A TARGET CONDITION IS NOT JUST AN OUTCOME METRIC

<p><b><i>TARGET CONDITION</i></b></p> <p>A learning goal Describes an operating pattern</p>	<p><b><i>OUTCOME METRIC</i></b></p> <p>A performance goal A result or score</p>
	<p>Examples:</p> <ul style="list-style-type: none"> <li>Inventory level</li> <li>Lead time</li> <li>Output per hour</li> <li>Cost, Labor cost</li> <li>Quality level</li> <li>Productivity</li> <li>Machine reliability</li> <li>etc.</li> </ul>
<p><b>This is actionable</b></p> <p>We predict the process operating in this pattern will generate.....</p>	<p><b>Can't be achieved directly</b></p> <p>.....this outcome / result</p>

***A target condition is a description of circumstances -- of an operating pattern -- that you predict will generate the desired outcome***



# EXAMPLES

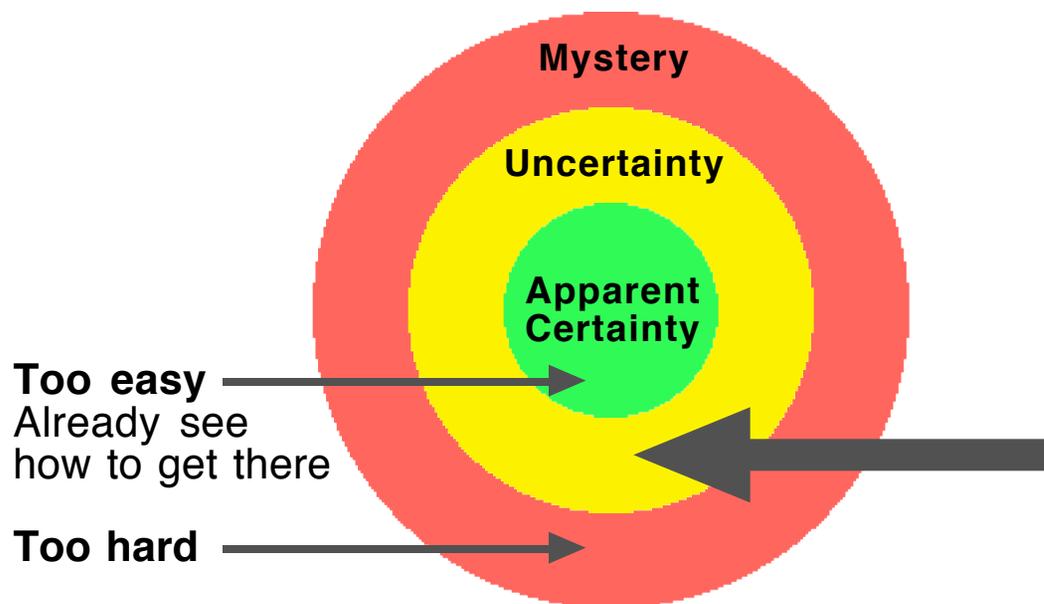
The “*construction site*” is here

<p><b>TARGET CONDITION</b></p> <p>A learning goal Describes an operating pattern</p>	<p><b>OUTCOME METRIC</b></p> <p>A performance goal An outcome, result or score</p>
<p>Desired pattern for how to shoot free throws</p> <p>Desired pattern of how math and science are taught. Desired pattern of student study habits.</p>	<p>80% of free throws made</p> <p>All 6th grade students in our school passing the standardized test for math and science</p>
<p><b>This is actionable</b></p> <p>We predict the process operating in this pattern will generate.....</p>	<p><b>Can't be achieved directly</b></p> <p>.....this outcome / result</p>

# THE TARGET CONDITION MUST BE CHALLENGING

**Coach: Do not agree to a target condition that's easy or comfortable**

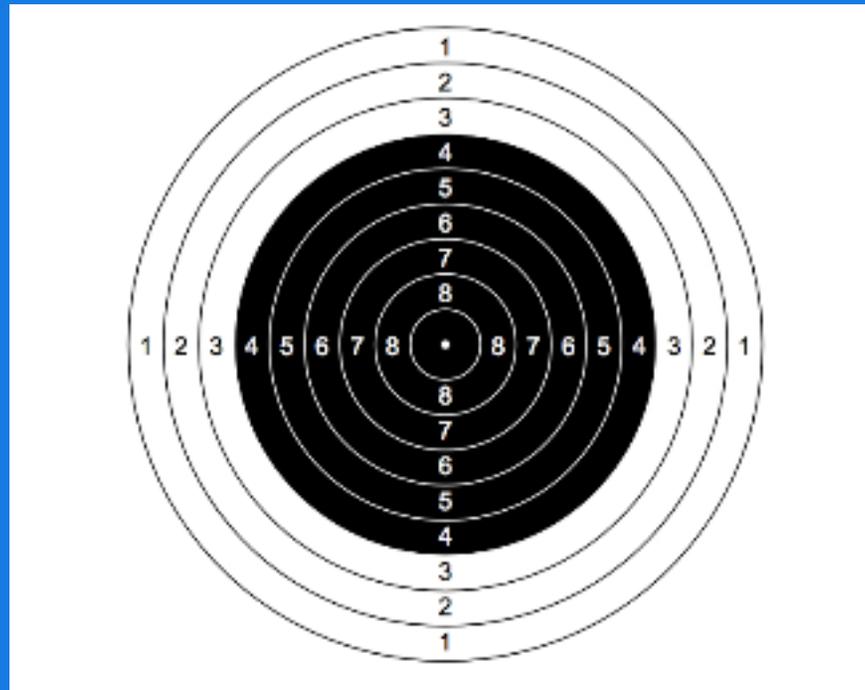
The coach decides how much of a stretch the next target condition should be, trying to have the learner practice just over the edge of his/her capability. A good target condition brings the learner and process team to the limits of their knowledge and compels them to learn, grow and adapt. Remember, learning new skill and making progress requires stretching and experiencing small failures.



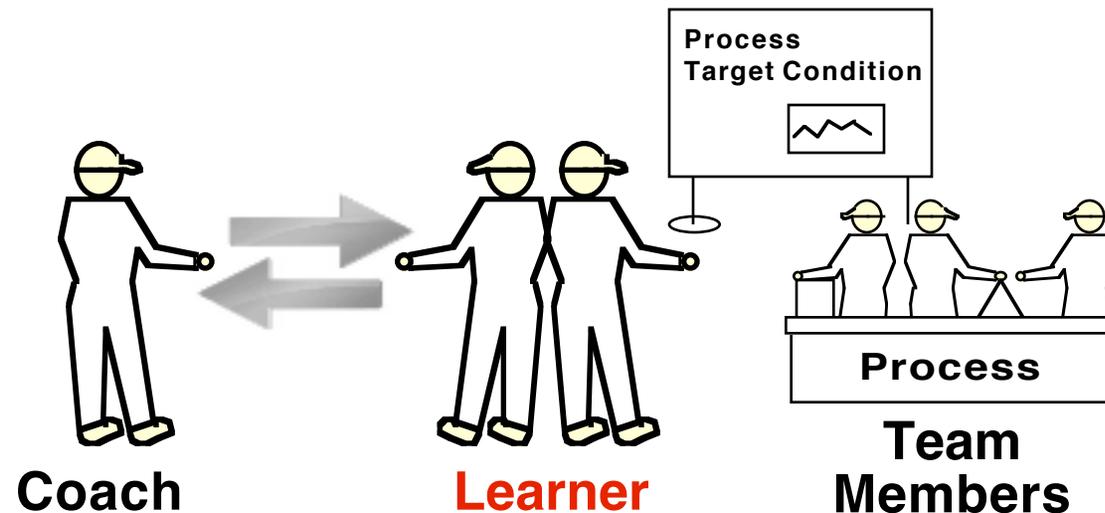
**A target condition should be in the yellow zone of uncertainty**

**It's important to challenge the learner, so s/he feels a sense of accomplishment. It's better to fail to achieve a target condition once in a while than to stay in the green apparent certainty zone.**

# Developing a Target Condition Step by Step



# THE LEARNER DEVELOPS THE TARGET CONDITION



**The learner and the team own the target condition. The learner leads the team and develops the target condition in an iterative dialog with the coach. The learner presents the target condition to the coach, receives feedback and fine-tunes the target condition. This process repeats until coach and learner agree on the target condition.**

**The first 1-3 target conditions for a focus process don't have to be perfect. Although the learner should not change a target condition once it's been set, it's OK to add detail to a target condition as the learner and team strive to achieve it and learn more.**

# 1st STEP: AGREE ON THE ACHIEVE-BY DATE

The coach proposes an achieve-by date for the learner's next target condition for the focus process. This table is only a guideline.

Degree-of-Challenge Guideline based on the Dreyfus Model of Skill Acquisition		
Learner's Skill Level	Characteristics of the skill level	Achieve-by date time horizon*
<b>Expert</b>	No longer relies on rules / guidelines / maxims Grasp of situations & decision making intuitive Vision of what is possible	??
<b>Proficient</b>	Sees what is most important in a situation Perceives deviations from the normal pattern Maxims vary according to situation	Target condition ≤ 3 months out
<b>Competent</b>	Copes with crowdedness Sees actions partially in terms of LT goals Has standardized and routinized procedures	Target condition ≤ 1 month out
<b>Advanced Beginner</b>	Action based on attributes or aspects Situational perception still limited All aspects are given equal importance	Target condition ≤ 2 weeks out
<b>Novice</b>	Adherence to rules or plans Little situational perception No discretionary judgement	Target condition 1 week out

\* *How long coach thinks learner should take to achieve next target condition.*

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

# BEGIN THE CONTENT ITERATIONS

The coach asks the learner to describe on a blank sheet of paper how the learner would like the focus process to be operating on the achieve-by date. The coach asks the learner to do this in consideration of the challenge, and with the process analysis summary (current condition) at hand.



This is just the first of several iterations. By beginning with a blank sheet of paper, instead of the target condition form, the learner is unrestricted and the coach can better see how the learner is thinking.

# TARGET CONDITION PLANNING FORM

After the first iteration, the coach can suggest the learner use a target condition planning form to help develop the target condition. This makes it easier to go from the current-condition information gathered in the process analysis to the information required on the target condition form.

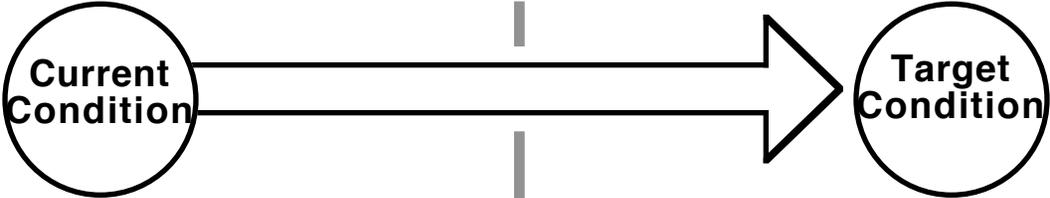
Three versions of the planning form are on the next pages.

**To use the target condition planning form:**

**Step 1: Fill in current condition data (left side)**

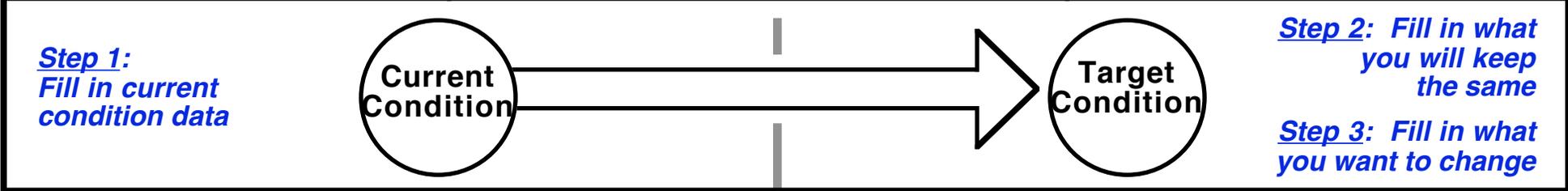
**Step 2: Fill in what you will keep the same (right)**

**Step 3: Fill in what you want to change (right)**

TARGET CONDITION PLANNING FORM (Manufacturing)		Process Metric	Outcome Metric
Process	Challenge	Achieve-by Date	
<p><i>Step 1: Fill in current condition data</i></p> 		<p><i>Step 2: Fill in what you will keep the same</i></p> <p><i>Step 3: Fill in what you want to change</i></p>	
1	Takt time		
	Pc/t		
	# of Shifts		
2	Process steps, sequence, times		
	Batch size. Where WIP.		
	# of Operators		
	% exit cycle fluctuation		
	Other observations about the current pattern		
3	Equipment capacity		
4	# of Operators (calculated)		
5	Actual output / shift		
	Overtime		

<b>TARGET CONDITION PLANNING FORM</b> (General)	Process Metric	Outcome Metric
---	----------------	----------------

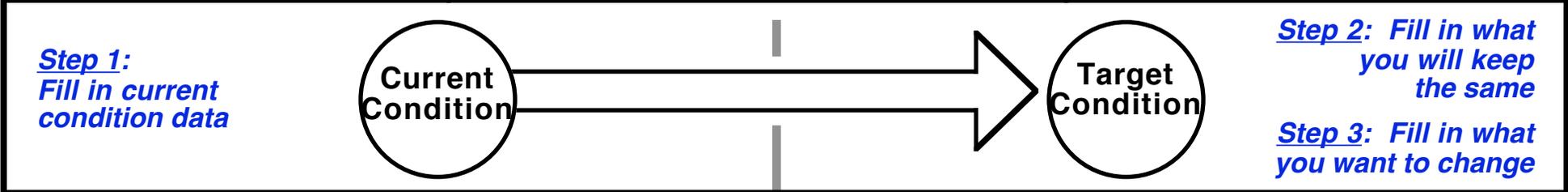
<b>Process</b>	<b>Challenge</b>	<b>Achieve-by Date</b>
----------------	------------------	------------------------



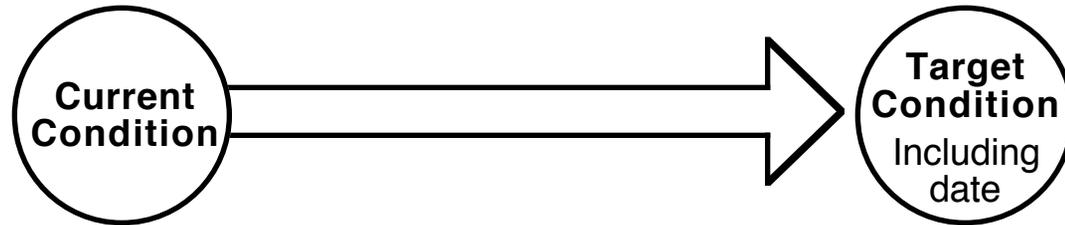
Task unit and time to complete	
Current operating patterns	
Equipment capacity	
Number of people required	
Performance data	

<b>TARGET CONDITION PLANNING FORM</b> (Other)	Process Metric	Outcome Metric
---	----------------	----------------

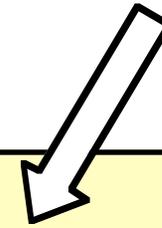
<b>Process</b>	<b>Challenge</b>	<b>Achieve-by Date</b>
----------------	------------------	------------------------



# NOTE THAT NOT EVERYTHING HAS TO CHANGE



*Not everything is changed*



Customer Takt 30 sec	Customer Takt 30 sec
Planned cycle time 25 sec	Planned cycle time 25 sec
Two shifts + overtime	<b>Two shifts, no overtime</b>
Small, varying WIP between workstations	<b>1x1 Flow from stations 10 --&gt; 110, 3 pieces SWIP after station 110</b>
6 Operators, underutilized	<b>4 Operators (incl. steps, sequence, times)</b>
Oper. cycle fluctuation +/- 100%	<b>Oper. cycle fluctuation +/- 10%</b>
Output cycle fluctuation +/- 70%	<b>Output cycle fluctuation +/- 10%</b>
Lot size 3 days	<b>Lot size 3 days</b>
Output = 650-750 / shift	<b>Output = 850 pieces per shift</b>

# EXAMPLE

**TEAM 1**

Process: <b>MANUAL AXIS ASSY.</b>	Challenge: Theme of this TC:	TC date: <b>12-16-2011</b>
-----------------------------------	---------------------------------	-------------------------------

**Step 1: Fill in current condition data**

(Current Condition)

Takt time: **30 SECONDS**  
Pc/t: **25 SECONDS**  
# of Shifts: **1**  
Overtime (how much): **N/A**  
Actual output / shift (run chart): **566 883**  
# of Operators: **10-11 (8.2)**  
Where 1x1, where WIP: **1X1: BOXING B/T ASSY + SHARP + BUFF + CLEAN**  
Describe the process steps, sequence, times: **SEE DATA**  
Exit cycle fluctuation %: **-24 + 96**  
Other observations about the current pattern:  
\* **OPERATOR RUNS OUT OF COMPONENTS**  
\* **CONVEYOR BALKS UP**  
\* **OPERATOR WORK STEPS VARY - SHARP/BUFF**

**Step 2: Fill in what you will keep the same**

(Target Condition)

**Step 3: Fill in what you want to change**

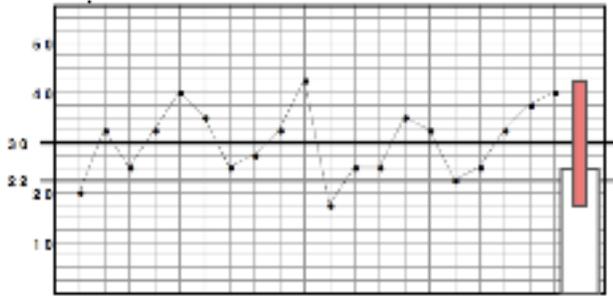
Takt time: **30 SECONDS**  
Pc/t: **25 SECONDS**  
# of Shifts: **1**  
Overtime: **NO**  
Target output / shift: **900**  
# of Operators: **9**  
Where 1x1, where WIP: **1X1 - SHARP TO BOX WIP - ASSY ONLY**  
Describe the process steps, sequence, times:  
Exit cycle fluctuation %: ~~-12 + 48%~~  
**-15 + 15%**

ASSY	SHARP	BUFF	CLEAN	BOX
1X1	1X1	1X1	1X1	1X1
⊖-6	⊖-1	⊖-1	⊖-1	⊖-1

Process Metric: **EXIT CYCLE AT BOX**  
Outcome Metric: **DAILY OUTPUT**

→

© Improvement Kata Handbook Appendix



## ABOUT TARGET CONDITION CYCLE FLUCTUATION

There are a few different ways to give a numerical value to the fluctuation / variation you find in process cycles. What's most important is that you can quantify...

- a) Where you are (taken from an exit-cycles run chart)
- b) How much fluctuation / variation you want to have next

In response to (b) the learner may say "zero," but that's not possible. Better to say something like:

- a) *"We currently observe -61% / +24% variation in the process exit cycles"*
- b) *"By (achieve-by date) we want the variation to be within +/- 15%"*

This sets the coach and learner up to go through the Five Questions daily and engage in purpose-driven improvement.

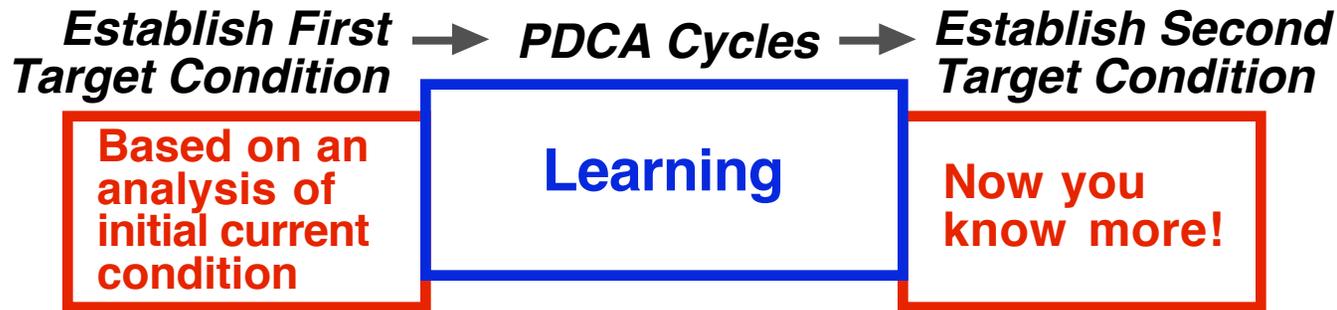
Notice that this is not about in-control / out-of-control -- as in statistical process control -- but simply "what variation do we have?" and "what variation do we want next?"





# BUT THE LEARNER MAY NOT HAVE THAT DETAIL AT THIS POINT

The learner's knowledge of the process increases along the way, so the first target condition may be sacrificial



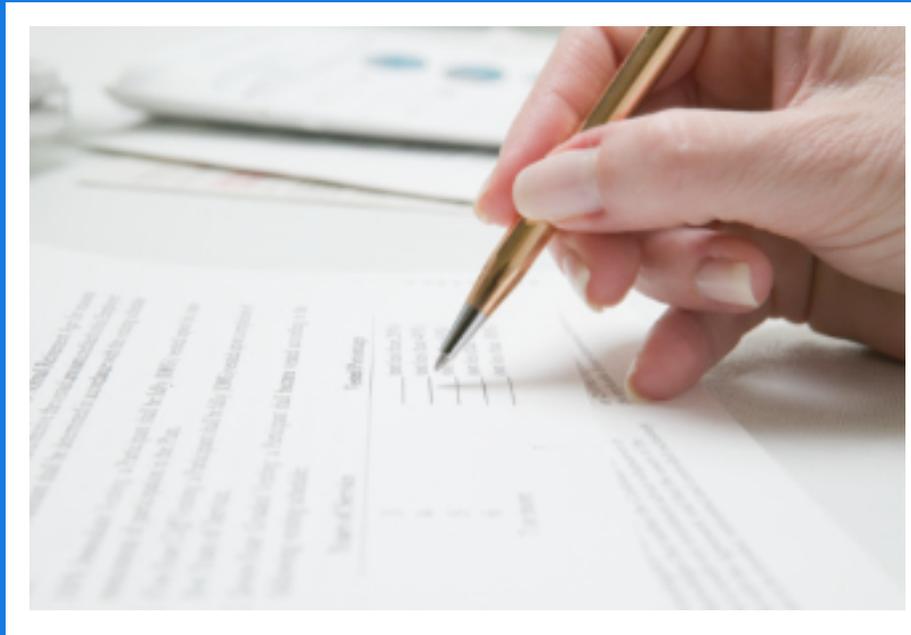
The first target condition won't be the best. You're still learning. Coach: The learner shouldn't make things up based on conjecture (*"I think..."*). Better to say *"I don't know"* or *"not sure"* and see further by experimenting in the PDCA phase of the Improvement Kata.

A target condition shouldn't be changed once it's set, but it's fine to add detail as you PDCA forward. The target condition is fleshed out as you experiment and the learner's knowledge of reality increases.

For example, the learner might define operator steps, sequence and times via a time study or a predetermined motion-time system like MTM, but that's only a hypothesis and beginning point.

Coach: If the achieve-by date is short (eg. 1-2 weeks) it's OK to let the learner overreach in establishing the first target condition. This will quickly become apparent, be corrected when the learner establishes the next target condition and is a good learning experience.

# Finishing the Target Condition



# THE TARGET CONDITION FORM

Eventually the learner should summarize the target condition in the four categories of the target condition form on the next page, and place it on the storyboard.

It's fine to include additional diagrams and information as necessary.



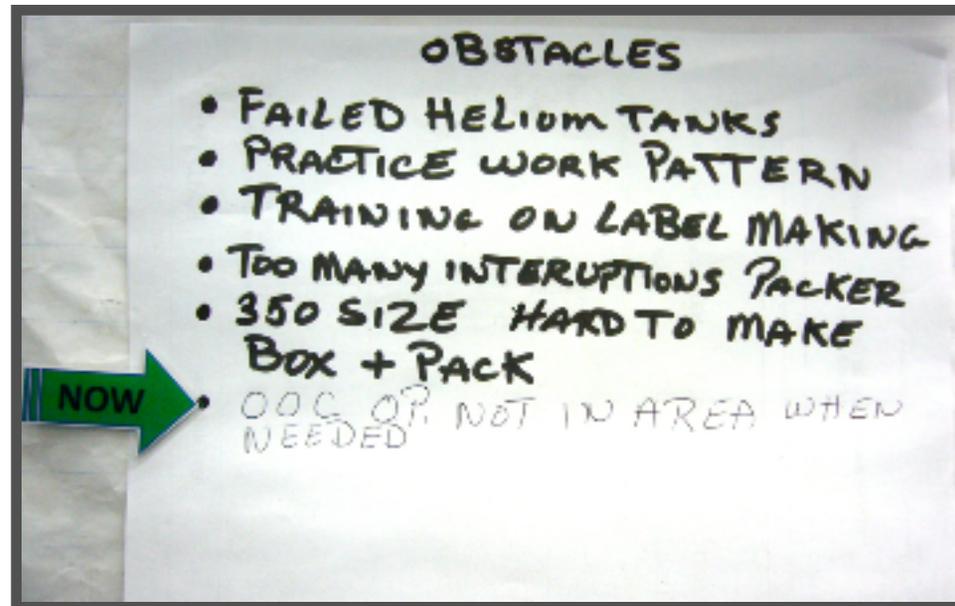
<b>TARGET CONDITION FORM</b>		<b>Achieve-by Date</b>
<b>Process</b>	<b>Challenge</b>	
<b>1</b>	<b>DESCRIPTION OF PROCESS STEPS, SEQUENCE &amp; TIMES</b>	
<b>2</b>	<b>OTHER PROCESS CHARACTERISTICS</b>	
<b>3</b>	<b>PROCESS METRIC(S)</b>	
<b>4</b>	<b>OUTCOME METRIC(S)</b>	

# Last TC Step: Start an Obstacles Parking Lot



# THE OBSTACLES PARKING LOT

The coach now asks the learner to list obstacles that the learner thinks might prevent the team from reaching the target condition. The learner maintains this list throughout the Improvement Kata process, on the storyboard.

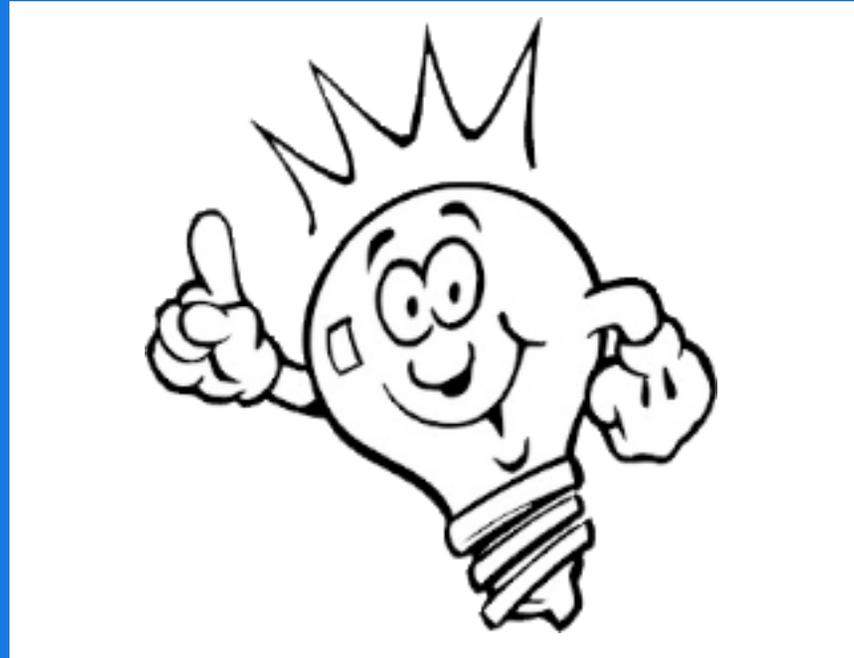


The purpose of the obstacles parking lot is:

- 1) To help the learner see the limits of prediction
- 2) To prevent the learner from chasing several ideas at once

Do not Pareto this list and do not turn it into an action-item list. It's simply a place to note and hold perceived obstacles, which you may or may not address.

# Target Condition Tip for Variable Processes



# ESTABLISHING A TARGET CONDITION FOR PROCESSES WITH VARIABLE OR LONG WORK CONTENT

Any process can (and should) have a target condition. But it can be difficult to see patterns and establish a target condition for processes where the work content varies and/or is long. Here are some suggestions:

- Keep in mind that all you are trying to do is define a *pattern* of working, to strive to achieve.
- One tactic for establishing a target pattern for non-repetitive and long-cycle processes is to cut the work into smaller, consistent-sized increments.  
For example, instead of releasing work to the process by customer order -- whereby the amount of work can vary from order to order -- release work in equal portions to fill a consistent time increment or “pitch.”  
The trick is to find a common-denominator process attribute to use as a unit of measure: the number of racks that can be painted per hour, number of bends that can be made per hour, number of inches that can be welded per hour; something like that.  
It can also help to classify jobs by size. Interestingly, three categories (small / medium / large) are often sufficient.
- Your initial unit of measure doesn’t have to be perfect. Once you have a first basic target pattern, it’s a matter of applying PDCA (with the 5 Questions) to break through the obstacles preventing you from getting there. As you do that you’ll find further patterns in the work, which you can use in the next target condition.

# ESTABLISHING A TARGET CONDITION WHEN THE WORK CONTENT VARIES

Try to define a *target pattern* of consistent-sized time increments



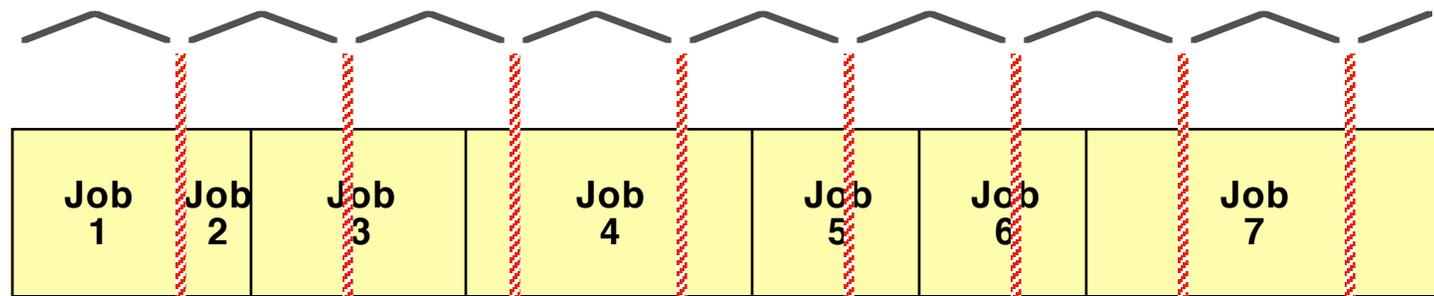
*Pattern hard to see*

How the work arrives



*Target pattern*

Work split into consistent-size increments



Don't worry about the increments being perfectly equal at the start. Define a target increment, make that part of your target condition, and start asking the Five Coaching Kata Questions.

# **PART III**

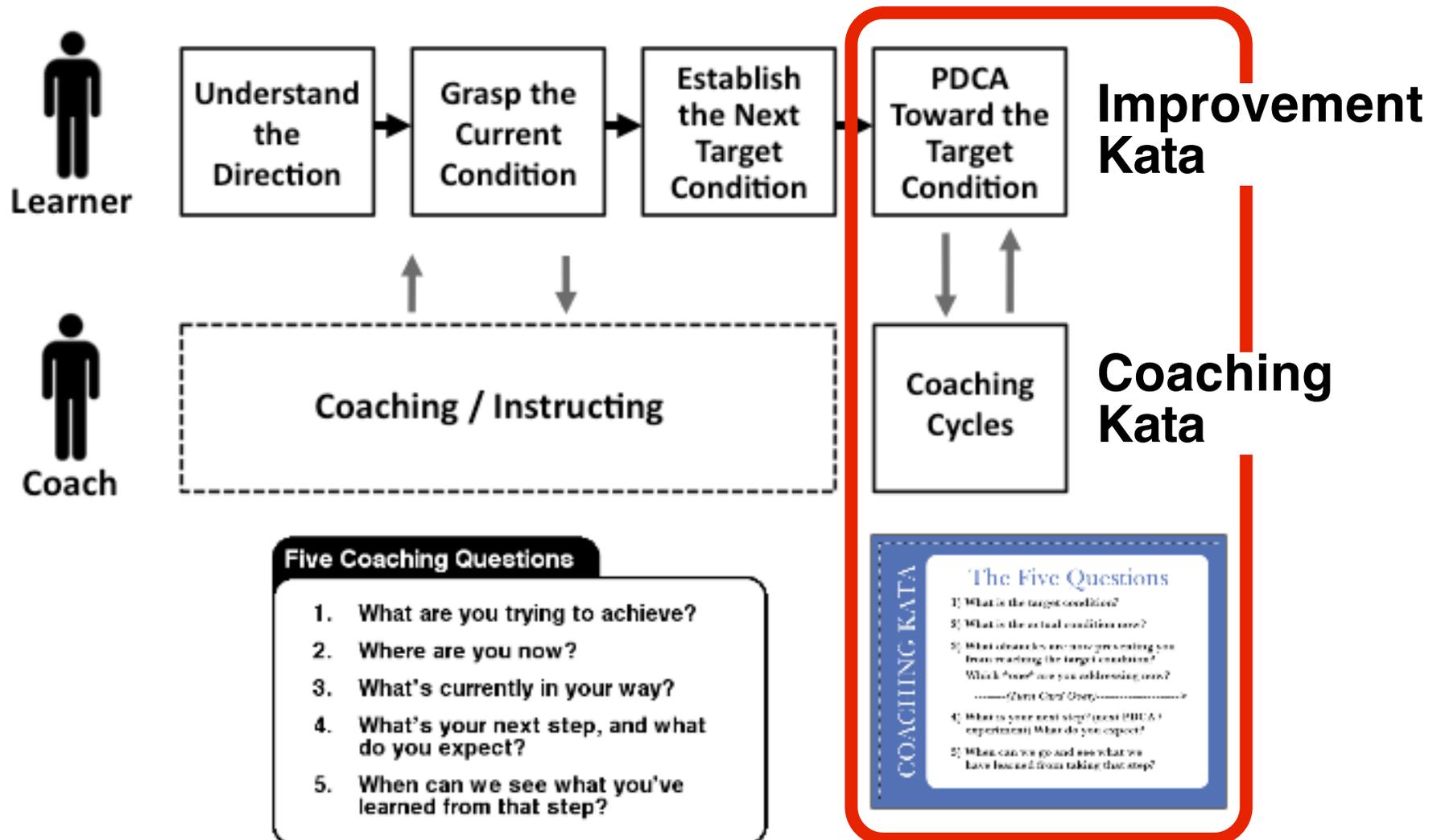
## **How to Get There**

**Two Chapters:**

- **PDCA Toward the Target Condition**
- **Coaching Kata: Coaching Cycles with the Five Questions**

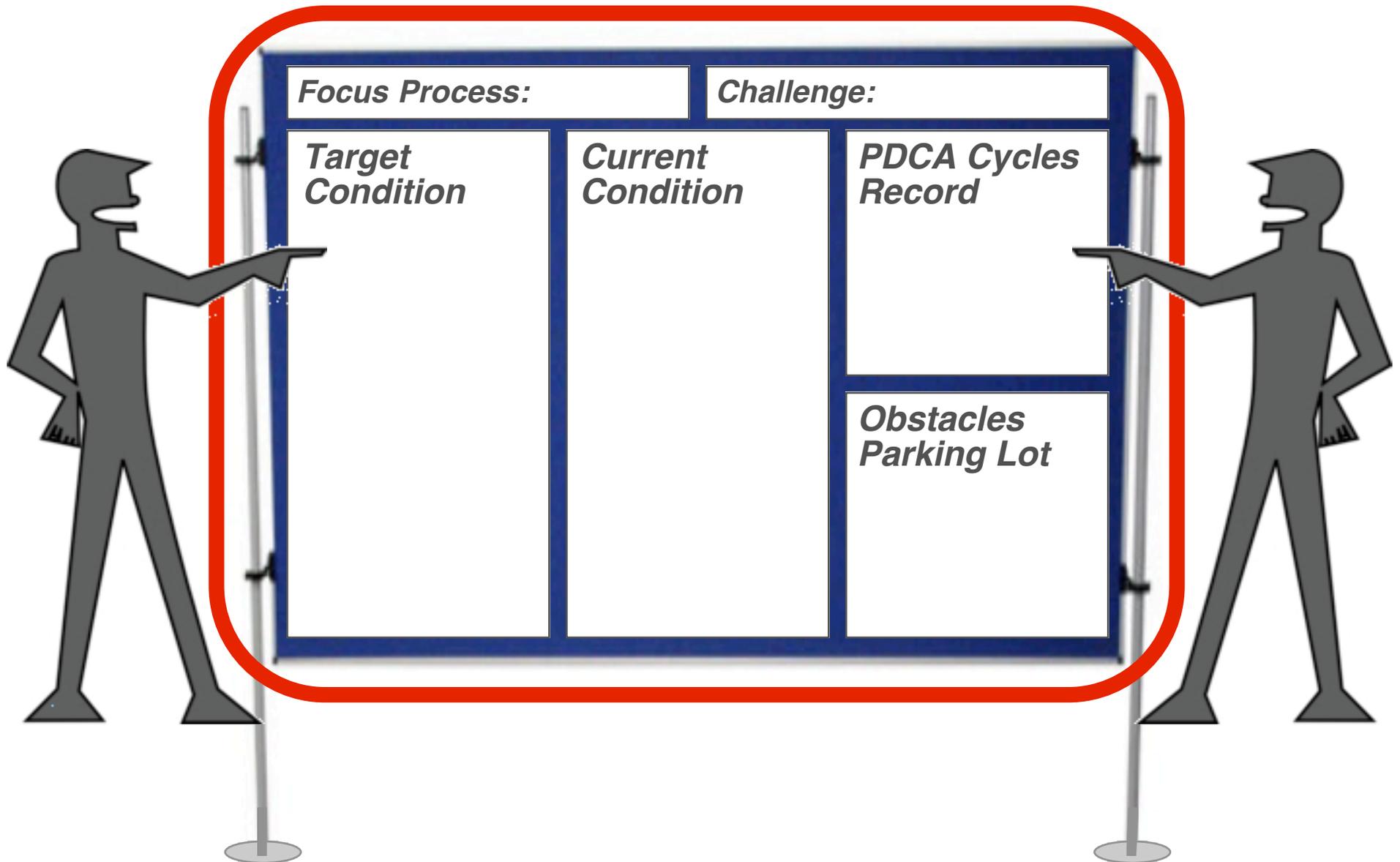
Coaching / Instructing occurs at all four stages of the Improvement Kata. *Coaching Cycles using the Five Coaching Kata Questions* are done when the Learner moves toward the target condition with PDCA. It's typically in this stage that the pattern and logic of the the Improvement Kata become clear to the learner. The penny tends to drop here.

## PART III



# LEARNER'S STORYBOARD - *SETUP IS COMPLETE*

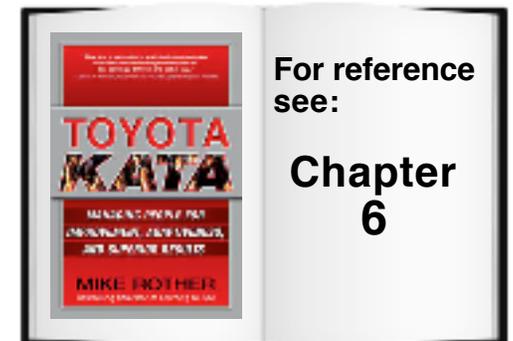
Learner and coach will now use the entire storyboard



# The Improvement Kata

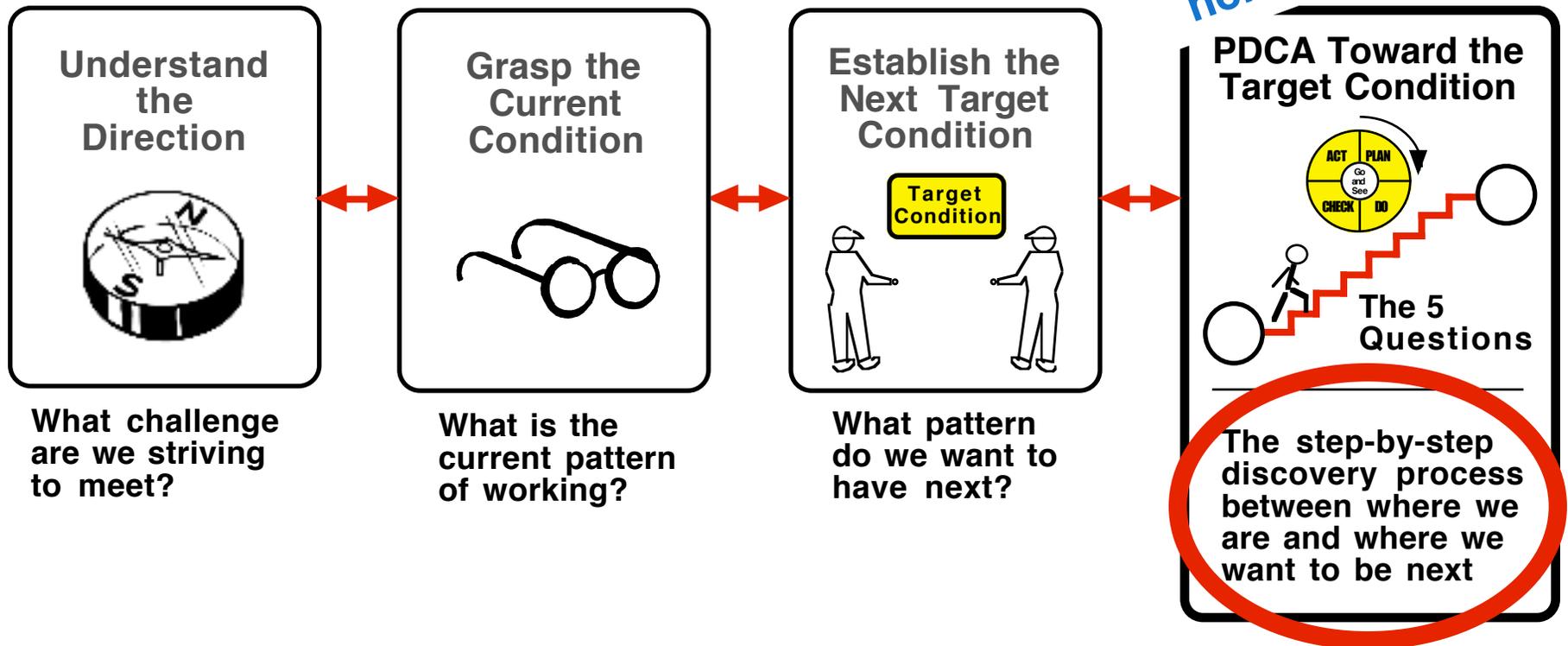
## PDCA TOWARD THE TARGET CONDITION

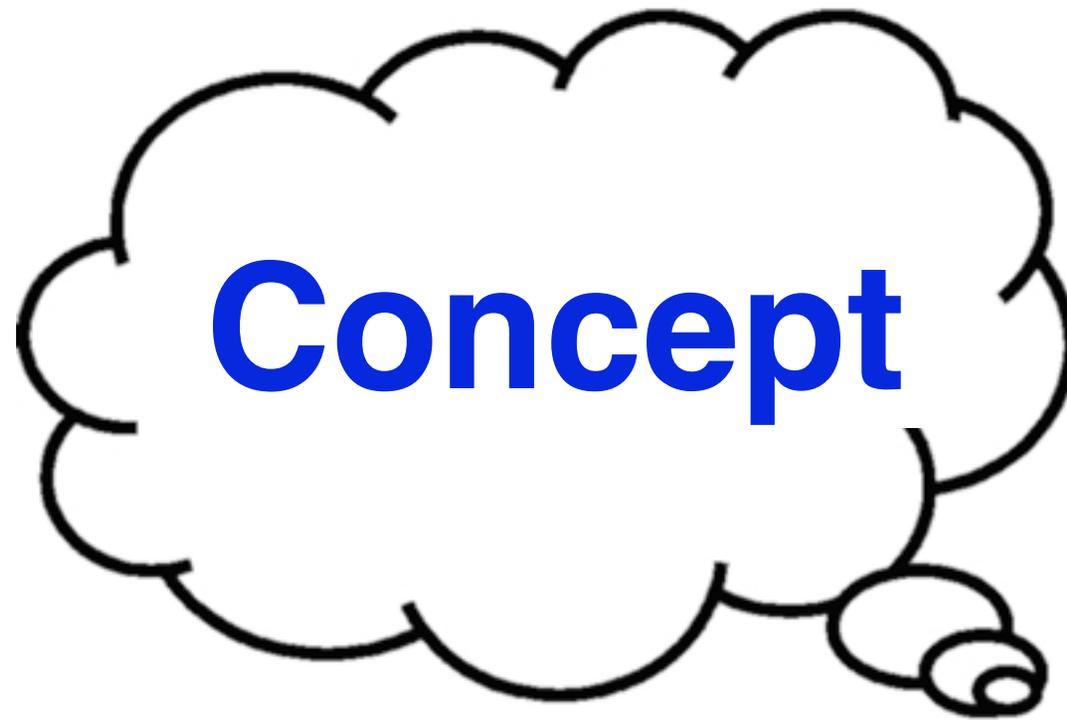
Practice  
this  
Routine



# ORIENTATION

You are here





# NOW THAT YOU HAVE A TARGET CONDITION, HOW DO YOU GET THERE?



*Can't see all  
the way there*

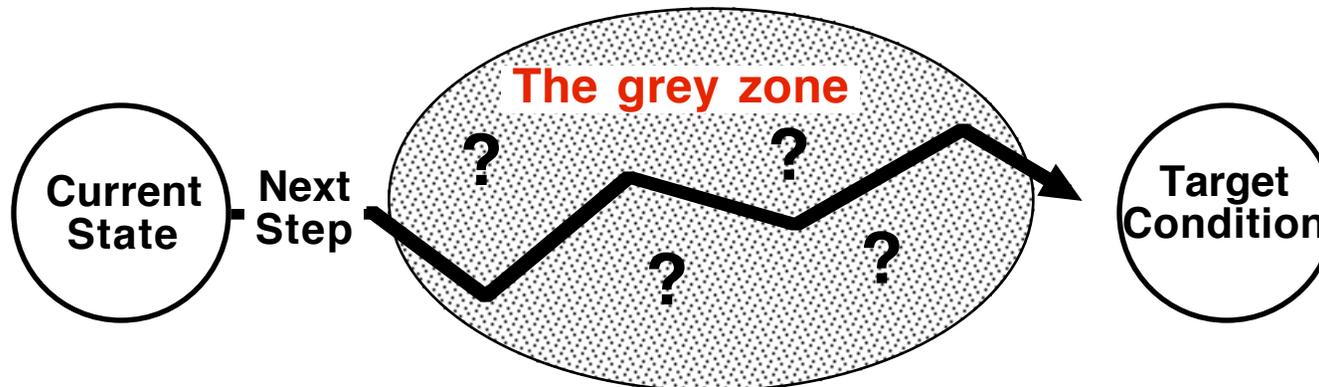




## Most Important: ASSUME THE PATH IS UNCLEAR

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 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 is a setup for experimenting at your current threshold of knowledge. It now boils down to iterative ingenuity, receptiveness and adapting to new circumstances.*

# TIME TO PUT ON YOUR SCIENTIST HAT





# WHAT IS SCIENTIFIC THINKING?

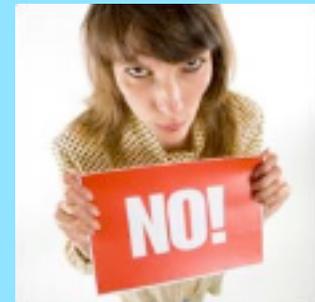
## Learning along the way to the target condition

Because the path to a target condition cannot be predicted with exactness, we have to find that path by experimenting like a scientist. With each insight a scientist adjusts his/her course to take advantage of what has been learned.

What we may think *scientific* is

- Quantification and precision
- Objective and certain
- Reveals what is there

**Eg: *We have made the right plan***



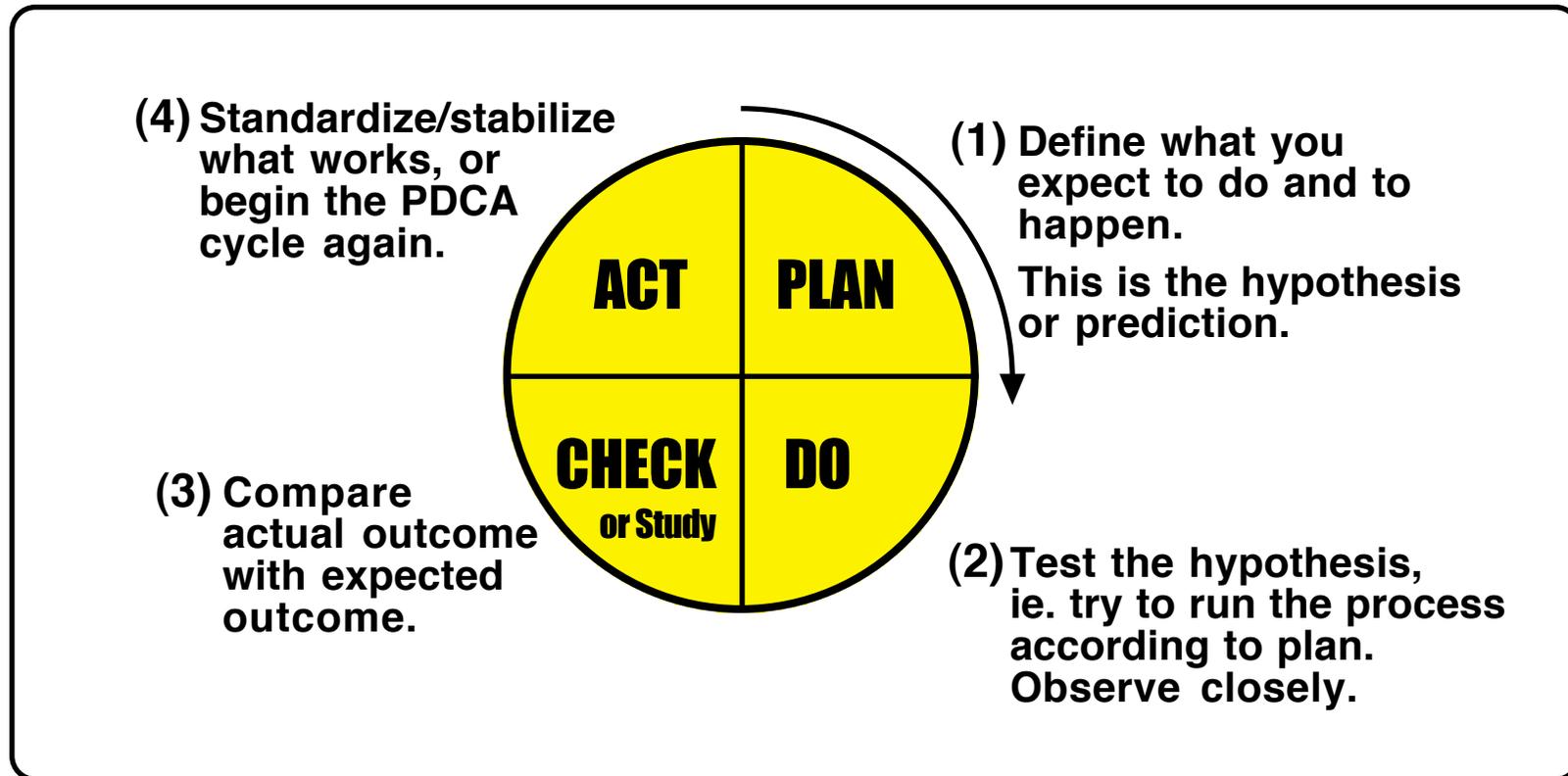
What *scientific* really is

- Involves uncertainty, ambiguity & incompleteness
- Never free from error
- A process of discovery, via systematic trial and error

**Eg: *Our plan is a hypothesis***



# THIS IS THE WELL-KNOWN PDCA CYCLE



The steps of PDCA constitute a scientific process of acquiring knowledge. PDCA provides us with a practical means of attaining a target condition. It's how to work through the grey zone, and is what characterizes a learning organization.

**But let's take a closer look at how it works...**



# 'SURPRISE' IS HOW PDCA HELPS YOU LEARN AND IMPROVE



**Learning happens when reality differs from prediction**

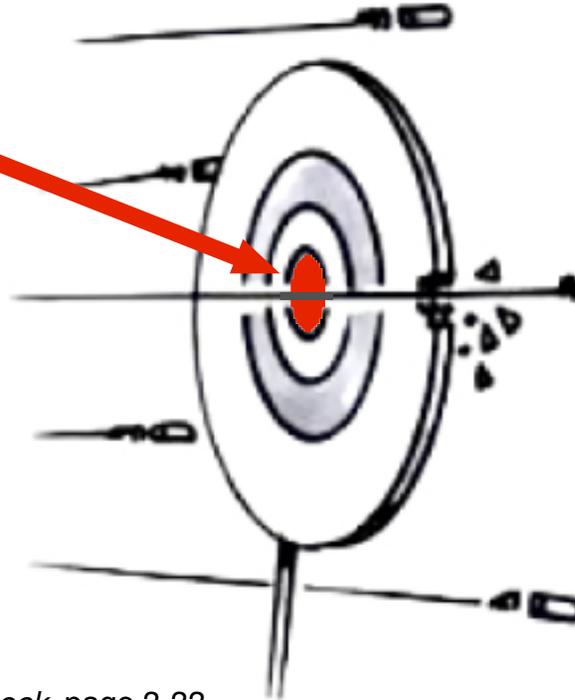


**Unexpected results (surprises) lead to valuable learning experiences. The Improvement Kata mindset seeks to use these lessons.**

- A. The purpose of PDCA is to generate surprises and thus opportunities for learning & progress toward the target condition.**
- B. Using small failures as learning opportunities also develops the improvement expertise of the learner.**

# HOW PDCA WORKS

The “P” of PDCA is an expectation or a prediction...  
...a *hypothesis*



The “C” of PDCA is a reflection...

*What are we learning from this?*

*What do we need to adjust?*

Illustration from *The Team Handbook*, page 3-33

When a hypothesis is refuted this is in particular when we gain new insight that helps us learn, improve, adapt and innovate.

When you reflect and attempt to understand why your prediction was inaccurate, you discover new insights and improve your expertise.

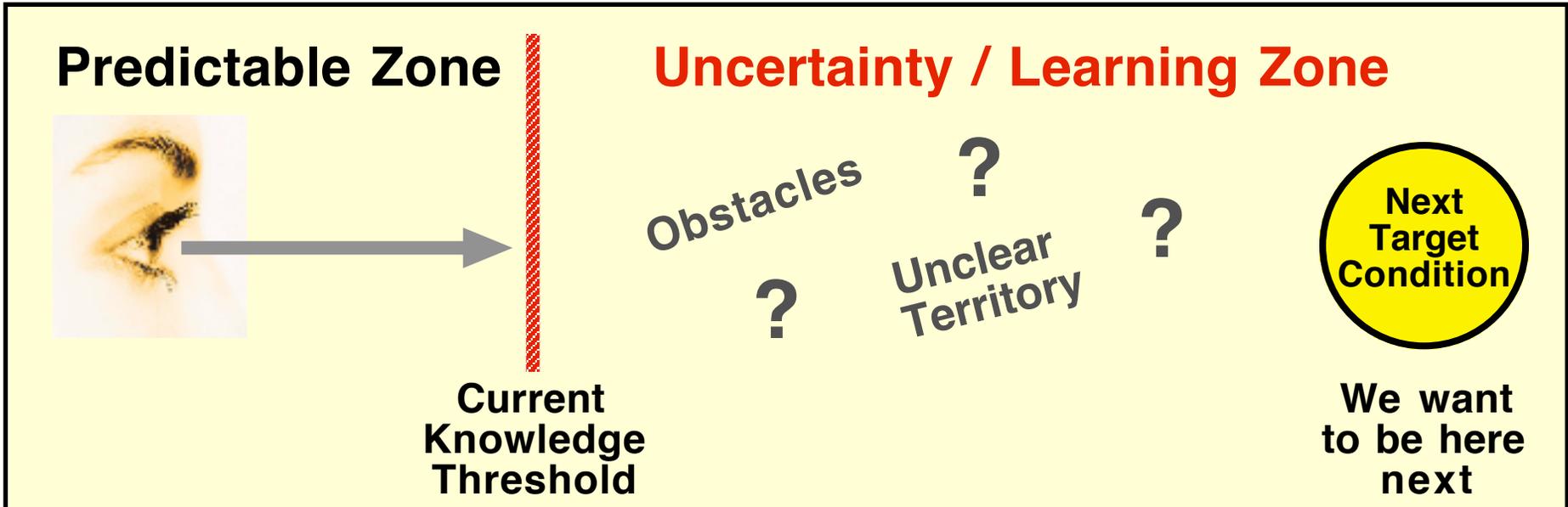
Because a refuted hypotheses reveals a ***knowledge threshold***.

# WATCH FOR THE KNOWLEDGE THRESHOLD

There is always a knowledge threshold

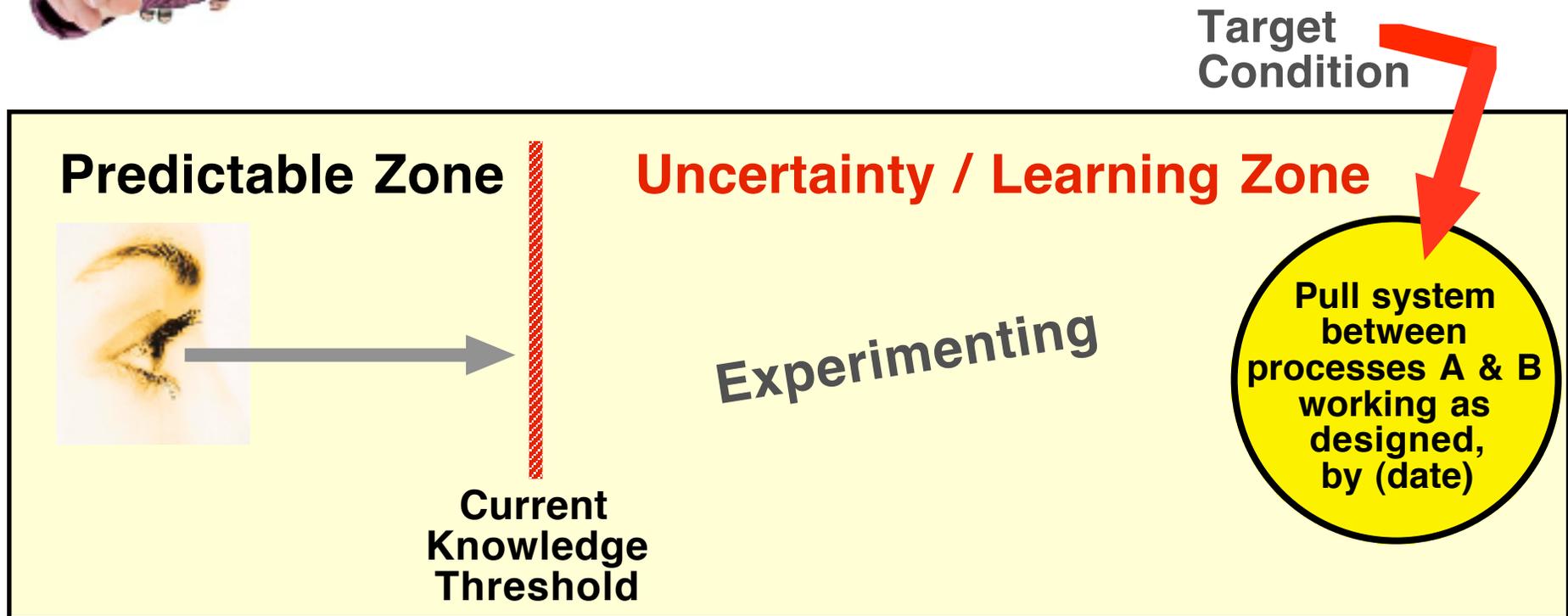


The **threshold of knowledge** is the point at which the team has no facts & data and starts guessing. This is where the team should experiment via PDCA. When something other than what you predict happens then a knowledge threshold becomes visible. When a plan, step, belief or hypothesis turns out to be incorrect you're at a *learning edge*.



# EXAMPLE

We know how a pull system works, but we don't know what will make *your* pull system work



*Spot the knowledge threshold, conduct your next PDCA experiment there and reflect*



# RAPID PDCA CYCLES = MORE LEARNING

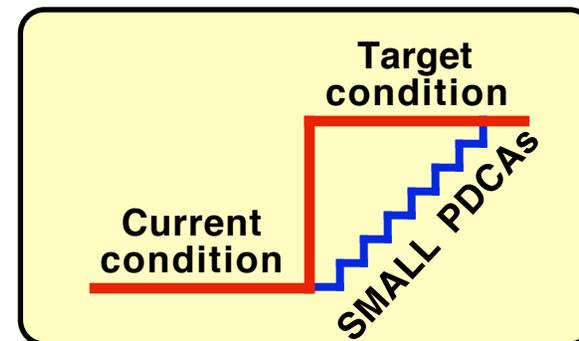
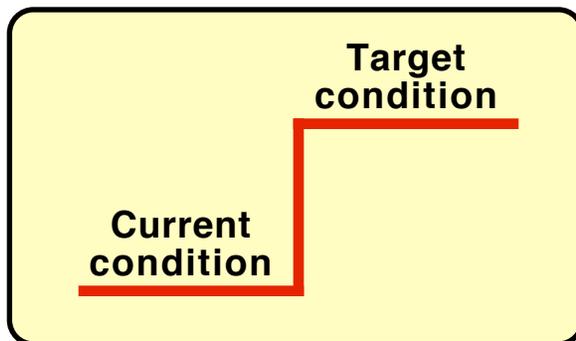


## When should you 'check'?

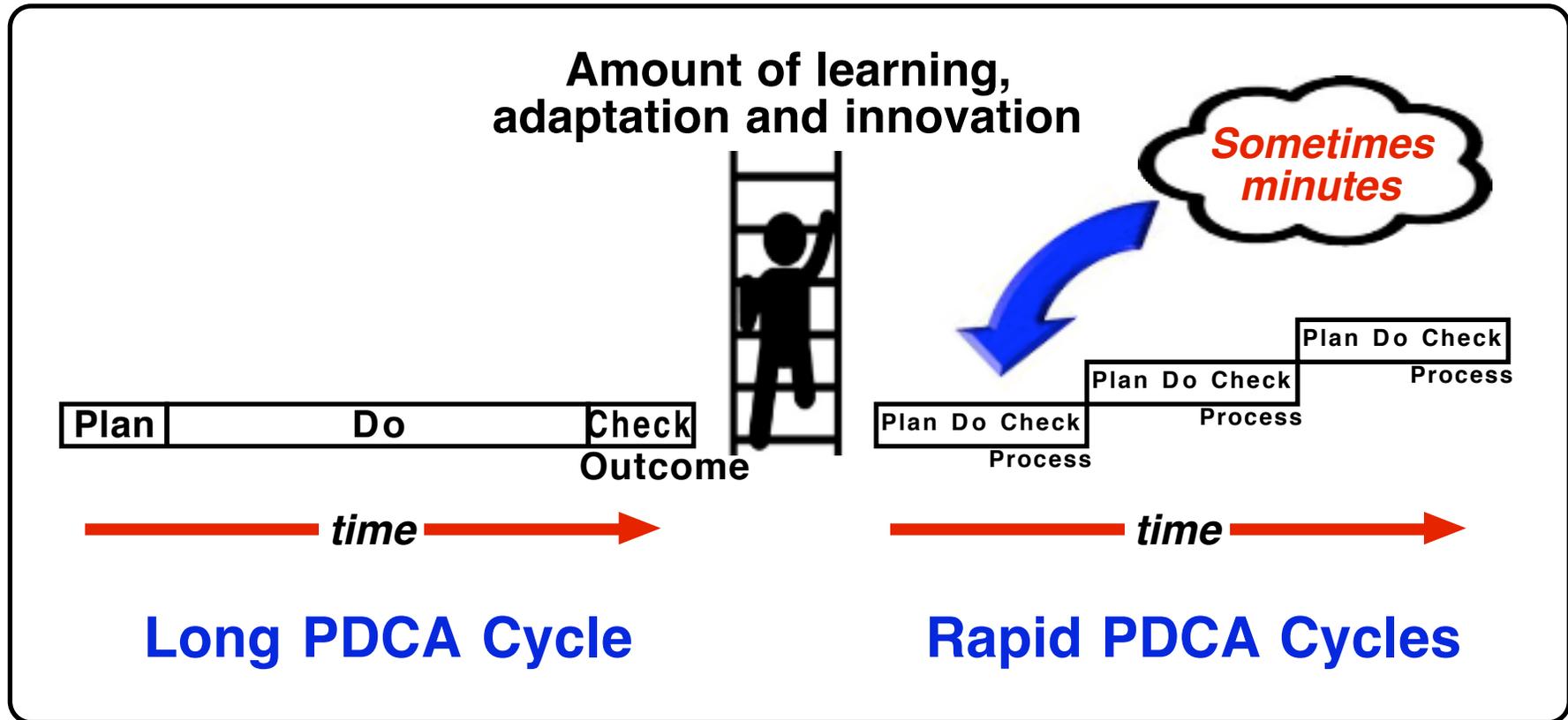
Some of the most useful learning comes from short PDCA cycles / daily experiments. The Improvement Kata is about testing and learning in rapid cycles.

<b>Old Way</b> <i>Long PDCA cycles</i>
<ul style="list-style-type: none"><li>• Check infrequently (eg: weekly)</li><li>• Check outcomes</li></ul>

<b>IK Way</b> <i>Rapid PDCA cycles (short &amp; frequent)</i>
<ul style="list-style-type: none"><li>• Check after each step</li><li>• Check process details</li></ul>



# LONG PDCA CYCLES DON'T PRODUCE ENOUGH DETAILED LEARNING TO ACTIVATE TEAM INGENUITY



# RAPID PDCA CYCLES



PDCA happens at all levels of an organization, of course. However, the learning that is most useful for improvement, adaptation and innovation often comes from small PDCA cycles at the process level. Why?

--> **At the micro level we pick up more useful detail**

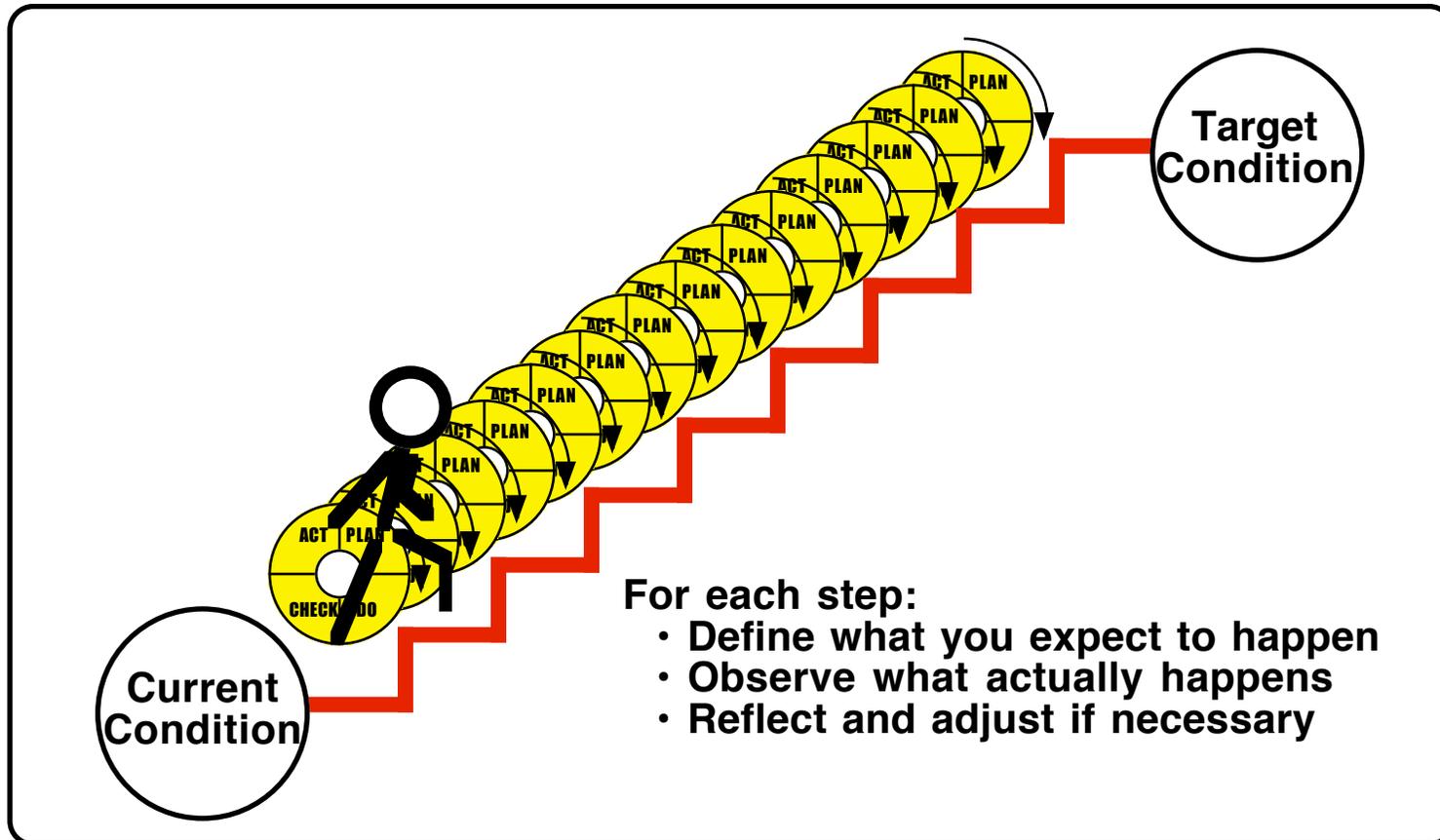
--> **At the micro level we can still make adjustments and reach the target condition on time**

Checks at the higher, macro level alone may lead only to conjecture about why something happened, rather than useful, detailed facts and data for adaptation. With macro PDCA cycles there are often too many variables in play to make detailed learning possible.

Checks at the higher level also come too late to do much about it.

Rapid and frequent (daily) PDCA cycles at the process level are how the adaptive “learning organization” becomes a reality.

# SO EACH STEP = A PDCA CYCLE



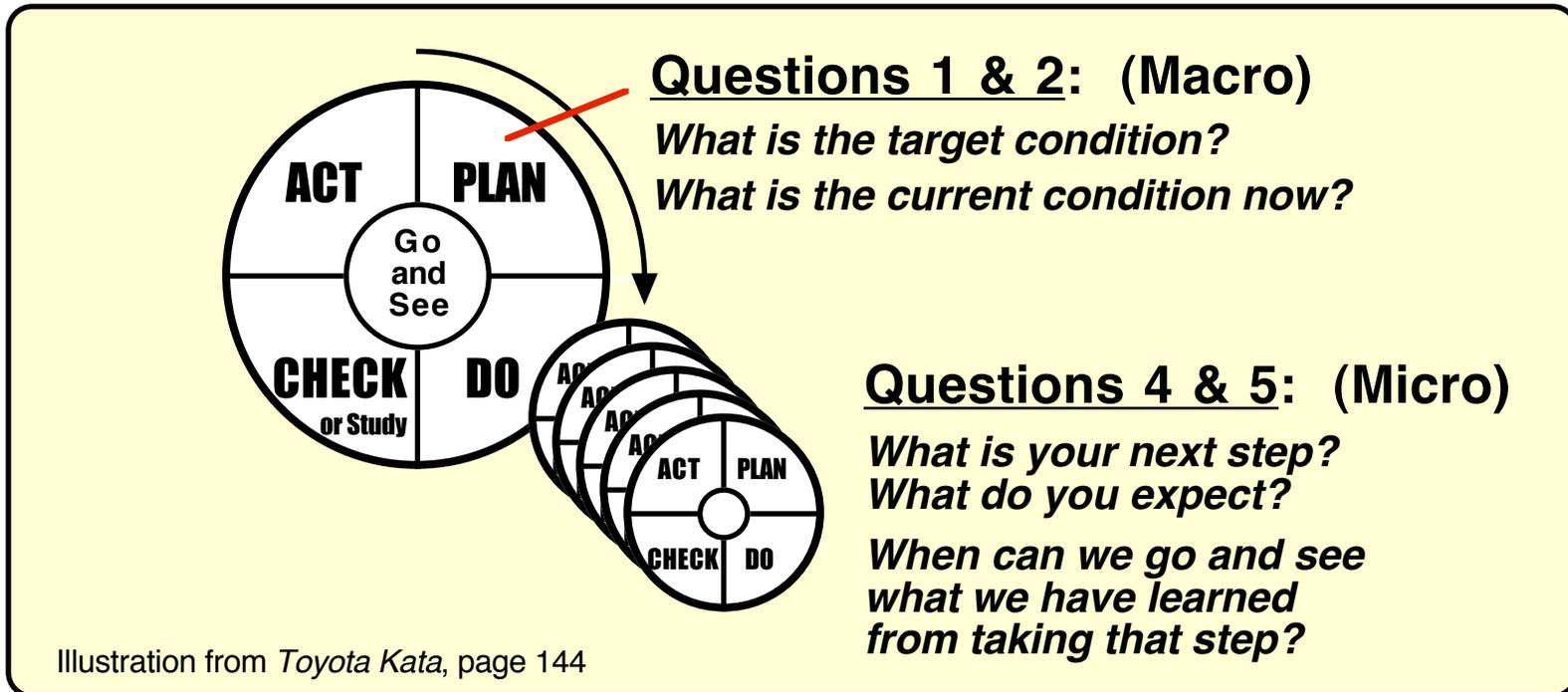
A PDCA cycle may take only minutes. Suppose we decide, in pursuit of a target condition, to move some work elements from one operator to another.

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.

# MACRO AND MICRO PDCA CYCLES

## Following the Five Coaching Kata Questions

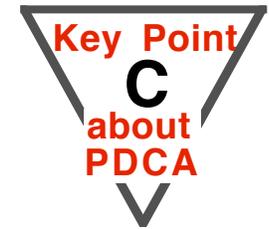
Questions 1 & 2 relate to PDCA at a macro level.  
Shorter, rapid PDCA cycles are at questions 4 & 5.



**Macro PDCA cycles form a context, or direction, but a lot of learning, improvement, adaptation and innovation comes from the Micro PDCA cycles.**



# EVERY STEP WILL NOT BRING A MEASUREABLE BENEFIT



**You and members of your team may have a mindset that nearly every step taken should bring a measureable benefit. But that's an impossibly high bar that keeps you in the predictable zone.**

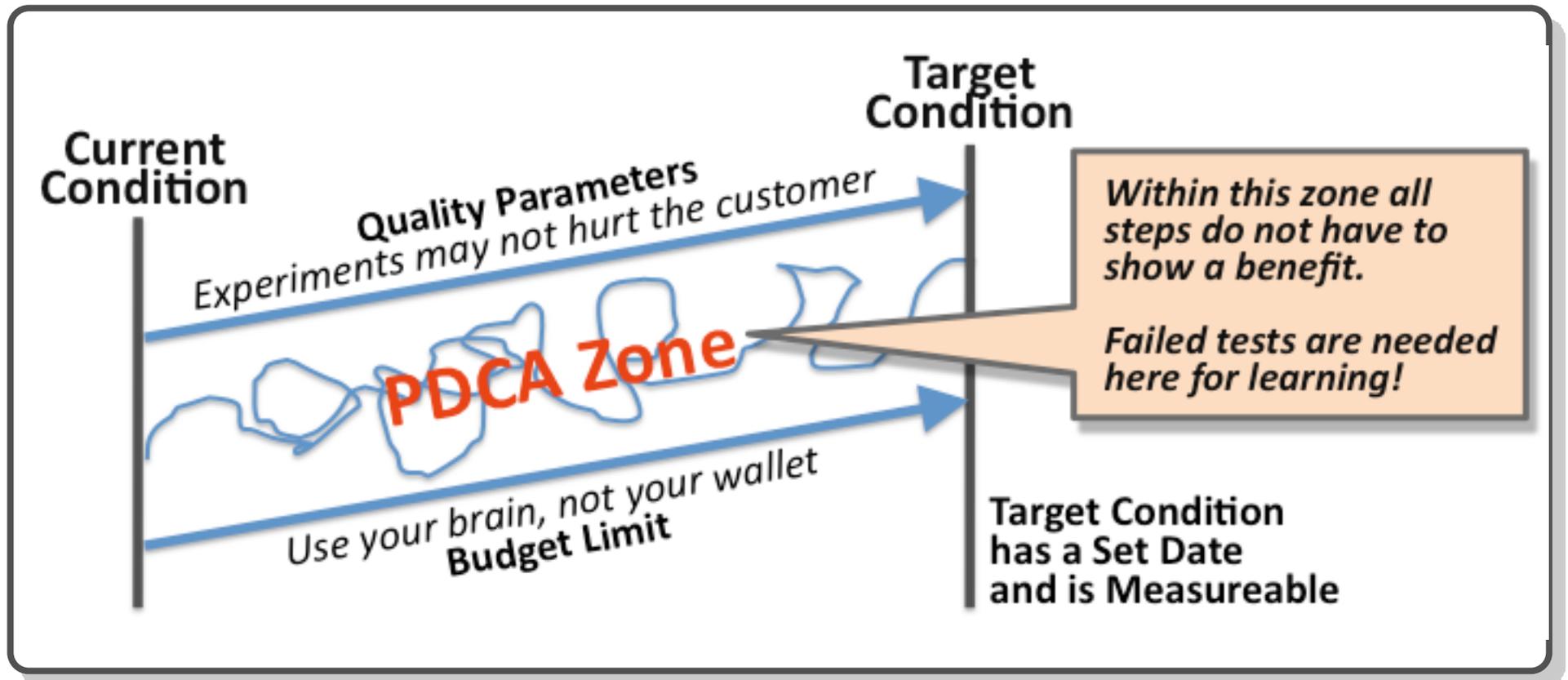
**This mindset will not allow your organization to really improve, adapt, innovate and beat the competition.**

**In fact, it's the team's Target Condition that brings the benefit.**

# THE PDCA ZONE

The Target Condition describes the desired state, has an achieve-by date and is measurable. There are budget constraints & quality parameters.

*Within these limits the **learner** and team design and conduct successive experiments toward the target condition.*

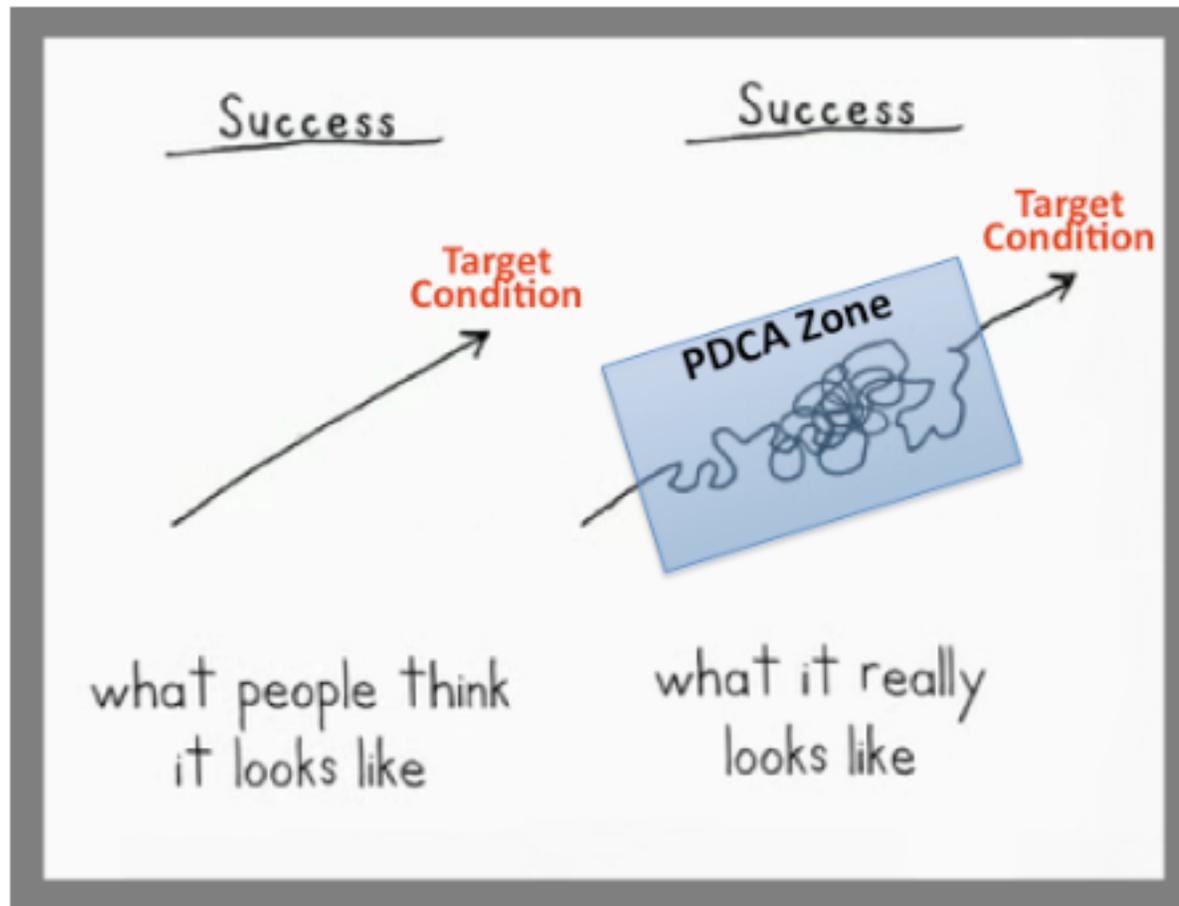


*The job of the **coach** at this stage is to ensure that the learner is following good procedure as s/he and the team experiment.*

# PDCA IS NOT AN ORDERLY PATH. SORRY.

The PDCA procedure is specified, but the path is not. Things will occur along the way that shift your thinking and cause you to revise your ideas. The target condition remains the same, but the path shifts as you learn.

Your failed predictions are discoveries that tell you where you need to focus your energy and lead you to your next step.



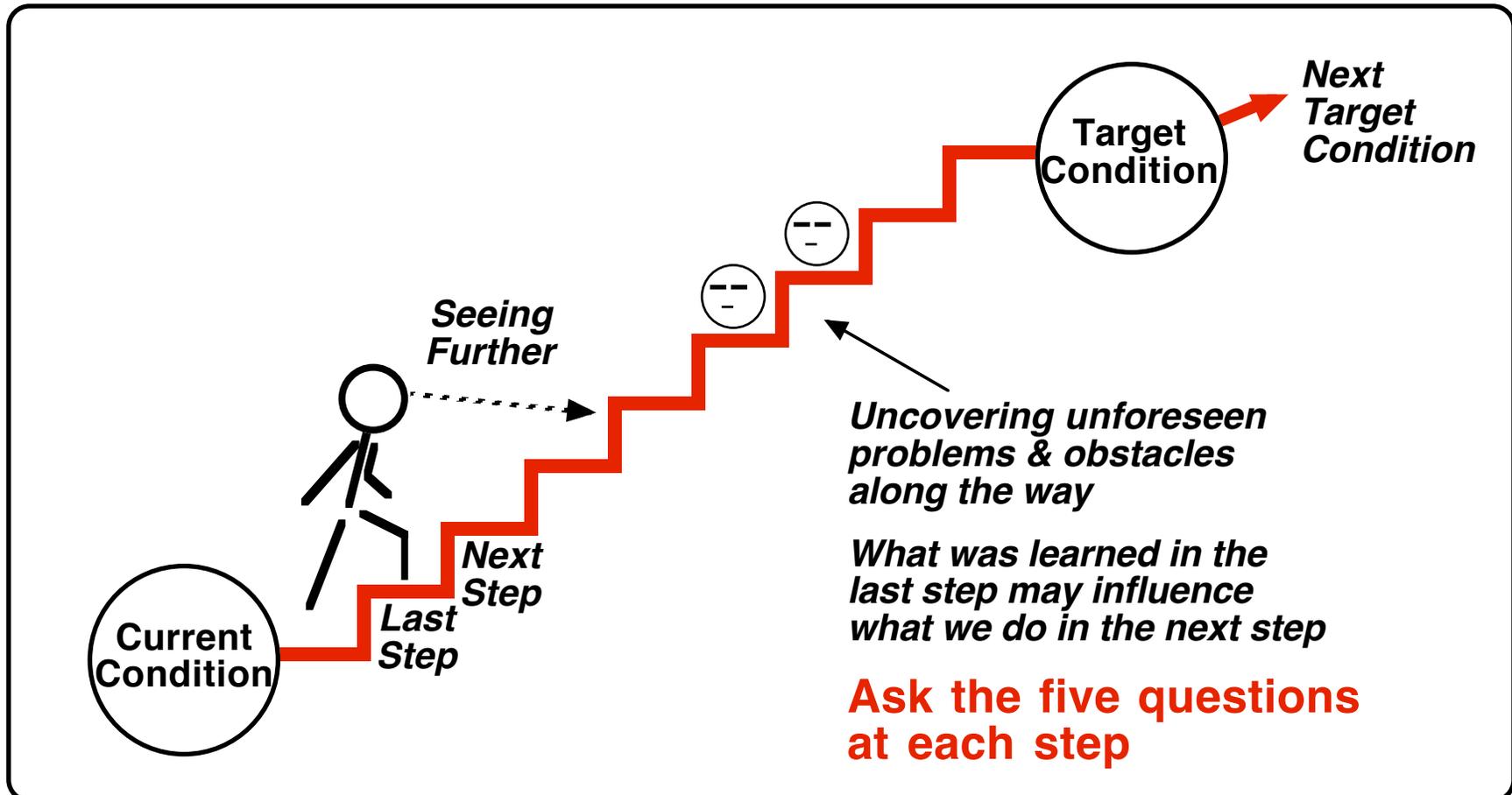
Cartoon by  
Demetri Martin



# HOW TO WORK TOWARD THE TARGET CONDITION

Step at a time, with learning and adjustments along the way

Teams using the Improvement Kata learn as they strive to reach the target condition, and adapt based on what they are learning



Note: Your PDCA experiments should be done in a way that doesn't harm the customer. Another reason to keep them small if possible.



# WE'LL ACTUALIZE DAILY PDCA WITH THESE TWO ROUTINES

## The Five Questions

## PDCA Cycles Record Form

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



PDCA CYCLES RECORD					
Date:			Process Metric		
Process:					
Step	What do you expect?		Result	Observe closely	What We Learned
		Coaching Cycle EXPERIMENT			

# THE PATTERN OF THE FIVE TK QUESTIONS

The Five Questions foster a pattern of scientific PDCA thinking & acting

Card available 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**?

**Card is turned over to reflect on the last step**



----->  
*Return*



# HOW TO USE THE PDCA CYCLES RECORD

The PDCA Cycles Record also helps you generate scientific thinking

- The PDCA form is read left-to-right, one row at a time
- Each row = one experiment
- The ① ⇨ ② pattern of the form repeats after each experiment

Before you get started, propose the 1st step and what you expect, on the *Left Side* of the form

Row 1 -->

Row 2 -->

② Based on what was learned in the last step, propose the **Next Step** and describe what you **Expect** from the next step, on the *Left Side* of the form

① Once a step or experiment is completed, fill in **Result** and **What We Learned**, on the *Right Side* of the form

PDCA CYCLES RECORD			
Date:		Process Metric	
Process:			
Step	What do you expect?	Result	Observe closely
		What We Learned	
		①	
	②		

Coaching Cycle  
EXPERIMENT

# PDCA CYCLES RECORD

Be sure to keep measuring your process metric while you are experimenting



Date:

Process Metric

Process:

Step	What do you expect?	Coaching Cycle	EXPERIMENT	Result	Observe closely	What We Learned
A	.....					
C	.....					

Each row = one experiment. Think of this as a *chain of PDCA cycles*, where one step builds on what was learned in the last step. Only your first step is free.

# THREE KINDS OF PDCA EXPERIMENTS

An *experiment* is a learning experience that doesn't necessarily involve making a change in the focus process. "Further analysis" or "go and see" can = an experiment. The following hierarchy goes from less to more scientific



## 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, to see where it fails and build your obstacles parking lot. Often this is the first experiment.

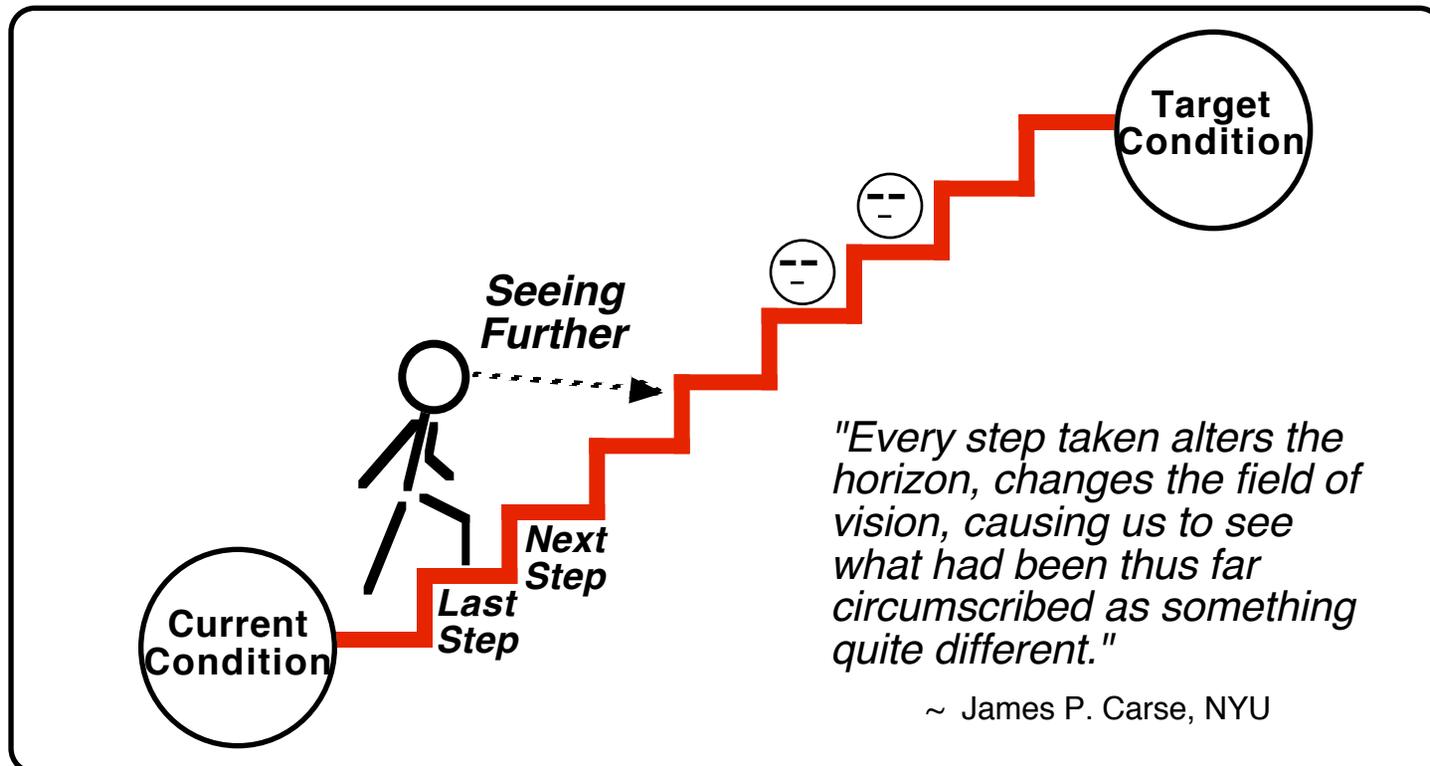


## 3) Testing a Hypothesis

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

# When you experiment TRY NOT TO THINK TOO FAR AHEAD

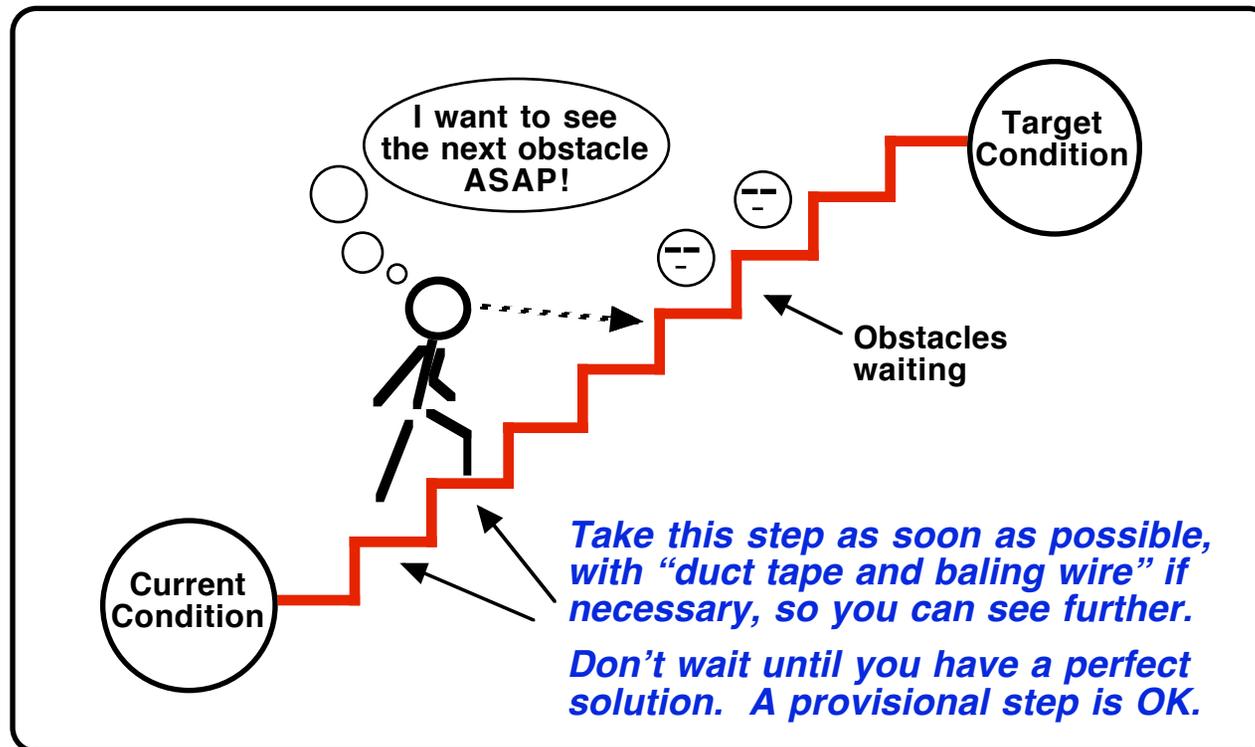
You don't actually know what the result of the next step will be. So concentrate on the next step, because what you learn from that may influence the step after that.



Once you have a target condition, relax and focus on the next step. Be in the moment, and apply PDCA.

You'll only see the full path in hindsight. And you're probably not going to be taking the most direct route to the target condition.

# DO THE EXPERIMENT NOW WITH WHATEVER YOU HAVE



Since it is refuted hypotheses (unexpected results) that help us find the way forward, we are interested in seeing the next obstacle ASAP. We can only see the next true obstacle after we take a step, so take that step ASAP.



## **AVOIDING OVERLY-LONG PDCA CYCLES**

**The time it takes for a PDCA cycle is related to the cycle time of the process you are working on. The longer the process cycle, the longer the PDCA cycle, especially since you may need more than one data point.**

**Complicated processes may involve longer PDCA cycles, which can slow your learning. When a process cycle is long, try to run experiments in a cycle that is intentionally shortened. Ask yourself, *“How can we test this step or idea as quickly as possible?”***

**Remember, you can't see further (beyond the knowledge threshold) without actually trying your idea in some way.**

# CALIBRATE THE TEAM BEFORE THE EXPERIMENT

----- Keep in mind why we experiment -----

It's not: *"Let's see if this target condition will work"*

- but rather -

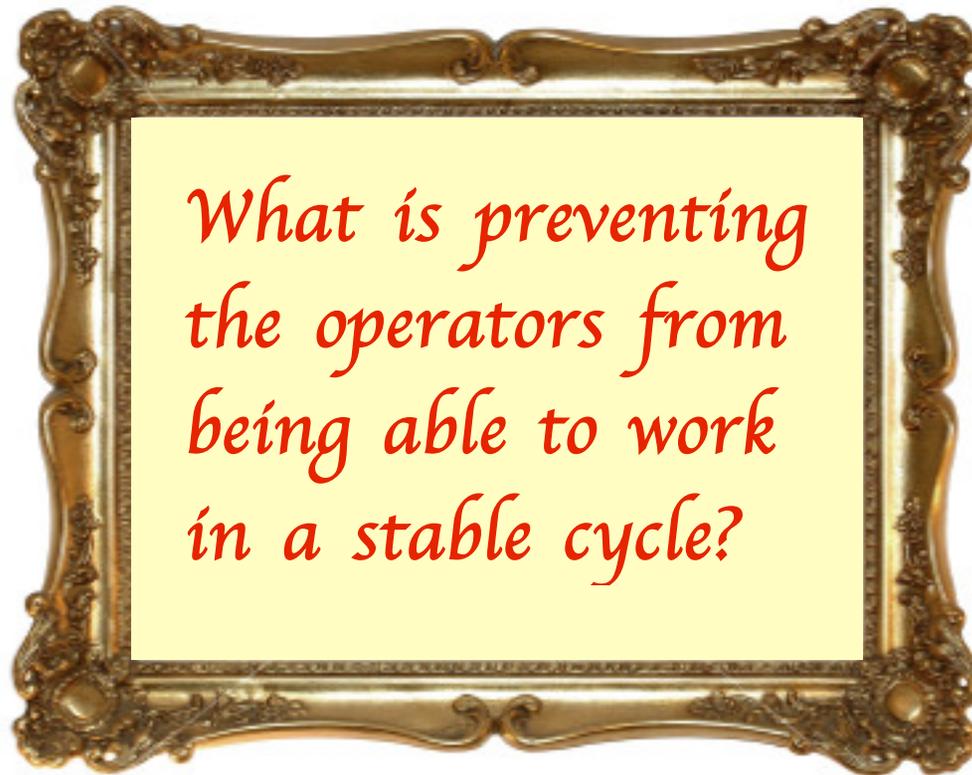
*"Let's see what we need to do to make it work"*

This is what many of us may think *experimenting* is about



*"We already know it won't work at first. We're interested in seeing what doesn't go as planned, so we can learn what we need to work on."*

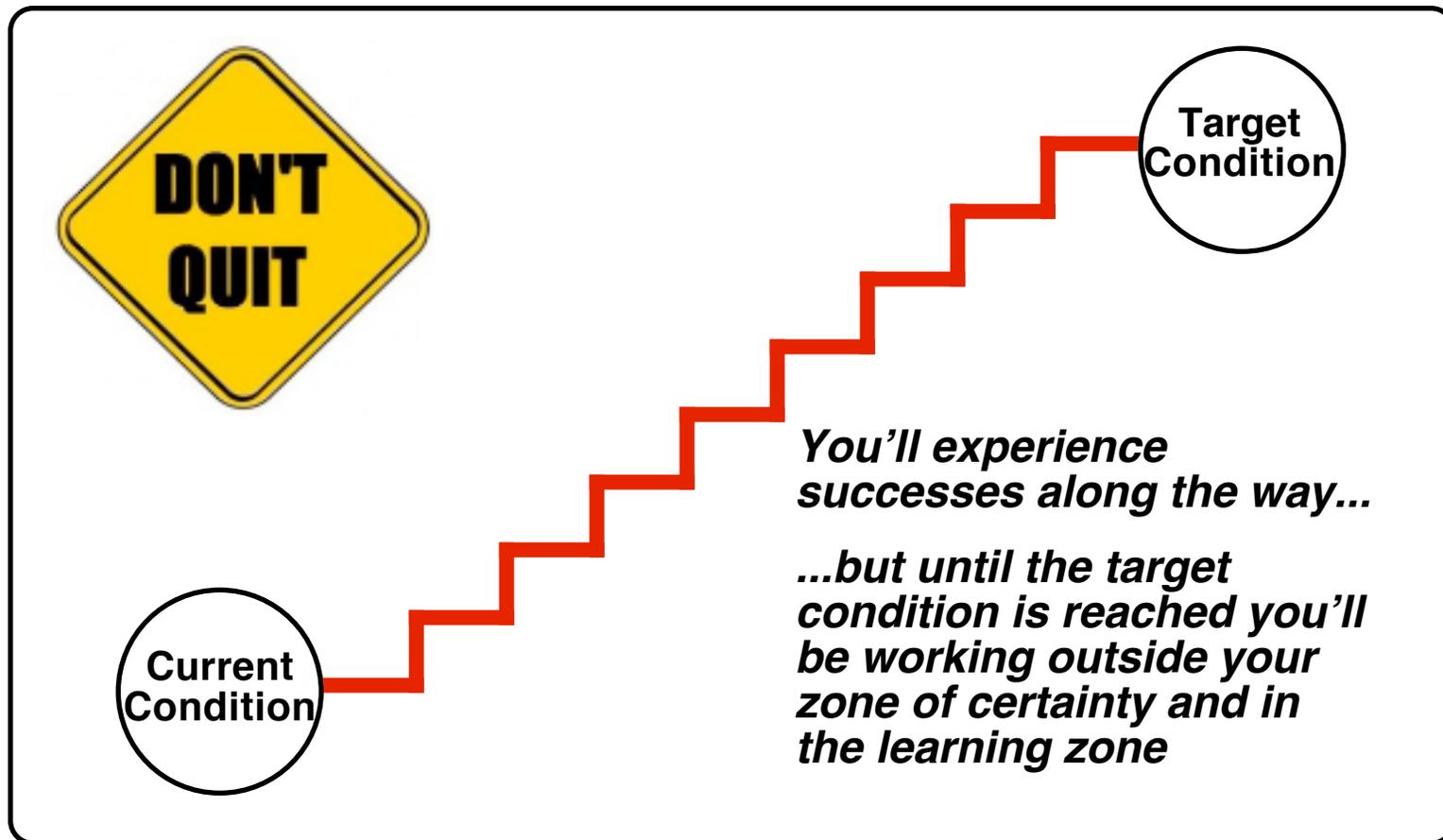
## AND KEEP THIS QUESTION IN MIND



**This perspective will keep you focused on the work process and help you work together with the process team**

# GET USED TO BEING IN THE *LEARNING ZONE*

It's where improvement, adaptiveness  
and innovation happen



**Don't give up on the target condition!** The failures and obstacles you encounter are not reasons to abandon the target condition. They are the things you have to figure out and work through.

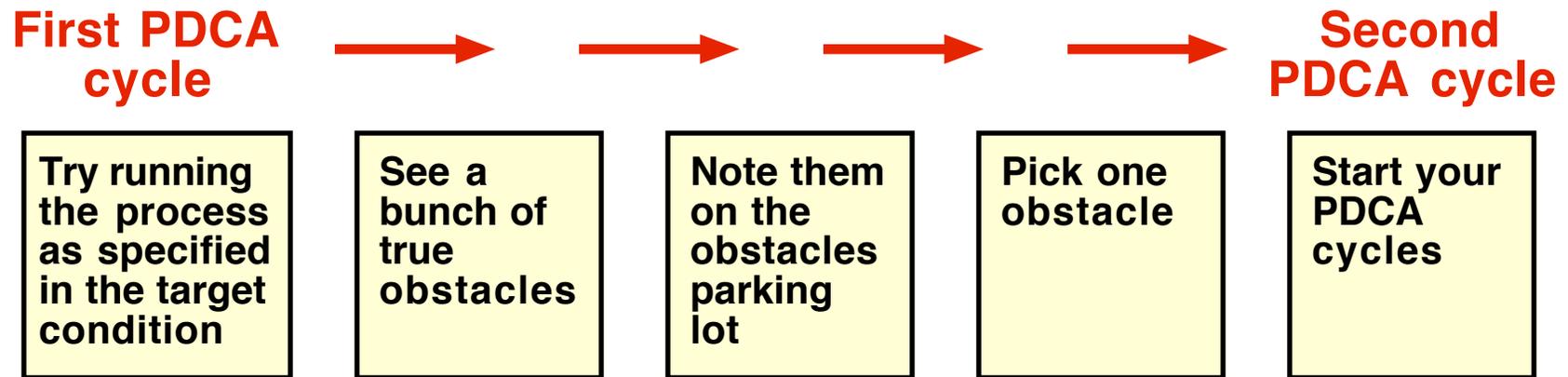
# PLEASE SET UP YOUR FIRST EXPERIMENT ON THE WAY TO YOUR TARGET CONDITION

First Step	What do you expect?
<p data-bbox="220 578 968 862">(A good first step is often an exploratory experiment. Try to run the process as described in the target condition, and observe what obstacles arise. Then you are on the way!)</p> <p data-bbox="220 919 877 1057"><i>(Try to run it the way you designed it, and see where it breaks.)</i></p>	



**You get one free 'go'. From that point forward change one thing at a time based on what you learn from PDCA.**

# THE FIRST PDCA EXPERIMENT SHOULD OFTEN BE AN EXPLORATORY SETUP



**Why? You're now at a knowledge threshold!**

Often you do an exploratory experiment first to get *true* obstacles to show themselves, so you know what you *need* to work on

# The Coaching Kata

## COACHING CYCLES WITH THE FIVE QUESTIONS

Practice  
this  
Routine

1

2

3



4

5

# ORIENTATION

**Understand the Direction**



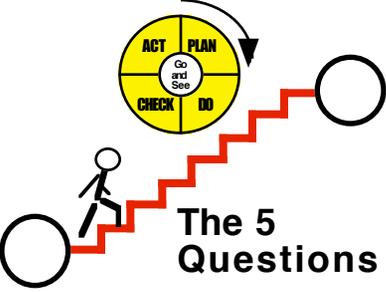
**Grasp the Current Condition**



**Establish the Next Target Condition**



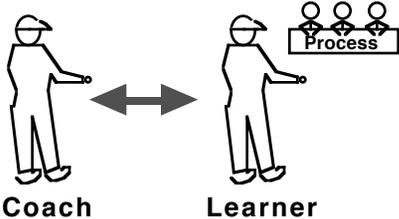
**PDCA Toward the Target Condition**



The 5 Questions

*You are here*

**Conduct Coaching Cycles**



Coach      Learner

**Teaching the Improvement Kata through coached practice**

# THE FIVE QUESTIONS = ONE PDCA CYCLE

## THE FIVE QUESTIONS = ONE COACHING CYCLE

A coaching cycle is an interaction whereby the coach asks the learner the Five Questions at the focus process

Coaching cycles are used to guide a learner through the steps of moving toward a target condition.

Coaching cycles give managers and supervisors a standardized approach to (1) facilitate Improvement Kata skill development in their teams and (2) develop effective coaching habits. The power of the Five Questions is great, when you know how to ask them and how to respond to the answers you get.



# THE TWO FUNDAMENTAL ROUTINES AT THE CORE OF COACHING CYCLES

## The 5-Question Coaching Dialog

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

**Five-Question Card  
Used by the Coach**

## Rapid PDCA Cycles

PDCA CYCLES RECORD				
Date:		Process Metric		
Process:				
Step	What do you expect?	Coaching Cycle EXPERIMENT	Result	Observe closely What We Learned

**PDCA Cycles Record  
Used by the Learner**



Learner

PDCA CYCLES RECORD				
Date		Target		
Process:		Meaning		
Step	What we did	Result	Success	What We Learned

Target Condition



Current Condition



Coach

**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?

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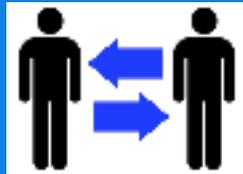
# The Kata Coaching Approach



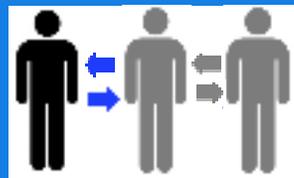
## Overall Guidelines for Coaches



## Coaching Cycle Forms



## Coaching Cycle Instructions



## 2nd Coach Instructions

# The Kata Coaching Approach

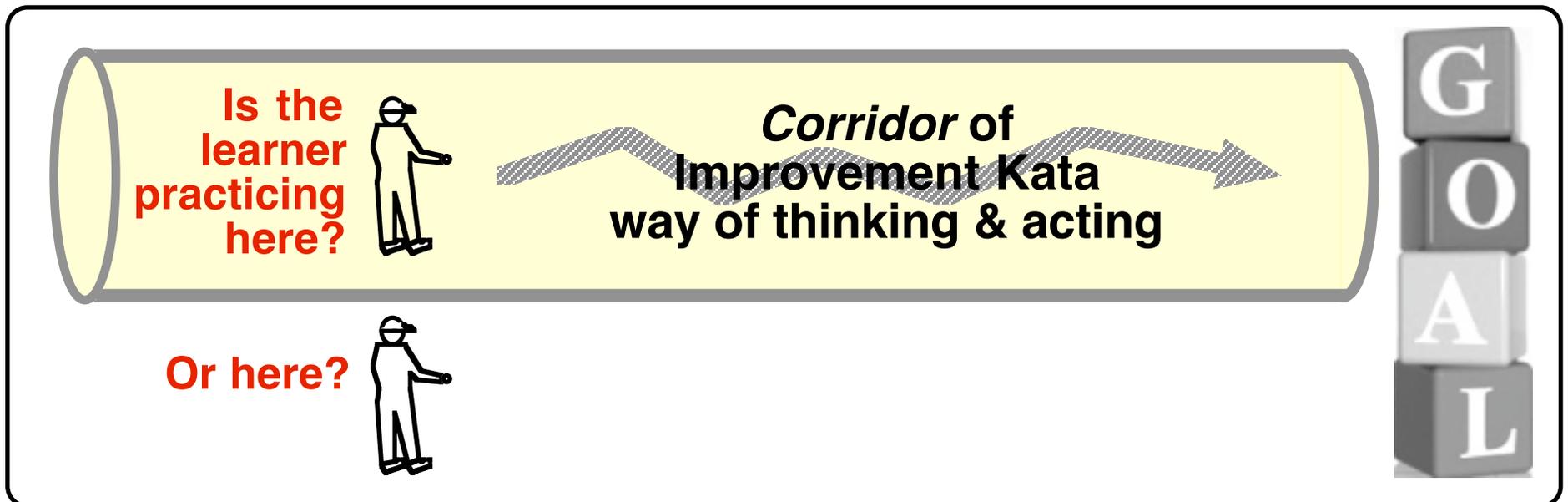




# WHAT YOU ARE DOING AS AN IK COACH

The path to the target condition is open and uncertain, but the learner is trained to utilize the Improvement Kata routine for navigating that path.

Your task is to determine whether or not the learner is practicing within the corridor of thinking and acting specified by the Improvement Kata, and to introduce procedural course corrections as necessary.



When the learner gets outside the Improvement Kata corridor the potential for learning (for increasing the learner's IK skill) is great. In this case you either provide a procedural input right away, or allow a small failure to occur and then provide the input.

# CORRECTING THE LEARNER

It's not *practice makes perfect*, it's correct practice makes perfect

The learner will naturally default back to his or her existing ways of thinking and acting. The coach is ensuring that the learner practices the right pattern the right way so that it becomes a habit that is readily available.



Photos from "The Karate Kid," 1984

# THE INTENTION OF A COACHING CYCLE IS NOT AUDIT AND COMPLIANCE

**It's this...**



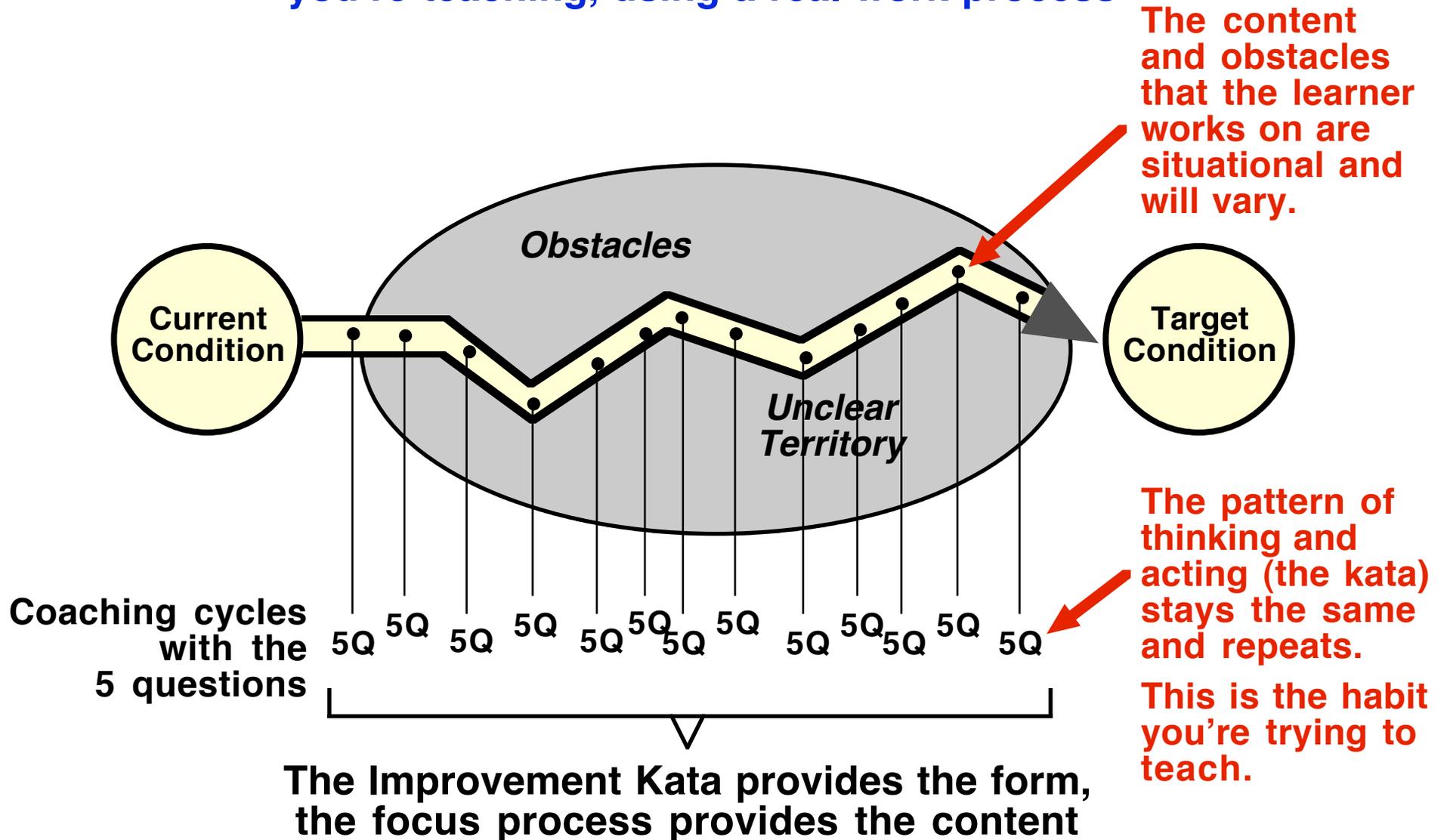
**Teaching the learner how to play  
the continuous improvement game**

**...not this**



# DEVELOPING A META HABIT THROUGH PRACTICE

The content-free pattern of the Improvement Kata is what you're teaching, using a real work process



# USE THE “1-2-3” PATTERN OF COACHING

- 1** Try to understand how the learner is thinking.  
(Coach is in an observing / questioning mode)
- 2** Compare this to the desired pattern -- “the corridor” -- specified by the Improvement Kata.  
(Coach is in a judging mode)
- 3** Introduce a course adjustment if necessary.  
(Coach is in an instructing or guiding mode)

*Please expect and allow the learner to make small mistakes in applying the Improvement Kata!*

*These are important moments, from which the learner learns how to correctly apply the Improvement Kata pattern.*



*The **1-2-3** pattern can be repeated several times within one coaching cycle*



## THE COACH SHOULD SOMETIMES BE DIRECTIVE ABOUT PROCEDURE

**Errors are to be expected and often need immediate correction to avoid confusion**

Coaching is not just about asking questions.

It's true that as an Improvement Kata coach you should generally not be directive about *what* the learner is working on. The process of discovery should provide that. However, you can be directive about *how* the learner should proceed.

You're asking the Five Questions not to direct the learner to a particular solution (though it can seem that way to the learner), but to help you see how the learner is thinking and approaching the situation.

Specifically, *after* you have listened to the learner's answer to a question you may, at times, be directive about the next step. This is done to make a procedural point or to get back onto the improvement kata corridor.

Keep in mind that another valid coaching technique is to not correct the learner and allow a small mistake to happen. This can lead to an excellent learning moment. You have to decide how to handle it case by case.

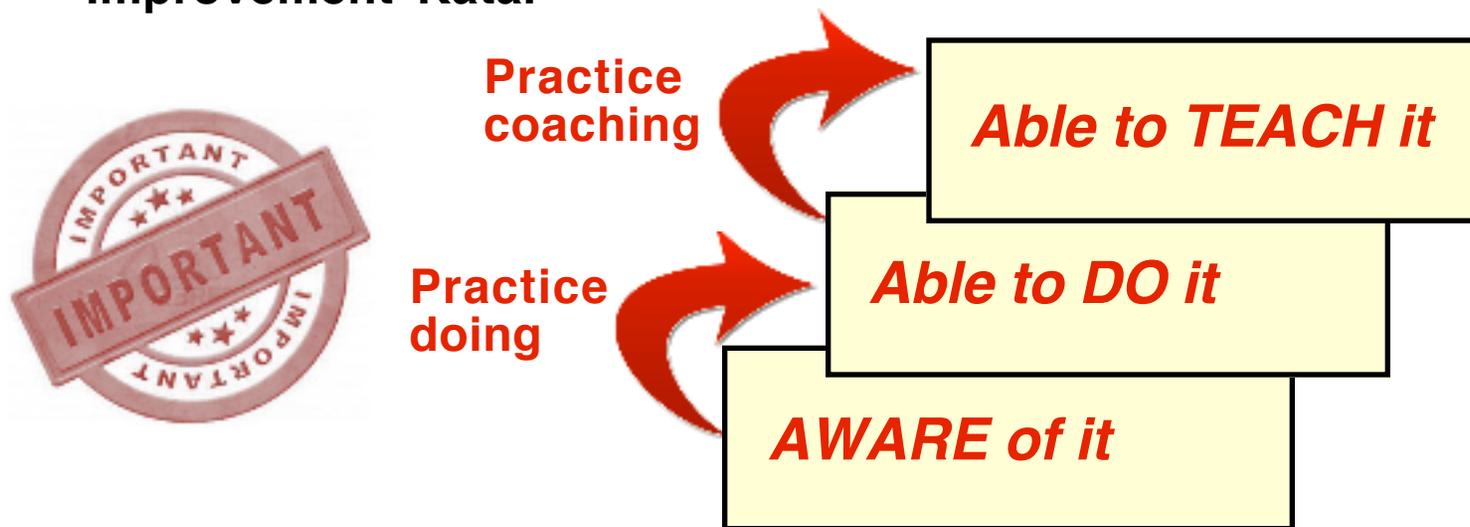
# STOP AND THINK 1-2-3 BEFORE YOU REACT



- 1** What *thinking* pattern do you want to see at this point?  
Think about the improvement-kata pattern from your own experience applying it.
- 2** How does the learner now seem to be thinking?  
Observe, ask and listen.
- 3** Is a course adjustment necessary? What improvement-kata *behavior* pattern do you want the learner to practice next?  
Instruct at this point, or let the learner fail and then instruct.

# QUALIFICATIONS FOR BEING AN IMPROVEMENT KATA COACH / TEACHER

- ❑ Since you need to be able to judge if the learner is following the Improvement Kata pattern correctly, you must have experience carrying out the Improvement Kata yourself. To coach the Improvement Kata you need knowledge of the Improvement Kata.



- ❑ You must also become knowledgeable about the focus work process that's being improved. However, you can do that in parallel as you coach the learner.
- ❑ You must be willing to practice and learn a different approach to managing people (the Coaching Kata) which involves guiding and teaching a *procedure* rather than directing the content of the learner's actions.

# Overall Guidelines for Coaches



**COACHING KATA**

**The Five Questions**

- 1) What is the target condition?
- 2) What is the current condition?
- 3) What obstacles are now preventing you from reaching the target condition? Which have you paid attention to? -----(Then Give Over)-----
- 4) What is your next step? (use PDCA's experiment) What do you expect?
- 5) When can we go and see what we have learned from taking that step?

# THIS IS THE BASIC COACHING-CYCLE PATTERN

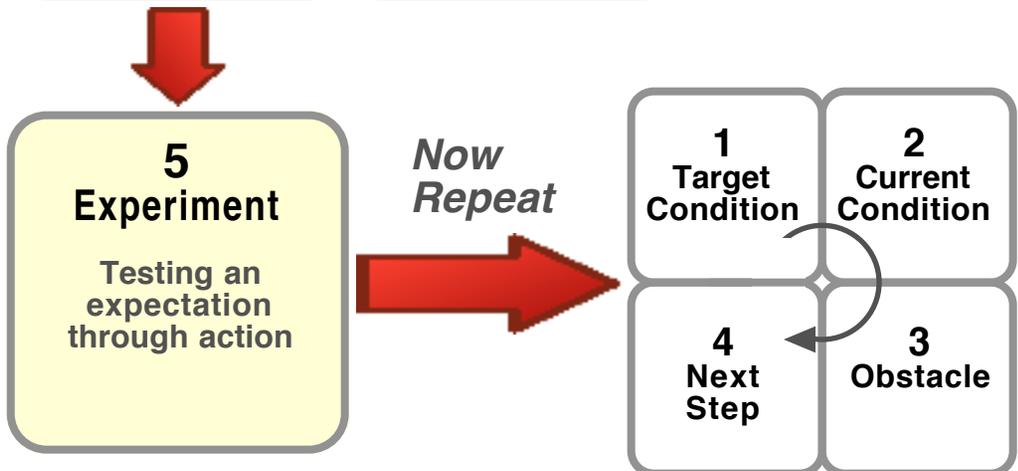
PDCA CYCLES RECORD				
Case	Process	Plan	Do	Check



**Now reflect:**

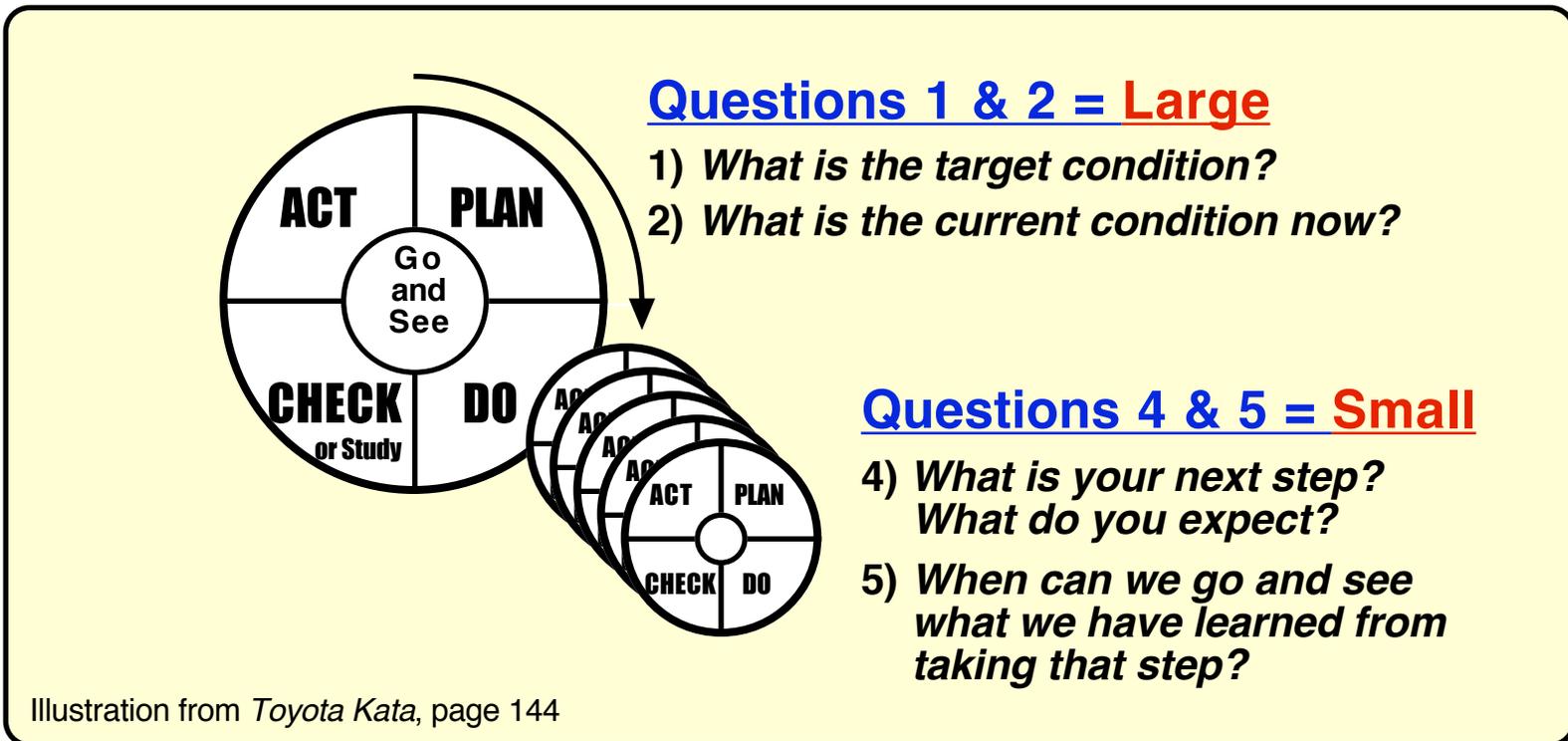
- What was your last step?
- What did you expect?
- What actually happened?
- What did you learn?

**Now conduct the next experiment**



Based on a diagram by Don Clark

# THERE ARE LARGE AND SMALL PDCA CYCLES IN THIS PATTERN



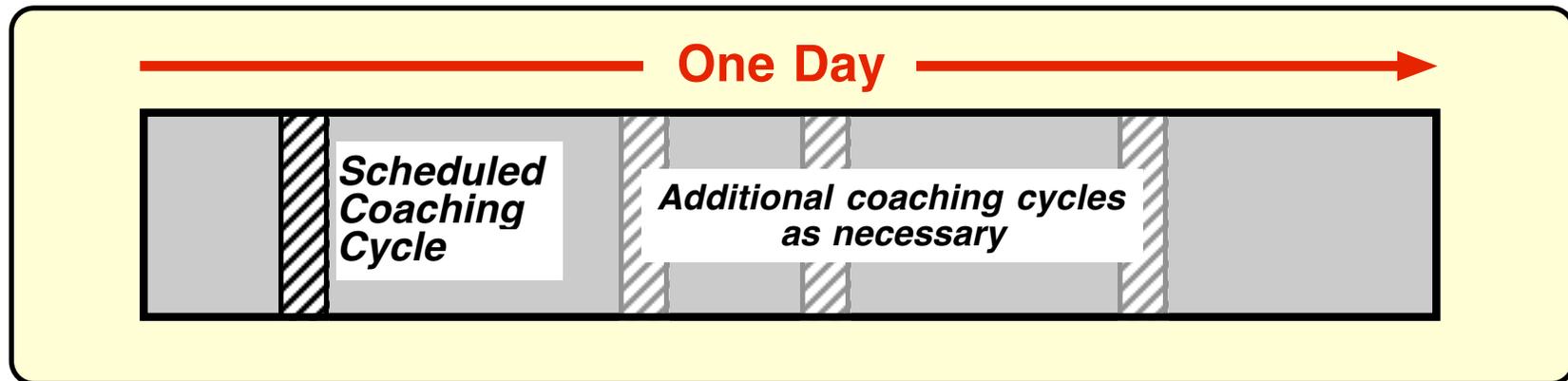
As a coach you should be aware that learning, improvement, adaptation and innovation come from an accumulation of the **small** PDCA cycles.

It's these cycles, in particular, that you'll be coaching. These small cycles occur at the "Threshold of Knowledge."

# CONDUCT COACHING CYCLES EVERY DAY

The first coaching cycle of the day should be early in the day. For each learner and focus process, schedule a regular coaching cycle at a set time near the start of the workday. Doing the first coaching cycle early allows the learner to take the next step (do the next PDCA / experiment) that day.

Companies that use coaching cycles typically do not schedule any meetings before 10:00 AM. Coaching cycles typically take 10-20 minutes. If they are shorter or longer it may indicate a flaw in coaching.

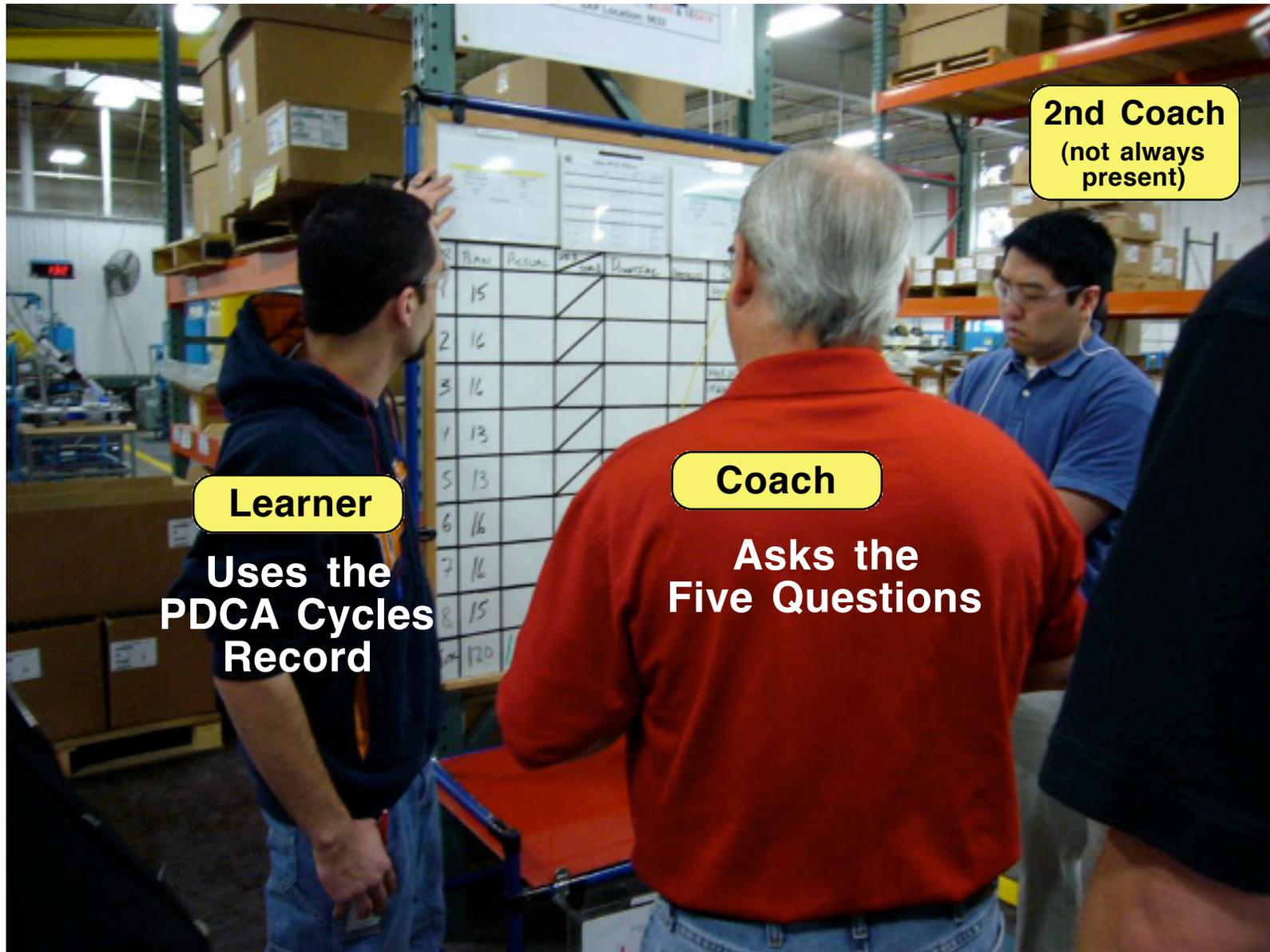


After the morning coaching cycle the coach & learner may do more coaching cycles that day. The learner's PDCA cycles should be as rapid as possible.

Beyond the coaching cycle, you may also decide to accompany the learner in the "Do" part of a PDCA cycle, to observe the learner in action and provide additional coaching.

# DO COACHING CYCLES AT THE FOCUS PROCESS

Whenever possible



**Learner**

Uses the  
PDCA Cycles  
Record

**Coach**

Asks the  
Five Questions

**2nd Coach**  
(not always  
present)

# STEP AT A TIME



Your learner can only take a step at a time toward the target condition. Likewise, you shouldn't overload the learner with advice about what to practice. Remember, the next coaching cycle is coming right up.

In a coaching cycle ask yourself...

*what one or two aspects of the Improvement Kata do you think the learner should practice in the next round...*

as s/he takes the next step toward the target condition?

# WATCH FOR THE “THRESHOLD OF KNOWLEDGE”

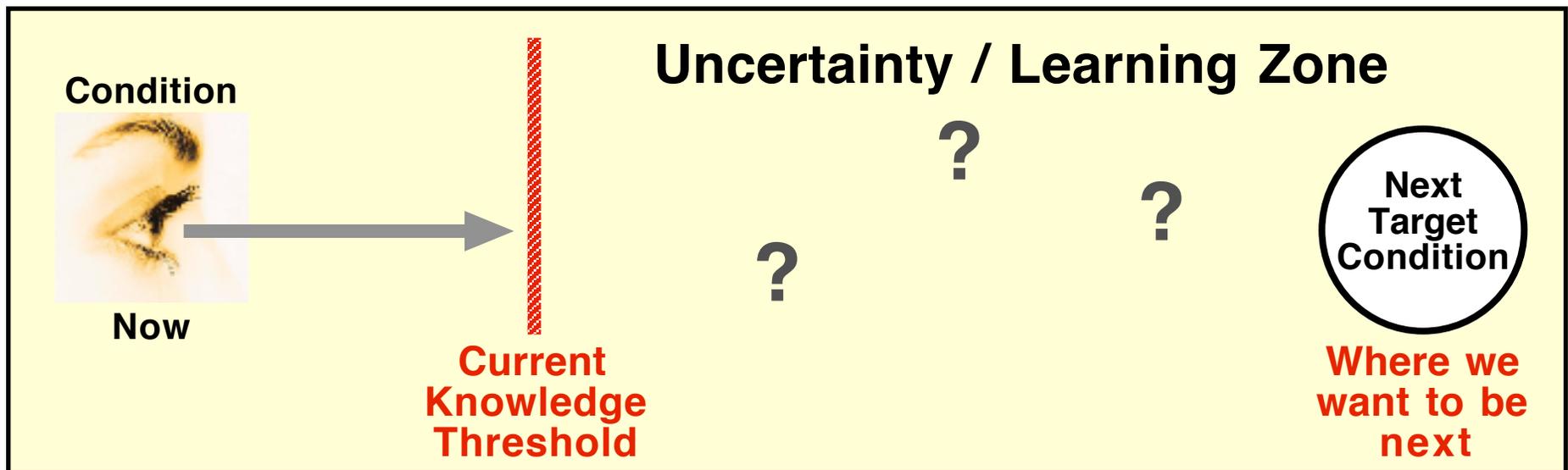


# DURING A COACHING CYCLE, ALWAYS LOOK FOR THE CURRENT THRESHOLD OF KNOWLEDGE

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!***

# RECOGNIZING A KNOWLEDGE THRESHOLD

They can be hard to spot



At any point in asking the five questions you may notice that a knowledge threshold has been reached.

When the learner's answers become imprecise (“I think” / “maybe” / “could”) it's a sign of a knowledge threshold. The learner is moving from observation to guessing.

Focus the coaching cycle and your coaching input here. Use hearing those words as a cue to go and see.

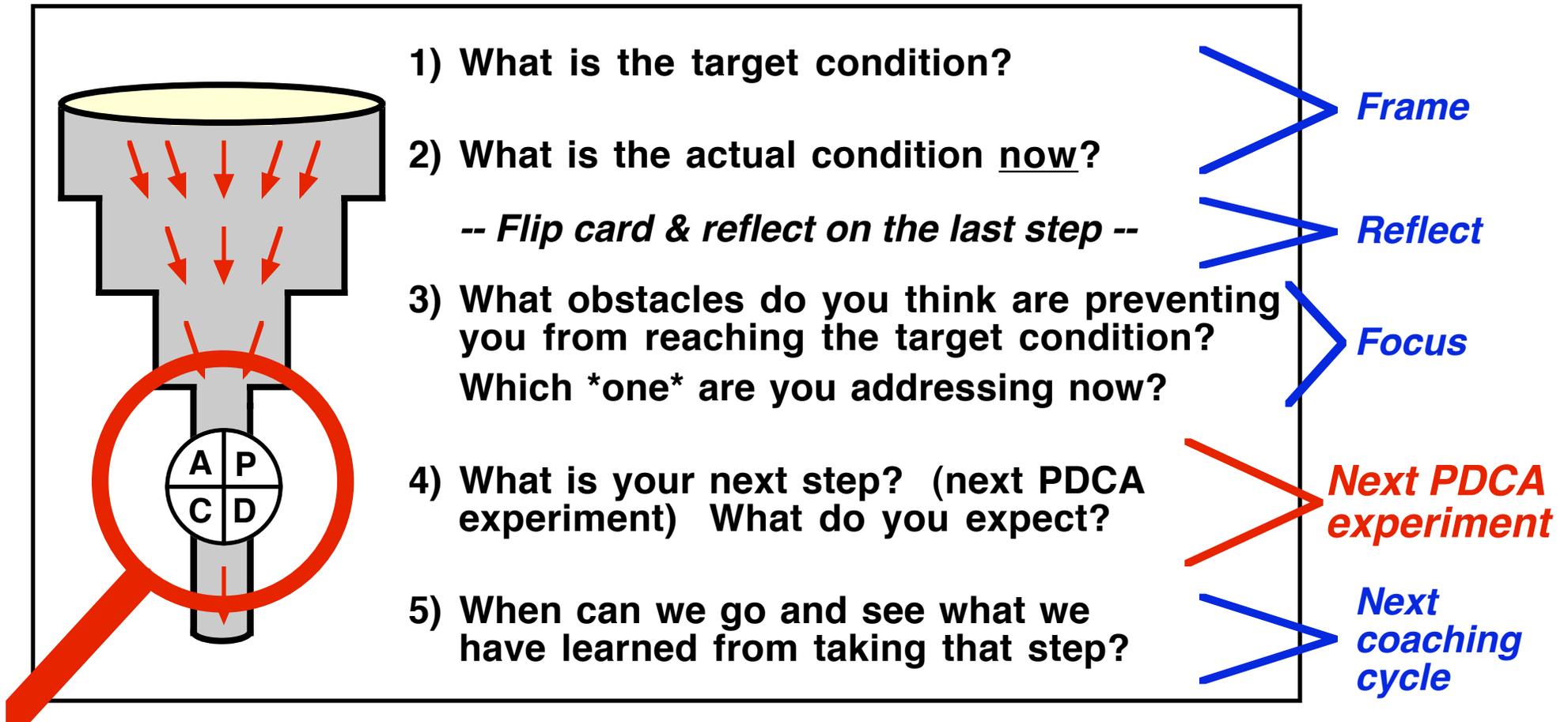
A knowledge threshold is the learning edge, and where the learner's next experiment (next PDCA cycle) lies.

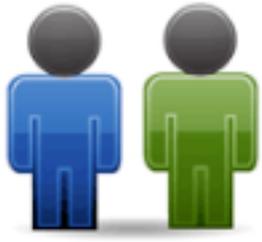
The learner shouldn't try to move beyond a knowledge threshold via conjecture. Teach the learner to see further by experimenting.

Have the learner conduct the next PDCA experiment and then conduct a coaching cycle.

# A COACHING CYCLE SHOULD LEAD TO SOME KIND OF PDCA EXPERIMENT

At the threshold of knowledge





## KEY POINTS FOR IMPROVEMENT KATA COACHES

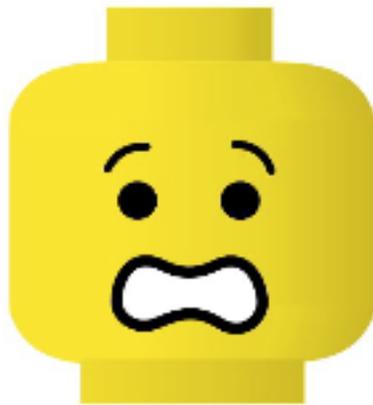
- ❑ Tell the learner what you're doing (practicing a skill pattern to make it a habit). Many learners practice with more interest and motivation when they know what they are doing and why.
- ❑ A coaching-cycle dialog should use current facts and data as much as possible. Have the learner collect and graph any necessary data *before* the coaching cycle.
- ❑ If you are a beginner coach, ask the questions exactly as they are written on the 5-Question card. No improvising until you are a competent-level coach.
- ❑ You can ask clarifying detail questions or give feedback at any point in asking the 5 questions. With novice learners you may ask the learner to restart the coaching cycle from the beginning in order to reiterate the pattern.
- ❑ Whenever possible you should go and see what the learner is talking about. *“Show me”* and *“Tell me more about...”* are useful coaching phrases at any time.
- ❑ During the coaching cycle, ask the learner to physically point at relevant supporting documents and data.
- ❑ Let the learner fail at certain points, then teach. A learner has to stumble in order to learn new skills.

# BE CAREFUL ASKING *WHY*?

The Lean community promotes “*asking why five times*” as a means to help get to the root cause of a problem. This is fine if you are asking those “whys” to yourself.

However, when a coach asks a learner “*why*” it can easily seem confrontational rather than constructive, especially if “*why*” is asked repeatedly.

You’re asking questions to help you see the learner’s current thinking pattern, and for that purpose it may be better to say, “*Tell me more about...*”.



**In the spirit of the Improvement Kata, think of it as *Five Experiments* rather than five “whys”**

# COACHING CYCLE DO'S AND DON'TS



<b>Schedule daily coaching cycles.....</b>	<b>Conduct coaching cycles only infrequently or irregularly</b>
<b>Conduct your first daily coaching cycle..... early in the day, so the learner can do the next step (the next experiment) that day</b>	<b>Do the first coaching cycle near the end of the day</b>
<b>Proceed systematically by..... following the 5 questions</b>	<b>Permit unstructured, meandering disorganized discussions</b>
<b>Determine whether or not the learner..... is operating within the corridor of the Improvement Kata</b>	<b>Ask questions to audit if the learner is doing what they said they'd do</b> <b>Ask questions to get the learner to implement your preconceived solutions</b>
<b>Ask the 5 questions while standing..... at the process.</b>	<b>Conduct coaching cycles in the office</b>



**Have the learner retime exit cycles.....Use old current-condition data of their process every day.**

**Remember, question 5 is about.....Ask question 5 as  
“What are we learning?” “When will you have it done?”**

**Take it a step at a time. Try to change.....Change multiple variables at once  
only one thing at a time and closely observe what happens**

**Plan the next PDCA cycle based on.....Stab at the problem with disconnected  
what was learned in the last PDCA cycle countermeasures**

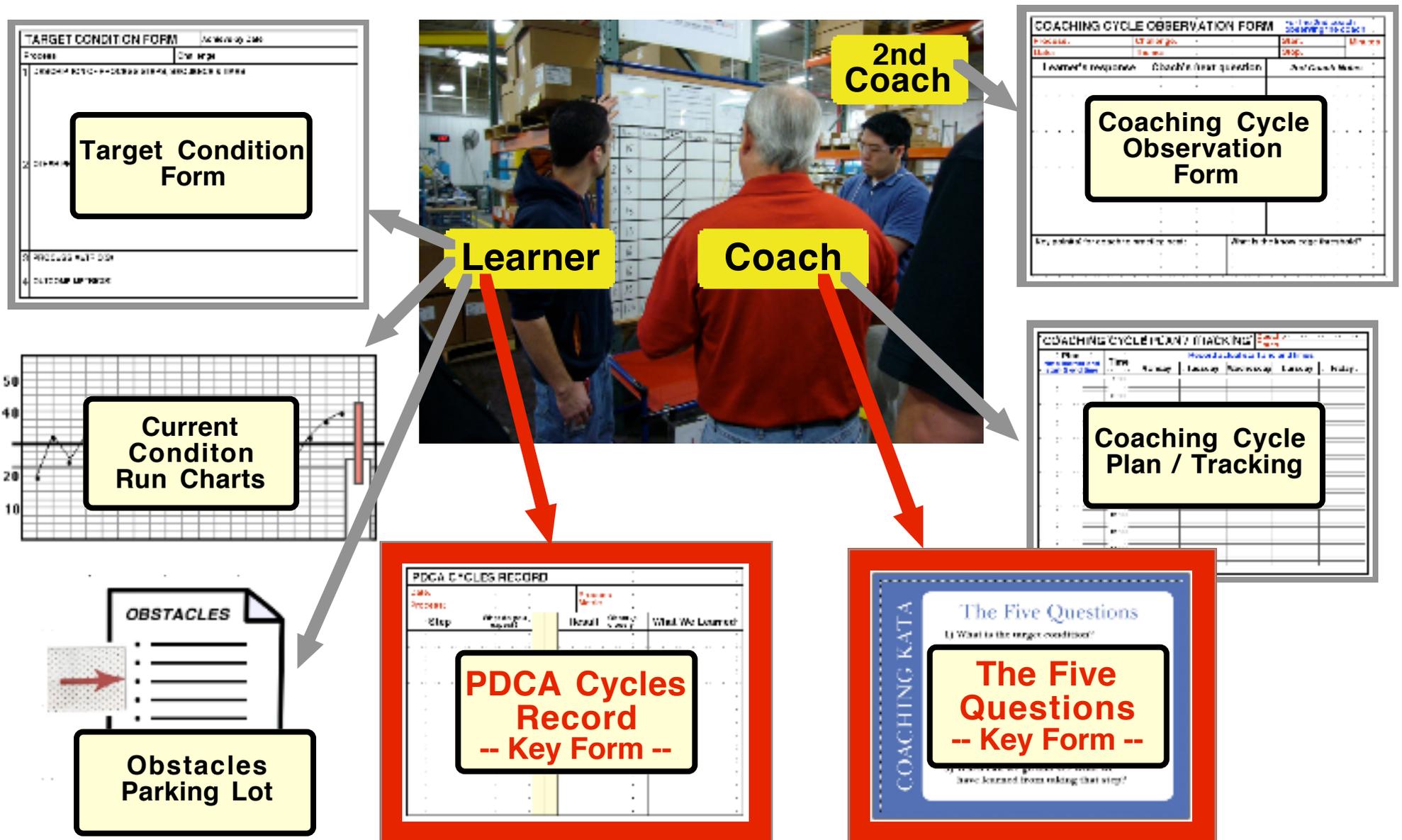
**Realize that it’s the Target Condition .....Think that each step has to bring  
(which has an achieve-by date) that brings a measureable benefit. Many steps  
the measureable benefit and results will not, but you will learn from them.**

**End the coaching cycle when the next.....Keep on discussing possibilities  
step and the expectation are clear and after the next experiment has  
written on the PDCA Cycles Record been defined**

# Coaching Cycle Forms



# SEE THE APPENDIX FOR BLANK COPIES



# THE TWO KEY FORMS

## (1) Five-Question Card

## (2) PDCA Cycles Record

**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

PDCA CYCLES RECORD					
Date:			Process Metric		
Process:					
Step	What do you expect?	Coaching Cycle	Result	Observe closely	What We Learned
		EXPERIMENT			



*Used by the coach*

*Used by the learner*



Meet at the focus process every day and use these two tools

# (1) THE FIVE-QUESTION CARD - For the Coach

Available on the Toyota Kata website

## 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**?

Card is turned over to reflect on the last step



----->  
*Return*

# PURPOSE OF THE FIVE-QUESTION CARD

Coaching & being coached is easier with the Five Questions



- Carry it with you
- It's your script for conducting coaching cycles, to help you acquire the habit of this pattern
- Helps a beginner coach stay on pattern



# WHERE IN THE 5 QUESTIONS THE LEARNER SHOULD POINT TO HIS/HER FORMS

**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

**Q1: Target Condition Form**

**Q2: At least run charts of process metric and outcome metric**

**Reflect: PDCA Cycles Record**  
(reflecting on the last step)

**Q3: Obstacles Parking Lot**

**Q4: PDCA Cycles Record**  
(proposing the next step)

## (2) THE PDCA CYCLES RECORD - For the Learner

PDCA CYCLES RECORD						
Date:				Process Metric		
Process:						
Step	What do you expect?	Coaching Cycle EXPERIMENT		Result	Observe closely	What We Learned
⋮	A					B
⋮						
⋮	C					
⋮						
⋮						
⋮						

The PDCA Cycles Record helps you run effective coaching cycles and generate scientific thinking in the learner.

Each row = one experiment. Think of this as a *chain of PDCA cycles*, where one step builds on what was learned in the last step.

# HOW TO USE THE PDCA CYCLES RECORD

The PDCA form is read left-to-right. Each row = one experiment.

The ① ⇨ ② pattern of the form repeats after each experiment.

Before the 1st coaching cycle the learner proposes the 1st step and what s/he expects, on the **Left Side** of the form

Row 1 -->

Row 2 -->

PDCA CYCLES RECORD					
Date:			Process Metric		
Process:					
Step	What do you expect?	Coaching Cycle EXPERIMENT	Result	Observe closely	What We Learned
				①	

② Based on what was learned in the last step, the learner proposes the **Next Step** and describes what s/he **Expects** from that step, on the **Left Side** of the form

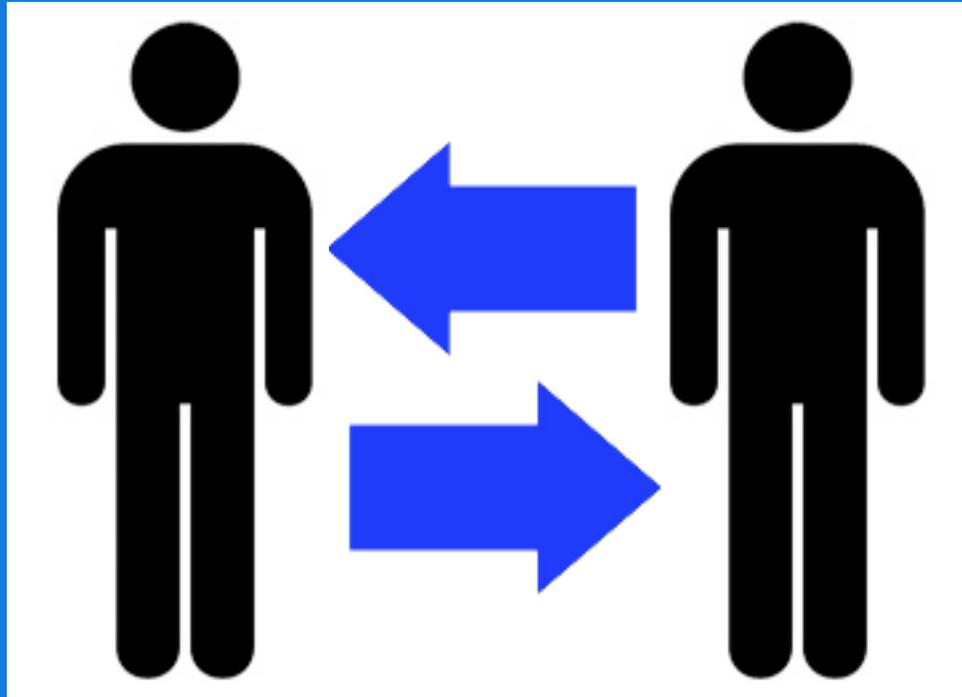
① Once a step or experiment is completed, the learner fills in **Result** and **What We Learned**, on the **Right Side** of the form

The information on the PDCA Cycles Record is written by the learner before the next coaching cycle. During the coaching cycle the coach will either validate the proposed next step, or help the learner fine tune the next step.

# BENEFITS OF USING THE PDCA CYCLES RECORD

-  It forces the learner to document in writing (and teaches the learner that s/he owns the form and is responsible for having it up to date).
-  It forces the learner to think independently about what would be a good next step to take.
-  It encourages the learner to think scientifically in terms of what they expect to learn or to happen as a result of the next step.
-  It has the learner prepared for the next coaching cycle, with information that has been thought through. During the Five Question coaching cycle the learner knows what s/he is going to present, instead of making things up or trying to recall from memory.
-  It helps the coach focus on PDCA instead of just on the Five Questions.

# Coaching-Cycle Instructions



**The Five Questions step-by-step.  
A good coaching cycle looks like this...**

# BEGIN A COACHING CYCLE BY PUTTING THE LEARNER AT EASE

**A coaching cycle does not judge success or failure**

- > *Begin by greeting one another and shaking hands.*
- > *Stand next to the learner rather than facing him/her head on.*
- > *At the beginning, explain the coaching method to the learner so s/he can understand what is taking place.*



**A coaching cycle is an interaction, not an audit or surprise check. The learner knows when the coach is coming, what s/he will ask (the 5 Questions) and prepares the information in advance of the coaching cycle.**

**Novice learners may perceive coaching as meaning they did something wrong, but the purpose is *not* to control or to get people to do what they say. A coaching cycle is a dialog, not an exercise of authority.**

**There should be a genuine interest in both you and the learner in the target condition you are trying to achieve, what you are learning and what will be the next step.**



# Questions 1 & 2

## FRAMING Orient Yourself

1) What is the target condition?

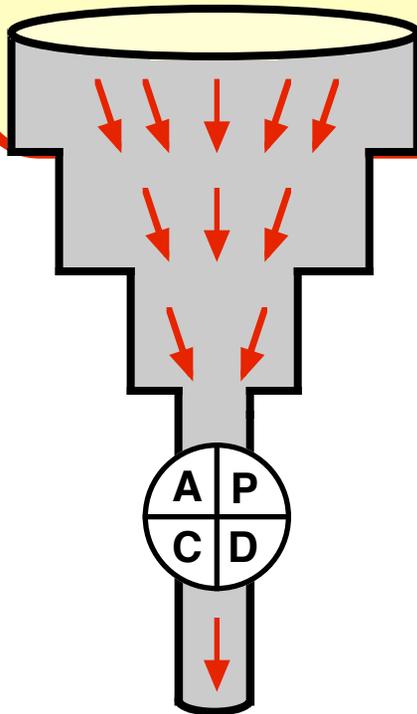
2) What is the actual condition now?

-- Flip card & reflect on the last step --

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?



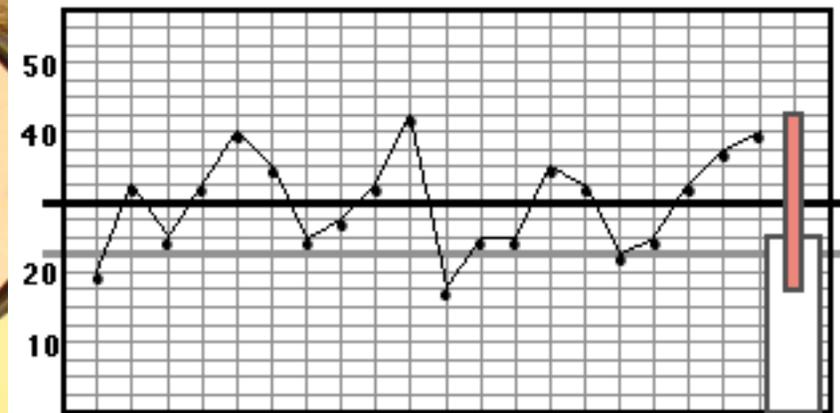
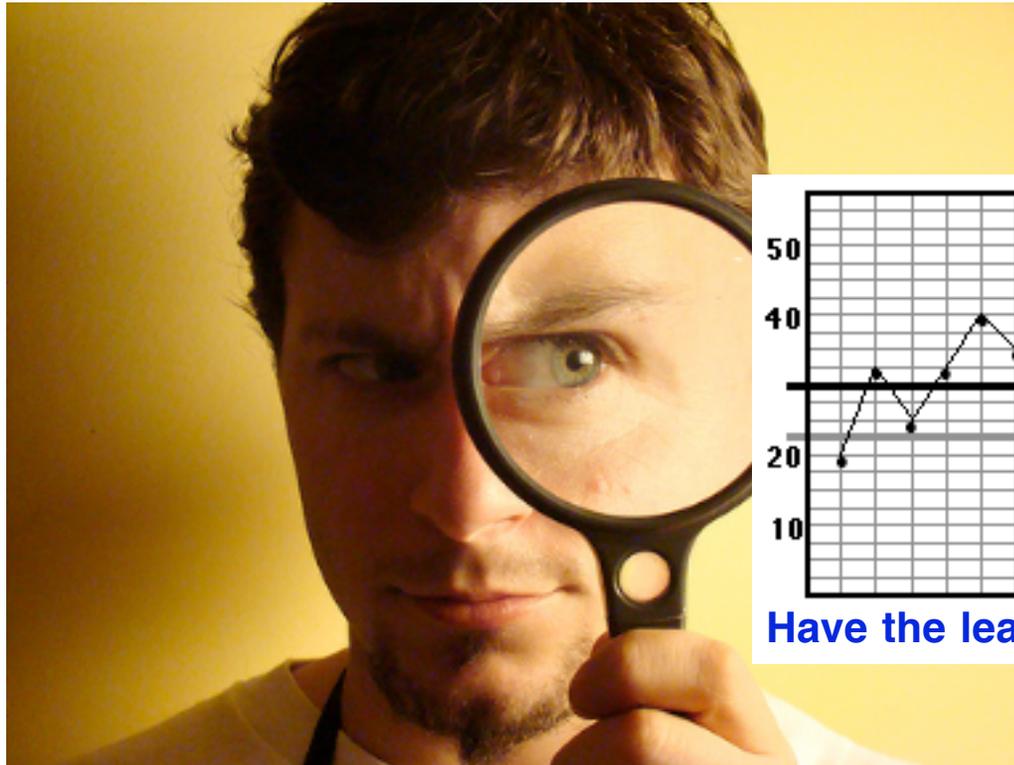
# KEY POINTS FOR QUESTIONS 1 & 2

## *(Target Condition / Current Condition)*

- ❑ Consensus on both the target condition (Question 1) and current actual performance (Question 2) is essential to avoiding endless debates. What are you trying to achieve and where are you now?
- ❑ Don't skip over Questions 1 & 2, even if it seems a bit like play-acting. Go through all 5 questions in each coaching cycle because you are trying to teach the thinking pattern inherent in the 5 questions.
- ❑ At Question 1 the learner should physically point and refer to the Target Condition Form. 
- ❑ Question 2 is not a review of steps the learner has taken. The learner should describe how the focus work process is actually operating now, and compare this to the desired pattern of operation.
- ❑ After the learner has done the initial PDCAs s/he should not refer back to the initial current condition at Question 2. The learner should show the latest metrics for the condition now, based on direct observation. Have the learner physically point to this data. 

# CHECK THE PROCESS METRIC & OUTCOME METRIC

These are the minimum metrics to check in a coaching cycle



Have the learner record this data in run charts

**Process Metric:** Used to check the process's pattern in real time.  
*Example: Exit cycles piece to piece.*

**Outcome Metric:** For periodically checking if improvement efforts are having the desired overall effect.  
*Example: Pieces per shift*



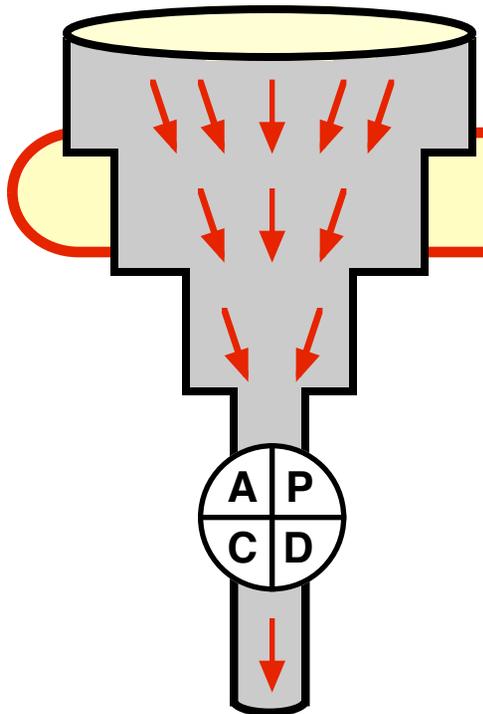
## **COACHING PHRASES FOR QUESTIONS 1 & 2**

*(Target Condition / Current Condition)*



- ❑ **Question 1:**
  - ***“Show me the intended process steps, sequence and times.”***
  - ***“What is the process metric?”***
  - ***“What is the outcome metric?”***
  
- ❑ **Question 2:**
  - ***“Show me the latest facts and data about the current process pattern.”***
  - ***“How do you know?”***

# REFLECT



1) What is the target condition?

2) What is the actual condition now?

**-- Flip card & reflect on the last step --**

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?

# NOW REFLECT ON THE LAST STEP TAKEN

Flip the Five-Question Card over at this point.  
This is the *Check* part of the PDCA cycle.



Always check the results of the last step.

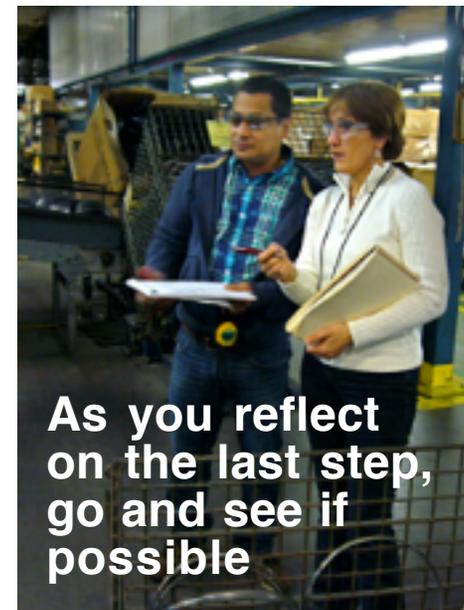
Until you check you don't know with certainty what the result of a step will be. Up to that point the step is only a hypothesis.

This is the learning point. What you learn from the last step helps you find the threshold of knowledge and determine the next step (the next experiment).

To reflect, the coach asks these four questions:



- 1) *What obstacle were you addressing?*
- 2) *What was your last step?*
- 3) *What actually happened?*
- 4) *What did you learn?*

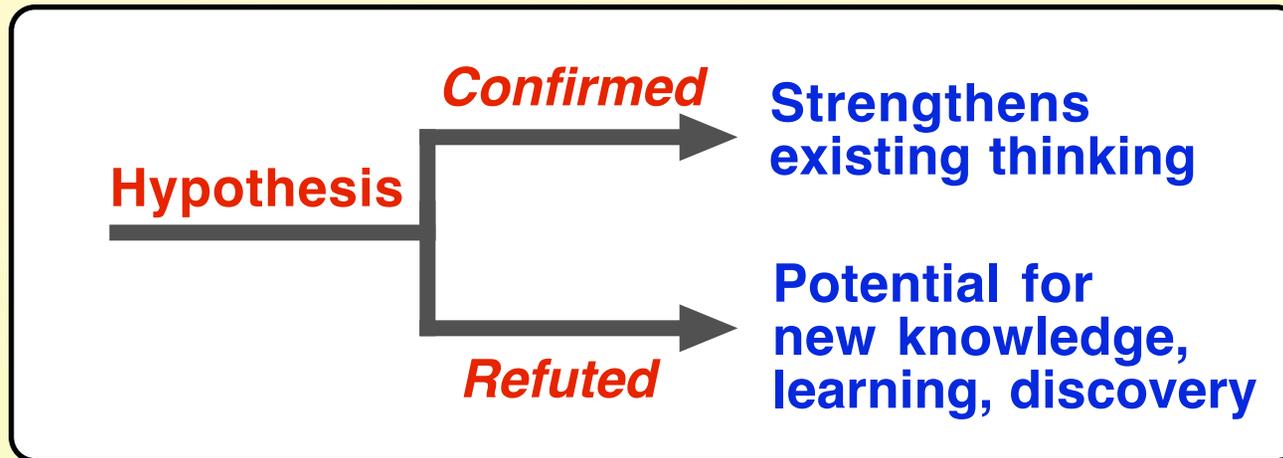


# KEY POINTS FOR REFLECTION

## *(Reflect on the Last Step)*

- ❑ The learner must experience small mistakes in order to learn.
- ❑ Some of the best experiments have an unexpected result -- a surprise -- because that's how you learn about what steps will be necessary to reach the target condition.

A target condition is reached through numerous small learning steps and experiments, many of which will generate “negative” (but highly-useful) results.



# WHEN YOU REFLECT ON THE LAST STEP USE THE PDCA CYCLES RECORD

Have the learner record the results of the last step on the **Right Side** of the PDCA Cycles Record before the coaching cycle.

The learner should point to his/her PDCA form when answering the reflection questions.

During the coaching cycle, have the learner adjust what was written if necessary.

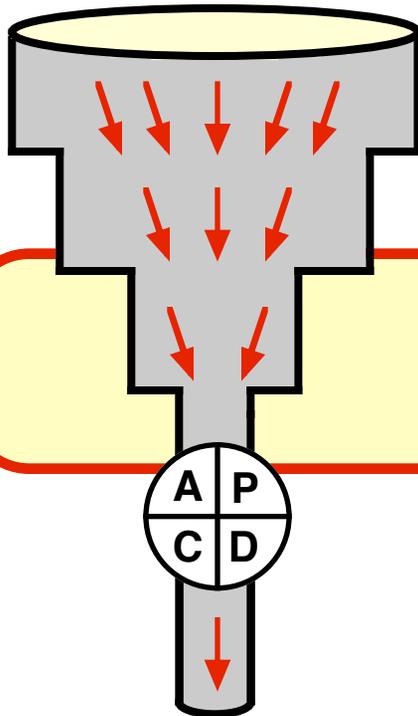


PDCA CYCLES RECORD				
Date: 2-20-12 2 <sup>ND</sup> SHIFT		Process Metric: PALLET ON FLOOR		
Process: PACK				
Step	What do you expect?	Result	Observe closely	What We Learned
INITIAL HOOK: COMPLETE STRAP FINISH TASK IN RT PICKER REMOVE PAPER BODS + PACK PALLET ON FLOOR		PICKER COMPLETED TASK AT OR UNDER POT WITH LESS VARIATION & PALLET UNDER	PICKER STILL HAD TO MAKE LABELS PICKER IS GO TO GUYMAREN	
Coaching Cycle EXPERIMENT				

© Improvement Kata Handbook Appendix 11

PDCA CYCLES RECORD				
Date:		Process Metric		
Process:				
Step	What do you expect?	Result	Observe closely	What We Learned
Coaching Cycle EXPERIMENT				

## FOCUS IN



1) What is the target condition?

2) What is the actual condition now?

*-- Flip card & reflect on the last step --*

**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?

# KEY POINTS FOR QUESTION 3

## (Focus In)

- ❑ Have the learner physically point at and refer to the Obstacles Parking Lot.
- ❑ Work on one obstacle at a time.
- ❑ The solution to an obstacle is developed via PDCA cycles. You overcome an obstacle by trying, failing, adjusting and trying again. It's in taking steps that ingenuity, adaptiveness and innovation happen.



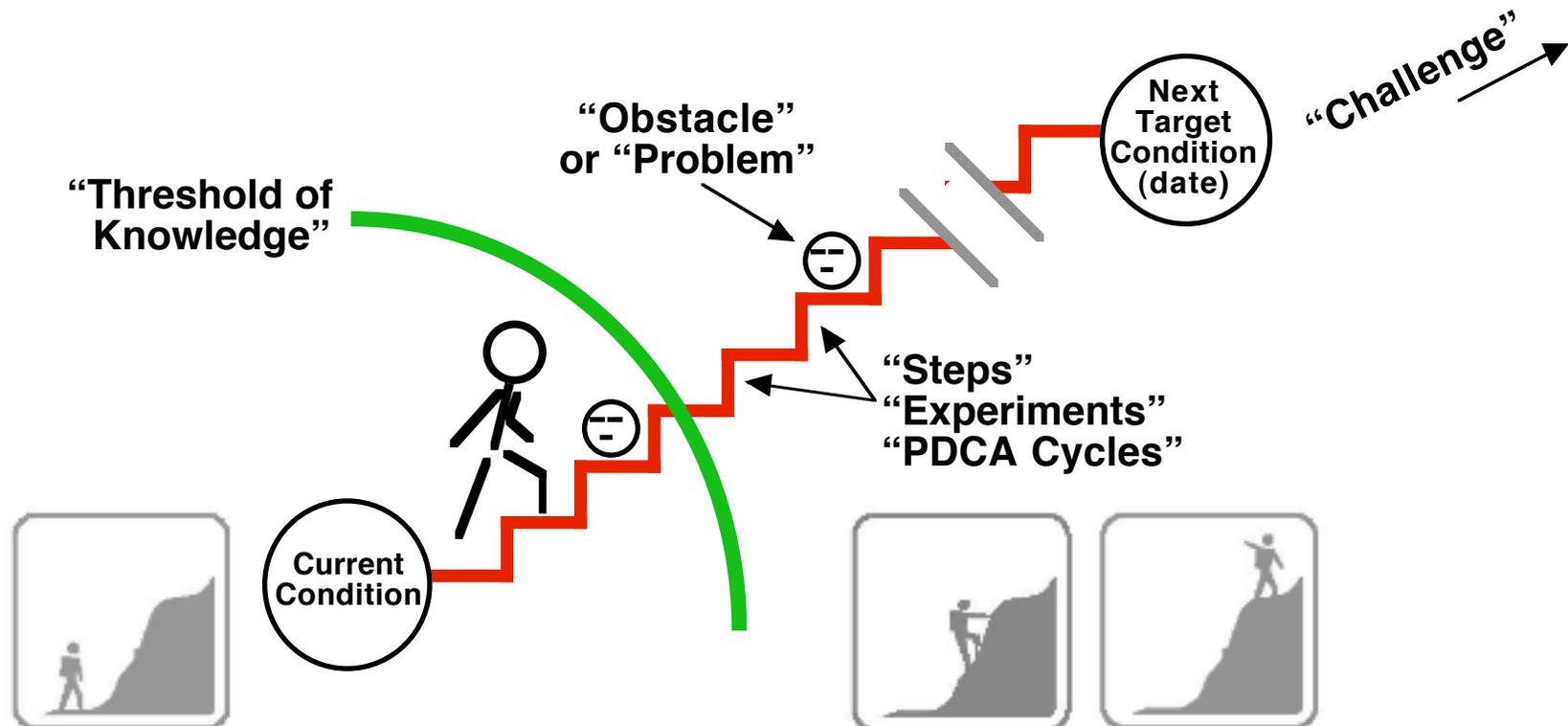
The learner may work on one obstacle for some time, taking a series of steps (PDCA cycles) related to that obstacle.

- ❑ Don't worry about selecting the biggest or most important obstacle. Just get started. The path will unfold as you experiment. The biggest obstacles will wait for you.
- ❑ With novice learners, don't start with the most difficult obstacle. Have the learner experience some cycles with the improvement-kata pattern first.
- ❑ The learner is free to work on any obstacle but should not just work on what s/he *thinks* are obstacles. Keep your eyes open for what obstacles *actually* arise along the way. Working on one obstacle will often lead you to a deeper issue that was not apparent before.

# TERMINOLOGY

What you do to overcome an **obstacle** or **problem** on the way to the target condition is called **steps, experiments** or **PDCA cycles**. It almost always takes more than one step to break through an obstacle. When you overcome an obstacle it means you've developed a **solution** to a problem.

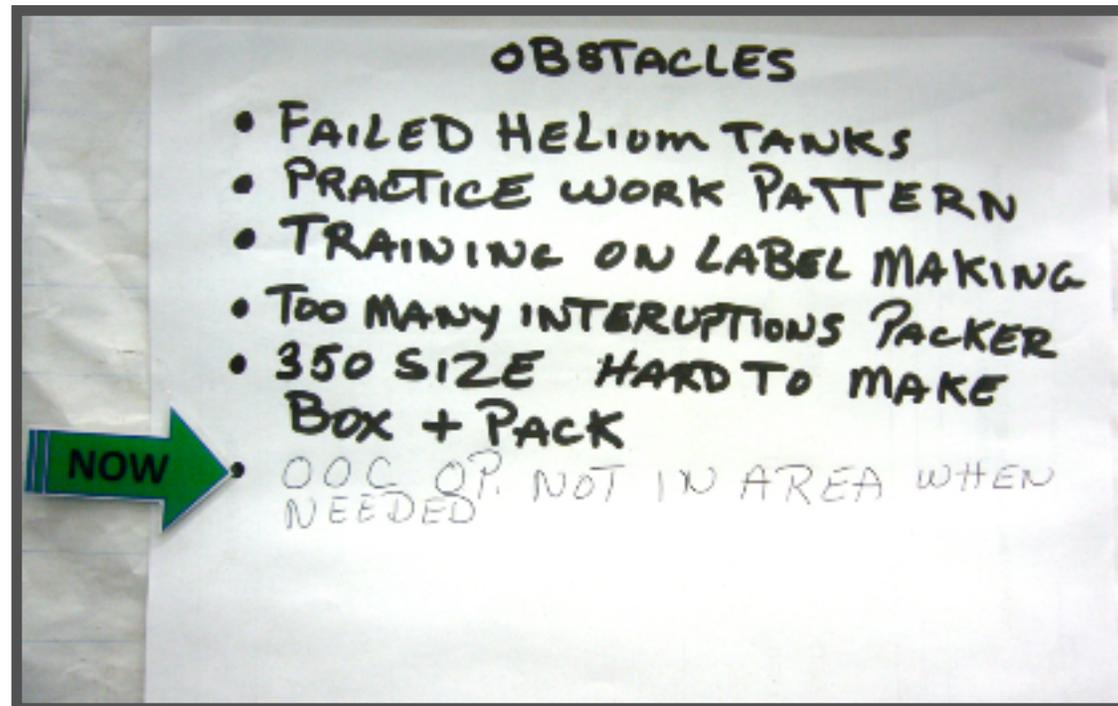
**Ingenuity, adaptiveness and innovation** happen *on the way*; as the learner works step-by-step toward the target condition & acts based on what is being learned from the experiments.



# HAVE THE LEARNER RECORD OBSTACLES IN THE OBSTACLES PARKING LOT

Remember, the learner uses this form only to *record* obstacles encountered on the way to the target condition

Always indicate  
the obstacle  
currently being  
addressed





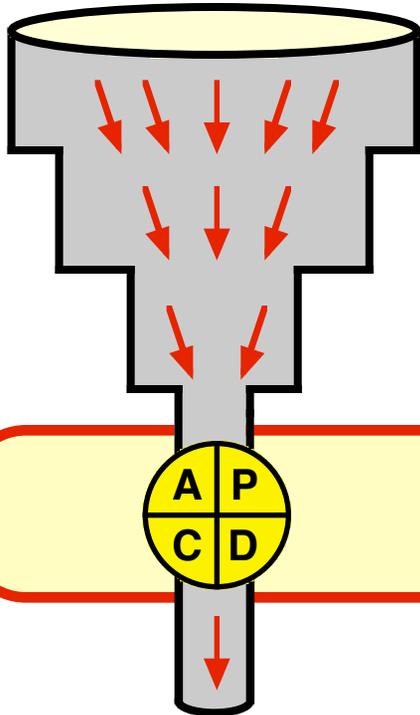
## COACHING PHRASES FOR QUESTION 3 *(Focus In)*



- ❑ It's a good idea to ask, “*What obstacles are now preventing you from reaching the target condition **by the target date?***” This focuses the dialog.
- ❑ The word *problem* implies poor performance. Use the word *obstacle* instead, which implies you are moving toward something and is more neutral.
- ❑ Use and teach the phrase, “*What is preventing the operators from being able to work in the desired pattern?*” This perspective keeps you focused on the work process.
- ❑ Novice learners often view obstacles as a reason to change course; to change the target condition. The coach should ask, “*Is that a reason to not pursue our target condition, or only an obstacle to it?*”

## SET UP THE NEXT PDCA EXPERIMENT

Plan the details of the next experiment



- 1) What is the target condition?
- 2) What is the actual condition now?  
*-- Flip card & reflect on the last step --*
- 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?

# KEY POINTS FOR QUESTION 4

## *(The Next Experiment)*

- ❑ Take the time to ensure the learner is setting up a good next experiment.



- ❑ Coach and learner must have identified the **current knowledge threshold** before the next step is determined. The current knowledge threshold defines what will be the next experiment.

The learner may not recognize when s/he has gone from knowledge to conjecture. That's a point where the coach can get the learner back "in the corridor" specified by the improvement kata. Don't speculate, get facts and data.

- ❑ Designing and conducting the next experiment toward the target condition is a great place to involve process operators and get their ideas.
- ❑ Ideally you're guiding the learner into making a chain of PDCA cycles, where the next step builds on what was learned in the last step.
- ❑ In many coaching cycles the next step is not yet a process change. Activities such as "planning the next step" or "further analysis" can be a next step. That's normal.

## **KEY POINTS FOR QUESTION 4**

### *(The Next Experiment)*

- ❑ Focusing on one obstacle and one PDCA at a time requires conscious attention. PDCAs don't have to be big, only big enough.

At the start, nearly everyone makes PDCA cycles too big, i.e., takes steps that are too big. This often overshoots the knowledge threshold and hampers learning. Guide the learner into PDCA cycles that are as small and as rapid as possible for the situation.

**Caution:** if your coaching cycles are not daily, the learner's steps may tend to get too big. The learner will naturally tend to introduce lots of changes before you return.

- ❑ Set up your experiments so that mistakes and unexpected results will not harm the customer process.
- ❑ **Once the next step (not a list of steps) is clear, the coaching cycle is reaching its end.** There is no need for long discussion beyond this point, because now it's time to try it.

## **KEY POINTS FOR QUESTION 4**

### *(The Next Experiment)*

- ❑ **First experiments often involve shifting work elements around, to find a work pattern that functions. Keep in mind that this is only moving existing ways of doing things around, rather than true improvement.**

**At some point the coach should advise the learner that just shifting work elements is no longer acceptable, and that it is time for true kaizen toward the target condition. This is where the going gets tougher and improvement gets real.**

- ❑ **It almost always takes more than one step to break through an obstacle, and often many more.**

# AS YOU DISCUSS THE NEXT STEP REFER TO THE PDCA CYCLES RECORD

Have the learner to describe his/her proposed next step and expectation on the **Next Left Side** of the PDCA Cycles Record before the coaching cycle.

The learner should point to his/her PDCA form when answering Question 4.



Either validate the proposed next step or help the learner fine-tune the proposed step. Have the learner adjust what was written before the coaching cycle ends.

PDCA CYCLES RECORD			
Date: 1-20-12 2 <sup>ND</sup> SHIFT		Process Metric: PALLET ON FLOOR	
Process: PACK			
Step	What do you expect?	Result	Observe closely
MATERIAL HANDLING: COMPLETE START FINISH UNDER TRUCK IN PIT		TRUCK COMPLETED TASK AT OR UNDER PIT	
TRUCK GOES TO PLACE PALLET ON FLOOR		TRUCK IS GO TO GUY W AREA	
<div style="border: 2px solid red; padding: 5px;">                     PREPARE TO BE ON TRUCK LOSS TIME                      LIST OOC ACTIVITIES                 </div>			

Coaching Cycle EXPERIMENT

© Improvement Kata Handbook Appendix 11

LAST

NEXT

PDCA CYCLES RECORD				
Date:			Process Metric	
Process:				
Step	What do you expect?	Result	Observe closely	What We Learned
Last Experiment				
<div style="border: 2px solid red; padding: 5px;">                     Next Experiment                      Planning Section                 </div>				

Coaching Cycle EXPERIMENT

## “WHAT DO YOU EXPECT?”

Before the next PDCA experiment is conducted, be sure to explore what the learner expects from the experiment.



- ❑ This tells you if the learner is thinking systematically and scientifically, or only stabbing at the obstacle.
- ❑ The question “*What do you expect?*” is the one place you do want the learner to go beyond the threshold of knowledge and predict. Here it’s OK to say, “*I think this will happen...*”

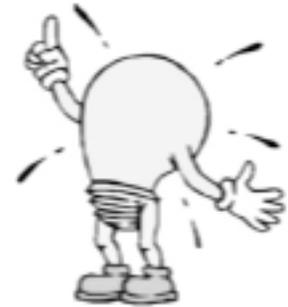
# THE EXPECTATION DEPENDS ON THE TYPE OF EXPERIMENT

Type of experiment	What the learner can expect
<p><b>Go and See</b></p> <p>Observation and data collection, without changing anything, to learn more about a process or situation.</p>	<p>The learner should expect that they will get information about how something is currently functioning.</p>
<p><b>Exploratory Experiment</b></p> <p>Introducing a change in a process to see, via direct observation, how the process reacts.</p>	<p>The learner should expect to learn more than they can from direct observation alone.</p>
<p><b>Testing a Hypothesis</b></p> <p>Introducing a change, ideally in only a single factor, with a prediction of what will happen.</p>	<p>The learner must <b>predict</b> the outcome of the change. This is the hypothesis to be tested.</p>

# Testing A Hypothesis

## TESTING A HYPOTHESIS

- ❑ A hypothesis is a prediction of the outcome of an experiment.
- ❑ In order to be scientific the learner must state in advance what s/he expects from the next step. This is what you will be testing against, and it is this comparison that leads to surprise and learning.
- ❑ You're not looking for a big-leap expectation. You're looking for a good experiment.





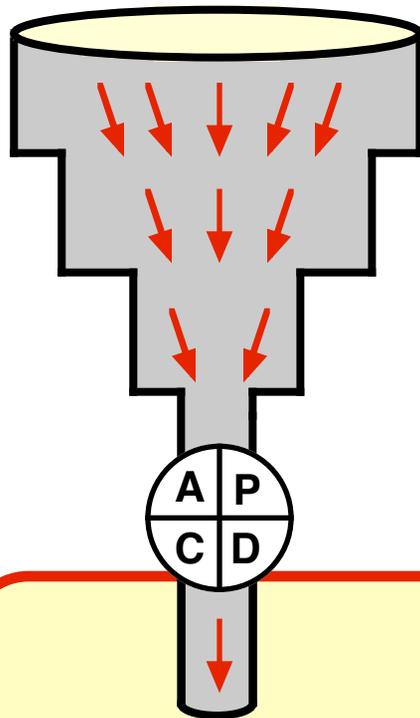
## COACHING PHRASES FOR QUESTION 4

*(The Next Experiment)*



- ❑ Don't say, *"Let's try it and see if it works,"* because that makes it a matter of success versus failure. Say, *"Let's try it and see what we learn."*
  
- ❑ Don't overuse the question, *"Why?"* When a coach asks a learner *"Why"* it can seem confrontational. It's often better to say *"Tell me more about..."*.
  
- ❑ Probing questions for the learner's next step:
  - *"Having learned that, what is your next step?"*
  - *"Now that you've learned that, what do we need to do next?"*
  - *"What leads you to taking that step?"*
  - *"What do the data & your observations lead you to believe?"*
  
- ❑ Probing questions for what the learner expects:
  - *"Tell me more about what you expect from the next step."*
  - *"How should we measure that?"*

## PREPARE FOR THE NEXT COACHING CYCLE



- 1) What is the target condition?
- 2) What is the actual condition now?  
*-- Flip card & reflect on the last step --*
- 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?

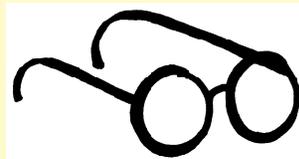
## **KEY POINTS FOR QUESTION 5**

### ***(Preparing for the Next Coaching Cycle)***

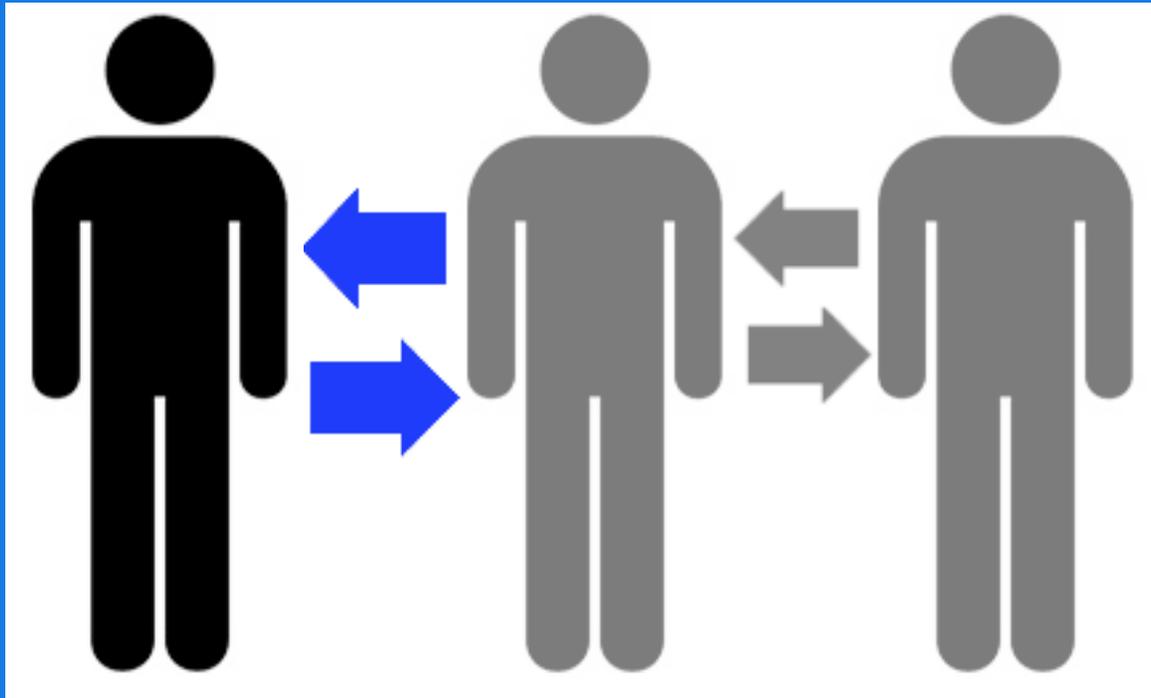
- ❑ Question 5 can be tricky. New coaches often incorrectly think they are asking, *“When will you have it done?”* But Question 5 is more about scheduling the next coaching cycle to see *“What are we learning?”*

**Caution!** Even when the coach asks Question 5 with the correct intention, the learner may still think s/he is being asked, *“When will you have it done?”*

- ❑ Treating ideas as hypotheses to be tested helps teams move past ego.
- ❑ Experiments should be done as cheaply and as quickly as possible. The coach should ask, *“Can we take this step right now?”*
- ❑ Since you don’t actually know what the result of the next step will be, both the coach and the learner need to go and see (check) in the next coaching cycle.



## 2nd Coach Instructions *Coaching the Coach*



# THE IMPORTANT ROLE OF THE SECOND COACH

The apparent simplicity of the Five Questions makes coaching seem easier to learn than it is. We underestimate what's involved in coaching and what it takes to learn it. It takes considerable practice and regular reflection to master the intent and pattern of the Coaching Kata.

For the coach, coaching cycles are not only a means of teaching the Improvement Kata but also a PDCA cycle whereby the coach checks and reflects on the result of his/her last coaching. If the learner isn't learning the Improvement Kata or a team is not achieving its target conditions the problem is usually in the coaching.

In other words, the coach is *practicing* the Coaching Kata and for this needs someone with coaching experience to periodically observe him conducting coaching cycles and provide feedback (to coach the coach). That's the role of the 2nd coach.

The periodic presence of an experienced second coach is essential if you want to develop managers with effective coaching skills.

# 2nd Coach Task

## (A) OBSERVING COACHING CYCLES

The 2nd Coach helps the Coach practice and learn effective Improvement-Kata coaching skills.

One way this is done is by periodically observing coaching cycles in action and providing immediate feedback to the coach.

The 2nd coach doesn't need to watch every one of the coach's coaching cycles. Determine the frequency based on the coach's current capability and need.

COACHING CYCLE OBSERVATION FORM		For the 2nd coach observing the coach
Process:	Challenge:	Date:
Coach:	Theme:	Start Time:
Coach	Time	QUESTION
		Q1 What is the target condition?
		Q2 What is the actual condition now?
		REFLECT Last step? What happened? What learned?
		Q3 What are the obstacles? Which 1 are you addressing?
		Q4 What is your next step? What do you expect?
		Q5 When can we go and see what we have learned?
What is the knowledge threshold?		Key point(s) for this coach to practice next:

The Coaching Cycle Observation Form can be used by the 2nd Coach for this purpose. (See Appendix for the form)

To help evaluate the coaching cycles s/he is observing the 2nd Coach should refer to the individual points in the coaching-cycle instructions in this chapter.

# WATCH FOR COMMON COACH ASKING MISTAKES

Type of asking mistake	Description	Feedback/Countermeasure
1. <b>Closed Question</b>	Can be answered simply <i>yes</i> or <i>no</i> .	Start question with "what" or "how."
2. <b>Solution-Oriented Question</b>	Advice disguised as a question.	Broaden the question.
3. <b>Seeking the One True Question</b>	Trying to ask the perfect question. Trying to achieve too much at once.	You only need to help the learner to the next step (next PDCA).
4. <b>Rambling Question</b>	Asking the same question repeatedly in different ways.	Be silent for a moment or two while you formulate your question.
5. <b>Interpretive Question</b>	Too much interpretation of what the learner said.	Incorporate the learner's words in your question.
6. <b>Rhetorical Question</b>	Statement of coach's opinion posed in question form.	Change your viewpoint.
7. <b>Leading Question</b>	Pointing the learner to an option the coach has in mind,	Add options to the discussion.
8. <b>Failure to Interrupt</b>	Being too timid to interrupt and refocus the dialog.	Interject with a question that brings the coaching cycle back to focus.
9. <b>Interrupting</b>	Commenting while the learner is talking.	Count 2 seconds after learner stops speaking.
10. <b>Confrontational "Why" Question</b>	Seeming to challenge the learner's motive and actions.	Replace "why" with "what." or "tell me more about..."

Excerpted from *Coaching Questions: A Coach's Guide to Powerful Asking Skills*, by Tony Stoltzfus, Pegasus Creative Arts, 2008

# 2nd Coach Task

## (B) TRACKING THE COACH'S PROGRESS

In addition to observing coaching cycles the 2nd Coach also gathers and charts data over time, to help spot variables that the coach needs to work on.

The 2nd Coach is looking for cause-and-effect between the Coach's actions and the Learner's skill growth in applying the Improvement Kata pattern. For example, the 2nd coach will refer to the Coach's record of coaching cycles.

COACHING CYCLE PLAN & TRACKING		Course #				
Plan		Draw a dot for actual start and end times				
Notes (start and end time)	Time	Monday	Tuesday	Wednesday	Thursday	Friday
	7:00					
	8:00					
	9:00					
	10:00					
	11:00					
	12:00					
	13:00					
	14:00					
	15:00					
	16:00					
	17:00					
	18:00					

Items that the 2nd Coach may measure and track over time include:

- 1 **Progress toward the challenge.** Are the individual process-level target conditions related to a higher-level challenge (lead time, productivity, etc.), and is progress being made?
- 2 **Progress toward process target conditions.** Relevant metric(s) can be taken right from each team's target condition.
- 3 **Learner's skill development.** How well are the coaches doing in developing improvement kata skill in their learners? Use the Dreyfus Levels to assess skill level.
- 4 **Frequency and duration of coaching cycles.** For each coach, track the start and stop times of their coaching cycles.

# **--- Conclusion ---**

## **WITH THE RIGHT ATTITUDE YOU CAN BE A GOOD COACH**

**Becoming an effective Improvement Kata coach takes a little more than internalizing the *Improvement Kata* and *Coaching Kata* routines.**

**It's easy for a coach to feel important, even superior, because of their experience and knowledge.**

**As a coach, be sure to check: How do you feel when you conduct coaching cycles with your learners? Do you feel like you're in a special position of honor and influence -- at the top or over others in importance or ability -- or do you feel like you're part of a larger team, working together to meet a challenge?**

**Ideally you coach with the realization that you too are learning. You're not at the top of anything, but on a path like everyone else.**

**And it's a great path to be on!**

# KEEP PRACTICING YOUR COACHING AND TEACHING SKILLS!



Every manager is a teacher, developing the next generation. By practicing the pattern of the Coaching Kata you're developing management habits and management mindset to power the future.

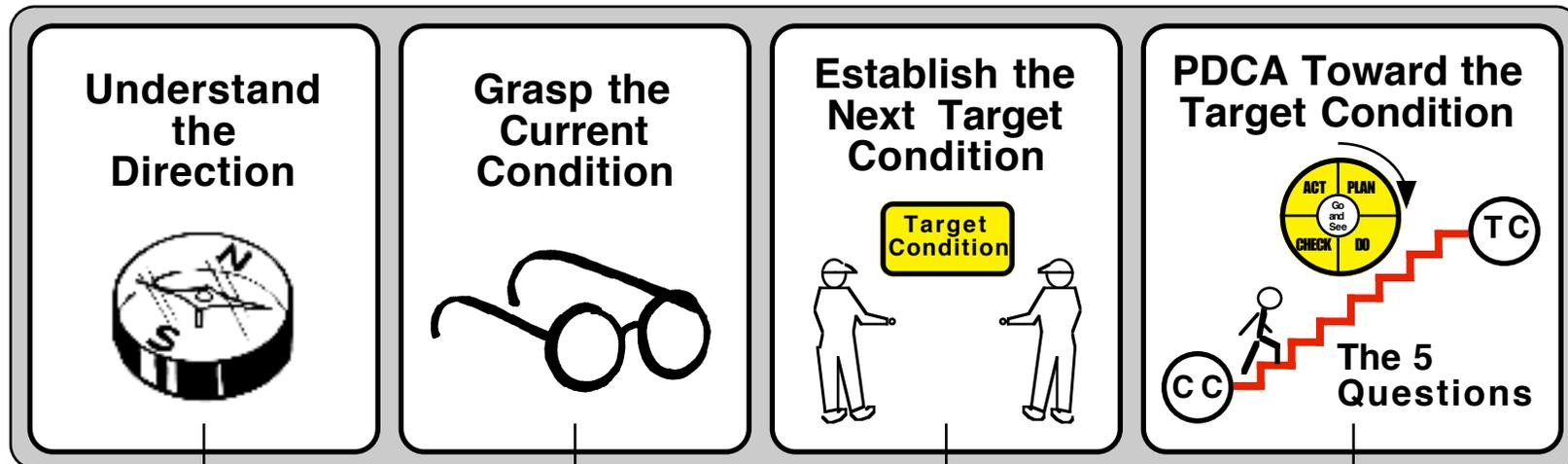
# APPENDIX - KEY FORMS

- 1) **The Improvement Kata**
- 2) **The Roles**
- 3) **Process Analysis Steps Table**
- 4) **Worksheet for Timing Cycles**
- 5) **Information in a Target Condition**
- 6) **Dreyfus Levels Table** (for measuring skill level)

## **Coaching Cycle Forms:**

- Who Uses What Forms**
- Target Condition Planning Form** (manufacturing)
- Target Condition Planning Form** (general)
- Target Condition Planning Form** (other)
- Target Condition Form**
- Description of Work Steps & Sequence**
- Obstacles Parking Lot**
- PDCA Cycles Record**
- 5 Question Card** (front)
- 5 Question Card** (back)
- Coaching Cycle Plan / Tracking** (coach)
- Coaching Cycle Observation Form** (2nd coach)

# THE IMPROVEMENT KATA



What challenge are we striving to meet?

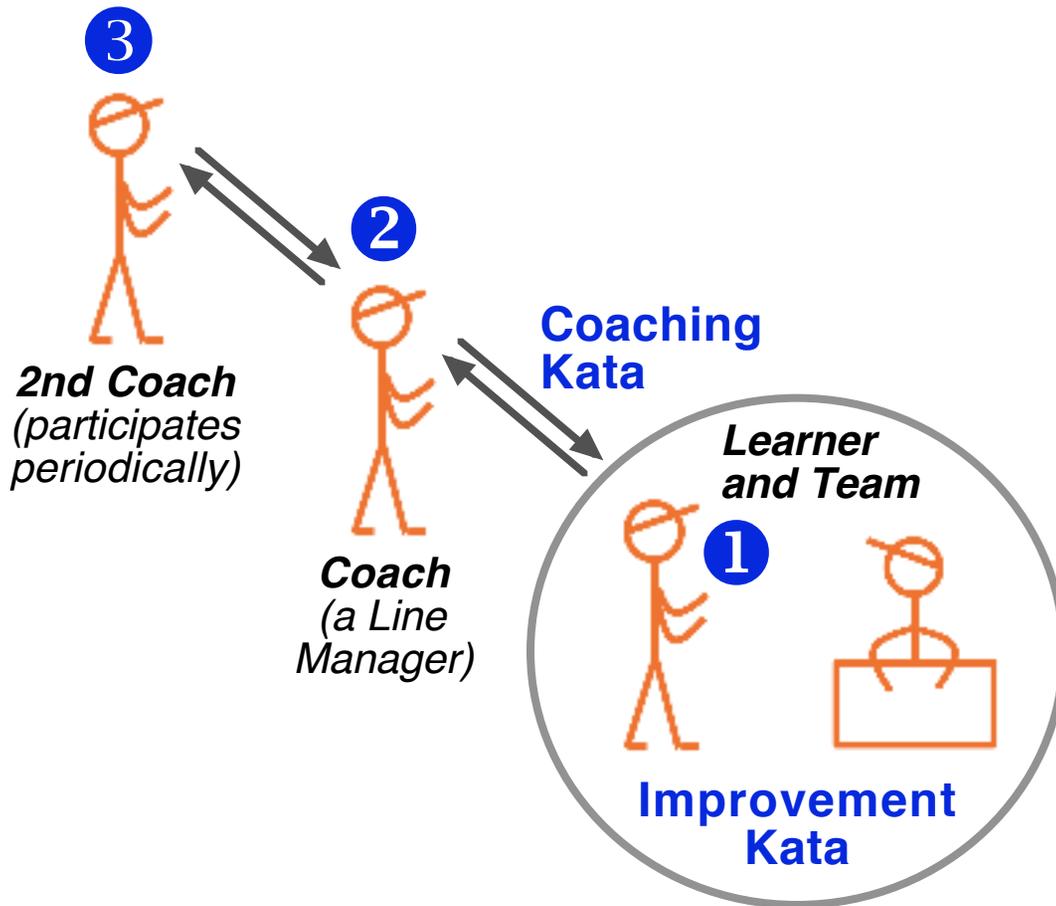
What does our future-state value stream map look like?

What is the current pattern of working?

What pattern do we want to have next?

The step-by-step discovery process between where we are and where we want to be next.

# THE ROLES



**Learner and Team (*The Process Owners*):**  
Apply the 4 stages of the Improvement Kata, including working toward the target condition. Learner conducts experiments with PDCA and develops solutions to obstacles, in dialog with the process operators and the coach.

**Coach / Line Manager (*The Teacher*):**  
Conducts coaching cycles daily using the 5 questions. Ensures the learner is working and practicing scientifically and experimentally according to the improvement kata pattern. The coach's job is to develop the learner by guiding the learner on Improvement Kata procedure, not to improve the process.

**2nd Coach:**  
Coaches the coach. Periodically observes coaching cycles and tracks progress of both coach and team. Helps the manager develop his or her coaching skills. Ensures that the team's target condition ties in to a larger challenge or future-state value stream design. Ensures that the environment (time, organizational structure, etc.) is supportive.

# STEPS OF THE TK PROCESS ANALYSIS

Step  
①

## Customer Demand and Planned Cycle Time

- Customer takt
- Planned cycle time
- Number of shifts currently running

Step  
②

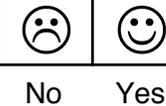
## Characteristics of the Current Process

- 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 the current operating pattern

Step  
③

## Equipment Capacity

- Can the automatic equipment support the planned cycle time?
- How close are we to our current machine capacity limit?
- What is the fastest Pc/t the equipment can currently support?



Step  
④

## Necessary Number of Operators (if the process were stable)

- Calculate number of operators

Step  
⑤

## Outcome Metrics

- Graph (a) output per shift, (b) overtime and any other desired outcome metrics

# WORKSHEET FOR TIMING CYCLES

Unit of measure	
--------------------	--

	Times	Notes
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		

# INFORMATION IN A TARGET CONDITION

Used for  
improving

## **Achieve-By Date: (required)**

### **(1) DESCRIBE PROCESS STEPS, SEQUENCE & TIMES**

A pattern you can draw or chart (see example)

### **(2) OTHER PROCESS CHARACTERISTICS**

Examples:

- Number of operators
- Number of shifts
- Where 1x1 flow is desired / standard WIP
- Production sequence and lot sizes

### **(3) PROCESS METRIC(S) (*Measurement in the moment*)**

For checking process condition in real time

Examples:

- Time for each step, piece, pitch, etc.
- Degree of time fluctuation from cycle to cycle

Used to  
check  
outcomes

### **(4) OUTCOME METRIC(S)**

To check outcome of improvement efforts

Examples:

- Number of pieces per hour or shift
- Overtime
- Productivity

# DREYFUS LEVELS TABLE

(for measuring skill level)

Able to Coach

Stage	Characteristics	Standard of Work	Autonomy
5 <b>Expert</b>	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
4 <b>Proficient</b>	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
3 <b>Competent</b>	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
2 <b>Advanced Beginner</b>	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
1 <b>Novice</b>	Adherence to rules or plans Little situational perception No discretionary judgement	Unlikely to be satisfactory unless closely supervised	Needs close supervision or instruction

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

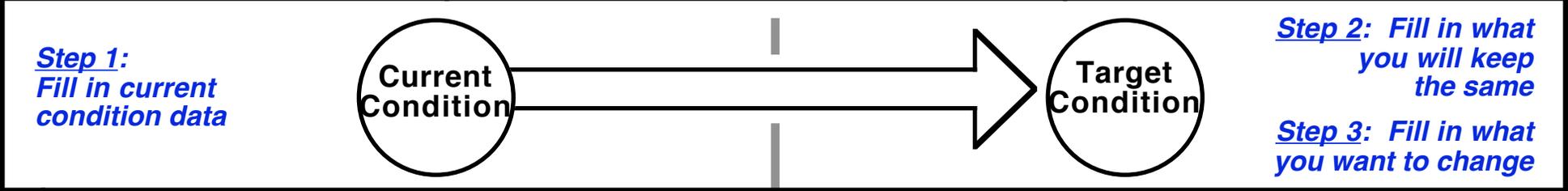
# Coaching Cycle Forms





<b>TARGET CONDITION PLANNING FORM</b> (Manufacturing)	Process Metric	Outcome Metric
---	----------------	----------------

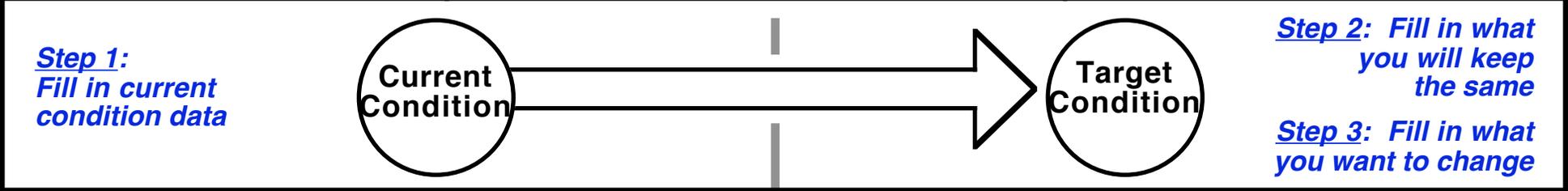
<b>Process</b>	<b>Challenge</b>	<b>Achieve-by Date</b>
----------------	------------------	------------------------



<b>1</b>	Takt time	
	Pc/t	
	# of Shifts	
<b>2</b>	Process steps, sequence, times	
	Batch size. Where WIP.	
	# of Operators	
	% exit cycle fluctuation	
	Other observations about the current pattern	
<b>3</b>	Equipment capacity	
<b>4</b>	# of Operators (calculated)	
<b>5</b>	Actual output / shift	
	Overtime	

<b>TARGET CONDITION PLANNING FORM</b> (General)	Process Metric	Outcome Metric
---	----------------	----------------

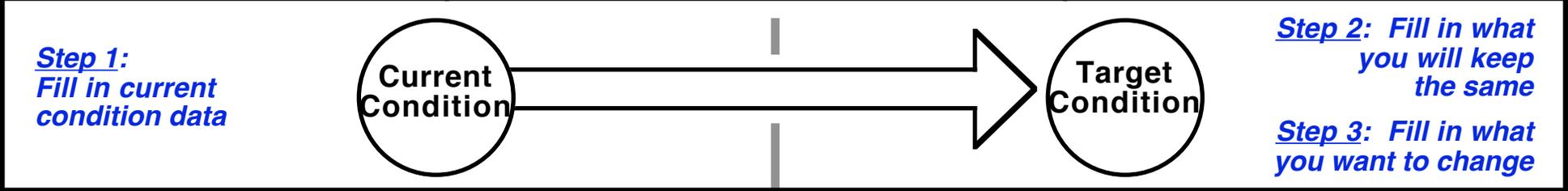
<b>Process</b>	<b>Challenge</b>	<b>Achieve-by Date</b>
----------------	------------------	------------------------



Task unit and time to complete	
Current operating patterns	
Equipment capacity	
Number of people required	
Performance data	

<b>TARGET CONDITION PLANNING FORM</b> (Other)	Process Metric	Outcome Metric
---	----------------	----------------

<b>Process</b>	<b>Challenge</b>	<b>Achieve-by Date</b>
----------------	------------------	------------------------

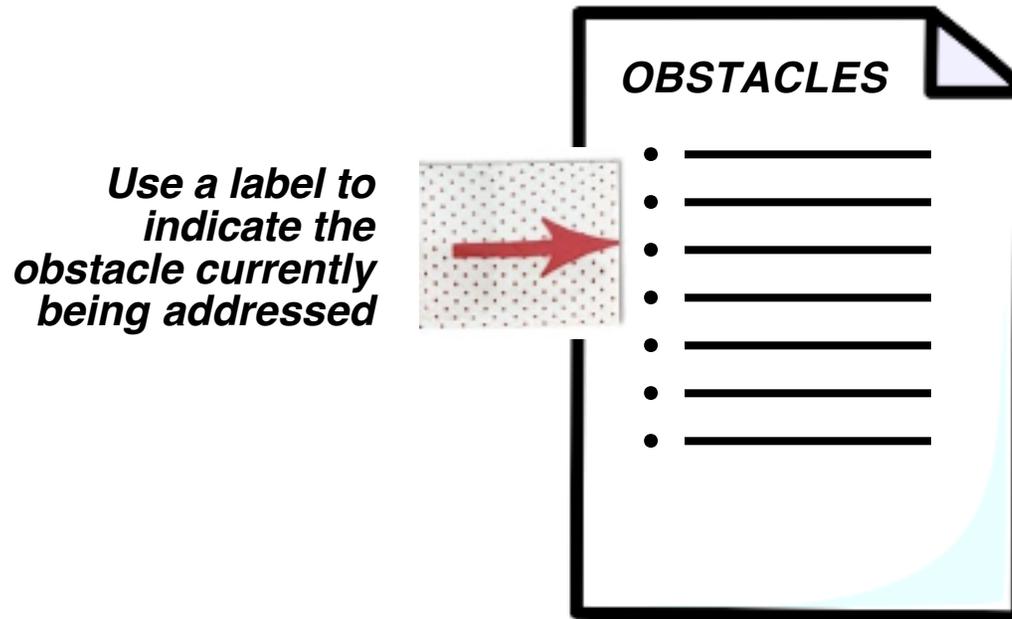


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<b>TARGET CONDITION FORM</b>		<b>Achieve-by Date</b>
<b>Process</b>	<b>Challenge</b>	
<b>1</b>	<b>DESCRIPTION OF PROCESS STEPS, SEQUENCE &amp; TIMES</b>	
<b>2</b>	<b>OTHER PROCESS CHARACTERISTICS</b>	
<b>3</b>	<b>PROCESS METRIC(S)</b>	
<b>4</b>	<b>OUTCOME METRIC(S)</b>	



# OBSTACLES PARKING LOT



**This is simply a place to record obstacles,  
which you may or may not address**

# PDCA CYCLES RECORD (Each row = one experiment)

**Date:**

**Process  
Metric**

**Process:**

<u>Step</u>	What do you expect?	<b>Coaching Cycle</b>	<b>EXPERIMENT</b>	<u>Result</u>	Observe closely	<u>What We Learned</u>		

## 5 QUESTION CARD (front)

**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

## 5 QUESTION CARD (back)

### 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*

# COACHING CYCLE PLAN & TRACKING

Coach:

Dates:

Plan Note learner and start & end time	Time	Draw a dot for actual start and end times				
		Monday	Tuesday	Wednesday	Thursday	Friday
	7:00					
	8:00					
	9:00					
	10:00					
	11:00					
	12:00					
	13:00					
	14:00					
	15:00					
	16:00					
	17:00					
	18:00					

# COACHING CYCLE OBSERVATION FORM

For the 2nd coach observing the coach

**Process:**

**Challenge:**

**Date:**

**Coach:**

**Theme:**

**Start Time:**

Coach	Time QUESTION	Learner
	Q1 <i>What is the target condition?</i>	
	Q2 <i>What is the actual condition now?</i>	
	REFLECT <i>Last step? What happened? What learned?</i>	
	Q3 <i>What are the obstacles? Which 1 are you addressing?</i>	
	Q4 <i>What is your next step? What do you expect?</i>	
	Q5 <i>When can we go and see what we have learned?</i>	

What is the knowledge threshold?

Key point(s) for this coach to practice next: