

Improvement Kata Handbook

By Mike Rother



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The Improvement Kata Pattern

Guidelines for Practicing

Roles and Structure for Daily Practice

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Appendix: *Useful Forms*



ABOUT THIS PROTOTYPE VERSION OF THE IMPROVEMENT KATA HANDBOOK

While we develop and test the contents of the Improvement Kata Handbook, it's beta version will be available online. **Use the Handbook to help you apply, teach and internalize the scientific patterns of the Improvement Kata and the Coaching Kata, through structured practice routines.**

This beta version is provided for sharing things we're learning... to accelerate our collective learning about deliberate practice of structured routines as a means of developing the skills and habits of scientific thinking in any organization.

The beta version is updated periodically.
Check the version number on the cover.



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PREFACE

How Do You Manage for Improvement, Adaptiveness and Innovation?



- How can we best prepare an organization for the future when we don't know what the future will bring?**
- How can we get more comfortable with new challenges and successfully navigate the grey zone between here and there?**
- How do you develop the skill of everyone in the organization to establish strategically-aligned goals and work toward them scientifically?**
- How do you sustain this?**

This Handbook provides an approach for answering these questions. You can use the approach presented here to develop a 21st Century management system, which makes your organization more capable of meeting challenges.

DELIBERATELY DEVELOPING A TEAM'S OR AN ORGANIZATION'S SKILL AND CULTURE

**This Handbook is about a scientific pattern
+ practice routines to operationalize that pattern**

Consider the following:

- ▶ **The people in every organization acquire unconscious habits of thinking and acting. Those habits constitute the basis of 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 pattern of thought and action do we want to be teaching?***
- > What routines do we practice and reinforce every day in our organization to make that pattern a reality?***

Practicing the routines in this Handbook develops systematic and scientific habits for improving, adapting and innovating.

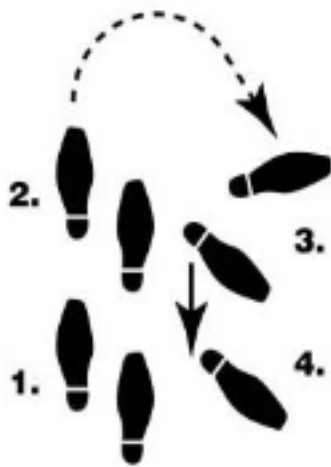
“Pattern”
(a dance)



“Practice Routine”
(dance steps)

This Handbook is about developing new skills and habits -- just as athletes and musicians do -- that make you and your team more effective at achieving goals and meeting challenges. Think of this as a handbook of dance steps for beginners to practice.

There is one overall **pattern (the dance, or skill, you're trying to learn and teach)**, called the “Improvement Kata.” It's a systematic, scientific way of thinking and acting that can be applied to any goal. The objective is to have everyone in your organization be able to dance this pattern smoothly and confidently, in your organization's own style.



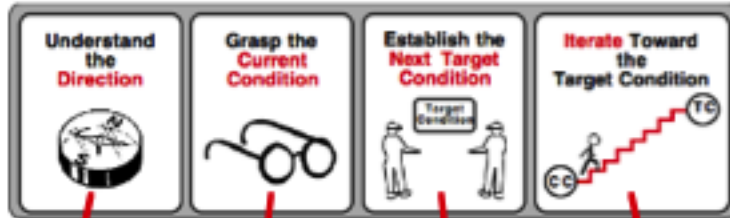
However, just knowing the pattern of the dance is not enough for learning how to dance. This Handbook describes structured **practice routines (the dance steps)** for beginners to start with so they can learn the Improvement Kata pattern.

This Handbook also describes a practice routine for teaching the Improvement Kata pattern. It's called the **“Coaching Kata.”**

THE IMPROVEMENT KATA PATTERN AND ITS PRACTICE ROUTINES

PART I, II, III of this Handbook

The IMPROVEMENT KATA PATTERN (the scientific approach)

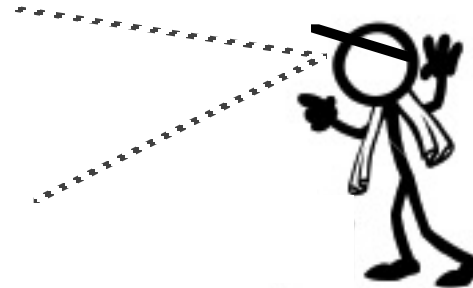


These are individual **PRACTICE ROUTINES** inside each step of the Improvement Kata, to develop the skill of the scientific pattern of thinking and acting

(= HANDBOOK PART II)

This is the overall pattern of thinking and acting we want to learn. It's a scientific, universal meta skill that can be applied in all walks of life.

(Covered in HANDBOOK PART I)

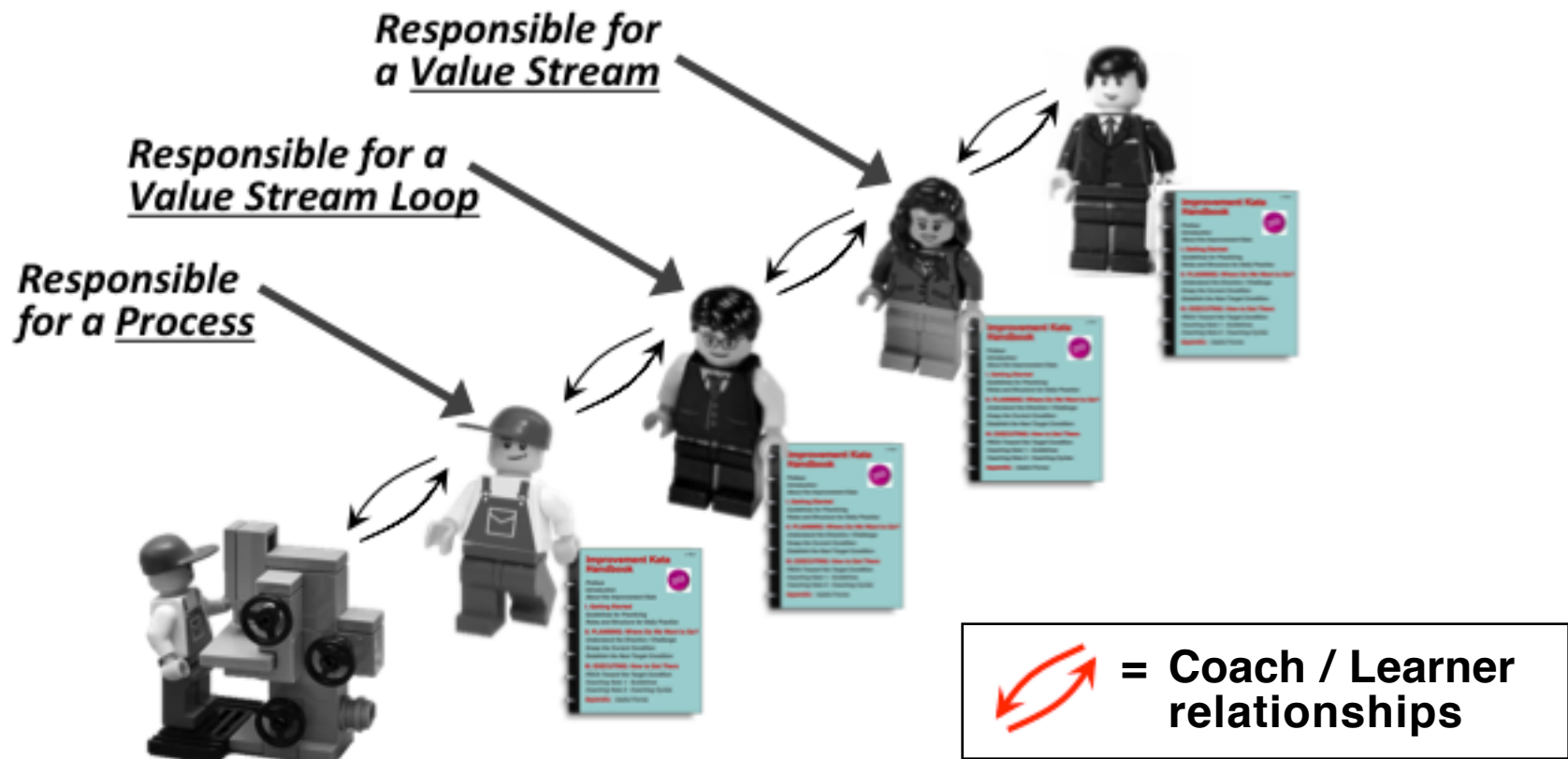


This is the **COACHING KATA**, a practice routine for learning how to teach specifically the Improvement Kata pattern

(= HANDBOOK PART III)

THE HANDBOOK'S INSTRUCTIONS APPLY AT EVERY LEVEL IN AN ORGANIZATION

Every Coach and Learner uses the same Handbook because everyone in the organization can use the same method of working. It's a *meta skill*. Each level practices the same routines, even though the content of what's being worked on differs from area to area and level to level.



WHAT THIS HANDBOOK SHOWS YOU

How to apply, practice and teach the Improvement Kata pattern so that it becomes a habit of thinking and acting

- ▶ **How to use and operationalize a scientific pattern that is common to most modern management concepts.**
- ▶ **How to use the Improvement Kata practice routines on real processes to improve, adapt and innovate, by walking you through them step-by-step.**
- ▶ **How to operate a daily Coach <--> Learner teaching routine that integrates practice of the Improvement Kata into daily work and, over time, into people's mindset and a team or organization's culture.**
- ▶ **How to get more comfortable with the uncertain path that's inherent in striving for challenging goals.**
- ▶ **How to align team efforts and make any team successful in achieving goals and meeting challenges.**
- ▶ **How to sustain improvement, adaptiveness and innovation by integrating it into daily management.**



WHO THIS HANDBOOK IS FOR



The Improvement Kata Handbook is for anyone who wants to learn and master achieving effective, sustainable continuous improvement, adaptiveness and innovation in an integrated, systematic, scientific way.

One user is the **Learner**, i.e., anyone who wants to apply, practice and become proficient in the pattern of the Improvement Kata.

The other user is the **Coach**, i.e., anyone who manages people. Once you've internalized the Improvement Kata pattern yourself, this book helps you teach the pattern to others. The goal is to embed the Improvement Kata into the daily work of managers, who are the day-to-day teachers in any organization.

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Appendix: Useful Forms



The 4 Chapters on how to practice the **IMPROVEMENT KATA** speak to anyone who wants to be a Learner of the Improvement Kata pattern.

The 2 Chapters about the **COACHING KATA** speak to the Coach who's teaching the Improvement Kata pattern to a Learner.

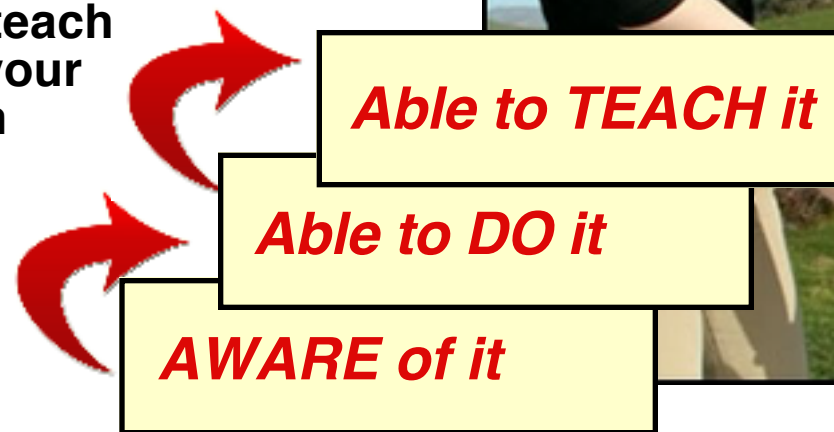
TWO PURPOSES FOR THIS HANDBOOK

1) *An Application Guide:*

To be a reference for how to apply the pattern of the Improvement Kata.

2) *A Practice Guide:*

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



Mike Rother

My goal with the Improvement Kata Handbook is to evolve and codify the Improvement Kata and Coaching Kata practice routines to the point that they can be used by anyone; to show that improvement, adaptation and innovation are a skill that can be practiced and taught in any organization.

Contributors

I'm grateful to my colleagues Bill Costantino, Gerd Aulinger and Beth Carrington, who are fellow experimenters in working to practice and evolve the routines in this Handbook. Many thanks also to the following persons who have contributed to the Handbook.

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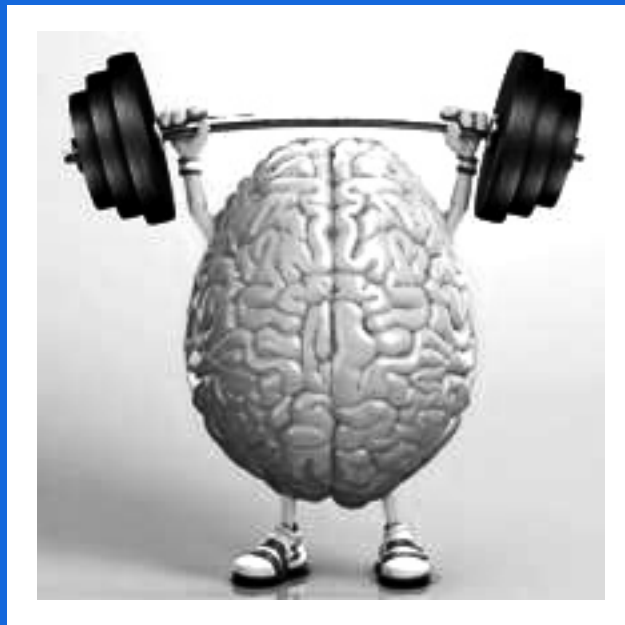
ITALY

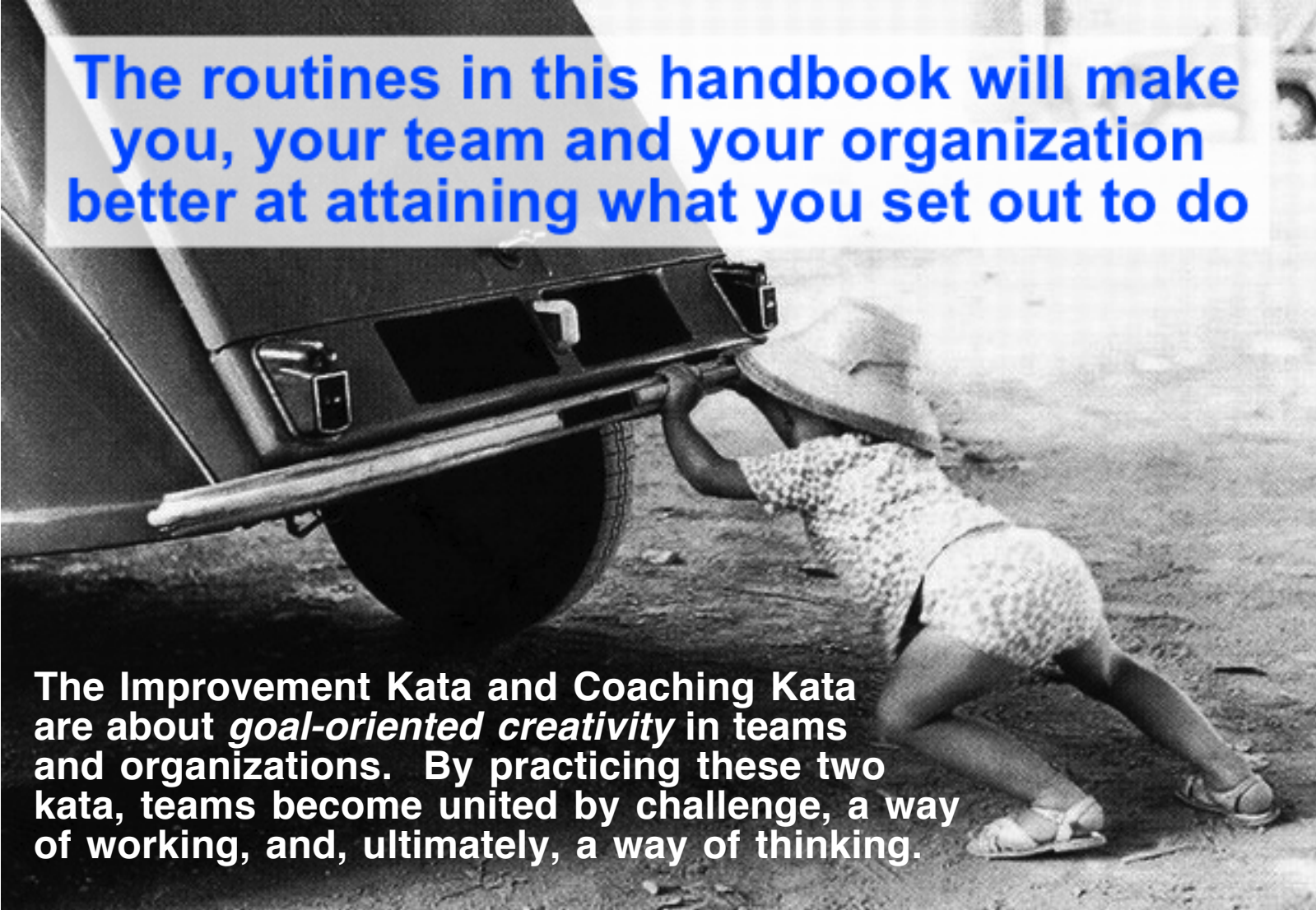
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INTRODUCTION





The routines in this handbook will make you, your team and your organization better at attaining what you set out to do

The Improvement Kata and Coaching Kata are about *goal-oriented creativity* in teams and organizations. By practicing these two kata, teams become united by challenge, a way of working, and, ultimately, a way of thinking.

**This Handbook is about a way of operating...
...to develop a way of *thinking***

CONDITIONS AROUND US ARE COMPLEX & DYNAMIC (Interconnected and Unpredictable)

The ability to meet challenges and improve -- to learn, adapt, grow and evolve -- is a critical task in a complex, changeable world.

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



We can train ourselves to execute successfully in this environment.

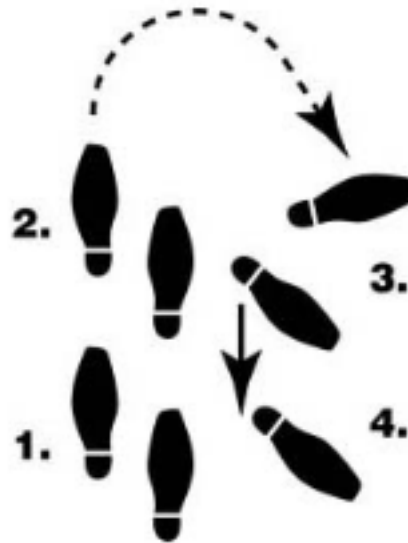
There's a kata for that!

An organization should be both consistent enough to deliver what it promises, and adaptive enough to keep moving forward. Sooner or later things change, so part of the strategy for an organization that wishes to survive long-term is to build capability for continuously improving and evolving.

However, since it's impossible to know what products and services will be important in the future, the capabilities you teach should apply to any situation. This Handbook is about exactly this kind of meta capability, and how to build it in your organization.

WHAT IS A KATA? IT'S A PRACTICE ROUTINE!

It's how you start. A kata is a structured routine you practice deliberately as a beginner*, so its pattern becomes a new habit.



Through practicing, the pattern of a kata becomes second nature; done with little conscious attention. The goal is not the kata itself, which gets used less and less as you become more and more proficient, but the habits of thinking & acting that practicing the kata leaves behind.

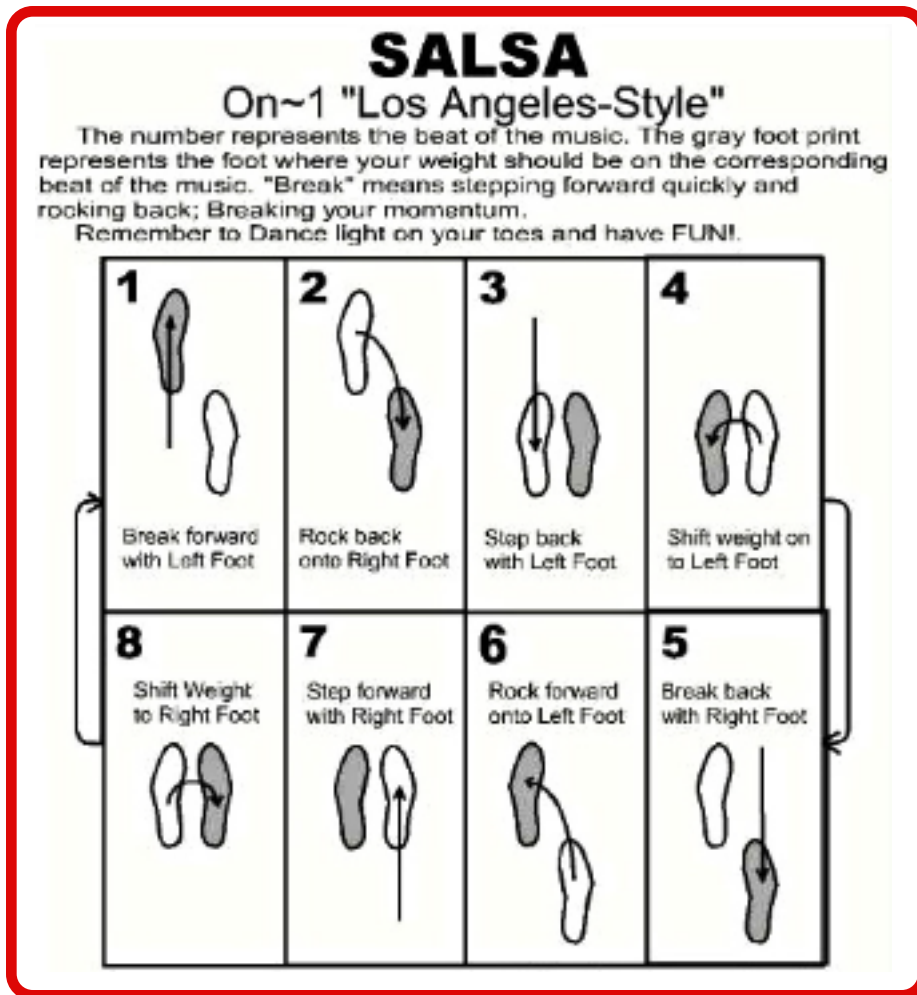
An example is practicing to learn to drive a car. Once you can drive you don't think much anymore about how to use the car's controls and instead can focus your attention on the situational aspects of navigating the road.



*Whenever you start learning a new skill you're a beginner

Why does a kata matter? It's a way of transferring skills and developing mindset. Kata help translate concepts into practical reality.

THIS IS AN EXAMPLE OF A KATA



It's a structured practice routine -- an aid -- for beginning to learn a targeted new skill.

At the start of your practice you follow the kata exactly. As your skill develops you don't need the kata so much anymore.

The goal is the skill, not the kata.

Whenever you want to train a beginner, or want to refresh some basics, you go back to the kata.

Someone who has developed proficiency with the target skill no longer uses the kata aid so frequently and rigidly. But you first have to get to that skill level, usually by practicing deliberately.

WHAT PATTERN (KATA) SHOULD YOU TEACH & PRACTICE IN YOUR TEAM OR ORGANIZATION?



--> **It should be practiced in normal daily work throughout the organization.**

To lead to the development of new skills, mindset and culture the pattern should be an integral part of how work is normally done, not separate.

--> **It should be suitable for any goal or problem (a *Meta Skill*).**

Since we don't know what the future will bring, the pattern we practice should be content-neutral; i.e., applicable in any situation. The form that our behavior and thinking should take is prescribed, but the content is not.

--> **It should be based on the scientific way of working.**

Since human perception is biased, the pattern should rely on facts and data, not our impressions.

--> **It should include detailed practice routines for beginners.**

Concepts or coarse steps alone don't change mindset and behavior.

THE **IMPROVEMENT KATA** FITS THESE REQUIREMENTS PERFECTLY

DEFINITION

The IMPROVEMENT KATA is a four-step pattern that models a scientific way of thinking and acting so that, with practice, anyone can learn it.

The Improvement Kata is a universal, repeatable pattern for improving, adapting and innovating -- for achieving challenging objectives in complex situations -- by working systematically and scientifically. It uses systematic, scientific experimentation to strive for successive target conditions on the way to a longer-term challenge.

The Improvement Kata models the human creative process; i.e., what a person or team that is being creative does. It's a framework of thinking and acting that allows teams to face evolution and change with a positive sense of *we can do it*.

The purpose of practicing the Improvement Kata pattern is to make scientific thinking and working habitual. This helps teams and organizations be more effective because it allows them to direct their conscious attention and ingenuity to the situational details that require deliberate thought, yet to still operate scientifically.



WHAT IS SCIENTIFIC THINKING?



Scientific thinking is the intentional coordination of theory and evidence, whereby we encounter new information, interpret it and, if warranted, revise our understanding accordingly. This pattern is in contrast to relying on already-held beliefs to explain causality. Scientific thinking gives us the ability to look beyond our preconceptions and see the world and ourselves in a truer light.

What's important about scientific thinking is not just whether we decide to revise beliefs based on new information, but that practicing it helps us reshape *how* we think... moving away from relying on an artificial sense of certainty and linear/mechanistic mental models. Happily, humans are equipped to think about how they think, which is called "metacognition," and to change how they think through personal experience (practice)!

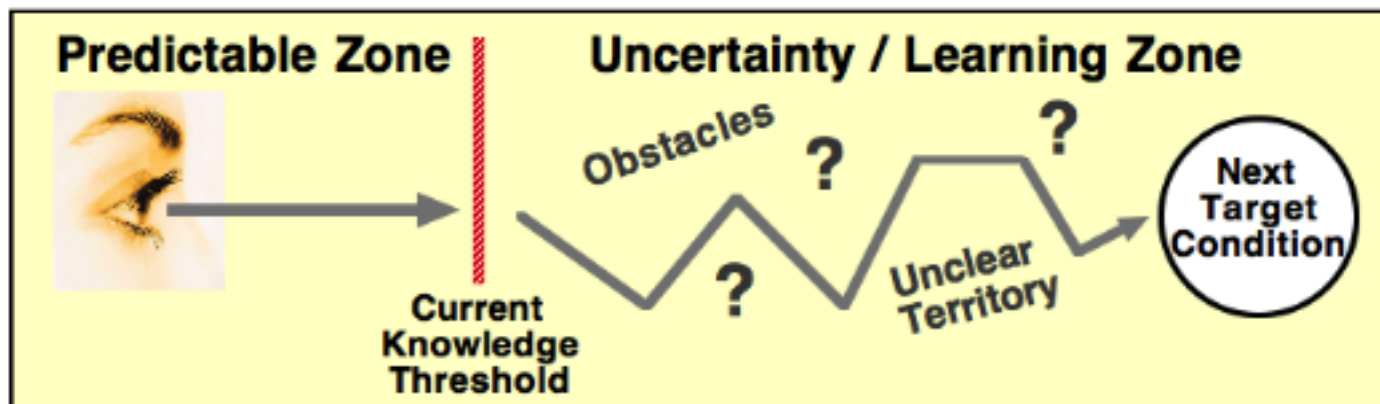
A main premise of this Handbook is that scientific thinking is an essential and widely-applicable life skill that anyone can develop by practicing the Improvement Kata pattern.

THE IMPROVEMENT KATA IS ABOUT THE “**THRESHOLD OF KNOWLEDGE**”

The Threshold of Knowledge is the point at which you have no facts and data and start guessing. The Improvement Kata is a systematic, scientific routine for groups of people to successfully navigate beyond the threshold of knowledge.

Reality is complex and dynamic, which means the way forward can't be fully determined in advance. Reaching a challenging goal involves iteration and experimentation that's aimed at a desired condition (which we don't yet know exactly how we will achieve.) We don't know exactly what's going to happen and no plan will cover everything.

But that's OK, because we can practice and learn a pattern of scientific thinking that helps us to successfully navigate that territory. Simply put, practicing the Improvement Kata pattern makes you more able to acknowledge and be comfortable with Knowledge Thresholds.



THE **COACHING KATA** HELPS YOU TEACH THE IMPROVEMENT KATA

DEFINITION

The **COACHING KATA** is a routine for teaching the Improvement Kata pattern in daily work.

The Coaching Kata is a set of teaching routines for facilitating Improvement Kata skill development in daily work. The Coaching Kata gives managers and supervisors a standardized training approach and helps them develop effective coaching habits.

The purpose of the Coaching Kata is to teach the Improvement Kata pattern through deliberate practice, while using real-world goals and problems.



THE IMPROVEMENT KATA & COACHING KATA INCLUDE PRACTICE ROUTINES



These kata not only model a way of working, but they also have structured practice routines for beginners, to make their pattern teachable.

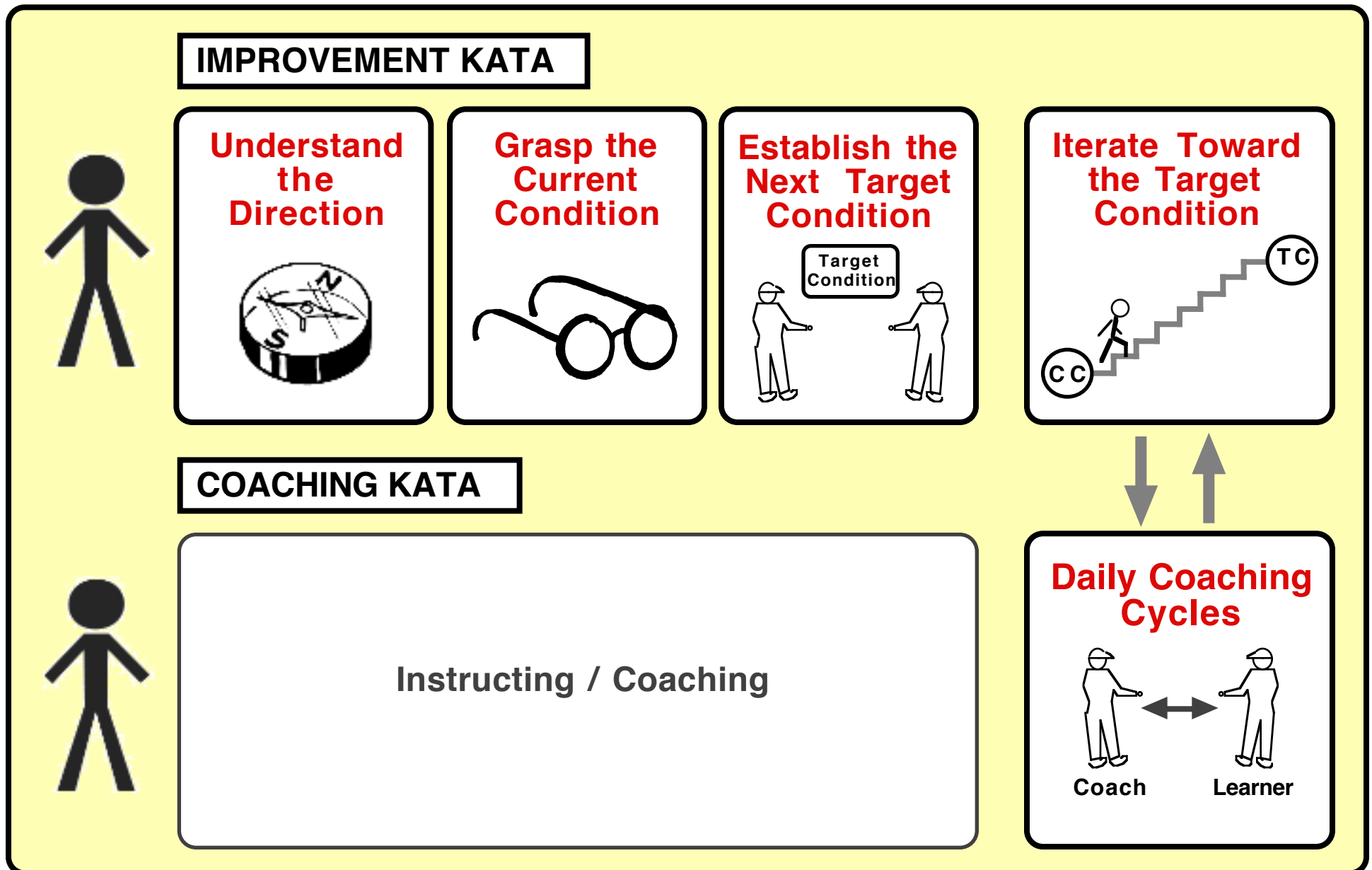
That second element is what makes the Improvement Kata and Coaching Kata different from other management concepts. Those concepts may be correct, but they lack a way of operationalizing them through deliberate, learn-by-doing practice.

Knowing a bunch of things about the Improvement Kata and Coaching Kata is not the answer. What's important is internalizing their patterns so you can then apply them in a variety of unrelated situations.

This Handbook shows you how to practice and internalize the Improvement Kata and Coaching Kata patterns in everyday work life. The pattern of the Improvement Kata can be taught to anyone, but to learn it you have to practice it.

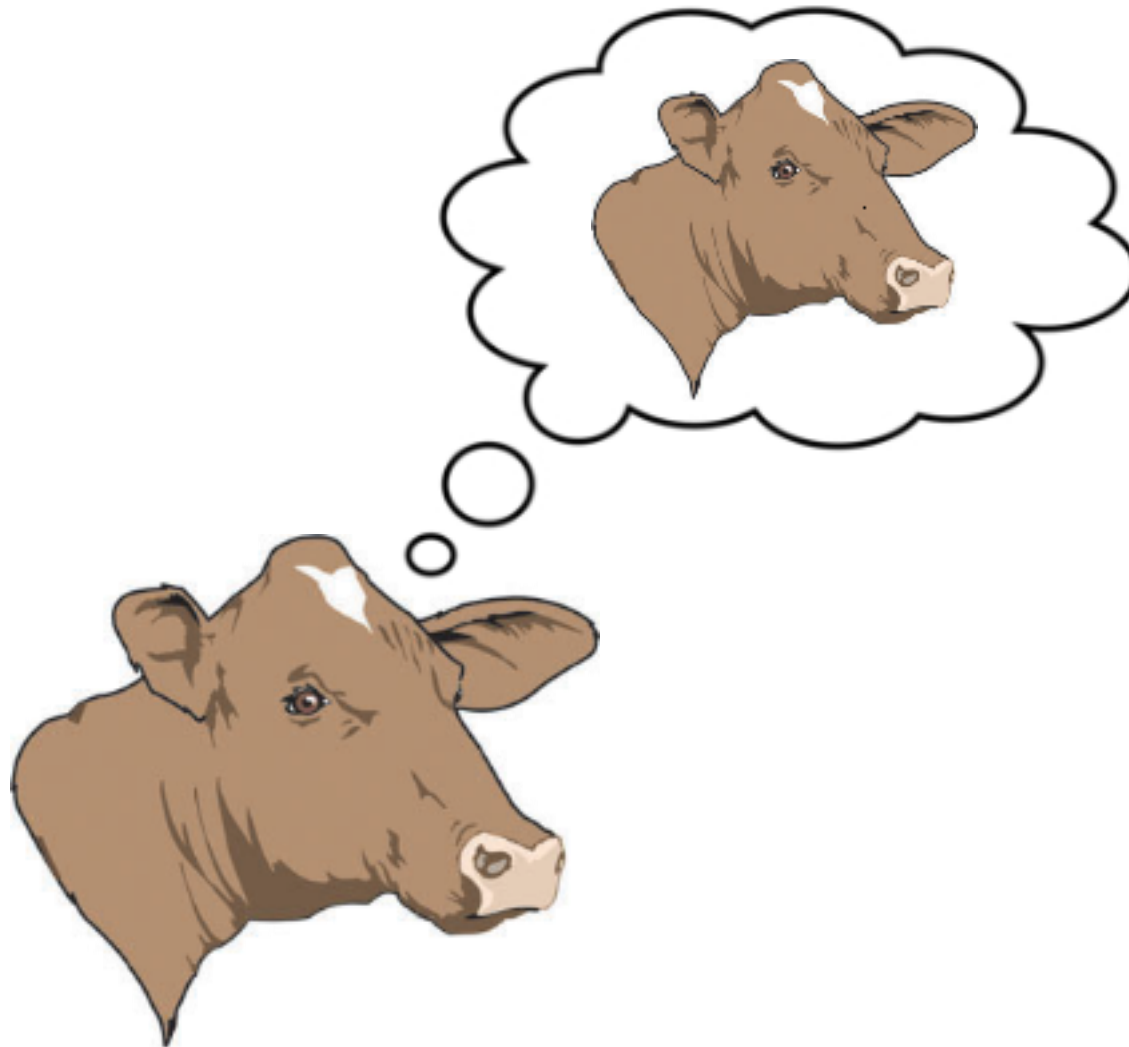
THE TWO KATA

This Handbook provides practice details for the following elements



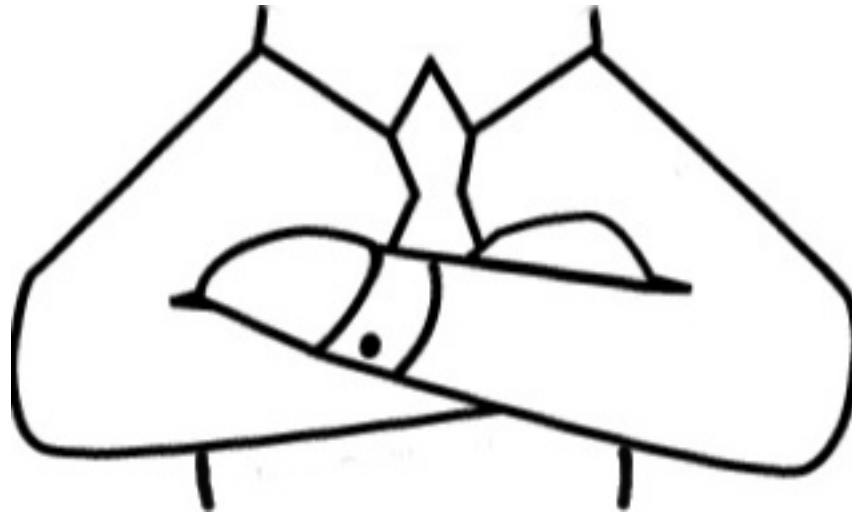
LET'S START WITH A BIT OF *METACOGNITION* *

* (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.

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.



OUR UNCONSCIOUS HABITS ARE FAST & POWERFUL

Our brain avoids conscious, deliberate thinking if it can, because that kind of processing consumes more resources 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.



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



WE HAVE MENTAL STUMBLING BLOCKS!

We have a natural, subconscious tendency to draw incorrect conclusions in certain circumstances based on cognitive factors rather than evidence

JUMPING TO CONCLUSIONS



JUMPING TO CONCLUSIONS

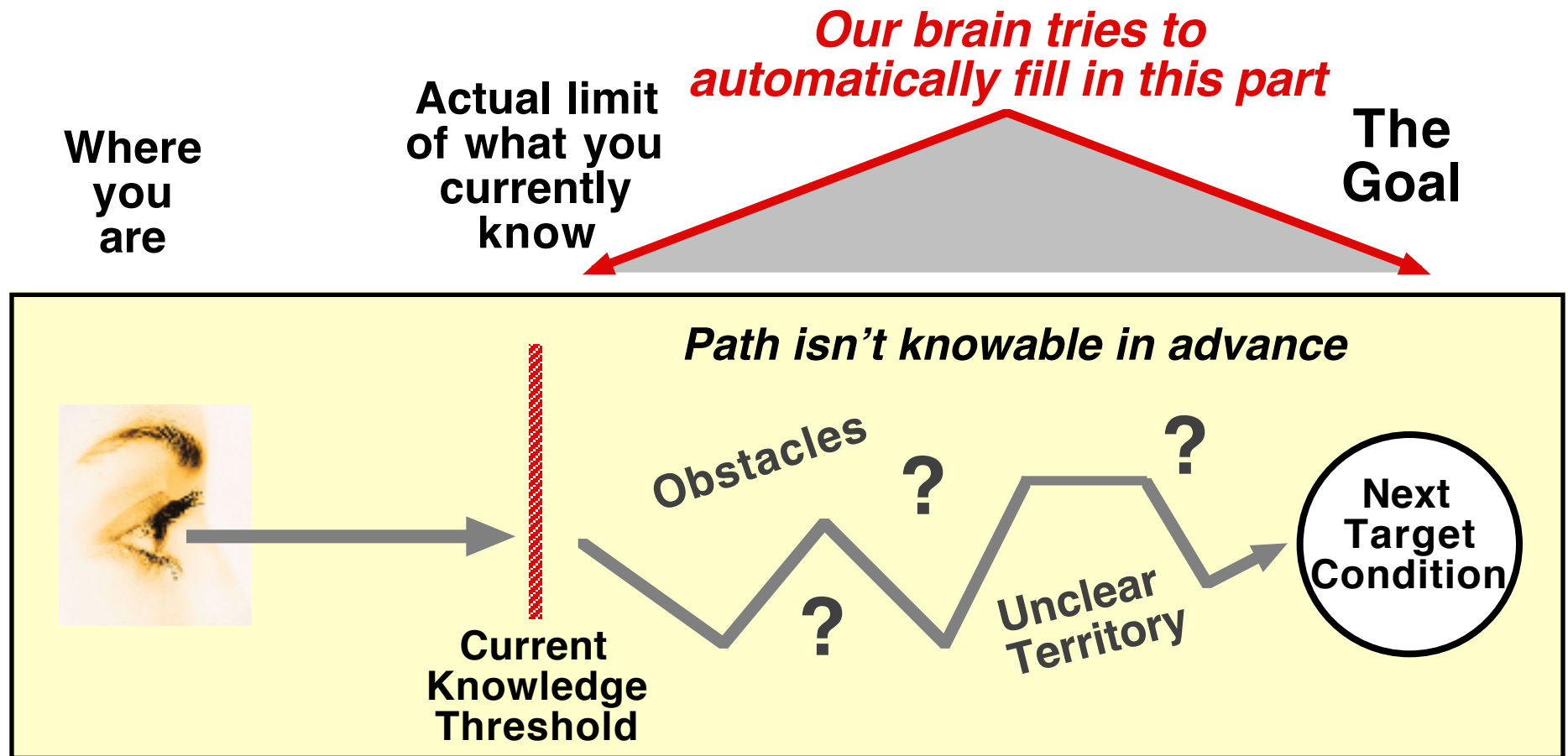
Our habits work well under many circumstances, but in certain cases they lead to errors known as *cognitive biases and logical fallacies*.

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.

We have a blind spot when it comes to our habits of mind. Since our unconscious responses are automatic, hidden from us, and potentially biased they may not always lead us where we would like to go.

EXAMPLE: A NATURAL MENTAL SHORTCUT THAT THE IMPROVEMENT KATA COUNTERACTS

The Threshold of Knowledge is difficult to spot because we don't realize our brain is automatically filling in our knowledge gaps. We often try to determine our path in advance through logic and debate, but that's not effective in complex, dynamic conditions. Once you hit a knowledge threshold you see further by conducting an experiment, not by deliberating.

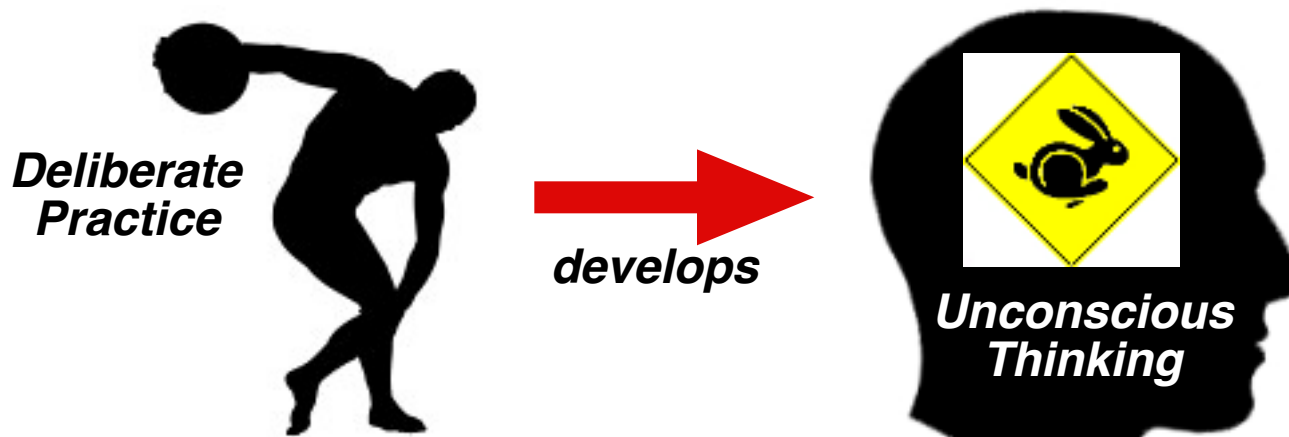


FORTUNATELY, WE HAVE THE ABILITY TO CHANGE OUR AUTOPILOT

Humans have the power to develop new habits. That's what the Improvement Kata & Coaching Kata are about.

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.



With the right kind of practice this is a way you can change the culture of an organization, and even an entire society

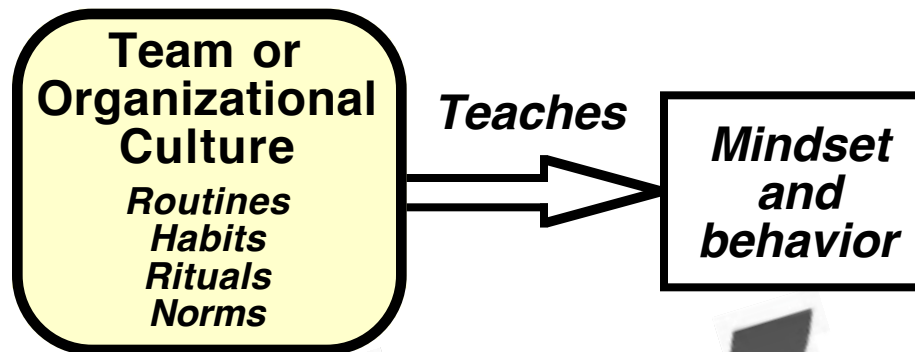
MANAGERS ARE THE TEACHERS

Through its managers, a team or organization's culture perpetuates itself every day

Note: This suggests that whatever new work habits you want to deliberately develop should over time be spread across the entire team or organization.

If you try to develop a new work habit only in certain areas or projects, the prevailing culture (current habits) will tend to dominate.

Managers automatically teach and reinforce the prevailing culture

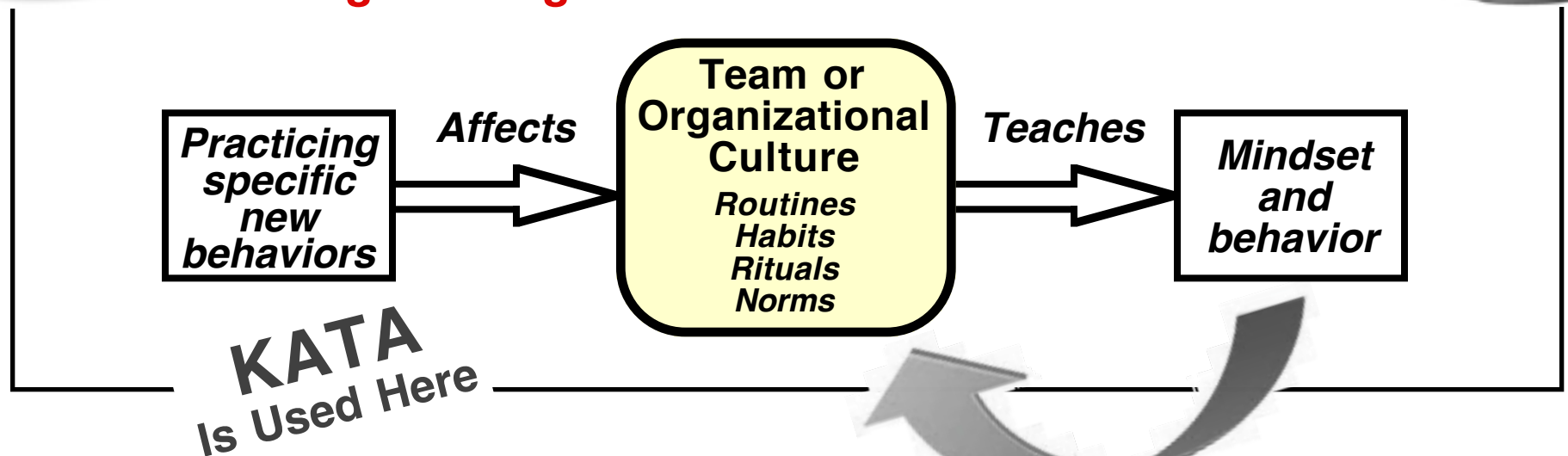


Every time we do something, we're more likely to do it again

KATA GET PRACTICED IN ORDER TO SHAPE A NEW CULTURE



Here the manager is a coach deliberately teaching a way of thinking & acting



What organizational culture, mindset and behavior do you want?

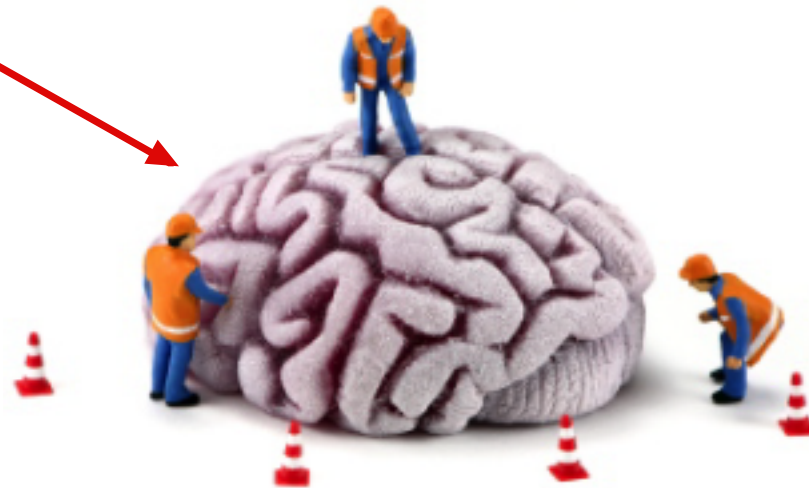
What do you want managers to be teaching / coaching?

WE CAN DEVELOP 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*



DEVELOPING 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 book *Toyota Kata* and the *Improvement Kata Handbook* are about working scientifically to counteract potentially harmful unconscious heuristics (rules-of-thumb), cognitive biases and logical fallacies that we automatically tend to use when dealing with problems, challenges and change.

Any team can work scientifically to successfully adapt, achieve goals and meet challenges along uncertain paths with confidence, if 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 Improvement Kata and Coaching Kata



**Three Key
Points for
Managers**

(1) THE IMPROVEMENT KATA + THE COACHING KATA ARE A WAY OF MANAGING

This Handbook is about a different approach to management. The 20th Century management approach of predicting, planning and monitoring doesn't work well in complex, dynamic systems.

Although the Improvement Kata and Coaching Kata describe a routine for improvement, adaptation and innovation, they are actually a way of managing people every day. There's no separation between the Improvement Kata / Coaching Kata and managing.

The focus here is on building the Improvement Kata and Coaching Kata into the normal daily work of managers and supervisors. Managers and supervisors are thereby doing two things simultaneously... making their teams better at achieving goals as they guide their teams in working on achieving real goals.

Working on real goals is the environment for practicing, coaching and developing people that underlies this handbook. It's not about an extra training program. It's like free training.



Managers here have two interrelated goals:

- > Have their team achieve an objective using the Improvement Kata pattern**
- > Develop skill within Learners, for applying the Improvement Kata pattern**

THE IMPROVEMENT KATA / COACHING KATA DEFINITION OF *MANAGEMENT*

“The systematic pursuit of desired conditions by utilizing human capabilities in a concerted way”



(2) IT'S DECENTRALIZED BUT ALIGNED STRIVING

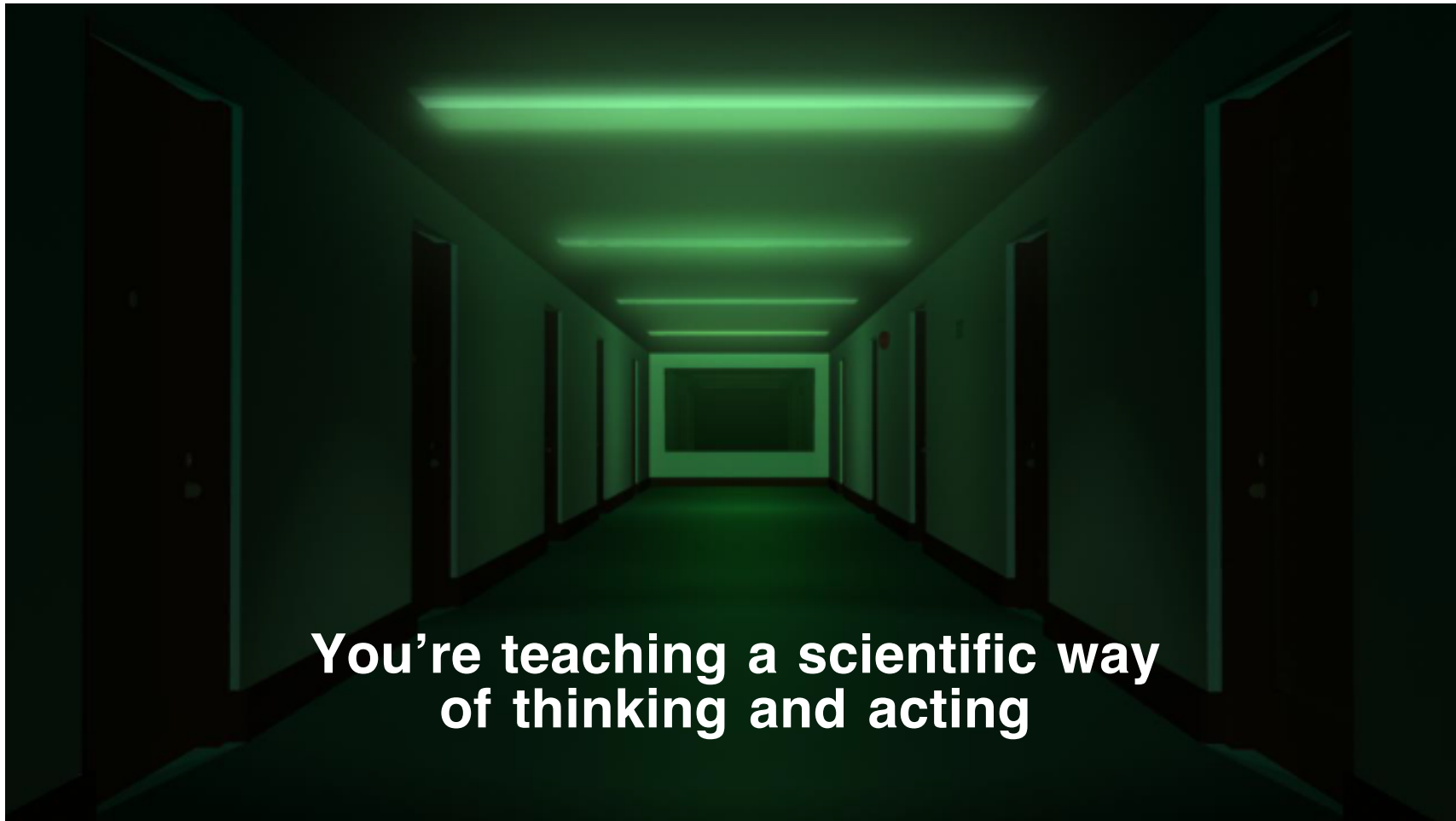
The activity that produces improvement, adaptiveness and innovation in an organization is decentralized, i.e., it takes place at individual processes. Navigating complex, constantly changing conditions involves cycles of iteration that are distributed across an organization's various processes. A small group at the top doing all the planning isn't effective anymore.

However, this sort of delegation and empowerment doesn't work well if individual teams in the organization are operating independently and unsystematically.

The Improvement Kata and Coaching Kata handle the dilemma. Managers in the organization coach their teams in a **common, scientific way of working** (the Improvement Kata) that teams apply toward a **strategic challenge**. Alignment and speed result.



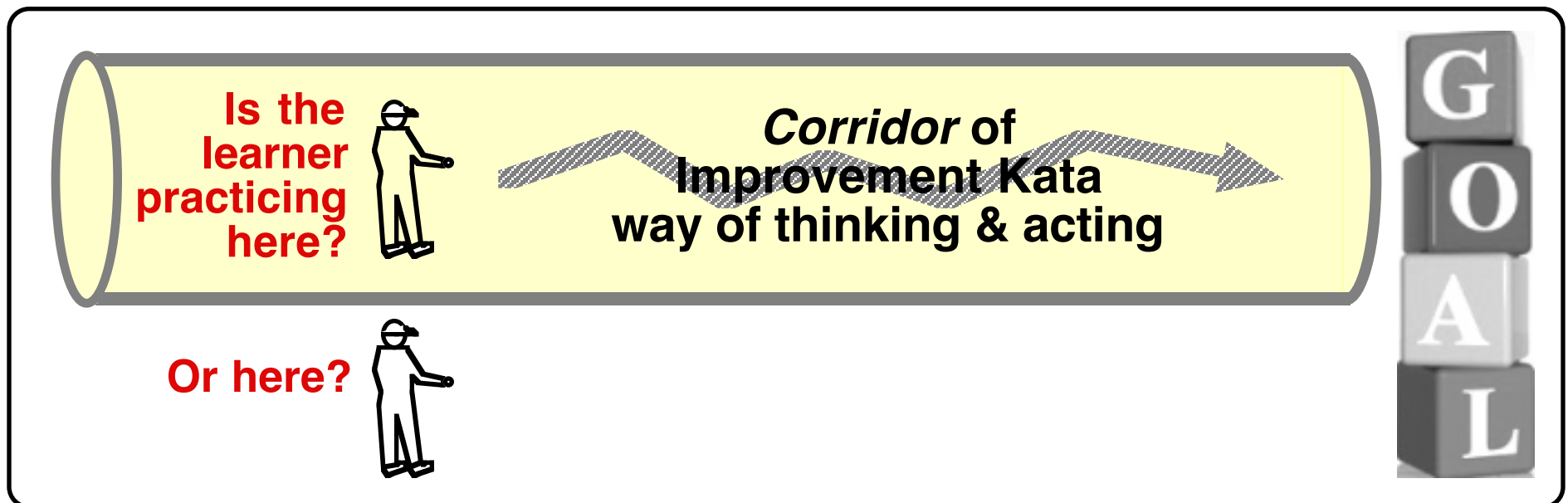
(3) THE MANAGER’S (COACH) JOB IS TO TEACH THE LEARNER TO WORK INSIDE THE “KATA CORRIDOR”



**You’re teaching a scientific way
of thinking and acting**

WHAT YOU'RE DOING AS AN IK COACH

Your task is to determine whether or not the Learner is practicing within the scientific and systematic **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.



Of course, this requires that the Coach (manager) has first learned how to apply the Improvement Kata him- or herself, through practice.

Photos from "The Karate Kid," 1984

THE INTENTION OF THIS COACHING IS NOT AUDIT AND COMPLIANCE

It's this...



Teaching the Learner how to play the continuous improvement game

...not this

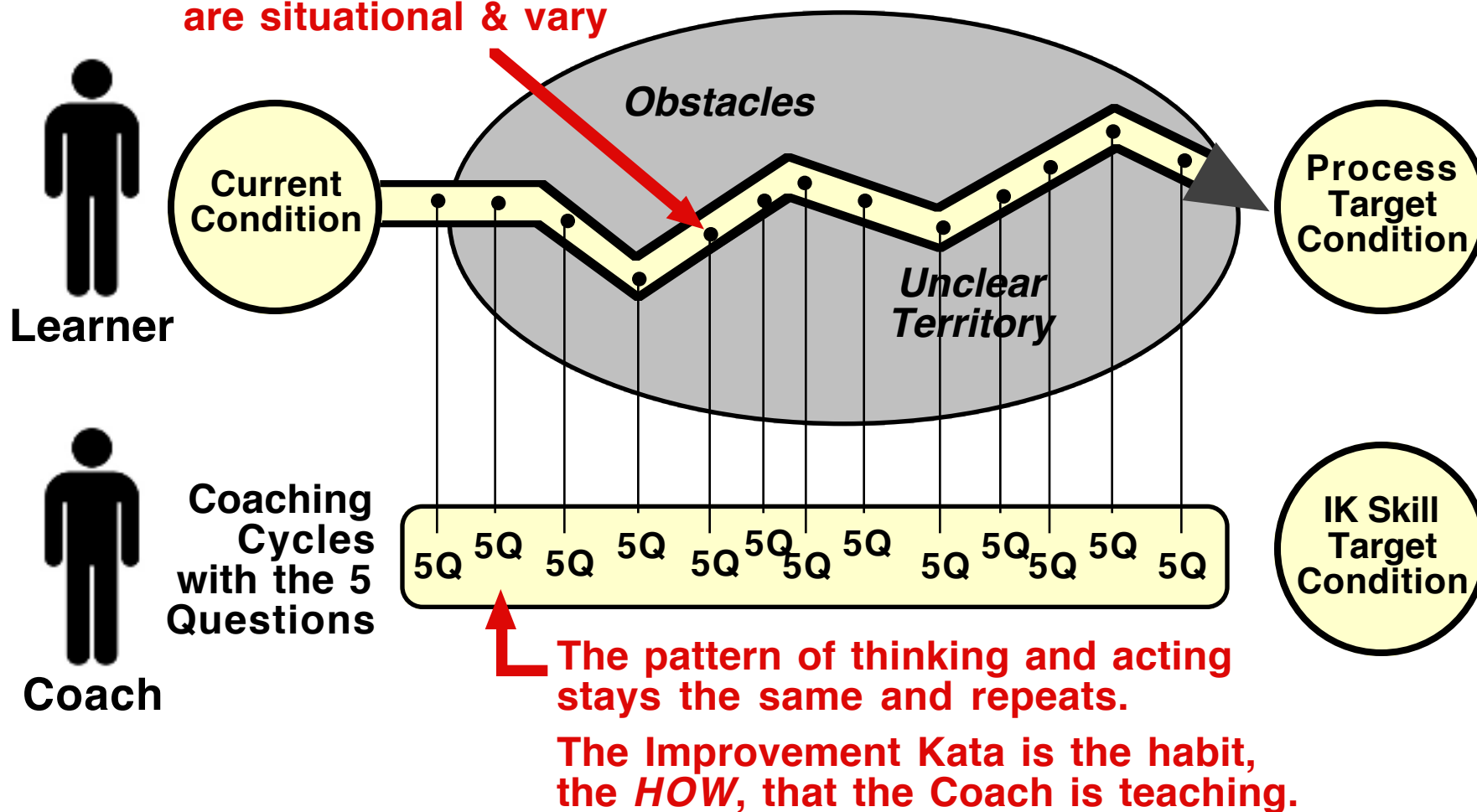


DEVELOPING A META SKILL THROUGH PRACTICE

WHAT you're working on: The focus process provides the content

HOW you're working: The Improvement Kata provides the form

The content and obstacles the Learner works on, the *WHAT*, are situational & vary



PART I: Getting Started

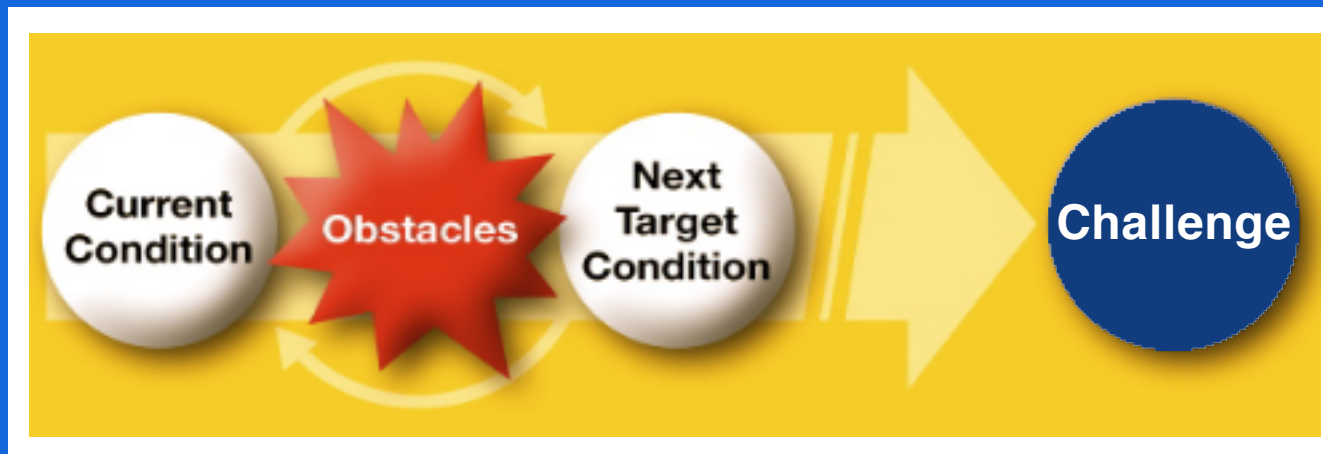
Chapter 1. The Improvement Kata Pattern

**Chapter 2. Guidelines for Practicing the
Improvement Kata and Coaching Kata**

Chapter 3. Roles and Structure for Daily Practice

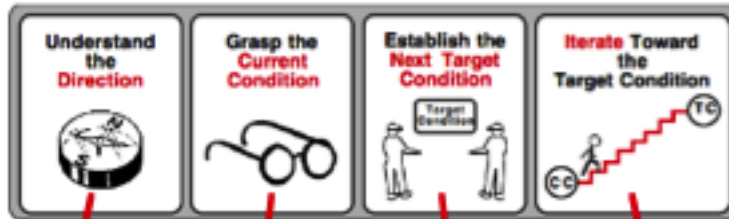
Chapter 1

THE IMPROVEMENT KATA PATTERN



WHAT THIS CHAPTER IS ABOUT

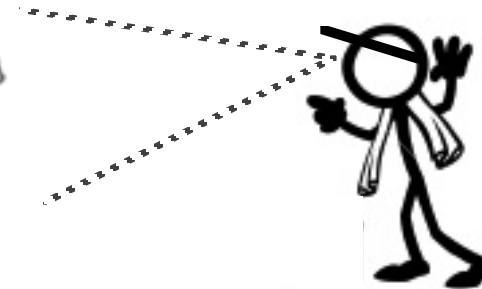
The IMPROVEMENT KATA PATTERN (the scientific approach)



This chapter goes over the Improvement Kata pattern, which is the overall pattern of thinking and acting we're trying to achieve.



There are specific **PRACTICE ROUTINES** to acquire / develop the scientific pattern of thinking and acting



The **COACHING KATA** is a practice routine for learning how to teach the Improvement Kata pattern

The practice routines for learning and teaching the Improvement Kata pattern are covered in PART II and PART III of this Handbook.

THE IMPROVEMENT KATA PATTERN MODELS THE CREATIVE PROCESS



The Improvement Kata is a model of an effective, universal human pattern for improving, adapting and innovating.

You could call it:

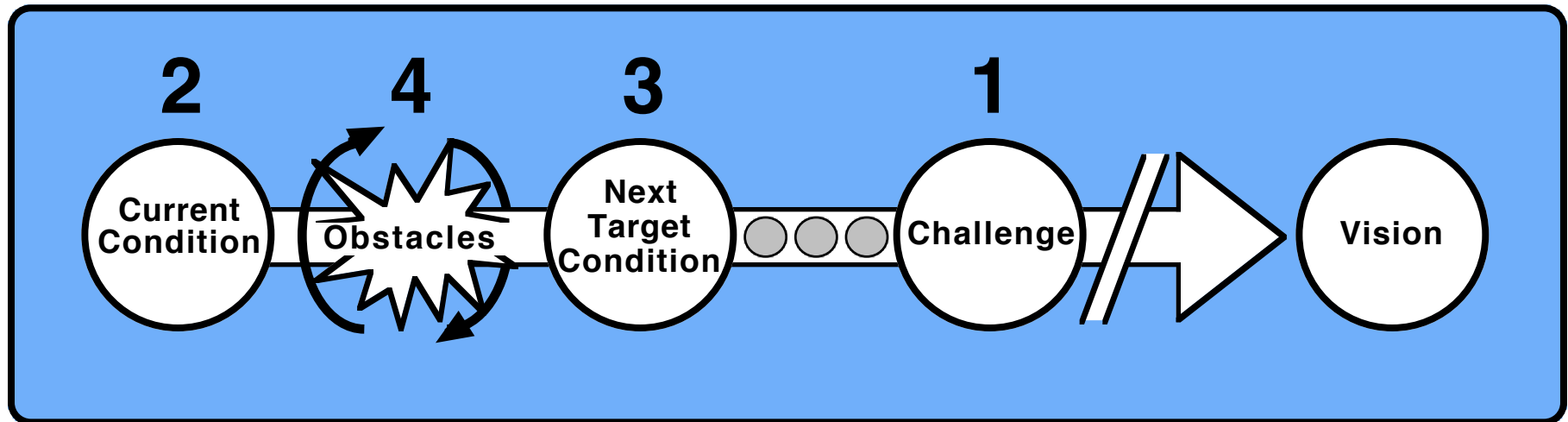
Improvement Pattern
Striving Pattern
Creative Pattern
Design Pattern

The pattern represented by the Improvement Kata model has probably been around for as long as humans have been around. Scientists and entrepreneurs use it every day.

However, this pattern is not the natural or default way that most adults think and act.

IT'S ABOUT LEARNING TO WORK SCIENTIFICALLY

The Improvement Kata is a 4-step pattern you practice to make systematic, scientific, creative striving a habit, which makes you more effective at achieving challenging goals in complex, dynamic conditions



AS ILLUSTRATED ABOVE, THE 4 STEPS ARE:

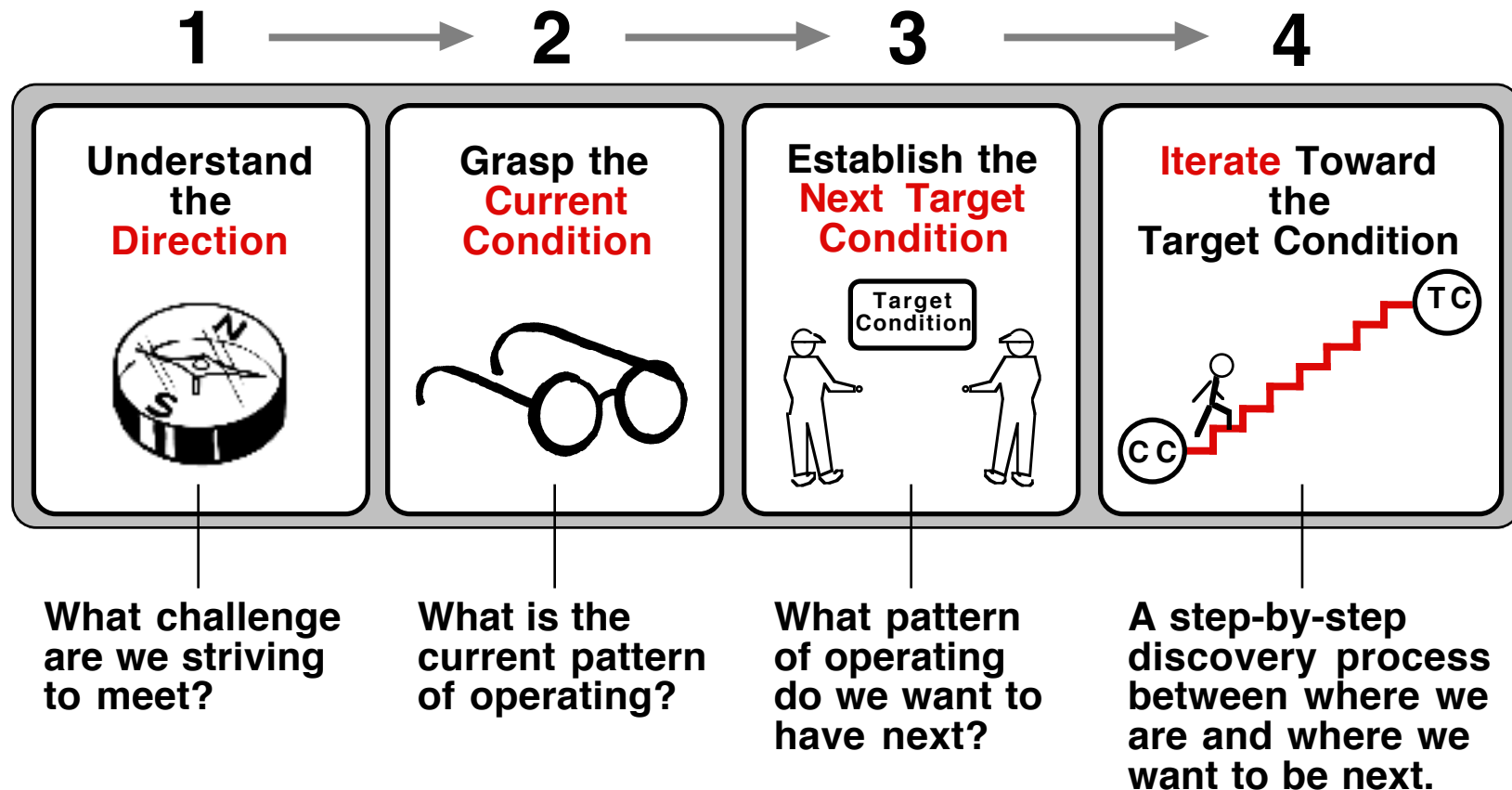
Step 1: In consideration of a direction or challenge...

Step 2: Grasp the current condition.

Step 3: Define the next target condition.

Step 4: Move toward that target condition iteratively, which uncovers obstacles that need to be worked on.

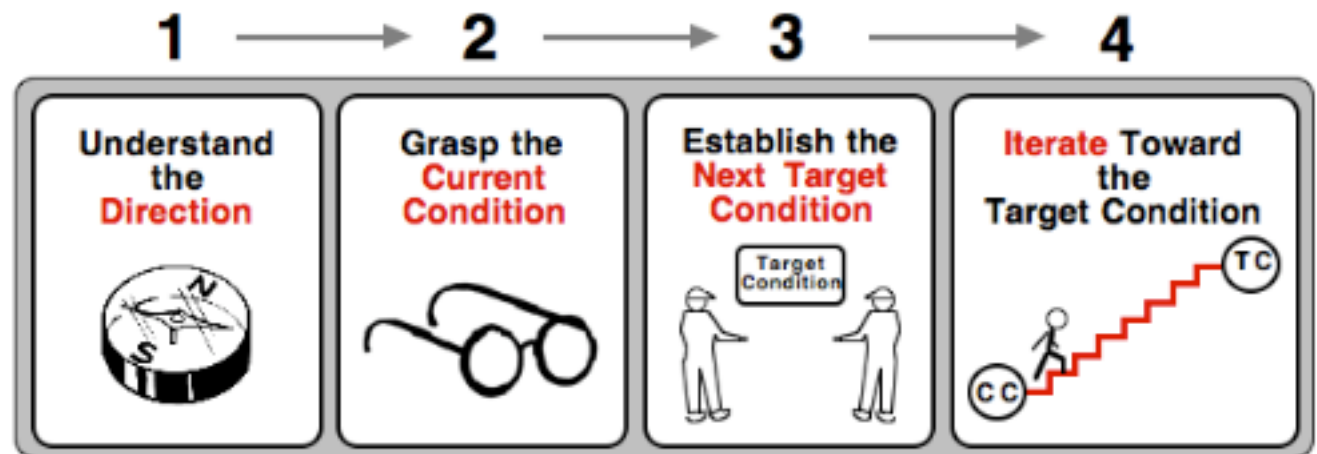
HERE ARE THE STEPS OF THE IMPROVEMENT KATA, IN SEQUENCE



There are practice routines for each of these steps. Those practice routines are described in this Handbook.



Let's first take a closer look at the overall pattern of the Improvement Kata



The illustrations on pages 13-18 and 20-21 are based on illustrations by Bill Costantino

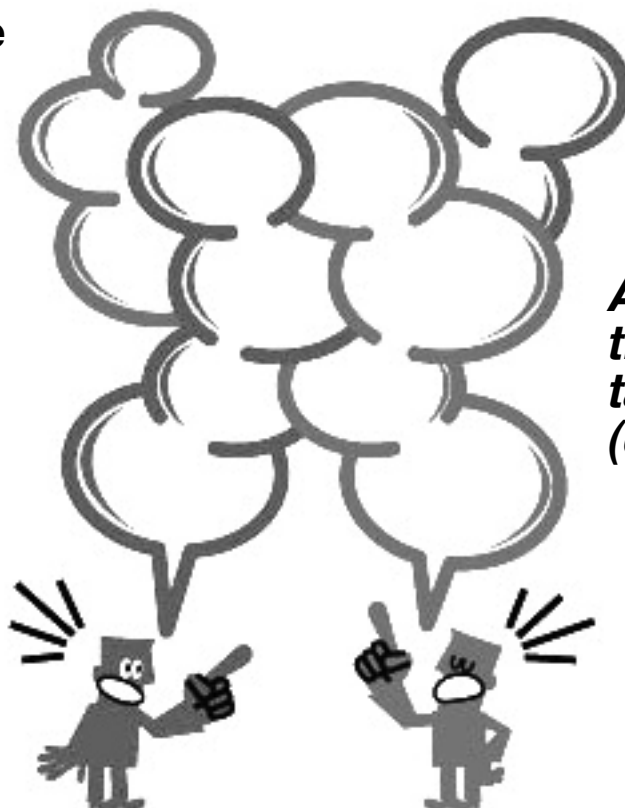
HOW DO ADULTS IN GROUPS (IN TEAMS & ORGANIZATIONS) TEND TO REACT TO A PROBLEM OR HANDLE A GOAL?

Whether in business, politics or daily life, we often think the best way is to **deliberate over the correct answers and arrive at a consensus**. (E.g., “Let’s have a meeting.”)

Unfortunately this unsystematic and unscientific approach is useful only in simple cases where the same path has been traveled before. It’s not a good way of tapping our human learning capability and handling more complex and dynamic situations. It often leads to ineffective responses.

Why the *deliberating* approach often fails in situations that are complex, dynamic or new:

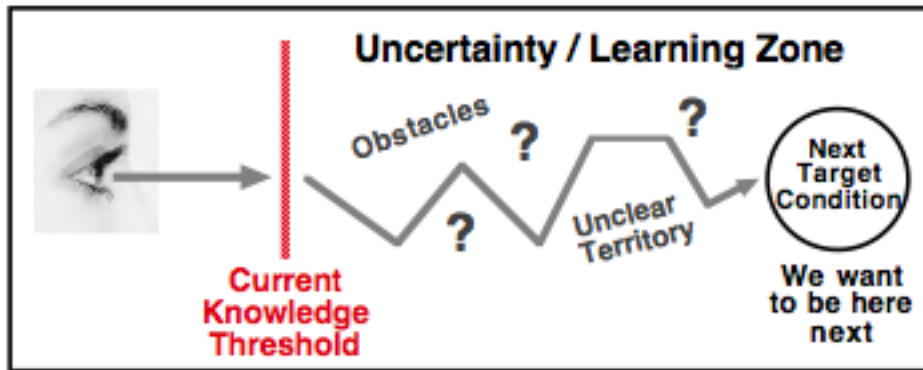
- > We’re debating from inside our current threshold of knowledge. You don’t know what you don’t yet know.
- > Our neural mechanisms are tuned to focus on the immediate surface aspects of situations.
- > Our brain tries to make sense of unfamiliar information by automatically filling in the blanks.
- > Complexity & unpredictability overwhelm our brain’s processing resources.
- > We tend to state untested assumptions as facts.



A more effective way of thinking and acting can be taught, but it takes practice (experiential learning)

IT'S UNSCIENTIFIC

Deliberating over answers beyond your knowledge threshold is flying blind. There's a grey zone between where you are and where you want to be next, and the path can't be determined in advance by logic and reason. You need to experiment. Scientists are constantly adding to knowledge.



IT'S UNSYSTEMATIC

Stabbing at problems in the hope that something will work is not a methodical procedure.



IT'S BIASED

We don't realize how extensively our unconscious predispositions, natural mental shortcuts and beliefs influence how we see, think and react. The brain is a great servant but a poor master.

~~JUMRING TO CONGLUISIONS~~

JUMRING TO GQNGIUSIONS

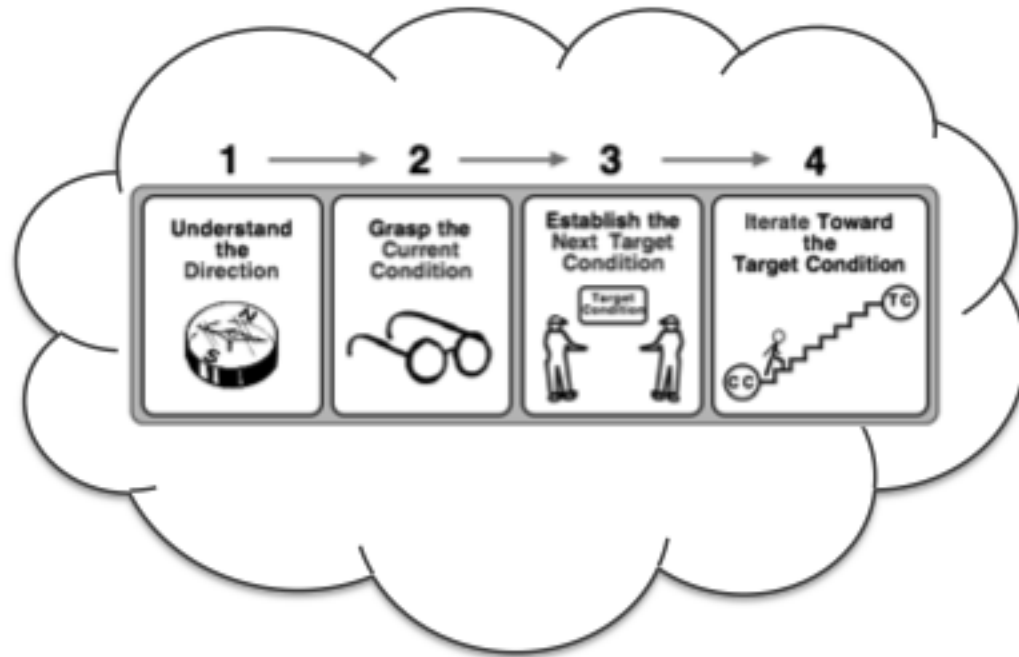
IT'S UNCREATIVE

If you're just reacting to problems, rather than proactively striving for something, entropy wins.



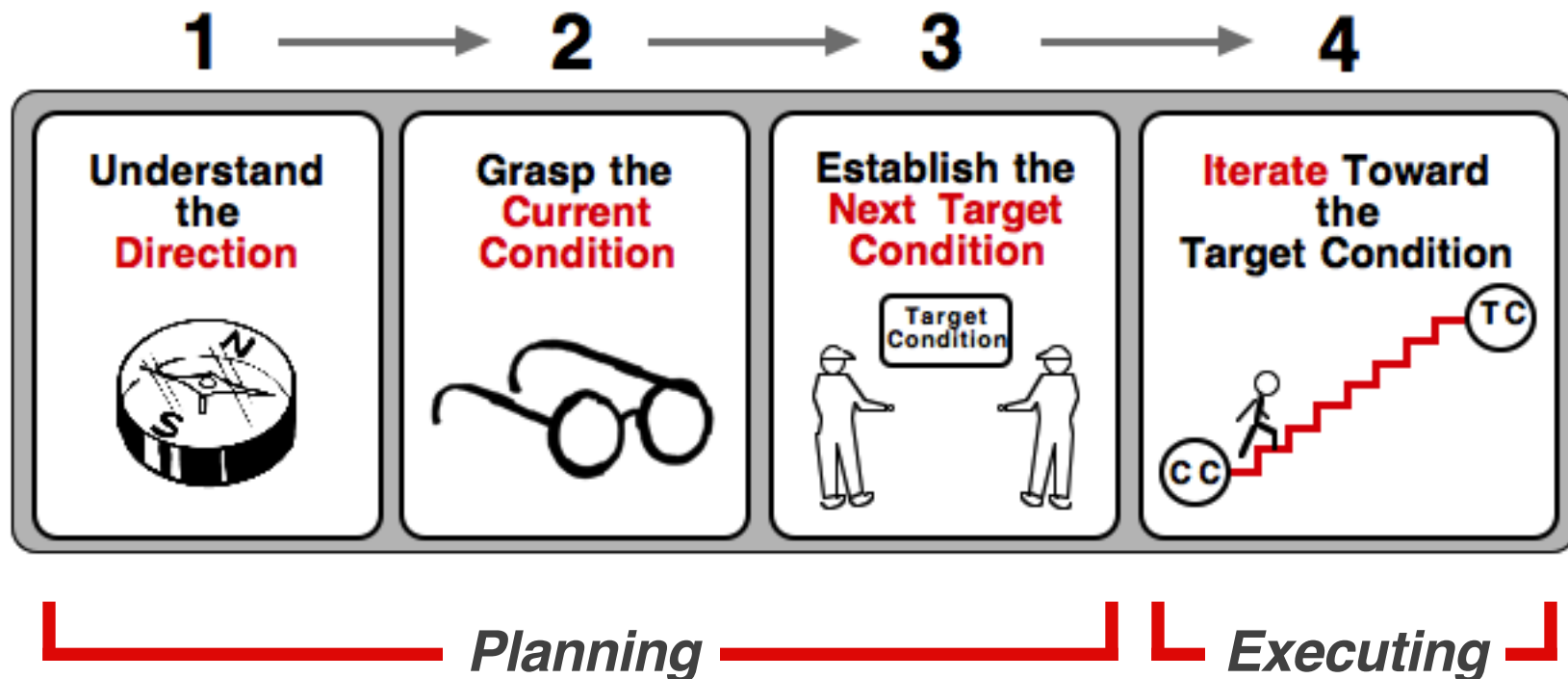
THE IMPROVEMENT KATA IS A SYSTEMATIC AND SCIENTIFIC APPROACH

Like any scientist, one of the few things we can *actually know* is the method we use. There's always a **Threshold of Knowledge** around us, so it's impossible to make completely accurate predictions about the future. This is especially true in complex, interconnected systems. But with the pattern of the Improvement Kata you have a method for navigating that territory.



THE IMPROVEMENT KATA IS A FOUR-STEP PATTERN, IN TWO PHASES: A PLANNING PHASE AND AN EXECUTING PHASE

Note, however, that “planning” in this case is different from what you might think of as planning. It’s not about just making an action plan. Gaining the perspective and understanding that the first three ‘planning’ steps of the Improvement Kata provide is a foundation for the ‘executing’ phase. One of the most common mistakes is trying to get into the Executing phase too soon; too hastily moving ahead based on preconceptions instead of taking time to analyze and learn more about the situation.

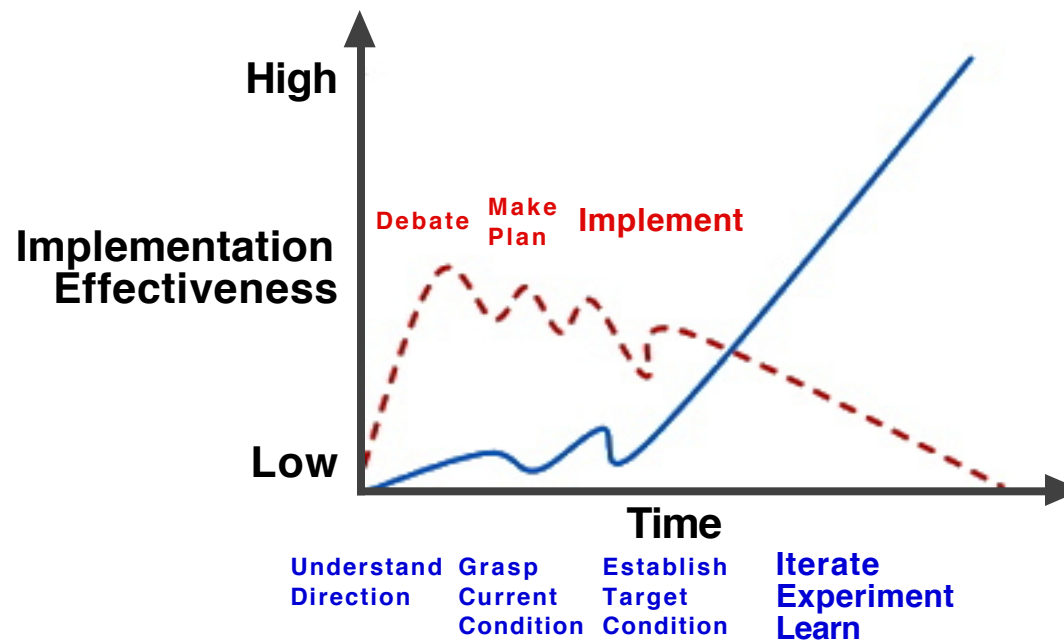


THE PLANNING PHASE: GOING SLOW TO THEN BE FAST & FOCUSED

Many teams quickly get into implementation action, for a supposed time savings. But in such cases the team's effectiveness often follows the dotted red line in the graph below. In contrast, the Improvement Kata approach looks more like the blue line in the graph.

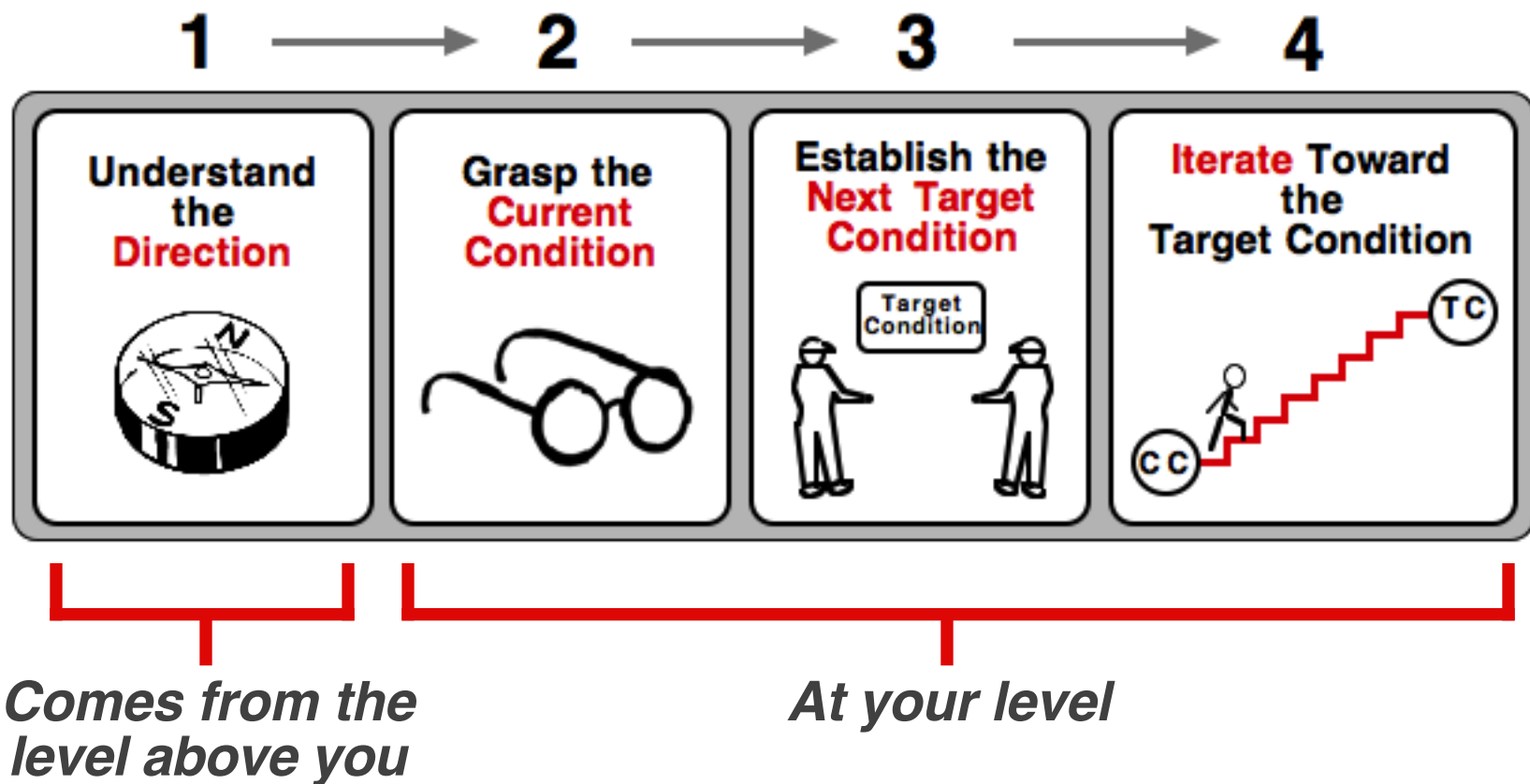
The Planning phase of the Improvement Kata involves (a) getting some clarity about the overarching challenge, (b) digging deep to better understand the current condition and then (c) establishing an appropriate next goal. This helps move you more comfortably into the zone of uncertainty where you apply your creativity by viewing the steps you take as experiments from which you learn.

--- Without the planning phase & experimentation
— With the planning phase & experimentation



THE IMPROVEMENT KATA INVOLVES LINKED GOALS

The pattern of the Improvement Kata is a fractal / scalable pattern that's utilized at each level of an organization. **STEP 1** of the Improvement Kata model ("Understand the Direction") entails understanding the target condition from the level above you. (Ultimately this is linked to a high-level strategic objective or challenge.) **STEP 3** of the Improvement Kata involves defining the next target condition at your level, in the direction determined in the first step.



PLANNING PHASE - *Where Do We Want to Go?*

STEP 1: UNDERSTAND THE DIRECTION. A challenge is set, beginning at the organization or value-stream level. This overarching challenge is a strategic differentiator that relates to better serving the customer, and may come from a future-state value stream map. It provides an overarching objective and rallying point for individual process improvement efforts inside the organization.

The challenge *at your process* is the target condition from the level above you. So the overarching challenge gets broken into successively smaller elements as you move down the organization.

You Are Here

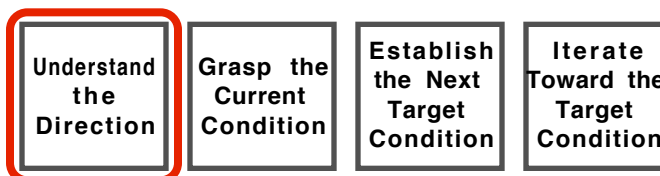
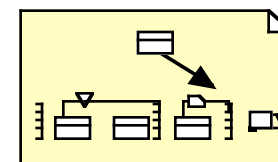


Your Process's Challenge

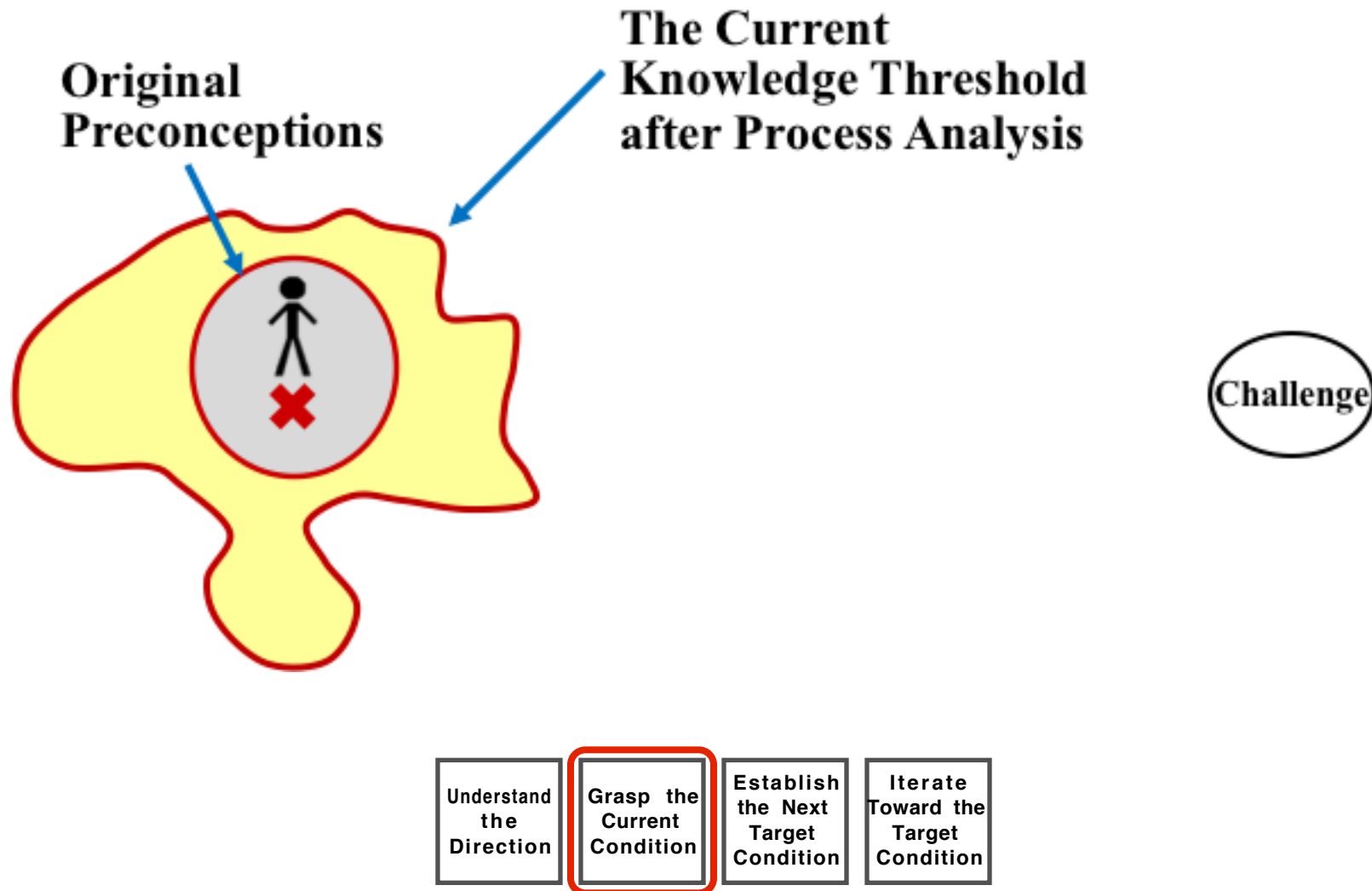
Comes from the level above you and links to a strategic differentiator related to better serving the customer



Your challenge may be an element of a future-state value stream map



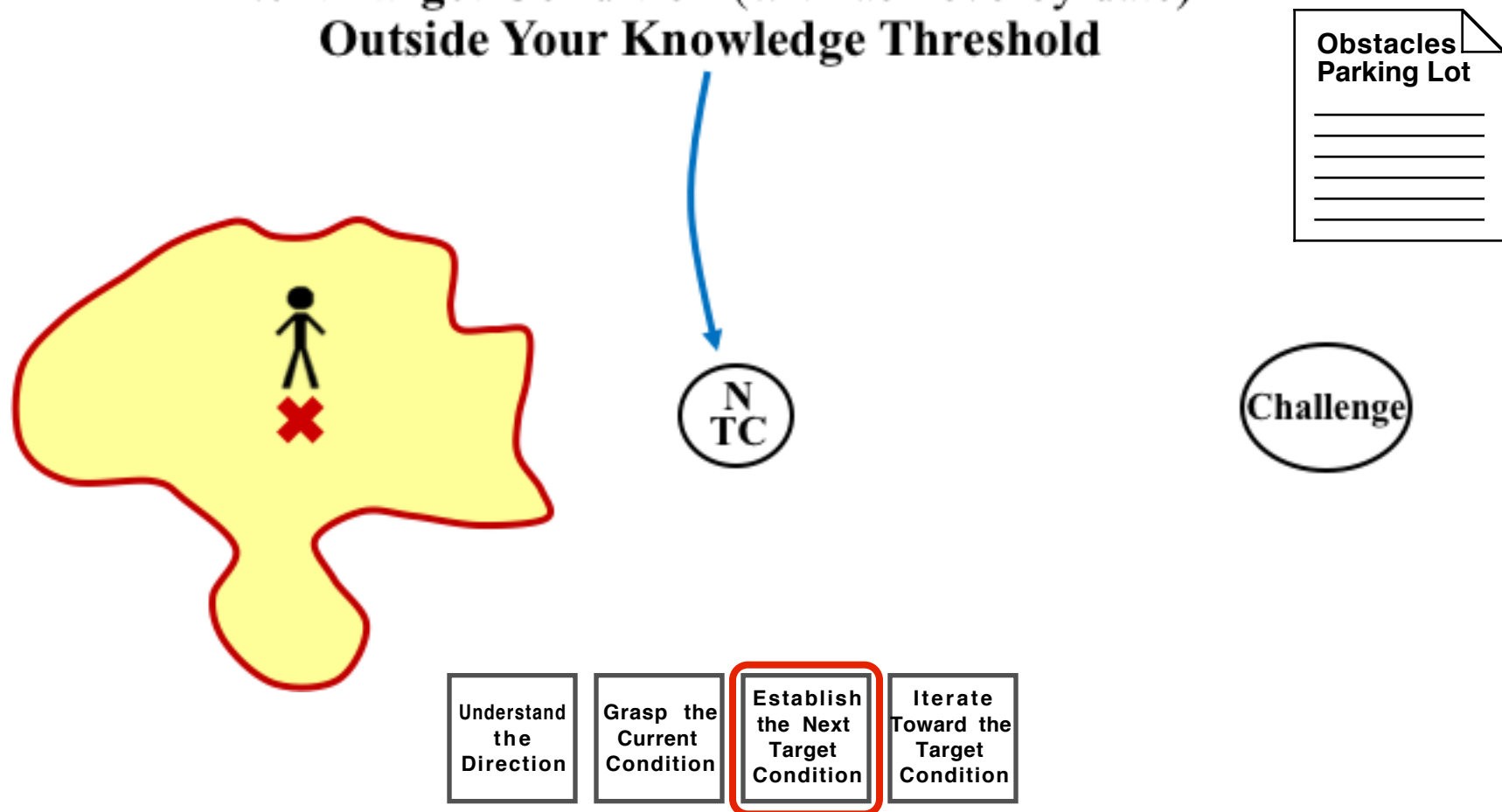
STEP 2: GRASP THE CURRENT CONDITION. Once the direction coming from the level above you is understood, study the current condition of your focus process in detail following the steps of the Process Analysis Kata, which helps you see beyond your preconceptions as you analyze a process. The results of this analysis are an input into defining the next Target Condition, and represent your **Current Knowledge Threshold** about the work process you're looking at.



STEP 3: ESTABLISH THE NEXT TARGET CONDITION. The purpose of studying the current condition is to obtain the facts and data you need in order to establish a descriptive and measureable target condition at your level, in the direction of the challenge.

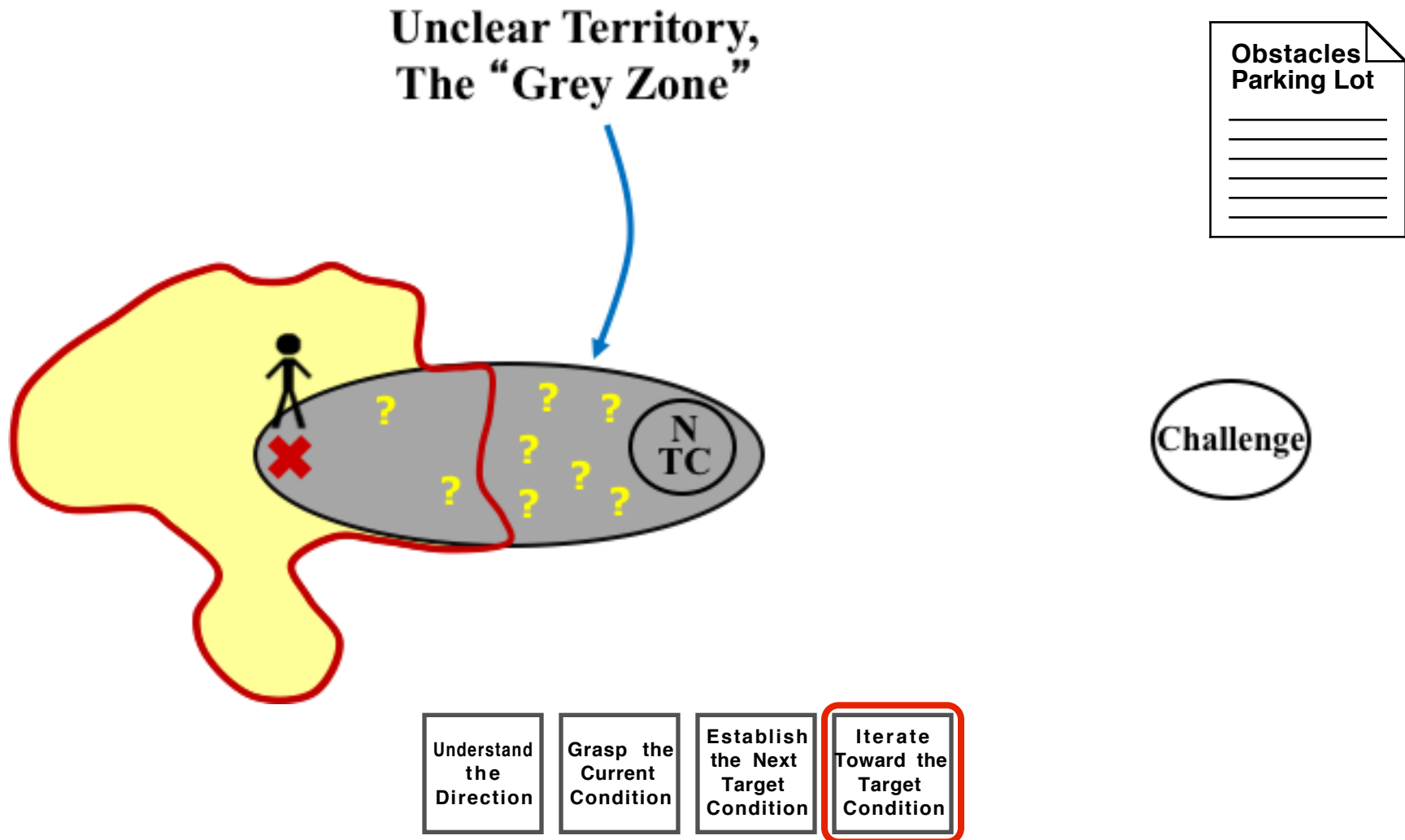
The target condition lies outside your current knowledge threshold and has a specified achieve-by date that's between 1 week - 3 months out. The target condition describes in some detail how you would like the focus process to be functioning on that achieve-by date. Once you have a target condition you begin to see Obstacles to achieving it, which are noted in the Obstacles Parking Lot.

Next Target Condition (with achieve-by date) Outside Your Knowledge Threshold



EXECUTING PHASE - *How to Get There*

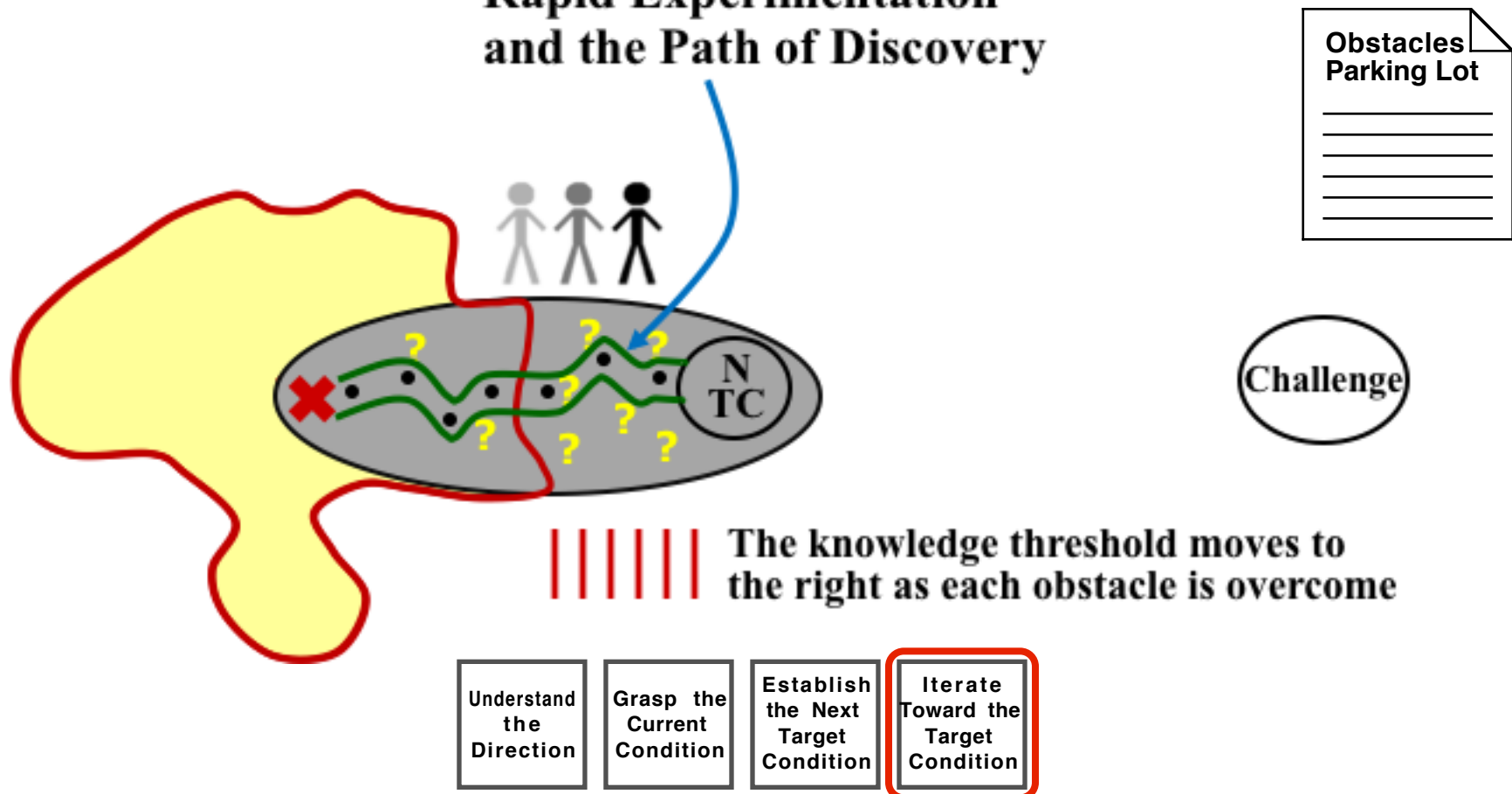
NOW THERE IS THE GREY ZONE. You don't know exactly how you're going to get to the target condition by its specified achieve-by date. The grey zone is a learning zone.



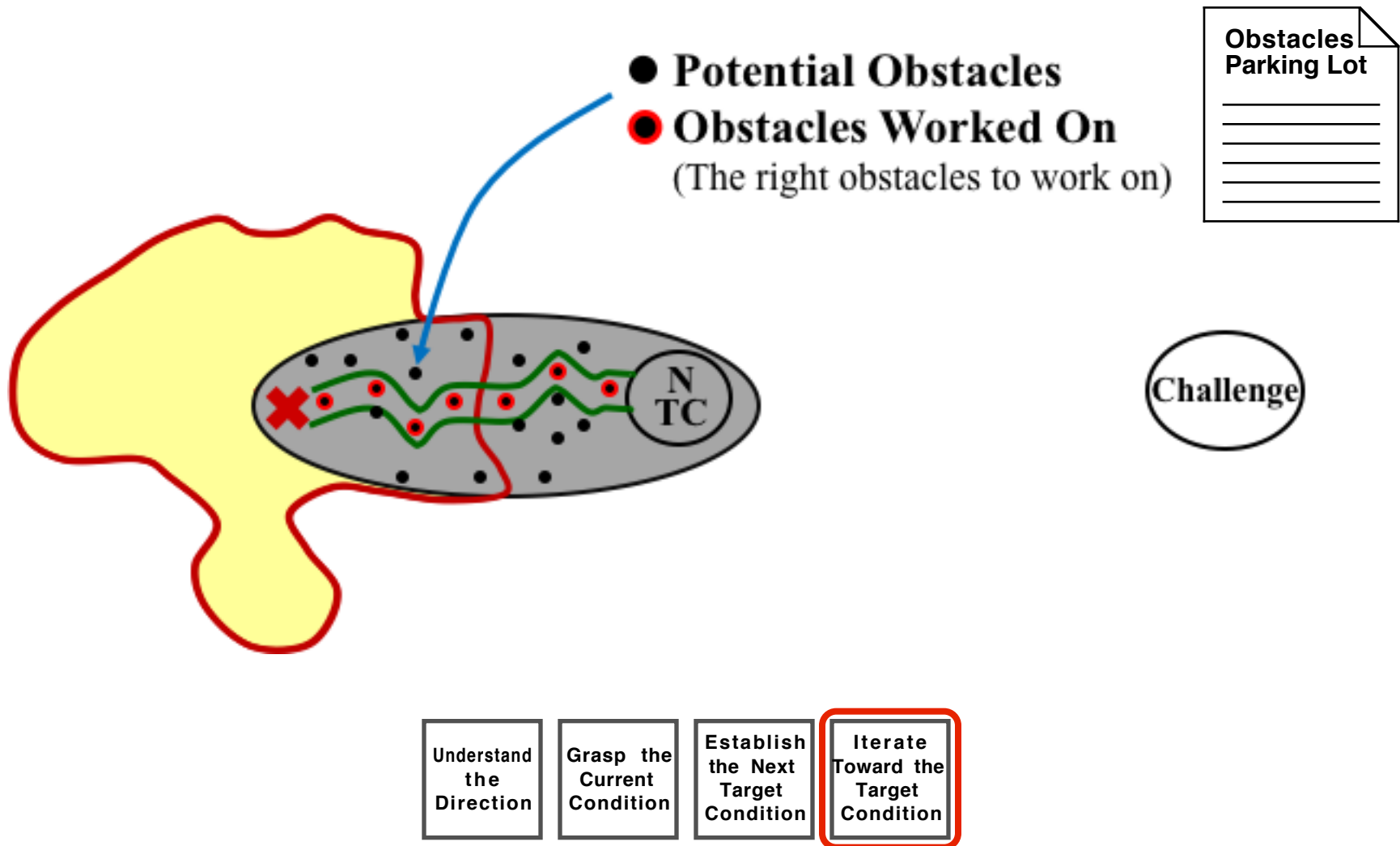
STEP 4: ITERATE TOWARD THE NEXT TARGET CONDITION. Two daily routines are used here: The PDCA Kata (rapid experimenting) by the **Learner**, and the Coaching-Cycle Kata (**Coach**).

More obstacles appear in this phase of the Improvement Kata, due to the learning via experiments. Many obstacles are not visible in the planning phase. The team works on one obstacle at a time. You're looking for the most direct path through the field of obstacles to the next target condition, which won't be a straight line. You're in a mode of rapid learning and discovery, adjusting your course based on facts & data gained through experimenting. The threshold of knowledge moves with each experiment.

Rapid Experimentation and the Path of Discovery



THERE'S NO NEED TO WORK ON EVERY POSSIBLE OBSTACLE. You only need to overcome those obstacles that you find are preventing the process from operating in a way consistent with the next target condition. From each experiment you gain new information and adjust your next step accordingly, to iteratively find your way to the target condition by the achieve-by date. The obstacles parking lot is continually updated, revealing how flawed our preconceptions can be.

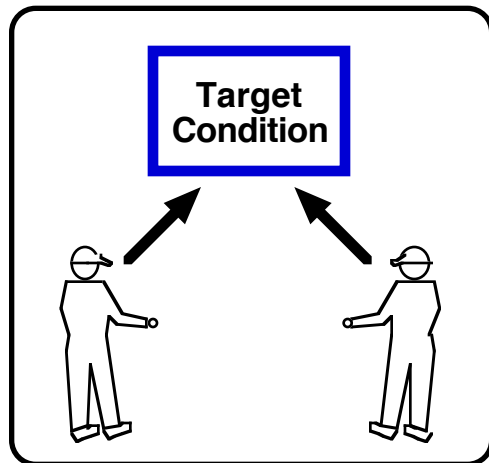


WHAT CAN WE IMPROVE? versus WHAT DO WE NEED TO IMPROVE?

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 going in different directions
- There’s only limited time available each day for working on improvement

With the Improvement Kata a team instead focuses on what it *needs* to do to improve. This involves working on only those obstacles that the team finds are *actually* preventing the team from moving from its current condition to the next target condition.

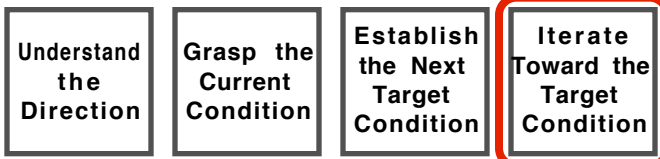
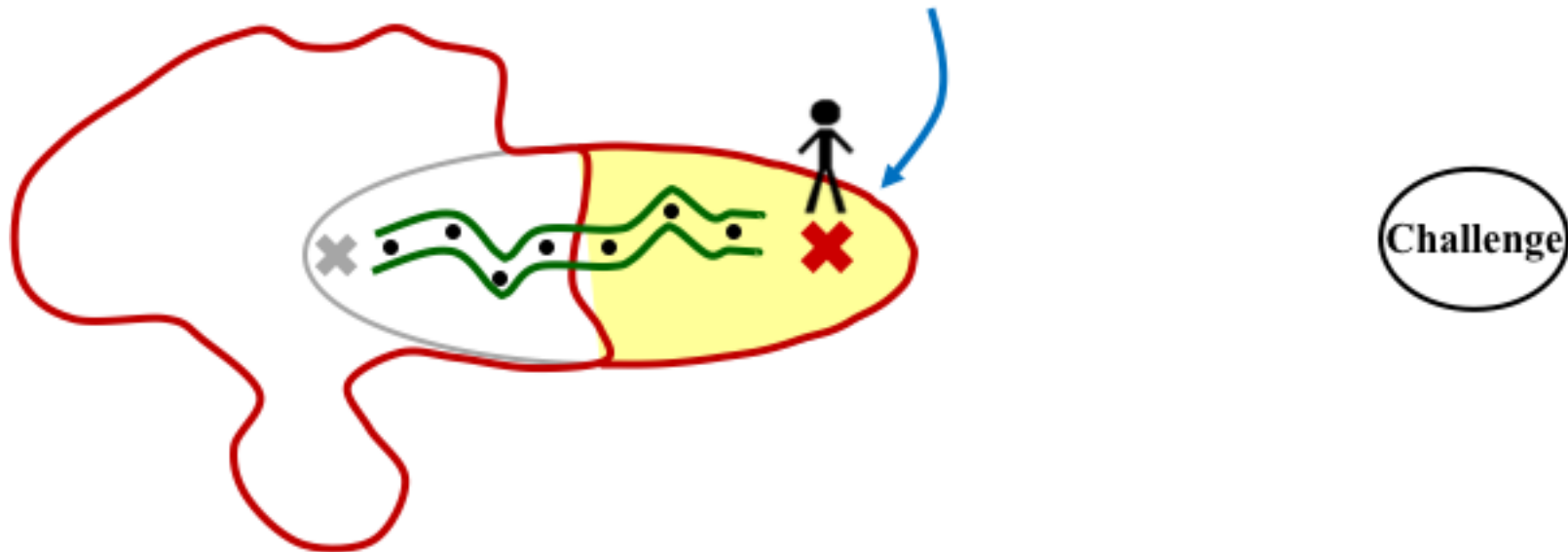


Tackling the specific obstacles to a defined target condition is a great framework for bringing everyone’s ideas into play!

Our human ingenuity is activated and channeled when we operate with boundaries and limits.

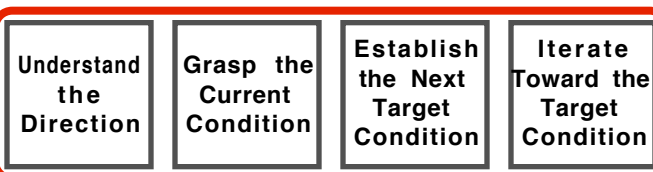
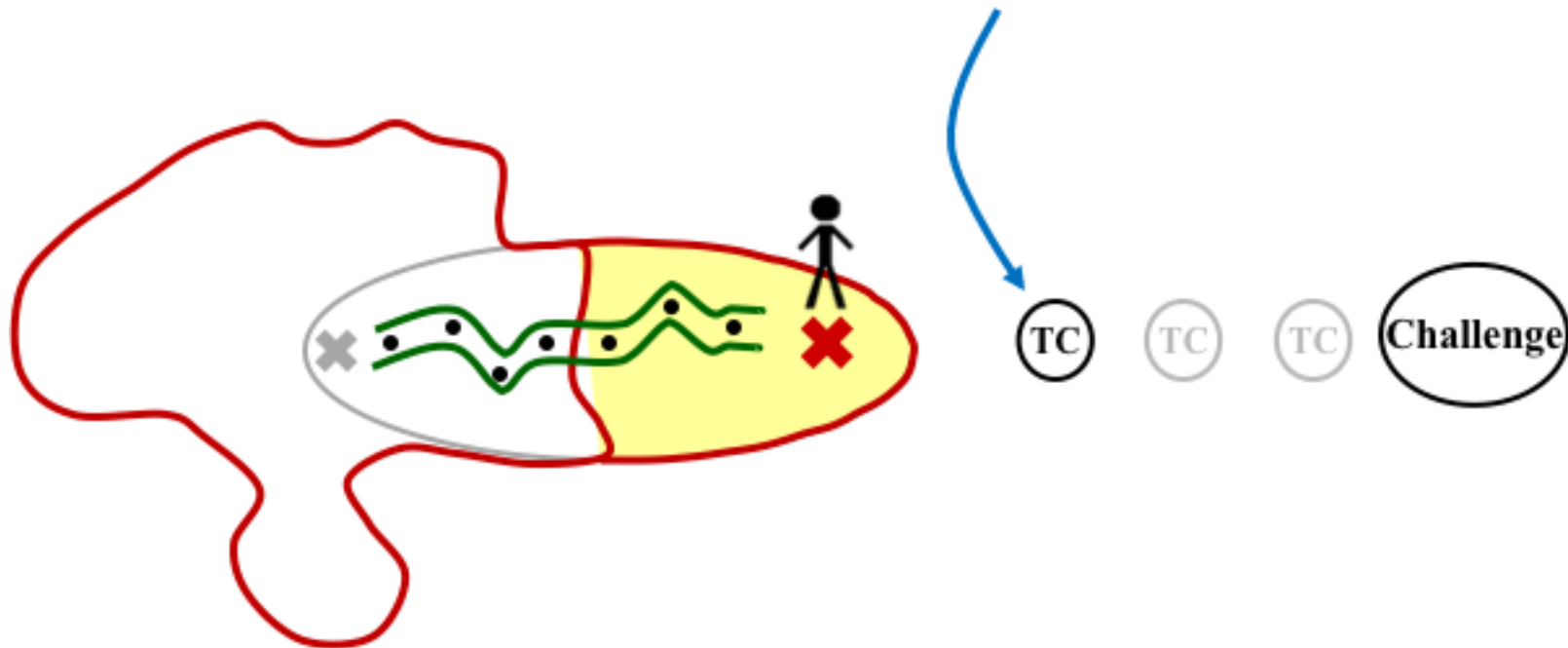
NOW YOU ARE HERE. There is a new threshold of knowledge and a new current condition. And the Learner has gotten more skillful in applying the Improvement Kata pattern.

- ✓ **New current state = improved performance**
- ✓ **Closer to the breakthrough challenge**
- ✓ **Expanded knowledge threshold**
- ✓ **Increased skill with the Improvement Kata**



REPEAT THE PATTERN. Once the target condition is achieved or its achieve-by date is reached, the steps of the Improvement Kata are repeated. Before that, however, the Learner and Coach reflect on what was learned in the last pass through the Improvement Kata. The pattern of the Improvement Kata then repeats as the Learner sets and then strives to achieve the next target condition toward the overarching challenge. It takes a series of target conditions to reach the challenge, but they are set one after another since you don't know in advance what the all necessary target conditions will be.

Next Target Condition Toward the Challenge



SUMMARY

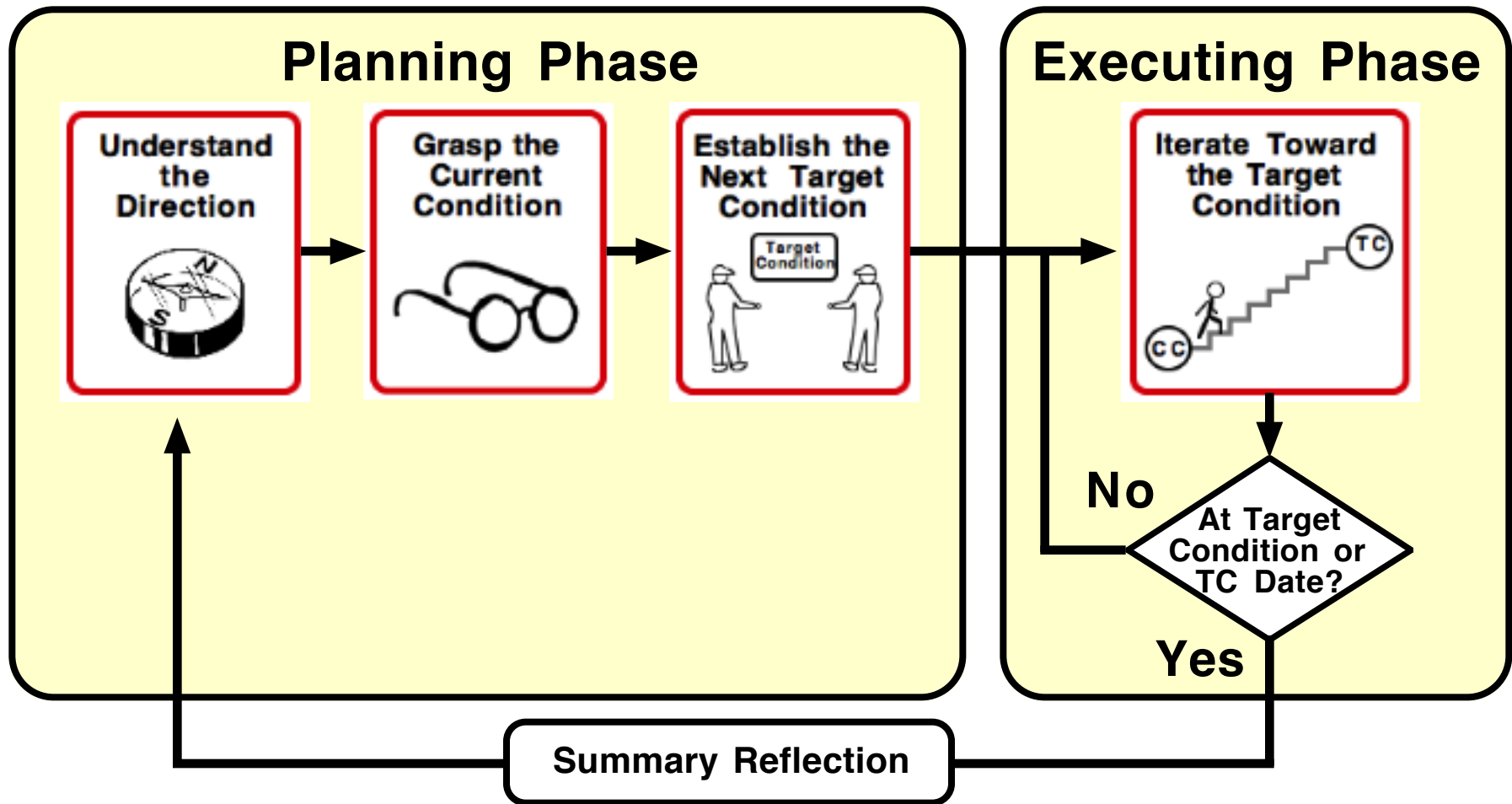


Diagram by Håkan Forss & Mike Rother



THE IMPROVEMENT KATA IS A META SKILL

It's working on how you think



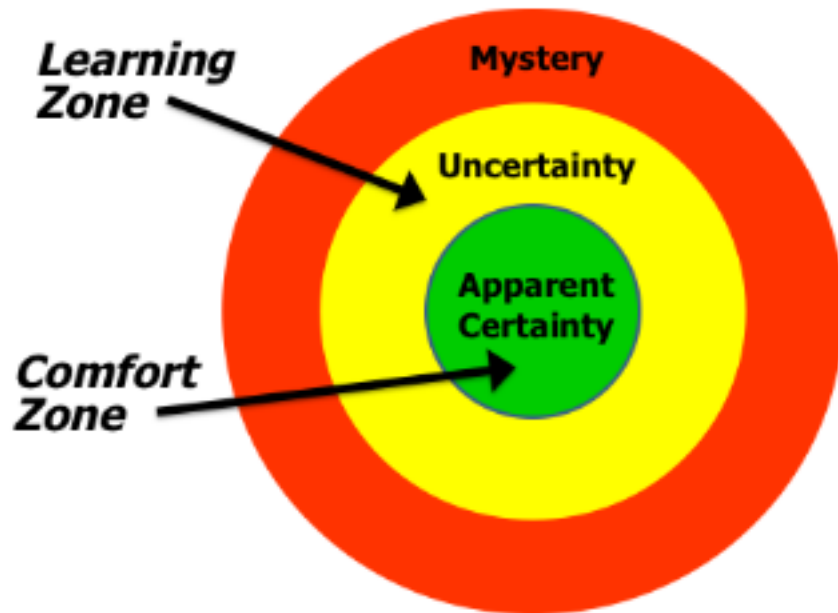
Every organization has work routines. The pattern of the Improvement Kata is a different and particularly powerful routine because it's a *meta skill*. It's a "meta-habit" that aims to change your mental operating system so your human capabilities come to greater fruition.

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 scientific 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.

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

It's a kind of security blanket



The Improvement Kata gives you a way of having fewer negative emotions and more confidence and motivation when you navigate unclear territory. *“I’ve never done that before, but I know how to figure it out and find the way.”* It helps you experience uncertainty more as an opportunity.

THE CHAIN REACTION WE'RE LOOKING FOR

Practicing the scientific pattern and routines of 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 scientific pattern of 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



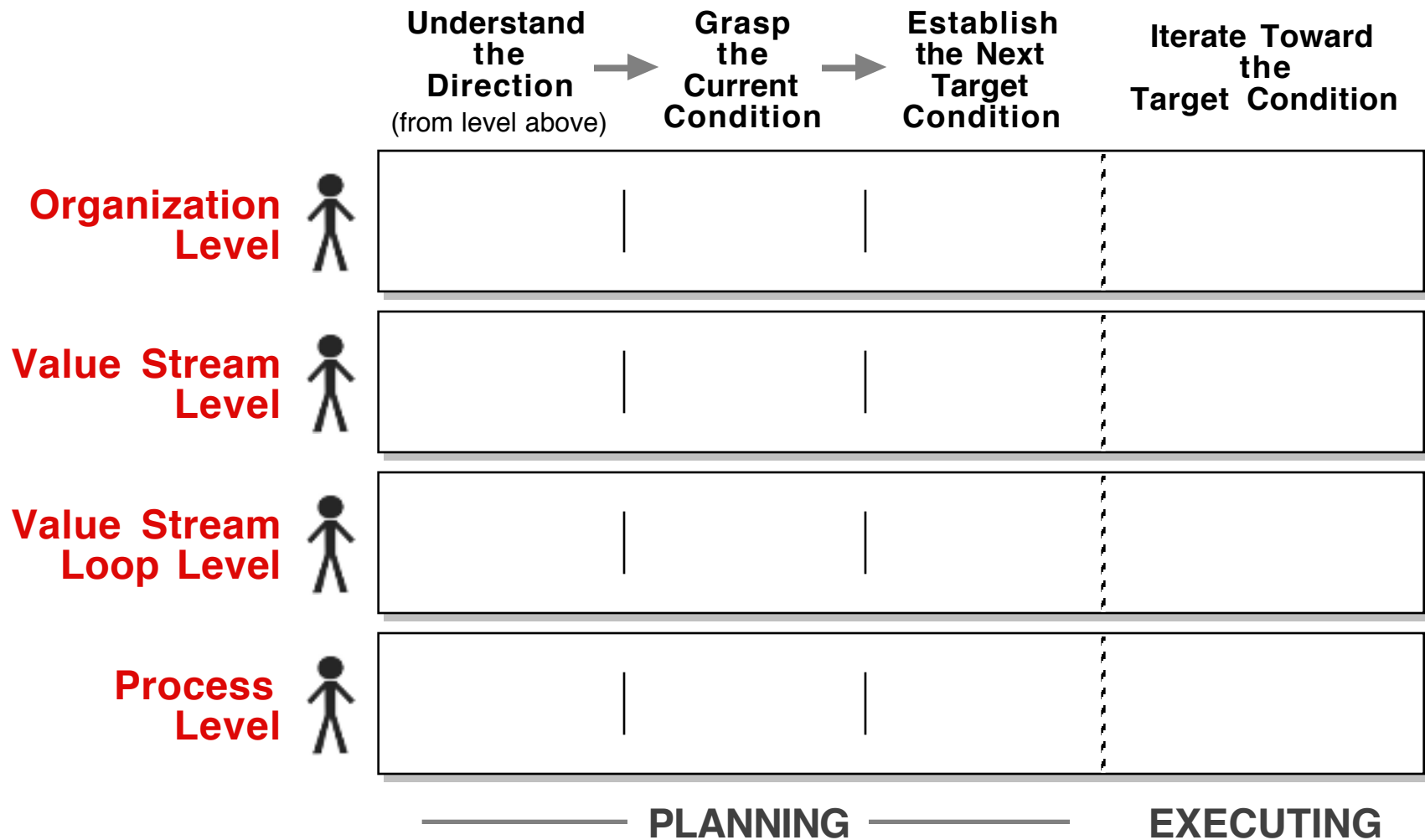
Which allows them to be more open to new challenges!

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

Self-Efficacy develops *along the way* through personal experience. Self-Efficacy is learned!

THE IMPROVEMENT KATA PATTERN IS USED AT ALL LEVELS OF AN ORGANIZATION

The content is different, but the pattern is the same



THE IK IS TOYOTA'S FUNDAMENTAL PATTERN FOR IMPROVING, ADAPTING, INNOVATING & MANAGING

The Improvement Kata pattern is the fundamental way of working at Toyota, and there are several Toyota practices through which this pattern gets utilized and reinforced. The research found the Improvement Kata pattern underlying all of them, and ultimately it is taught to everyone at Toyota.

It's not surprising that the pattern that Toyota's managers teach matches models of the scientific creative process.

Toyota Practices:

- Daily Management
- Daily Problem Solving
- "Toyota Business Practices"
- A3
- Improvement Events
- Standard Work
- Quality Circles

*What's behind
all of these*



**The
Improvement Kata
Pattern**

TRYING TO COPY TOYOTA'S VISIBLE TOOLS AND ACTIVITIES DOESN'T WORK

At Toyota the Improvement Kata pattern is lodged in its people; specifically in its seasoned coaches who guide Learners in practicing and learning this pattern of thinking and acting.



This means copying visible Toyota activities – such as A3s – without bringing along the enabling coaching environment is unlikely to change much. Mindset change and skill development come from correct & frequent practice of a pattern, not just from using Toyota-style tools and activities.

Teams and organizations outside Toyota would do well to begin with structured IK & CK routines for Learners and Coaches to practice, like those in this Handbook, and then over time develop their own activities and tools.

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

If you teach Lean solutions without also teaching the Improvement Kata routine, you're unlikely to develop the skill and disposition for day-to-day continuous improvement that characterize Toyota and Lean

Visible Aspect of Lean

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



Less Visible Aspect

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





HOW DO THE LEAN TOOLS AND PRACTICES FIT IN?

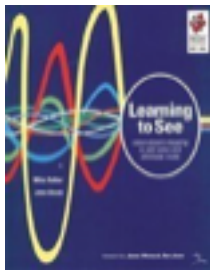


Lean tools, techniques and principles to improve quality, cost and delivery are as useful and important as ever, but they should be applied within the context of the Improvement Kata. *What are you trying to achieve?*

Lean tools are brought in (pulled) situationally as needed. The mindset you're trying to develop is one of working iteratively to discover and do what is necessary to achieve a goal, as opposed to a mindset of pushing and implementing pre-defined solutions or tools.

For example, if a kanban system will help a team achieve its target condition, then at that point kanban is brought in and utilized. Teams stay focused on their next target condition.

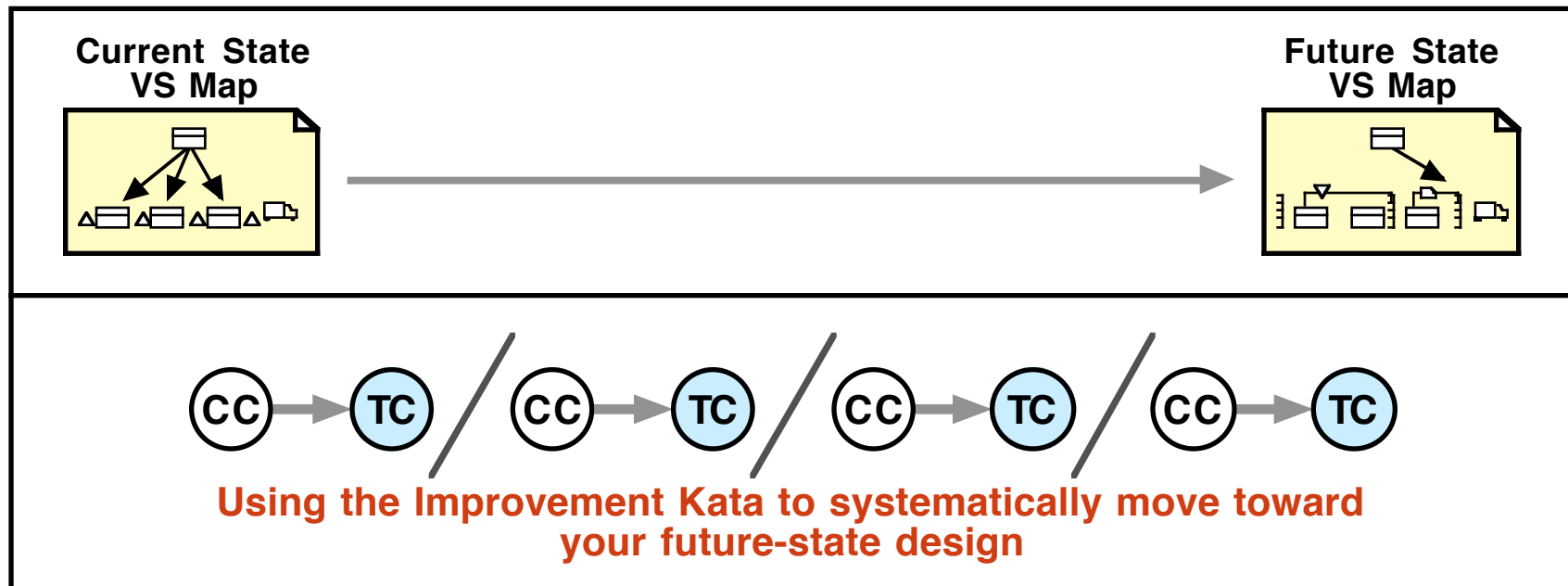
This approach makes our efforts more meaningful and successful. It teaches us more scientific & effective habits of thinking and acting.



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.



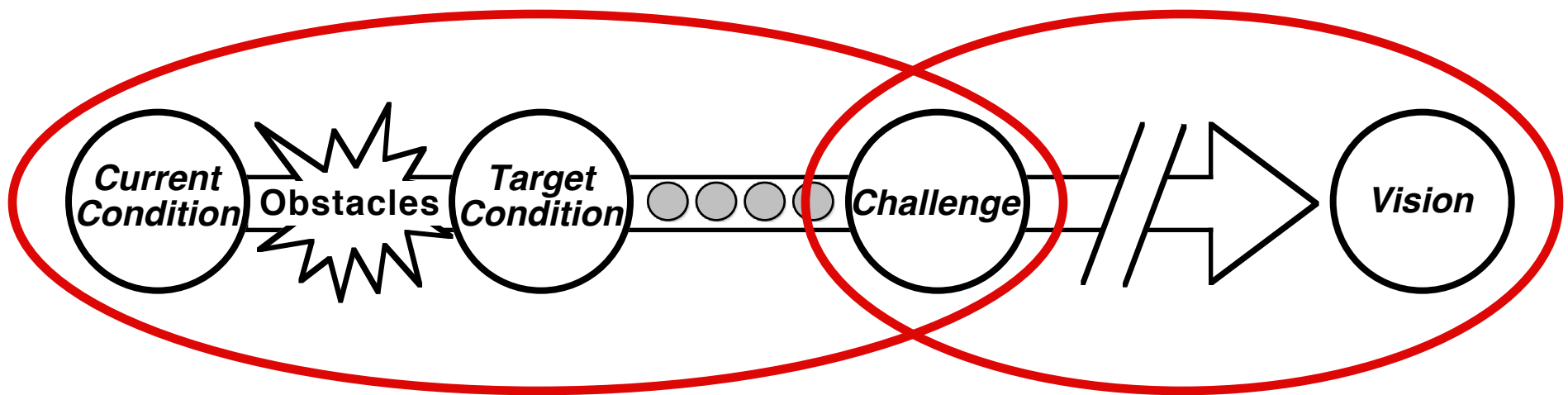
CC = Current Condition, TC = Target Condition

THE IMPROVEMENT KATA CONNECTS THE STRATEGIC AND THE OPERATIONAL

Pursuing a common challenge is important for achieving alignment

Coaching day-to-day application of the Improvement Kata across the organization is the job of managers

Establishing direction is part of leadership



Managing

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

Leading

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

THE IMPROVEMENT KATA IS ABOUT PROACTIVELY 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.



Proactive Striving

- A step-by-step process aimed at a desired, new 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

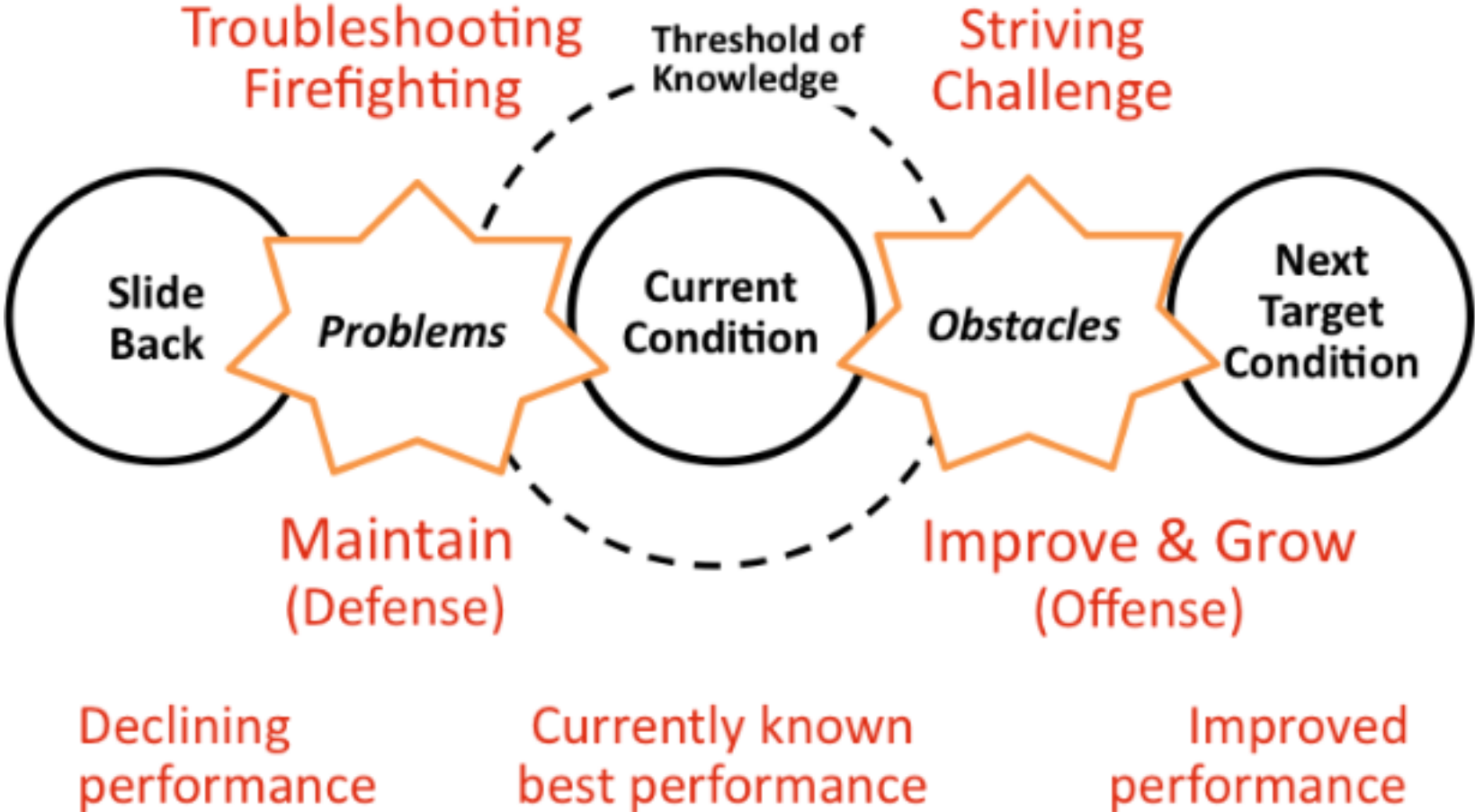


Diagram by Emiel Van Est



CONTINUOUS IMPROVEMENT REQUIRES PROACTIVE 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.

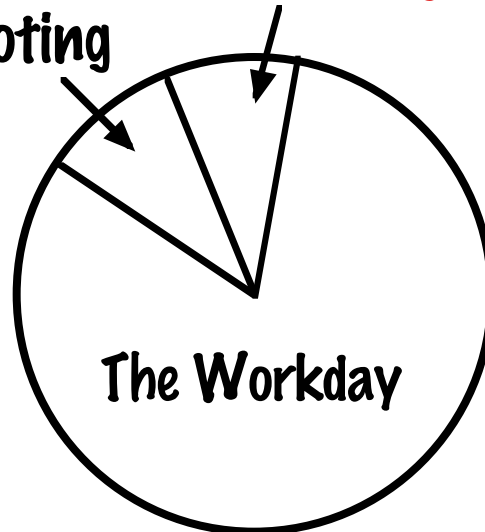
To achieve continuous improvement, adaptation and innovation a portion of everyone’s workday should involve striving toward the next challenge and target condition

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.

THE *ACTION OF INNOVATION*

Meeting a challenge involves lots of small steps

We like to talk about our outcomes, our inventions, and tend to overlook the day-to-day enterprise of the steps that get us there; the successive target conditions and all that iteration.

Unlike what you may think, the *action of innovation* is the day-to-day work of iterating toward a challenging goal.

When you realize that progress arises from accumulation of steps, often across the organization, it makes great sense to develop the capability of people in the organization to do focused, systematic continuous improvement on their processes.

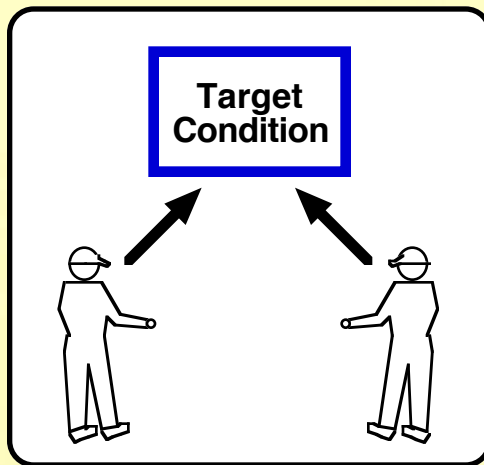


KEY POINT

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 approach may not lead your organization to sustained competitiveness.

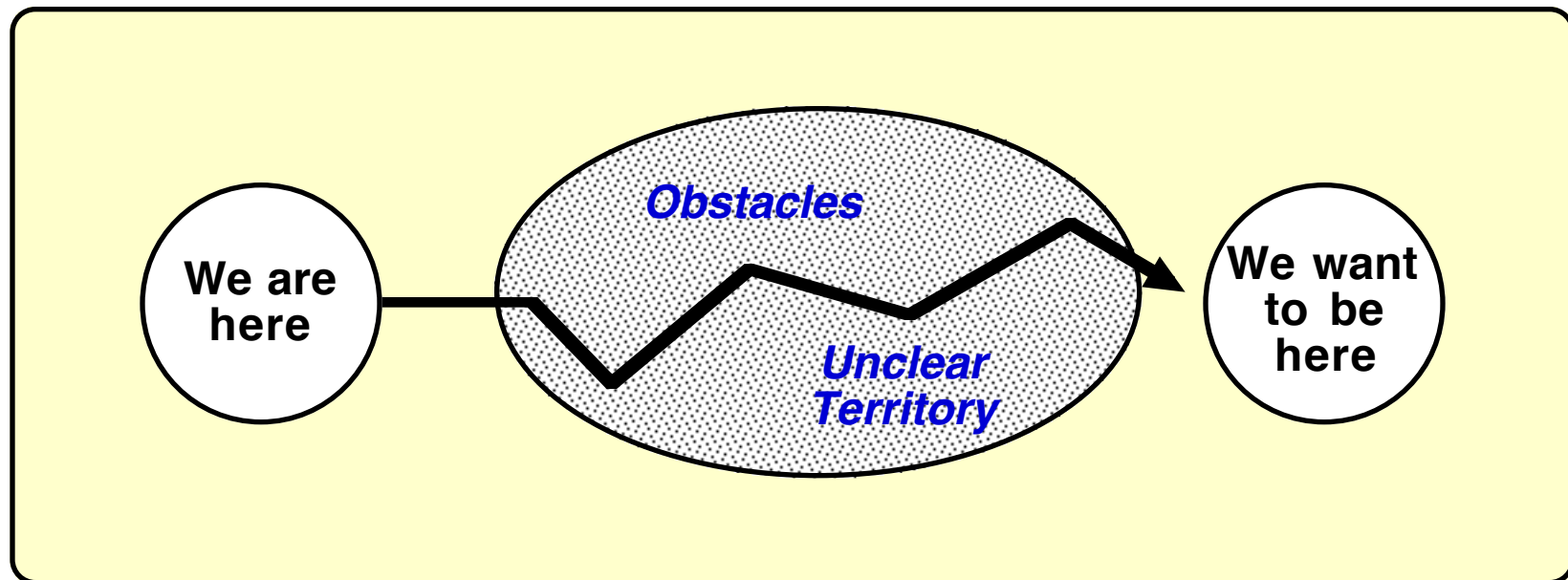


First take time to consense on a target condition.

(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.

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



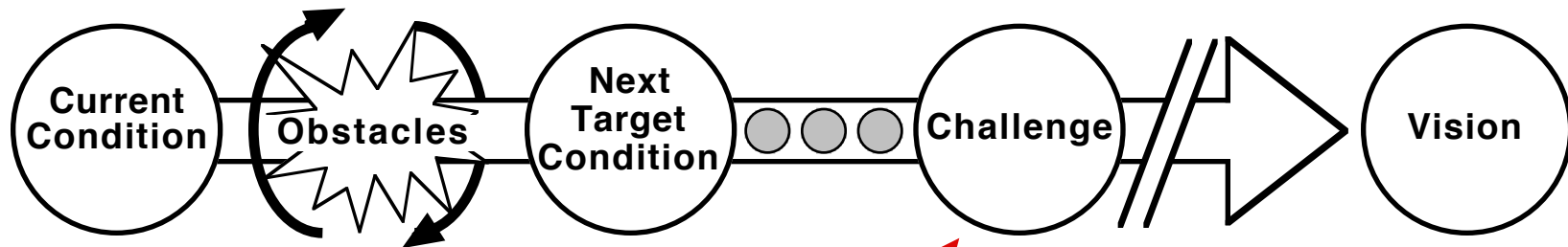
ONE MORE THING

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



DISASSEMBLING THE IMPROVEMENT KATA

PART II of the Handbook takes you through the step-by-step details of these four routines to practice



1: Understand the Direction

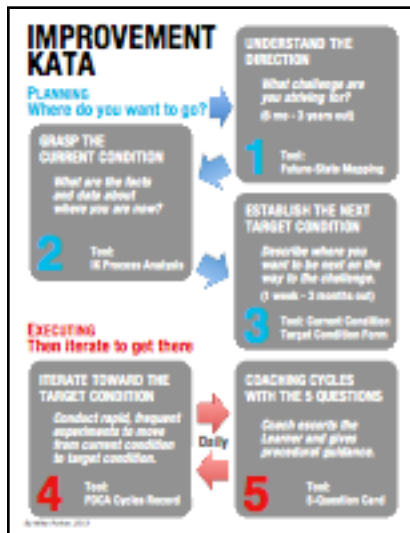
3: Establish the Target Condition

4: Move Toward the Target Condition Iteratively

2: Grasp the Current Condition



YOU are here!



PRINT OUT THE **POSTER**
ON THE NEXT PAGE AS A GUIDE

KEEP THE POSTER IN VIEW AS
YOU GO THROUGH THE REST
OF THE HANDBOOK

IMPROVEMENT KATA *Where's the Threshold of Knowledge?*

PLANNING

Where do you want to go?

GRASP THE CURRENT CONDITION

*What are the facts
and data about
where you are now?*

2

Tool:
IK Process Analysis

UNDERSTAND THE DIRECTION

*What challenge are
you striving for?
(6 mo - 3 years out)*

1

Tool:
Future-State Mapping

ESTABLISH THE NEXT TARGET CONDITION

(with an achieve-by date)

*Describe where you
want to be next on the
way to the challenge.
(1 week - 3 months out)*

3

Tool: Current Condition
Target Condition Form

ITERATE TOWARD THE TARGET CONDITION

*Conduct rapid, frequent
experiments to move
from current condition
to the target condition.*

4

Tool:
PDCA Cycles Record

COACHING CYCLES WITH THE 5 QUESTIONS

*Coach escorts the
Learner and gives
procedural guidance.*

5

Tool:
5-Question Card

EXECUTING Then iterate to get there

Daily

Chapter 2

GUIDELINES FOR PRACTICING THE IMPROVEMENT KATA AND COACHING KATA





IT TAKES PRACTICE TO ACQUIRE NEW SKILLS AND MINDSET

The Improvement Kata and Coaching Kata represent skill-based capabilities. Acquiring the abilities is similar to learning a sport, a musical instrument or a language. You can read a book on how to play the guitar, you can attend a seminar, etc., but you actually learn to play by doing.



The 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.

But before we get going let's talk a little about *practicing*.

THE BASIC PROGRESSION OF IMPROVEMENT KATA SKILL

***“MANAGING”
is here***



Able to TEACH it

Can instruct, coach and counsel others in practicing the Improvement Kata pattern

At this point you understand the ‘why’ behind the kata pattern and can teach others



Able to DO it

Can successfully apply the Improvement Kata to real goals in your own work environment

Skill development begins here. Learning and an increase in self-efficacy begin when you start successfully applying the Improvement Kata yourself.



AWARE of it

Have basic knowledge of the Improvement Kata from books, websites, seminars, workshops

Concepts alone generally won’t change anything

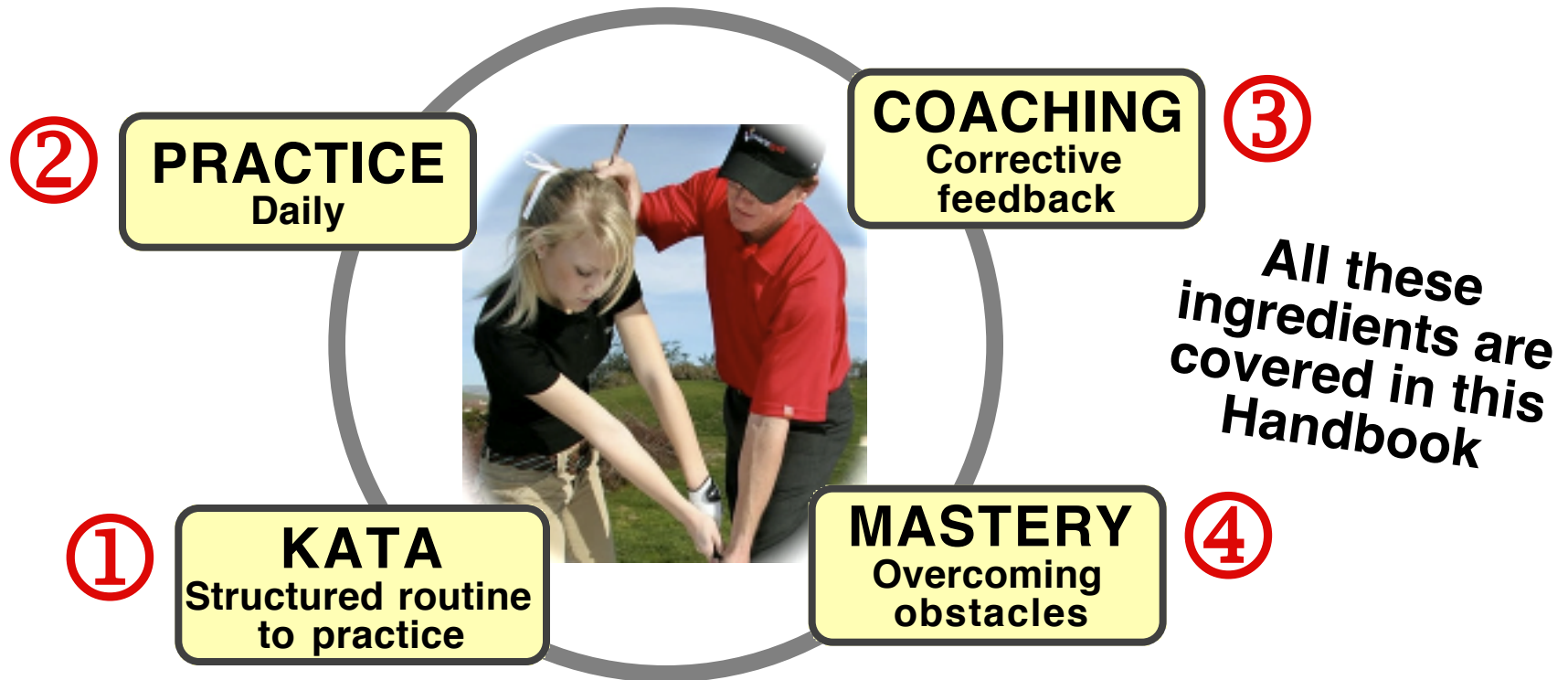




4 INGREDIENTS FOR LEARNING A NEW SKILL

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 and experience a progressive sense of mastering them.

Specifically, as we know from sports and music, with the following ingredients you can rewire your brain to acquire new skills and habits: (1) a structured routine for beginners to practice, (2) repetition, (3) feedback from a coach to correct your practice and (4) optimism from feeling that you're overcoming obstacles and making progress.

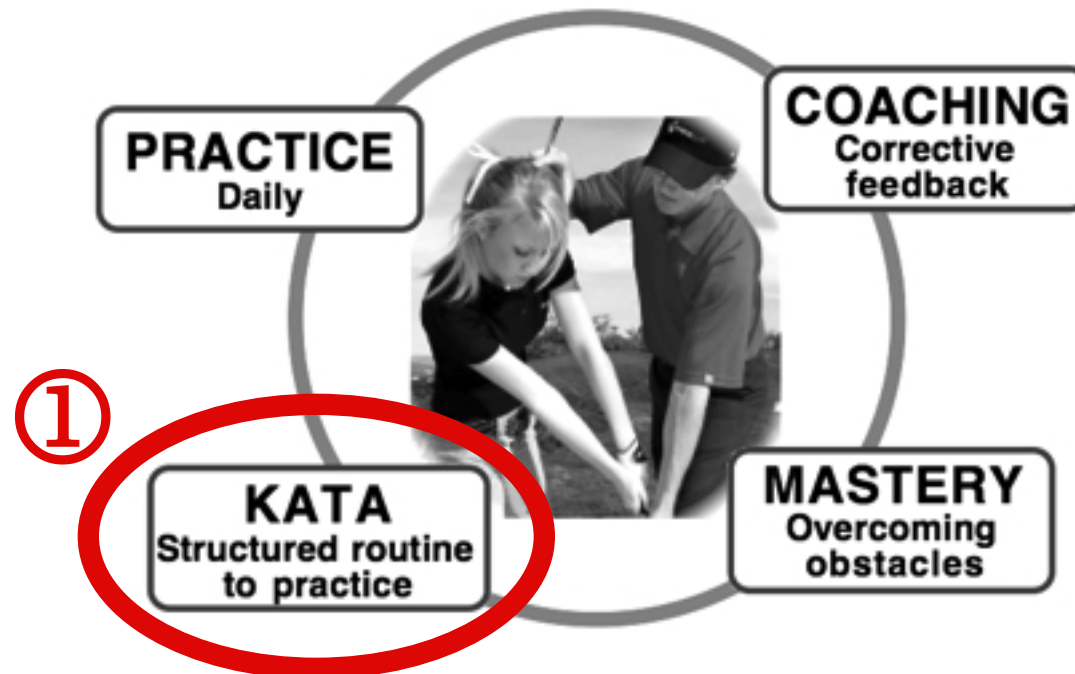







START YOUR PRACTICING WITH STRUCTURED PRACTICE ROUTINES (KATA)

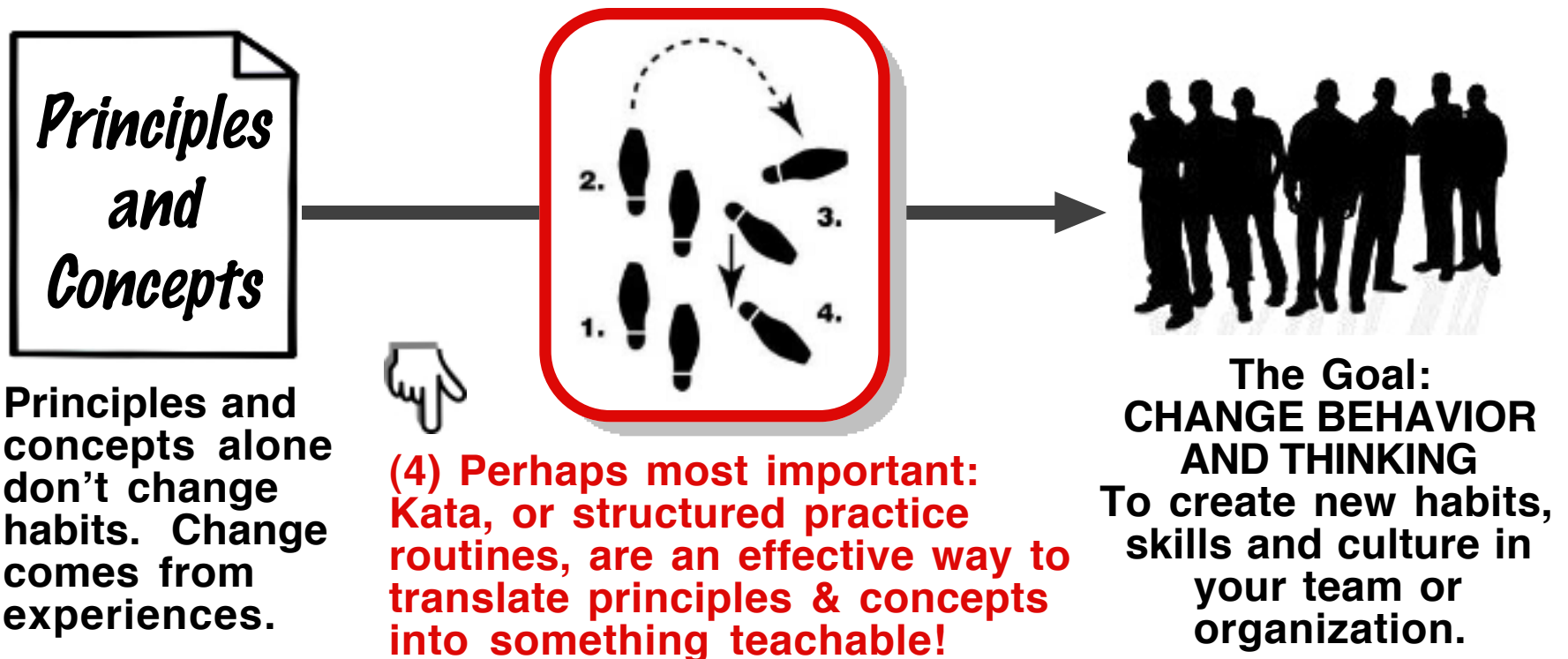
Most beginners acquire new skills better when they start with structured routines to practice. This is especially true when you want to develop a shared set of skills and common mindset across a *team or organization*.

There have been many concepts about better ways of managing which for decades still haven't gotten integrated into and changed how we run our businesses. Concepts that don't come with concrete practice routines by themselves are unlikely to lead to change. They may be good ideas, but they lack a way of operationalizing them. These are "Concepts without a Kata".



THE ROLE OF STRUCTURED PRACTICE ROUTINES (KATA)

-  (1) Kata help beginners start acquiring a new skill by providing a step-by-step routine to practice.
-  (2) Kata give the coach a way to gage the Learner's performance. To see errors you need something to which you can compare.
-  (3) Kata give you a way of developing a common mode of thinking and acting across a *team or organization*, which works better when you have specific shared routines to teach and practice.



THREE STAGES OF KATA PRACTICE

A kata is a stepping stone for anyone who wants to acquire new skills. Your practice and learning process should go through these stages*



**Structured
Practice
Routines** **HERE**

STAGE 1: PRACTICE THE KATA EXACTLY

At first you repeat the forms with discipline, executing the kata without variation. It may feel awkward when you start, but as you go through repetitions it becomes more flowing.

Any time you learn a new skill you're a beginner in that area, which means starting with some repetitious exercises.

STAGE 2: PERSONALIZE YOUR PRACTICE

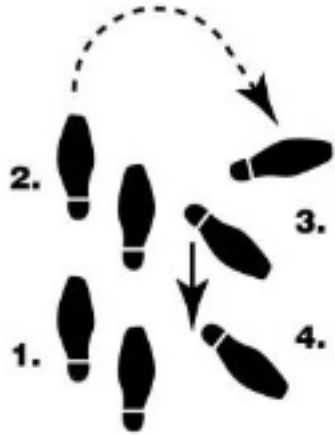
Don't think the goal is to stay with the rigid forms of Stage 1, because then your practice will become formulaic. Once the basic forms have been absorbed and can be executed successfully ("proficiency") you can make modifications to your practice. You now appreciate and use the kata because you understand the technical wisdom -- the "why" -- within them, and you adapt the patterns to your situation.

STAGE 3: INTUITIVE OPERATING

At this stage you've absorbed the patterns of the kata to such an advanced level that you can be creative and unhindered -- spontaneous and efficient -- while still working within the principles. The underlying truth of the kata remains, but you almost forget the techniques and aren't limited by a conscious thought process. Your mind now operates on a higher level than previously possible.

*Real life doesn't pass through such discrete stages, but it's a useful way to depict the progression.

STAGE 1 MEANS FOLLOW THE PATTERN



The first stage of practicing a new pattern is to *do it as described*. Try to copy the pattern exactly; to replicate the routine in a deliberately precise way. The pattern may feel wrong or unnatural, but resist the temptation to change it at this point.

We often dislike going through this deliberate phase at the beginning, and its slowness can lead us to think it's not working. This is a mistake that can lock you into your current skillset.

Once the pattern enters your unconscious and becomes more habitual it gets faster, smoother and easier. Think of your early practice as *going slow to get fast*.

As your proficiency increases you'll see the purpose behind the steps. At that point you can be more open and develop your own style, so long as it continues to incorporate the purpose.

OVER TIME YOU CAN TAILOR THE IMPROVEMENT KATA PRACTICE ROUTINES TO SUIT YOUR ORGANIZATION

Every organization is unique, and each ultimately requires slightly different practice routines.

However, the first stage of your practicing is to try to do the routines presented here exactly. If you practice daily and gain proficiency you'll absorb the scientific logic behind these routines. Then, at that point, you can adapt them to your situation.

By initially setting limits on practice improvisation you'll acquire a sense for the essence, which then equips you to apply the Improvement Kata pattern to diverse situations skillfully.

HOW LONG DO YOU HAVE TO PRACTICE THE KATA EXACTLY BEFORE YOU CAN START TO VARY YOUR ROUTINE?



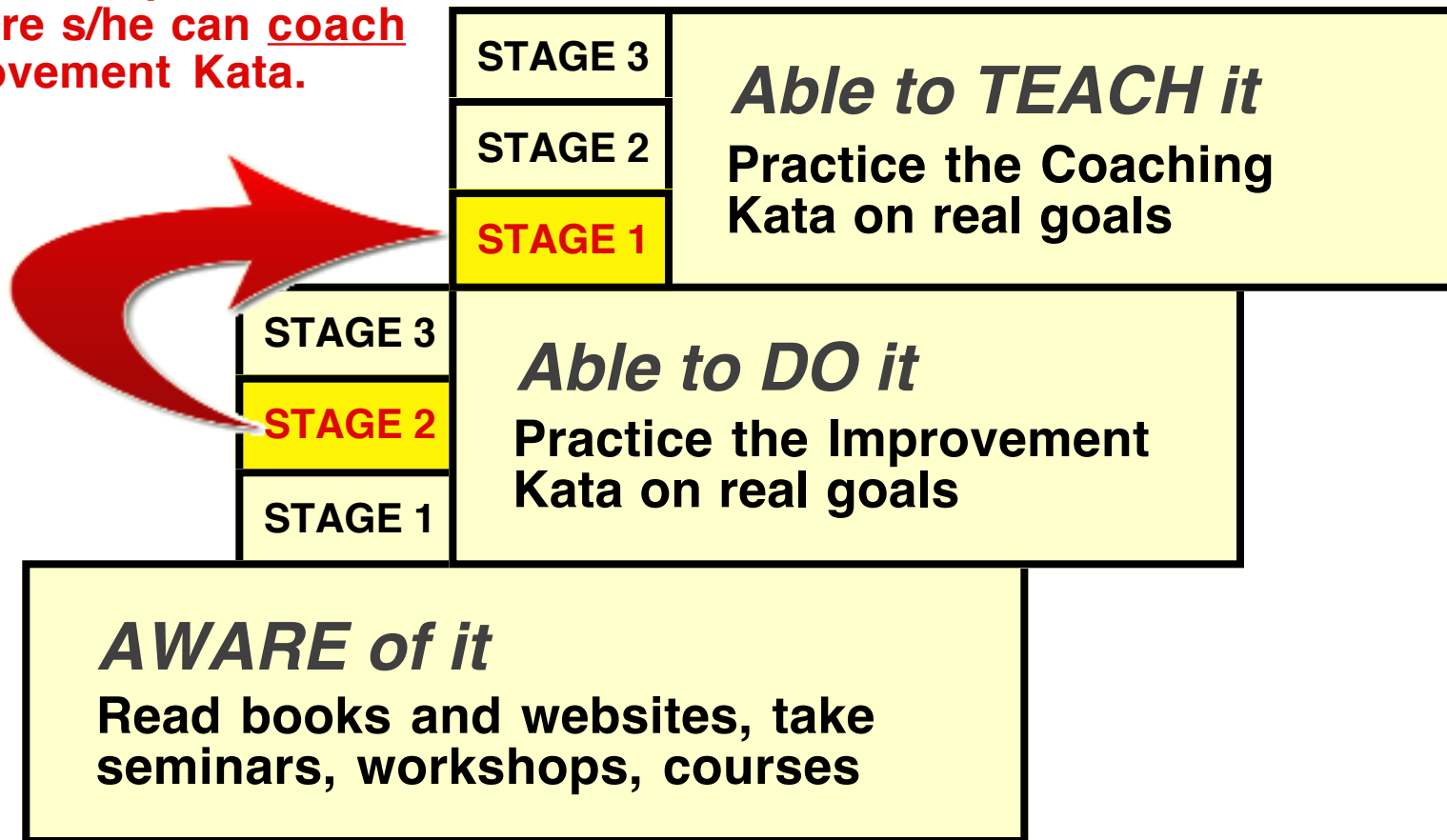
The answer to this question depends on each Learner's progress. The idea is to reach "proficient" level before varying the routine.

In general this may take 2 months of daily practice, with the Learner having done at least 30 PDCA cycles and having gone through all four steps of the Improvement Kata at least three times.

Beyond that, whenever you want to train a beginner, or want to refresh some basics, you go back to the kata again.

THE PROGRESSION OF YOUR IK/CK PRACTICE

DEMONSTRATED STAGE 2 PROFICIENCY in the Improvement Kata is ideally required to begin to practice coaching. The Coach needs to have personal experience with applying the Improvement Kata before s/he can coach the Improvement Kata.

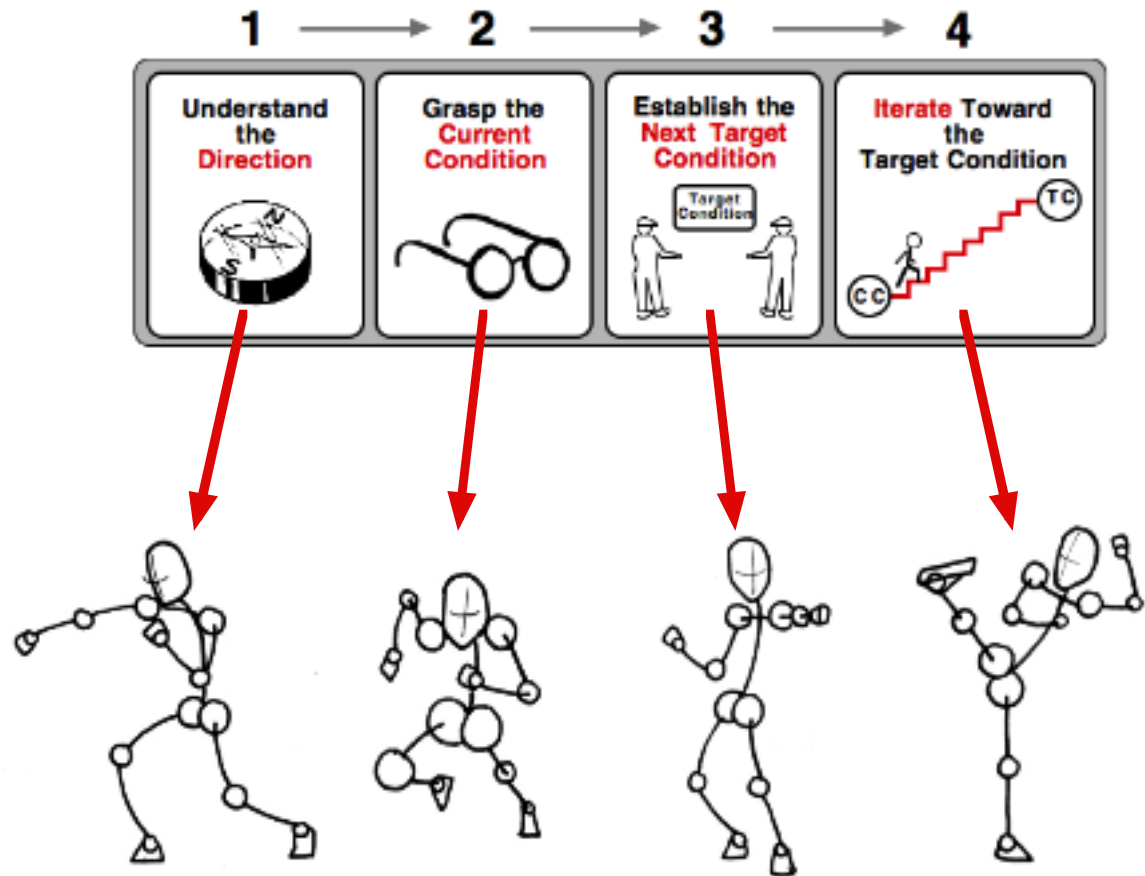


STAGE 3: intuitive operating
 STAGE 2: Personalize your practice
 STAGE 1: Practice the kata exactly

NOTE THE DISTINCTION

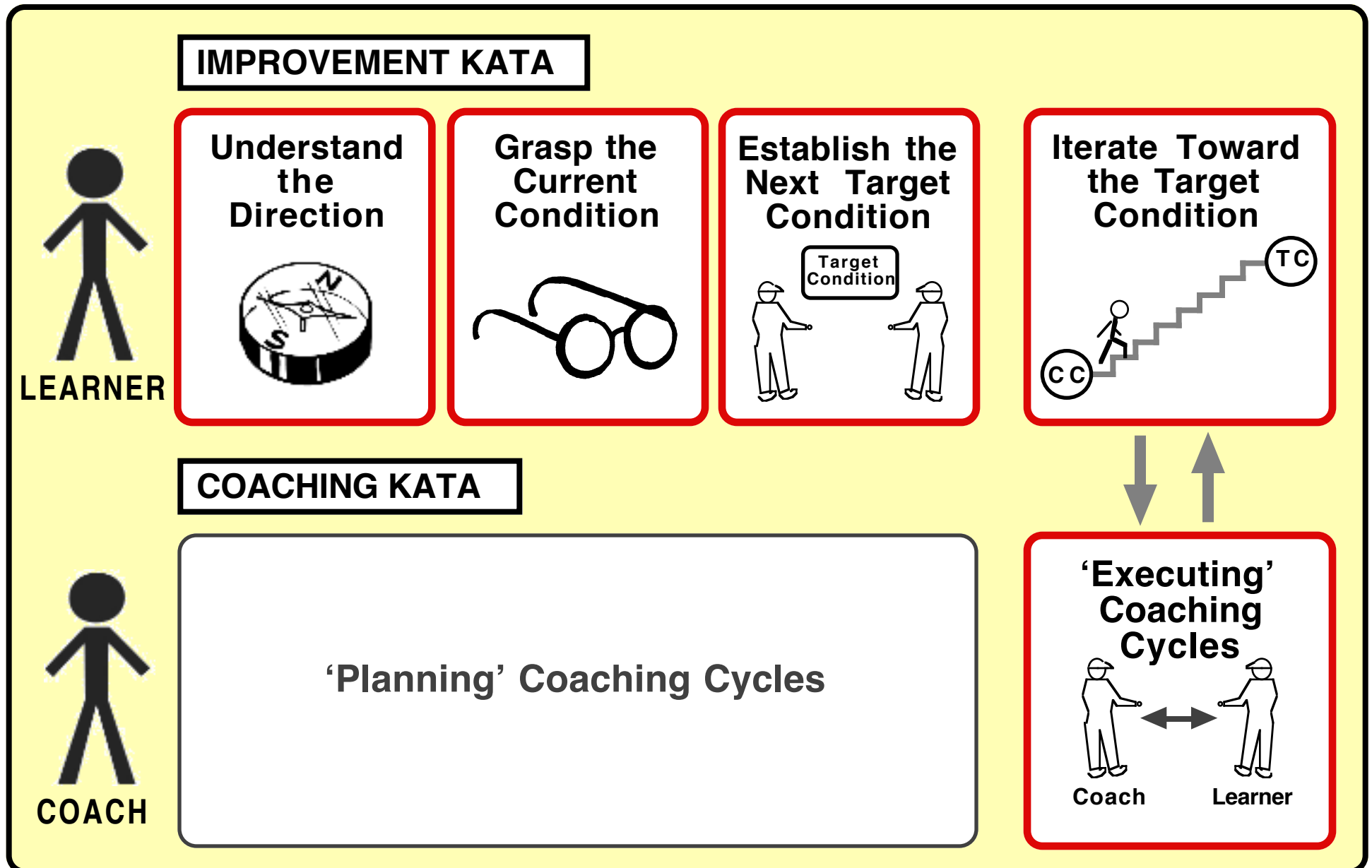
The scientific pattern of the Improvement Kata **model** is universal

Coached practice of specific **practice routines** is how you start to operationalize & internalize the pattern



The way the Improvement Kata and Coaching Kata patterns are presented in this Handbook is specific, detailed and structured because many people are at a beginner stage when it comes to scientific thinking and acting. The Improvement Kata and Coaching Kata practice routines are a structured way to teach at the start.

THIS HANDBOOK COVERS THE PRACTICE ROUTINES FOR THE IMPROVEMENT KATA AND COACHING KATA



WHERE YOU'LL FIND THE INSTRUCTIONS

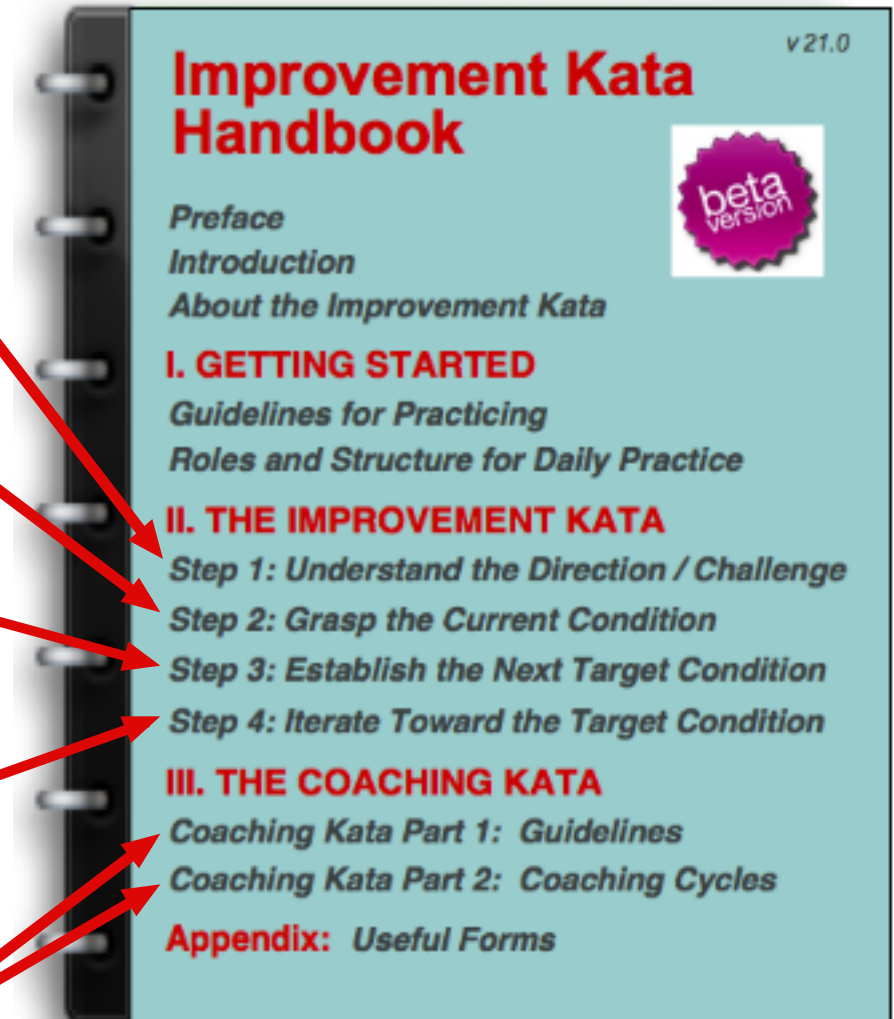
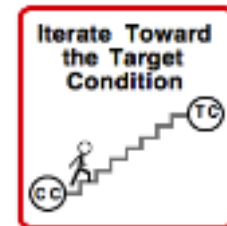
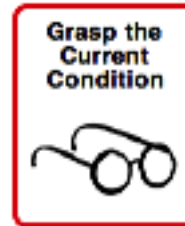
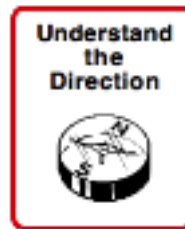
A kata for **Setting the Challenge**
(Step 1)

A kata for **Grasping the Current Condition**
(Step 2)

A kata for **Establishing a Target Condition**
(Step 3)

A kata for **Iterating to the Target Condition**
(Step 4)

A kata for **Coaching**



THE ROUTINES (KATA) YOU'LL BE PRACTICING

Understand the Direction



① **Understand the Direction.** The Improvement Kata pattern operates with an overarching sense of direction or goal. Understanding the “challenge” is important because your practicing should be related to the real-world business needs and objectives of your organization. Improvement Kata / Coaching Kata practice is more effective when it involves meeting actual challenges and goals. These are not theoretical exercises.

Grasp the Current Condition



② **Grasp the Current Condition.** Once the direction coming from the level above you is understood, you need to develop an understanding of the current (starting) condition at your level and process. Where are you today?

You'll practice this by following a systematic series of five steps called Process Analysis. Process Analysis is a routine or kata that allows anyone to quickly grasp the key characteristics of a process that define its capability and current pattern of work. The analysis is conducted through direct observation and simple, pencil & paper analysis tools.

Establish the Next Target Condition



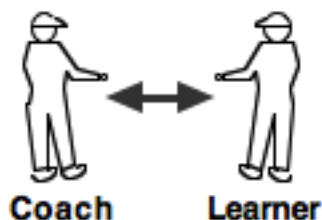
③ **Establish the Next Target Condition**. Once the Current Condition is adequately understood, you develop a descriptive next Target Condition for your process, which includes a specified achieve-by date. Where do you want to be next on the way to the longer-term challenge? The Target Condition is an objective that will stretch you and require experimentation, discovery and new learning in order to be achieved.

Iterate Toward the Target Condition



④ **Iterate Toward the Target Condition**. In this step you conduct experiments against obstacles to gain further knowledge and improve the process in the direction of the Target Condition. You'll practice by using a pencil & paper tool to plan, record and reflect on each experiment as you strive to reach the Target Condition on time.

Daily Coaching Cycles

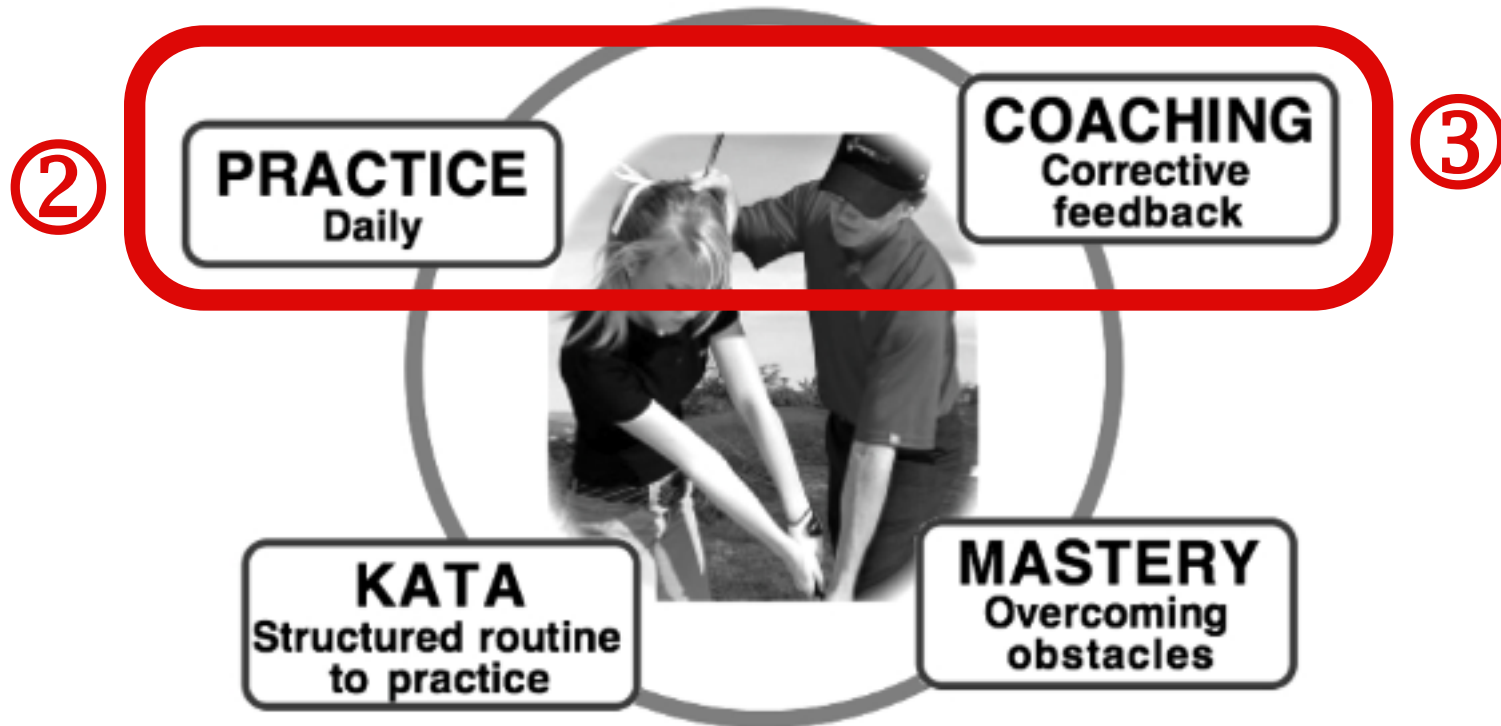


⑤ **Daily Coaching Cycles** come into play as the Learner works iteratively toward the Target condition. This is a systematic routine for a structured dialog between the Coach and Learner, whereby the Coach provides procedural guidance and corrects the Learner's practice as necessary.

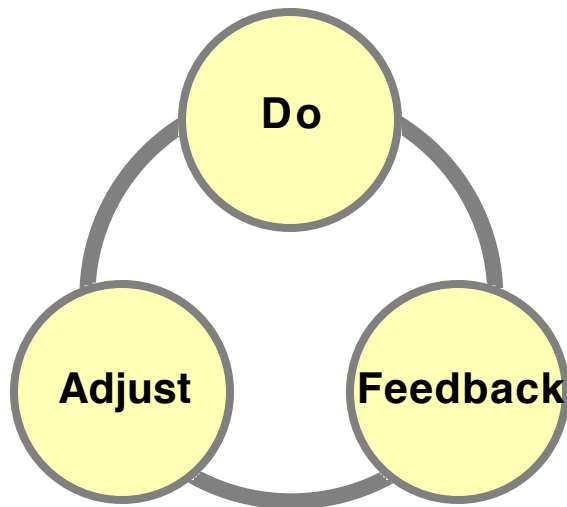


THIS IS ABOUT A TYPE OF PRACTICE CALLED “DELIBERATE PRACTICE”

Deliberate practice is not just lots of time spent practicing, but practice that follows a pattern of action, feedback, adjustment and action again.



DELIBERATE PRACTICE



- It's practice designed specifically to improve performance over time.
- It's practice that involves continual evaluation of your weaknesses and targeting specific weaknesses, rather than repeatedly doing what you already know how to do.
- It's practice that requires a coach. Observation and specific feedback on your current performance is critical to understanding what to work on and acquiring new skill.
- It's practice where you don't move on to the next part of the routine you're trying to learn until you master the part you're currently working on.

GET BETTER BY WORKING ON THE ERRORS

Practice is practice right? Nope. How well you master the Improvement Kata pattern depends a lot on *how* you practice, not just repeating the steps of the Improvement Kata a large number of times.



Practice aimed at remedying specific weaknesses is more important than raw number of hours. To make satisfying progress in practicing the kata explained in this Handbook you should:

- (A) Regularly seek to understand your current weaknesses, through feedback from your coach
- (B) Target certain ones (you can't work on everything at once!)
- (C) Invent specific tasks in your practice to address that targeted deficiency



Understanding and working on your errors “scaffolds” future performance by showing you what to concentrate on and practice next. It gradually gets easier.

Address your mistakes as they occur. You and your coach should identify the error, and then rehearse that part until it's corrected. Only then proceed to the next segment.

*An amateur trains until he gets it right.
A professional trains until he can't get it wrong. ~ Unknown*

THIS = PRACTICING IN THE “LEARNING ZONE”

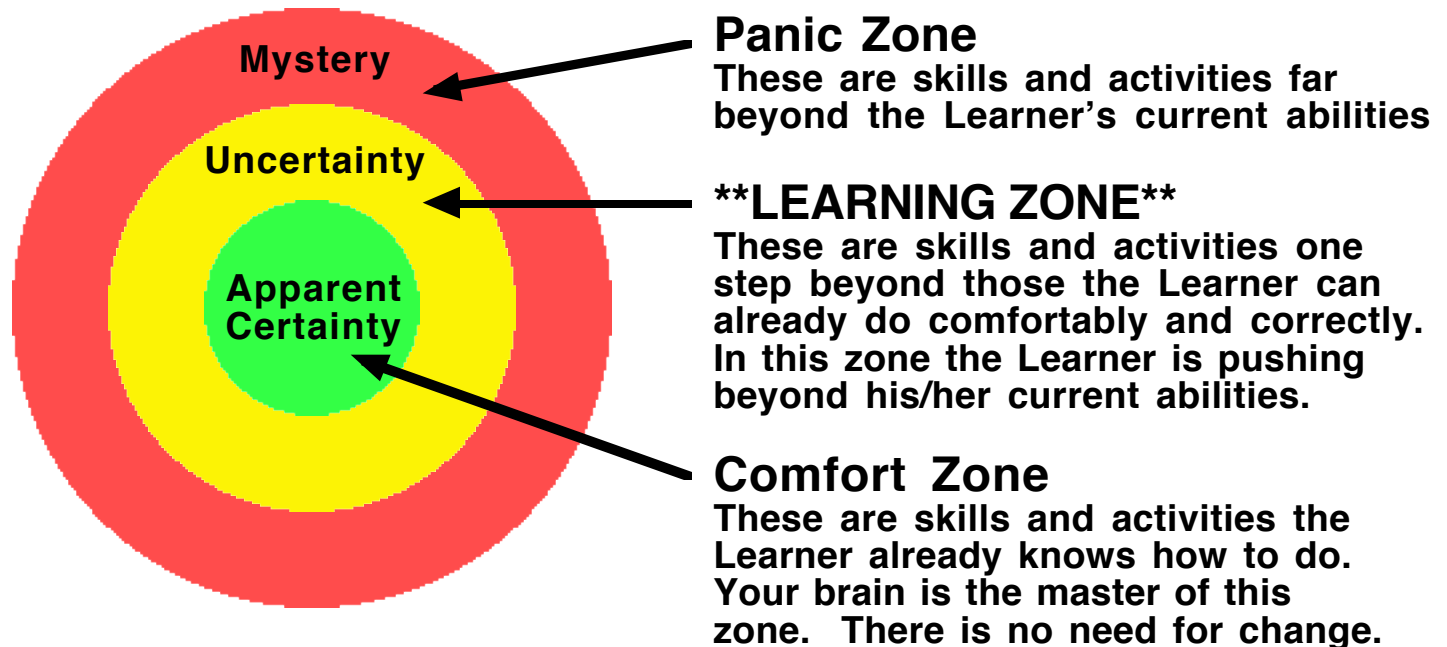
As your skill and comfort zone expand, keep revising your practice in order to stretch yourself beyond that zone

A key part of your IK/CK practicing is that it should lie in your *learning zone*. As shown in the diagram below, your learning zone is skills and abilities that lie just beyond the *comfort zone* of your current abilities.

No real learning takes place when you practice activities in your comfort zone, since these are skills and activities you've already mastered and can easily do.

Similarly, attempting to practice skills that fall in the *panic zone* is unproductive because you haven't yet acquired the prerequisites for those skills.

Your Coach should design practice tasks slightly beyond your current capabilities



What this means for the Coach:
FOCUS AND GIVE *SPECIFIC* FEEDBACK

The Coach could give all sorts of feedback to each Learner, but if the Learner doesn't focus on improving a specific part of their practice then it becomes less 'deliberate practice' and more just repetition

Feedback is essential to deliberate practice but it should be specific, purposeful feedback. The Coach's feedback should involve a corrective adjustment; i.e., specific behavioral actions that need to be undertaken to achieve the next, specific practice goal.

*"You need to draw better block diagrams," is poor feedback.
"Practice drawing block diagrams to show the flow of work, not the physical layout of the process," is good feedback.*

**Observe or question the Learner → Compare what you see and hear to the desired way of working (specified by the kata)
→ Give feedback and a specific next practice goal → Repeat**



Note that although you're developing team and organizational capability, the coaching is done one-on-one. One Coach can coach several Learners, but will do so one Learner at a time.

What this means for the Learner:
ENJOY THE LEARNING PROCESS

In order to move beyond the plateaus you'll inevitably reach, be willing and even excited to tackle your mistakes

It's not that the best IK/CK practitioners make fewer errors, it's that when errors occur they're not afraid to work on correcting them.

Struggle is a predictable part of the learning process and progress over time is what's important, not any particular win or loss. The best IK/CK practitioners derive motivation from their desire to master the IK/CK activity and the periodic feeling that one is getting better at it.

In fact, once you have some proficiency in the IK/CK, the obstacles and uncertainty you face can become the activity's very appeal.



Ingredients

A SENSE OF OPTIMISM WILL BE IMPORTANT

To develop new habits and self-efficacy through practice, the Learner should experience successes and the positive emotions that come from them.

It will be the responsibility of the Coach to give the Learner procedural guidance that makes the Learner periodically (not constantly) feel an increasing sense of mastery:

- > The Learner should experience successes in overcoming obstacles to learning the Improvement Kata pattern.
- > The Learner should experience successes in overcoming obstacles and achieving a challenging target condition through applying the Improvement Kata pattern.



AN IMPROVEMENT KATA SKILL-LEVEL SCALE

Note that this scale measures Improvement Kata skill level or degree of habit formation, not the person

You can use this proficiency scale to help assess a Learner's growth and readiness to Coach. It's a guideline to give you behaviors to look for as Learners develop their capability.

Stage	Level	Description	Standard of Work	Autonomy
3	Expert Not everyone reaches this level	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
	Proficient	Has unconscious understanding and applies the IK routine more on "auto pilot." Deviates from the strict kata to fit the situation. Sees what's most important in a situation. High degree of self-efficacy with the IK pattern.	Fully acceptable standard achieved routinely	Able to take full responsibility for own work, and coach others
Competent		Has standardized and routinized procedures Sees actions partially in terms of LT goals Can prioritize	Fit for purpose, though may lack refinement	Able to achieve most tasks using own judgement
1	Advanced Beginner	Actions are based on the kata 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 coaching needed for overall task
	Novice	Strict adherence to the Kata. Little situational perception & discretionary judgement. Has to purposely concentrate on the IK routine. Low self-efficacy in applying the IK routine.	Unlikely to be satisfactory unless closely coached	Needs close coaching and instruction

Able to Coach

Scale adapted from the Dreyfus Model of Skill Acquisition

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

FROM *NOVICE* TO *PROFICIENT*

You don't need to reach 'Expert' level with the Improvement Kata

Generally you're practicing in order to get from 'Novice' level to 'Proficient' level. Not everyone reaches 'Expert' level, and you can be fully capable without it.



Stage	Level	Description	Standard of Work	Autonomy
3	Expert Not everyone reaches this level	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
	2	Proficient	Has unconscious understanding and applies the IK routine more on "auto pilot." Deviates from the strict kata to fit the situation. Sees what's most important in a situation. High degree of self-efficacy with the IK pattern.	Fully acceptable standard achieved routinely
		Competent	Has standardized and routinized procedures Sees actions partially in terms of LT goals Can prioritize	Fit for purpose, though may lack refinement
1	Advanced Beginner	Actions are based on the kata 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 coaching needed for overall task
	Novice	Strict adherence to the Kata. Little situational perception & discretionary judgement. Has to purposely concentrate on the IK routine. Low self-efficacy in applying the IK routine.	Unlikely to be satisfactory unless closely coached	Needs close coaching and instruction

A PLANNING & ASSESSMENT FORM FOR IMPROVEMENT KATA SKILL

Coach and Learner together can use the form on the next page to plan and track the Improvement Kata skill development of the Learner over periods of time.

How the form might be used:

- For any kata the Learner is practicing indicate the **current skill level** with a filled-in circle and the date.
- For any kata the Learner is practicing indicate the **next target skill level** with an open circle and the target date.






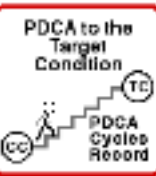
The form becomes a bar chart from left to right.

Determining a person's overall skill level is, of course, a somewhat subjective judgement. It's also not the most important factor in getting more skillful.



More important than an overall skill-level assessment is that in their daily coaching cycles the Coach and Learner decide on what small aspect(s) of the kata pattern the Learner should work on improving next.



Learner:		Coach:			
	STAGE 1 PRACTICING		STAGE 2 PRACTICING		STAGE 3
	<i>Novice</i>	<i>Advanced Beginner</i>	<i>Competent</i>	<i>Proficient</i>	<i>Expert</i>
Description	Strict adherence to the Kata. Little situational perception & discretionary judgement. Focuses on the routine. Low self-efficacy with IK.	Actions based on the kata Situational perception still limited All aspects are given equal importance	Has standardized and routinized procedures Sees actions partially in terms of long term goals Can prioritize	Unconscious understanding. Applies IK on 'auto pilot.' Sees what's most important & fits actions to situation. High self-efficacy with IK.	No longer relies on rules / guidelines / maxims Grasp of situations & decision making intuitive Vision of what is possible
Standard of Work	Unlikely to be satisfactory unless closely coached	Straightforward tasks likely to be completed to an acceptable standard	Fit for purpose, though may lack refinement	Fully acceptable standard achieved routinely	Excellence achieved with relative ease
Autonomy	Needs close coaching and instruction	Able to achieve some steps using own judgement, but coaching needed for overall task	Able to achieve most tasks using own judgement	Able to take full responsibility for own work, and coach others	Able to take responsibility for going beyond existing standards and creating own interpretations
					Not everyone
					reaches this level
					Not everyone
					reaches this level

A COACHING KATA SKILL-LEVEL SCALE

Coach:		2nd Coach:		
Stage	Level	Description	Autonomy	Assessment & Planning
3	Expert Not everyone reaches this level	<ul style="list-style-type: none"> • Intuitive grasp of coaching based on deep, practiced understanding • Direct, yet supportive • Coaching conversations are natural; learner doesn't notice being coached • Sought after for coaching advice 	2nd Coach needed occasionally	Not everyone reaches this level
	2	Proficient	<ul style="list-style-type: none"> • Clear perception of learner's gaps or weaknesses • Uses coaching to guide: adapts to the situation, asks meaningful questions • Ability to assess learners preferred learning style (auditory, visual, kinesthetic) • 2nd Coach capability 	2nd Coach needed periodically
Competent		<ul style="list-style-type: none"> • Capable of sensing learners uncertainty level and knowledge threshold • Consistently coaches learner with a repeatable pattern • Coaching embedded in normal daily work 		
1	Advanced Beginner	<ul style="list-style-type: none"> • Narrow "development perception"; recognizes need for 2nd coach • Becoming comfortable providing feedback to learner • Beginning to observe and listen more (vs. talk and advise) • Asks some probing questions to gain insight 	Must have a proficient 2nd Coach at each coaching cycle	
	Novice	<ul style="list-style-type: none"> • Rigidity in asking questions / uses closed ended questions • Lack of discipline to follow a pattern and recognize its importance • Focuses on results (command and control) • Not able to hear and identify when learner has hit a Threshold of Knowledge 		

You can use this proficiency scale to help assess a Coach's growth and readiness to be a 2nd Coach. It's a guideline to give you behaviors to look for as Coaches develop their capability. It's also helpful in focusing conversations with Coaches about their perceived versus actual capability.

Most important is that the Coach and their 2nd Coach decide on what small aspect(s) of the Coaching Kata the Coach should work on improving next.

Scale by Yvonne Muir, Jennifer Ayers & Julie Simmons

KEY POINT 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. Many skills are best learned when practice sessions are short and frequent.

A key to teaching these skills is to teach them as an everyday occurrence; not as part of a curriculum, but as a daily routine using what people are normally doing to help them learn and apply the skills. Be sure to make practicing the Improvement Kata part of every workday.



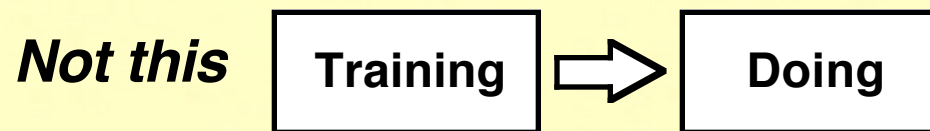
Note: This may lead you to shift emphasis away from periodic training or improvement efforts led by Lean staff, trainers or consultants, to daily practice and improvement that's coached by your line managers. That's a healthy development!

KEY POINT FOR IMPROVEMENT KATA PRACTICE

- ❑ **Combine training and doing by practicing on real goals.**

In sports and music, training and performance are typically separated. But this is not financially workable in business.

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.



Improvement Kata practice is more likely to generate mindset change when the Learner focuses on something meaningful and their emotions are involved.

KEY POINT FOR IMPROVEMENT KATA PRACTICE

- ❑ **Adopt some 'beginner mindset'.**

Caution! The more you are already familiar with a topic, the less you may be open to learning something new about it. Closing your mind in this way can condemn you to remaining only a beginner in the new skill area.

A first step for any Learner is to acknowledge that whenever we want to adopt a new way of thinking and acting, for a while we're going to be a beginner in that particular area. Without resigning our ego to starting with some practice we're destined to remain at beginner level.

Once you've internalized the desired pattern you can refine your own interpretations and don't need to practice the kata exactly any more. The resulting capability and habits are the goal, not the kata itself.

The kata don't go away entirely though. Just like professional athletes and musicians, even advanced students periodically practice some basics under guidance of a coach. It's like keeping a tool sharp.

KEY POINT FOR IMPROVEMENT KATA PRACTICE

- ❑ **Try to avoid these two error modes:**

THE “PERMANENT BEGINNER”

Unwilling to start with structured practice routines.
Wants to be skilled right away. Remember, any time you’re learning a new skill you’re a beginner in that area.

THE “IMPLEMENTER”

Sticks with a structured practice routine permanently.
Tries to use the Improvement Kata, and deploy it company wide, like a problem-solving methodology, instead of using it as a skill-development process.

Beginners should follow a kata exactly; not deviating from it so that they internalize its pattern. However, with increasing proficiency each Learner can (within limits) develop their own style. And, over time each organization can evolve the kata to suit its particular environment, so long as its kata are consistent *across* the organization.

**CREATE
YOUR
OWN
STYLE**

EVENTUALLY YOUR ORGANIZATION CAN DEVELOP ITS OWN IMPROVEMENT KATA

Once enough people in your organization become proficient in the routines of the Improvement Kata (a ‘critical mass’) you can either stick with using the practice routines in this Handbook for teaching beginners in your organization, or evolve from them your own kata for teaching beginners.

The key is to first reach to a point where enough people understand the scientific pattern of the Improvement Kata deeply. Then you will be in a good position to make decisions about exactly what kata to practice in your organization.

The basic pattern and scientific approach of the Improvement Kata should always remain, however. Make it your own, but the basic core should be recognizable.

YOUR NEXT STEP

As a next step it's a good idea to familiarize yourself with the contents of this Handbook by going through the whole handbook.

Keep in mind that you then need to go back to Part II and go through the practice / learning process for the five kata. That's how the Handbook will walk you through it.



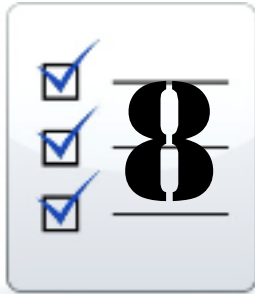
WHAT WILL BE YOUR PATH?

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



How much practice will be required depends on how you practice (see the *Practice Tips* at the end of this chapter) and your predispositions.

You have an opportunity! The never-ending need for improvement and evolution gives you and your team a perfect opportunity to keep honing your skills. The elegant trick is that while you're practicing the Improvement Kata you're applying it to real goals, always to the best of the current level of your and your team's abilities.



Supplement:

TIPS FOR DELIBERATE PRACTICE

Eight tips 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 Every Day**
- 7) **Practice on Something Real**
- 8) **Practice at the Edge of Your Capability**

These tips are based on *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>1) Get an Overview of What You're Trying to Learn</p>	<ul style="list-style-type: none"> • Get a picture of the parts of the Improvement Kata and how they come together as a whole in correct performance of the skill. • Explain the coaching method to the learner beforehand, so s/he can understand what is taking place.
<p>2) Get a Coach</p>	<ul style="list-style-type: none"> • You'll need periodic input and guidance from someone who observes you, detects your errors and gives you advice on how to correct them. • 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. • Once you master the Improvement Kata you can coach others.

<p>3) Develop Enthusiasm for Practicing</p>	<ul style="list-style-type: none">• If you can develop passion for what you're learning it will help you devote yourself to practicing the Improvement Kata pattern whether it presents difficulties or not.• It's normal that there will be plateaus when it seems like you aren't making progress. Take a break for a few days or go back to some basics. Listen to your coach for advice.
<p>4) Break the Skill Pattern into Pieces, and Practice Only One or Two Pieces at a Time</p>	<ul style="list-style-type: none">• Kata are usually practiced in pieces, until the whole sequence is learned. This is called <i>chunking</i>.• Do not try to master too many chunks at once. The coach should determine what the learner is ready to practice next.

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. The pattern may feel wrong or unnatural at first, but resist the temptation to change it at this time.

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. Think of your early practice as *going slow to get fast*.

We often dislike going through this deliberate phase at the beginning, and its slowness can lead us to think it's not working. That's a mistake that can lock you into your current skillset.

As your proficiency increases you'll see the purpose behind the steps. At that point you can be more open and develop your own style, as long as it continues to incorporate the purpose, and coach others.

<p>6) Practice Every Day</p>	<ul style="list-style-type: none">• Short daily practice is better than massed practice. This is called <i>spacing</i>.• Your practicing only has to be a slice of the workday. You should have at least one Coaching Cycle every day.
<p>7) Practice on Something Real</p>	<ul style="list-style-type: none">• The learner should work on a real target condition. What the learner is working on should be meaningful to the learner and the organization. <p>Learners are doing two things simultaneously: Improving a process and learning the pattern of the Improvement Kata.</p> <ul style="list-style-type: none">• Beginners should practice on simpler target conditions that are close in (~2 weeks out).

8) Practice at the Edge of Your Capability

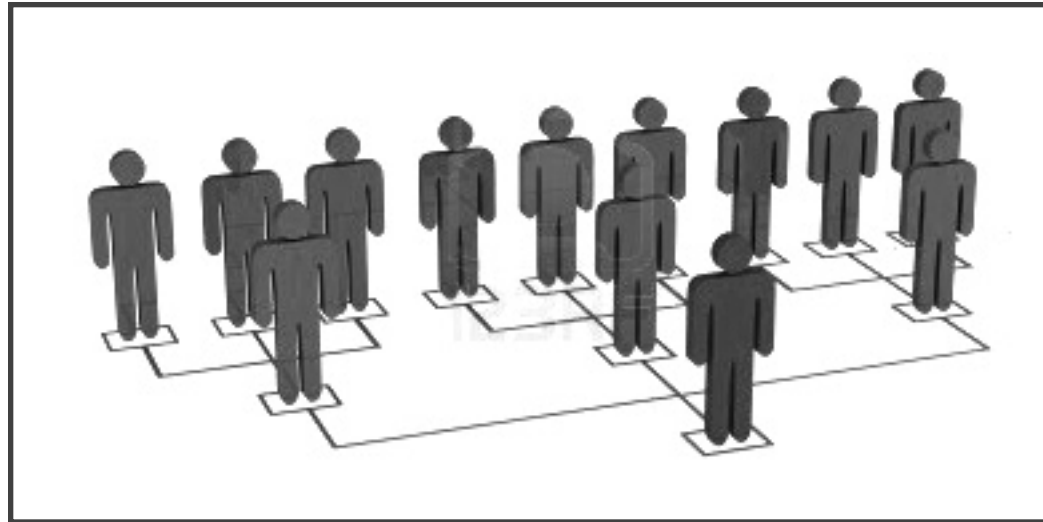
- Learning a skill requires making small errors and then working to correct those points.
- Target those aspects of the skill pattern that currently give you the most difficulty. Deliberate practice aimed at remedying weaknesses is a better predictor of expertise than raw number of hours.

“When most people practice, they focus on the things they already know how to do. Deliberate practice is different. It entails considerable, specific, and sustained efforts to do something you can’t do well—or even at all. Research across domains shows that it is only by working at what you can’t do that you turn into the expert you want to become.”

From: The Making of an Expert, by K. Anders Ericsson, Michael J. Prietula, and Edward T. Cokely, Harvard Business Review, July 2007

Chapter 3

ROLES AND STRUCTURE FOR DAILY IK PRACTICE



This chapter explains the setup for the practicing described in PART II and PART III of this Handbook:

- 1) The **basic roles**, which repeat throughout the organization
- 2) The **Learner's storyboard**
- 3) Suggestions for **spreading practice** into the organization

THIS IS ABOUT DEVELOPING A DAILY COACH/LEARNER PROCESS IN YOUR ORGANIZATION

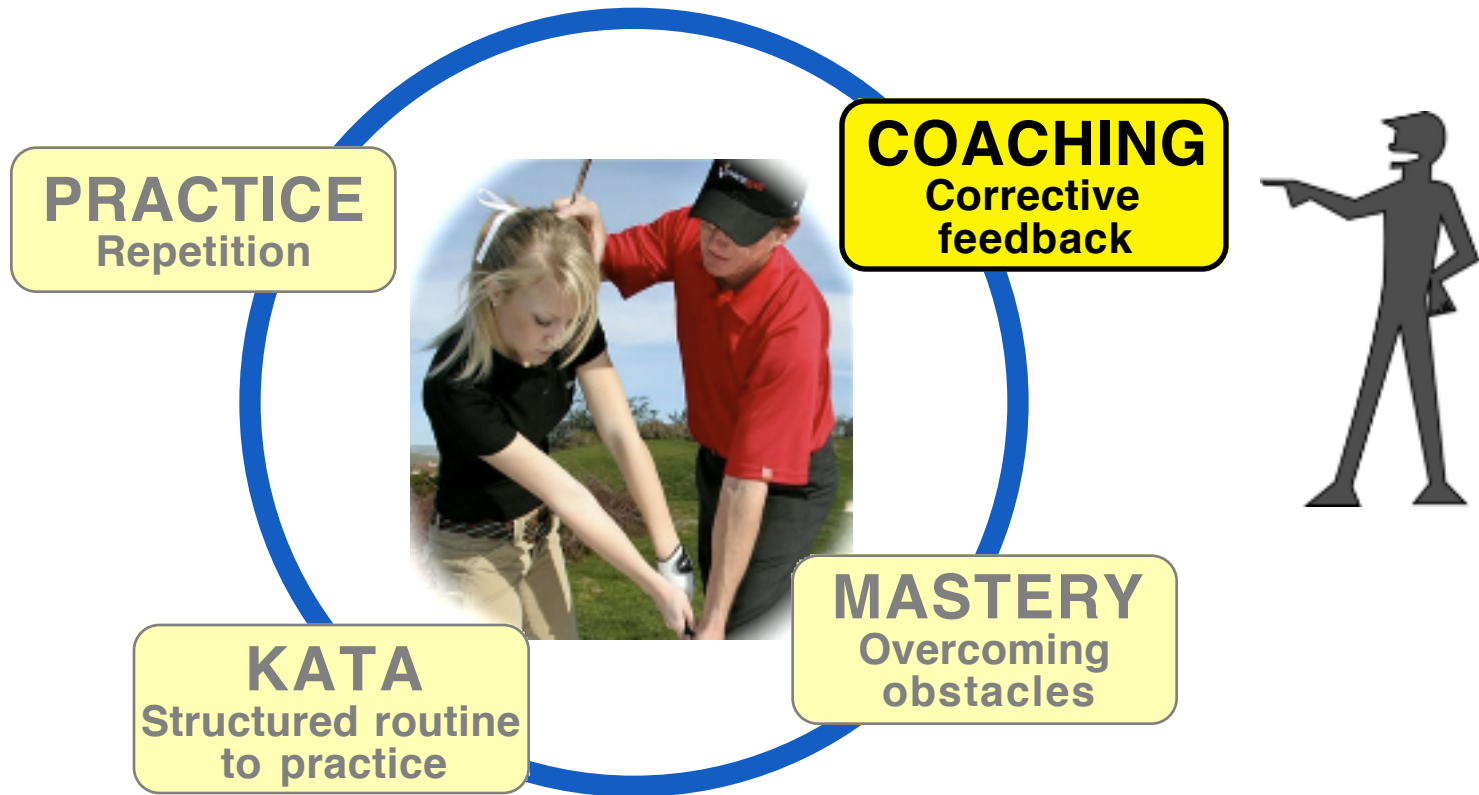
To coach people in practicing the Improvement Kata pattern on real processes in everyday work, with the goal of making it part of the culture



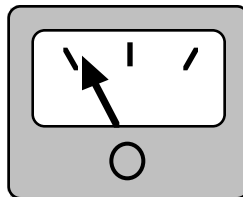
The routine of the Improvement Kata isn't complicated, but it can be difficult to practice because it's not intuitive/natural and we're not used to it, so we tend to default to the familiar.

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 A KEY VARIABLE IN KATA PRACTICE



Practice with corrective feedback is an 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.

(1) The Basic Roles



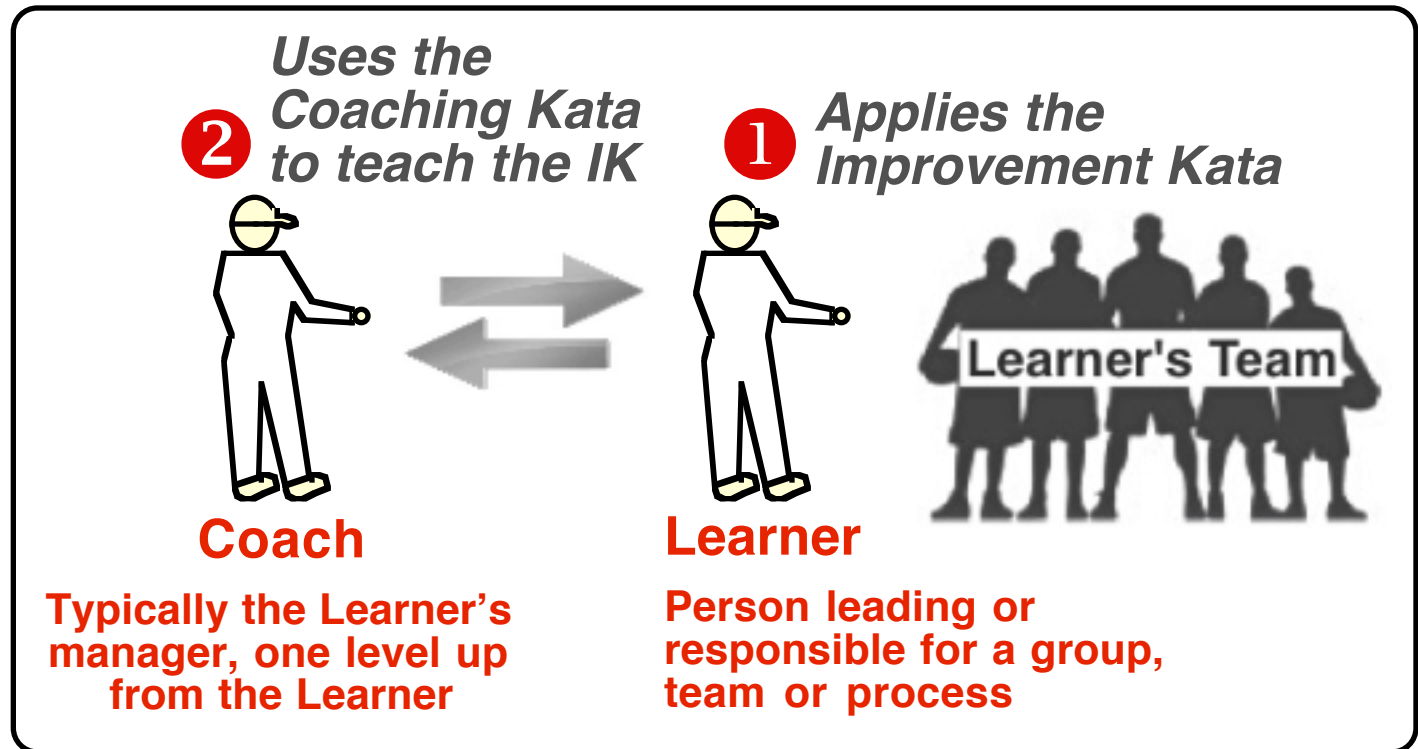
THE TWO CORE ROLES ARE *COACH & LEARNER*

- These two roles usually mirror a reporting relationship, with the Coach being the Learner's manager, not a staff person. (There can be exceptions.) That is, when the Improvement Kata is used up-and-down an organization these two roles cut *across* each level of the organization.
- Coaching is done one Learner at a time. A Coach (manager) may have several Learners, but coaches them at different times.
- The practicing gets integrated into the Coach and Learner's normal daily work.

TERMINOLOGY

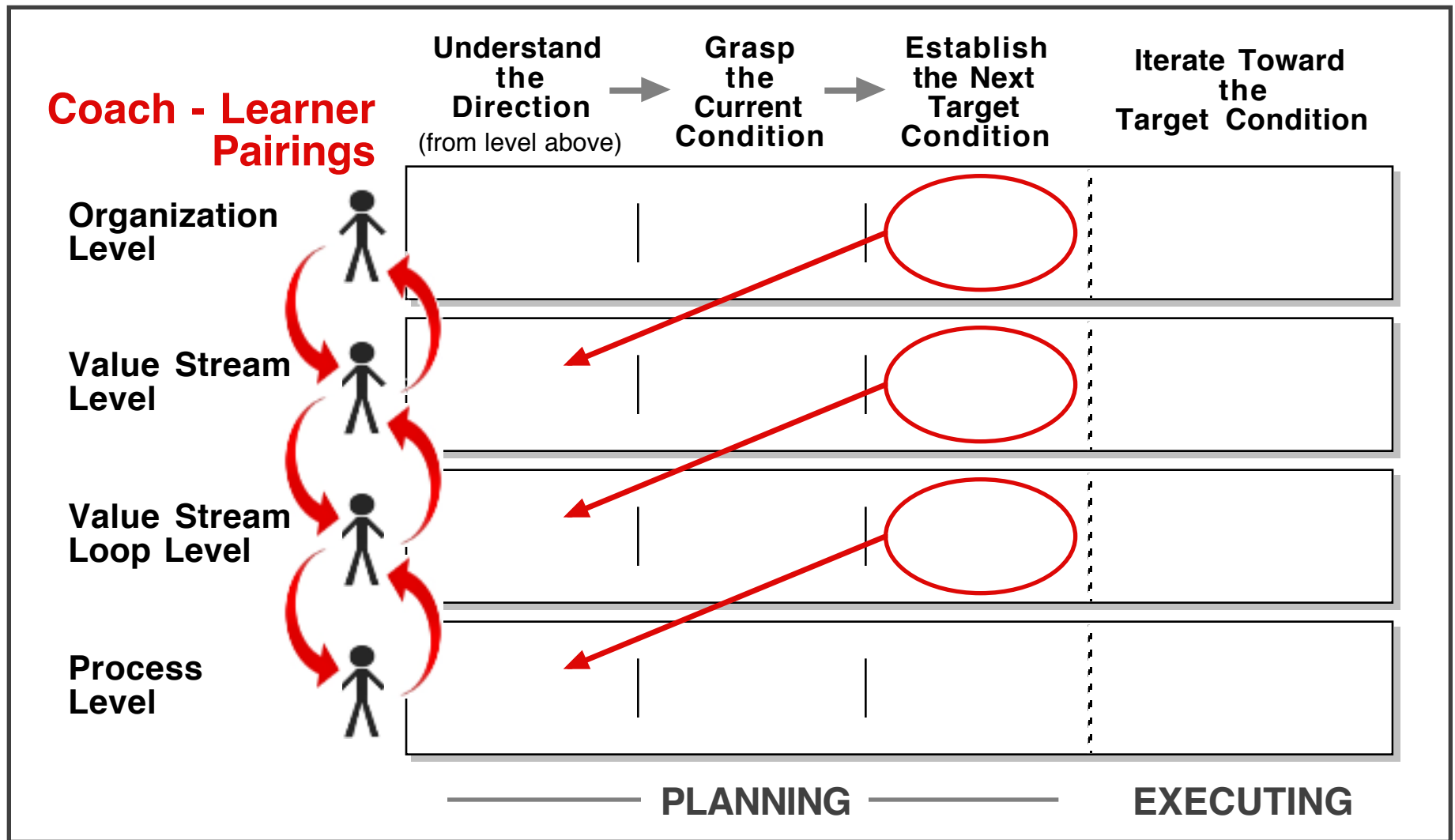
This Handbook refers to *Coach & Learner*

Some organizations use *Mentor & Mentee* or *Coach & Coachee*



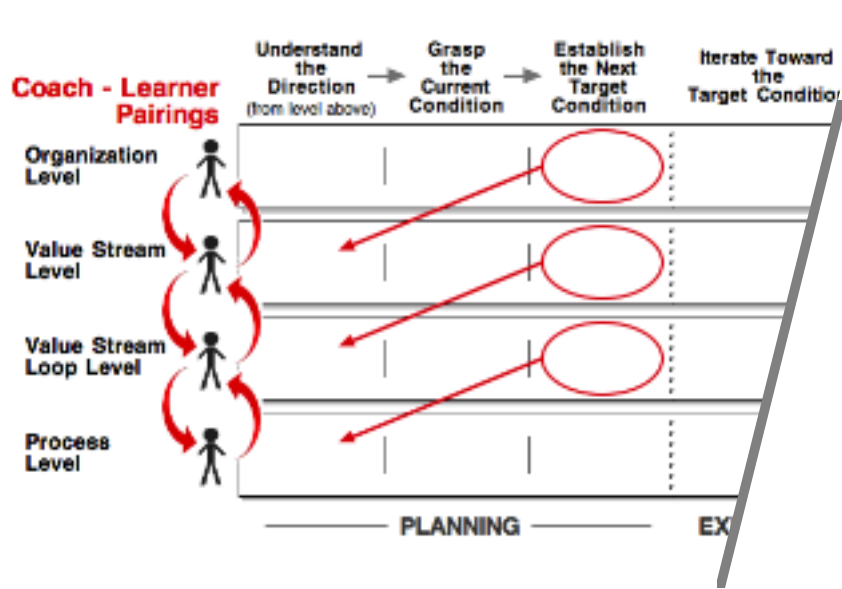
COACHING ACROSS THE ORGANIZATION'S LEVELS

The Coach / Learner pairing repeats across each level of the organization, with each Learner applying the Improvement Kata at their level and coaching the level below. Notice how the *Target Condition* from the level above becomes the *Direction* for the level below.



Based on an illustration by Emiel van Est

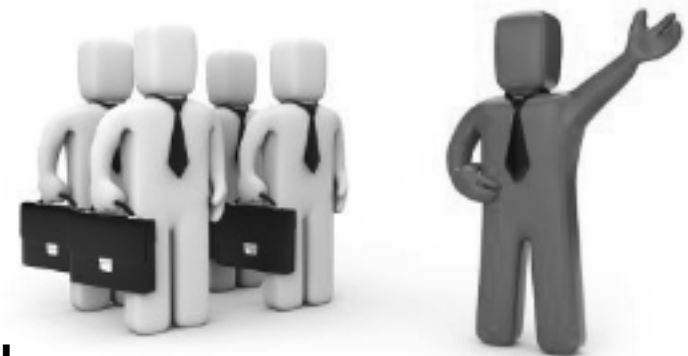
IT'S "NESTED" COACHING



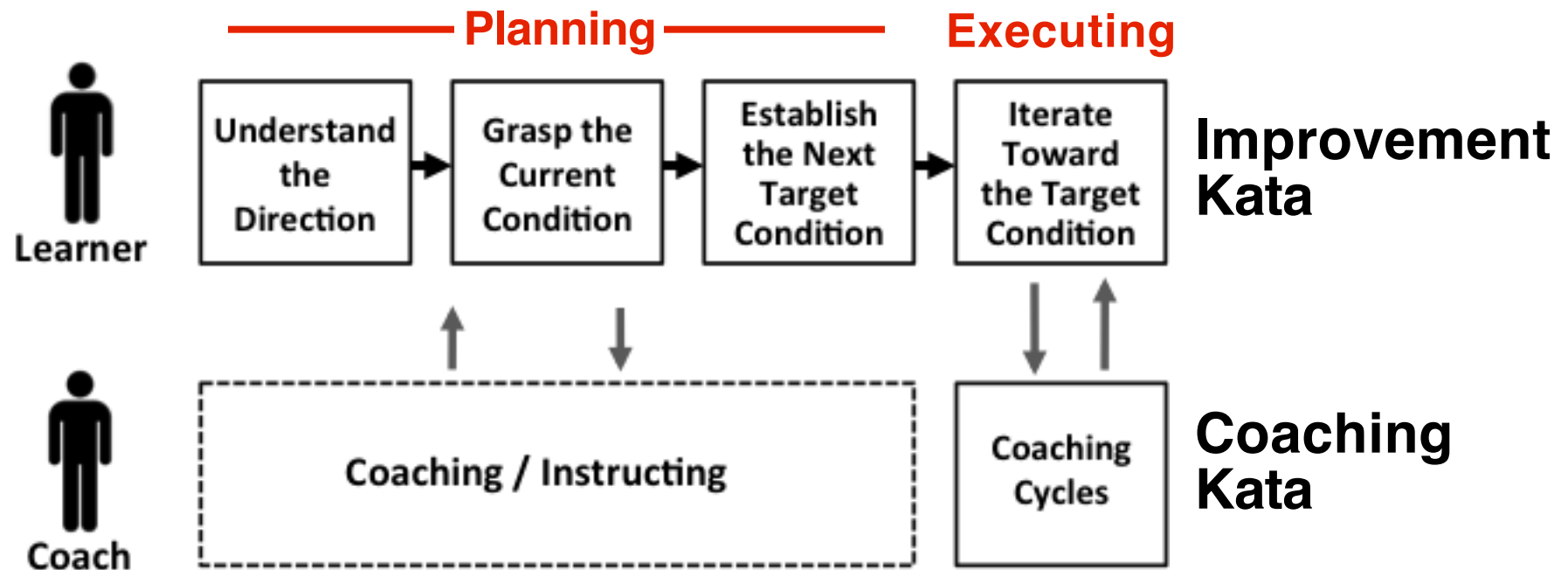
Through nested coaching & storyboards from the senior level... to the value-stream level... to the process level, each Learner has responsibility for improvement at their process/level and for coaching the next level down. Each Learner focuses on their next target condition, which is driving improvement that links back to the business strategy.

The coaching cycles that happen from the senior level down focus on an improvement theme that each Learner has a piece of.

In addition, a process owner has other things in their process that they cannot let slip and may have improvement objectives for those as well. A kata-proficient process owner will also apply the Improvement Kata pattern to those topics. The Improvement Kata is a meta pattern that gets applied to any goal.



THE COACH WILL ACCOMPANY THE LEARNER THROUGH THE ENTIRE IK PROCESS



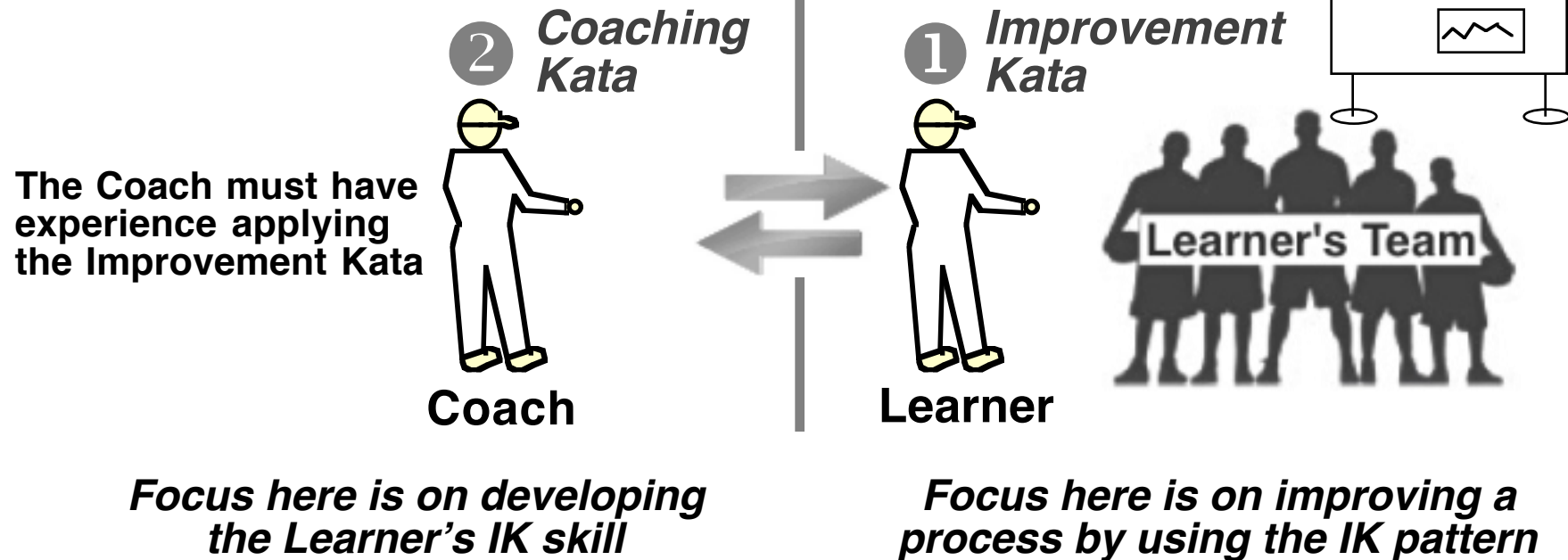
TWO DIFFERENT FOCAL POINTS

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

The focus 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 pattern.

The Learner's goal is to use the pattern of the Improvement Kata to achieve a target condition.

The focus here is using the pattern of the Improvement Kata to achieve a target condition at the Learner and Learner's team's level in the organization.



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 dependent on the Learner for achieving the desired results, but can only give procedural advice to the Learner. Why? Because the solutions aren't known yet, and because giving solutions short-circuits the Learner's skill development.

A Coach can't go into the field and play, s/he can only develop the players.

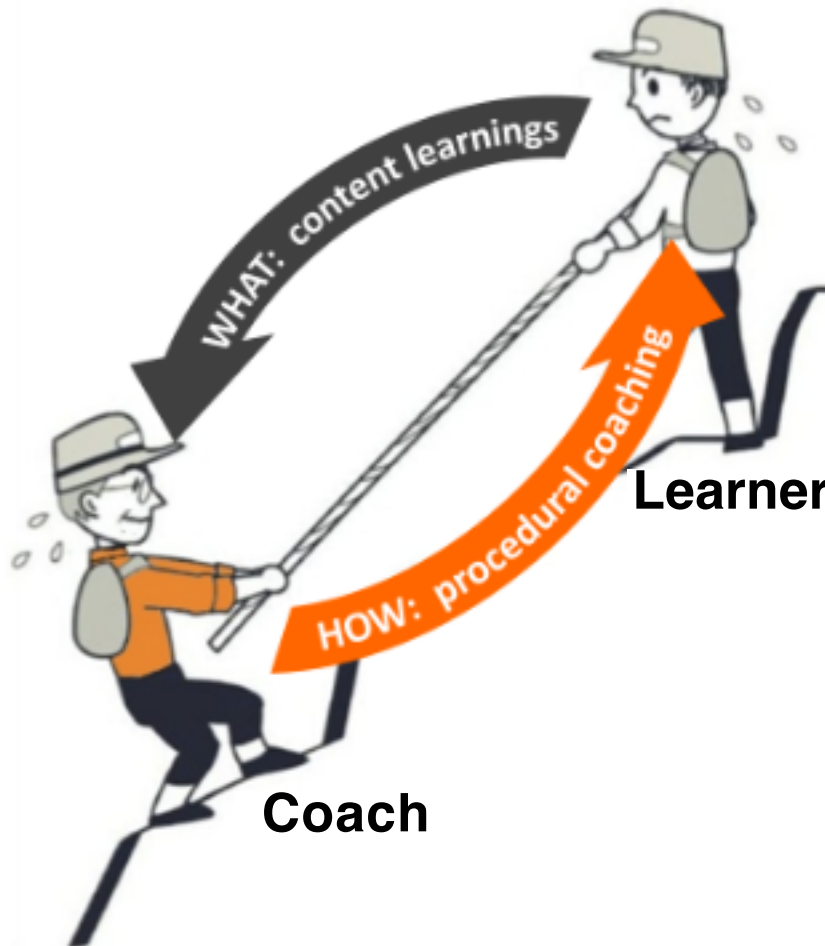
This overlap creates an interdependence between the Coach and Learner, like two runners in a three-legged race. The Coach is as dependent on the Learner as the Learner is on the Coach.

The Learner works on the steps to the target condition (the **what**), while the Coach works on **how** the learner is approaching it.

THE INTERDEPENDENCE BETWEEN COACH & LEARNER

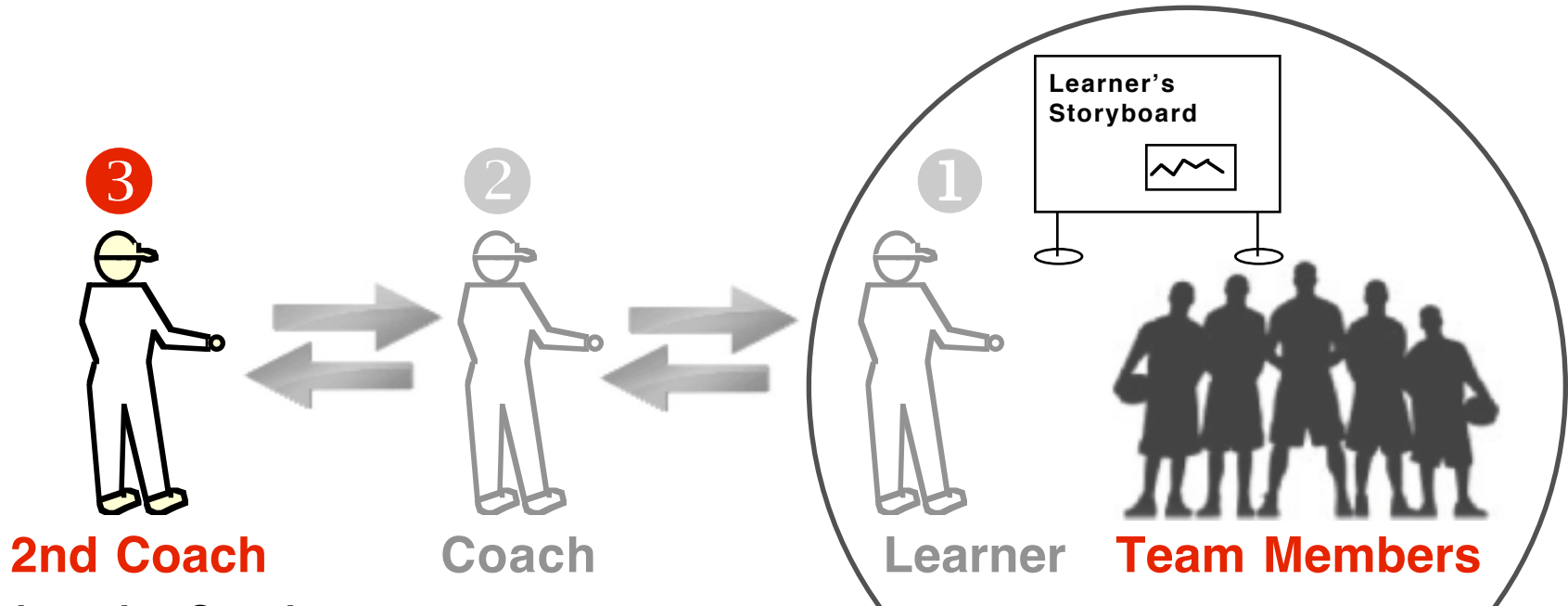
The Coach guides the Learner on *procedure*, but is dependent on the Learner to take steps toward the target condition along an unknown path. The Learner pulls the Coach and the team forward on the learning path to the target condition.

The Coach guides primarily the process, not the content, of the Learner's 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 MORE ROLES: 2nd COACH & TEAM MEMBERS



Coaches the Coach

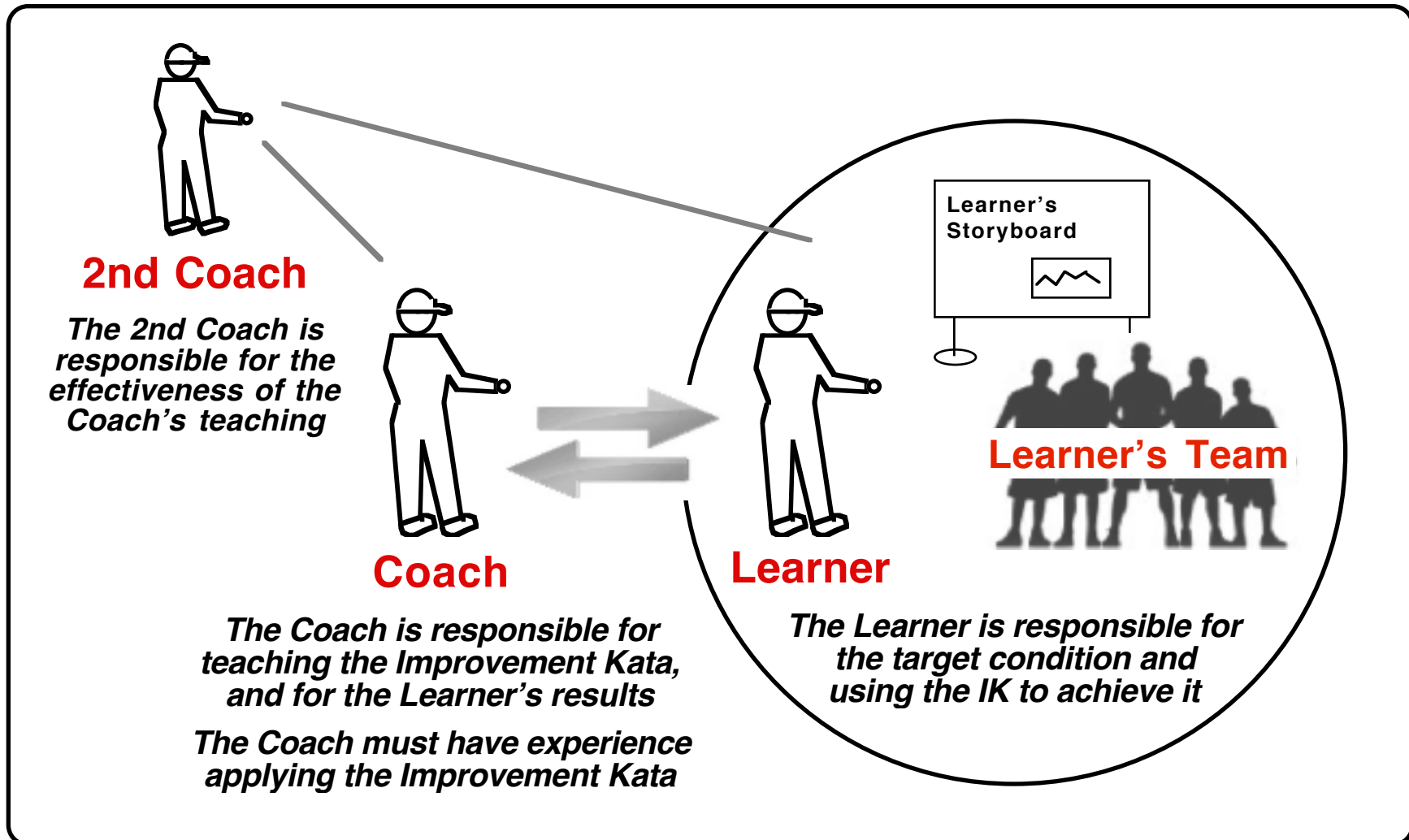
The **2nd Coach** is typically one level up in the hierarchy from the Coach, although a 2nd Coach can also be a peer or a staff specialist, such as a Lean staff person.

Like the Coach, the 2nd Coach must have personal experience with applying the Improvement Kata.

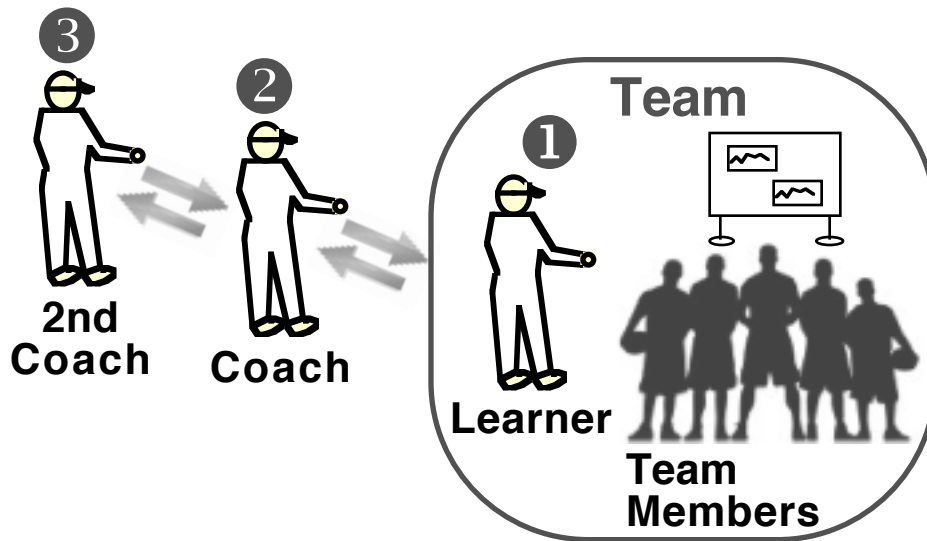
The Learner is the manager of the **Team Members**. At a minimum, the Team Members are involved in:

- > Understanding the current work process in order to establish the target condition.
- > Working to break through obstacles on the way to the target condition.

ROLE RESPONSIBILITIES



ROLE TASKS



LEARNER:

Applies the Improvement Kata at the level for which they are responsible. The Learner grasps the current condition, designs the next target condition and works toward it by conducting experiments with PDCA and developing solutions to obstacles, all in daily dialog with the Coach and the Team Members. The Learner is responsible for the *doing*.

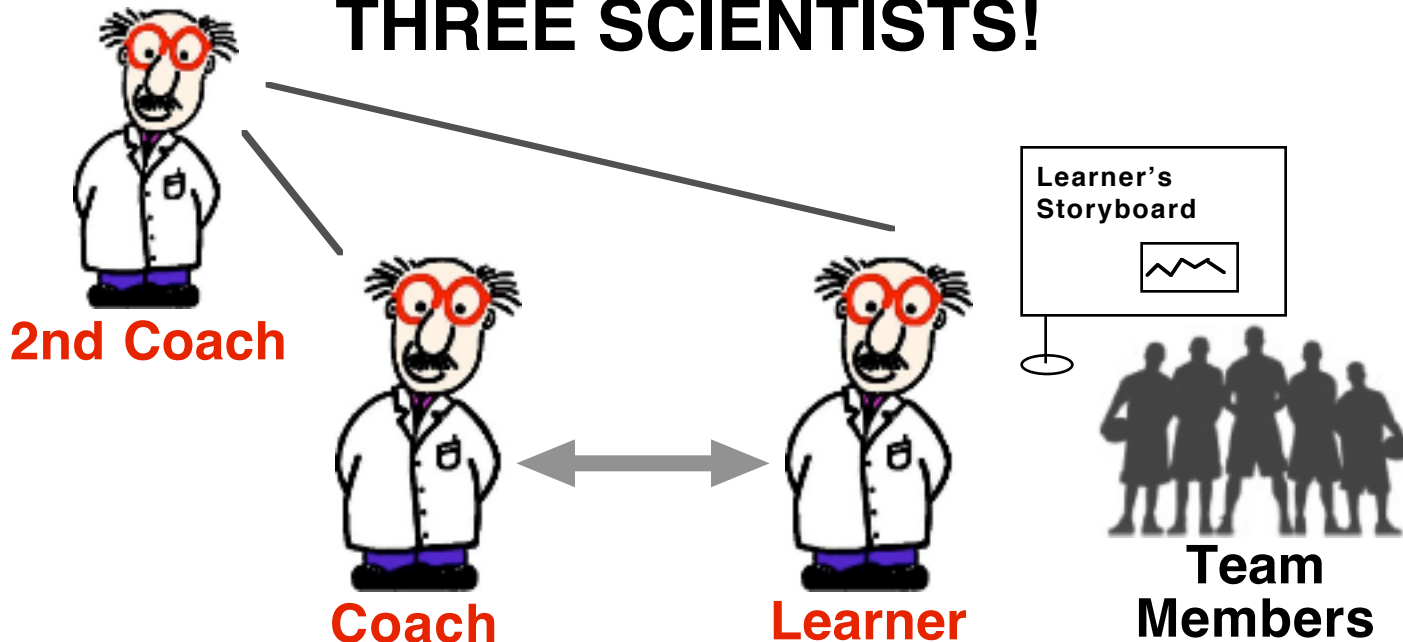
COACH (The Teacher):

Ensures the Learner is working scientifically according to the Improvement Kata pattern. Conducts coaching cycles daily using the 5 Coaching Kata questions. The coach's job is to develop the learner by guiding the learner on Improvement Kata procedure, not to improve the process. The Coach is responsible for the Learner's *results*.

2nd COACH (Coaches the Coach):

Observes coaching cycles between the Coach and Learner. Gives feedback to the Coach to help the Coach develop his or her coaching skills.

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.

THIS IS FREE TRAINING

Since the coaching is done by a line manager while the Learner works on a real goal, it's done without hiring extra staff and there's no extra cost or application delay for the Learner's capability development.



(2) The Learner's Storyboard



EACH LEARNER HAS A STORYBOARD

Each 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. (Any process would have only one Improvement Kata storyboard.)

The board itself does nothing. It's used to support the interaction between Learner and Coach in the Improvement Kata 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

--> Start with this exact storyboard format <--

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

Blank fields



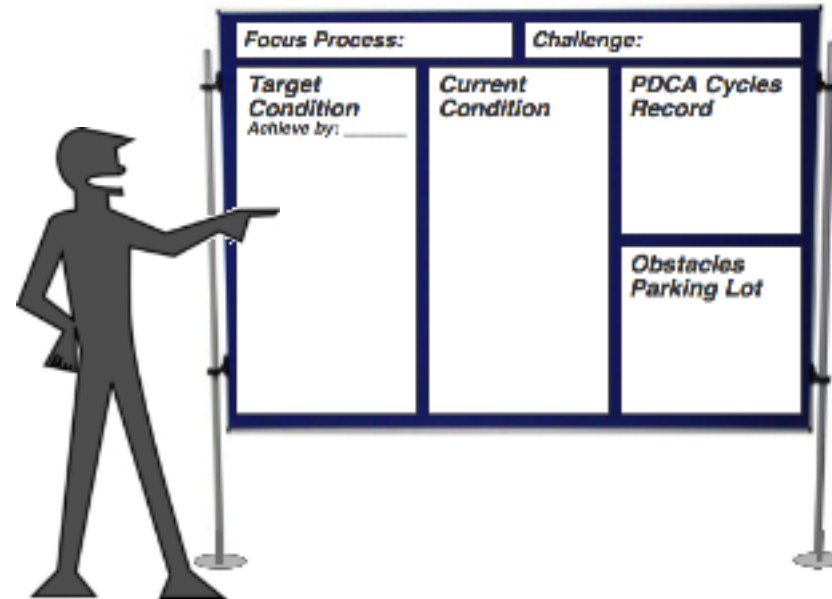
where information, progress and learning will be posted and updated as the Learner goes through the Improvement Kata pattern

Having a common format for the Learner's storyboard makes it easier for Coaches to coach multiple Learners

After you have practiced with this storyboard format and gained some experience, your organization's storyboard design can evolve to suit your environment and culture. But even then, try to keep a standard storyboard format across your organization so that coaching and communication are easier.

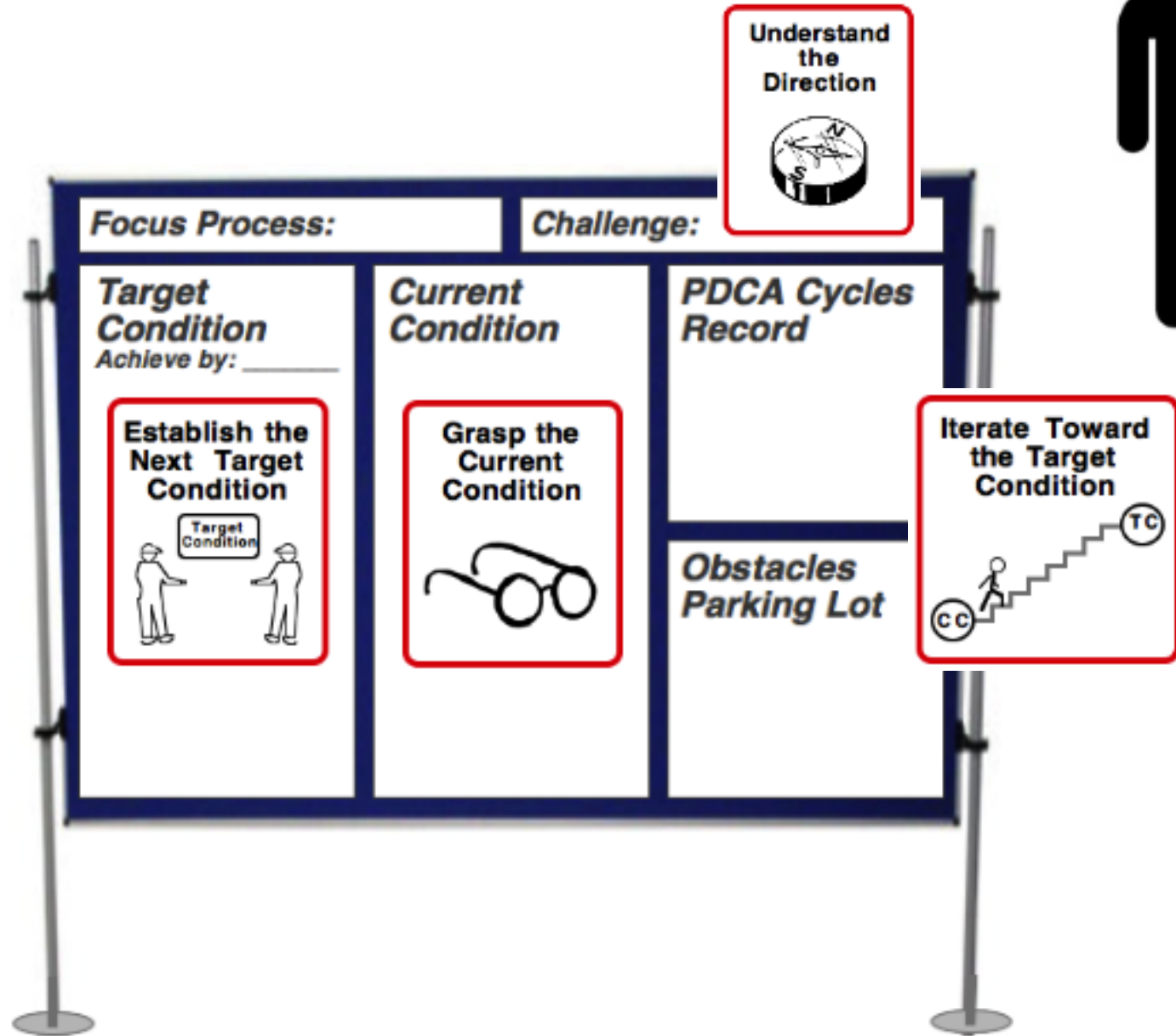
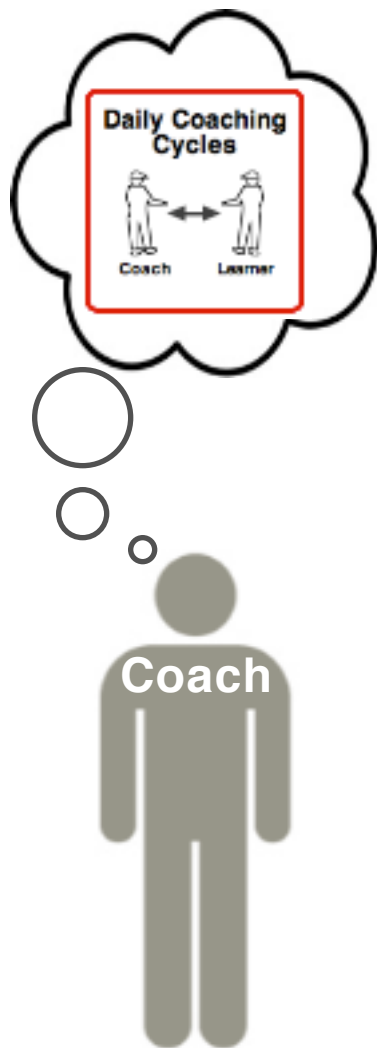
THE LEARNER OWNS THE STORYBOARD

The Learner updates the storyboard, not the Coach



The layout and information on the storyboard should flow naturally, like a story, with the Five Coaching Kata Questions that the Coach asks in the *Executing* phase of the Improvement Kata.

THE ROUTINES THE LEARNER PRACTICES



SELECTING AN APPROPRIATE FOCUS PROCESS FOR A BEGINNER LEARNER

For beginners it's important to use an easy-to-understand work process for their initial practicing, so they can concentrate on the pattern of the Improvement Kata rather than getting overwhelmed by a difficult-to-understand work process.

--> Good processes for a beginner to practice on have a visible, repetitive, short-cycle work pattern.

To find such a process you may have to take the Learner outside their own work area. Keep in mind that the word “process” refers to all kinds of activity: production, administrative, hospital, logistics, etc. You are free to choose any process for the Learner, such as material handling, order-entry, lab procedures, handling customer returns, and so on.

Help the beginner quickly internalize a few basics by guiding him/her through the full 4-Step Improvement Kata pattern repeatedly over a short time frame. Have the Learner start applying the Improvement Kata to more complicated work processes as their skill builds.

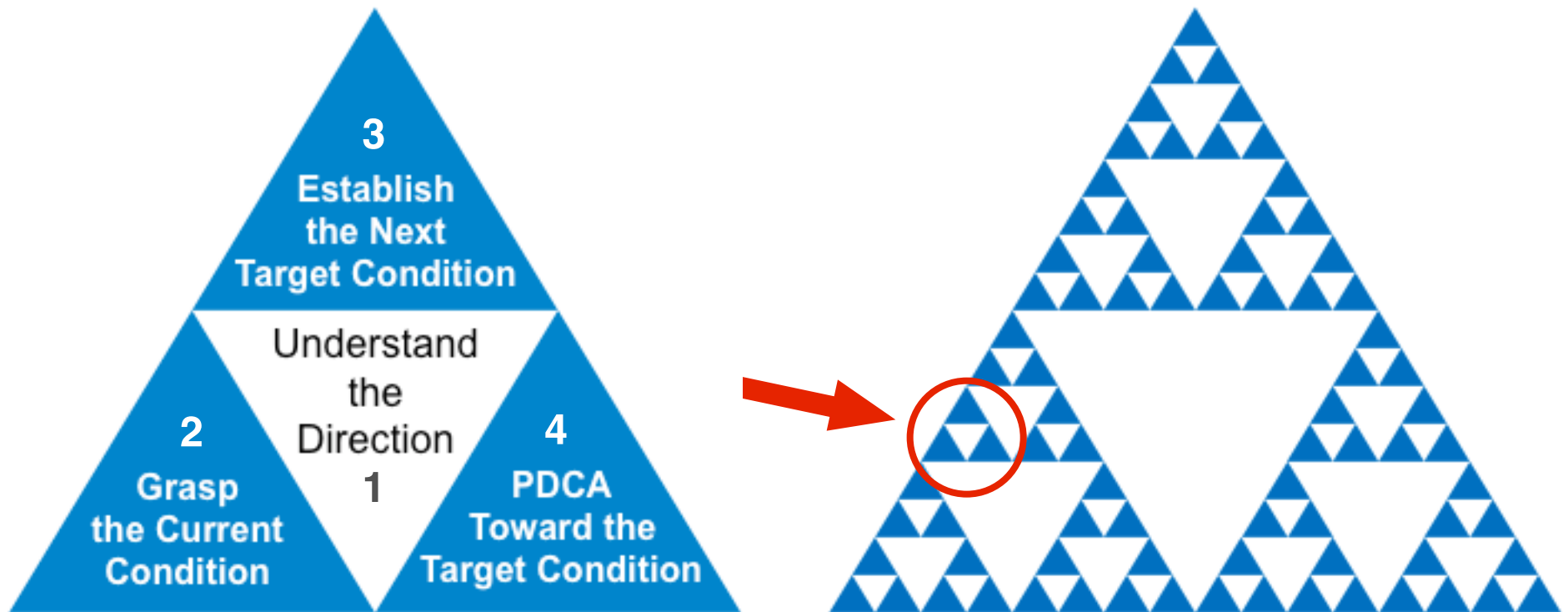


(3) Spreading IK Practice Into the Organization



THE IMPROVEMENT KATA PATTERN IS FRACTAL

It gets practiced throughout an organization to become the normal way of managing and working. Once managers learn this approach they may find it hard to go back to traditional-style management.

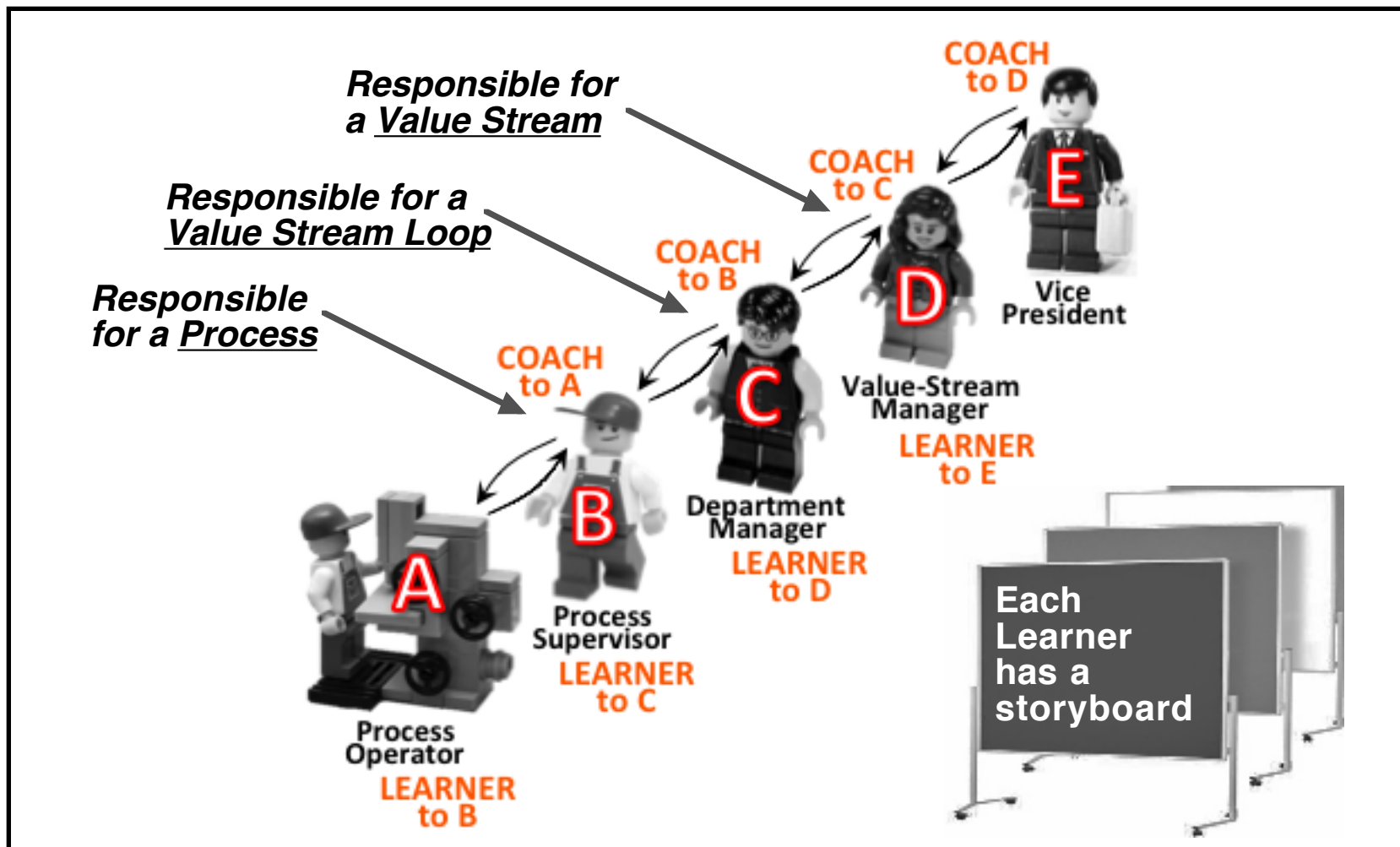


It's a decentralized process that's connected through a common way of working (the Improvement Kata pattern) and, often, an overarching objective. In any organization there are all sorts of objectives -- ambitious ones that lead to a breakthrough at the company or site level, incremental improvements, specific outcome targets, and so on. The beauty of the meta-patterns presented in this Handbook is that they apply to all of these. A manager can teach a way of thinking and acting that applies to any objective.

Fractal depiction by Mr. Emiel van Est

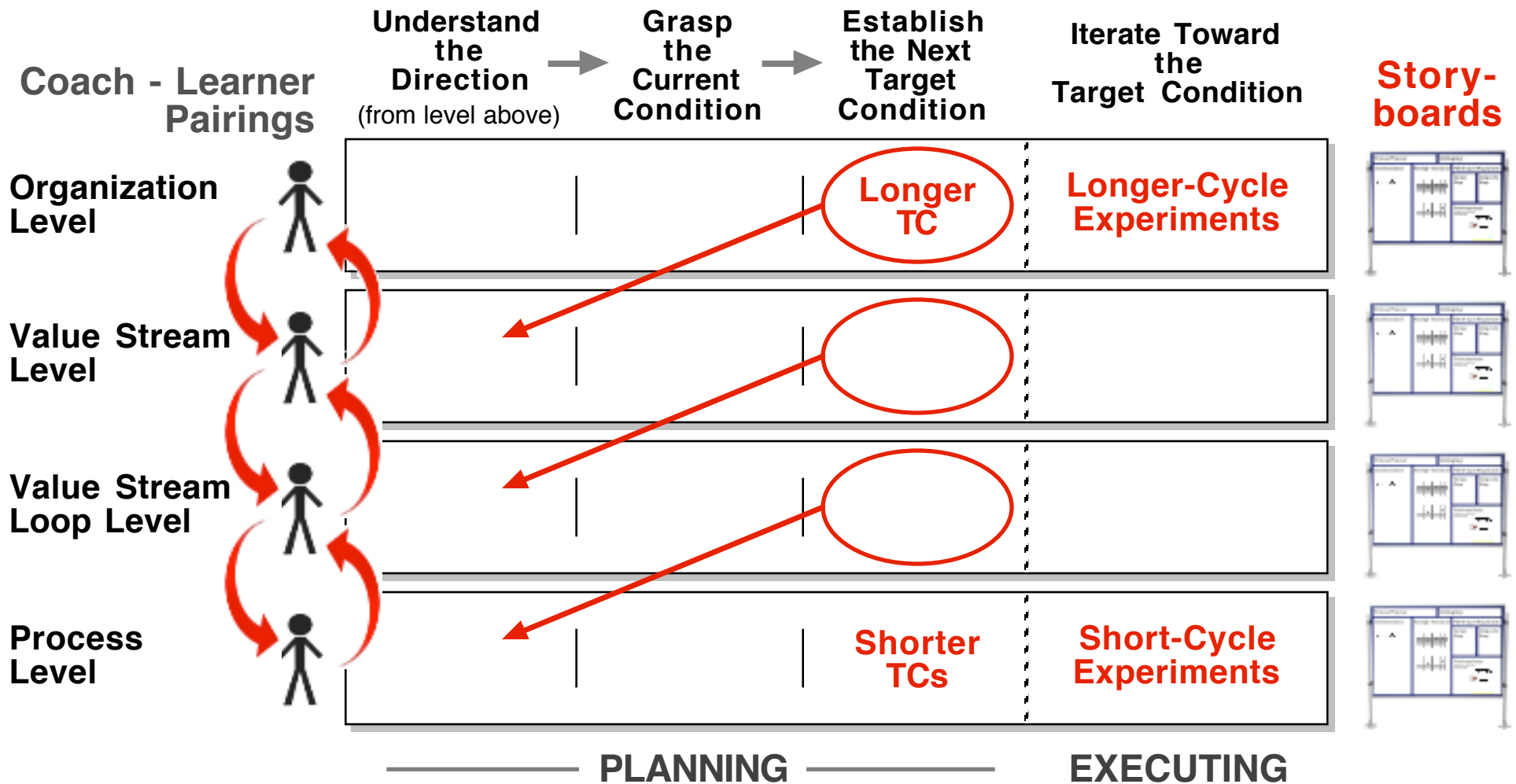
WHAT IT LOOKS LIKE

This is a depiction of what you're working toward... Coach-Learner relationships up-and-down a value stream. Of course, it takes time to build this kind of capability and structure.

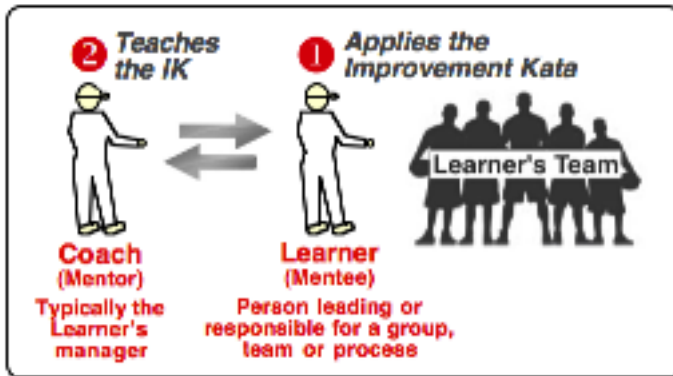


WHAT IT LOOKS LIKE

The higher your level in the value stream, the bigger the goal you are responsible for. A Target Condition at one level is the Challenge for the next level down, and one level coaches the next level down.



Based on an illustration by Emiel van Est



ADAPT THE COACH / LEARNER ROLES TO YOUR ORGANIZATION'S STRUCTURE

Each organization will have to determine how the Coach/Learner roles overlay onto its organizational structure



NOTE: As described in the previous chapter (*Guidelines for Practicing*), the Coach/Learner roles should above all be developed in the line functions of your organization, not the staff functions, so that the practice is part of everyday work in every area. This is an important point for successfully changing or developing an organization's culture.

Some staff functions can develop into “2nd Coaches” (see below).



Lessons Learned

KEY LESSONS FOR DEPLOYING THE IMPROVEMENT KATA

These are *must-haves*

- ✓ To bring the pattern of the Improvement Kata into the operation of your organization, line managers will have to actively coach it every day. Coaching/practicing the Improvement Kata pattern has to get into the normal daily work of line managers, not just staff persons.
- ✓ 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. It is much better to say, “*We could have gone faster,*” than to say, “*We went too fast.*”
- ✓ 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 the effort to deploy the Improvement Kata needs to be monitored and guided. To do that be sure to establish an ‘Advance Group’ as described in the following pages.

START WITH A SMALL “ADVANCE GROUP”

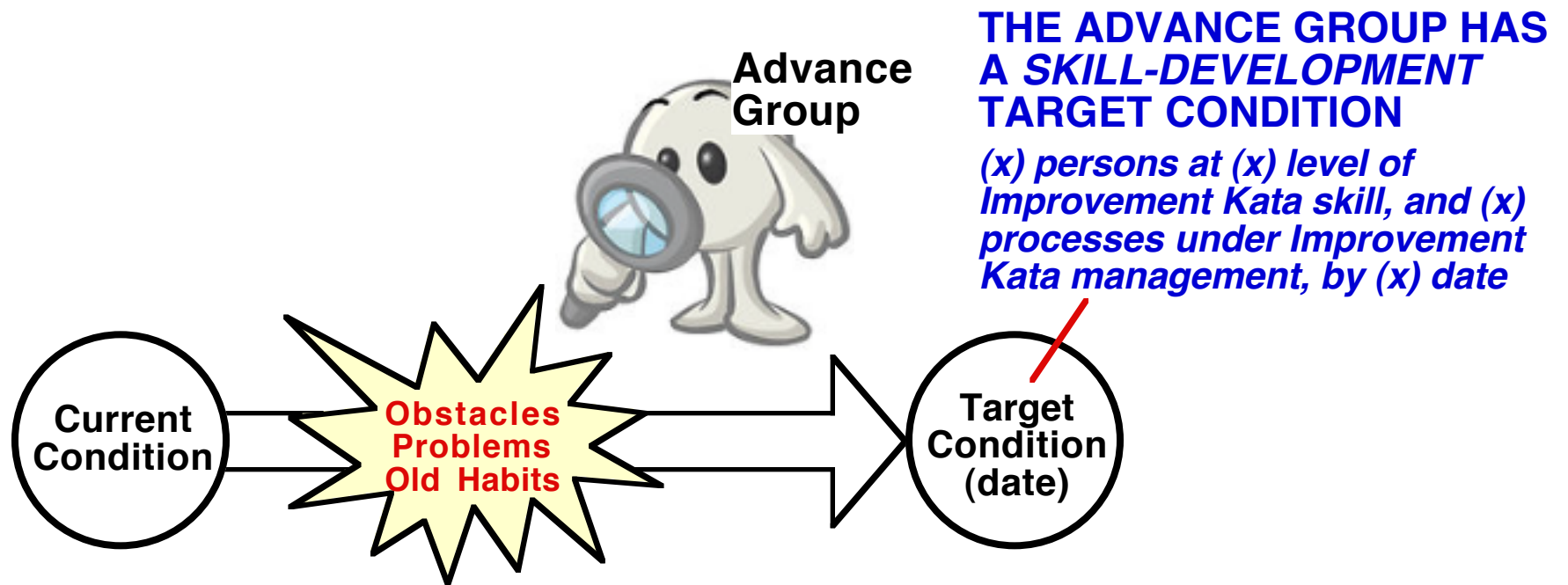
AKA “The Shepherds” - A key element

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 practices and learns first, and then shepherds the deployment process. The AG does this by applying the steps of the Improvement Kata to the process of skill development 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.
- Since they are going first, the Advance Group will probably need guidance from an external coach, which can be an outside consultant.

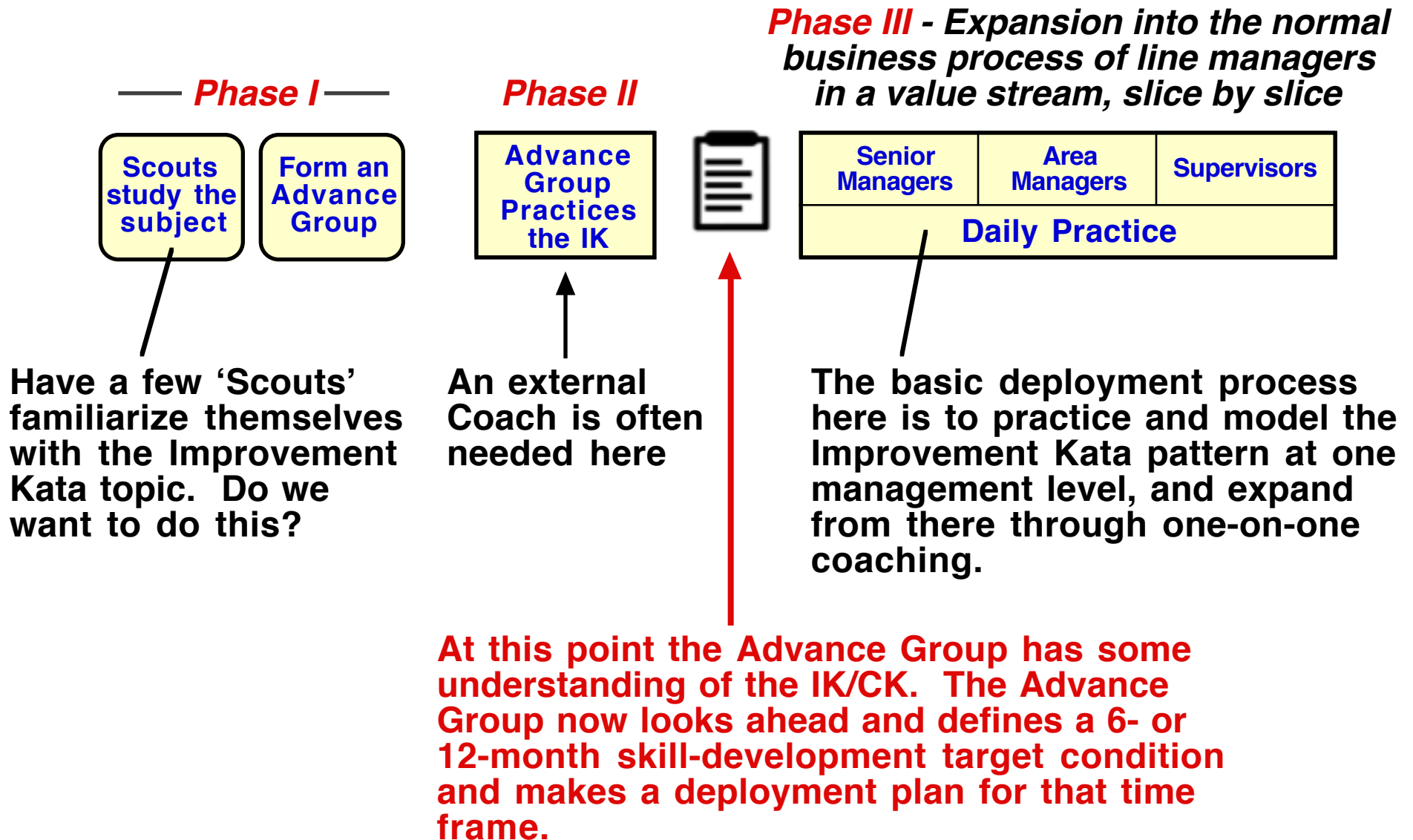
WITHOUT AN ADVANCE GROUP TO SHEPHERD IT, YOUR DEPLOYMENT IS UNLIKELY TO SUCCEED

Planning a perfect deployment of new-skill development is impossible. It will be important to sense obstacles, problems and weaknesses as they arise along the way, learn from them and adjust the deployment activity accordingly. This is 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 on the process of skill development. The Advance Group does this high-level reflecting and adjusting, for example on a bi-weekly basis.

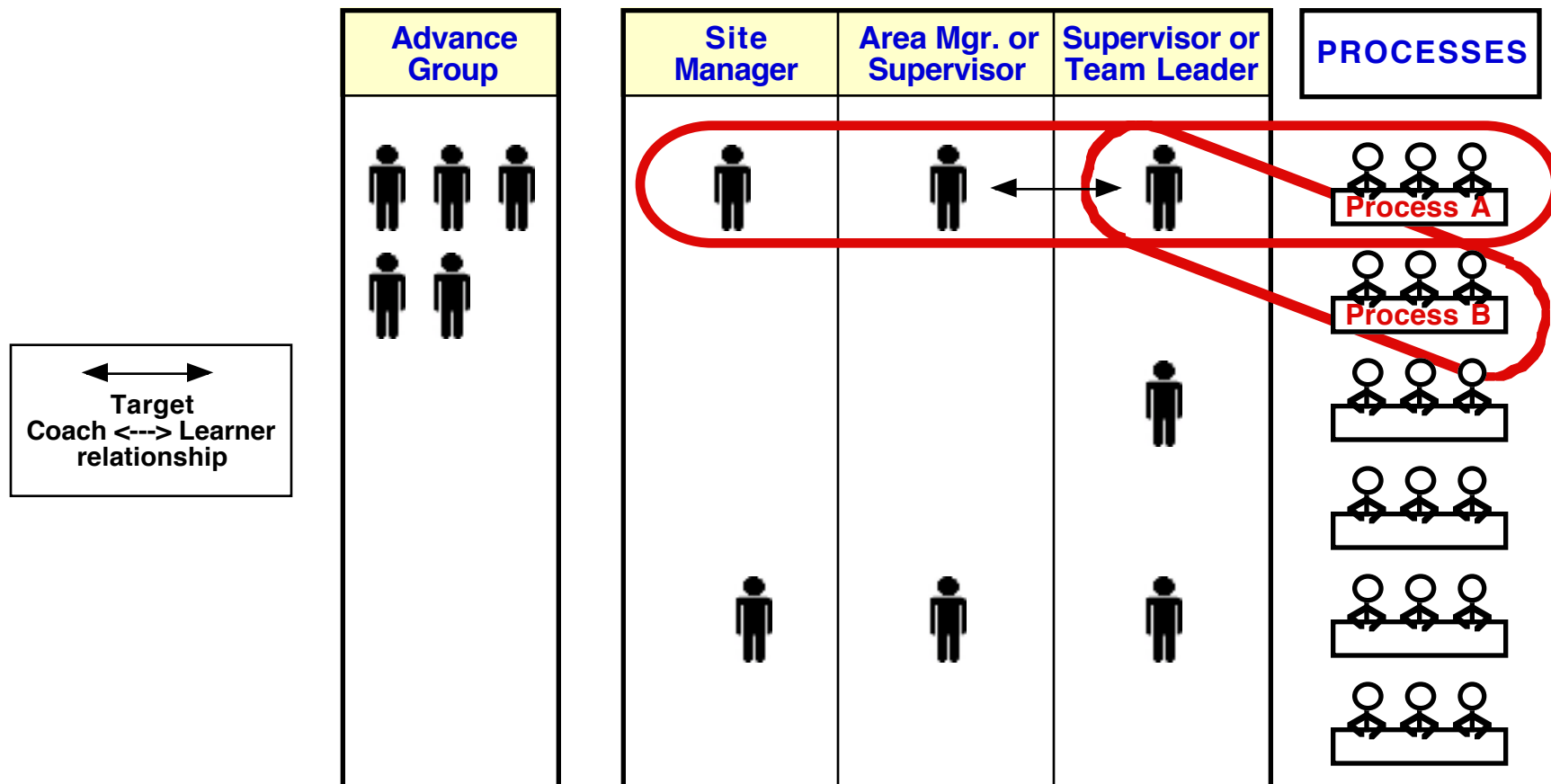
A THREE-PHASE DEPLOYMENT APPROACH



EXPANDING SLICE BY SLICE IN PHASE III

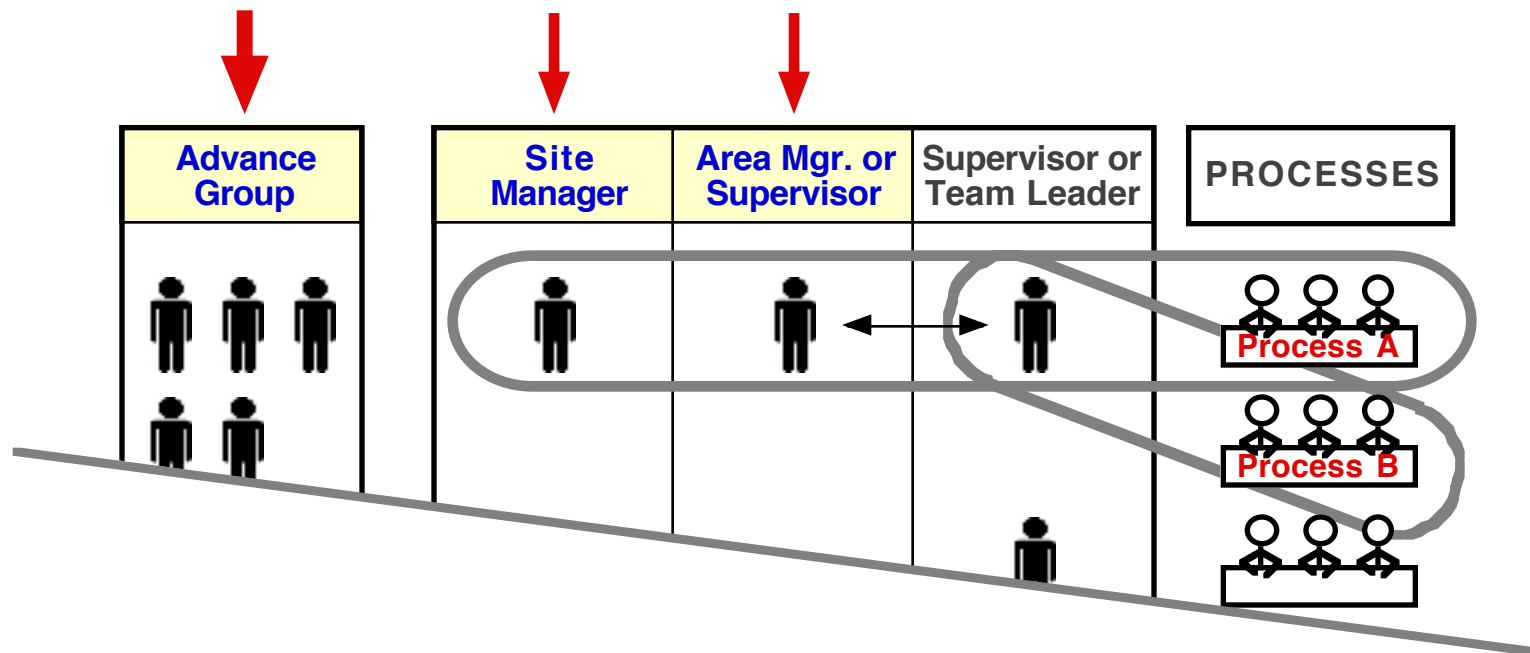
To what process will the Learner apply the Improvement Kata?

- 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.



SO WHO GOES FIRST?

Practicing is top-down. The **Advance Group** and some **selected managers** should be the first Learners.

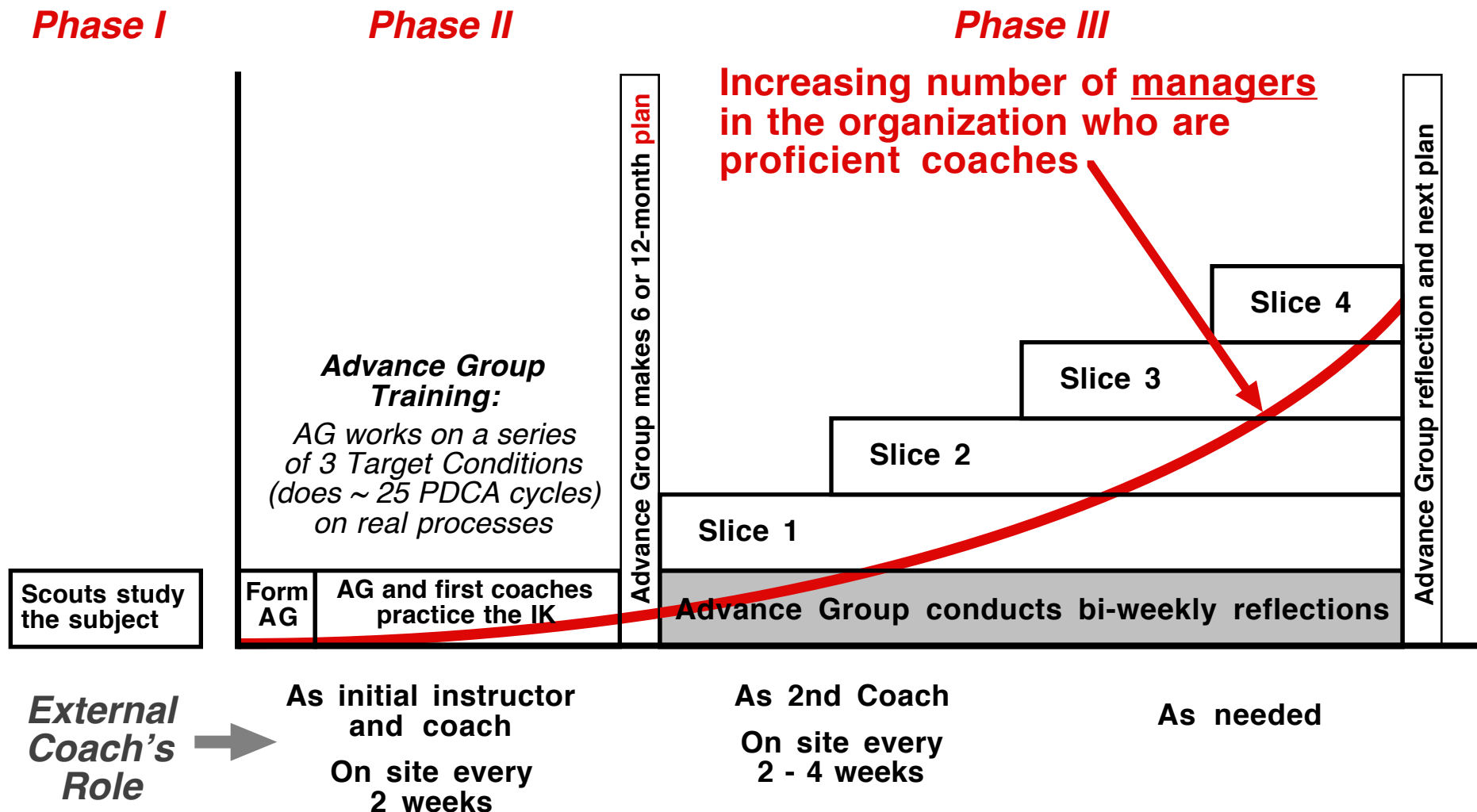


The Advance Group then starts a cascade of practicing by coaching the next group of Learners/managers in the organization.

But the Advance Group will not be responsible for conducting all coaching and training, nor for making improvement happen at all processes. That will increasingly be the responsibility of managers, who coach in their areas and expand the cascade.

WHAT A DEPLOYMENT LOOKS LIKE (not to scale)

Don't try to expand faster than you can develop internal Coaching Kata proficiency!





IN ADDITION, YOU CAN EXPAND *ORGANICALLY*

In addition to what's in its deployment plan, the Advance Group will learn things along the way. For instance, as a team pursues successive target conditions at a particular focus process, they will often increasingly find obstacles to progress *there* originating in other areas and processes.

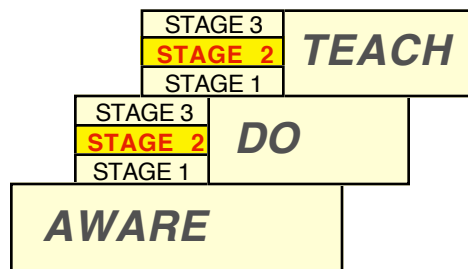
These obstacles will lead you to a customer process, a supplying process or a managing process, where you then initiate Improvement Kata / Coaching Kata practice.

This way you are sure to expand your IK/CK deployment according to need.

DEALING WITH THE “Yes We Have No Coaches” PROBLEM

The development of internal Kata coaches is a prerequisite for teaching people how to work with the Improvement Kata every day. However, at the start there are no Improvement-Kata experienced coaches.

One approach to dealing with a lack of internal experienced coaches is to find an experienced external coach to help you.



The role of an external coach is to help selected persons in your organization get to STAGE 2 Improvement Kata and Coaching Kata proficiency as quickly and effectively as possible, so you can teach and spread the Improvement Kata within your organization with less and less reliance on outside expertise.

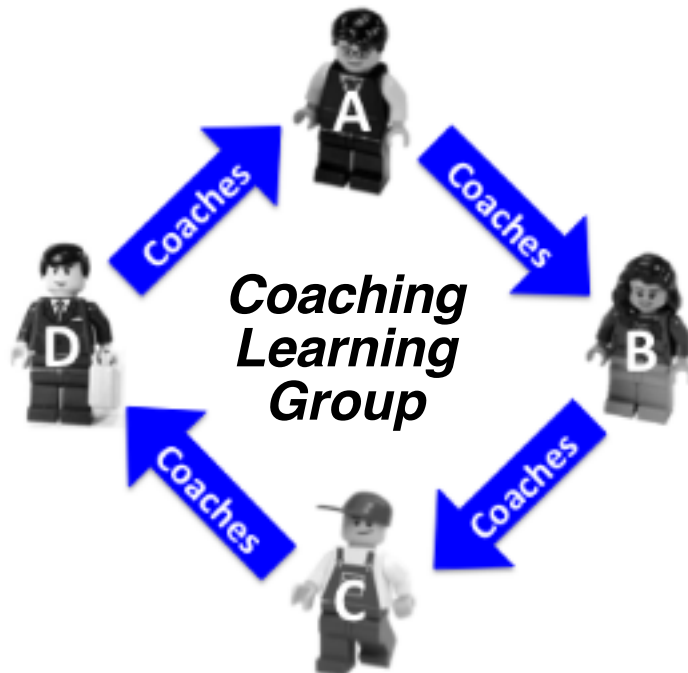
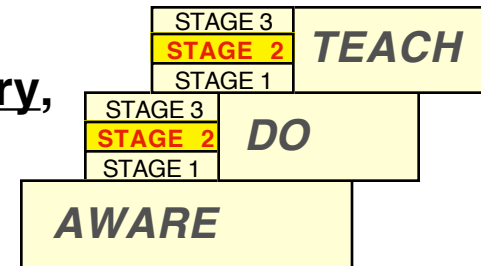


An external coach should be used more at the beginning than later. It's important that the coaching be done by persons inside your organization as soon as possible. The role of the external coach is *not* to do all your training for you, because that will prevent your organization from developing the skills.

ROTATION-PRACTICE LEARNING GROUPS

Another approach for getting started when you still lack experienced coaches is to have people practice in rotation models, whereby each person in turn takes the role of Learner, Coach and 2nd Coach.

The purpose of these rotation models is to develop kata coaches. These are a temporary, artificial structure to as quickly as possible develop some STAGE 2 Improvement Kata and Coaching Kata capacity.












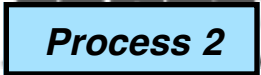




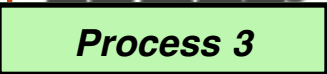
Theme / Roles Matrix					
Process & Theme	Target	Achieve date	Learner	Coach	2nd Coach
			A	D	B + C
			B	A	C + D
			C	B	A + D
			D	C	A + B

After each coaching cycle, the Coach gets feedback from the 2nd Coach and the Learner

This rotation model is by Gerd Aulinger

EXAMPLE ROTATION MODEL FOR 9 PERSONS

- Select 3 processes with 3 persons practicing per process. This is the Advance Group members + the additional coaches in training, for a total of 9 persons.
- Since these are artificially-selected processes, the Learner pairs with the process Supervisor to apply the Improvement Kata to the process.
- The members in each group periodically rotate roles within their group.

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

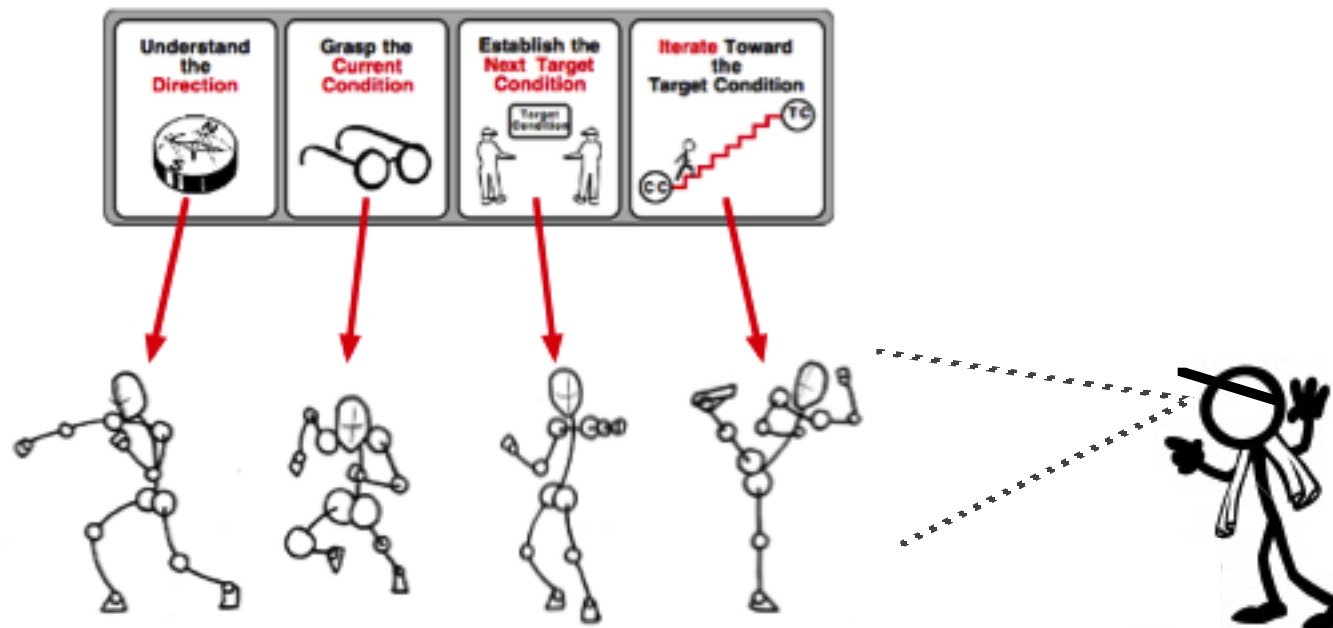
PART II: Practice Routines for The Improvement Kata

Deliberate practice of the Improvement Kata pattern has the ability to change how we think about and deal with challenges and uncertainty. This section of the Handbook walks you step-by-step through the practice routines for each step of the Improvement Kata.

A KEY POINT ABOUT PART II

The practice routines in this part of the Handbook are used to learn the scientific thinking pattern of the Improvement Kata through application practice

The IMPROVEMENT KATA PATTERN (the scientific approach)



These are specific PRACTICE ROUTINES to acquire / develop the scientific pattern of thinking and acting

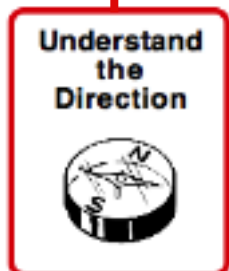
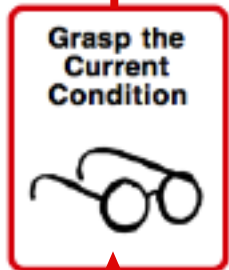
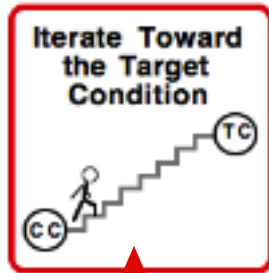
(HANDBOOK PART II)

The COACHING KATA is a practice routine for learning how to teach the Improvement Kata pattern

(HANDBOOK PART III)

THE STEPS OF THE IMPROVEMENT KATA BUILD ON ONE ANOTHER

What you do in one step
frames the next step



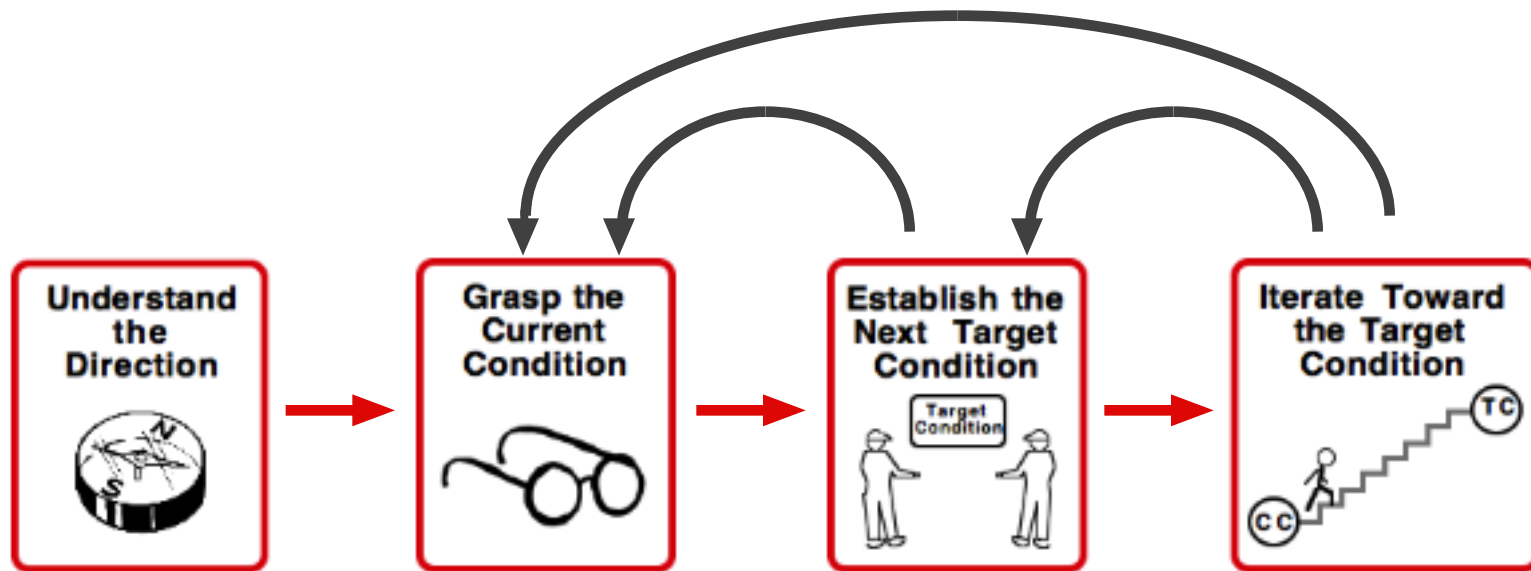
The more precisely you define the **Target Condition**, the better and more quickly you can recognize obstacles and **iterate** toward it with rapid experiments .

The better your analysis of the **Current Condition**, the more precise your definition of the **Target Condition** can be.

The clearer the definition of the **Challenge**, the more appropriate will be your analysis of the **Current Condition**.

THE STEPS OF THE IMPROVEMENT KATA ARE ALSO RECURSIVE

What you encounter in one step may adjust what you learned in earlier steps



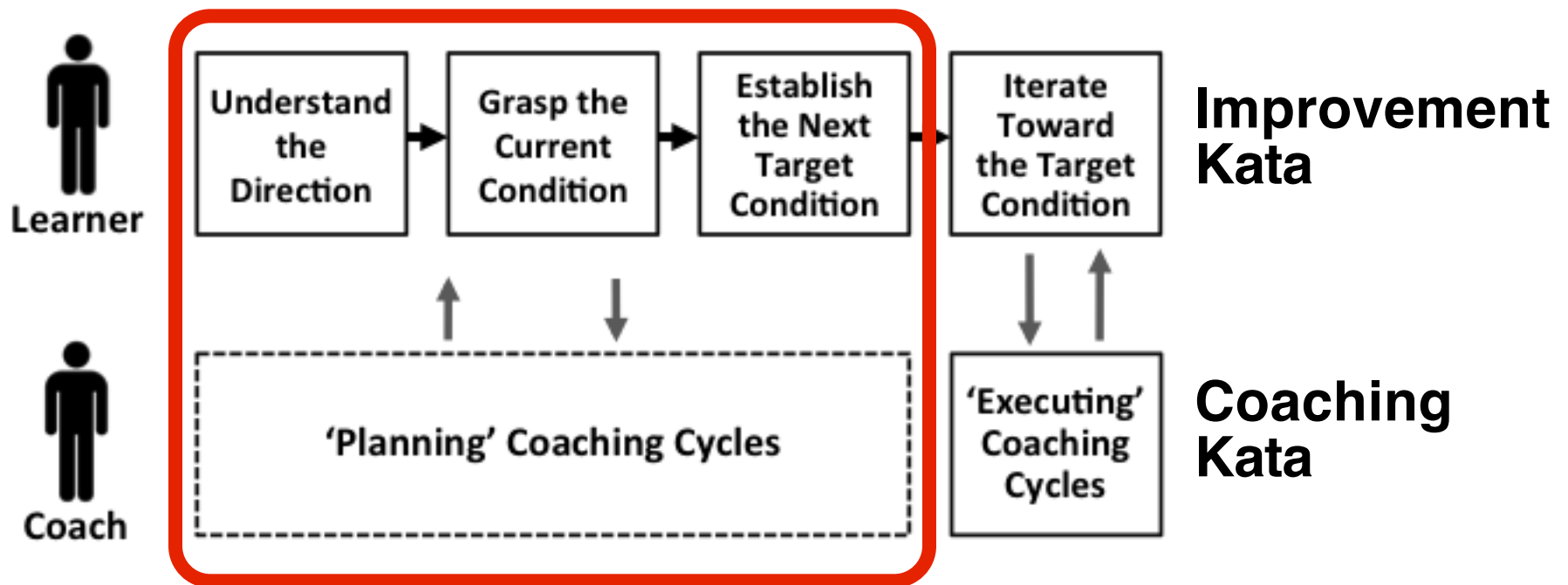
PLANNING PHASE

Where Do We Want to Go?

Chapter 4. Step 1: Understand the Direction / Challenge

Chapter 5. Step 2: Grasp the Current Condition

Chapter 6. Step 3: Establish the Next Target Condition

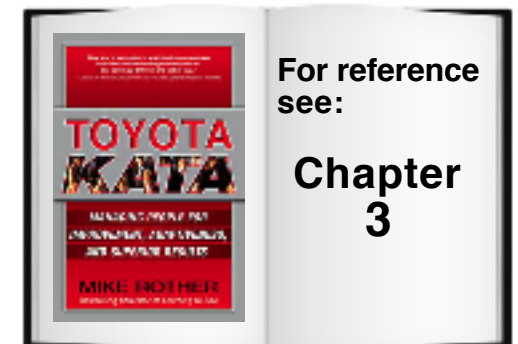


Chapter 4

The Improvement Kata - Planning Phase

Step 1: UNDERSTAND THE DIRECTION / CHALLENGE

Practice
this
Routine



ORIENTATION

 YOU are here



Understand the Direction

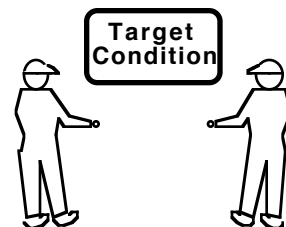


What challenge are we striving to meet?

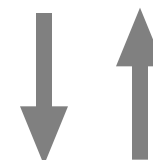
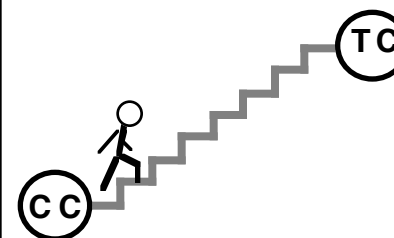
Grasp the Current Condition



Establish the Next Target Condition

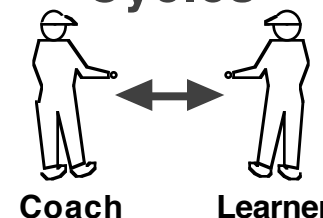


Iterate Toward the Target Condition



'Planning' Coaching Cycles

'Executing' Coaching Cycles



LEARNER'S STORYBOARD

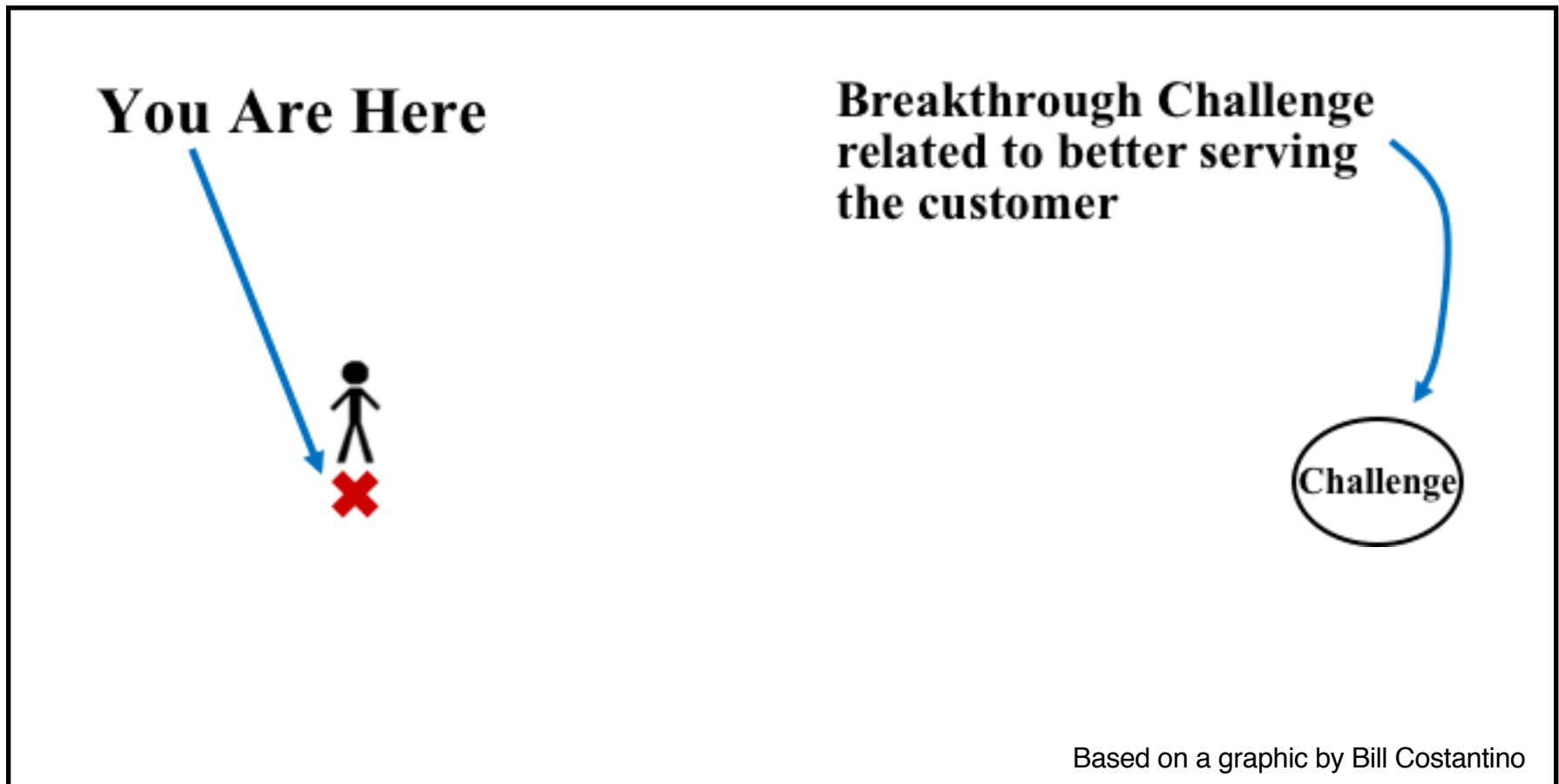
Learner and Coach are now concentrating on this field **X**



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

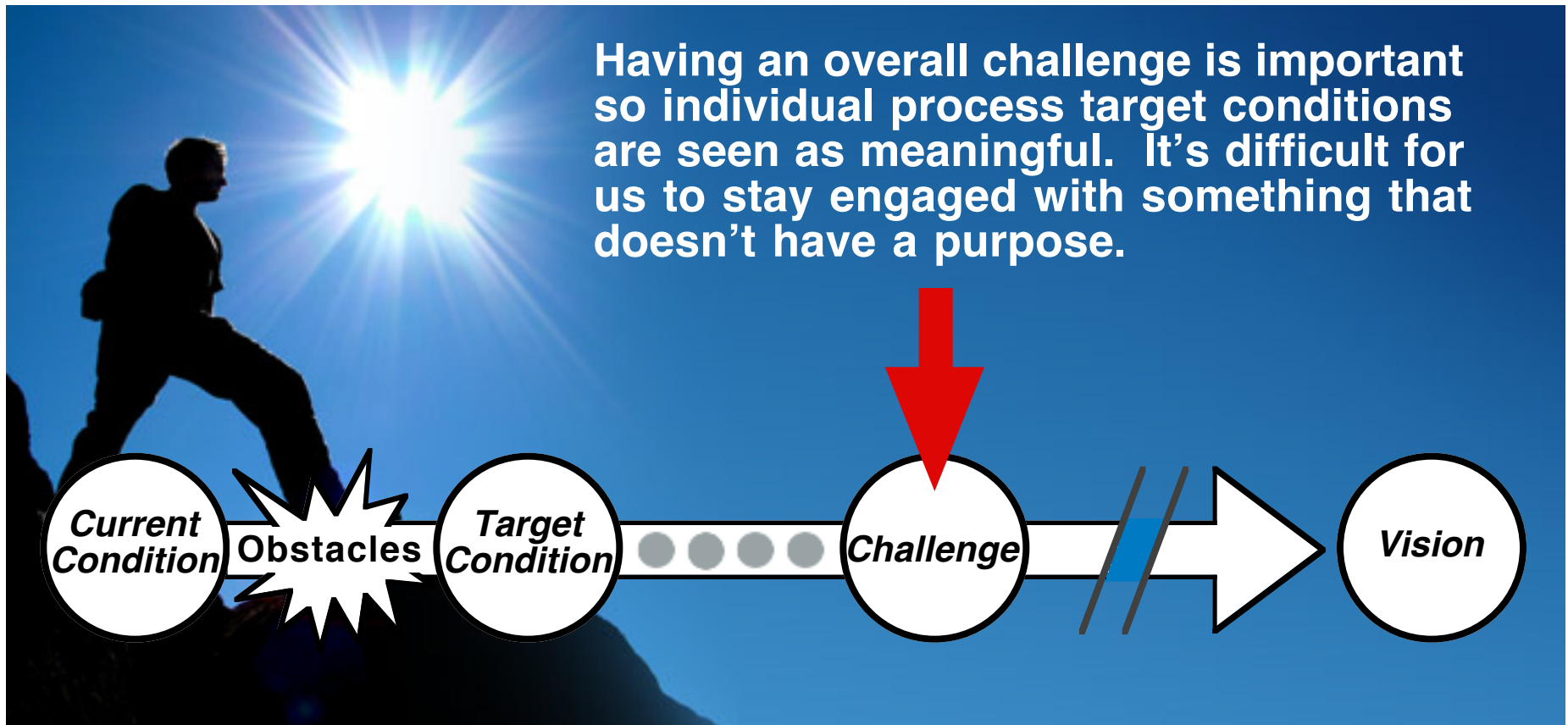


THE IMPROVEMENT KATA PATTERN BEGINS WITH A SENSE OF DIRECTION



SPECIFICALLY, THE FIRST STEP OF THE IK PATTERN IS TO DEFINE THE OVERARCHING **CHALLENGE**

This is the context within which the rest of the Improvement Kata is applied



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

“When people see themselves as components in a system [and] work in cooperation to achieve a shared aim, they feel that their efforts hold meaning. They experience interest and challenge and joy in the work.”

~ W. Edwards Deming, *The New Economics*, page 128

THE ROLE OF A CHALLENGE

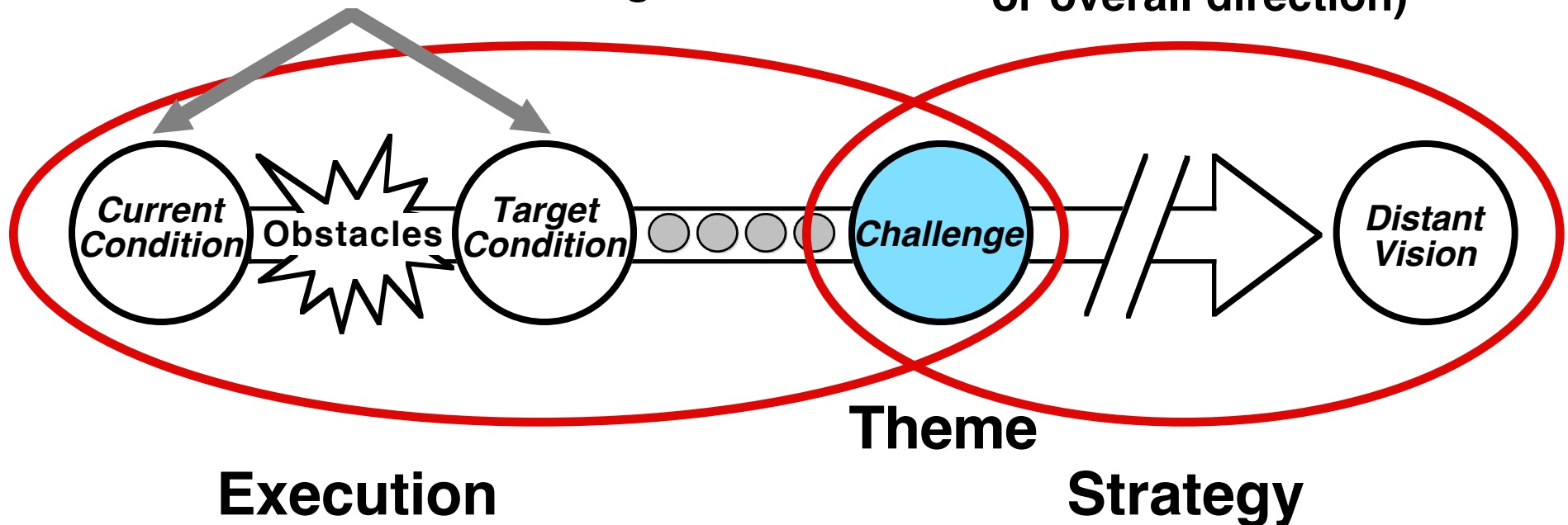
Ideally, a challenge is a theme that connects strategy with process-level execution

A Task for MANAGERS

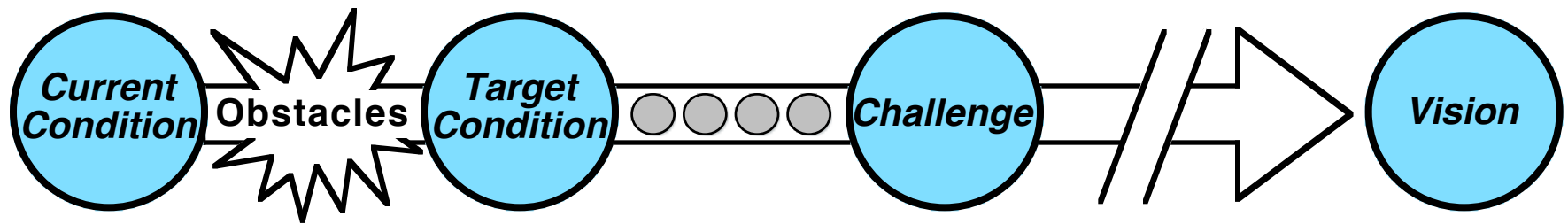
Day-to-day coaching the application practice of the Improvement Kata pattern, in the direction of the challenge

A Task for LEADERS:

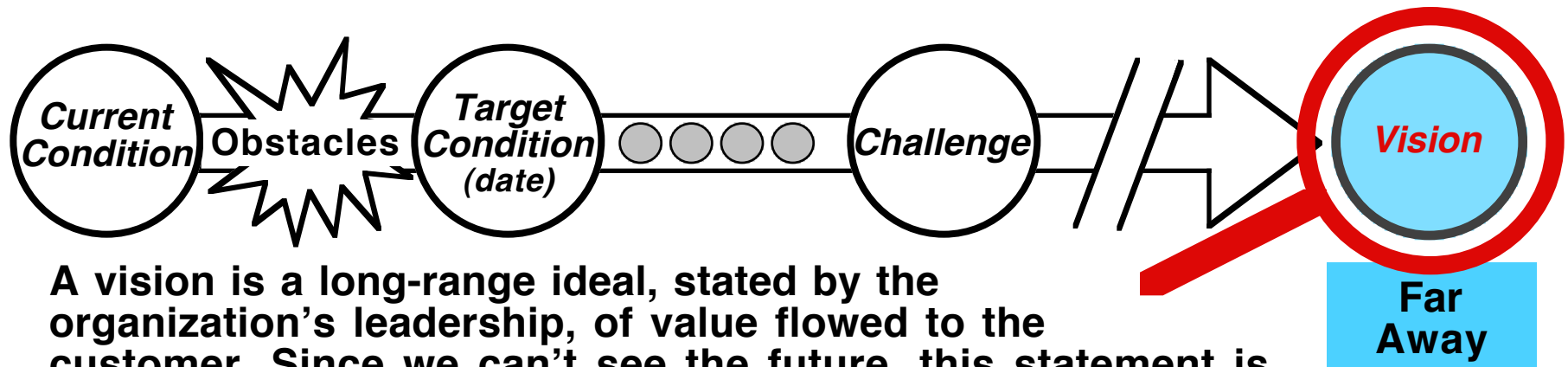
Establishing the organization's strategic concept (the "rallying point" or overall direction)



LET'S LOOK AT EACH OF THESE ELEMENTS



THE LONG-TERM VISION: STRATEGIC PURPOSE



A vision is a long-range ideal, stated by the organization’s leadership, of value flowed to the customer. Since we can’t see the future, this statement is a description of value that’s not limited to the organization’s current products or technologies. If you look beyond the processes and products you have today (which can blind you to the bigger picture), what do customers actually need or want?

For example, a long-term vision statement for an automobile manufacturer could be, *“Better transportation for more people.”* A vision statement for a manufacturer of drills could be, *“Holes where you want them when you want them.”*

It’s acceptable and even desirable for the vision to represent a puzzle from the perspective of current competencies. It’s far away, difficult to imagine, and the path to it is not foreseeable.

This sense of direction gets deployed into the organization by defining more specific challenges or themes that guide and inform application of the Improvement Kata pattern, to strengthen existing capabilities or develop new capabilities as necessary to move in the desired direction.

Further details on establishing a long-term vision are outside the scope of the Improvement Kata Handbook.

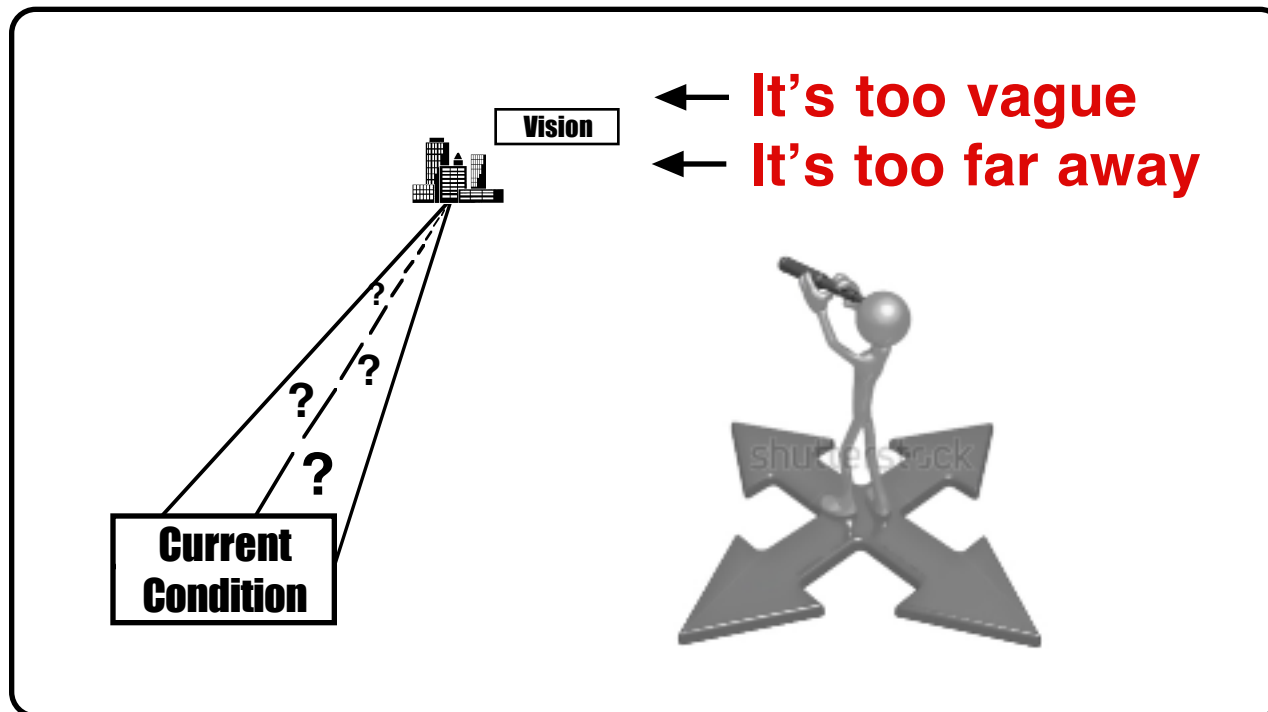
Note:
EFFICIENCY AND COST CUTTING
ARE NOT A DIRECTION

Just operating on low cost is unlikely to be a source of sustained competitive advantage. This can lead you into a commodity trap, where in order to compete you end up pursuing ever-lower-cost inputs and endanger quality.

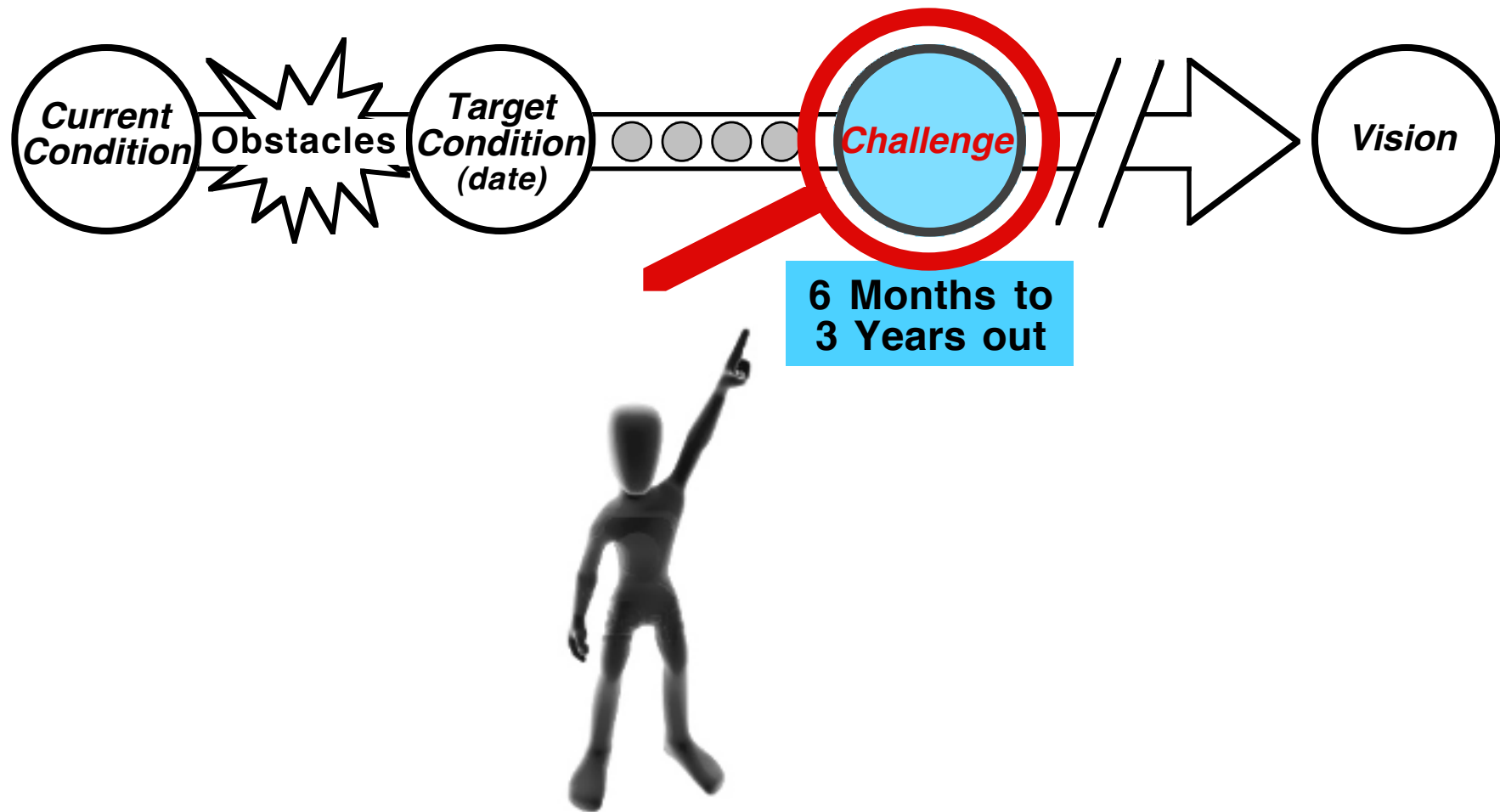
Rather than managing the operational side of the business simply to be efficient, with the Improvement Kata approach managers guide activities that support a strategic purpose that grows and differentiates the business (which can include efficiency, of course).

Defining a vision or strategic purpose is about building unique value; i.e., distinctive differences that are valuable to customers. This provides qualitative directional guidance for the organization.

A STRATEGIC VISION BY ITSELF IS NOT A GOOD GUIDE FOR DAILY IMPROVEMENT EFFORTS



THE MOST IMPORTANT OVERALL DIRECTION GIVER FOR THE OPERATIONAL SIDE OF THE ORGANIZATION ARE CLOSER, MORE SPECIFIC, WELL-STATED BREAKTHROUGH CHALLENGES





WHAT IS A CHALLENGE?

Think of a challenge as a sentence beginning with the words:

“Wouldn’t it be great if we could...”

- It’s a non-negotiable stretch goal -- a theme -- related to better serving the customer. It’s an inspiring description of a new level of performance that will distinguish your team from competitors.
- It’s a business imperative that the organization can’t achieve with its current system or process.
- Typically 6 months to 2 years in the future.
- Is defined by leaders or by persons with value-stream responsibility.
- Not easy, but not impossible. Achievable, but we don’t know in advance how we’ll achieve it. Takes a series of target conditions to achieve.

A CHALLENGE IS A TEAM OR ORGANIZATION RALLYING POINT

A challenge should describe a desired state that people can rally around, and should be measureable in some aspect. But the challenge is not just a number. It should be personally relevant to the members of the organization. A good challenge focuses a team’s attention and effort, and is often published as a punchy, inspiring *challenge statement*.

Example Challenge <i>Wouldn't it be great if we could...</i>	Example Challenge Statement
<ul style="list-style-type: none"> • ...have every customer calling in immediately get a live person. • ...machine parts 1x1 directly in the assembly process. • ...paint parts 1x1 directly in the assembly process. • ...build one customer kitchen at a time and put it right on the truck. • ...have lab-test results done in 45 minutes, with no errors. • ...take 7 days from new patient referral to evaluation. • ...assemble the day ordered, and ship the next day. 	<p><i>“Customers first time live”</i></p> <p><i>“Machine to assemble”</i></p> <p><i>“Paint to assemble”</i></p> <p><i>“Build to truck, kitchen at a time”</i></p> <p><i>“Know in 45”</i></p> <p><i>“Just a week”</i></p> <p><i>“Same day, next day”</i></p>

WHY AN OVERARCHING CHALLENGE IS SO IMPORTANT

A challenge guides every day's work. Without it:

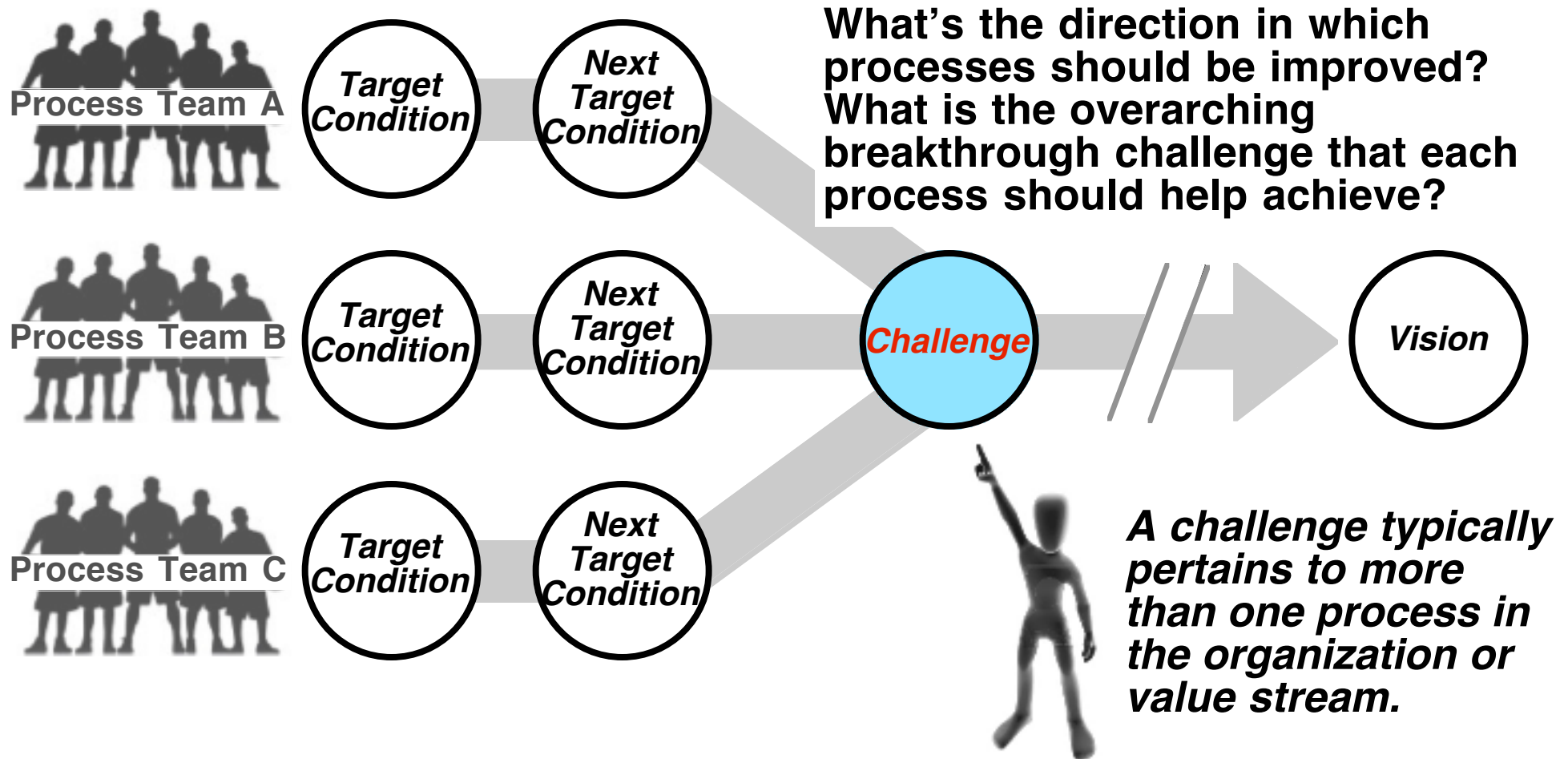
- **An organization is unaligned. Improvement efforts and proposals get ROI-evaluated independently, instead of as part of reaching for something. We tend to use short-term cost/benefit analysis to choose what steps to take, which dangerously keeps us inside our current knowledge threshold.**
- **We tend to jump from one direction to another in trying avoid obstacles, rather than struggling through the obstacles to achieve the innovations and important competencies of tomorrow.**
- **Improvement becomes reacting to problems (“troubleshooting” to maintain the status quo) rather than reaching for a new level of performance.**



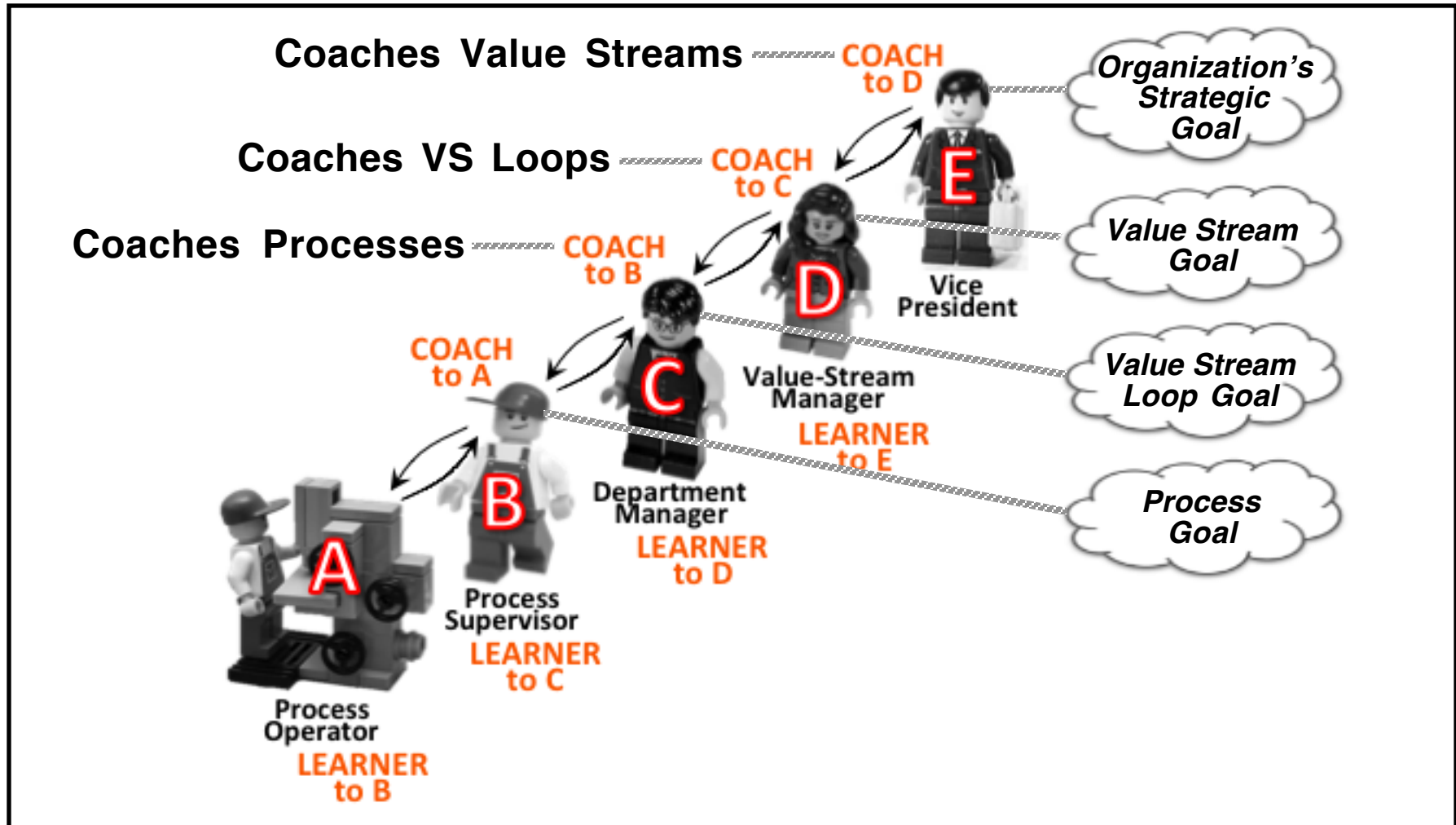
(Note: It's acceptable for a *beginner* to do some initial practicing of the Improvement Kata pattern without a challenge, just to start learning the pattern. But a challenge will soon be necessary for the Learner's practicing to be meaningful and effective.)

A CHALLENGE HELPS TO ALIGN AND CONNECT PROCESS-LEVEL IMPROVEMENT EFFORTS

The challenge is used to help ensure that process-level improvement efforts have a focus and fit together



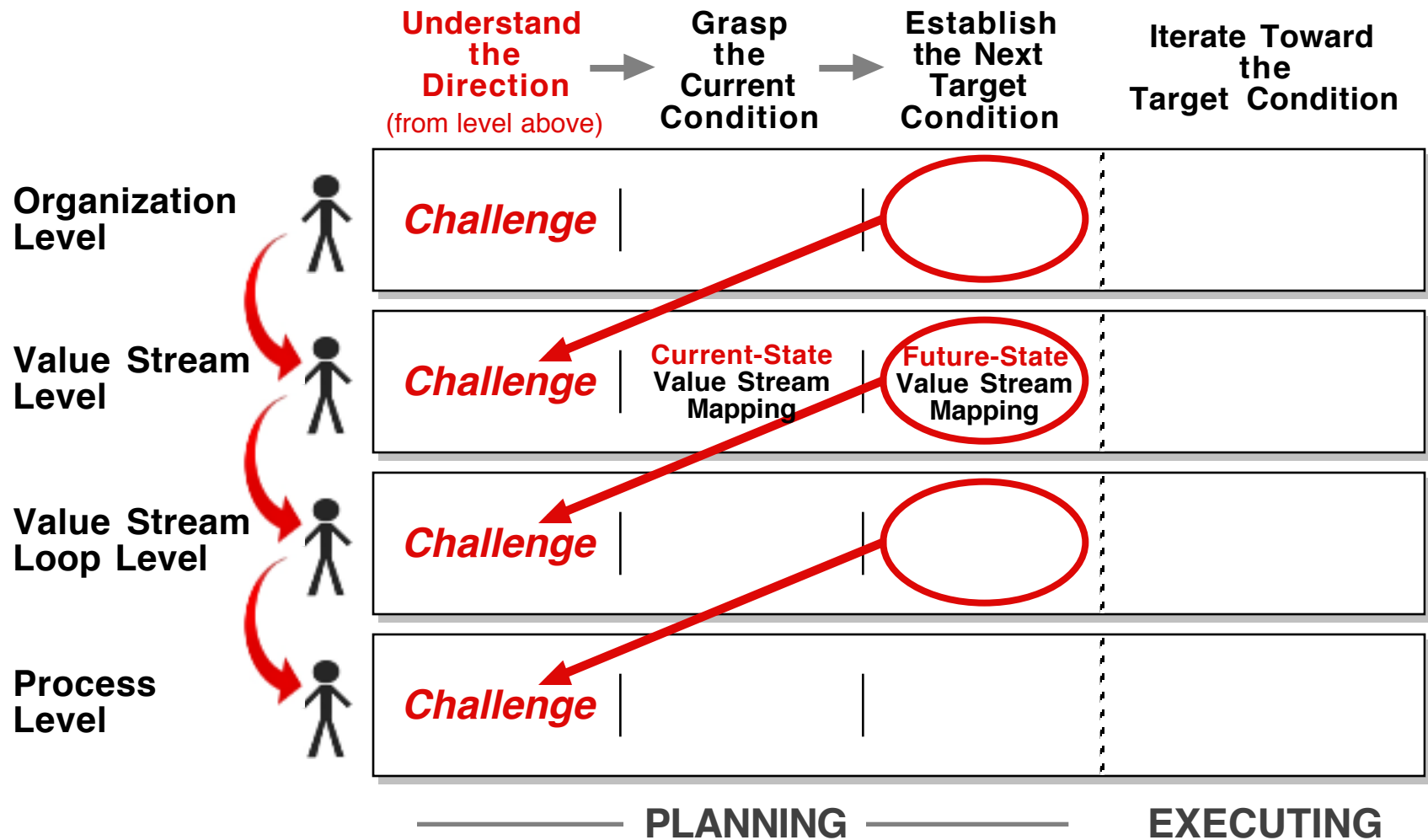
WHAT COACHING TO A CHALLENGE LOOKS LIKE



Leadership coaches the next level down in defining an overall Challenge in the direction of the vision. Below that, the *Target Condition* from the level above becomes the *Direction* or *Challenge* for the level below.

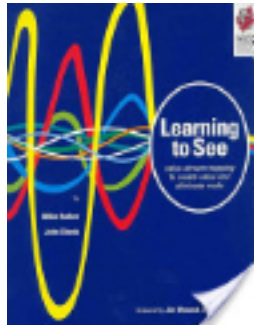
IN PRACTICE

YOUR SPECIFIC CHALLENGE MAY COME FROM THE TARGET CONDITION ONE LEVEL ABOVE YOU



ONE WAY TO DEFINE THE PROCESS-LEVEL CHALLENGE IS WITH FUTURE-STATE VS MAPPING

A useful tool for the first step of the Improvement Kata



You can get going with the Improvement Kata by defining a challenge theme with future-state value stream mapping. A future-state VS map is sometimes called a “Challenge Map.”

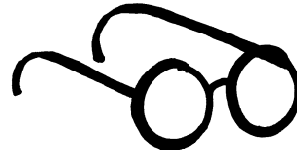
Challenges based on future-state value stream mapping often relate to shortening lead time.

Understand the Direction

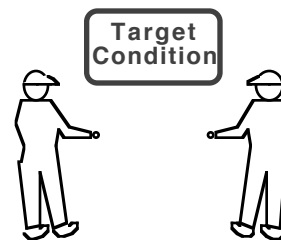


What challenge are we striving to meet?

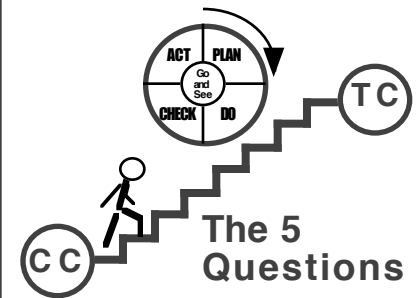
Grasp the Current Condition



Establish the Next Target Condition



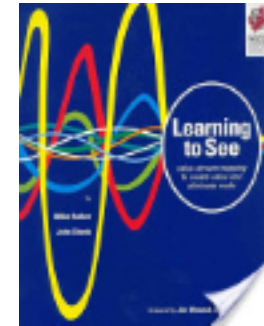
PDCA Toward the Target Condition



A FUTURE-STATE VALUE STREAM MAP COORDINATES IMPROVEMENT AT INDIVIDUAL PROCESSES

A future-state map describes in a graphic format how you want a value stream to be functioning in 1-3 years.

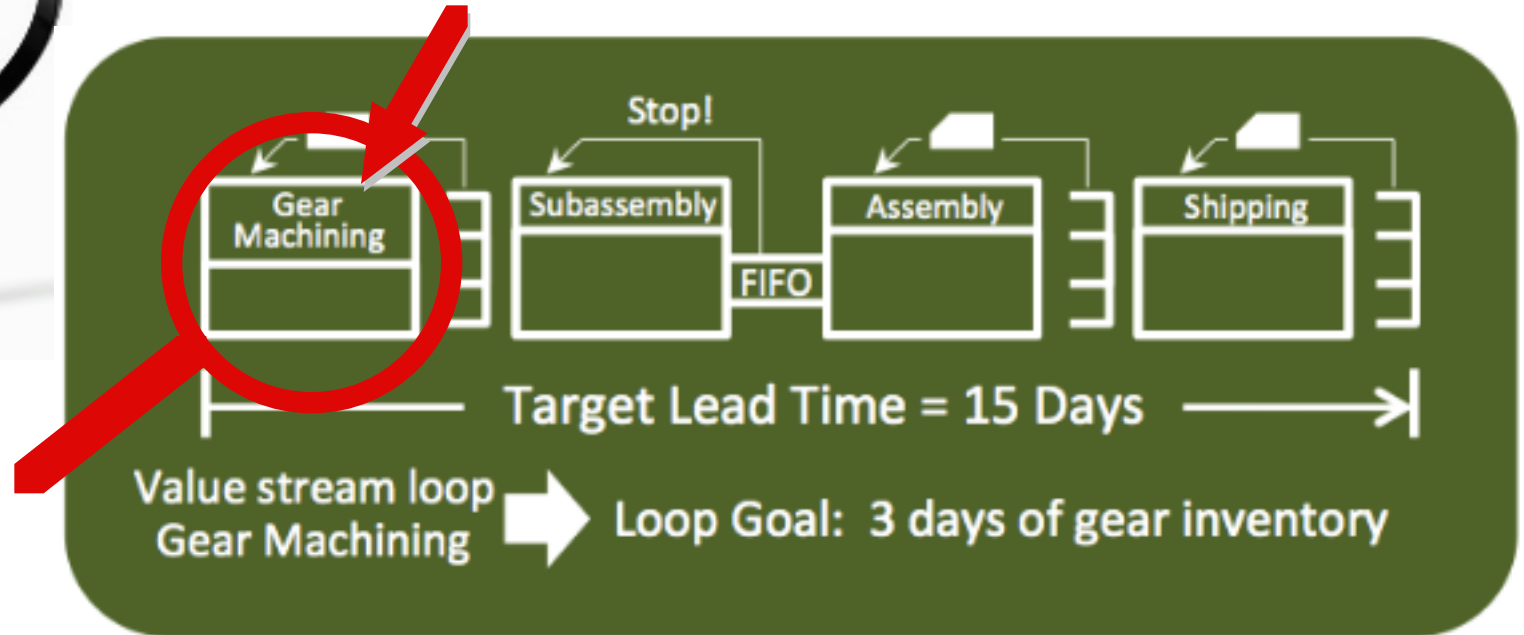
The future-state value stream map provides an overarching challenge & coordination for establishing target conditions at the individual work processes inside a value stream.



See p.86 in *Learning to See*



What does this *process* need to do to help achieve the future-state *value stream* design?



ESTABLISHING CHALLENGE WITH VSM

DEFINING THE CHALLENGE

ITERATE TO GET THERE

Value Stream Mapping

Improvement Kata & Coaching Kata

Org Level

At the value-stream level

At each loop & process in the value stream



Understand the Direction

Confirm the organization's strategic objective.

Grasp the Current Condition

Select one value stream and map the current state.

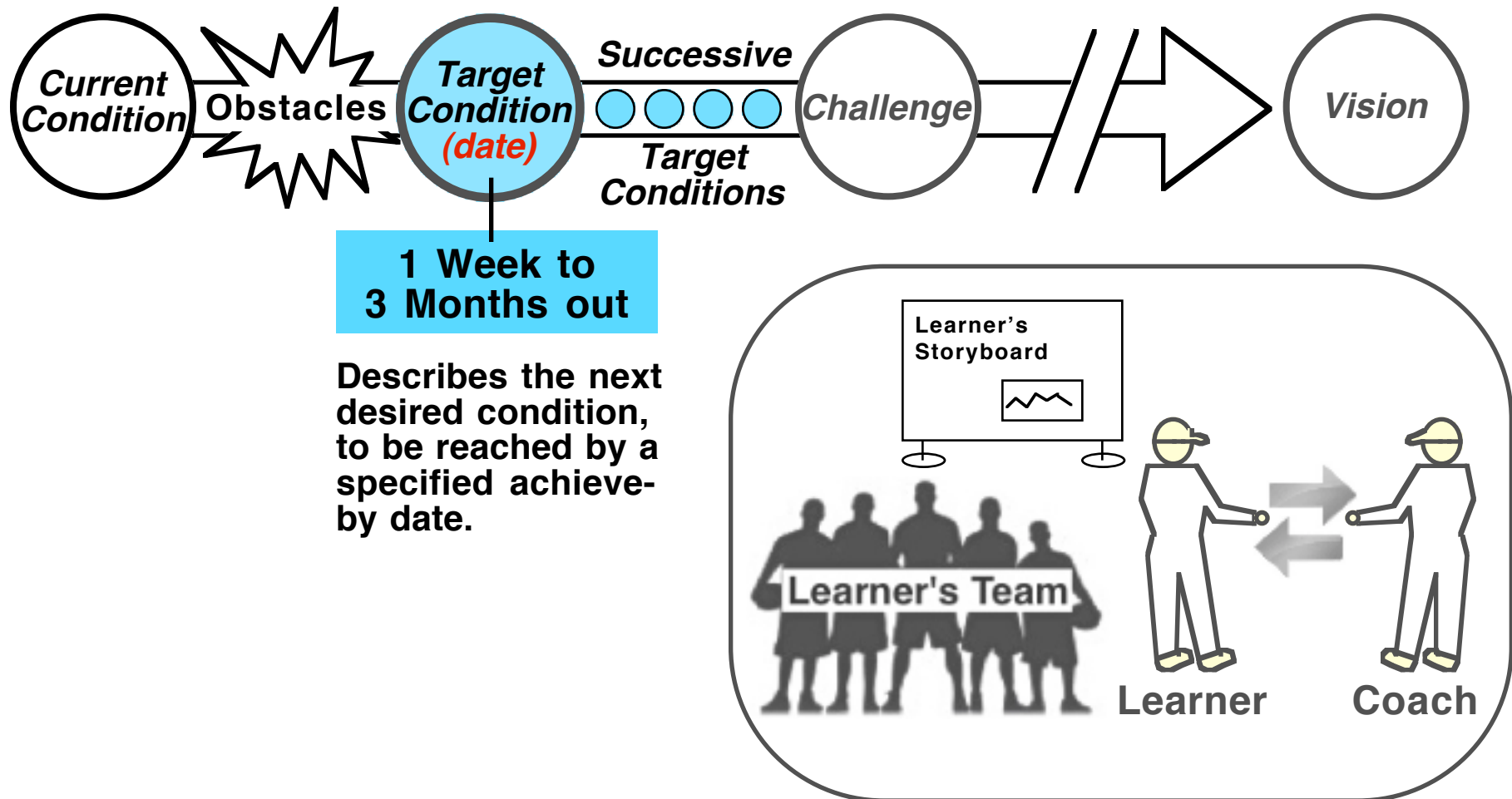
Establish the Next Target Condition

Consense on a future-state for this value stream, in the direction of the strategic objective. What does this value stream need to deliver?

Determine the loops of the future-state value stream and define each loop's inventory and lead-time goals.



Of course, having a challenge without the ability to execute would be ineffective. Looking ahead to the rest of the Improvement Kata (where execution takes place)... It's a series of **Target Conditions** that day-to-day improvement efforts at each level will be aiming for.



WHAT'S THE DIFFERENCE BETWEEN A TARGET CONDITION AND A CHALLENGE?

TARGET CONDITION	CHALLENGE
<ul style="list-style-type: none"> • At the individual-area or individual-process level • Developed by the Learner, guided by the Coach (manager) • Achieve-by date is 1 week to 3 months out • Describes in measureable detail how you want a particular work process to function in the <i>near</i> future 	<ul style="list-style-type: none"> • At the value-stream or organization level • Developed by a leader or a person with value-stream responsibility • 6 months - 3 years out • A verbal or graphic picture of a future state that is measureable in some aspect

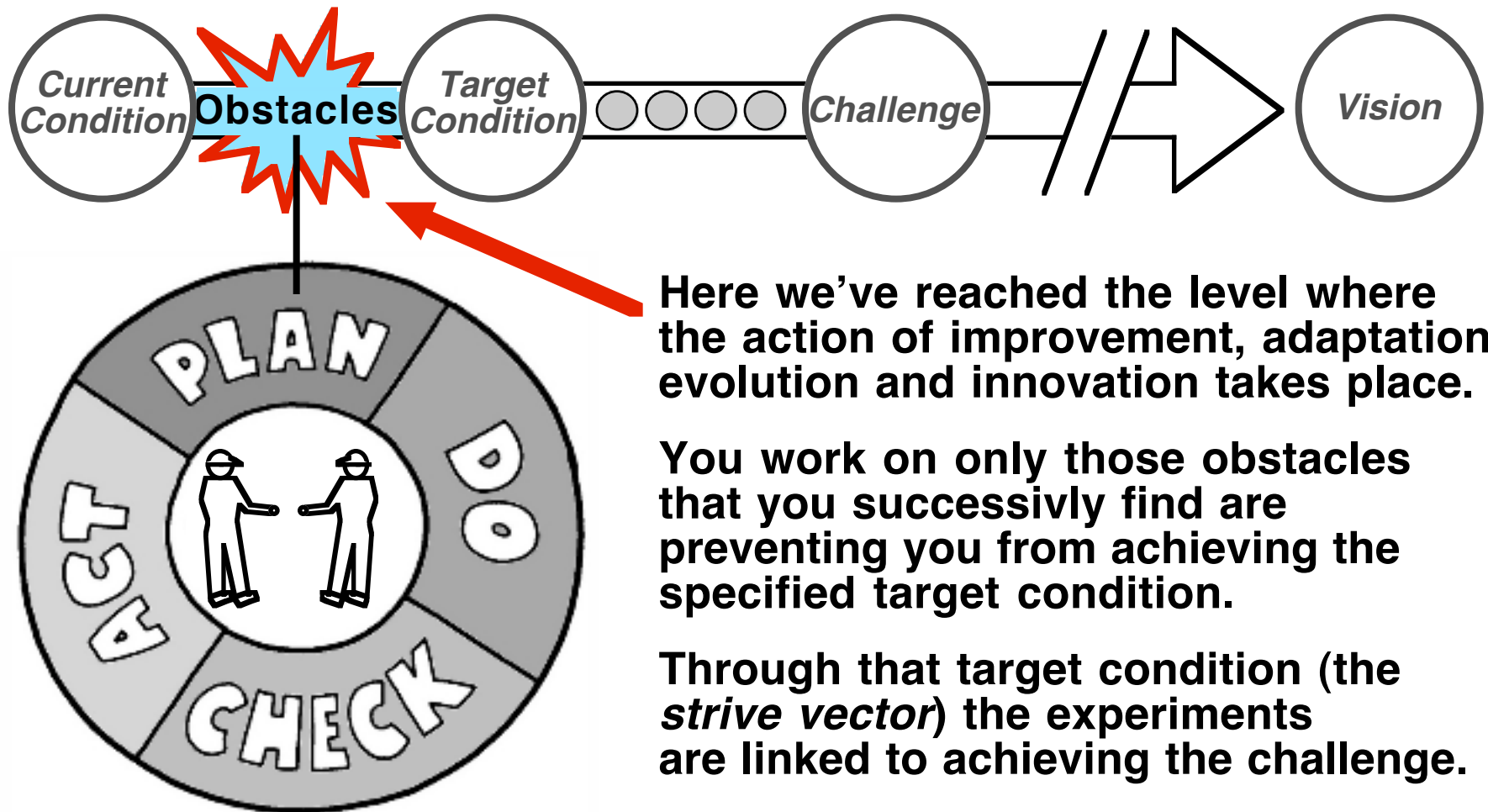
These are developed by two different groups. The challenge is defined by leaders. Target conditions are developed by the Learner in dialog with the Coach and the process team.

A series of successive target conditions is necessary to meet a challenge. When you achieve one target condition you set the next target condition, and so on.



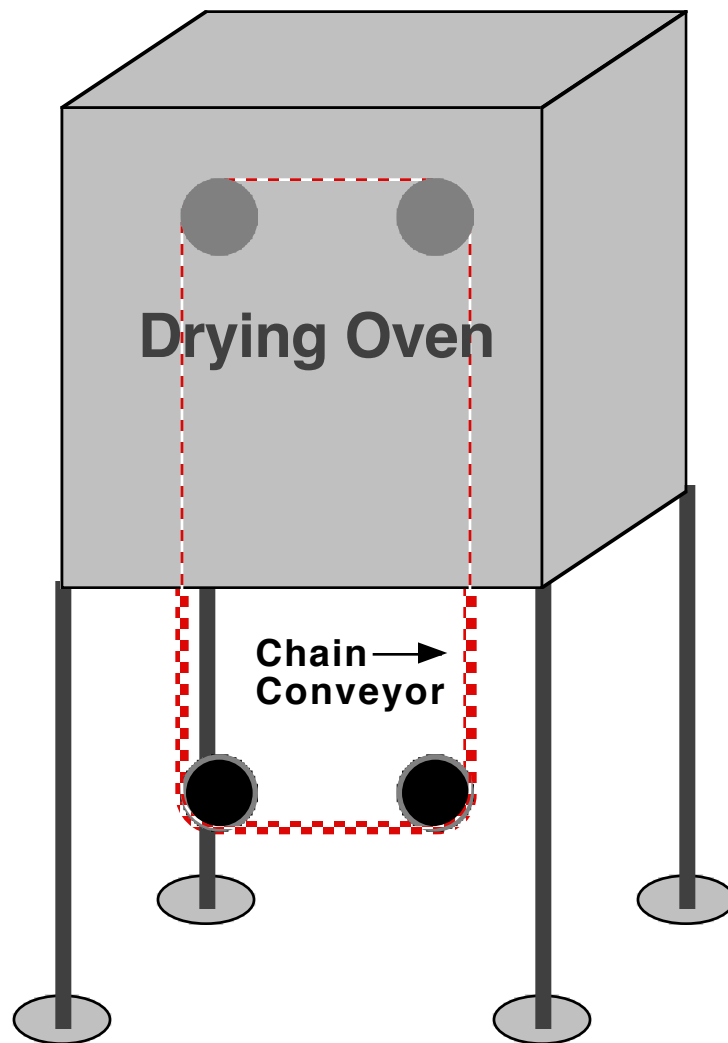
Finally... **Obstacles** to each target condition are where **rapid experimentation** takes place

This = iterating (experimenting) toward the target condition



A MANUFACTURING EXAMPLE

A team is following the Improvement Kata pattern to develop an in-line paint-drying oven



VISION	<i>1x1 Flow</i>
CHALLENGE OR THEME	<i>Paint in Line</i>
NEXT TARGET CONDITION	<i>In-Line Oven (attributes defined)</i>
CURRENT OBSTACLE	<i>Chain conveyor is derailing</i>

More General



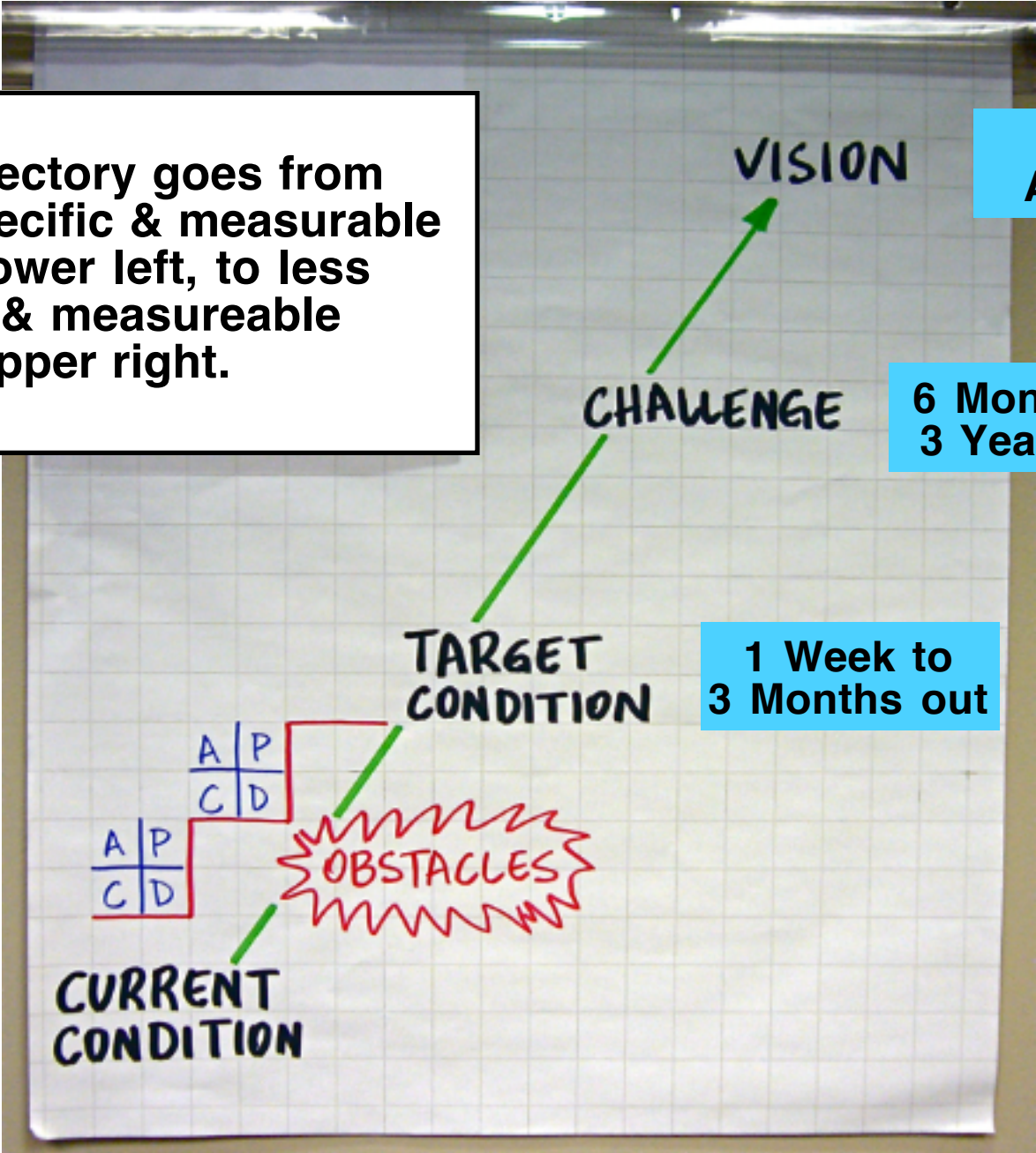
More Specific



Current Obstacle:
*The chain conveyor derails when parts are hung on it.
 The team is now experimenting here.*

SUMMARY

This trajectory goes from more specific & measurable on the lower left, to less specific & measurable on the upper right.



Chapter 5

The Improvement Kata - Planning Phase

Step 2: GRASP THE CURRENT CONDITION The Process-Analysis Kata

**Practice
this
Routine**



ORIENTATION



Understand the Direction

A black and white icon of a compass showing cardinal directions N, S, E, and W.

Grasp the Current Condition

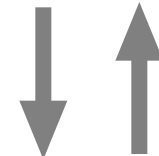
A black and white icon of a pair of glasses.

What is the current pattern of working?

Establish the Next Target Condition

An icon showing two stick figures in hard hats pointing towards a box labeled "Target Condition".

Iterate Toward the Target Condition

An icon showing a stick figure climbing a staircase. A circle labeled "CC" is at the bottom and a circle labeled "TC" is at the top.

'Planning' Coaching Cycles

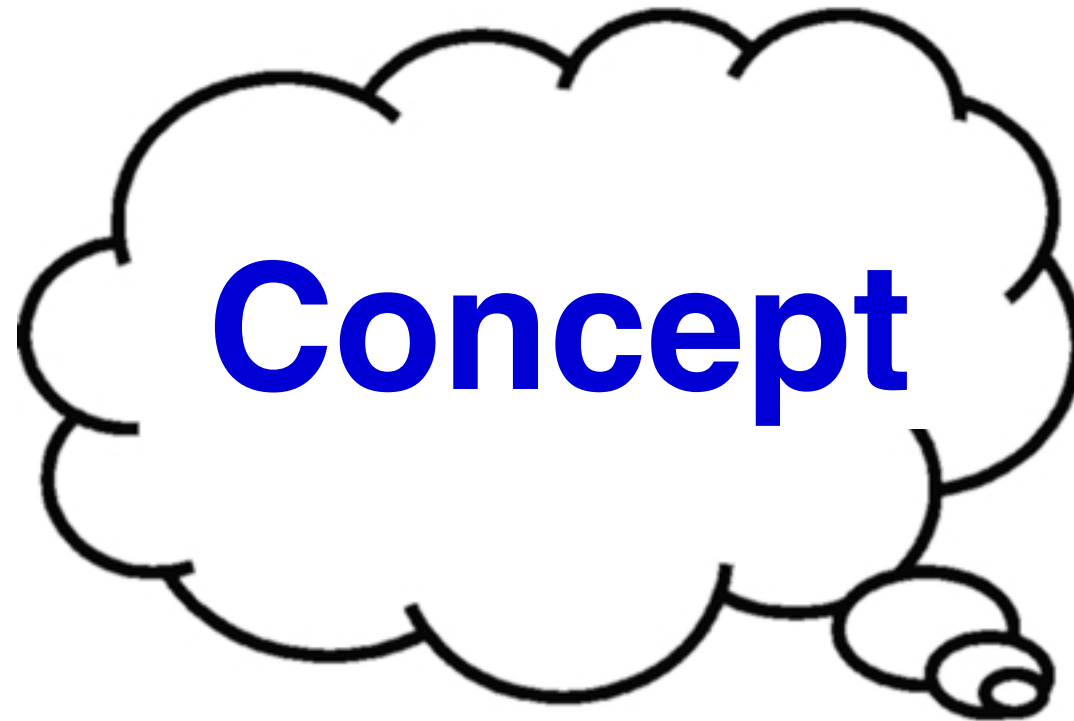
'Executing' Coaching Cycles

An icon showing two stick figures in hard hats with a double-headed arrow between them. The figure on the left is labeled "Coach" and the figure on the right is labeled "Learner".

LEARNER'S STORYBOARD

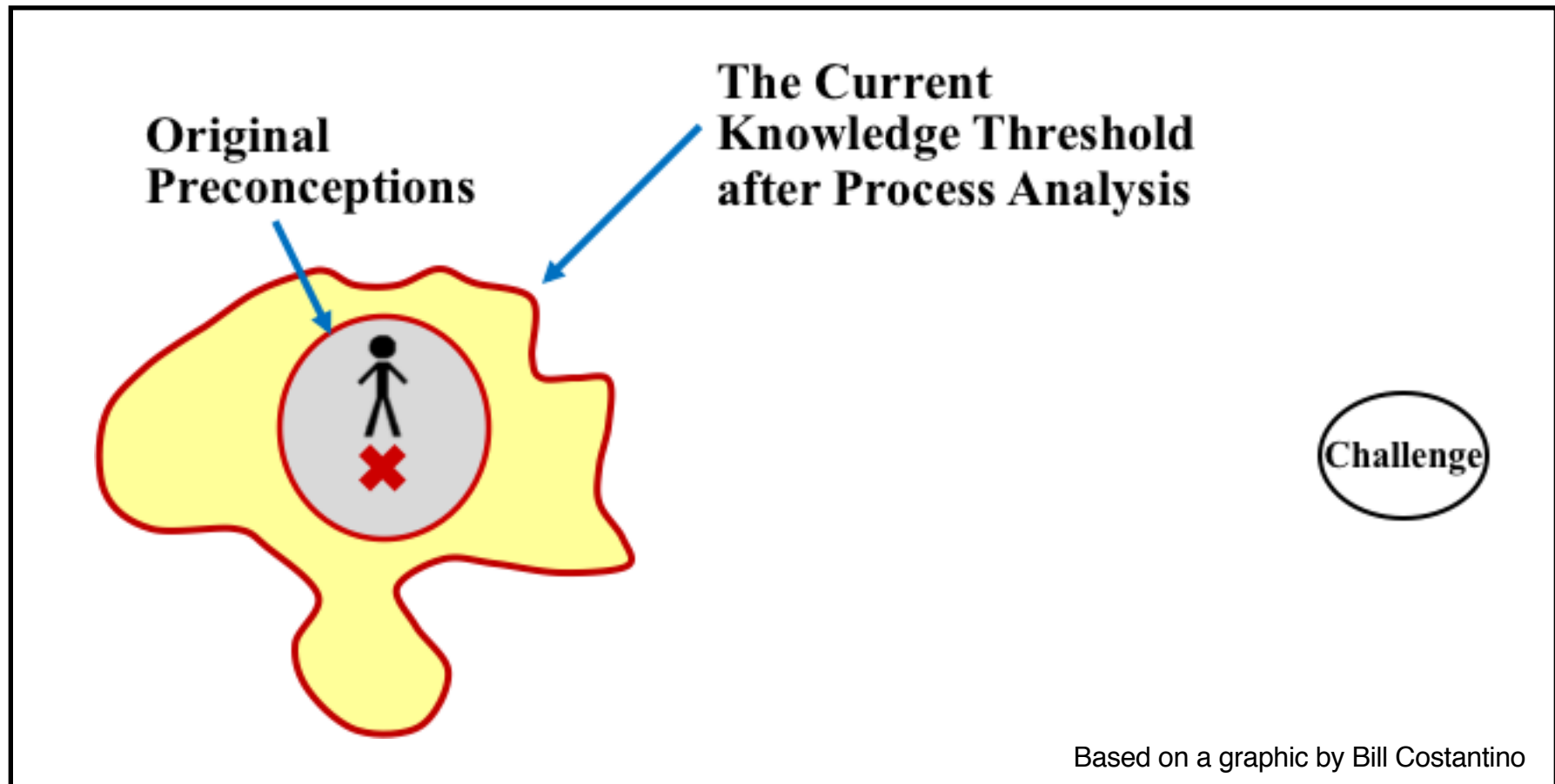
Learner and Coach are now concentrating on this field **X**

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

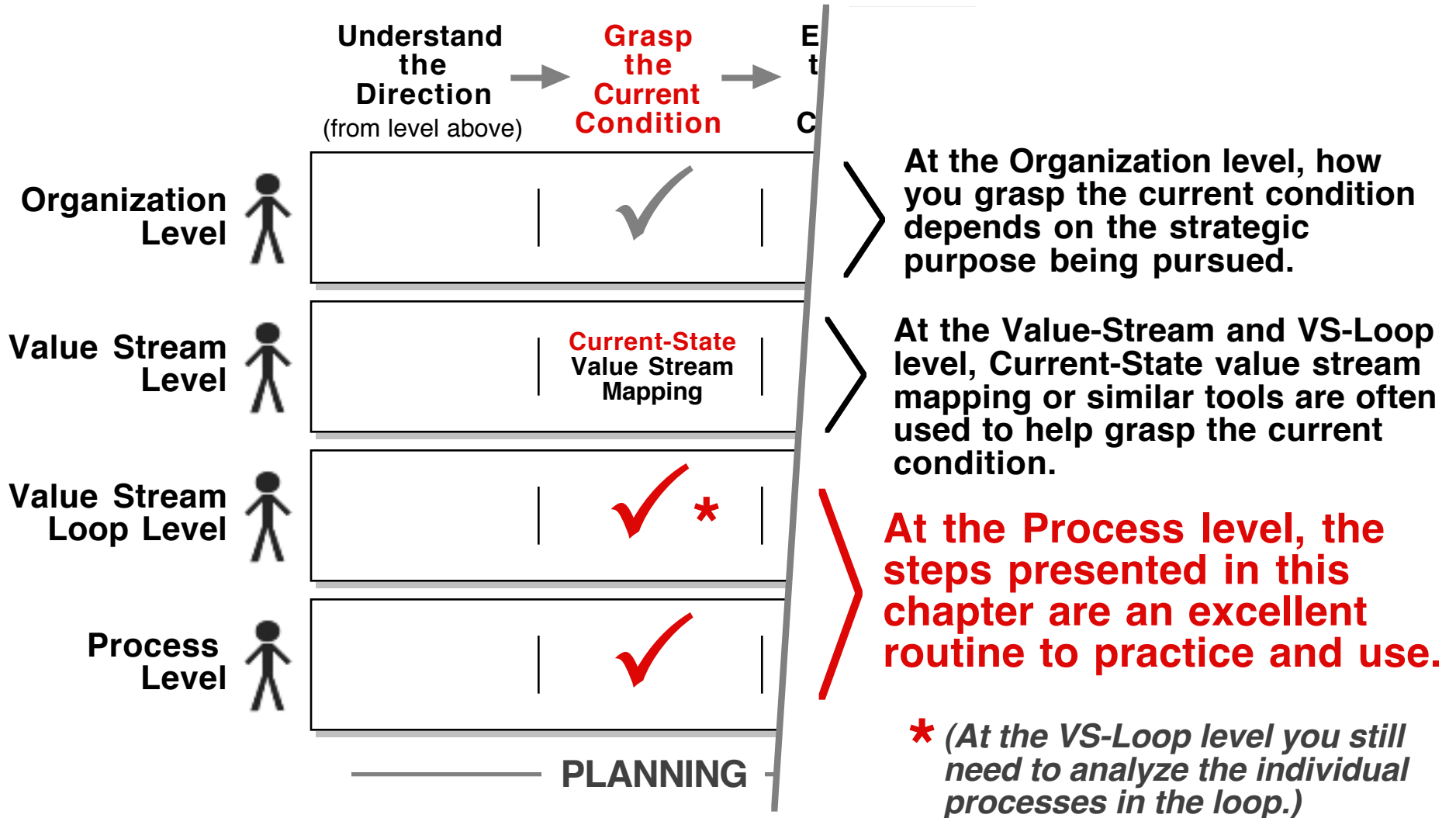


WHAT IS *GRASPING THE CURRENT CONDITION*?

Grasping the current condition means immersing yourself in the focus process to analyze and understand how it currently operates. This chapter provides you with a structured practice routine (a kata) for doing that at any work process.



THIS CHAPTER PRESENTS HOW TO GRASP THE CURRENT CONDITION AT THE PROCESS LEVEL



THE PURPOSE OF THE PROCESS-ANALYSIS KATA

The purpose of this process analysis is just to get a baseline understanding of the focus process. That's all.

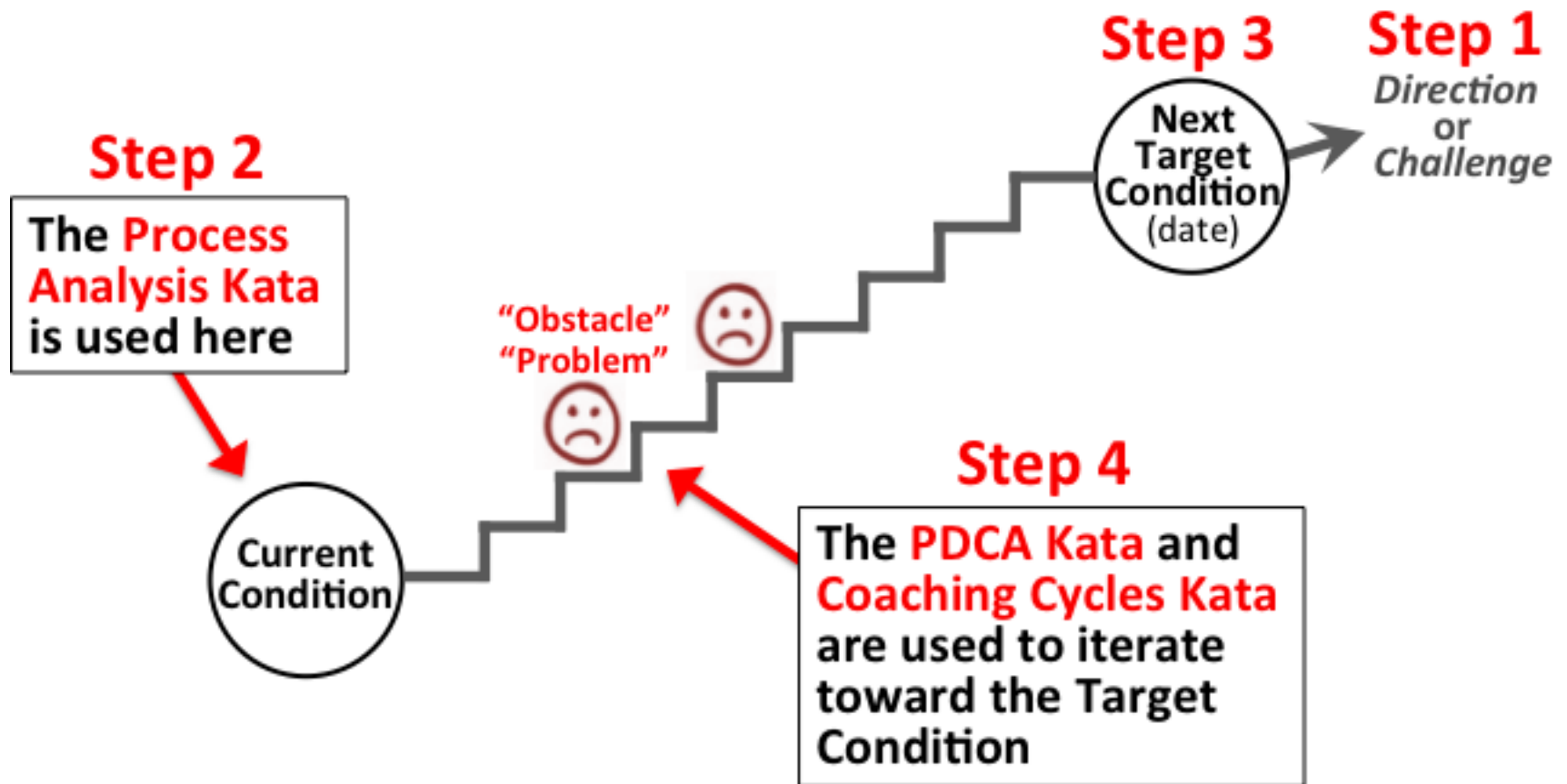
Process Analysis is a prerequisite for establishing a Target Condition. Analyzing the current condition is done to obtain facts & data about what's really going on, which you then use to describe an appropriate next target condition.

What you're doing is trying to understand the current pattern of operation, so you can define the next desired pattern of operation (the target condition).

Caution! The purpose of this process analysis is not to uncover problems, wastes or potential improvements. Process Analysis is *not* about identifying issues to work on. Once you have established a target condition and strive to move toward it, then you'll discover the obstacles that you *need* to work on.

Grasping the initial current condition is a step toward establishing a first target condition. When you are ready to establish a second target condition for the same process you'll have learned a lot about that process through the experimenting in the *Executing* phase of the Improvement Kata. The process analysis for the second target condition may therefore proceed more quickly, since you are not starting over.

WHERE THIS PROCESS ANALYSIS FITS IN



REALITY IS DIFFICULT TO SEE

It would be unscientific to start discussing goals and steps based on our impressions and intuitions, before objectively analyzing the current operating patterns of the focus process.

We can't depend on our brain's intuition for an accurate assessment of the current situation, no matter how well we think we already know the focus process.

Practicing the pattern of the process analysis kata helps you develop an open-minded way of looking. It's a procedure to follow in order to see and understand non-obvious characteristics of a work process.

This is a step toward increasing our comfort in crossing the threshold of knowledge and iteratively discovering the path to the next target condition through the grey zone.

We can't just use my impressions or ask people what they think. We need to observe and measure!



WHY IT'S IMPORTANT TO HAVE A SYSTEMATIC, STANDARDIZED PROCESS ANALYSIS

Being able to grasp the current condition is a foundational skill. This process analysis kata is a structured way to observe & analyze a current process condition. The benefits of using it are:

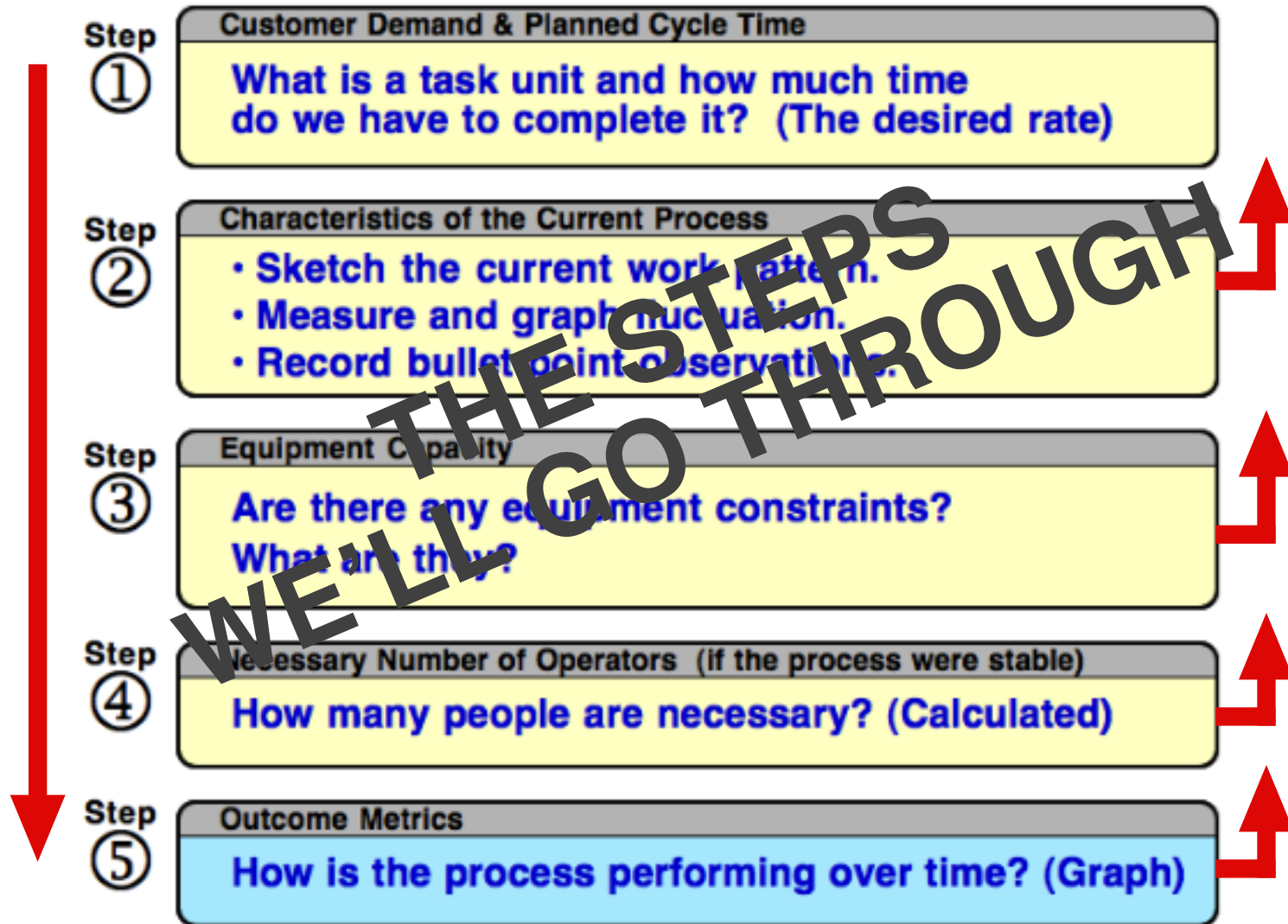
- (1) Prevents skipping Step 2 of the Improvement Kata, or jumping to conclusions based on an insufficient understanding the actual current condition.
- (2) Makes process analysis teachable and transferrable across your organization.
- (3) Grasping the current condition becomes fast and efficient.
- (4) Communication and coaching are more effective because you have a standard way of looking at and talking about work processes.

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

Begin by practicing the steps of process analysis as they are described here. As you become proficient you can then evolve it into a process-analysis kata more specific to your organization. However, the five basic steps of the process-analysis kata are fundamental and should remain.

THIS PROCESS ANALYSIS IS LINEAR BUT RECURSIVE

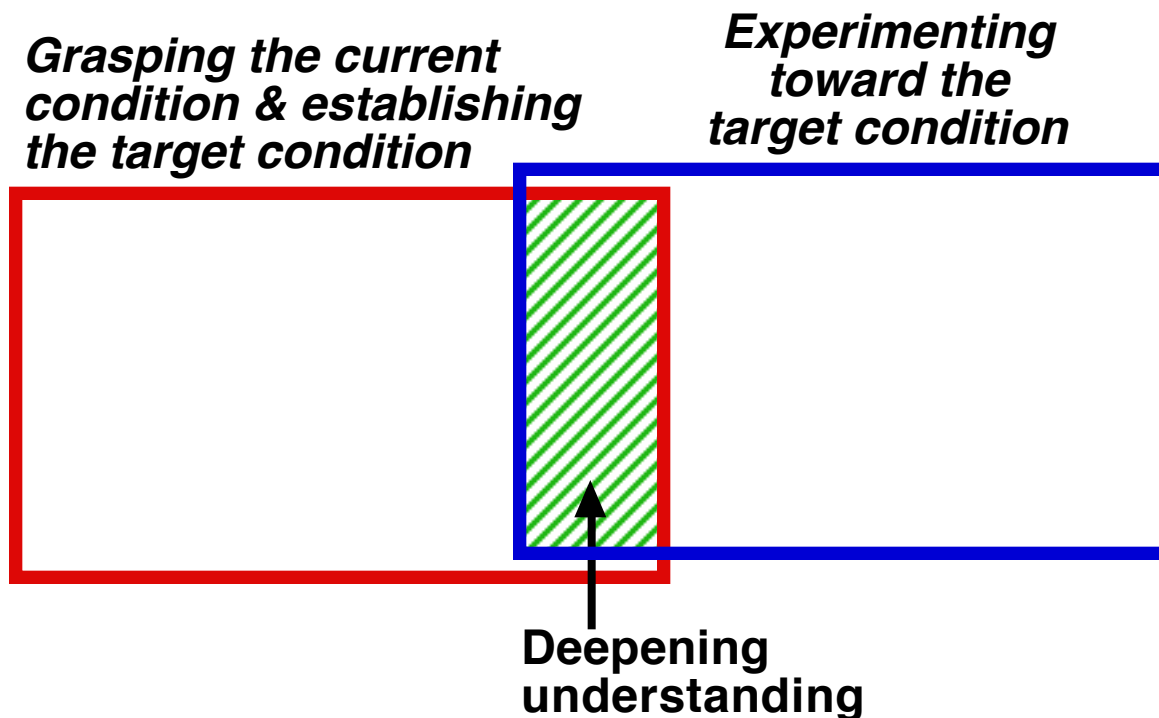
What you learn in one step of the process analysis may lead you to go back and adjust a prior step. That's normal.



YOU DON'T HAVE TO GET A PERFECT UNDERSTANDING OF THE CURRENT CONDITION BEFORE PROCEEDING TO THE NEXT STEP

You won't be able to understand everything about the process before you establish a first target condition and get going with experimenting toward that target condition.

As you conduct experiments you will iteratively deepen your understanding of the process even further.



PROCESS ANALYSIS TERMINOLOGY

FACTS *Something you observe.*
Example: The actual occurrence of scrap.

DATA *Something you measure.*
Example: The scrap rate.

PROCESS DESCRIPTION *An explanation & portrayal of how a process works.*

PROCESS METRIC *How you will measure the effects of experiments.*

This is a metric that occurs at approximately the same time as the conditions it signifies, and can be measured in real time to assess how a process is operating now. A process metric can be directly affected.

Example: The time each work cycle takes.

OUTCOME METRIC *How you will measure the performance of a process.*

This is a metric that indicates how a process or system has performed over a past time period. An outcome metric cannot be directly affected because it summarizes the effects of multiple variables.

Examples: Lead time, Output / hour, Cost, Labor cost, Productivity.



GUIDELINES FOR THE COACH: HOW TO TEACH 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 vary the process analysis and its sequence according to the situation at hand.
- As the Learner moves through the analysis steps in order s/he will often have to go back to review or recalculate an earlier step based on what they are learning. That's normal. You can't get each step right the first time.
- Break the practicing into 'chunks':
 - Have the Learner complete one process analysis step at a time.
 - After each step have the Learner summarize on a flipchart & present to you.
 - 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 the presentation 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 and correct what the beginner 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. For practice it can be fun to set an increasingly shorter time to do a process analysis. Pick another process and do it again. Can you get to two hours?



PROCESS ANALYSIS FOR OFFICE AND SERVICE PROCESSES

Finding the current pattern of working



Process analysis in office and service-type work can be more difficult than in repetitive manufacturing, because the work content may vary, take a long time and/or be invisible. However, there is a "pattern" in nearly all work we do. Brain science backs this up. Even though the work content varies, the people doing the work will have developed habits for how they do the work.

All you're trying to do is to see and understand a *pattern* of working. Although the process content may vary, the people carrying out the task will have certain ways of doing it. That's what you're trying to find and to measure.

It often takes longer to observe, track and measure the current pattern in office and service processes. But once you see and can measure the basic pattern of working you can start to define the next target pattern to aim for. Pattern is a good word to use when you seek to understand and improve any process.

Have the Learner carefully observe and study the office/service work process following the **five steps** in this chapter; sketching, measuring and understanding the current pattern of working. Based on the learner's understanding of the current operating patterns s/he will then develop a target operating pattern for the work process.

WHAT ABOUT HIGHLY AUTOMATED PROCESSES?



The question of how to handle highly-automated processes comes up regularly. Here's one approach...

Start by creating a run chart of output-cycles for the machine, with a *target* line that indicates the output cycles you expect from this automated process's operation.

You may think you should then apply the steps of the Improvement Kata directly to the automated machine itself, but even in highly-automated processes, the process is still dependent on things that people do. The focus in applying the steps of the Improvement Kata to an automated process is often *on the human-centered processes around the machine that influence how the machine operates*. These are processes such as:

- Machine tending (incl. monitoring, stocking, loading, adjusting, etc.)
- Changeovers
- Logistics (moving material in and out)
- Reacting to problems
- Maintenance

Apply the steps of the IK to *these* work processes as they become obstacles to the target machine output cycles, with one storyboard per process:

- Carefully study the work process to sketch, measure and understand its current pattern of operating using this chapter's process analysis.
- Based on that understanding of the current operating pattern, define the next desired operating pattern (target condition) for the process.
- Then experiment iteratively to move toward that target condition.



How to Practice

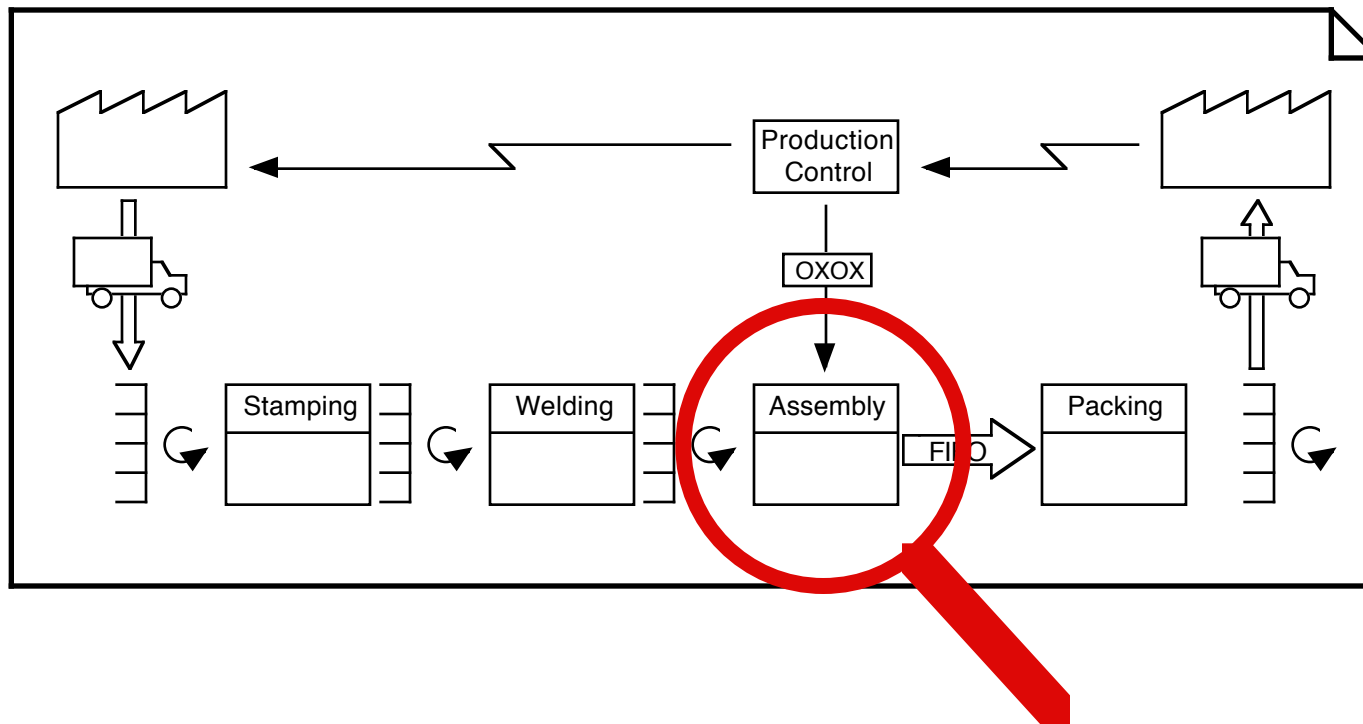
EQUIPMENT YOU'LL NEED

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

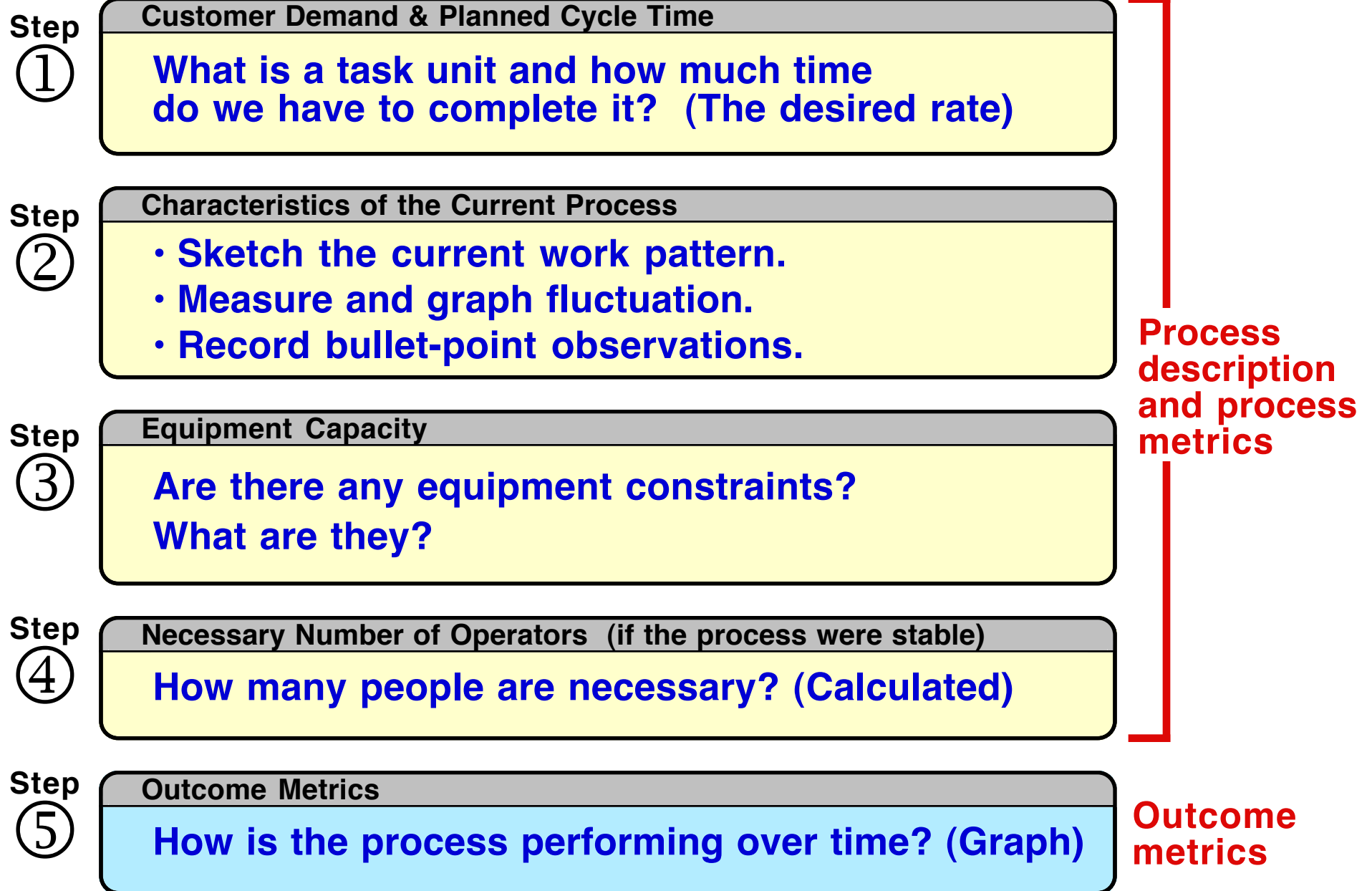
BASIC COURTESY

- **Approach the process via the Manager**
- **Introduce yourself to the people there**
- **Explain what you are doing**
- **Do not interrupt people while they're working**
- **Explain that you are watching the work, not the person**
- **Show any notes you've taken**
- **Say *thank you* before you leave**
- **Hands out of pockets, because we're all working here**

PROCESS ANALYSIS IS TYPICALLY DONE AT AN INDIVIDUAL WORK PROCESS



THE FIVE STEPS OF THE PROCESS-ANALYSIS KATA

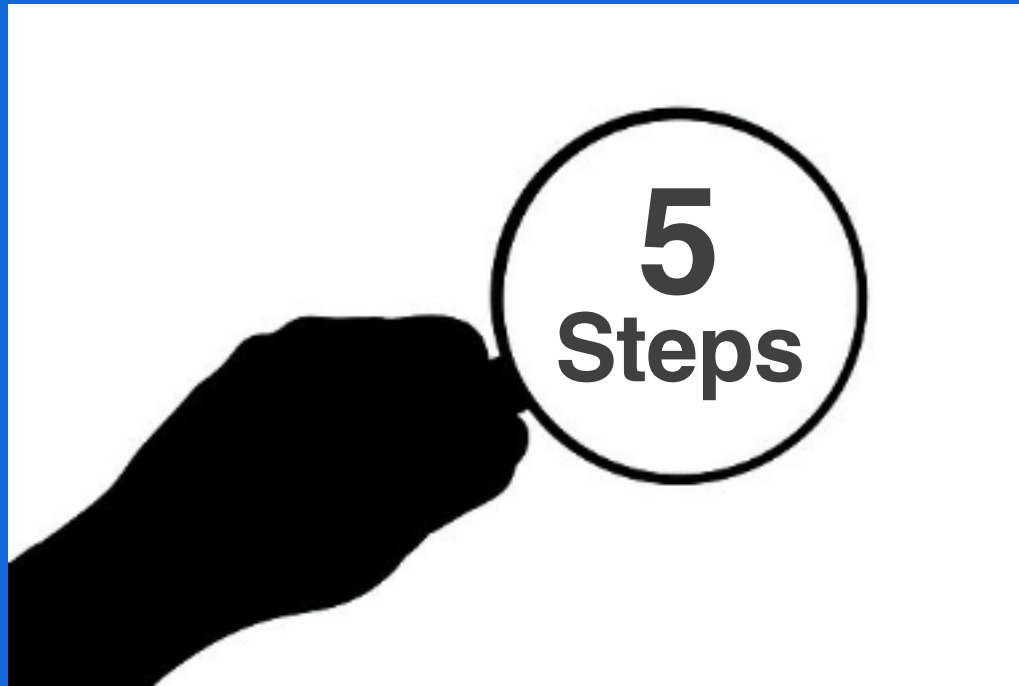


THE STEPS FOR MANUFACTURING PROCESSES

Right side of table →

Step ①	<p>Customer Demand & Planned Cycle Time</p> <p>What is a task unit and how much time do we have to complete it?</p>	<ul style="list-style-type: none"> • Customer takt • Planned cycle time • Number of shifts currently running
Step ②	<p>Characteristics of the Current Process</p> <ul style="list-style-type: none"> • Sketch the current work pattern. • Measure & graph fluctuation. • Record bullet-point observations. 	<ol style="list-style-type: none"> 1) Get to know the process by sketching a block diagram of it. What are batch sizes? Where does WIP accumulate? 2) How much does the process fluctuate? Time and graph 20-30 exit cycles of each operator's work. Are each operator's work steps the same from cycle to cycle? 3) Note other details about current operating pattern
Step ③	<p>Equipment Capacity</p> <p>Are there any equipment constraints? What are they?</p>	<ul style="list-style-type: none"> • Can the automatic equipment support the planned cycle time? • How close are we to current machine capacity limit? • What is the fastest Pc/t the equipment can currently support?
Step ④	<p>Necessary Number of Operators</p> <p>How many people are necessary if the process were stable? (Calc)</p>	<ul style="list-style-type: none"> • Calculate number of operators
Step ⑤	<p>Outcome Metrics</p> <p>How is the process performing over time? (Graph outcome metric)</p>	<ul style="list-style-type: none"> • Graph (a) output per shift, (b) overtime and any other desired outcome metrics (quality, etc.)

The Process-Analysis Kata Step-by-Step



Step
①

Customer Demand & Planned Cycle Time

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

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

Characteristics of the Current Process

- Sketch the current work pattern.
- Measure & graph fluctuation.
- Record bullet-point observations.

- 1) Get to know the process by sketching a block diagram of it. What are batch sizes? Where does WIP accumulate?
- 2) How much does the process fluctuate? Time and graph 20-30 exit cycles of each operator's work. Are each operator's work steps the same from cycle to cycle?
- 3) Note other details about current operating pattern

Equipment Capacity

Do we have any equipment constraints? What are they?

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

Necessary Number of Operators

How many people are necessary if the process were stable? (Calc)

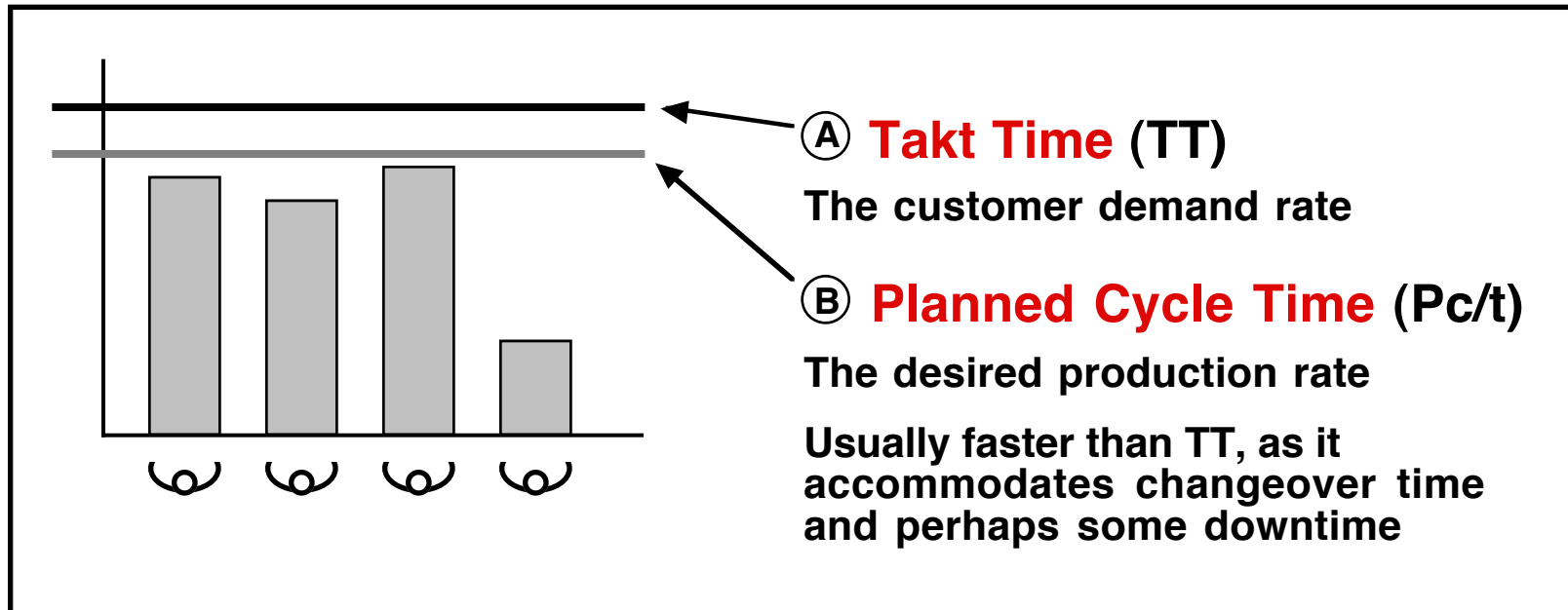
- Calculate number of operators

Outcome Metrics

How is the process performing over time? (Graph outcome metric)

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

THE DESIRED RATE: CUSTOMER TAKT & PLANNED CYCLE TIME

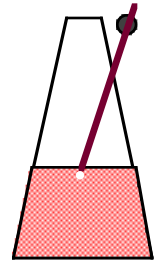


Any Takt Time and Planned Cycle Time numbers you initially calculate may turn out to be wrong, but they are usable enough for a starting point. As you get deeper into the work process you will recognize additional factors that need to be considered for arriving at a more accurate TT & Pc/t.

Ⓐ CUSTOMER TAKT

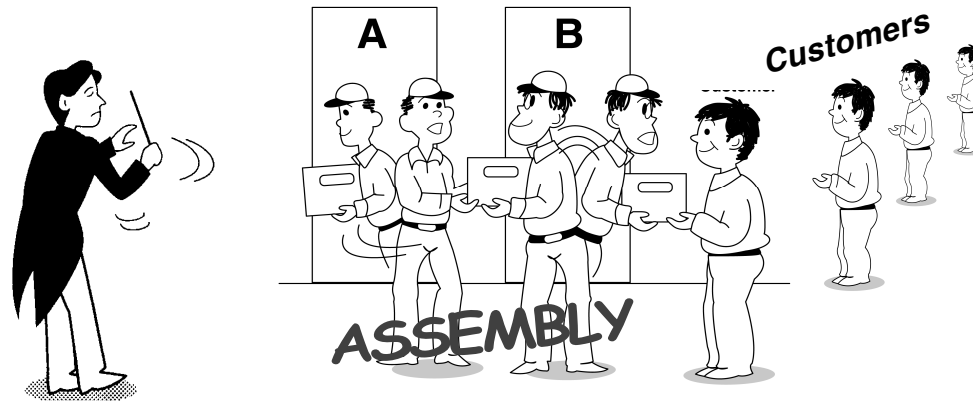
Provides a picture of the rate of customer demand on a process over a period of time (eg: 2-4 weeks).

Calculate takt if possible



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

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

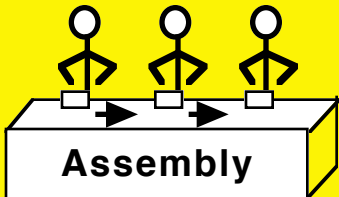


Note: Customer demand changes. Review this number every 2 weeks.

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%

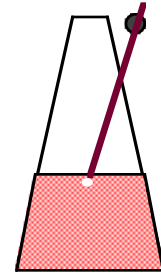
TAKT =

But, can we cycle this process at takt?



Ⓑ PLANNED CYCLE TIME

The actual rate at which you want the process to operate



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 simply set Pc/t at 15% faster than Takt, and strive to fit changeovers and other losses within that 15%. Of course, if your losses greatly exceed 15% then this number will not work at the start.

IN MANY PROCESSES YOU CAN'T YET CALCULATE A TAKT TIME

You just need some sort of 'target pace' number for the rest of the steps of process analysis. In cases when you can't calculate a takt time you can still set a Planned Cycle Time in one of these two ways:

1) Simply ask yourself, "*How often do we want this task to be happening?*" This pace number can be good enough for starting, since both the process analysis and the overall Improvement Kata are iterative. You can fine-tune this number as you move forward and learn more through experimentation.

2) Use an increment called "toggles" (see below).



Toggles are increments of process staffing and time. That is, specific combinations of number of operators and/or shifts result in different increments (toggles) of output capacity.

In many cases there are three natural toggles:
Low / Medium / High

Each toggle = a Planned Cycle Time

Step
②

Customer Demand & Planned Cycle Time	
What is a task unit and how much time do we have to complete it?	<ul style="list-style-type: none"> • Customer takt • Planned cycle time • Number of shifts currently running

Characteristics of the Current Process	
<ul style="list-style-type: none"> • Sketch the current work pattern. • Measure & graph fluctuation. • Record bullet-point observations. 	<ol style="list-style-type: none"> 1) Get to know the work pattern by sketching a block diagram of it. What are batch sizes? Where does WIP accumulate? 2) How much does the process fluctuate? Time and graph 20-30 exit cycles of each operator's work. Are each operator's work steps the same from cycle to cycle? 3) Note other details about current operating pattern

Equipment Capacity	
Do we have any equipment constraints? What are they?	<ul style="list-style-type: none"> • Can the automatic equipment support the planned cycle time? • How close are we to current machine capacity limit? • What is the fastest Pc/t the equipment can currently support?

Necessary Number of Operators	
How many people are necessary if the process were stable? (Calc)	<ul style="list-style-type: none"> • Calculate number of operators

Outcome Metrics	
How is the process performing over time? (Graph outcome metric)	<ul style="list-style-type: none"> • Graph (a) output per shift, (b) overtime and any other desired outcome metrics

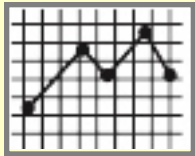
CHARACTERISTICS OF THE CURRENT PROCESS

There are 3 main tasks in this step



1) Get to know the work pattern by sketching it

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



2) Measure & graph how much the process fluctuates

- Time & graph 20-30 exit cycles for each operator.
- Are each operators' work steps the same from cycle to cycle?



3) Record bullet-point observations

- These are not problems, issues or *good* or *bad*.
- Record and describe other characteristics of the current work pattern that you notice.

You may ask others about process details, but do not interview or ask people about process problems or improvement ideas. Instead, you need to study the actual work. Learn to see and understand for yourself.



1) GET TO KNOW THE WORK PATTERN BY SKETCHING IT

Visually portray the steps and sequence of how the work is done

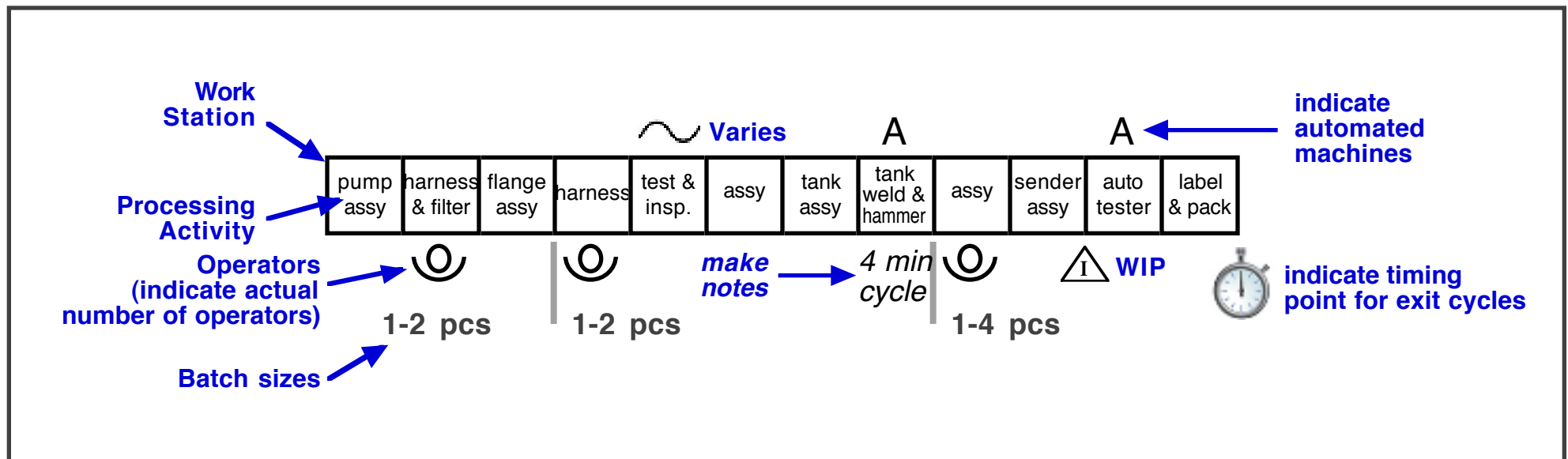
- > **For Physical Processes** sketching a “Block Diagram” is highly useful. This tool is described on the next two pages.
- > **For Administrative Processes** a “Swim-Lane Diagram” is useful. There are many resources that describe this tool, so we won’t discuss it further here.

SKETCHING A BLOCK DIAGRAM OF THE WORK PATTERN

A terrific tool for sharpening your eyesight

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

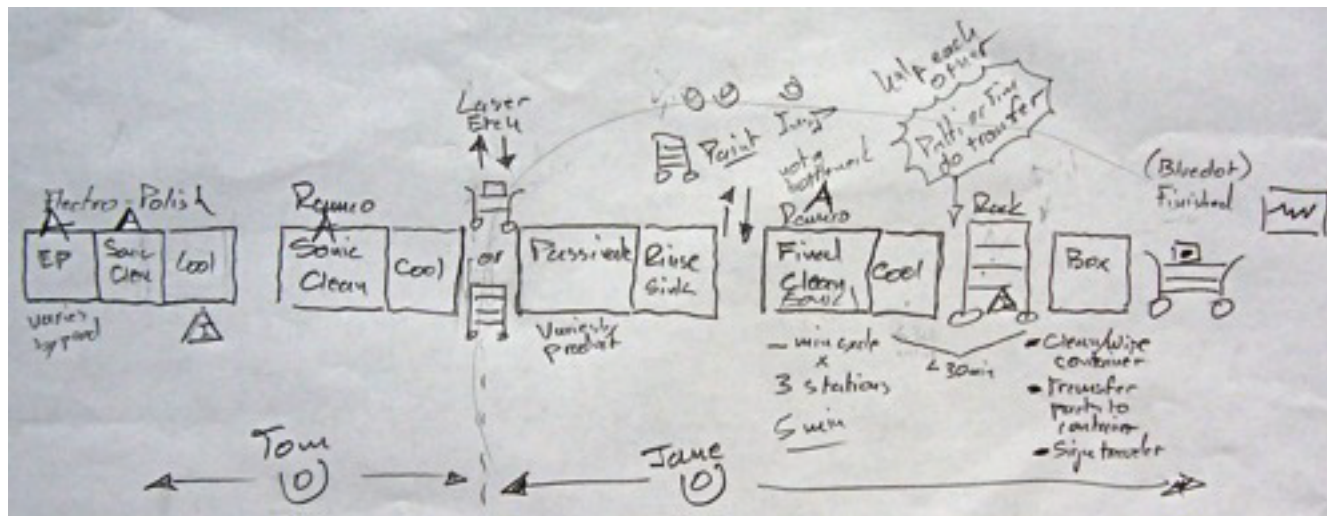
Do not draw to scale or worry about the actual shape, ie. layout, of the line. Simply make each box the same size.



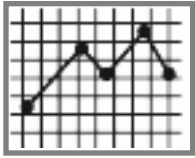
You can keep adding detail to your block diagram as you go through the further steps of process analysis

THE BLOCK DIAGRAM GETS MESSY

That's normal

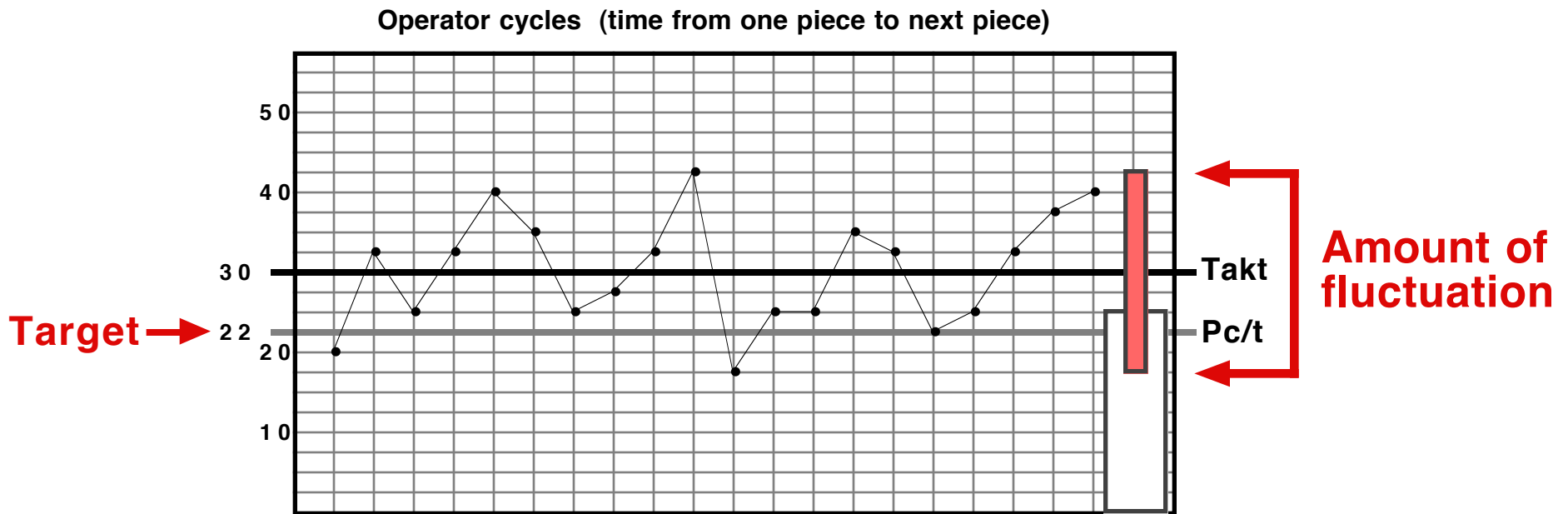


NOTE that the block diagram is a process-level diagram, *not* a value-stream map



2) MEASURE AND GRAPH HOW MUCH THE PROCESS FLUCTUATES

You'll be making run charts like this one:



Understanding the amount of fluctuation is important because it can affect so many aspects of the process

START BY TIMING 20-30 EXIT CYCLES FOR EACH OPERATOR IN THE PROCESS

- An ‘exit cycle’ is how often an operator’s work cycle occurs.
- Select a reference point in the operator’s work pattern.
- 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 consistent wait time or out-of-cycle work in the “notes” area of the worksheet.
- Remember... you’re timing the *process*, not the operator



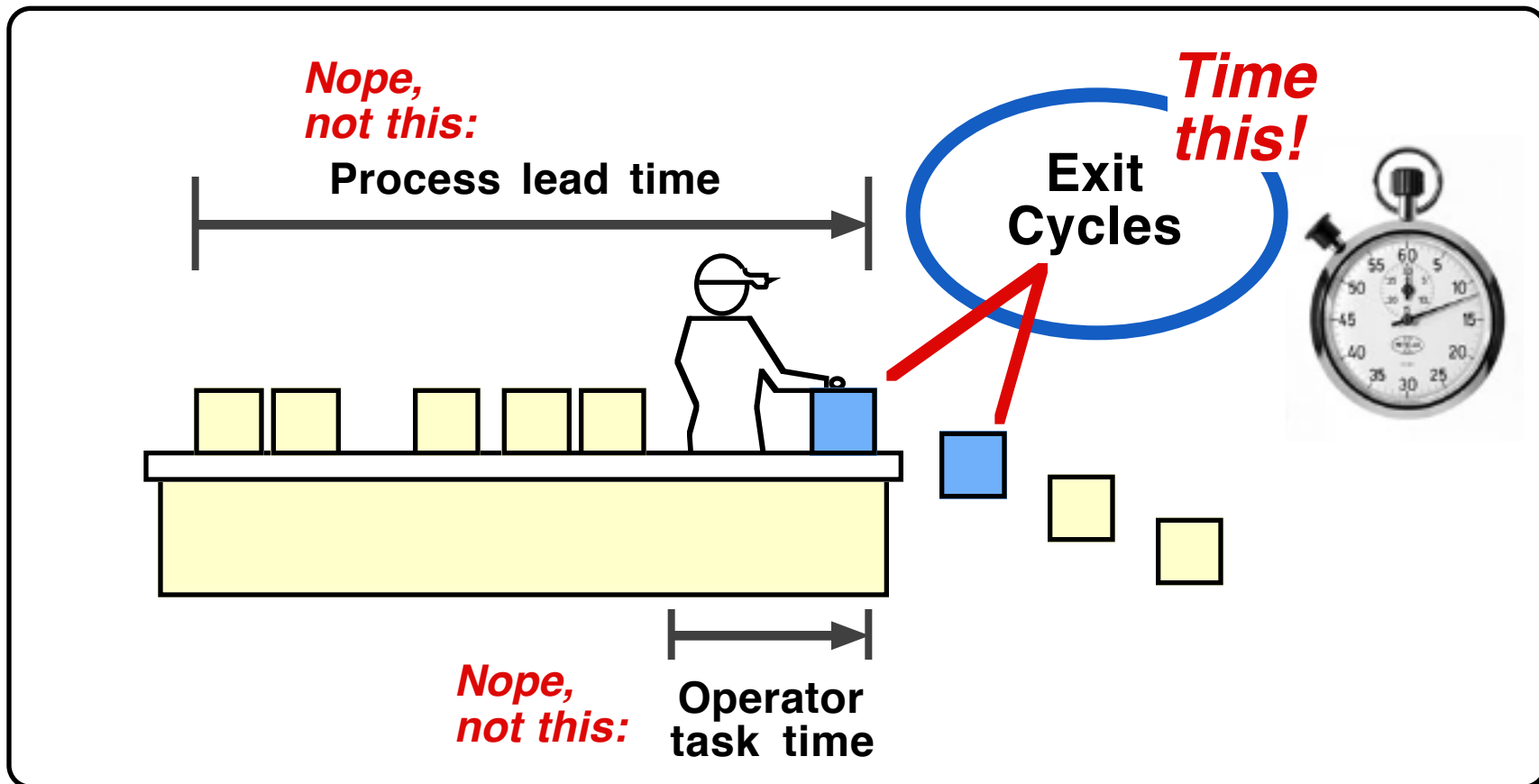
Exit Cycles

← Start and stop your stopwatch at the same point, to get the total operator cycle

It’s important to realize that there is almost always a pattern of working. The pattern can be hard to see in processes that have long-cycle, invisible or variable work content. Nonetheless, anywhere humans are doing work there’s usually a repeating pattern, and once you see it you can measure it.

PROCESS EXIT CYCLES

This is essentially the time between completed units coming off the end of an operator's section of the process. It's not how long, but *how often*.



Note: The exit cycles at the last in-cycle workstation of the process represent the output 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 measure the cycles there.

WORKSHEET FOR TIMING CYCLES

Process Metric	
----------------	--

	Observed Times (Data)	Observations about the current operating pattern (Facts)
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		

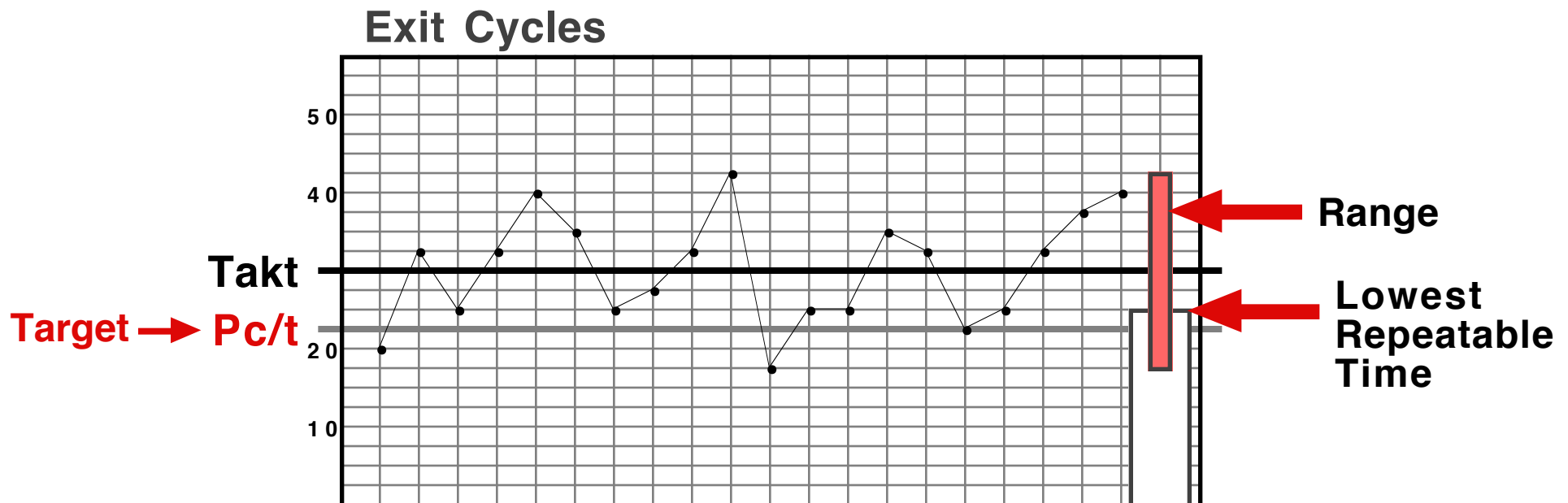
Note if there is consistent wait time

DRAW A RUN CHART OF THE DATA POINTS

To help you see and understand process variation

A run chart is a graph that illustrates process variation over time. The graph charts some aspect of the performance of a process.

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

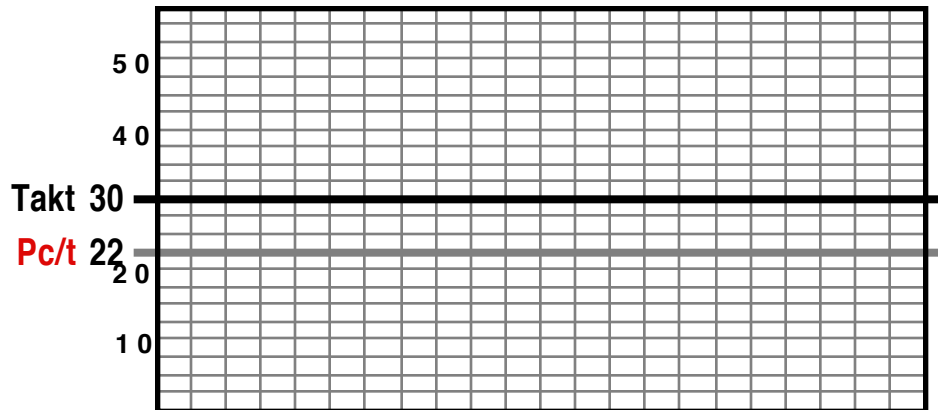


You can make a run chart for almost any work process, because there is a pattern in almost every work process. Sometimes it can be difficult to see and measure the pattern, but it's there because humans naturally operate in patterns.

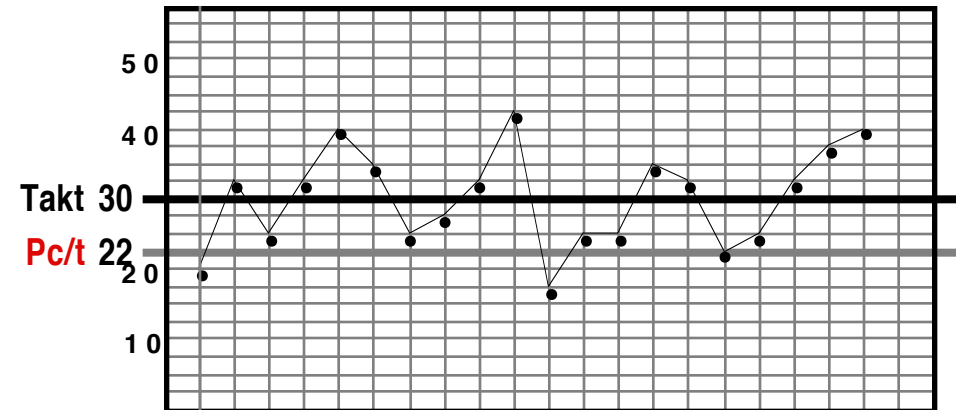
MAKING A RUN CHART - Step by Step

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.

If you don't have a TT or Pc/t, draw a line for the exit cycle time/rate you'd like to have.

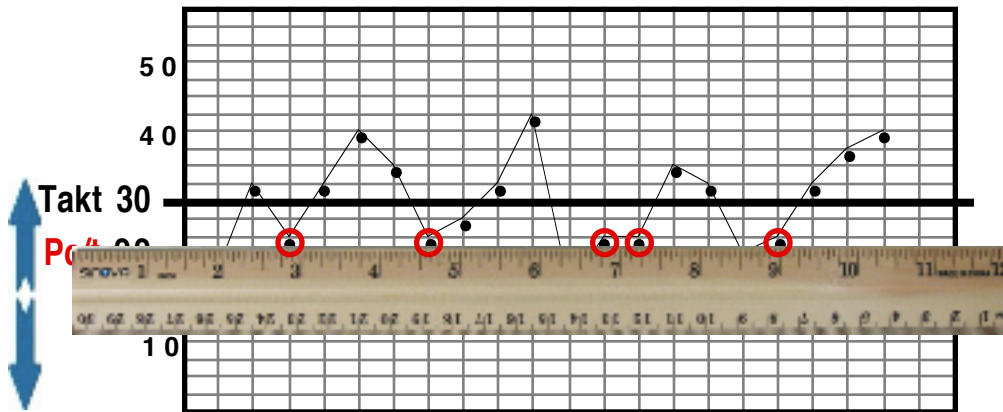
The Pc/t or desired rate is a target. It may seem strange to have a 'target' in mind when you are analyzing the current condition. However, to grasp the current condition of a work process you need to understand what is required of the work process.

- 2) Plot & connect the data points

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

RUN CHART - Step by Step

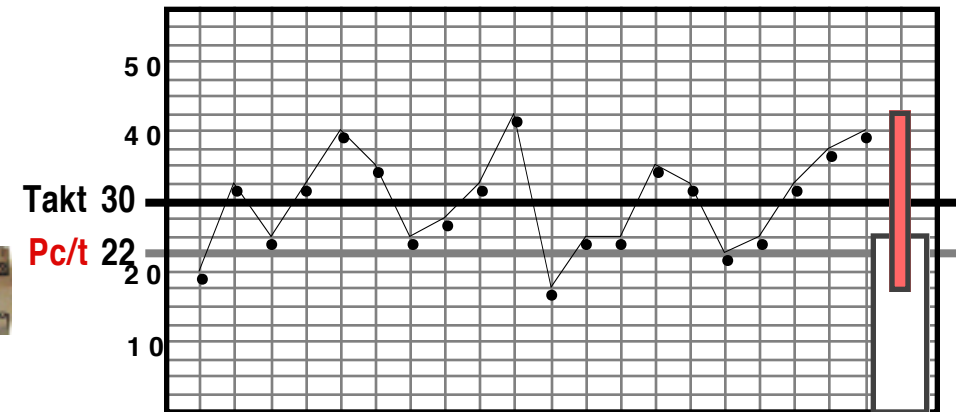
Step 3



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

* **Lowest repeatable time serves as an estimate of the cycle time if everything goes as intended.**

Steps 4 & 5



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

5) Calculate current +/- % variation

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

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

ABOUT LOWEST REPEATABLE TIME

It's an estimate of task time



You get two pieces of information from the run charts:

- 1. A snapshot of variation in the process**
- 2. The *Lowest Repeatable Time***

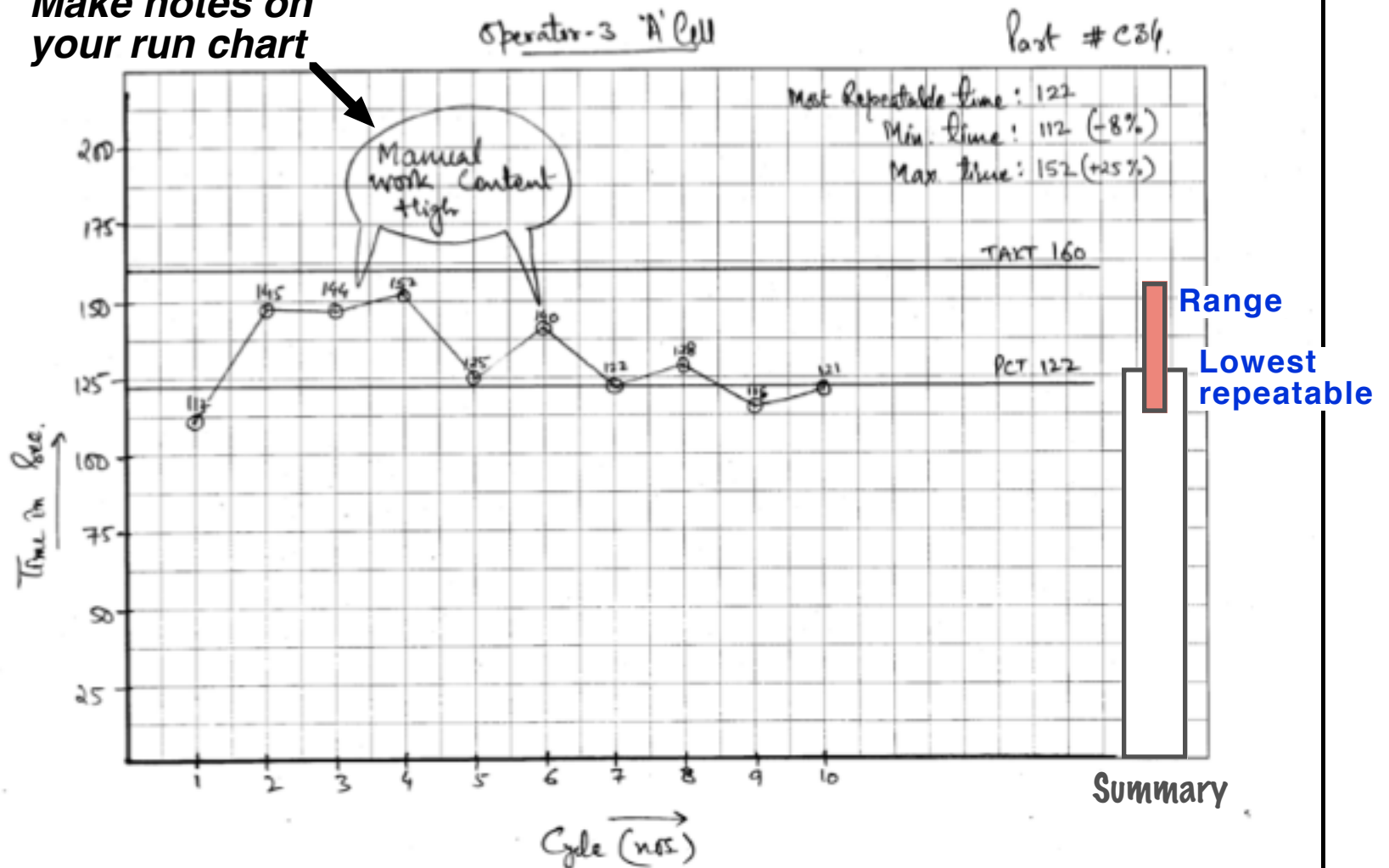
The Lowest Repeatable Time is an approximation of the operator time for a task. Be sure to subtract significant wait time.

The sum of the Lowest Repeatable Time for each operator estimates the current work content to complete one unit of the product or service.

EXAMPLE RUN CHART OF EXIT CYCLES

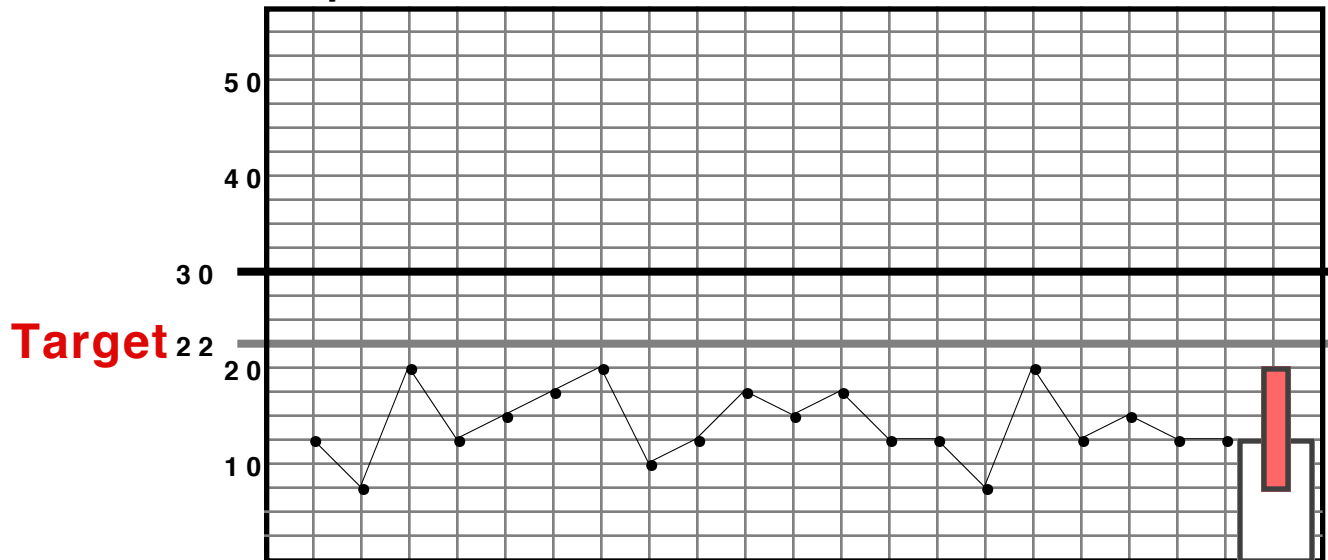
Operator 3 = last workstation

Make notes on your run chart



MORE EXAMPLES

Operator X



Range = 8-20 seconds

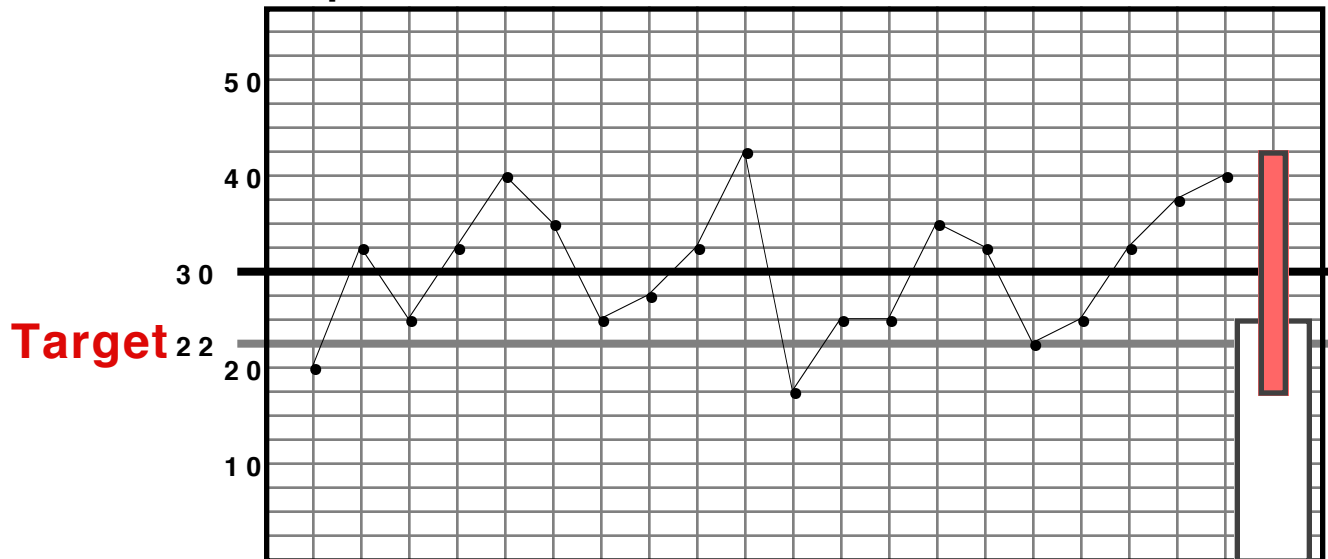
% Variation compared to Pc/t = + 0% / - 63%

Lowest repeatable = 13

Target

22

Operator Y



Range = 18-42 seconds

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

Lowest repeatable = 25

Target

22



3) RECORD BULLET-POINT OBSERVATIONS

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

These are not “issues” or “problems” to address, but simply characteristics of how the focus process currently works. Simply describe what is happening, noting your observations in bullet form.



Customer Demand & Planned Cycle Time

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

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

Characteristics of the Current Process

- Sketch the current work pattern.
- Measure & graph fluctuation.
- Record bullet-point observations.

- 1) Get to know the process by sketching a block diagram of it. What are batch sizes? Where does WIP accumulate?
- 2) How much does the process fluctuate? Time and graph 20-30 exit cycles of each operator's work. Are each operator's work steps the same from cycle to cycle?
- 3) Note other details about current operating pattern

Step

③

Equipment Capacity

Do we have any equipment constraints? What are they?

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

Necessary Number of Operators

How many people are necessary if the process were stable? (Calc)

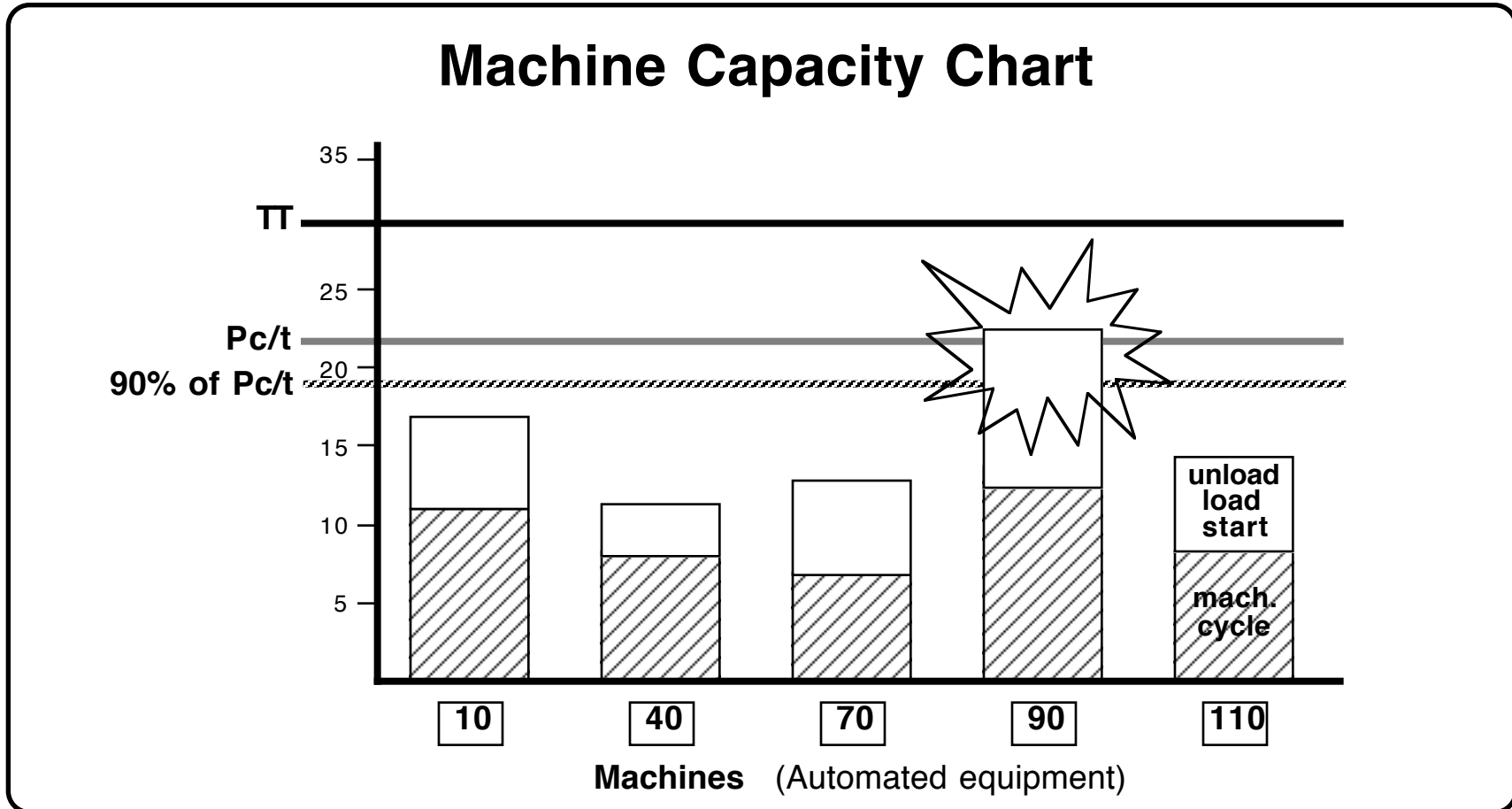
- Calculate number of operators

Outcome Metrics

How is the process performing over time? (Graph outcome metric)

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

EQUIPMENT CAPACITY



This is an important check for processes that use automated equipment. If the equipment cannot cycle fast enough to meet the planned cycle time then 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:

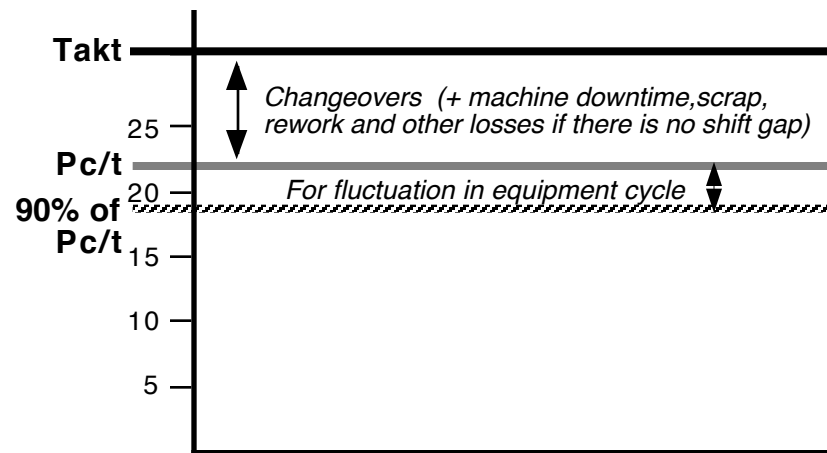
Longest total machine cycle time

0.90

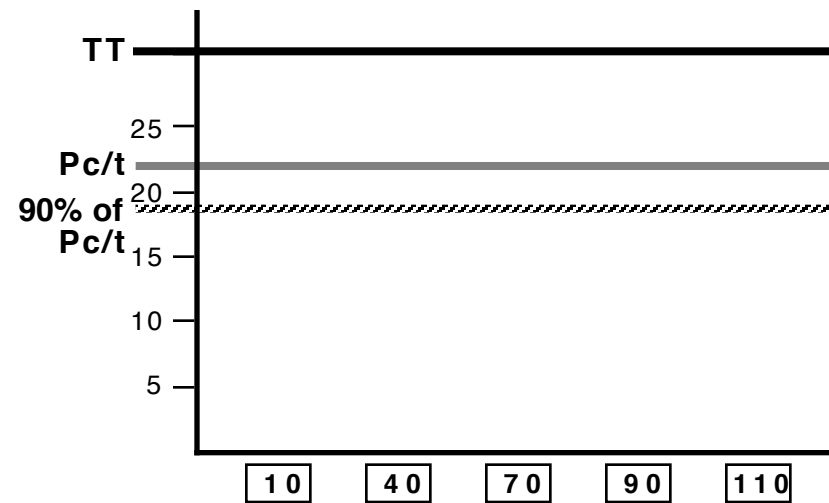
MAKING A MACHINE CAPACITY CHART

Step by Step

Accuracy is important in these charts

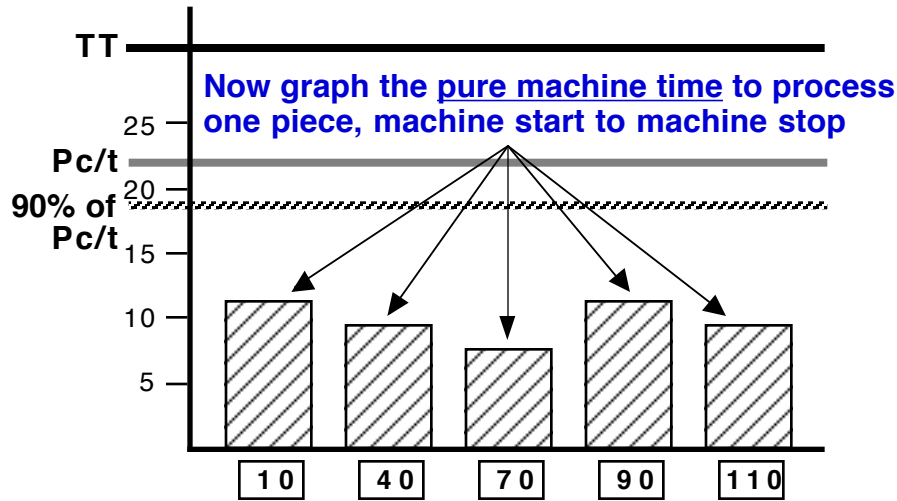


First draw in lines for the takt time (if calculated), planned cycle time, and 90% of planned cycle time.



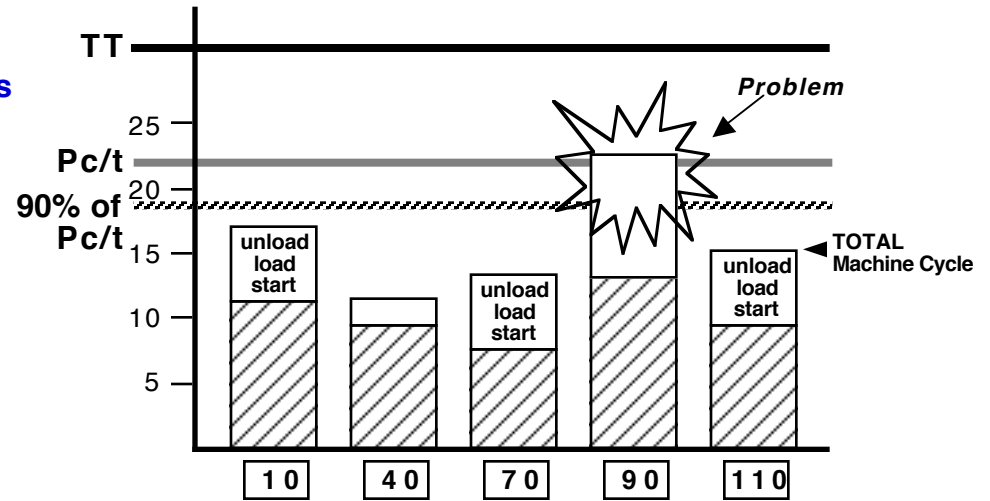
Next list the automated machines in the process (machines that can cycle without an operator).

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 & Planned Cycle Time

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

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

Characteristics of the Current Process

- Sketch the current work pattern.
- Measure & graph fluctuation.
- Record bullet-point observations.

- 1) Get to know the process by sketching a block diagram of it. What are batch sizes? Where does WIP accumulate?
- 2) How much does the process fluctuate? Time and graph 20-30 exit cycles of each operator's work. Are each operator's work steps the same from cycle to cycle?
- 3) Note other details about current operating pattern

Equipment Capacity

Do we have any equipment constraints? What are they?

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

Step

4

Necessary Number of Operators

How many people are necessary if the process were stable? (Calc)

- Calculate number of operators

Outcome Metrics

How is the process performing over time? (Graph outcome metric)

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

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

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

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

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 & Planned Cycle Time

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

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

Characteristics of the Current Process

- Sketch the current work pattern.
- Measure & graph fluctuation.
- Record bullet-point observations.

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- Calculate number of operators

Step

5

Outcome Metrics

How is the process performing over time? (Graph outcome metric)

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

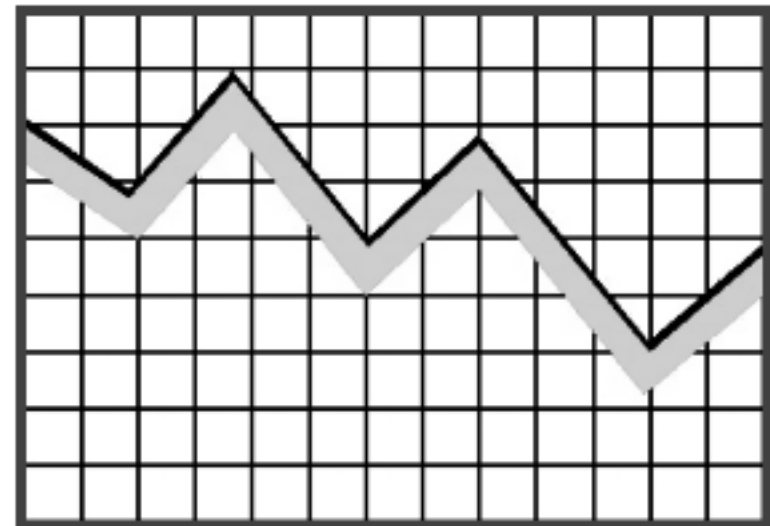
GRAPH YOUR OUTCOME METRIC(S)

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 & Planned Cycle Time

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

Characteristics of the Current Process

- Sketch the current work pattern
- Measure & graph fluctuation.
- Record bullet-point observations

Equipment Capacity

Are there any machine constraints? What are they?

Necessary Number of Operators

How many people are needed if the process were stable?

Outcome Metrics

How is the process performing over time? (Graph outcomes)

The Learner should use these headings and subheadings in compiling and presenting his or her analysis summary.

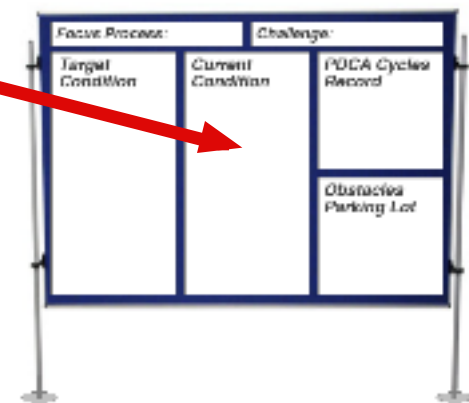
This reinforces the analysis pattern and makes it easier for a coach to go from Learner to Learner.

On the next three pages are current condition summary forms for:

- (1) Administrative Processes
- (2) Production Processes
- (3) Generic - Any Process

This form plus additional data -- such as the block diagram, run charts, the machine capacity chart -- should be posted in the “Current Condition” field of the Learner’s storyboard.

Once you’ve defined the next target condition, this form gets cut in half.





CURRENT CONDITION / TARGET CONDITION

Challenge:

Learner:

Coach:

Process:

Outcome Metric

Process Metric

	Categories	Current Condition Date	Target Condition Achieve-By Date
1	Task unit and time to complete		
2	Current operating pattern	<i>show block diagram show all run charts</i>	<i>show block diagram</i>
3	Equipment capacity	<i>show chart</i>	<i>show chart</i>
4	Number of people required		
5	Outcome metrics (performance data)	<i>show run chart</i>	

CURRENT CONDITION / TARGET CONDITION



Overarching Breakthrough Challenge

Learner: Coach: Process:

Categories		Current Condition Date	Target Condition Achieve-By Date
1 Task unit & time to complete	Takt time		
	Pc/t		
	# of Shifts		
2 Current operating pattern	Process steps and sequence	<i>show block diagram</i>	<i>show block diagram</i>
	Batch size		
	Where WIP accumulates		
	Number of operators		
	% exit cycle (at end fluctuation of line)	<i>+ show all run charts</i>	
	Process metric		
3 Equipm. capacity	Machine capacity chart	<i>show chart</i>	<i>show chart</i>
4 People required	Calculated number of operators		
5 Outcome metrics	Actual output / shift	<i>show run chart</i>	
	Overtime?		

CURRENT CONDITION / TARGET CONDITION



Challenge:

Learner:

Coach:

Process:

Outcome Metric

Process Metric

Categories

Current Condition

Date

Target Condition

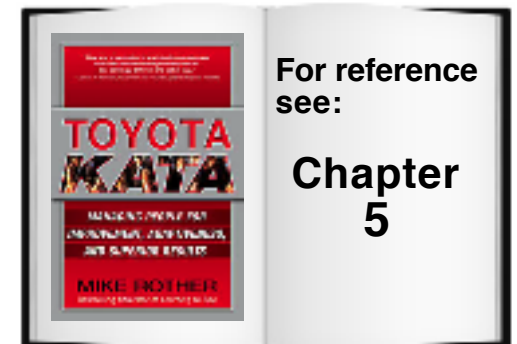
Achieve-By Date

Chapter 6

The Improvement Kata - Planning Phase

Step 3: ESTABLISH THE NEXT TARGET CONDITION

Practice
this
Routine



ORIENTATION



Understand the Direction

A black and white icon of a compass showing cardinal directions (N, S, E, W).

Grasp the Current Condition

A black and white icon of a pair of glasses.

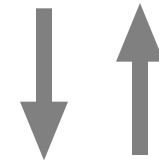
Establish the Next Target Condition

An icon showing two stick figures in hard hats pointing towards a box labeled "Target Condition".

Iterate Toward the Target Condition

An icon showing a stick figure climbing a staircase. A circle labeled "CC" is at the bottom and a circle labeled "TC" is at the top.

Describing what you want to strive for next



'Planning' Coaching Cycles

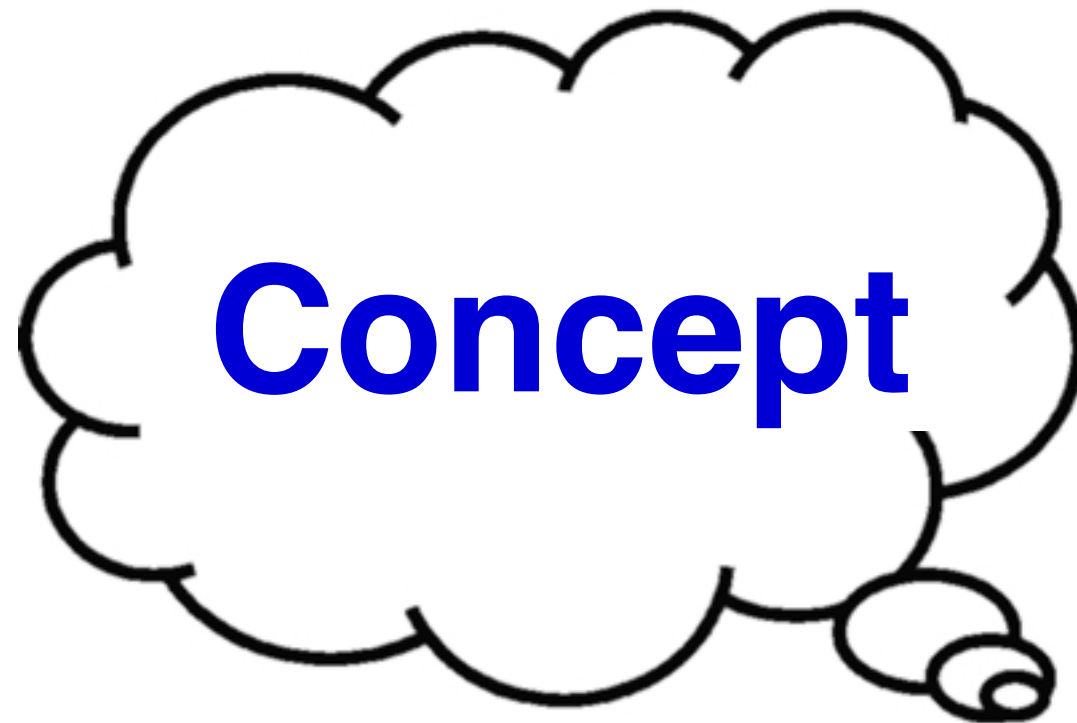
'Executing' Coaching Cycles

An icon showing a stick figure labeled "Coach" and another labeled "Learner" with a double-headed arrow between them.

LEARNER'S STORYBOARD

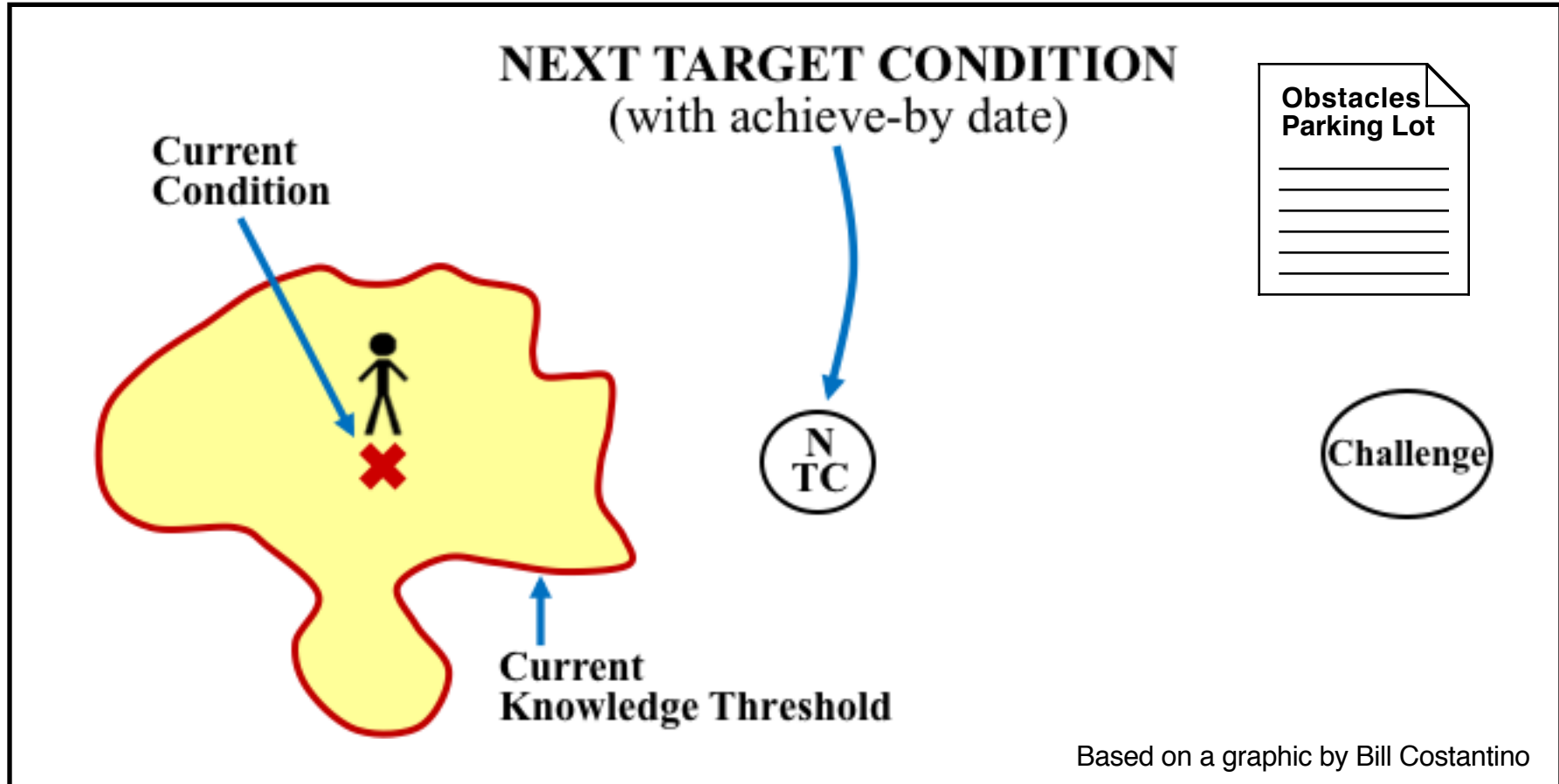
Learner and Coach are now concentrating on these two fields **X**

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



WHAT IS A *TARGET CONDITION*?

A target condition describes a desired future set of circumstances that lie beyond your current knowledge threshold (meaning you don't yet know how you will get there). A target condition has a specified achieve-by date, which is often between 1 week and 3 months out.



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

A TARGET CONDITION IS AN ESSENTIAL ELEMENT FOR ACTIVATING HUMAN INGENUITY



A target condition is a key element of the creative process.

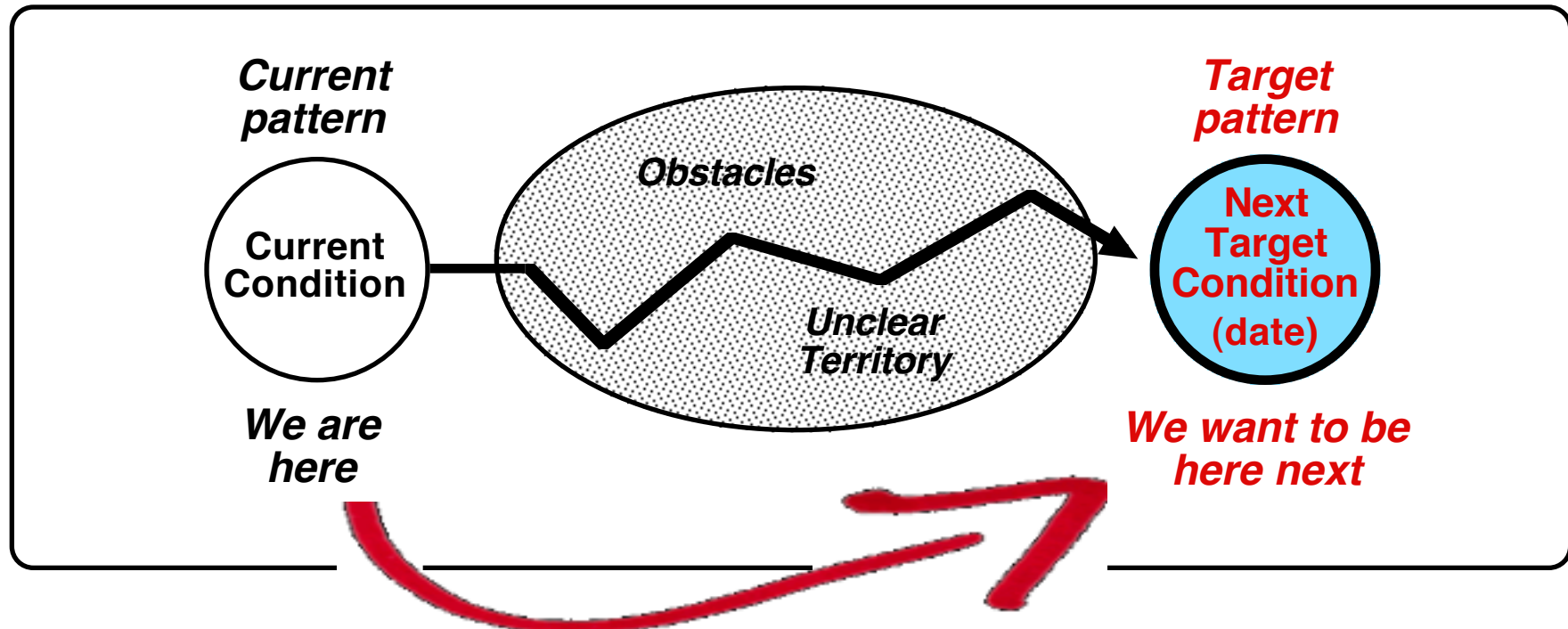
A target condition is a forward-looking new goal (a positive future projection) rather than a backward reflection of problems. It's about moving toward something as a path to achievement.

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



ESTABLISHING A TARGET CONDITION IS LIKE TIME TRAVEL

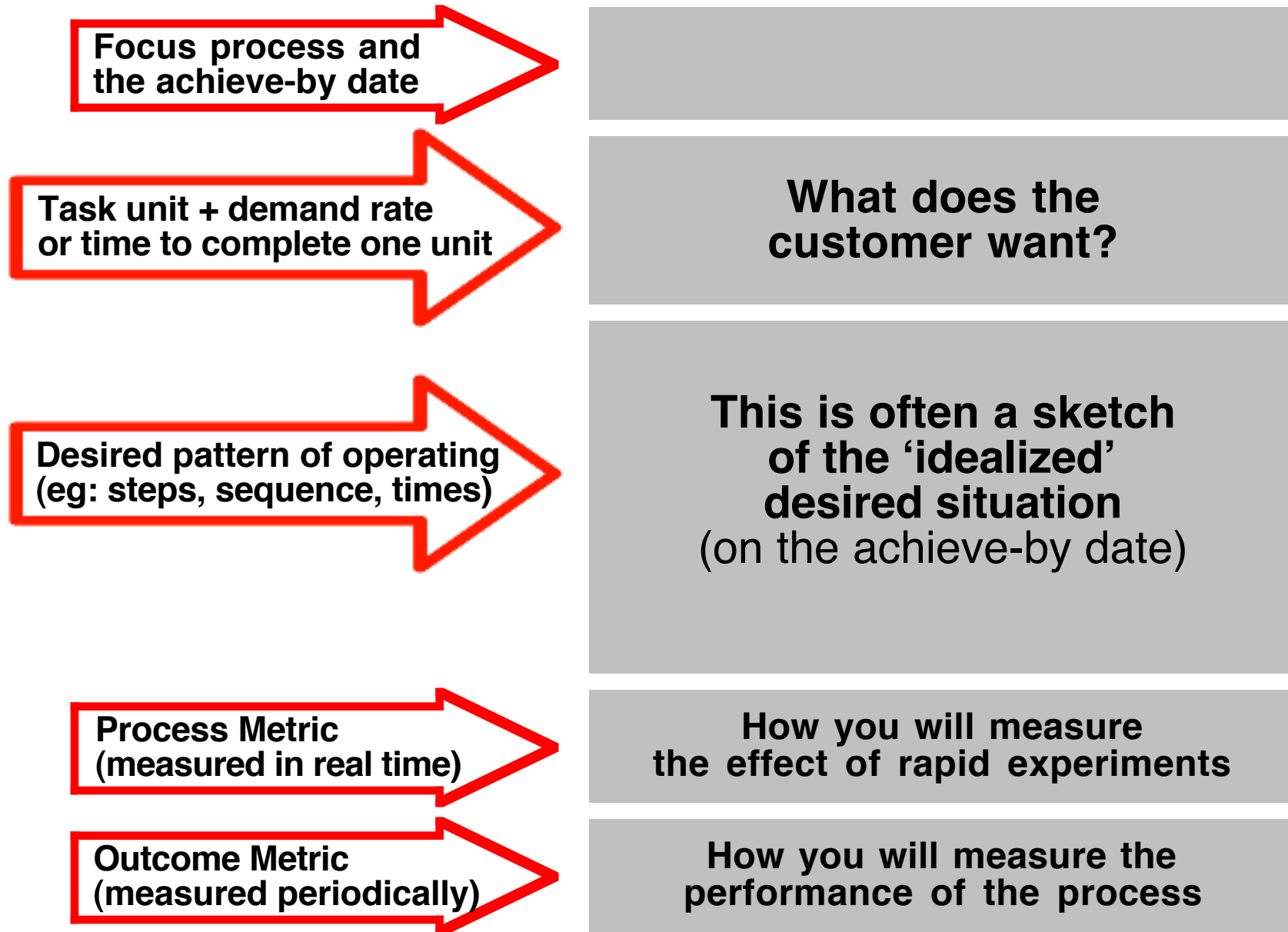
If we fast forward to the achieve-by date and look at the focus process, the target condition is your description of what we would see



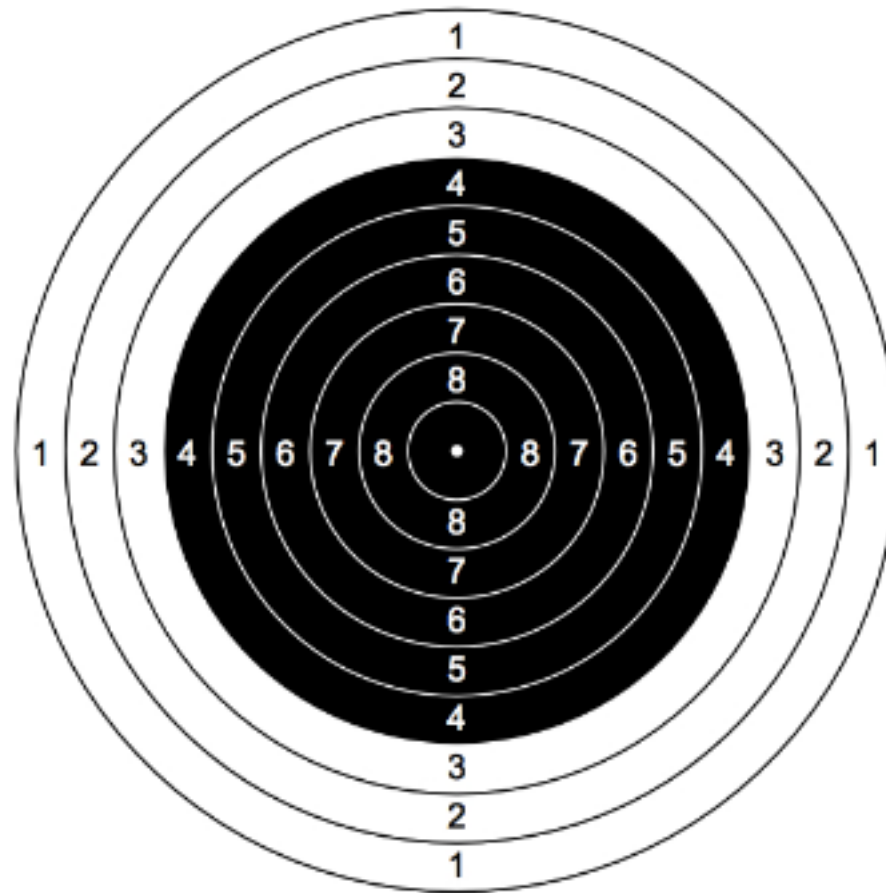
A target condition answers questions like:

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

THE BASIC ELEMENTS OF A TYPICAL TARGET CONDITION



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



A Target Condition describes an operating pattern that you predict will deliver a desired outcome



The **“construction site”** is here

Focus your efforts here and you'll get the desired outcome!

TARGET CONDITION An operating pattern/functionality	OUTCOME METRIC A result or score
<p style="text-align: center;">Examples</p> <p>Desired pattern for how to shoot basketball free throws</p> <p>Desired pattern of how math and science are taught. Desired pattern of student practice.</p>	<p style="text-align: center;">Examples</p> <p>80% of basketball free throws made</p> <p>All 6th grade students in our school passing the standardized test for math and science</p>
<p>This is actionable</p> <p>We predict that operating in this pattern will generate.....</p>	<p>A number that can't be achieved directly</p> <p>.....this outcome / result</p>

DON'T LIMIT YOUR TARGET CONDITION TO WHAT YOU ALREADY KNOW HOW TO DO

The statement “Beyond your knowledge threshold” means you don’t already know how you will reach your next target condition.

As you define a target condition, you should not yet know exactly how you will achieve it. This is normal, for otherwise you would just be in an *implementation* mode rather than a creative *improving and innovating* mode

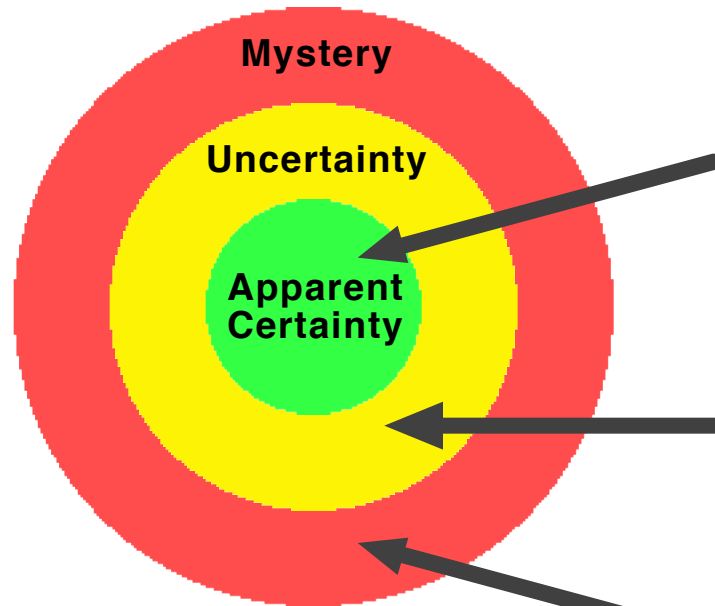
A target condition that you can already or quickly see how to reach - one that involves little trial and error - is not a good target condition. A good target condition requires experimentation and learning to reach it.

“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

THE TARGET CONDITION SHOULD BE CHALLENGING

A target condition should be in the yellow “Uncertainty Zone”



In this zone you're only reshuffling things you already know. You can already see how to reach the goal.

True improvement. In this zone you have to develop new ways, by thinking creatively and experimenting.

Too difficult for today.



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 meeting the overarching challenge.

Don't utilize cost/benefit analysis (ROI) to determine what a target condition should be. Using cost/benefit analysis in this way means you're only operating within the scope of what you already think you know; within your current knowledge threshold. You can't really assign a cost to what you don't yet know.

In other words, don't use cost-benefit analysis to determine *where to go*. First determine where you want or need to be next—the target condition—and then you can utilize cost/benefit analysis along the way to help you determine *how* to get there.

What you are doing is defining the next target condition you need to achieve in order to move toward the challenge, and then working iteratively to achieve it within budget and other constraints. A target condition should be achieved within target cost, of course, but it usually takes ingenuity & resourcefulness along the way to achieve the goal within that constraint.

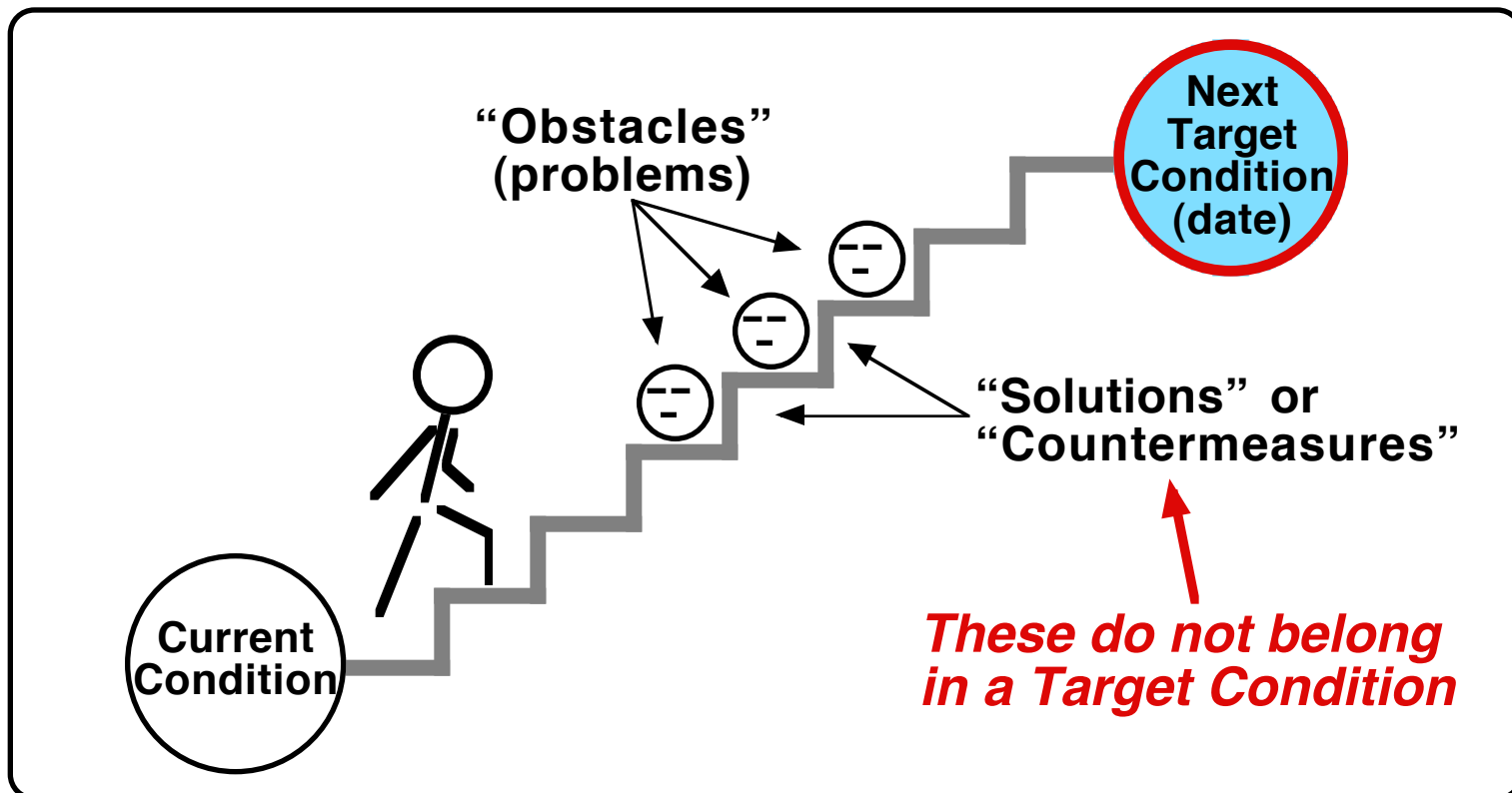
In this managerial system, cost/benefit analysis is used less for determining direction and more for helping to define where we need to get creative in order to achieve a desired condition.

A tricky part of establishing a Target Condition: DON'T THINK MUCH ABOUT SOLUTIONS AT THIS STEP

It's too early. First just describe the *situation* you want to reach.

A **Target Condition** is not a **solution**. It's a description of set of circumstances you want to reach by a specified date.

What you do later (in the 'Executing' phase of the Improvement Kata) is work iteratively to overcome **obstacles**, or **problems**, on the way to the target condition by developing and testing **solutions**, or **countermeasures**, to make the Target Condition a reality.



A TARGET CONDITION LEAVES LOTS OF UNCERTAINTY ON THE TABLE

As you establish a target condition, people on the team will often already have ideas about how it can be reached. It's important to recognize that these are only theories about the potential path, and that they should not be included in the target condition. What may seem like a direct path will not be.

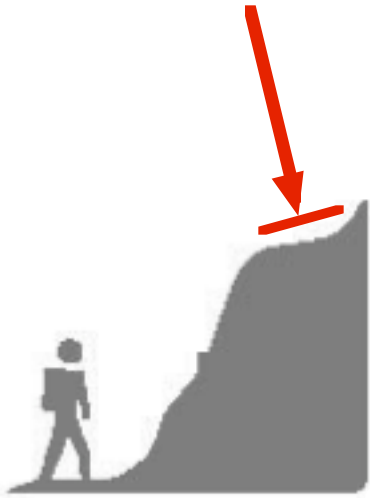
At this point you're only describing a desired set of circumstances. Formulate them in a way that leaves you open to solutions other than those you might currently think will get you there. Describe the target condition in a way that allows course corrections to be made as you iteratively figure out how to get there by experimenting in the upcoming Executing phase.



NOTICE THE DIFFERENCE BETWEEN “TARGET CONDITION” AND “SOLUTIONS”

TARGET CONDITION

A description and specification of an operating pattern or functionality you want a process or system to have on a future date



PLAN

A prediction of the steps that will be required to achieve the target condition.
(Any plan is only a hypothesis)



SOLUTIONS

The actual steps, techniques and countermeasures necessary to achieve the target condition.

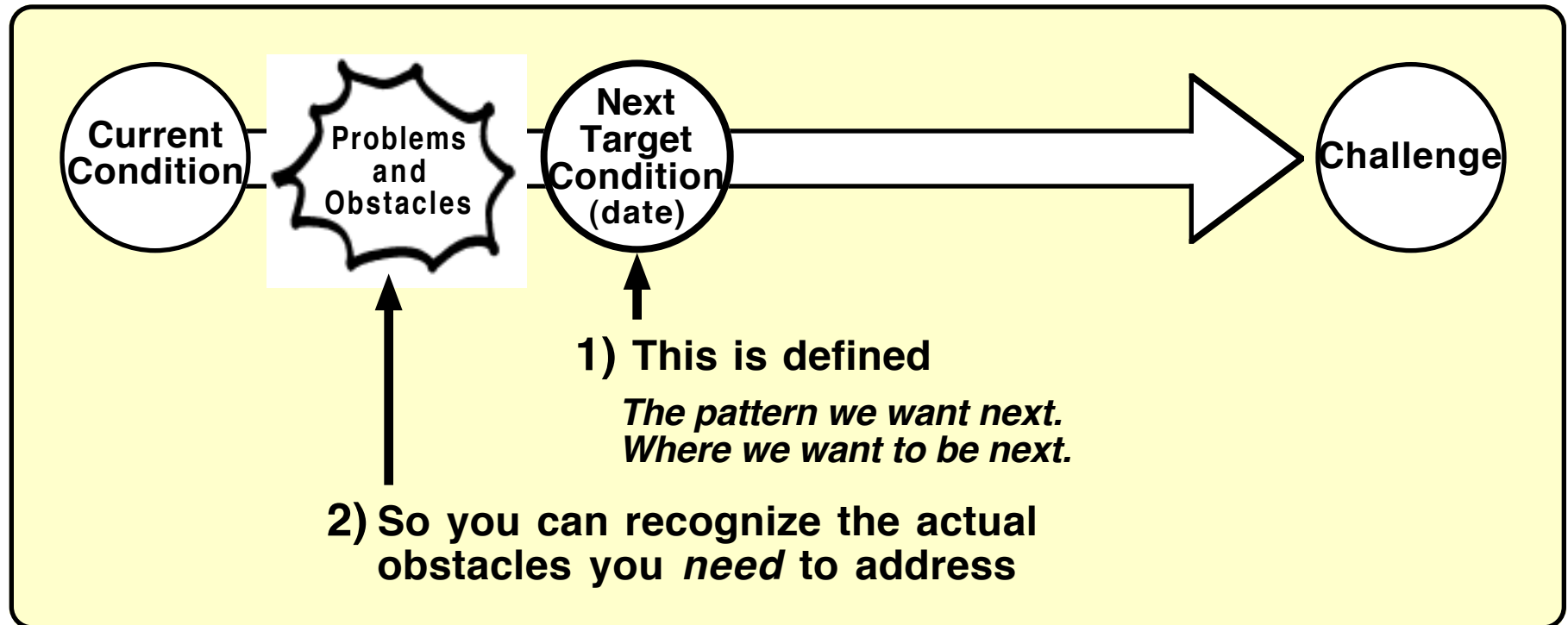
Solutions are determined through experiments on the way to the target condition



The actual path that gets you to the Target Condition will only be known in hindsight

A TARGET CONDITION IS A SET OF CONSTRAINTS THAT HELP YOU WORK SCIENTIFICALLY

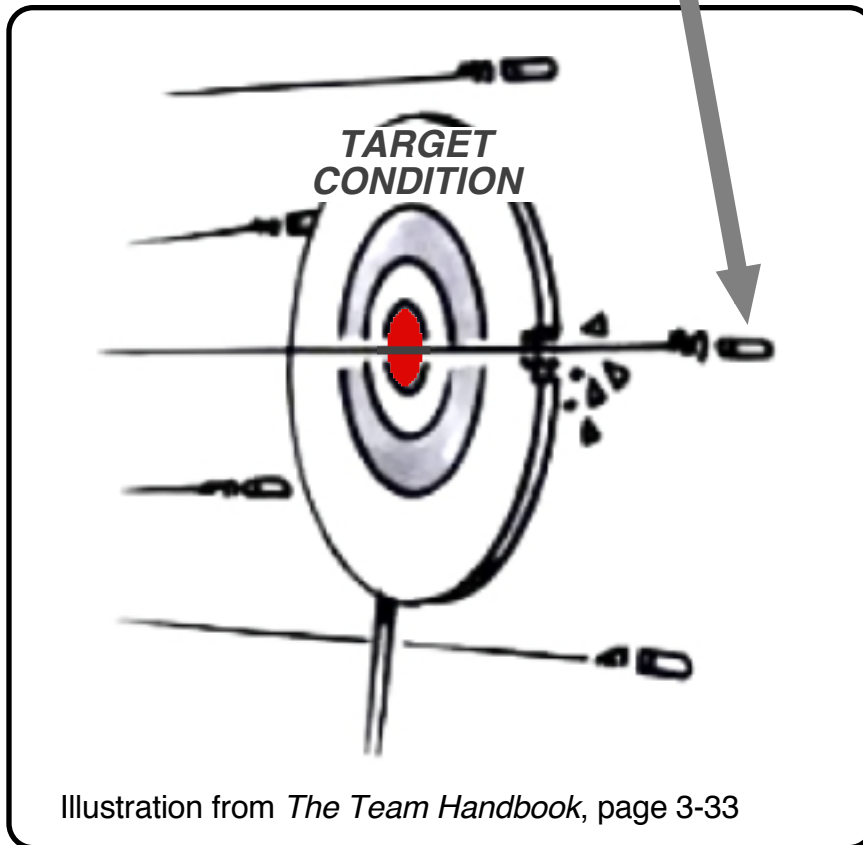
By setting a defined objective and then trying to hit it, you learn why you cannot. That tells you exactly what you need to work on.



The Improvement Kata involves going after only the *right* problems one at a time, i.e., those obstacles you actually find are preventing you from getting to the specific target condition you're striving to reach. There will be many things you *don't* work on.

WORKING SCIENTIFICALLY

A target condition is an overall objective - a set of constraints - that you repeatedly test against in order to reveal key obstacles that you *need* to work on, by using this question:
“What is now preventing us from achieving the target pattern?”



A TARGET CONDITION ENABLES TEAMWORK

Mutual effort toward a mutual end

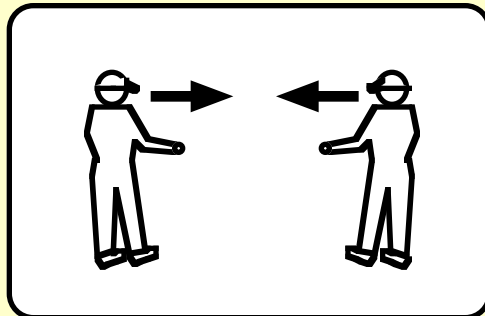
WITHOUT a Target Condition

Disorganized discussion
about solutions.

Exchange of opinions.
Debate about my idea
versus your idea.
“Who’s right?”

Prioritization by
dominant individuals.

No experimentation.

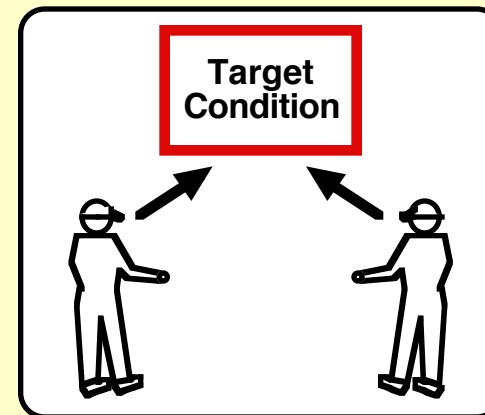


WITH a Target Condition

Structured discussion
about next experiment.

What do we need to
test next to reach our
objective?

Moving forward
scientifically.



**Once you’ve experienced the role of a Target Condition
you’ll find it difficult to work without one!**

A TARGET CONDITION HELPS YOU BEAT ENTROPY

**Without something to strive for,
any process will naturally tend to degrade**



**ENTROPY
HAPPENS**

It is estimated that 80-95% of the variation in a work process is random, or *common cause* variation. These are systemic problems. Although problems are occurring, the process is actually statistically stable. These problems are normal for the way the process is currently being operated.

In the case of systemic problems, examining each failure and searching for the root cause in order to solve the problem (“troubleshooting”) is the wrong approach for continuous improvement. All you’re actually 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 exactly what a target condition represents.

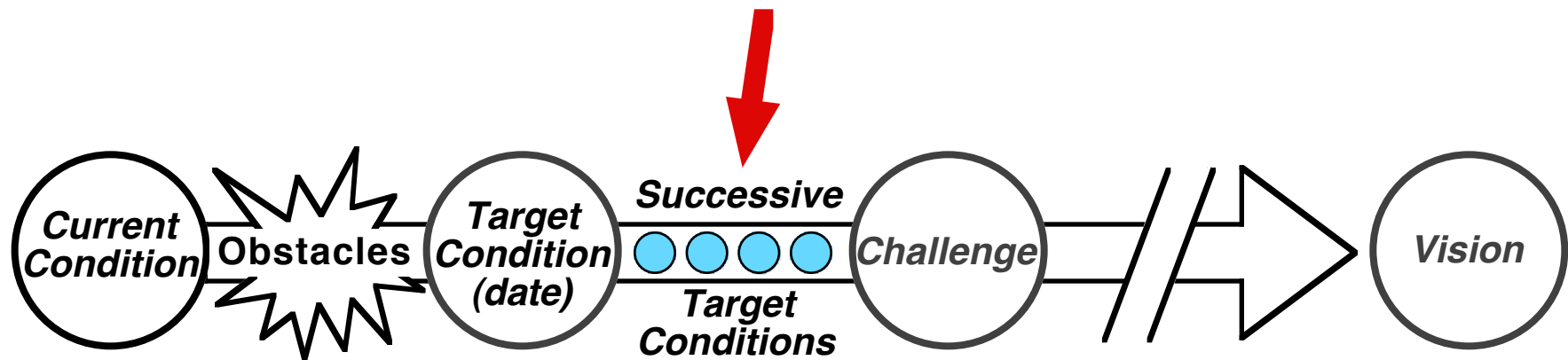


How to Practice

KEEP IN MIND THAT YOU DON'T NEED TO REACH THE CHALLENGE IN ONE LEAP

There will be several target conditions on the way to the challenge

The exact series of target conditions required to meet the overarching challenge can't be defined in advance. When you reach one target condition you'll know a lot more about what the next target condition should be.

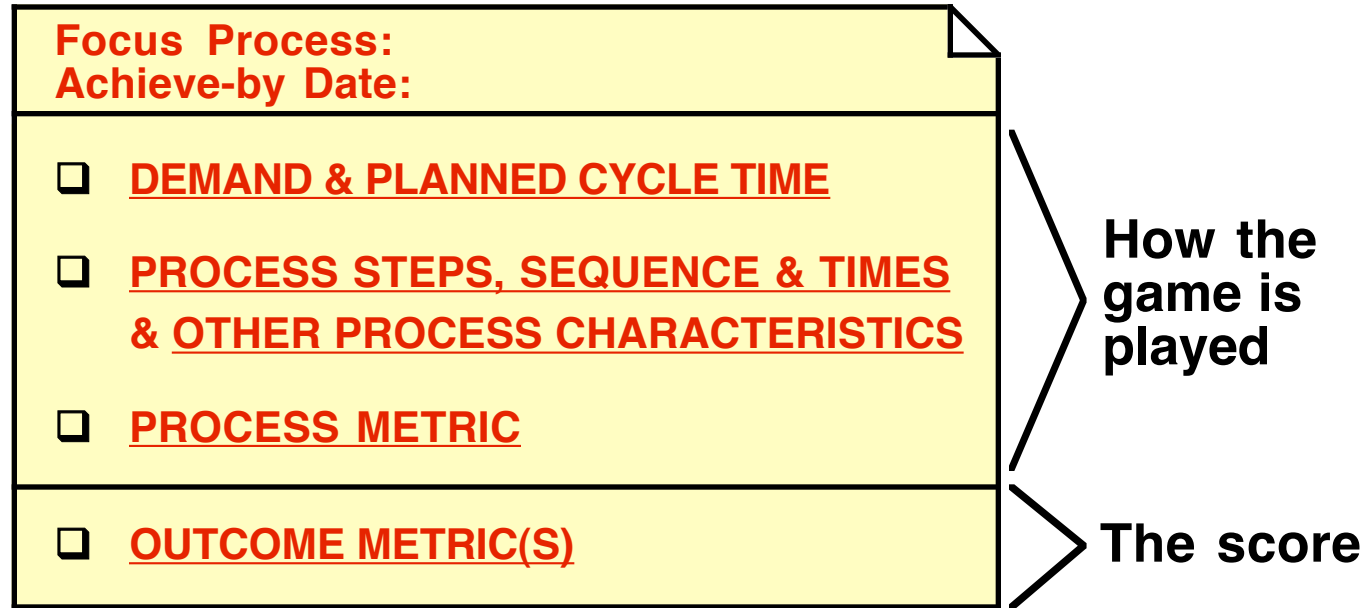


What's in a Target Condition



THE INFORMATION IN A TARGET CONDITION

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

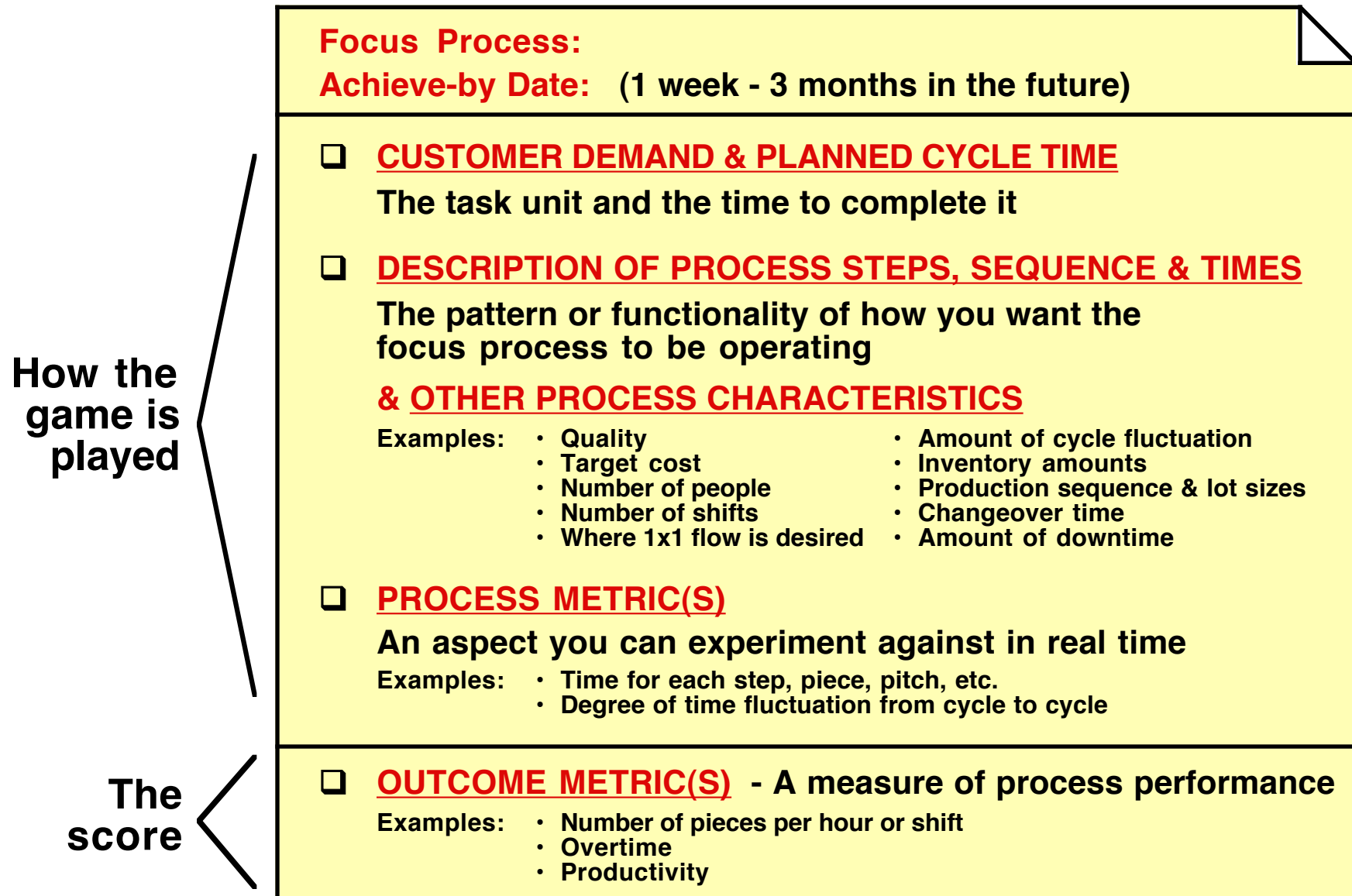


A target condition is a multifaceted description of a desired condition. You want these conditions to exist *simultaneously*.

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



EXAMPLE TARGET CONDITION CONTENTS



A TARGET CONDITION IS NOT	WHY
<p>A target condition is not about avoiding negative outcomes.</p>	<p>A target condition is about achieving new outcomes.</p>
<p>A target condition \neq setting a stretch goal and then just letting people struggle with it.</p>	<p>The Improvement Kata is about giving people challenges <i>and</i> coaching them in an effective way of meeting them.</p>
<p>A target condition is not an either/or choice between existing options.</p>	<p>A target condition represents a new situation that did not exist previously. A target condition lies beyond what you can see and is part of the Improvement Kata's scientific process that ventures into the unknown.</p>
<p>A target condition is not something that comes out of brainstorming.</p>	<div data-bbox="997 1073 1209 1336" data-label="Image"> </div> <p>A target condition should be <u>mathematically consistent</u>. The Learner should be able to explain the rationale for the target condition mathematically.</p>

A TARGET CONDITION IS NOT	WHY
<p>Words like these shouldn't be in a target condition:</p> <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>These are not a target condition:</p> <p>--> Apply 5S (Housekeeping & 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>These kinds of statements alone ≠ a 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 it to operate.</p>

Steps to Establishing a Target Condition

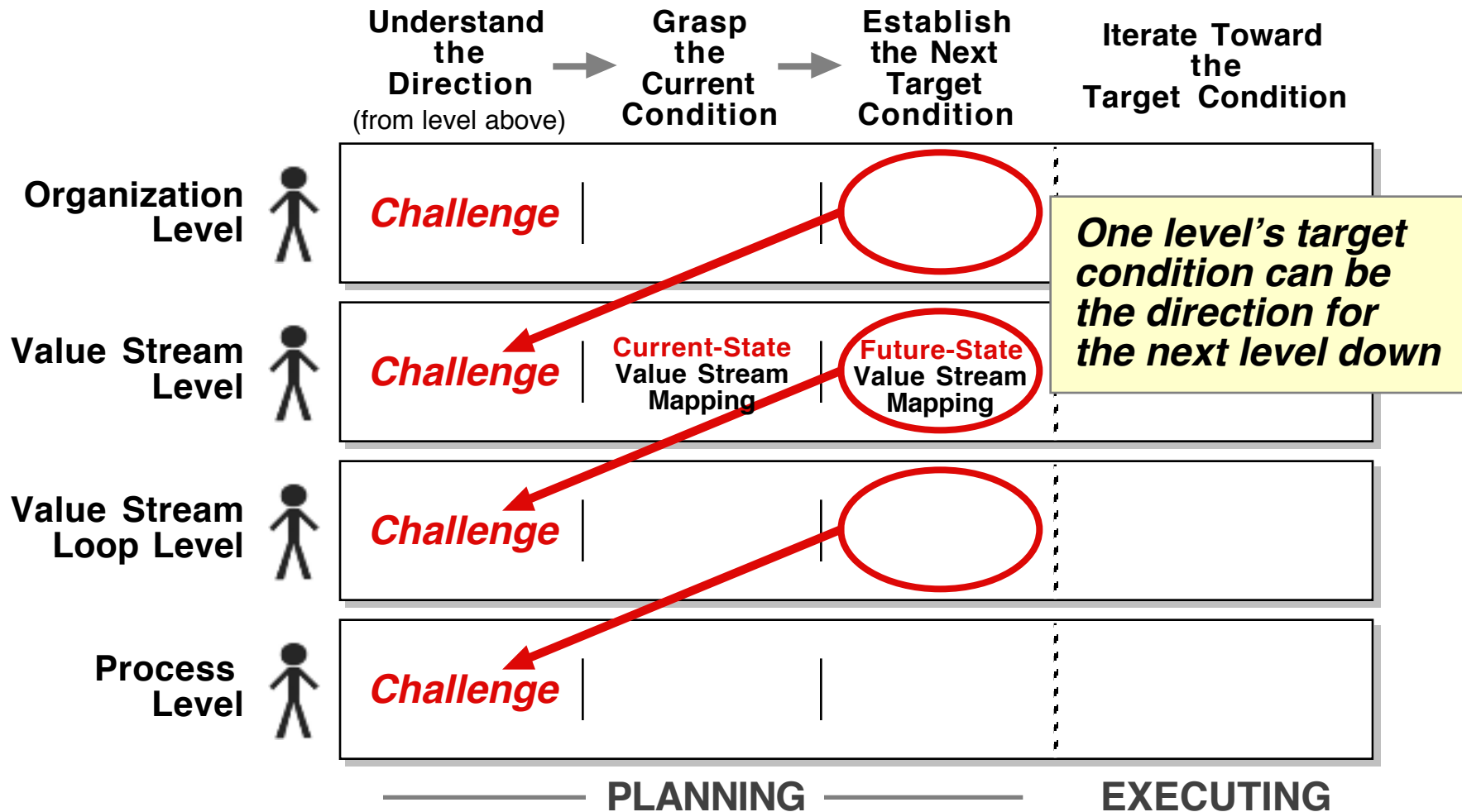


- 1. Review the challenge**
- 2. Coach sets achieve-by-date**
- 3. Learner develops, proposes and iteratively fine tunes the target condition**
- 4. Learner starts an 'Obstacles Parking Lot'**

1st STEP: REVIEW YOUR CHALLENGE

Unless you're a beginner just getting some initial practice with the Improvement Kata pattern, you should not establish a target condition without first understanding your challenge. The challenge is the framework within which a target condition is defined.

Often the target condition from the level above you will be the direction in which you should design your target condition. Is there a future-state value stream design? What does your process need to do to make that goal possible?



2nd STEP: AGREE ON THE TC ACHIEVE-BY DATE

The Coach proposes an achieve-by date (level of difficulty) for the Learner's next target condition based on the Learner's Improvement Kata skill level. This table is a general guideline.

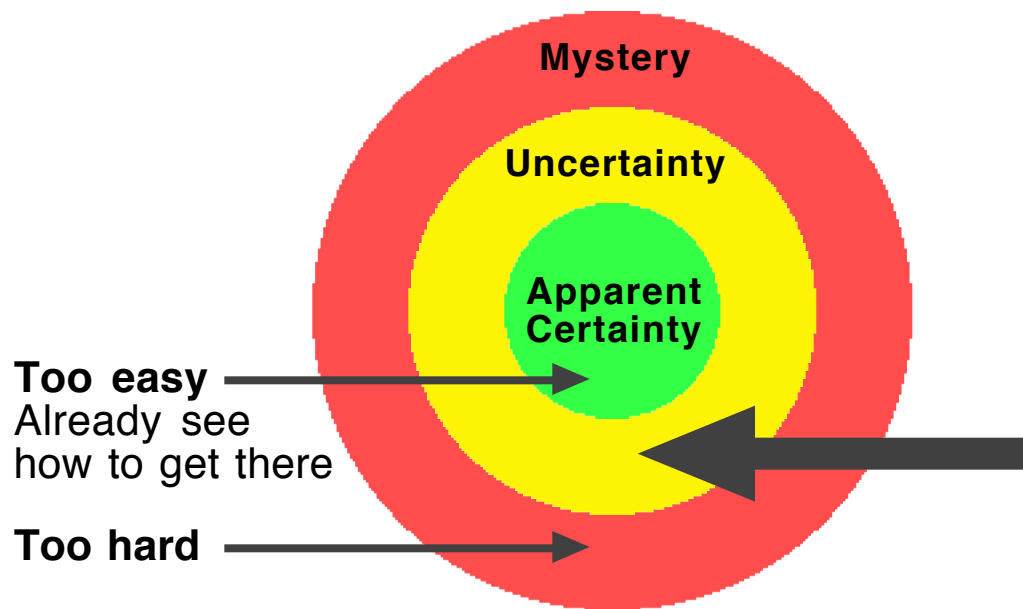
In the beginning shorter is better for learning because then there will be more repetitions of the Improvement Kata pattern.

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

DO NOT DEFINE 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 their 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.

Learning a new skill requires stretching and experiencing small failures along the way. That's normal.

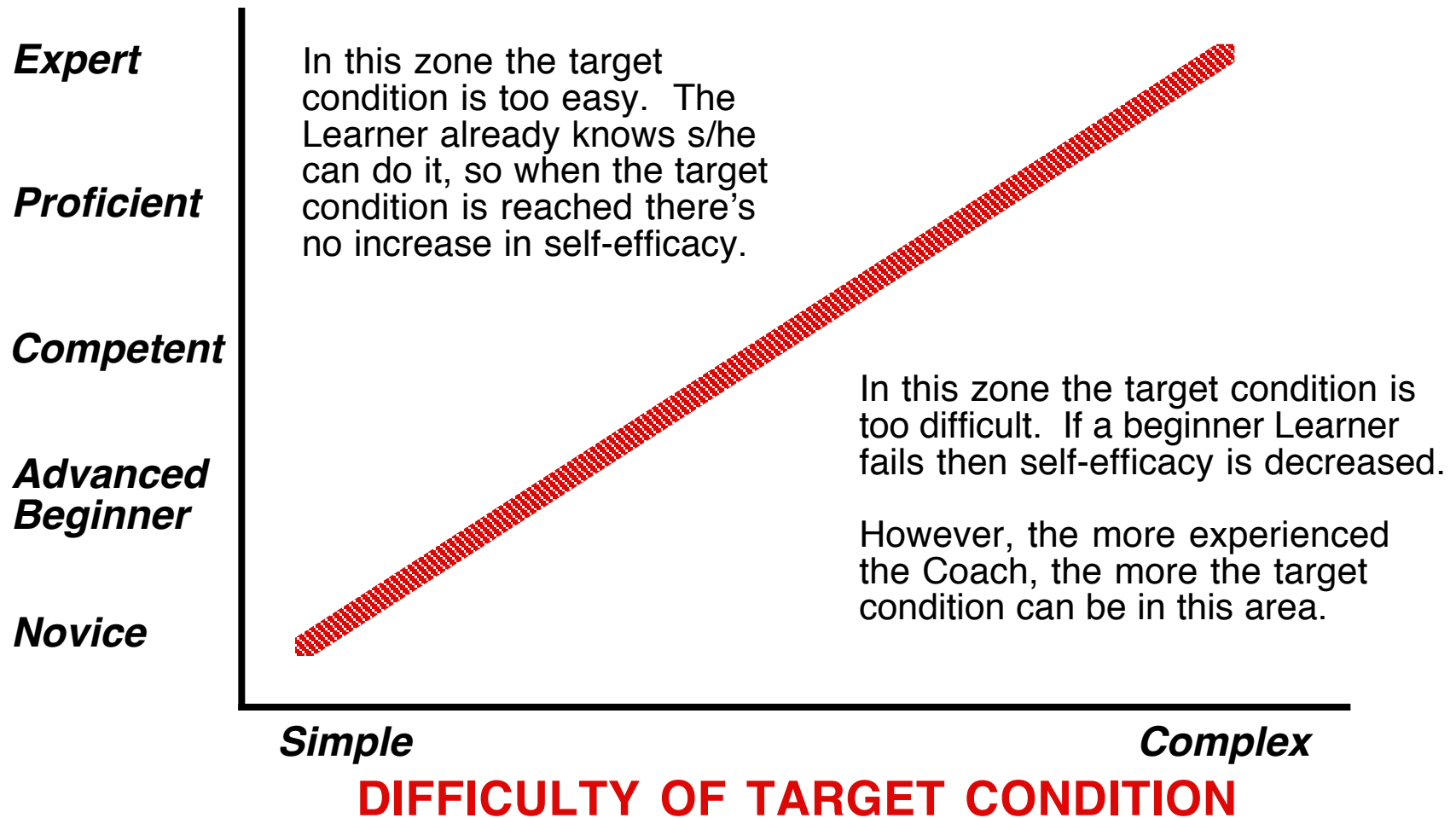


It's important that the Learner is challenged, so s/he experiences a sense of accomplishment and an increase in self-efficacy.

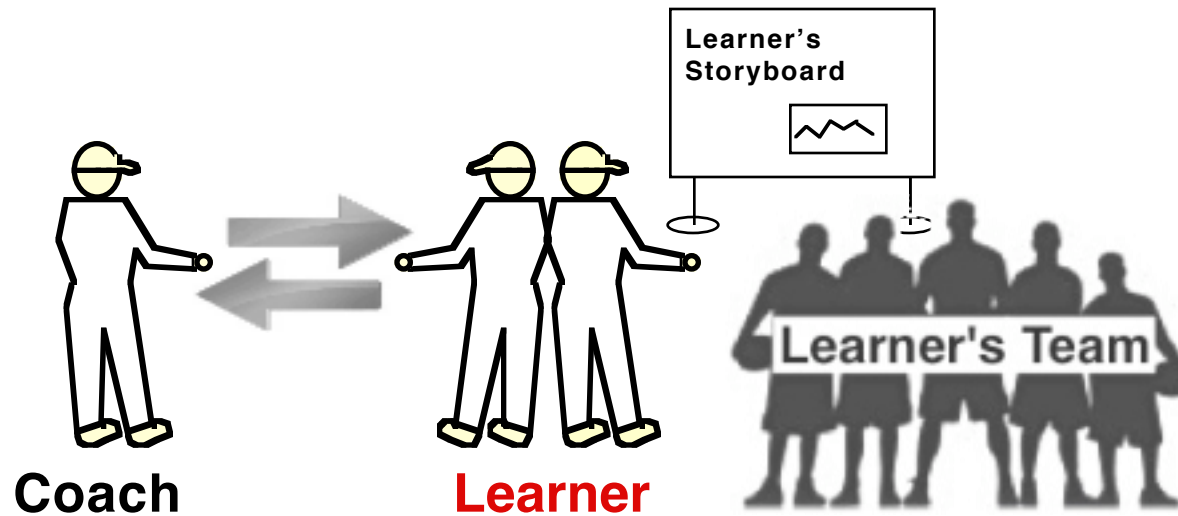
LEVEL OF TARGET CONDITION DIFFICULTY

When defining a target condition, consideration is given to both the Learner and the Coach's current Improvement Kata skill level

LEARNER'S SKILL LEVEL



3rd STEP: THE LEARNER DEVELOPS, PROPOSES AND FINE TUNES THE TARGET CONDITION



People confuse a target condition as a management target, or a stretch goal set by management, or something that comes out of brainstorming. A target condition is not any of these things.

Designing the next target condition is part of the Learner's process, done in collaboration with the Coach and the Learner's team. The Learner, leading the team, 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 Learner may have to rethink and adjust the target condition several times.

IT'S AN INTERACTIVE, BACK-AND-FORTH PROCESS BETWEEN LEARNER AND COACH

The Coach will ask you to use the right side of the Current Condition / Target Condition form that you used in the process analysis, to now describe how you would like the focus process to be operating on the achieve-by date.

This is usually just the first of several iterations going back-and-forth between you and your Coach, until you reach consensus on the target condition.



HOW CAN I DEFINE A TARGET CONDITION WHEN I DON'T KNOW HOW I WILL GET THERE?

You should work hard to grasp the current condition and make informed choices in defining the target condition, but do not make up things you don't yet know. Here are two ways to deal with this dilemma:

(1) You can start with a skeleton target condition and fill in the details as you learn more.

Once a target condition and its achieve-by date are set they shouldn't be changed. But it is OK to add details to a target condition as you work toward it and learn more. It's fine for you to leave out some details and add them later. At any point in the Improvement Kata you can conduct quick experiments to test ideas and see further, and then incorporate what's learned into the target condition.

(2) Don't worry.

Developing a good target condition is a skill that comes with experience, and your first target condition probably won't be the best. Since the achieve-by date for a beginner's first few target conditions is short (1-2 weeks) it's OK if you make some mistakes in establishing the first target condition. This will quickly become apparent, be corrected when you establish the next target condition. It's a good learning experience.

TARGET CONDITION PLANNING FORM

Three versions of the Current Condition / Target Condition form are on the next pages

Referring to the Current Condition summary on the left side of the form:

--> What you will keep the same?

--> What do you want to change?



Upon completion, you can cut the form where indicated and post the right side of the form in the “Target Condition” field of your storyboard.

CURRENT CONDITION / TARGET CONDITION



Overarching Breakthrough Challenge

Learner:

Coach:

Process:

Categories		Current Condition Date	Target Condition Achieve-By Date
1 Task unit & time to complete	Takt time		
	Pc/t		
	# of Shifts		
2 Current operating pattern	Process steps and sequence	<i>show block diagram</i>	<i>show block diagram</i>
	Batch size		
	Where WIP Accumulates		
	Number of operators		
	% exit cycle (at end fluctuation of line)	<i>+ show all run charts</i>	
	Process metric		
	List other observations about the current operating pattern		
3 Equipm. capacity	Machine capacity chart	<i>show chart</i>	<i>show chart</i>
4 People required	Calculated number of operators		
5 Outcome metrics	Actual output / shift	<i>show run chart</i>	
	Overtime?		

CURRENT CONDITION / TARGET CONDITION



Challenge:

Learner:

Coach:

Process:

Outcome Metric

Process Metric

	Categories	Current Condition	Date	Target Condition	Achieve-By Date
1	Task unit and time to complete				
2	Current operating pattern				
3	Equipment capacity				
4	Number of people required				
5	Outcome metrics (performance data)				

CURRENT CONDITION / TARGET CONDITION



Challenge:

Learner:

Coach:

Process:

Outcome Metric

Process Metric

Categories

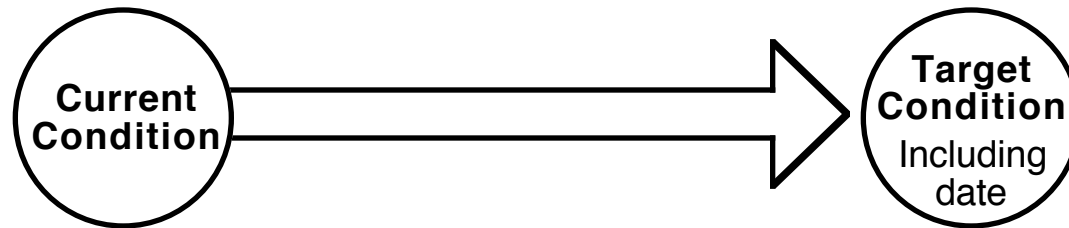
Current Condition

Date

Target Condition

Achieve-By Date

NOTE THAT NOT EVERYTHING HAS TO CHANGE



Not everything is changed

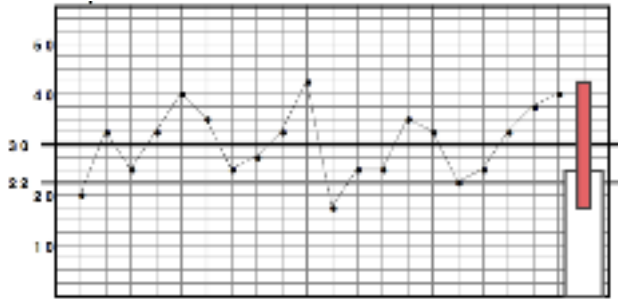
<p>Customer Takt 30 sec Planned cycle time 25 sec Two shifts + overtime</p>	→	<p>Customer Takt 30 sec Planned cycle time 25 sec Two shifts, no overtime</p>
<p>Small, varying WIP between workstations</p>	→	<p>1x1 Flow from stations 10 --> 110, 3 pieces SWIP after station 110</p>
<p>6 Operators, underutilized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

A MANUFACTURING EXAMPLE

TEAM 1

Process: MANUAL AXIS ASSY.	Challenge: Theme of this TC:	TC date: 12-16-2011															
<p>Step 1: Fill in current condition data</p> <p>Current Condition</p> <p>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</p>	<p>Step 2: Fill in what you will keep the same</p> <p>Target Condition</p> <p>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%</p> <table border="1"> <tr> <td>ASSY</td> <td>SHARP</td> <td>BUFF</td> <td>CLEAN</td> <td>BOX</td> </tr> <tr> <td>BS</td> <td>1X1</td> <td>1X1</td> <td>1X1</td> <td>1X1</td> </tr> <tr> <td>⊖-6</td> <td>⊖-1</td> <td>⊖-1</td> <td>⊖-1</td> <td>⊖-1</td> </tr> </table> <p>Process Metric: EXIT CYCLE AT BOX Outcome Metric: DAILY OUTPUT</p>	ASSY	SHARP	BUFF	CLEAN	BOX	BS	1X1	1X1	1X1	1X1	⊖-6	⊖-1	⊖-1	⊖-1	⊖-1	<p>Step 3: Fill in what you want to change</p>
ASSY	SHARP	BUFF	CLEAN	BOX													
BS	1X1	1X1	1X1	1X1													
⊖-6	⊖-1	⊖-1	⊖-1	⊖-1													

© 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 the following:

- 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:

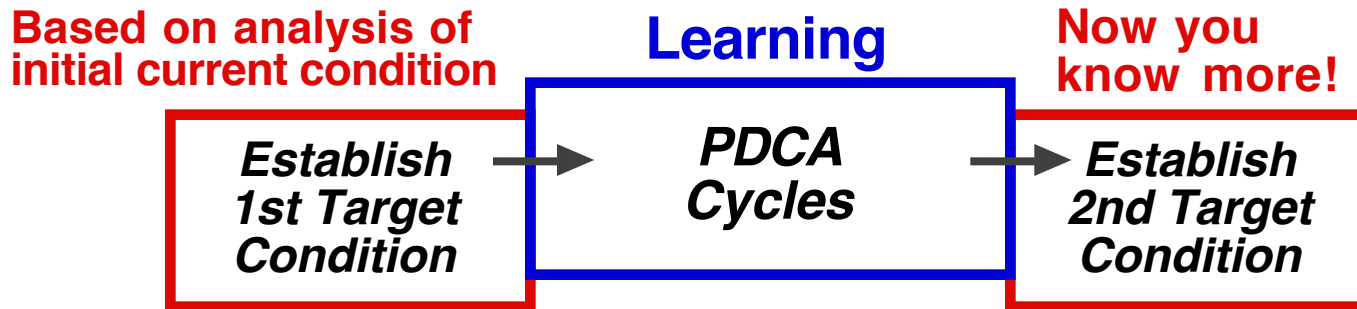
- a) *"We currently observe -61% / +24% variation in the process exit cycles"*
- b) *"By (achieve-by date) we want the variation to be within +/- 15%"*

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 currently have?"* and *"What variation do we want next?"*

BUT YOU MAY NOT YET HAVE ALL THAT DETAIL

Many details come from the PDCA cycles in Step 4 of the Improvement Kata. Your knowledge increases on the way to the target condition.



Don't make things up based on intuition or conjecture (*"I think..."*). It's better to say *"I don't know"* or *"not sure"* and see further by quickly experimenting in the PDCA phase of the Improvement Kata.

The target condition can be fleshed out with additional detail *as you experiment* and your knowledge of reality increases. For example, you 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.

ONCE THE TARGET CONDITION IS SET IT SHOULDN'T BE CHANGED

Once a target condition is established, its content and achieve-by date should not be changed



This is done so we take time to analyze the current condition, think carefully about the target condition and, when the going gets tough, work hard to understand and with creativity get through the obstacles that arise step by step. This way you achieve a new level of system performance, rather than simply altering the target condition.

Do or do not. There is no try.

~ Yoda

However, remember that it's fine to add details to the target condition as you work toward it.

4th STEP: THE LEARNER STARTS THE 'OBSTACLES PARKING LOT'

Obstacles relative to the Target Condition

As you establish the target condition you'll start to gain insight into obstacles that are in your way. Start a list of obstacles that you think are preventing you from reaching the target condition. These are not general observations about opportunities for improvement, but only issues that *specifically* appear to be preventing you from reaching the target condition.

A photocopy-ready OPL form is in the Appendix. You'll continue to update this list on your storyboard as you learn more in the 'executing' phase of the Improvement Kata.

Obstacle Parking Lot	
Obstacle	How can you measure that?
• _____	_____
• _____	_____
• _____	_____
• _____	_____
• _____	_____
• _____	_____
• _____	_____
• _____	_____
• _____	_____
• _____	_____
• _____	_____
• _____	_____
• _____	_____
• _____	_____
• _____	_____

PURPOSE OF THE OBSTACLES PARKING LOT

Obstacle Parking Lot	
Obstacle	How can you measure that?
• _____	_____
• _____	_____
• _____	_____
• _____	_____
• _____	_____
• _____	_____
• _____	_____
• _____	_____
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• _____	_____

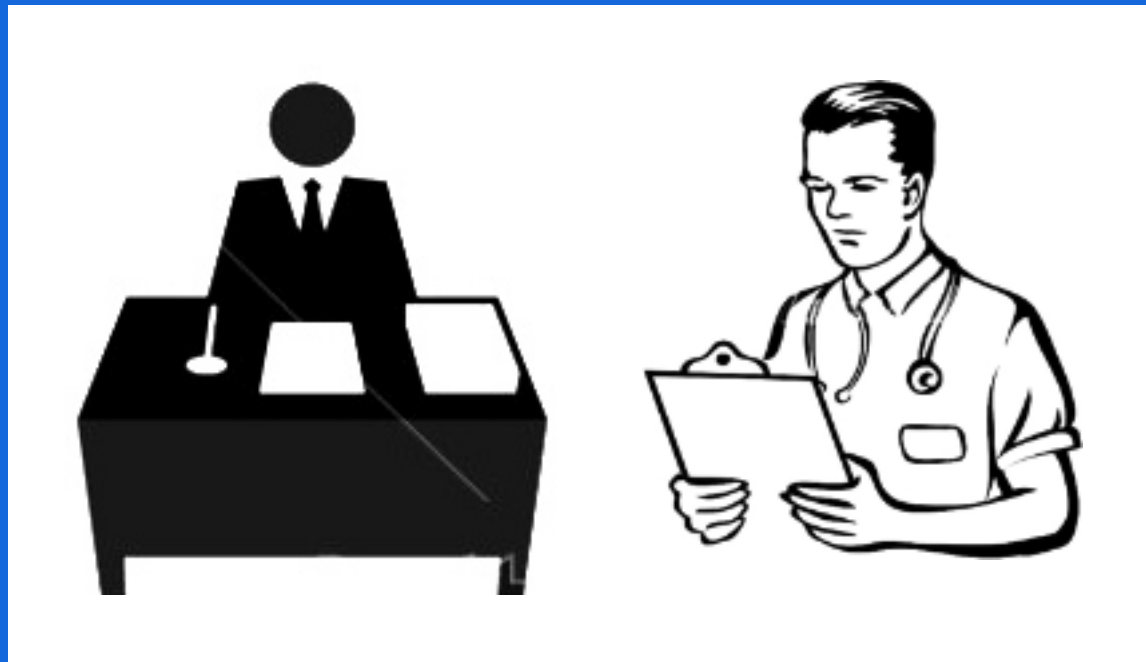


Do not Pareto this list and do not turn it into an action-item list! It's simply a place to note and hold perceived obstacles, which you may or may not address. The obstacles you actually work on and the steps you actually take come out of the PDCA cycles.

The purpose of the obstacles parking lot is:

- 1) To help you and your team see the limits of predictions and perceptions.**
- 2) To prevent you from going after several issues or ideas at once.**

Target Conditions for Office & Service Processes



ESTABLISHING A TARGET CONDITION FOR OFFICE AND SERVICE PROCESSES

Suggestions for processes where the work content varies

- Keep in mind that all you are trying to do is define a *pattern* of working to then iteratively (scientifically) strive to achieve.
- In administrative processes the sequence and volume of work is often variable. A useful tactic is to set a “pitch” as a framework. This means establishing a target pattern by fitting work into consistent-sized time increments at set times (a “pitch”).

For example, instead of releasing work to an administrative process by natural customer orders -- whereby the amount and timing of work can vary greatly -- release work in equal portions to fill that consistent, scheduled time increment or “pitch.”

The pitch is not a “takt time” calculation, but simply an intelligently-selected time increment. An example might be *three applications processed every day from 1-2PM.*

- Note that this is not something to simply be implemented or forced on the operators, but a *target condition* you work toward iteratively by seeing and overcoming obstacles to it. You’re establishing what you want to be happening in that pitch increment, so you can see what you need to work on to get there.

ESTABLISHING A TARGET CONDITION FOR OFFICE AND SERVICE PROCESSES

(continued)

- One tactic is to classify work by type and only do one type per pitch, or release a mix that fits the time-frame of the pitch increment. Three categories, **small/medium/large** or **regular-daily/project/sporadic** are often sufficient.
- Your initial target condition doesn't have to be perfect. Once you have a first basic target pattern, it's a matter of applying PDCA (coached daily with the 5 Coaching Kata Questions) to find and break through obstacles that are preventing you from getting there.

As you do that you'll learn more about the patterns in the work, which you can integrate into the next target condition. Eventually, after you discover and remove enough obstacles that cause variability, you may be able to better understand patterns in the customer demand and even calculate a takt time for this work.

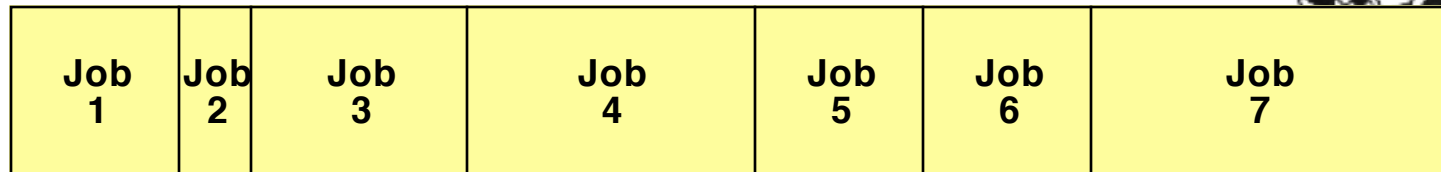
Office & Service Processes

DEFINE A TARGET PATTERN OF TIME/WORK PITCHES



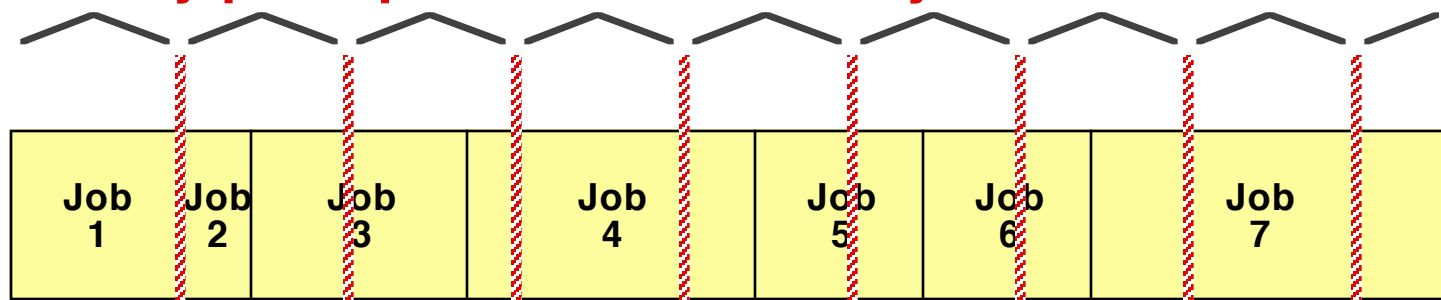
Pattern hard to see. Random chasing after problems. No target condition to strive for.

How the work arrives



A daily pitch pattern to iteratively strive toward.

Work split into consistent increments

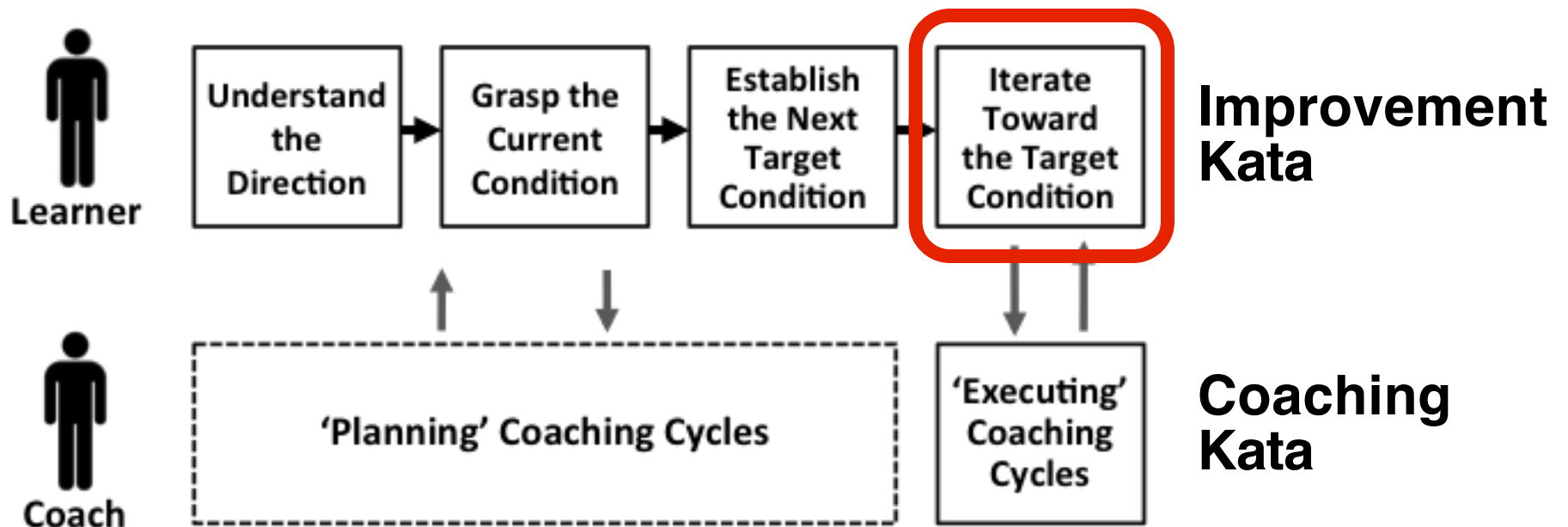


Don't worry about the increments being perfect at the start. Define a target increment, make that part of your target condition, and start asking the Five Coaching Kata Questions.

EXECUTING PHASE

How to Get There

Chapter 7. Step 4: Iterate Toward the Target Condition





TIME TO SHIFT GEARS

Having a next **target condition** (based on a grasp of the current condition and aimed at a challenge) is important, but **great execution** is equally important. If you have those two together then anything is possible.

This chapter of the Improvement Kata Handbook is about a highly-effective, scientific approach to execution. In this phase the Learner moves toward the target condition iteratively through experiments, while the Coach guides the process via daily Coaching Cycles with the Five Coaching Kata Questions.

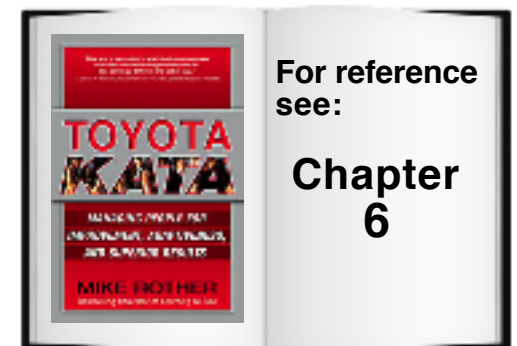
It's in this phase that the pattern and logic of the Improvement Kata eventually becomes clear to the beginner Learner. The "why" we are working this way usually becomes apparent sometime during the frequent coaching cycles.

Chapter 7

The Improvement Kata - Executing Phase

Step 4: ITERATE TOWARD THE TARGET CONDITION

Practice
this
Routine



ORIENTATION



Understand the Direction

A simple line drawing of a compass showing cardinal directions.

Grasp the Current Condition

A simple line drawing of a pair of glasses.

Establish the Next Target Condition

Two stick figures wearing hard hats stand on either side of a rectangular box labeled "Target Condition".

Iterate Toward the Target Condition

A stick figure is climbing a staircase. At the bottom is a circle labeled "CC" (Current Condition) and at the top is a circle labeled "TC" (Target Condition).

The discovery process between Current Condition and Target Condition

'Planning' Coaching Cycles


'Executing' Coaching Cycles

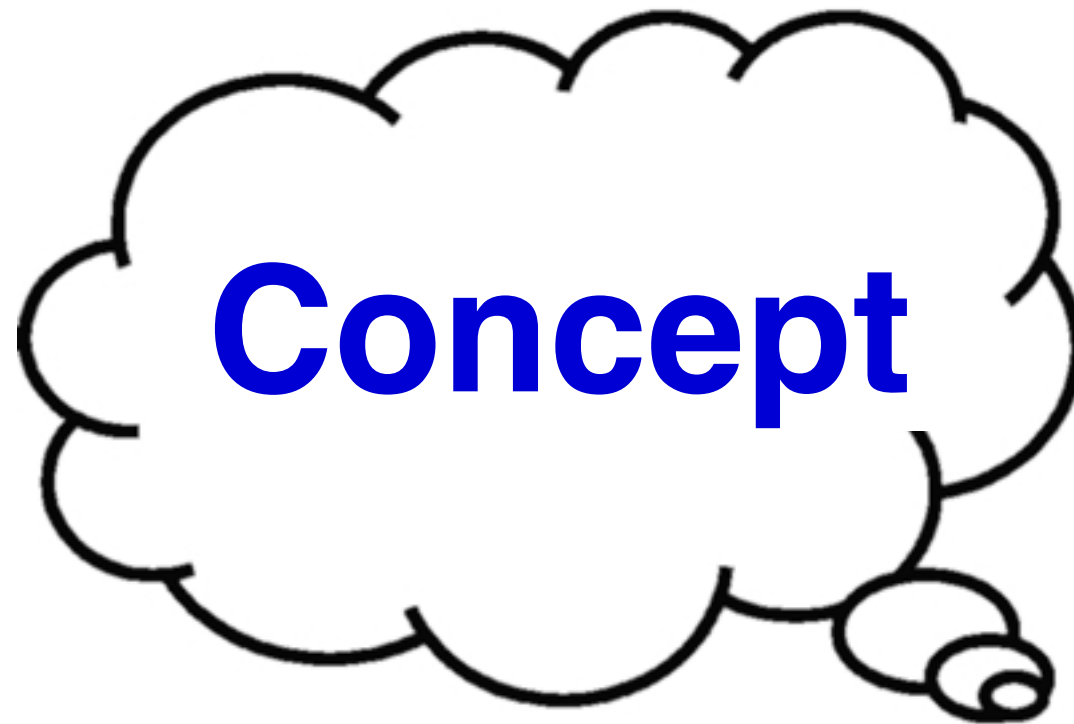
Two stick figures wearing hard hats stand facing each other with a double-headed arrow between them. Below them are the labels "Coach" and "Learner".

LEARNER'S STORYBOARD

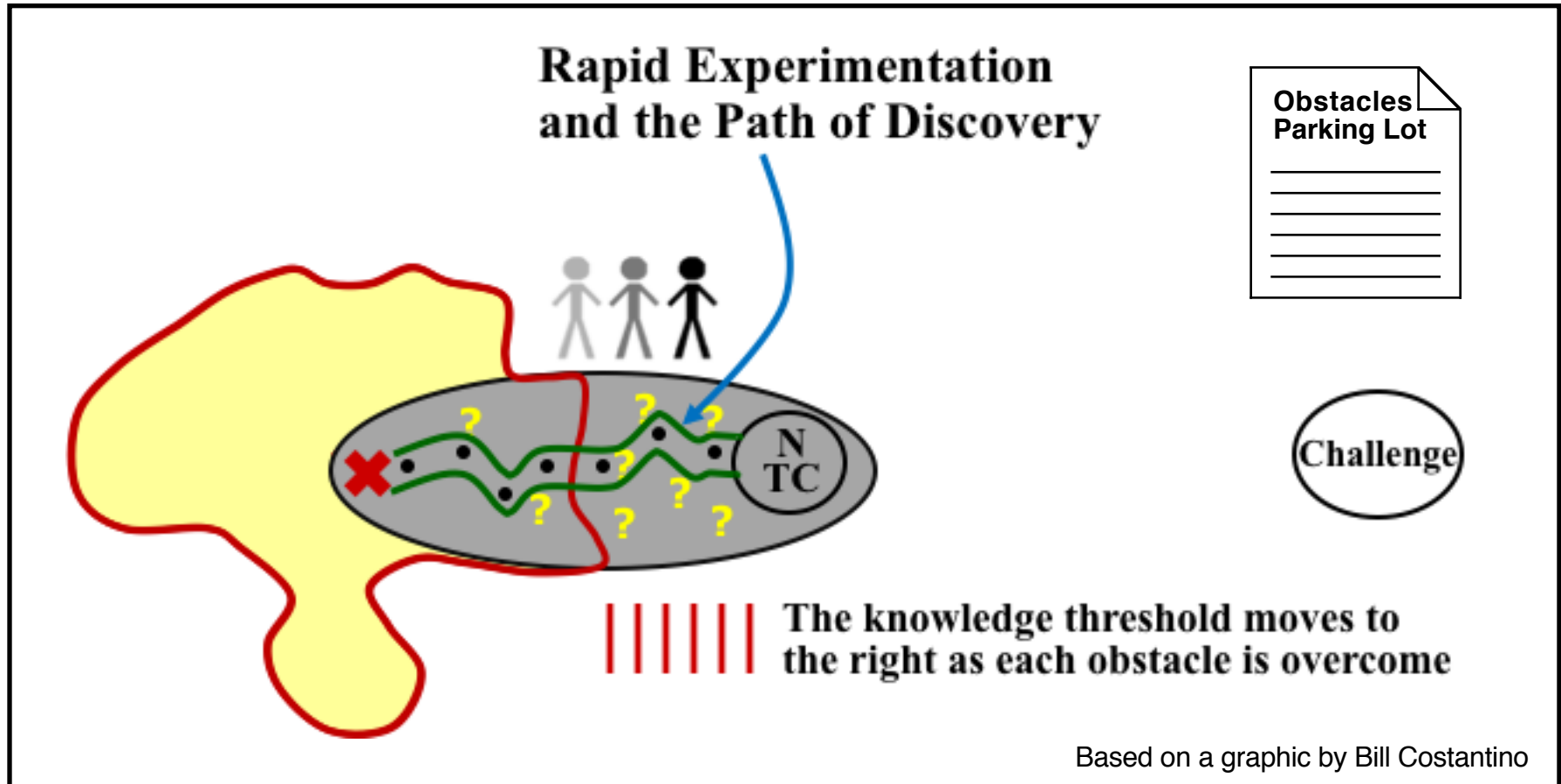
The Learner is now concentrating on this field



Focus Process:		Challenge:
Target Condition Achieve by: _____ <i>Learner may add detail to this field</i>	Current Condition <i>Learner will now update this field regularly</i>	PDCA Cycles Record 
		Obstacles Parking Lot <i>Learner will now update this field regularly</i>



THIS CHAPTER GIVES YOU A STRUCTURED ROUTINE TO PRACTICE, THAT MAKES IT EASY TO CONDUCT EXPERIMENTS



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



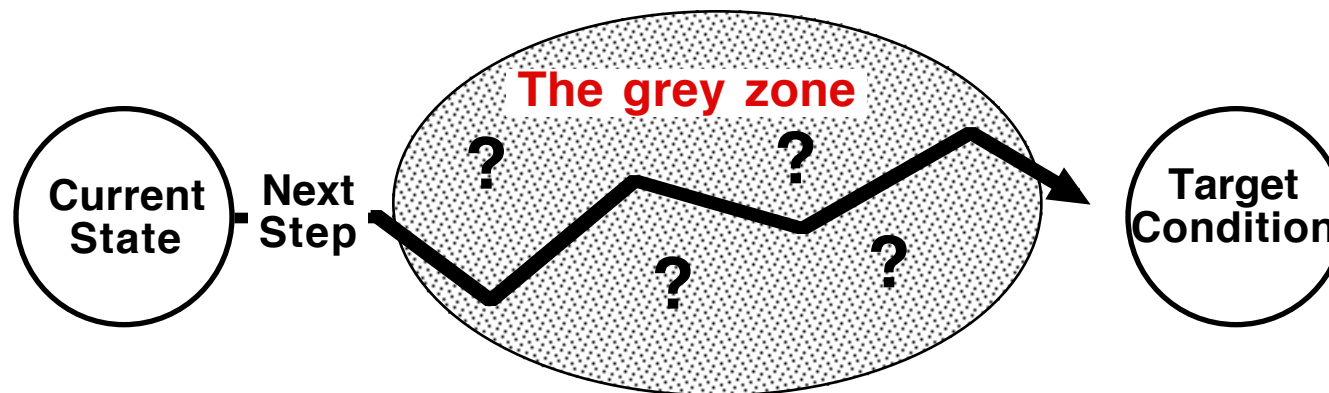
*Can't see all
the way there*

Most Important: ASSUME THE PATH IS UNCLEAR

Be open to solutions other than those you thought would get you there

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

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



The Target Condition you established in the last step is a setup for experimenting at your Threshold of Knowledge. Progressing to the Target Condition now boils down to iterative ingenuity and receptiveness for adapting to new circumstances.

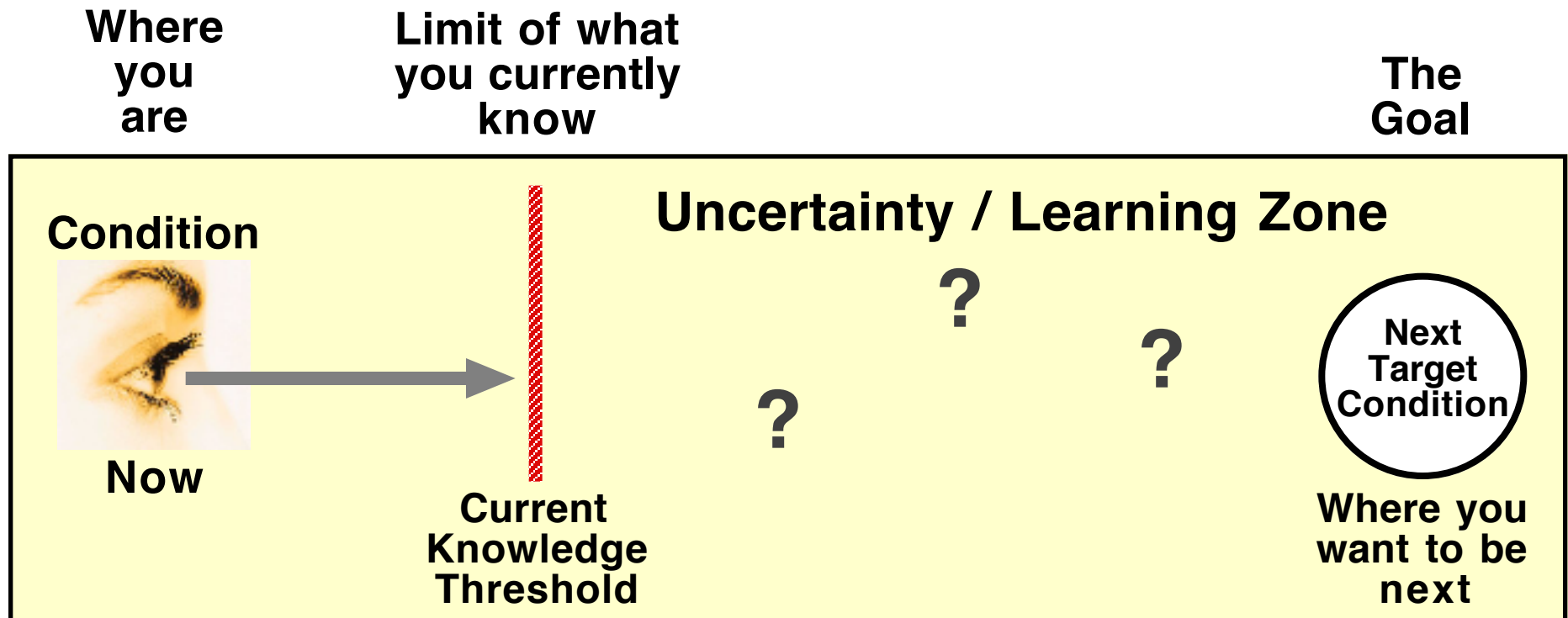
TIME TO PUT ON YOUR SCIENTIST HAT...



...AND WATCH FOR KNOWLEDGE THRESHOLDS

WHAT'S THE *THRESHOLD OF KNOWLEDGE*?

It's the point at which you have no facts & data and start guessing



There's always a knowledge threshold!

SCIENTIFIC THINKING MEANS LEARNING ALONG THE WAY TO THE TARGET CONDITION

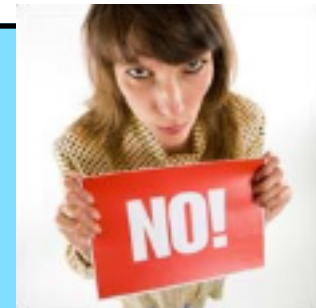
Since the path to a challenging goal can't be predicted with exactness, we have to find that path by experimenting like a scientist. With each step and insight a scientist may adjust his or her thinking based on what has just been learned.

The scientific process can't tell us what's ahead. It only confirms or refutes the results of experiments.

A trick to making effective progress toward a challenging target condition is not to try to *decide* the way forward, but to *iterate* your way forward by experimenting as cheaply and rapidly as possible. This is the *action of innovation*.

What we may think
scientific thinking is

Objective and certain:
"We have made the right plan"



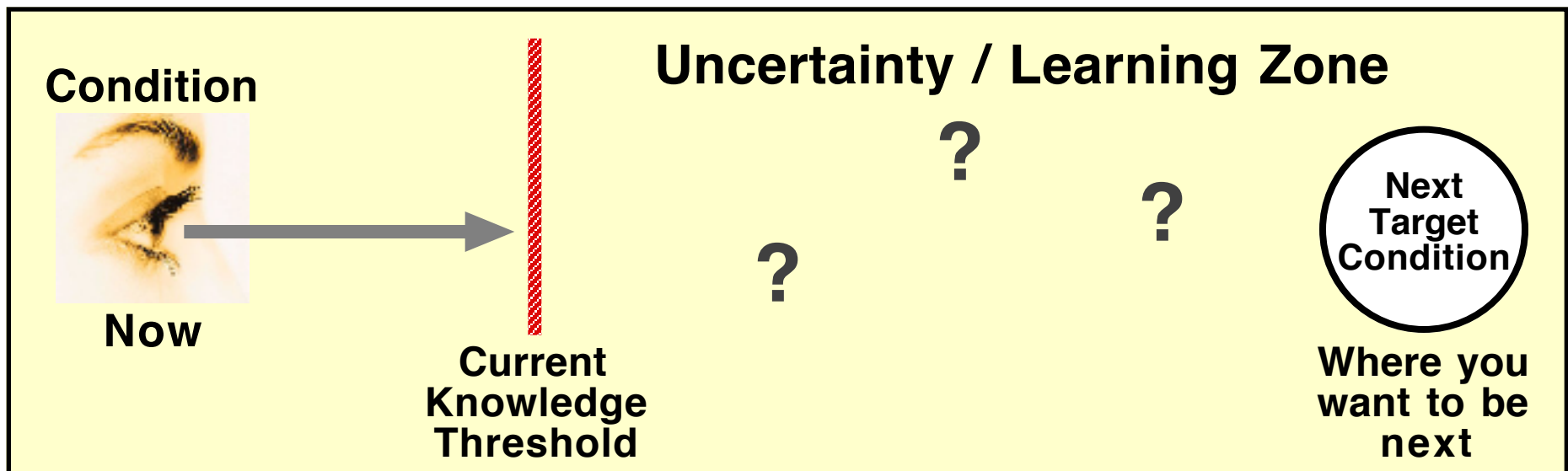
What *scientific thinking* really is

Always provisional:
"Our plan is a hypothesis"



WHAT SHOULD YOU DO AT THE THRESHOLD OF KNOWLEDGE?

- 1) **Acknowledge it.** (Difficult to do, until you get in the habit.)
Key realization: There's always a threshold of knowledge.
- 2) **Stop and see further by conducting an experiment.** Don't deliberate over answers. Deliberate over the next experiment:
What do we need to learn next, how will we test that and how will we measure it?

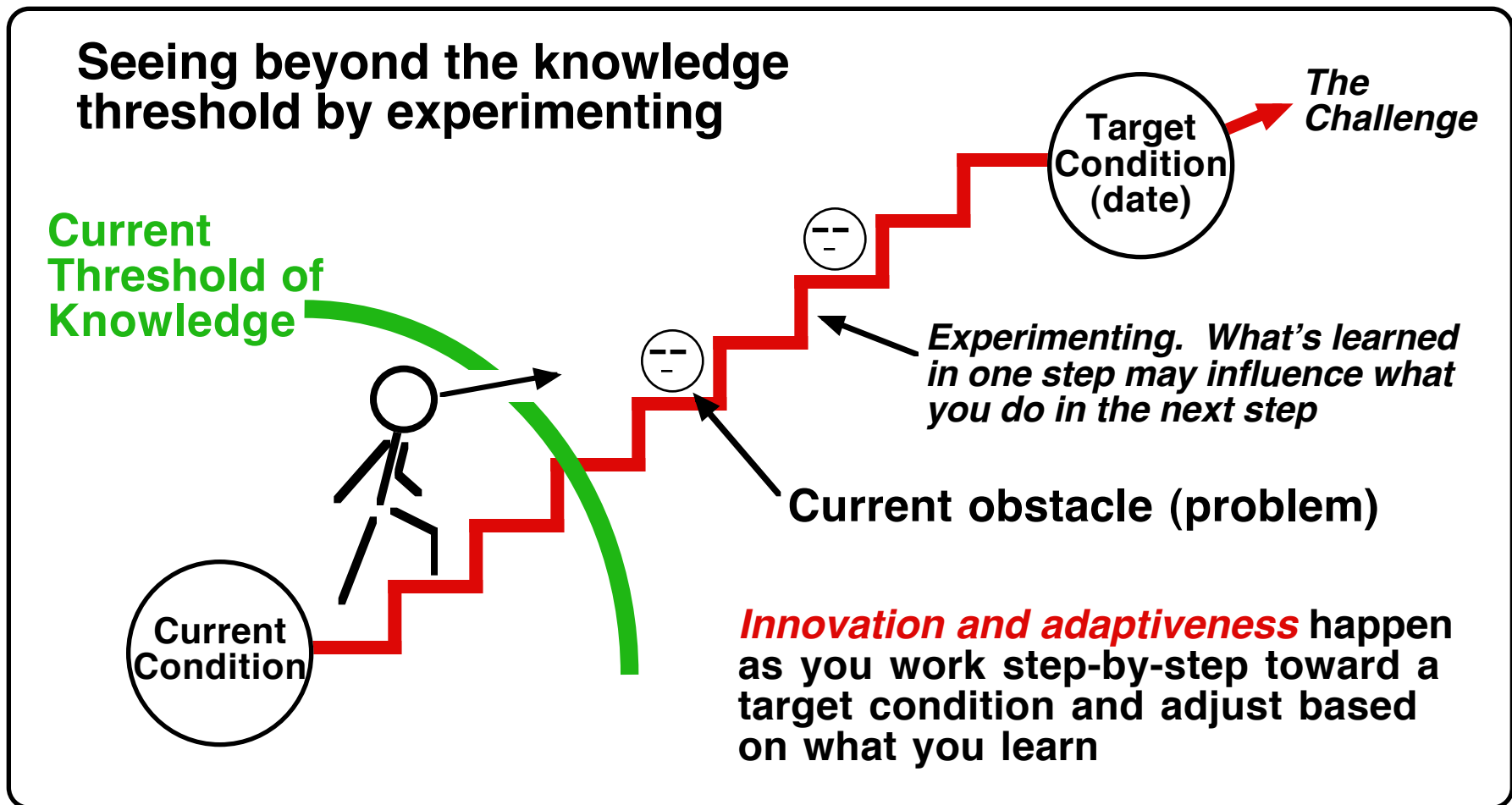


*The path can't be determined in
advance through logic and debate*

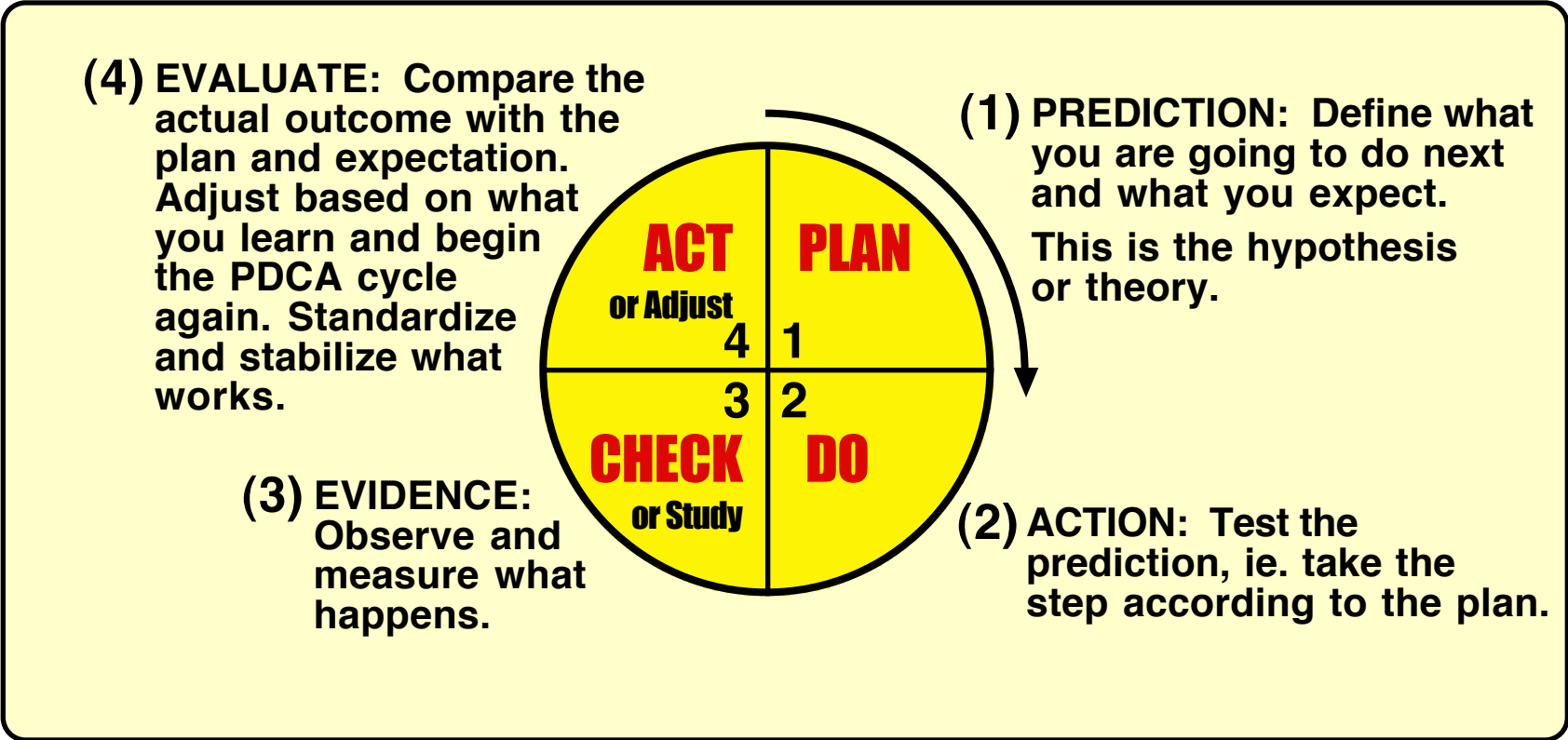
HOW TO WORK TOWARD THE TARGET CONDITION

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

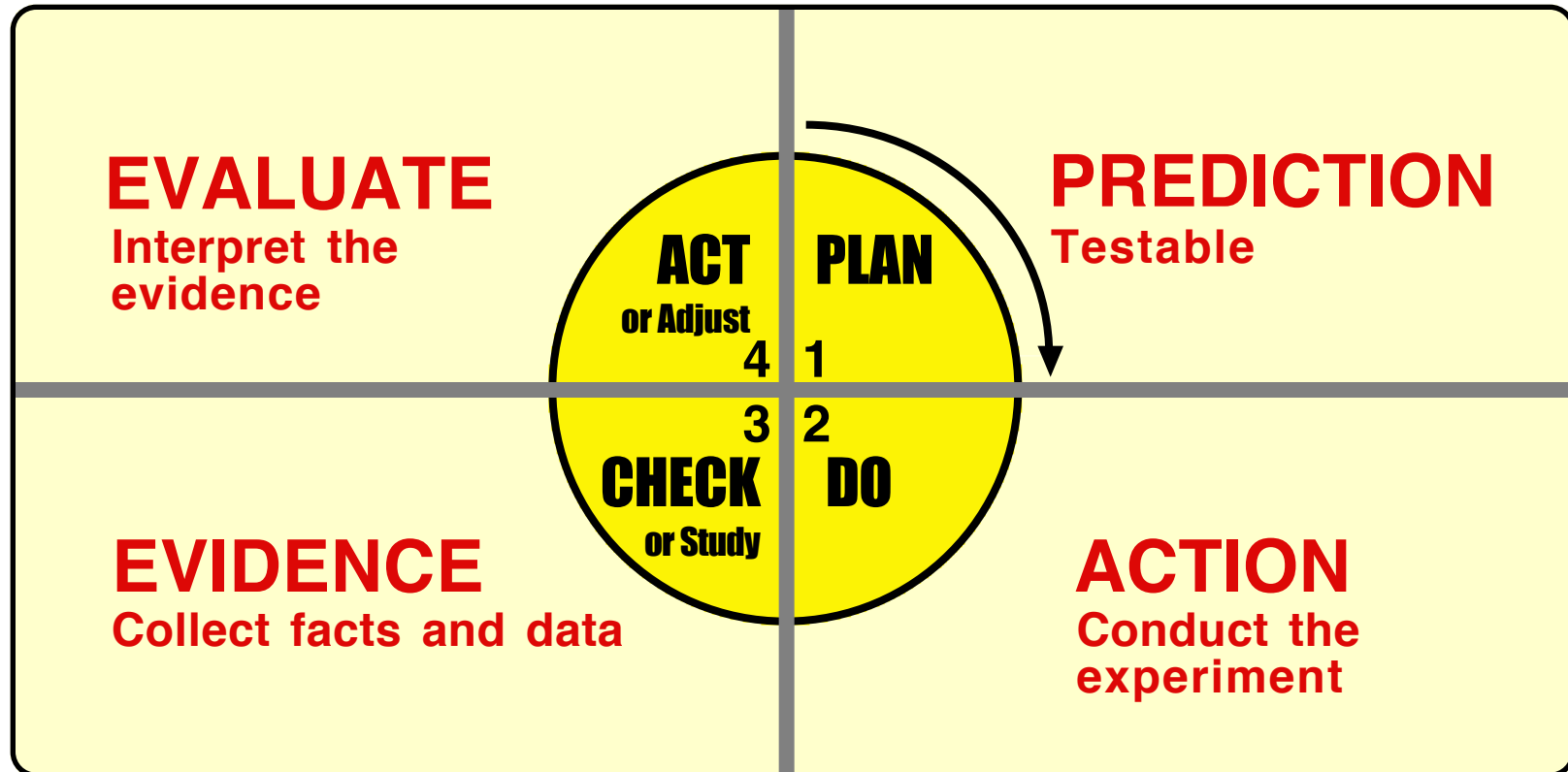
With the Improvement Kata you learn as you strive to reach the Target Condition, and adapt based on what you're learning. Find the route to the Target Condition by learning from experiments and focusing on the next step based on that learning. This is how the adaptive "Learning Organization" becomes a reality.



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



IT'S THE SCIENTIFIC LEARNING CYCLE



These steps comprise the scientific process of acquiring knowledge; by comparing a prediction with what actually happens. The PDCA cycle provides a practical means of attaining your target condition by giving you a systematic way of working through the grey zone.

Let's take a closer look at how PDCA actually works...

THREE KEY POINTS ABOUT PDCA





PREDICTION ERROR, OR *SURPRISE* IS A BIG PART OF HOW PDCA HELPS YOU LEARN AND IMPROVE

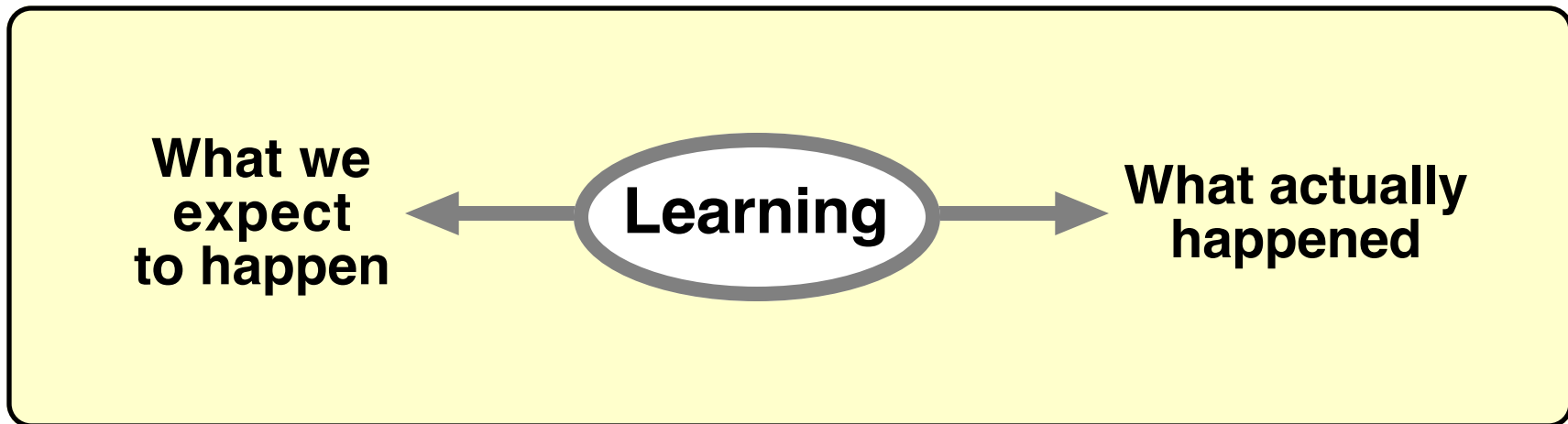


Unexpected results (surprises) are very effective in driving learning. The Improvement Kata process seeks to use these lessons.

When a hypothesis is refuted this is in particular when you can gain new insight that helps you learn, improve, adapt and innovate. The purpose of PDCA is to generate surprises and thus opportunities for learning & progress toward the target condition.

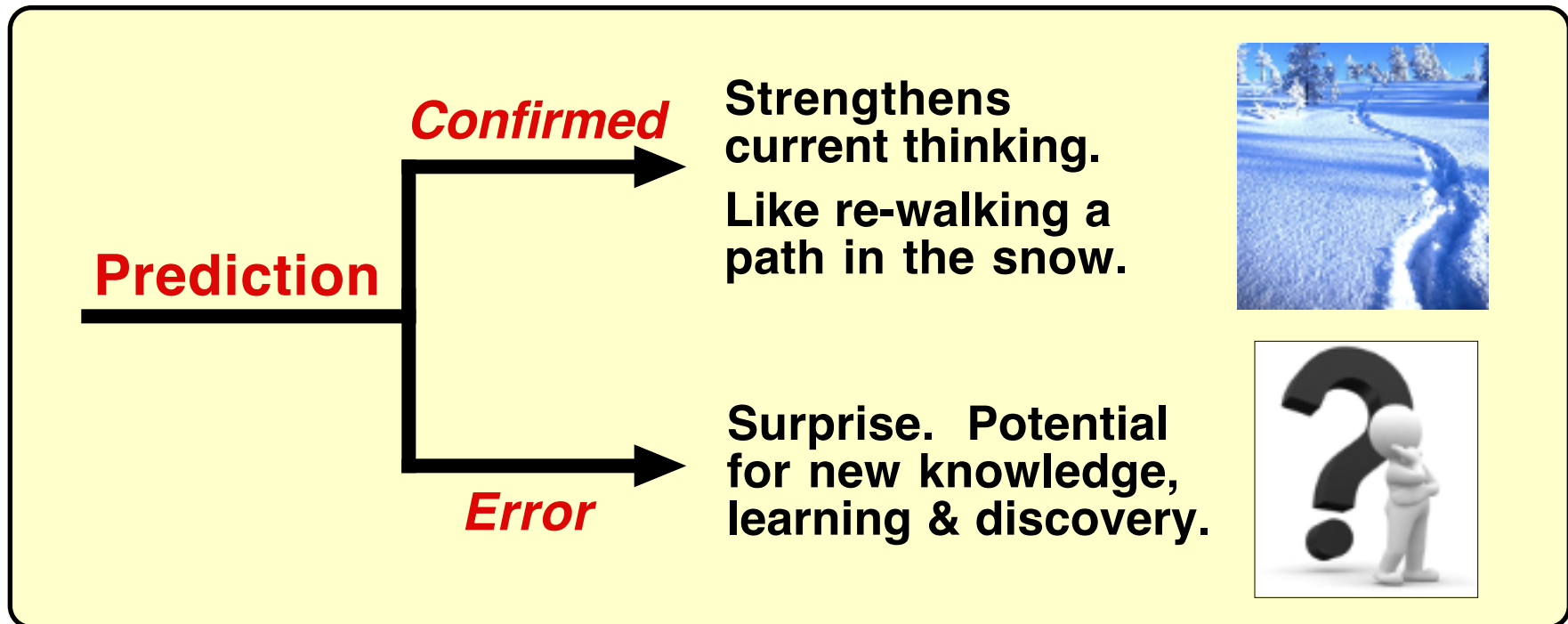
THE PROCESS OF LEARNING

Learning occurs when we compare what we expected to happen with what actually happens



HOW PREDICTION ERROR HELPS YOU PROGRESS TOWARD THE TARGET CONDITION

It's the scientific approach: When a result is as-predicted it confirms something you already thought. When a result is *different* than predicted you are about to learn something new.

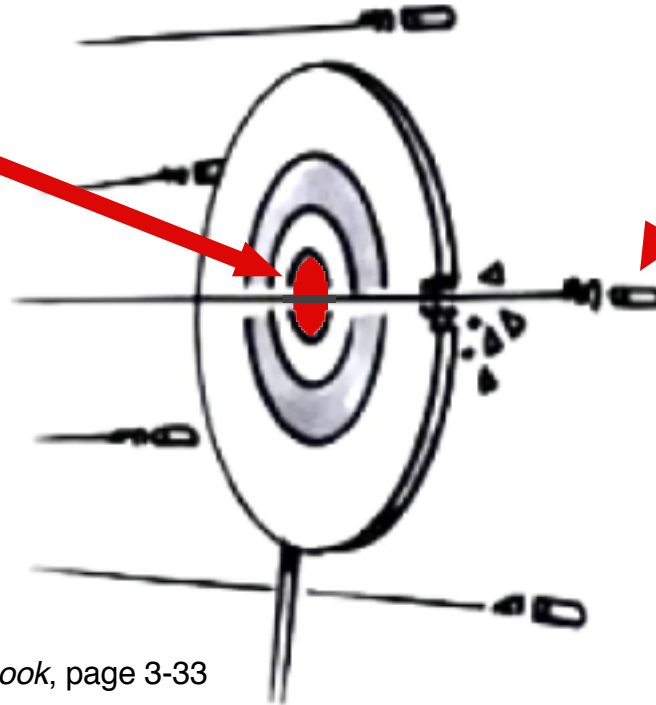


Prediction **confirmation** keeps you in place. Prediction **error** leads you out of your assumptions and forces exploration.

“If the result confirms the hypothesis, then you've made a measurement. If the result is contrary to the hypothesis, then you've made a discovery.” ~ Enrico Fermi

WE LEARN FROM REFUTED HYPOTHESES

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

A refuted hypothesis is useful because it impels you to challenge your beliefs, learn and adjust your approach. Unexpected results redirect your thinking, forcing new interpretations and steps. When you reflect and attempt to understand why your prediction was inaccurate you discover new insights and build new knowledge.

This is because a refuted hypotheses reveals a **knowledge threshold**. When something other than what you predicted happens -- when a plan, step, belief or hypothesis turns out to be incorrect -- it makes a knowledge threshold visible & puts you at the *learning edge*.

YOU NEVER ACTUALLY KNOW WHAT THE RESULT OF A STEP WILL BE

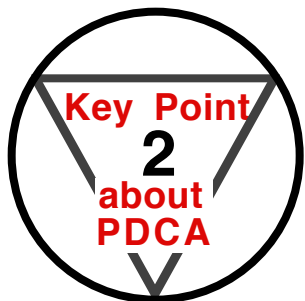
This is a key mindset to learn



A foundation of the Execution phase of the Improvement Kata is that whatever you think will happen with the next step is capable of being disconfirmed by evidence from taking that step. Without this capability there is little reason for conducting experiments.

Try to think of yourself as conducting experiments for the purpose of reconciling the new evidence you get from the experiment with what you were thinking when you planned the step. If you plan and take steps only to make something happen, rather than to test and potentially revise an idea, then your knowledge threshold won't change.

In an experiment you're primarily looking for facts and data that poke holes in your idea, not for confirmation of your idea. This may seem counterintuitive, but once you practice it will make sense and can be of great use.

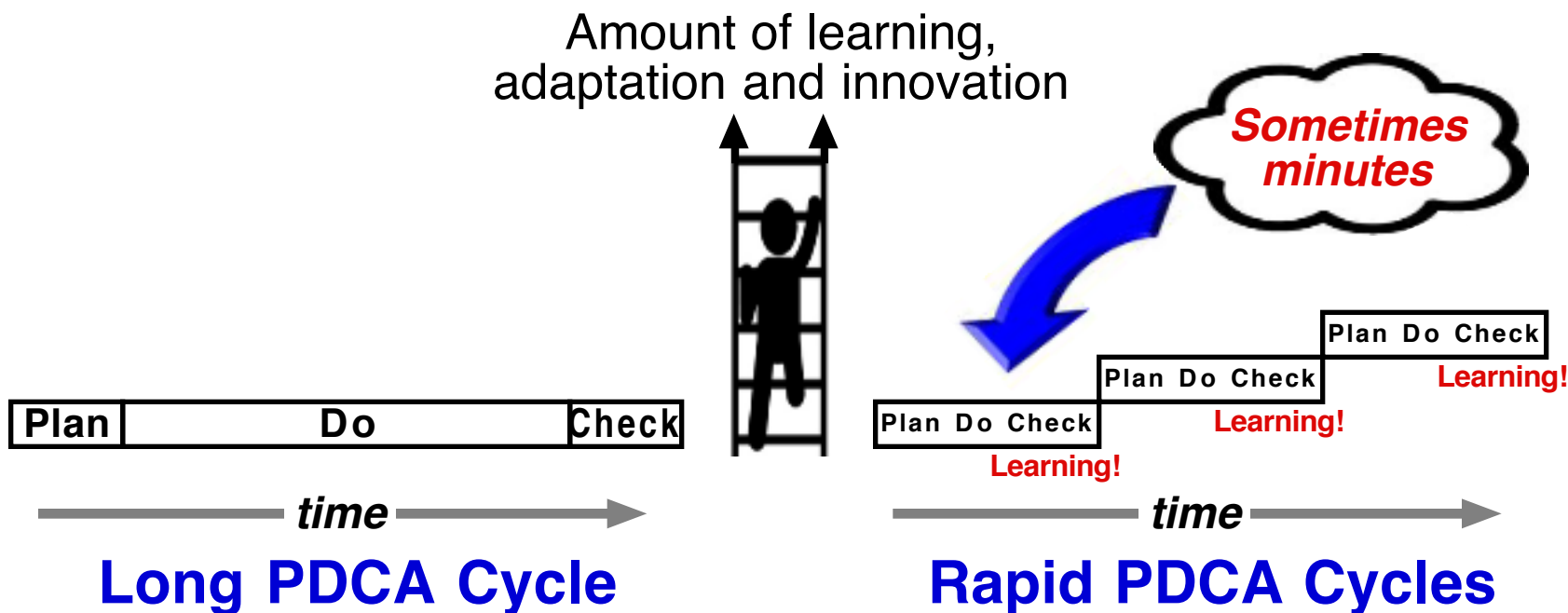


RAPID & FREQUENT EXPERIMENTS = MORE, CHEAPER & SAFER LEARNING

Learn early, learn often

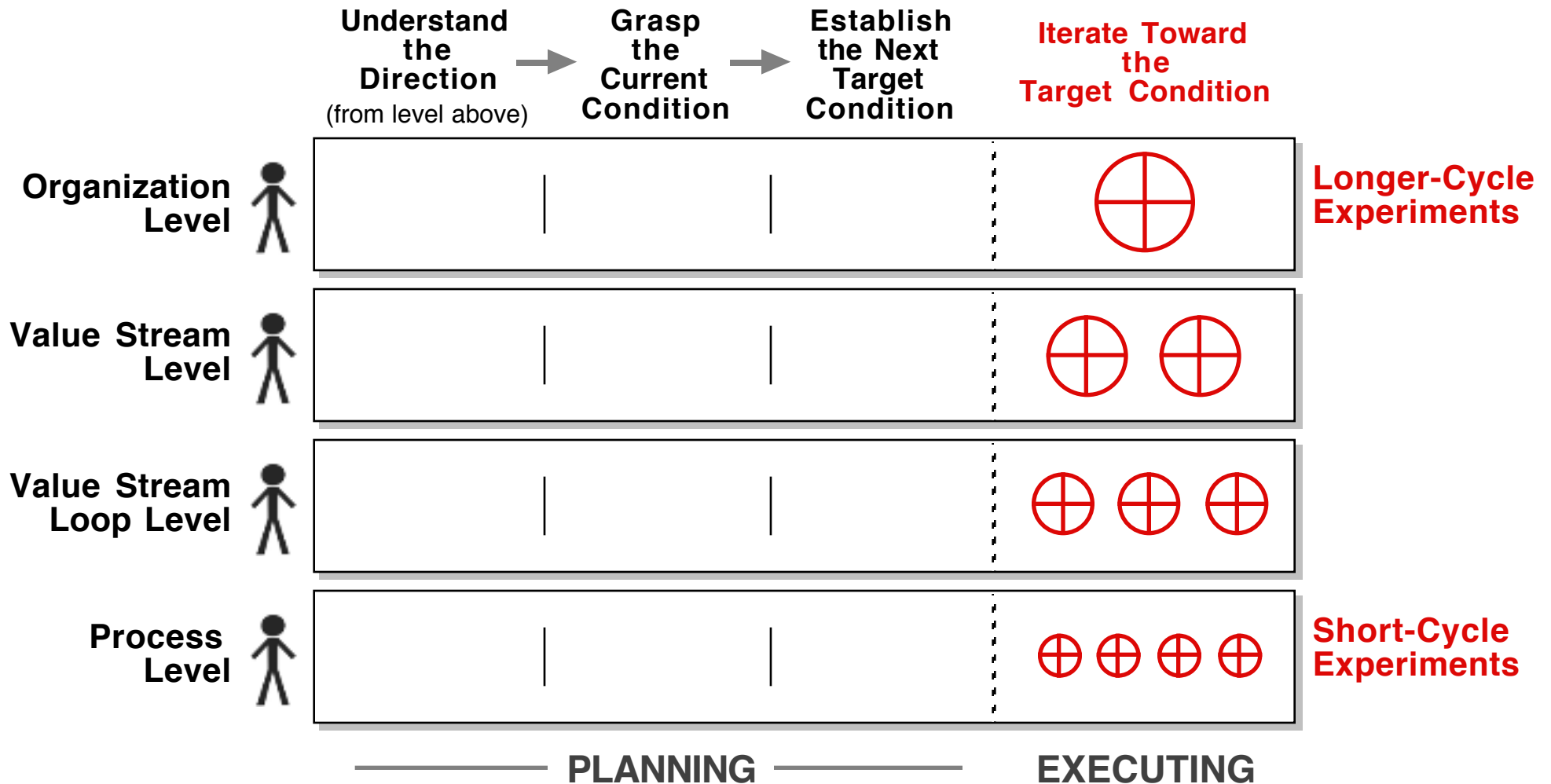
If prediction *error* is how we learn, then ideally we want those errors to happen as soon as possible. Some of the most useful learning comes from short and frequent PDCA cycles (daily experiments). The Improvement Kata is about testing and learning in as rapid and frequent cycles as possible.

Long PDCA cycles don't produce enough timely learning to activate team ingenuity



AS RAPID & FREQUENT AS POSSIBLE

The faster you are able to learn, the more successful you'll be in reaching the target condition. But how rapidly you can experiment may vary depending on the level in the organization



WHY RAPID & FREQUENT CYCLES?

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

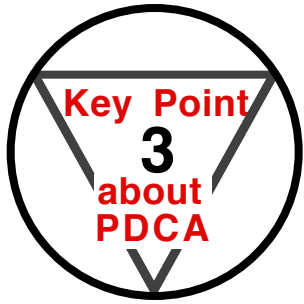
--> At the process level you pick up useful detail. Checks at a higher, macro level alone may lead only to conjecture about why something happened -- rather than useful, detailed facts and data for adaptation -- because at this level there are often too many variables in play to discern cause & effect.



--> At the process level there is often enough time to adjust and still reach the target condition in time. Checks at higher levels of granularity may come too late to do much about it.

--> Small, process-level PDCA cycles are experiments that can be done on a scale where failures (learning) are inexpensive and don't harm the customer.

Learning at higher levels often comes from agglomerating (bundling) the findings of experiments at the process level.



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.



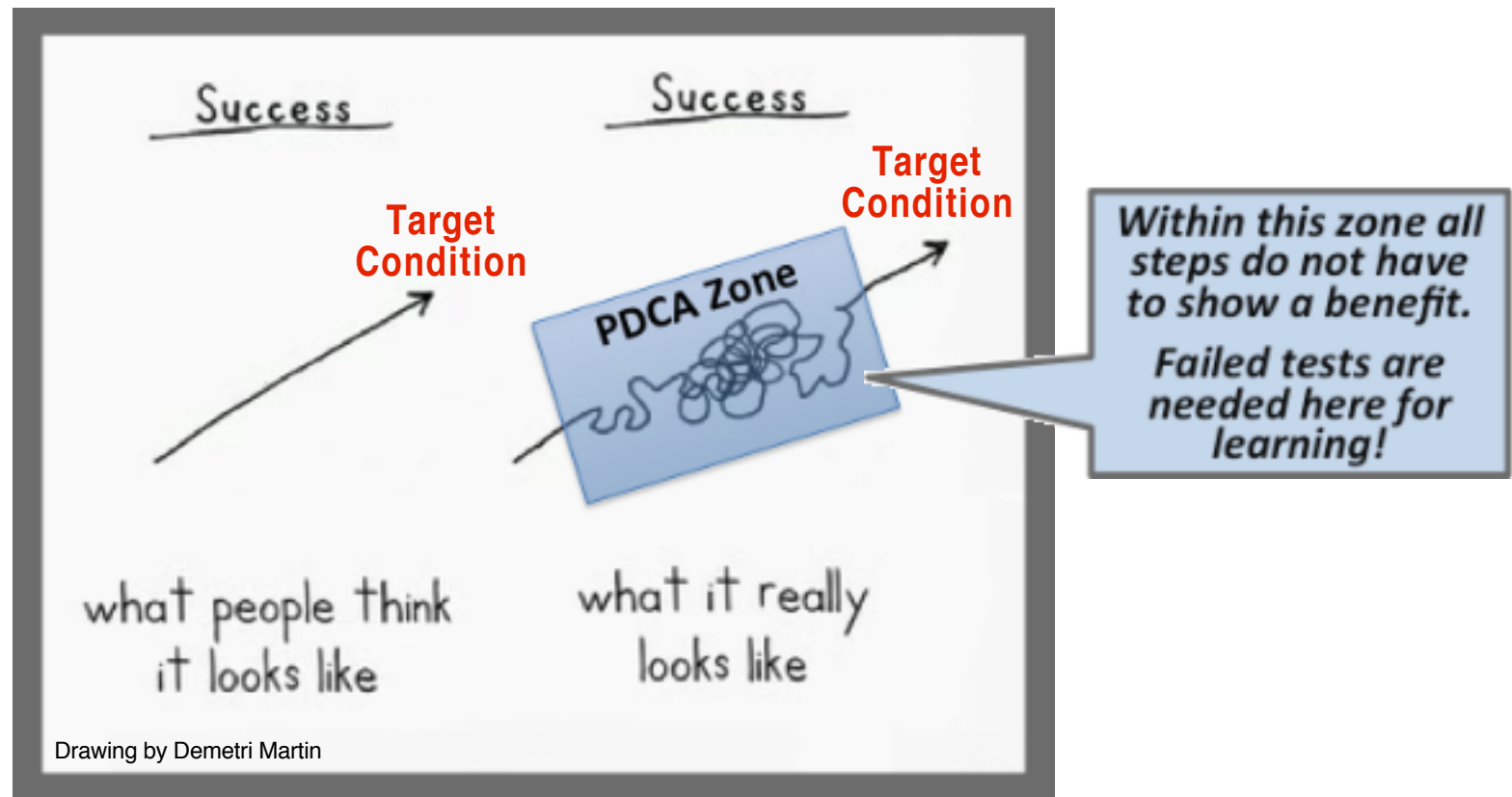
It's the Target Condition, which has an achieve-by date and is measureable, that brings the benefit. The steps you take are the effort to get there.

THE PATH TO THE TARGET CONDITION WILL NOT BE A STRAIGHT LINE

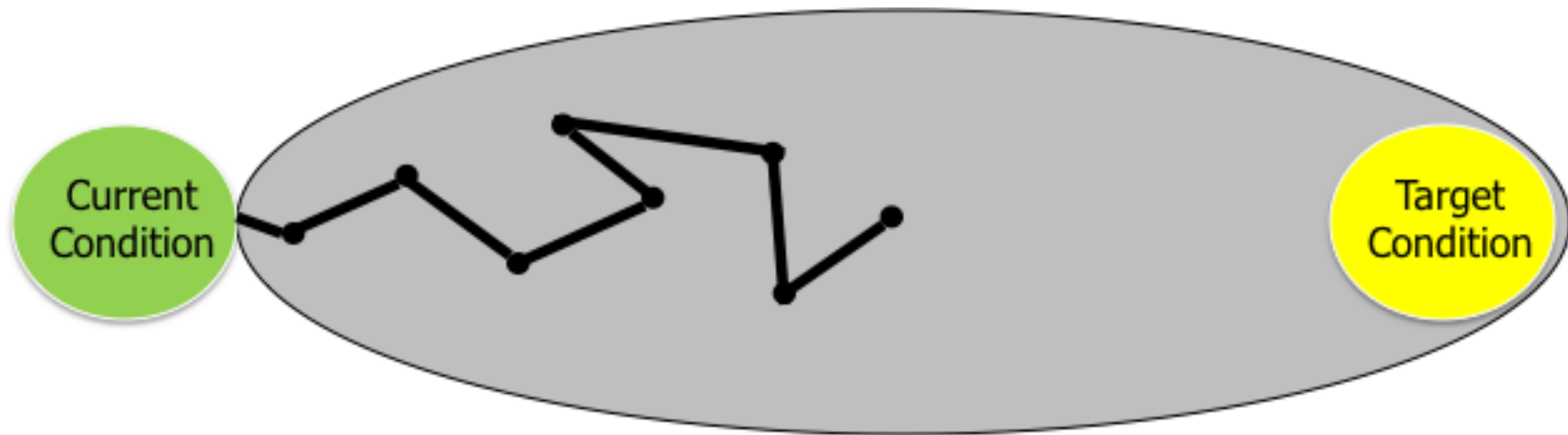
The PDCA procedure is specified, but the path is not. Things will occur along the way that shift your thinking and cause you to revise your ideas. That's normal. The target condition remains the same, but the path shifts as you learn.

Failed predictions along the way are useful discoveries that show you what you need to focus on to achieve the target condition by the achieve-by date, and lead you to the next step. With each experiment the Learner learns a little more about what s/he needs to do to reach the target condition.

There must be room to make small errors and learn things along the way



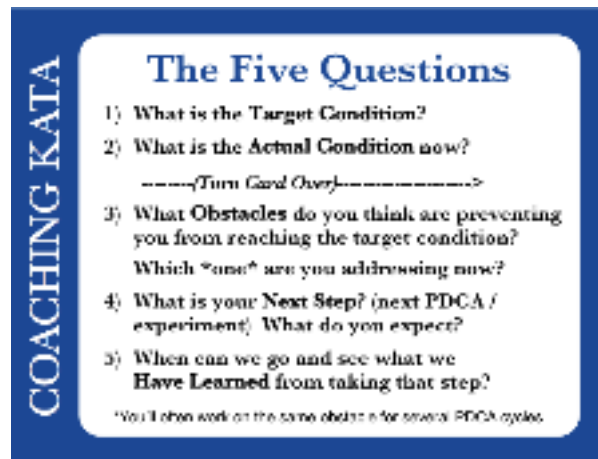
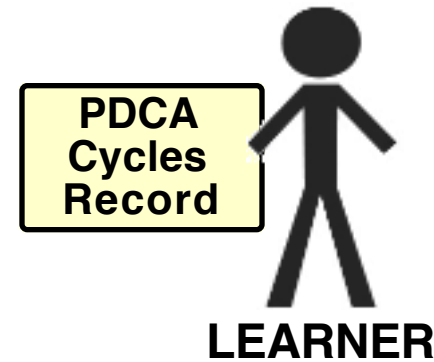
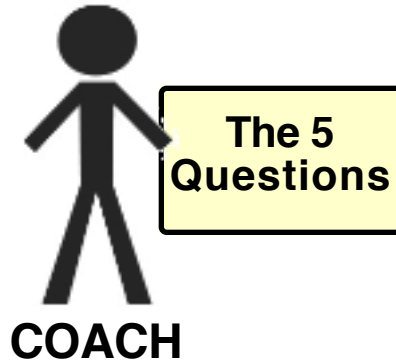
In Summary:
SMALL, RAPID EXPERIMENTS
ADVANCE YOUR KNOWLEDGE QUICKLY





How to Practice

USE THESE TWO ROUTINES TO TEACH AND FOSTER SYSTEMATIC, SCIENTIFIC ITERATION



PDCA CYCLES RECORD <small>(Use one for each experiment)</small>			
Obstacle:		Process:	
		Learned:	Coach:
Date, step & notes:	What do you expect?	What happened:	What we learned:

*Do a Coaching Cycle
Conduct the Experiment!*

The **Five Coaching Kata Questions** echo the scientific process. How to use them is described in the next part of this Handbook.

The **PDCA Cycles Record** is a tool for conducting series of experiments against obstacles, one obstacle at a time. How to use it is described in this chapter.

TWO TOOLS & POWERFUL ROUTINES FOR ACHIEVING ANY TARGET CONDITION

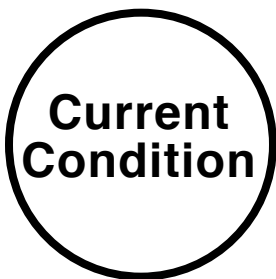
The **Learner** uses this tool while conducting experiments against obstacles.



PDCA CYCLES RECORD <small>(Start on a new experiment!)</small>			
Obstacle:		Process:	
		Learner:	Coach:
Date, step & notes:	What do you expect?	What happened?	What we learned

PDCA Cycles Record

Used by the Learner



COACHING KATA	The Five Questions
	<ol style="list-style-type: none"> 1) What is the Target Condition? 2) What is the current condition now? <i>-----(Turn Card Over)-----</i> 3) What Obstacles do you think are preventing you from reaching the target condition? <i>-----(Turn Card Over)-----</i> 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? <p><small>*You'll often work on the same obstacle for several PDCA cycles.</small></p>

The 5 Coaching Kata Questions

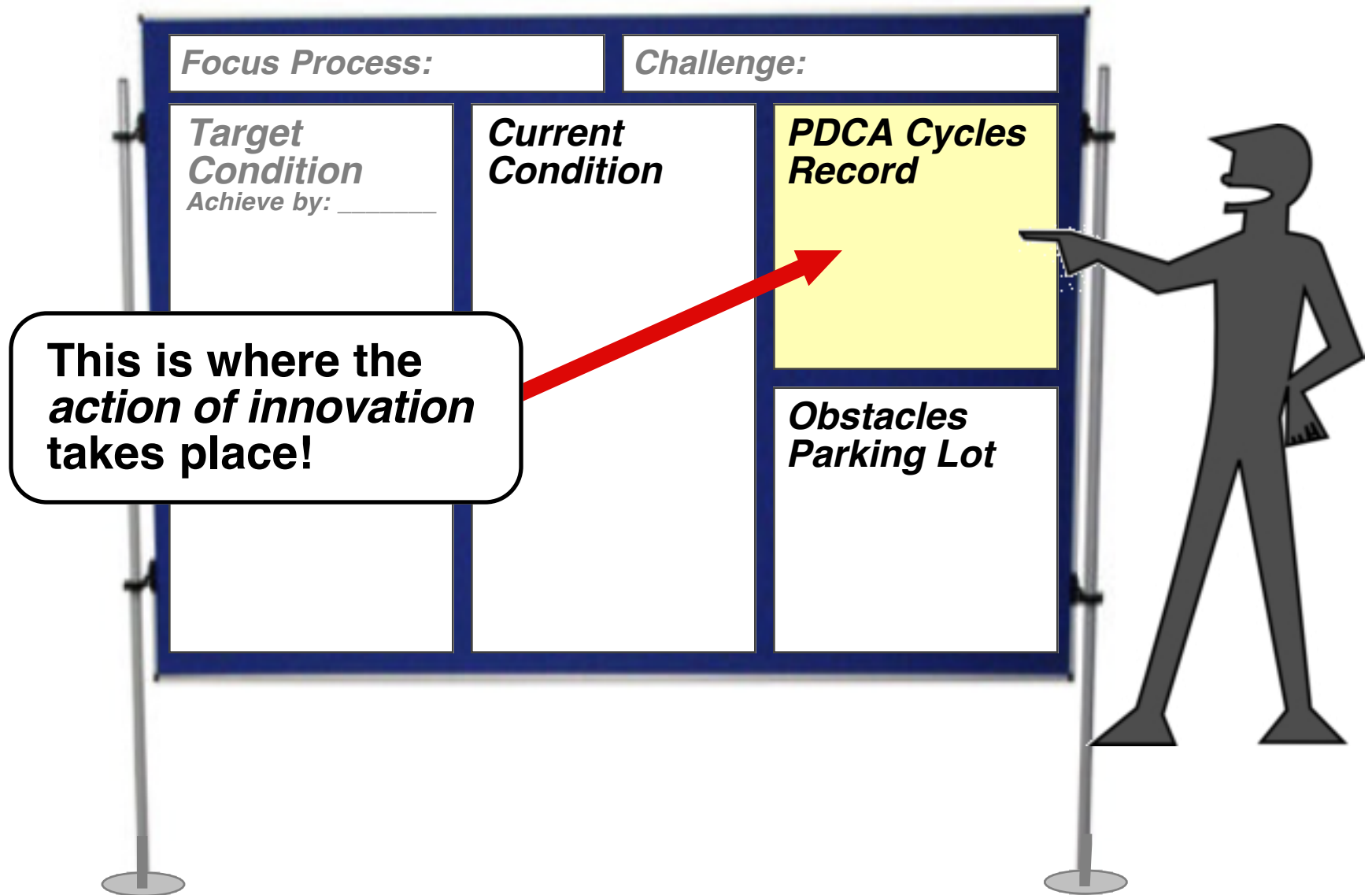
Used by the Coach

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

Forms available in the Appendix & on the Toyota Kata Website

THE LEARNER'S PDCA ROUTINE STEP-BY-STEP

Plan and reflect on each of your steps (experiments) by using the PDCA CYCLES RECORD as explained on the following pages

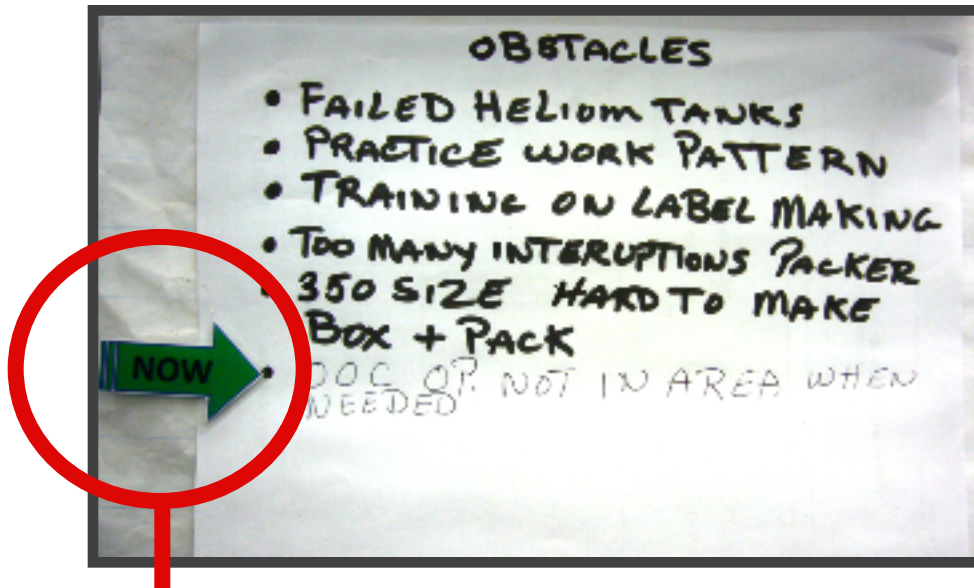


FIRST, PICK THE OBSTACLE

Do your experiments against one obstacle. You are free to select whatever obstacle you want. You don't need to start with the biggest obstacle. In fact, for Improvement Kata beginners it's often better to not tackle the biggest obstacle right away.

It doesn't matter where you start because once you get going then you're locked into the chain of PDCA cycles. All the obstacles that you will need to work on will wait patiently until you hit them. Your first step is free.

Use an arrow on the Obstacles Parking Lot to indicate visually what obstacle is currently being experimented against, and record this obstacle in the space provided on the PDCA Cycles Record.



Obstacle Parking Lot	
Obstacle	How can you measure that?
• _____	_____
• _____	_____
• _____	_____
• _____	_____
• _____	_____
• _____	_____
• _____	_____
• _____	_____
• _____	_____
• _____	_____
• _____	_____
• _____	_____

Indicate what obstacle you are working on and also write it in the space on the PDCA Cycles Record

THE LEARNER'S PDCA CYCLES RECORD

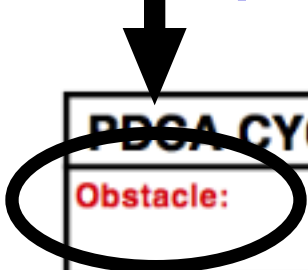
PDCA CYCLES RECORD <i>(Each row = one experiment)</i>					
Obstacle:		Process:			
		Learner:	Coach:		
Date, step & metric	What do you expect?	Do a Coaching Cycle		What happened	What we learned
		Conduct the Experiment			

LAYOUT OF THE PDCA CYCLES RECORD

One obstacle per form*

Each row = one experiment against the current obstacle

This is the obstacle to the target condition, that you are currently working on.



PDCA CYCLES RECORD <small>(Each row = one experiment)</small>				
Obstacle:		Process:		
		Learner:		Coach:
Date, step & metric :	What do you expect?	Do	Check	Act
		What happened	What we learned	
Last Experiment				
Next Experiment				
		Do	Check	Act
		What happened	What we learned	
		Do	Check	Act
		What happened	What we learned	

** Whenever the Learner starts working on a new obstacle, s/he should start a new PDCA Cycles Record*



It usually takes a series of experiments in order to overcome an obstacle

LAYOUT OF THE PDCA CYCLES RECORD

The *prediction side* and the *evidence side*

PDCA CYCLES RECORD <small>(Each row = one experiment)</small>			
Obstacle:		Process:	
		Learner:	Coach:
Date, step & metric :	What do you expect?	What happened :	What we learned
Prediction Side Written before the experiment		Do a Coaching Cycle Conduct the Experiment	Evidence Side Recorded after the experiment

The prediction side (LEFT) is where you plan the next experiment and predict the outcome

The evidence side (RIGHT) is where you record what actually happened, compare that with the prediction and record what you learned

CALIBRATE YOURSELVES BEFORE EXPERIMENTING

--- Ask your team: “*Why do we experiment?*” ---

It's not: *Let's see if this idea works*

But rather:

Let's see what doesn't work, so we can see what we need to do to make it work

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



GOOD THINGS TO SAY:

“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.”

“Don't be discouraged when an experiment fails. That's how we learn!”

THE BASIC PATTERN

For using the PDCA Cycles Record

PDCA CYCLES RECORD <i>(Each row = one experiment)</i>			
Obstacle:		Process:	
		Learner:	Coach:
Date, step & metric	What do you expect?	What happened	What we learned
		Do a Coaching Cycle	
		Conduct the Experiment	

- (1) Plan the next experiment (& then conduct a Coaching Cycle)**
- (2) Reflect on the outcome of the experiment by comparing the prediction with the actual results**
- (3) Plan the next experiment based on what you learned**

STEPS FOR USING THE PDCA CYCLES RECORD

The PDCA Cycles Record is read left-to-right, one row at a time. Each row = one experiment. Once you get started, the pattern of the form repeats after each experiment.

① PREDICTION SIDE:
Before the first coaching cycle the Learner proposes the 1st step, what will be measured, and what s/he expects in the first two boxes of the form

PDCA CYCLES RECORD <small>(Each row = one experiment)</small>			
Obstacle:		Process:	
		Learner:	Coach:
Date, step & metric :	What do you expect?	What happened : What we learned	
X	X	Do a Coaching Cycle	Conduct the Experiment

- THRESHOLD OF KNOWLEDGE:**
- What do we need to learn now?
 - How will we test it?
 - How will we measure it?"

Now the Learner and Coach do a coaching cycle

Then the Learner conducts the experiment

STEPS FOR USING THE PDCA CYCLES RECORD

① PREDICTION SIDE:
Before the first coaching cycle the Learner proposes the 1st step, what will be measured, and what s/he expects in the first two boxes

PDCA CYCLES RECORD <small>(Each row = one experiment)</small>			
Obstacle:		Process:	
		Learner:	Coach:
Date, step & metric	What do you expect?	What happened	What we learned
		X	X

② EVIDENCE SIDE:
Once the step (experiment) is done, the Learner fills in data on What Happened, reflects by comparing that with the expectation, and records What We Learned

Reflect on the data, observations and even how you took the step. What went differently than you expected?

In checking the results of an experiment try to measure and observe several cycles of the process.

THE SCIENTIFIC LEARNING CYCLE IS EMBEDDED IN THE PDCA CYCLES RECORD

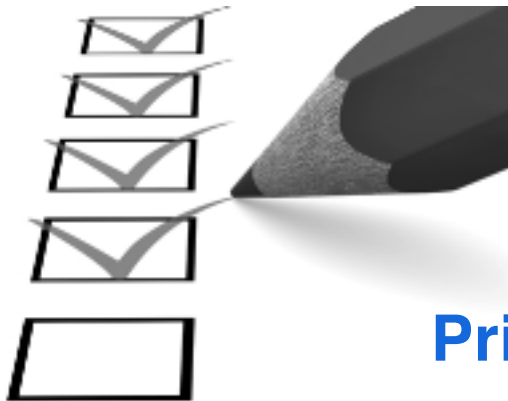
To make the cycle easy to operationalize & practice

ACTION

PDCA CYCLES RECORD <small>(Each row = one experiment)</small>			
Obstacle:		Process:	
		Learner:	Coach:
Date, step & metric :	What do you expect?	What happened :	What we learned
PREDICTION		EVIDENCE	EVALUATE

Do a Coaching Cycle
Conduct the Experiment

EXPERIMENT GUIDELINES FOR THE LEARNER



**INCLUDES CHECKLISTS FOR
PLANNING & EVALUATING
YOUR EXPERIMENT**

Print out and use the checklists

CHECKLIST FOR **PLANNING** A GOOD EXPERIMENT

Evidence of scientific thinking

- Conduct the next experiment at your current threshold of knowledge.
What is the current TOK? _____
What do you need to learn now? How will you test it?
How will you measure it?"
- Conduct your experiment against the current obstacle.
- Can you do a single-factor experiment, where only one thing is changed?
(Not always possible)
- How can you test your prediction as soon and quickly as possible?
Simple & soon is better. How about now? (*Hold before tape before weld*)
- Make sure that failure won't harm anyone or anything. If necessary
build up a buffer before conducting the experiment.
- The experiment must be measureable, so you can see if the prediction
was correct or not.
- Write on the PDCA Cycles Record what you expect to happen
(your prediction) *before* you do the experiment.
- If possible the experiment should build on what was learned in
your previous experiment.

THE STEPS YOU TAKE DON'T COME FROM AN ACTION-ITEM LIST



A chain of PDCA cycles

VERSUS



A preconceived action-item list

Most of the day-to-day steps you take toward the target condition won't come from a pre-determined action plan, Pareto analysis or brainstorming. They come from the chain of rapid and frequent PDCA cycles, where what you learn in one step often leads you to your next step.

Do not stab at an obstacle with disconnected countermeasures in the hope that something will work. Instead, this is how you iteratively work toward and find your way to the target condition by the achieve-by date:

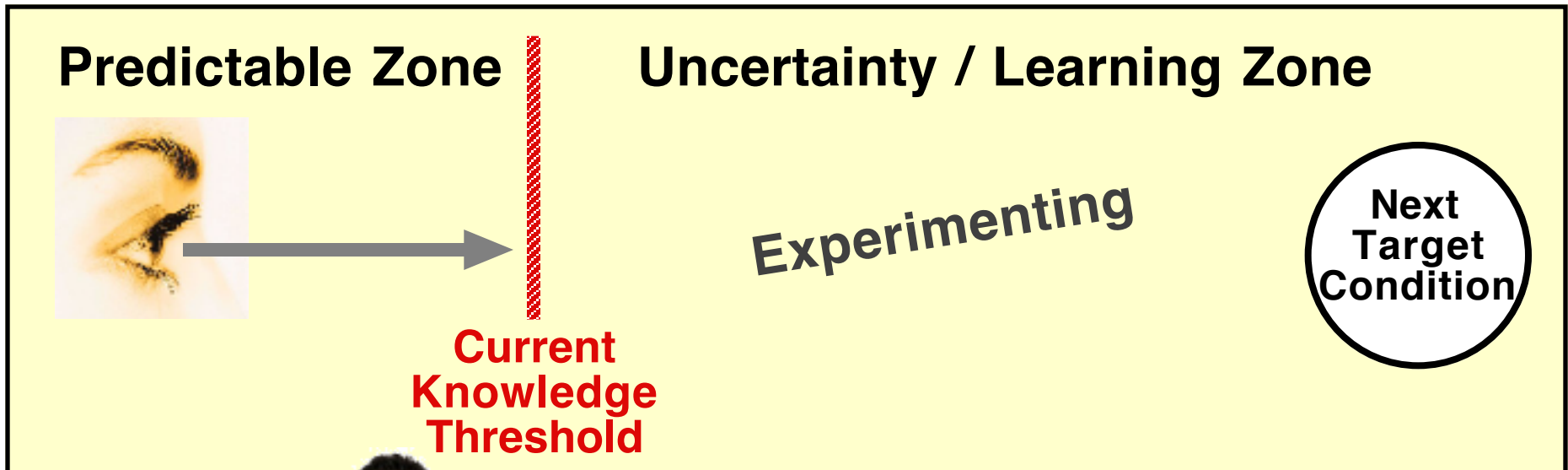
- (1) Only work on those obstacles that you sequentially find are actually preventing you from reaching the target condition.
- (2) Try to work on one obstacle at a time. Plan your steps and reflect on them with the PDCA Cycles Record.
- (3) From each experiment related to the current obstacle you'll gain new information. Use this information to adjust and define your next step toward breaking through the obstacle. Then choose the next obstacle.
- (4) Keep in mind that the target condition's achieve-by date is firm. Do your experiments as fast and frequently as possible.

DO YOUR PDCA_s AT *KNOWLEDGE THRESHOLDS*

Create new learning where the facts run out



This is where you should do your next PDCA experiment



Spot the knowledge threshold, acknowledge it, and conduct your next PDCA experiment here as quickly as possible!

THE NEED TO TEST

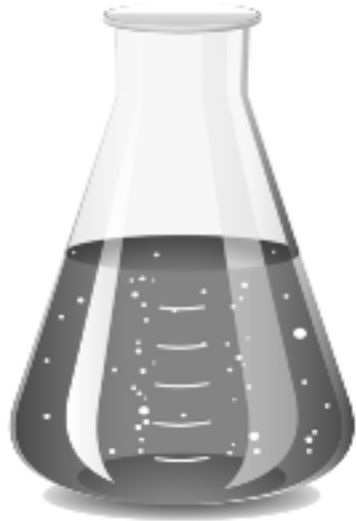
Use whatever information and knowledge you can in order to design your experiments toward the target condition. This includes existing information such as research results.

However, keep in mind that even if you reference existing information, what will end up working for your specific case and target condition is still a grey area where you need to iterate. The information you use, regardless of its source, needs to be tested and verified within the context of your current and target conditions.



IF POSSIBLE DO SINGLE-FACTOR EXPERIMENTS

Also called “Controlled Comparison”

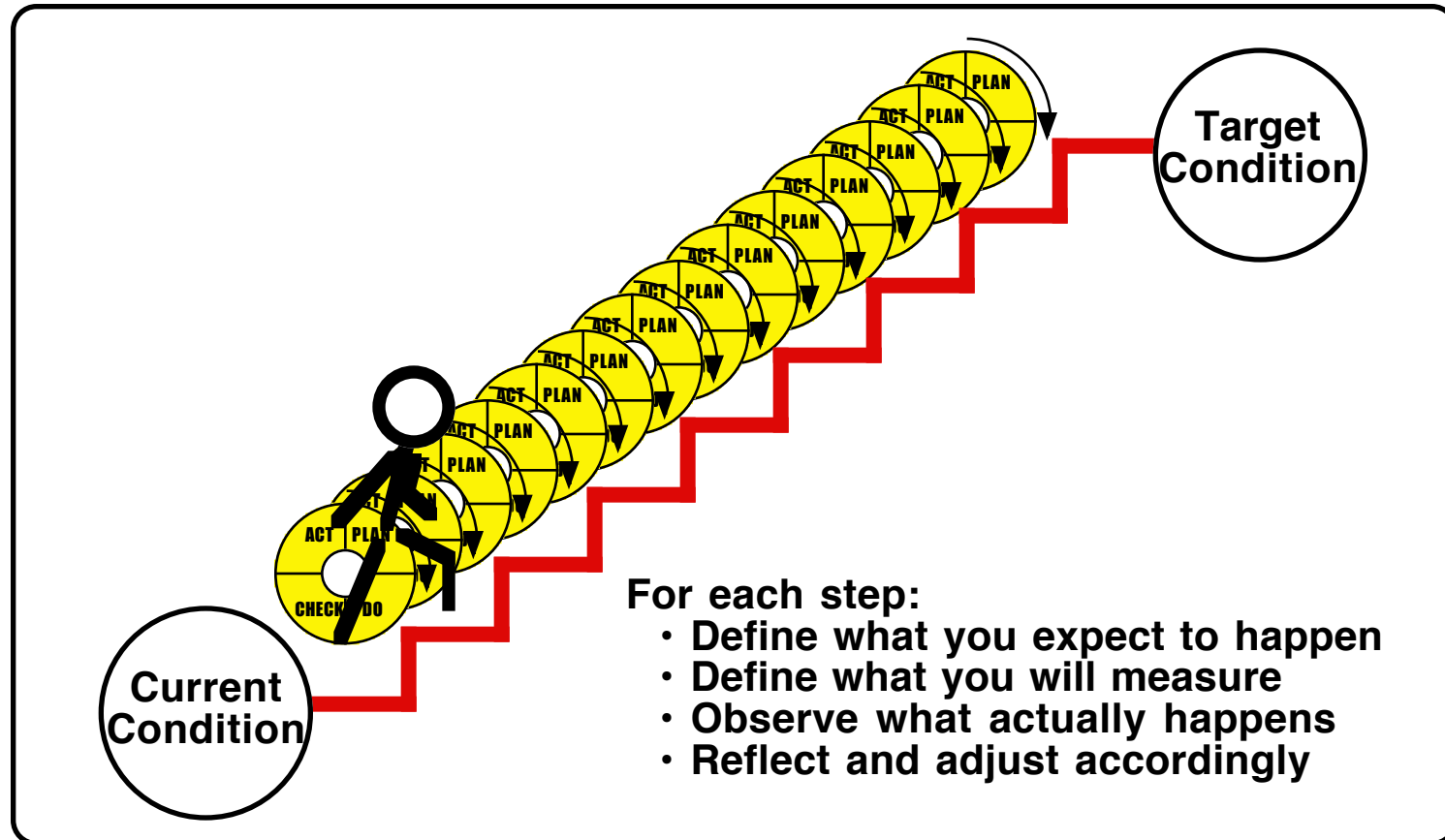


Try to change only one thing at a time and then check the result against the expected result. Such “single-factor experiments” are preferred because they allow you to see and understand cause and effect, which helps you develop a deeper understanding of the process you’re trying to improve. The goal is to learn about the focus process, not just to shut off a problem via a shotgun blast of countermeasures.

Of course, serial rather than parallel countermeasures would be too slow if each PDCA cycle takes a long time. This is another reason why individual PDCA cycles should be turned as quickly as possible.

Single-factor experiments are not the only kind of experiment and not always possible. The table on the next page describes three common types of PDCA experiments.

EACH STEP YOU TAKE = A PDCA CYCLE



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

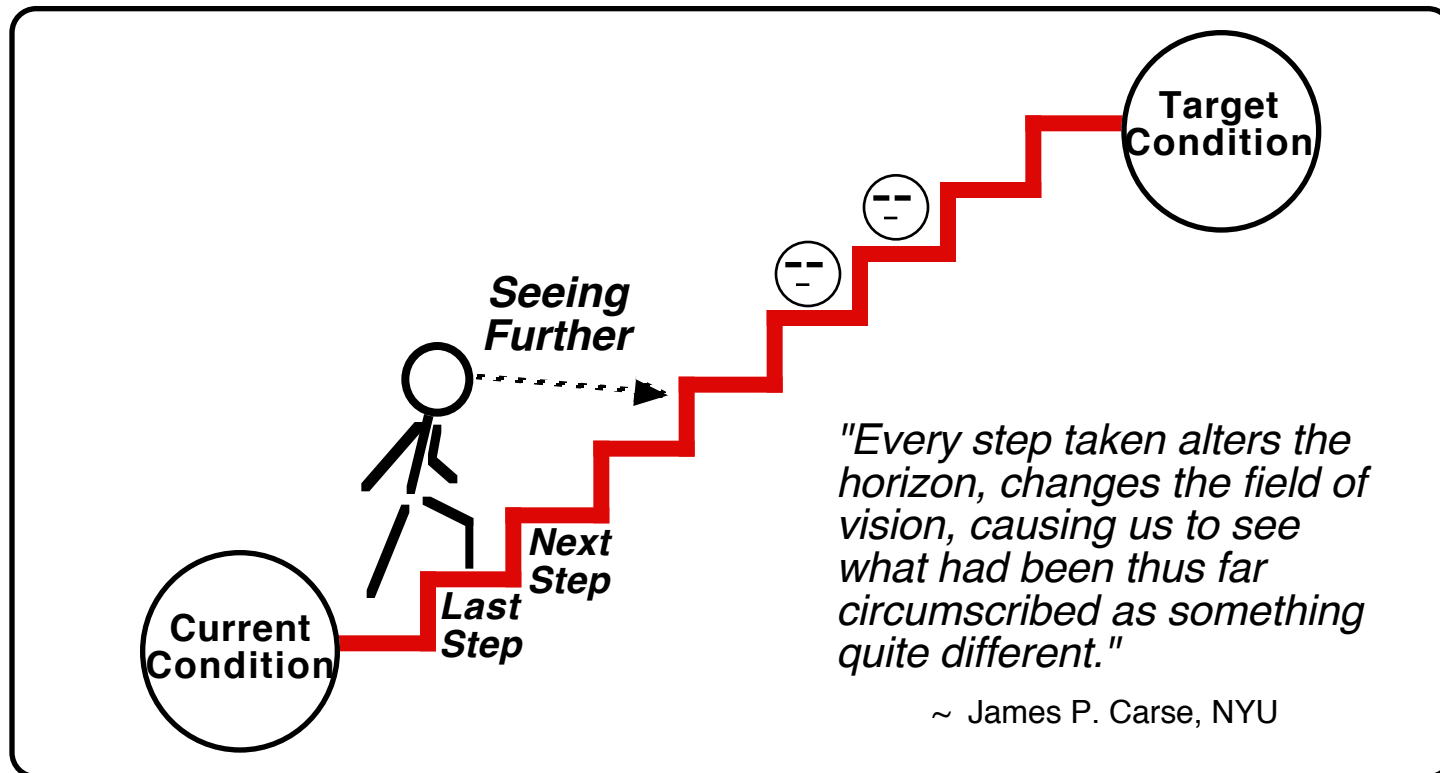
We take that step, observe that the outcome is not what we expected, but then recognize something else that could generate the desired effect. That was a PDCA cycle.

When you experiment... YOU DON'T HAVE TO THINK TOO FAR AHEAD

You don't actually know what the result of the next step will be

Once you have a target condition, concentrate on the next step. What you learn from that will probably influence your next step after that, so be in the moment and apply PDCA.

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

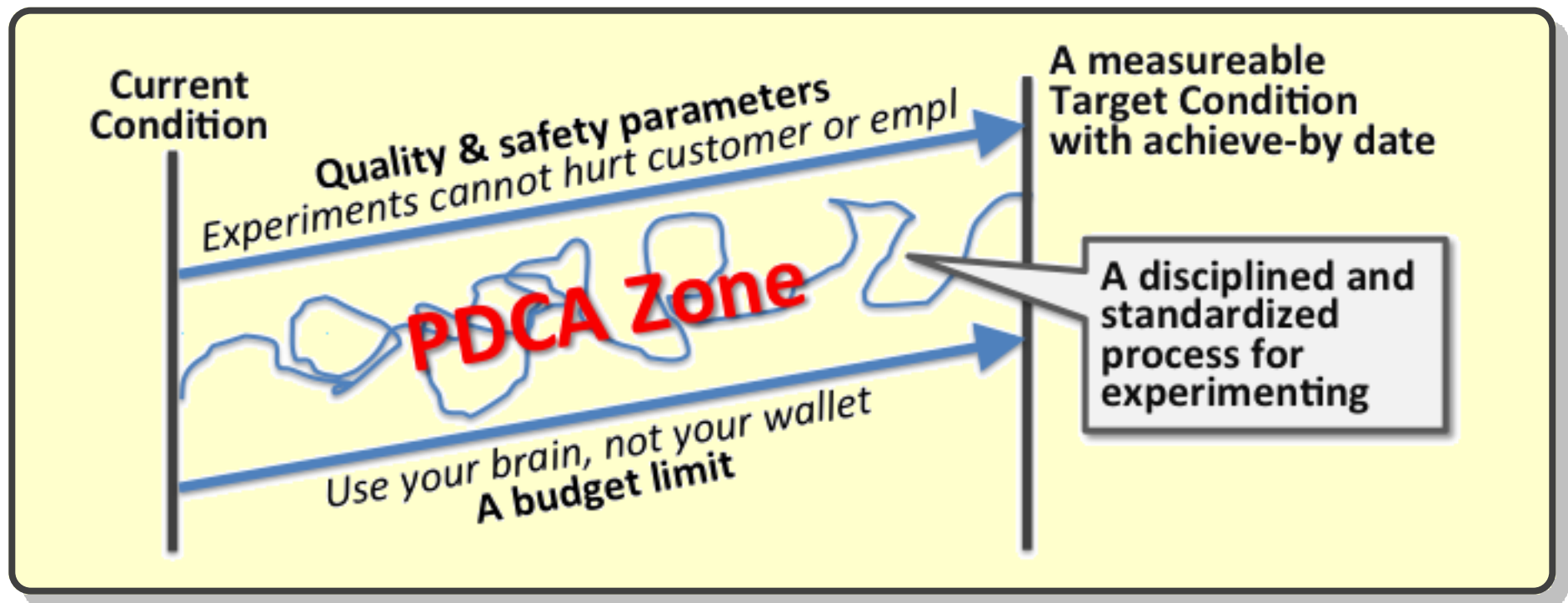


DO YOUR EXPERIMENTS INSIDE THE **PDCA ZONE**

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

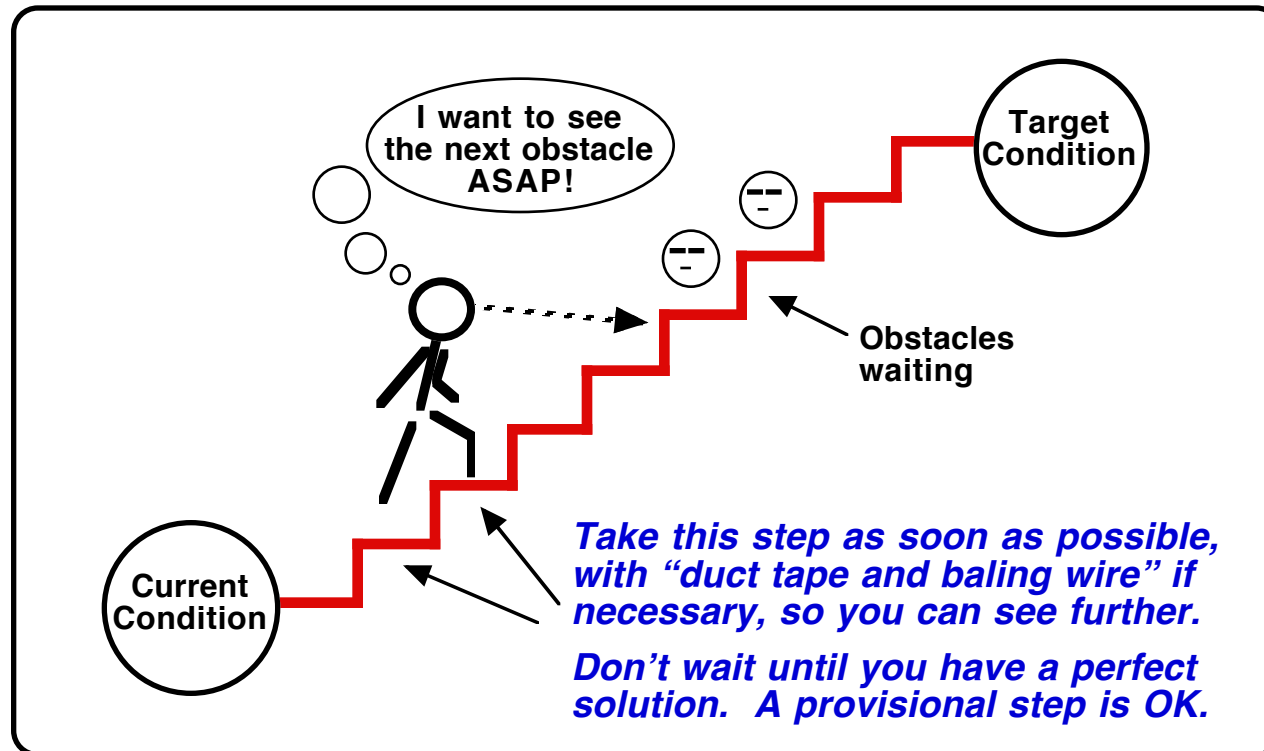
It's *within* these boundary conditions that you and your team design and conduct frequent, rapid, cheap, non-harmful, successive experiments toward the target condition. Experiments are done as cheaply and quickly as possible. For example, think *hold* before *tape* before *weld*.

It's important that there is no penalty for failures inside the PDCA Zone. On the contrary... failed experiments is how we learn!



TRY TO DO THE EXPERIMENT RIGHT NOW, WITH WHATEVER YOU HAVE

Conduct your experiment as quickly and cheaply
as possible by asking, *can we do it right now?*



The results of experiments are what help you see beyond the current knowledge threshold, uncover true obstacles and find the way forward. You'll see the next step and maybe the next obstacle after taking a step, so take that step ASAP.

EXAMPLE OF 3 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 be an experiment, as long as a prediction of "what the Learner expects" is made on the PDCA Cycles Record. The following hierarchy goes from less to more scientific. All are acceptable.



1) Go and See

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



2) Exploratory Experiment

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

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



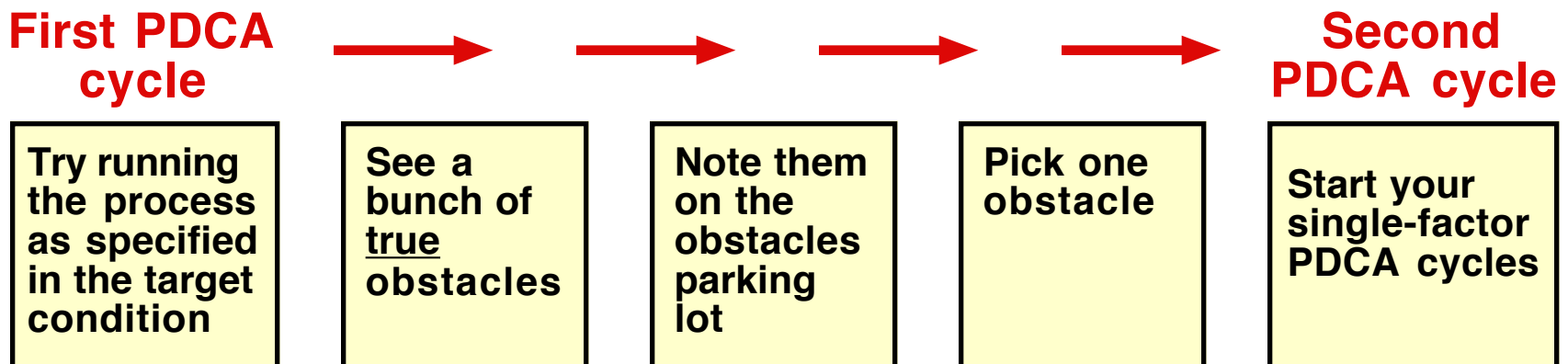
3) Testing a Hypothesis

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

WHAT SHOULD YOUR FIRST STEP BE?

The first experiment is often an exploratory experiment

One elegant tactic for a first step is to try to run the process as described in the target condition. We already know it won't work, but you are at a knowledge threshold right now. That is, you may only have conjecture about what first step to take. An exploratory experiment like this gets *true* obstacles to reveal themselves, so you know *scientifically* what you *need* to work on.



CHECKLIST FOR **EVALUATING** THE RESULTS OF AN EXPERIMENT

- ❑ To check the results of an experiment you may need to observe and measure several cycles.
- ❑ Evaluation has two phases:
 - 1) Compiling the facts and data from the experiment (“Check”)
 - 2) Forming conclusions based on the facts and data. (“Act”)Maintain a clear distinction between recording the facts / data, and interpreting the results.
- ❑ There are several possible outcomes, for instance:
 - > The results support your prediction and you can standardize the step.
 - > The results do not support your prediction. (Interesting!)
 - > The results came close and you can see what you have to try next.
 - > You can't tell and need more information.
- ❑ It is not unusual for more than 50% of the experiments to fail. The benefit you get is learning from them what you *need* to focus on and do to overcome the obstacle.
- ❑ When an experiment is successful you may need to think about how to standardize the change you made.
- ❑ It's a good idea to reflect on what could you have done differently to improve your experimental procedure.

PREPARING FOR A COACHING CYCLE AFTER EACH EXPERIMENT

Instructions for the Learner

1. Record data about what actually happened **(B)**.
2. Compare the prediction you recorded before the experiment **(A)** and the data from the experiment **(B)**. Summarize what you learn **(C)**.
3. Taking all of that in, decide what you propose for the next step (the next experiment), and what you expect **(D)**. Use the Planning Checklist to help you design a good experiment.

PDCA CYCLES RECORD <small>(Each row = one experiment)</small>			
Obstacle:		Process:	
		Learner:	Coach:
Date, step & metric :	What do you expect?	What happened	What we learned
A		B	C
D			

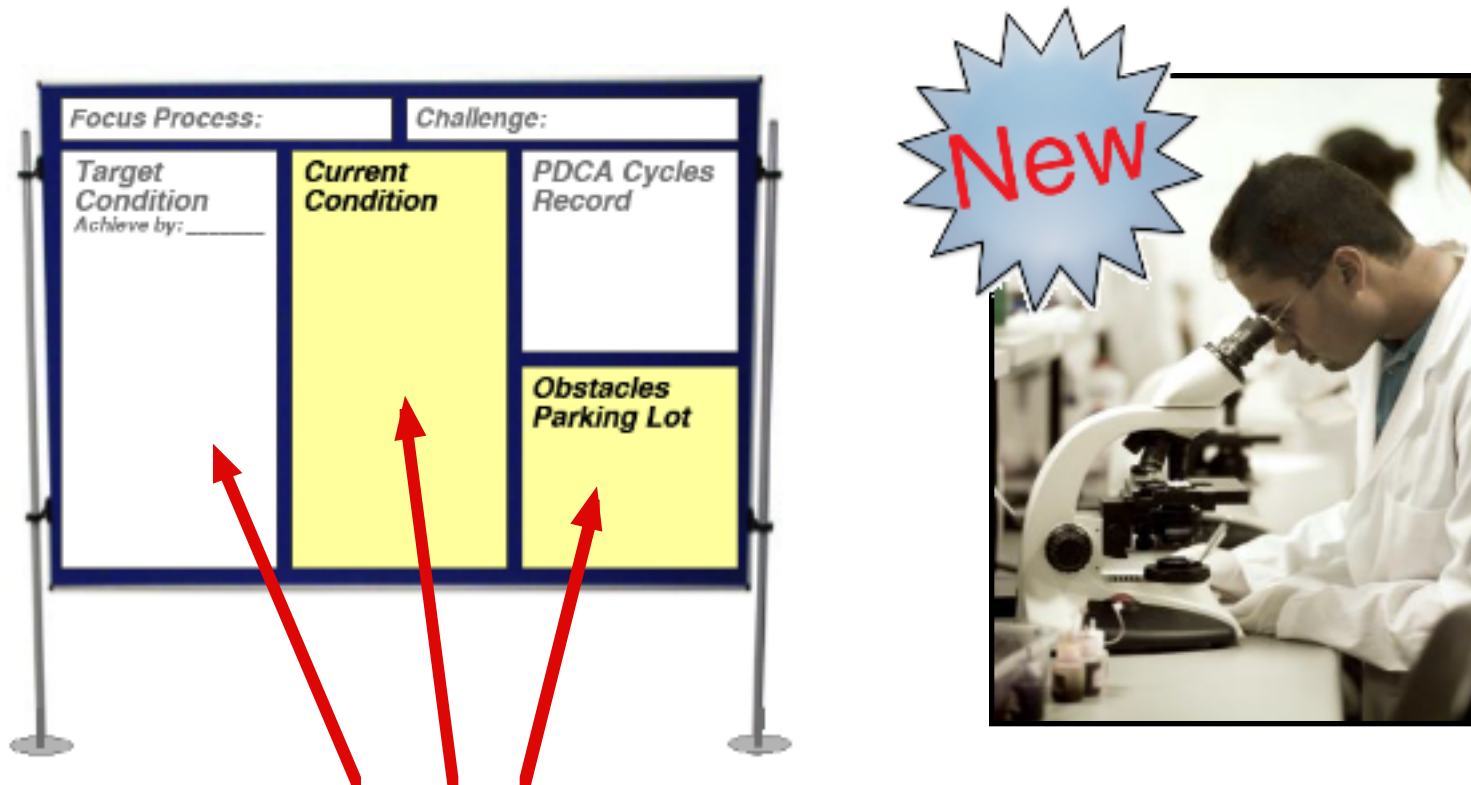
Prediction Side

Evidence Side

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 accept the proposed next step (next experiment), or give feedback to help improve the design of the next experiment.

NOW UPDATE YOUR STORYBOARD

The current condition may be new after each experiment



Any time you make a change in a process, it's now a new process that has a new current condition.

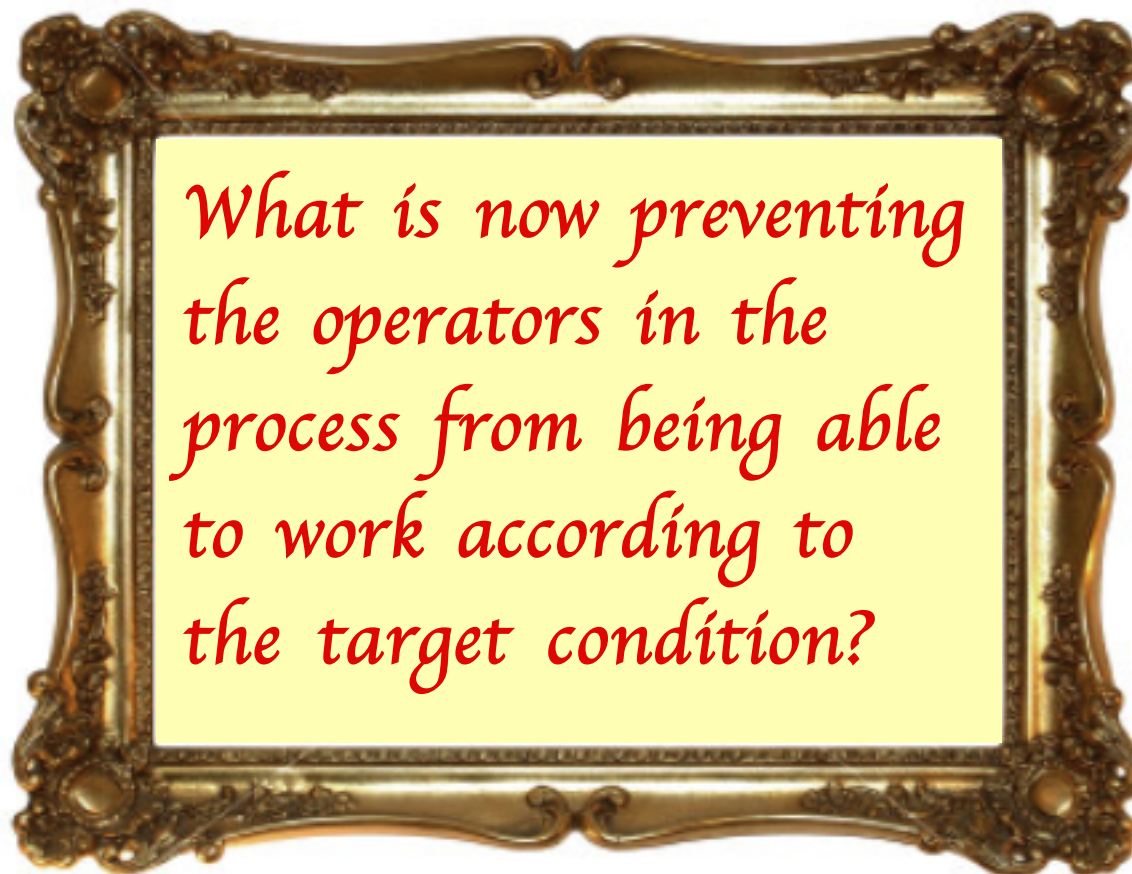
- Update the facts and data in the **“Current Condition”** field of your storyboard before the next coaching cycle.
- Also update the **“Obstacles Parking Lot,”** if new obstacles were discovered or listed obstacles are no longer an issue.
- You can also add detail to the **“Target Condition”** as you learn.

COACHING CYCLE: Answering the Coach's Questions

0	What is the challenge?	Explain what you understand the overarching challenge to be, which comes from the level above you.
1	What is the target condition?	Read through the description of the target condition that's posted on your storyboard. Point to the items as you read. The TC should be measureable and have an achieve-by date.
2	What is the actual condition now?	Read through the facts, data and diagrams of the current condition as it is now (not the initial current condition) that's posted on your storyboard. Point as you read.
REFLECTION	What was your last step?	Read the first box on your PDCA Cycles Record.
	What did you expect?	Read the second box on your PDCA Cycles Record.
	What actually happened?	Read the third box on your PDCA Cycles Record.
	What did you learn?	Read the fourth box on your PDCA Cycles Record.
3	What obstacles do you think are preventing you from reaching the target condition? Which *one* are you addressing now?	Read through the items on your Obstacles Parking Lot. Stick an arrow pointing at the obstacle you are currently working on, and point to this obstacle.
4	What is your next step? (next PDCA experiment) What do you expect?	Read the first and second boxes in the <u>next row</u> of your PDCA cycles record. Use the “Checklist for Planning PDCA Cycles” to help you plan and explain your next experiment.
5	When can we go and see what we have learned from taking that step?	Date and time you propose for the next coaching cycle. The Coach will encourage you to do the experiment as soon as possible. Agree on the facts & data you'll bring to the next coaching cycle.

If possible *show* your Coach at the focus process what you're talking about

ASK YOURSELF THIS QUESTION AFTER EACH EXPERIMENT

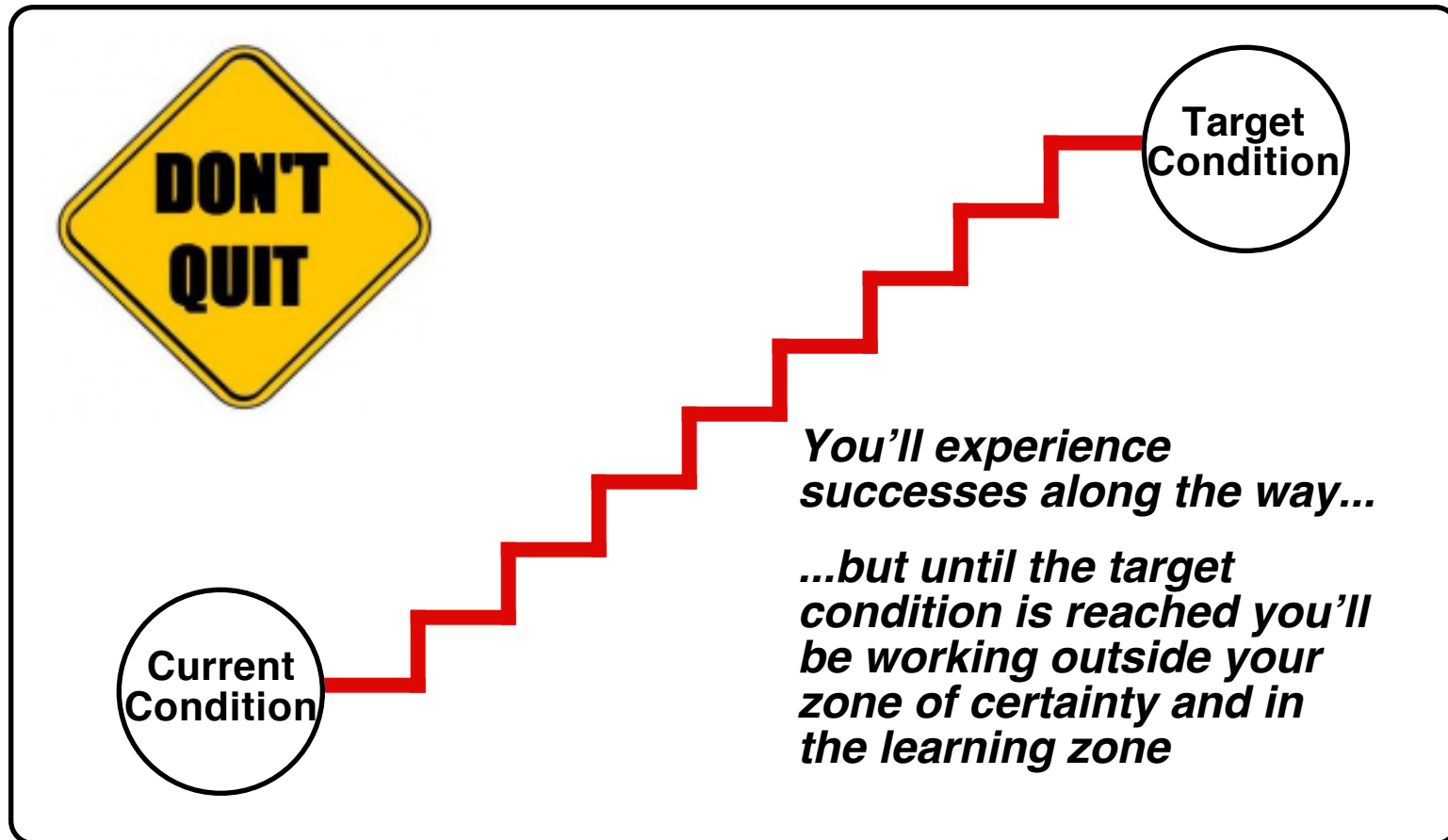


*What is now preventing
the operators in the
process from being able
to work according to
the target condition?*

**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.



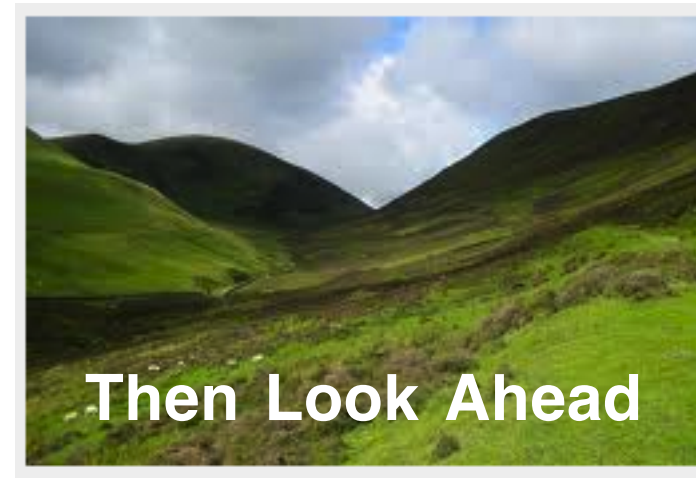
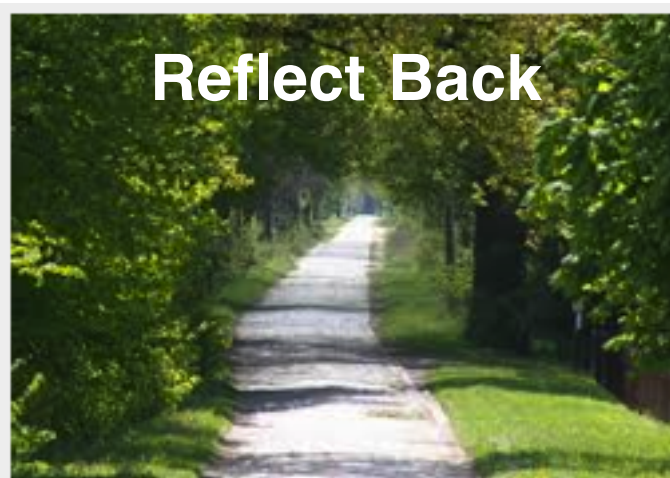
WHEN YOU REACH THE ACHIEVE-BY DATE

At some point you'll reach the target condition achieve-by date, often, but not always, having achieved your target condition. At this point you should pause and:

- Do a summary reflection, i.e. a major reflection over the entire process. This can lead to lots of learning that may be applied in the next cycle through the Improvement Kata pattern.

Then:

- Revisit the overall direction or challenge
- Grasp the current condition as it stands now
- Establish the next target condition



Remember, you'll most likely move through several target conditions in order to achieve the challenge



Special Cases: WHAT ABOUT EXPERIMENTING WITH LONG-CYCLE PROCESSES?

The time it takes to conduct an experiment is often related to the cycle time of the focus process you're working on. The longer the process cycle, the longer the PDCA cycle, especially since you ideally need more than one data point. This can slow your learning, since you can't see further (beyond the knowledge threshold) without actually trying your next idea in some way.

Processes with very long cycles or that operate infrequently...

- May not be available very often, making it difficult to observe the process.**
- May mean that running an experiment can take days.**
- Make it difficult to do single-factor experiments, because when the rare chance to test arises the Learner may naturally want to test several factors at once.**

EXPERIMENTING WITH LONG-CYCLE PROCESSES

When you're faced with a difficult process the question is not whether you *should* experiment, but *how*

How do you accelerate testing in infrequent processes with extended cycle time -- like some administrative and chemical processes -- to gain knowledge in a rapid, low cost way?

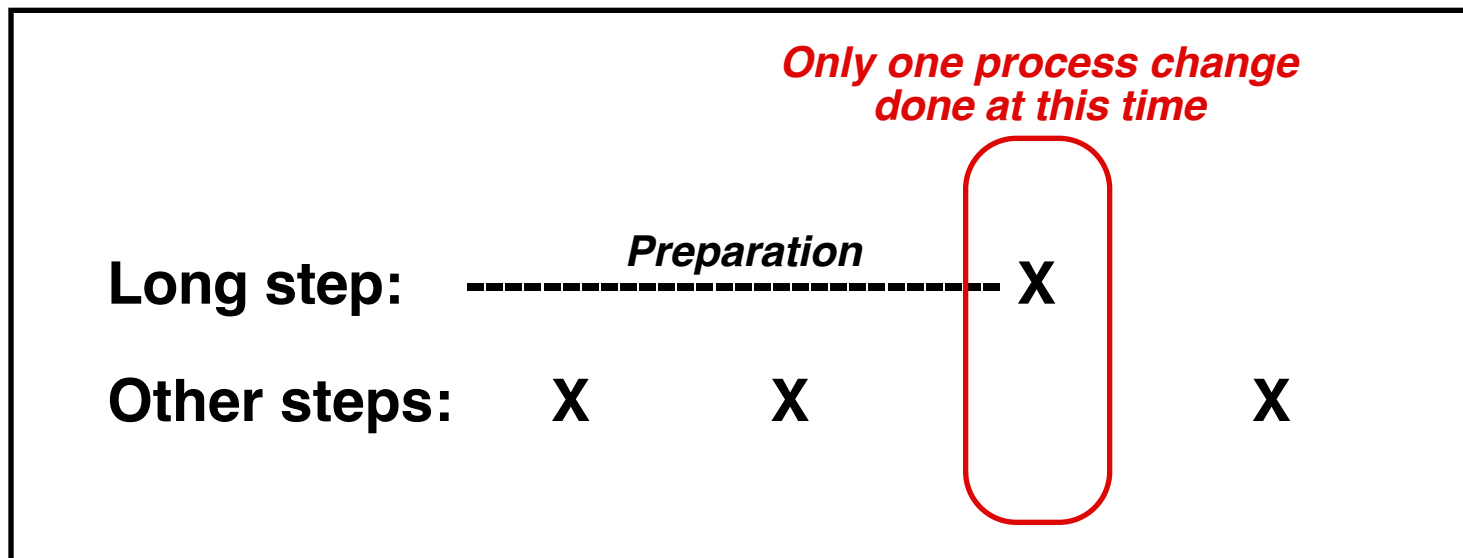
In these cases experiments often involve some type of parallel 'laboratory' simulation. The question becomes, "*How can we artificially test this step or idea more quickly?*" This approach involves conducting a series of rapid, low-cost simulation experiments (one per day for instance) in between less-frequent experiments on the actual process. You gain several learnings in the interval between actual process cycles, which culminate in one "big" experiment at the actual process under real conditions, to get information that can only come from the real process.

WHAT IF AN EXPERIMENT TAKES A LONG TIME TO PREPARE?

You can work in parallel when one step will take a long time to prepare. However, you should still try to change only one thing at a time in the focus process, to help you understand cause-and-effect.

Here's a way to work in parallel in this situation.

(X = a step/experiment)



PART III: The Coaching Kata

These are the Coach's Practice Routines

The role of the Coach is managing the Learner's practice

Why do you need a Coach? Because alone we don't see the errors in our practice and thus don't correct them!

To help the Learner become more proficient in using the pattern of the Improvement Kata -- to make it a habit -- the Coach pays attention to the Learner's current application of the Improvement Kata and sets specific practice goals for improving targeted aspects. The Coach keeps the Learner moving ahead in skill development and ensures the Learner is successful in using the IK pattern to navigate uncertain territory and achieve a challenging target condition.

PART III of the Handbook are practice routines for coaching someone who is practicing the Improvement Kata pattern.

PART III OF THE HANDBOOK HAS 2 CHAPTERS

Chapter 8. Guidelines for IK Coaches

Chapter 9. Practice Routine: How to Do a Coaching Cycle



CHAPTER 8 presents a set of guidelines for coaching the Improvement Kata pattern. This is the Coaching Kata style of coaching.



CHAPTER 9 provides step-by-step instructions for how to practice daily coaching cycles in the **EXECUTING** phase of the Improvement Kata.

Chapter 8

The Coaching Kata - 1

GUIDELINES FOR IMPROVEMENT KATA COACHES



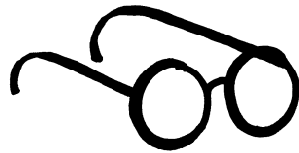
ORIENTATION

Planning

Understand the Direction



Grasp the Current Condition

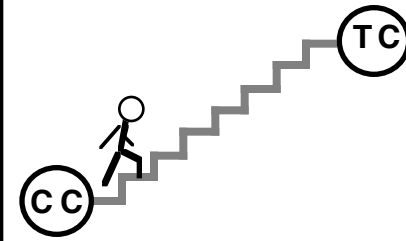


Establish the Next Target Condition



Executing

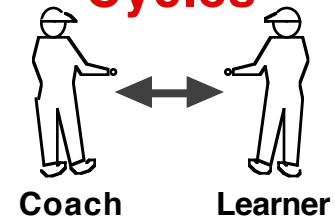
Iterate Toward the Target Condition



You Are Here

'Planning' Coaching Cycles

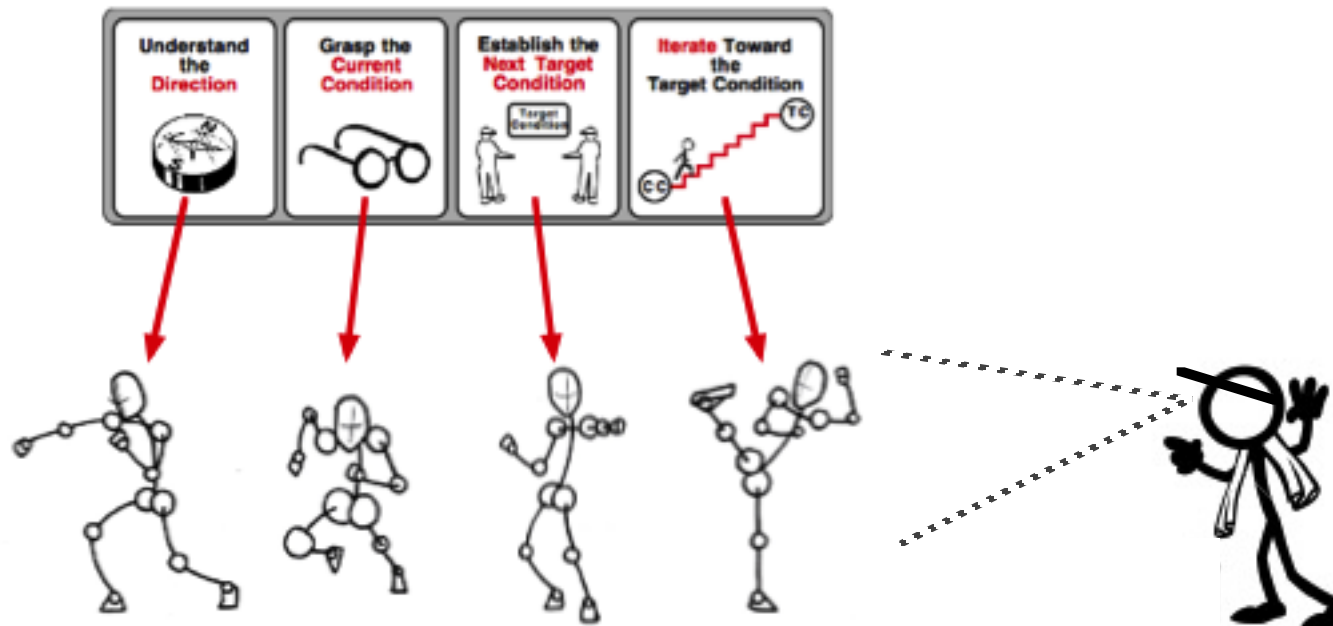
'Executing' Coaching Cycles



A KEY POINT ABOUT THE COACHING KATA

The Coaching Kata is a practice routine that's specific to teaching a scientific thinking pattern like the Improvement Kata pattern. It is not a general coaching routine.

The IMPROVEMENT KATA PATTERN (the scientific approach)



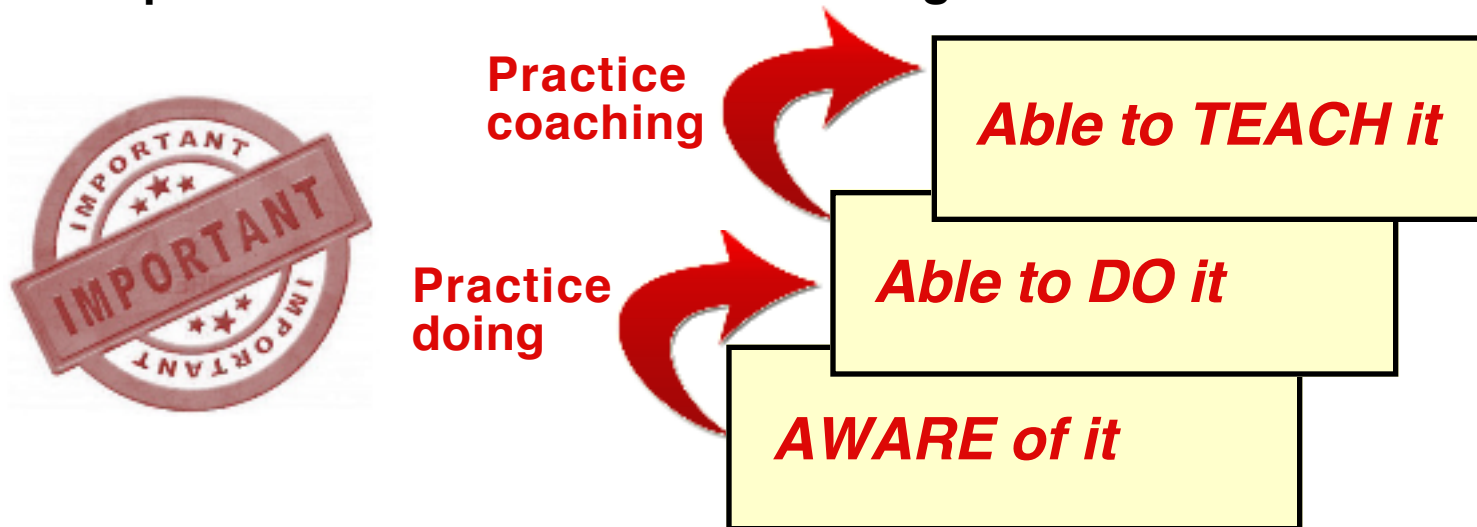
These are specific **PRACTICE ROUTINES** to acquire / develop the scientific pattern of thinking and acting
(HANDBOOK PART II)

The **COACHING KATA** is a practice routine for learning how to teach the Improvement Kata pattern
(HANDBOOK PART III)

QUALIFICATIONS FOR BEING AN IMPROVEMENT KATA COACH

The knowledge and experience an IK/CK Coach needs:

- ❑ 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 to know both the Improvement Kata and the Coaching 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.

JOB DESCRIPTION FOR AN IK COACH

Just practicing a series of steps is not enough for the Learner to develop new skills and mindset. The Learner's emotions during their practicing also play a large role.

Specifically, an important ingredient is the Learner's success and joy in (a) overcoming obstacles and achieving an appropriately challenging target condition through application of the Improvement Kata pattern, and (b) progressively mastering the Improvement Kata pattern.

To cope with the discomfort, plateaus and setbacks that come with any skill-building and learning process the Learner needs support. The Coach helps the Learner see when s/he might be acting in ways counter to their skill-building goals and to design practice activity to make new progress.

Your objective as a Coach is not just that the Learner achieves the target condition, but that the Learner is able to and *wants to* use the Improvement Kata pattern. With this in mind, a job description for an Improvement Kata coach, especially with beginner Learners, is:



MANAGE THE LEARNER'S PRACTICE. Accompany the Learner and give procedural guidance as needed to ensure that although the Learner struggles, s/he is successful in learning to use the Improvement Kata pattern to achieve challenging, real target conditions.

In other words, the Coach is responsible for the Learner's success.



COACHING IS ONE ON ONE

One Coach, one Learner

Coach your Learners one at a time, not in groups of Learners:

- **Each Learner will have different focus-practice needs at different times.**
- **Different Learners learn at different rates.**
- **Different Learners learn in different ways.**

An experienced Coach can guide several Learners, one at a time:

- > Since a coaching cycle only takes 10-15 minutes, you will be able to meet with multiple Learners every day.**
- > The standard format of the Five Questions, PDCA Cycles Record and Learner's storyboard make it easier for you to shift from coaching one Learner to the next.**

STAGES OF YOUR COACHING KATA PRACTICE

You're going through a coaching-skill learning process

STAGE 1: PRACTICE THE COACHING KATA EXACTLY

At first you repeat the forms with discipline, executing the kata without variation. It may feel awkward when you start, but as you go through repetitions it becomes more flowing.

Any time you learn a new skill you're a beginner in that area, which means starting with some repetitious exercises.

STAGE 2: PERSONALIZE YOUR COACHING KATA PRACTICE

Once the basic forms have been absorbed and can be executed successfully you can make modifications to your practice. You now appreciate and use the kata because you understand the technical wisdom -- the "why" -- within them, and you adapt the patterns to your situation.

STAGE 3: INTUITIVE OPERATING

At this stage you've absorbed the patterns of the kata to such an advanced level that you can be creative and unhindered -- spontaneous and efficient -- while still working within the principles. The underlying truth of the kata remains, but you almost forget the technique and aren't limited by a conscious thought process. Your mind can now operate on a higher level than previously possible.



COACHING IS DONE THROUGH DAILY “COACHING CYCLES”

A coaching cycle is a structured face-to-face dialog between the Coach and the Learner that is conducted at least once daily, taking 10-20 minutes. This is the Coach’s primary routine for teaching scientific thinking.



A coaching cycle is used to guide the Learner through the steps of the Improvement Kata by providing procedural inputs and course corrections as the Learner applies the Improvement Kata pattern step-by-step to a challenging, real situation.

Note that problem solving does *not* happen in a coaching cycle. The coaching cycle is a pause; i.e., a forum for the Coach and Learner to reflect on the last step, introduce course corrections if necessary, and plan the next step.

Coaching cycles give managers and supervisors a structured approach for (1) facilitating the development of Improvement Kata skill and self-efficacy in their Learners and (2) further developing their own coaching skills.



COACHING CYCLES ARE USED TO TEACH THE IMPROVEMENT KATA PATTERN

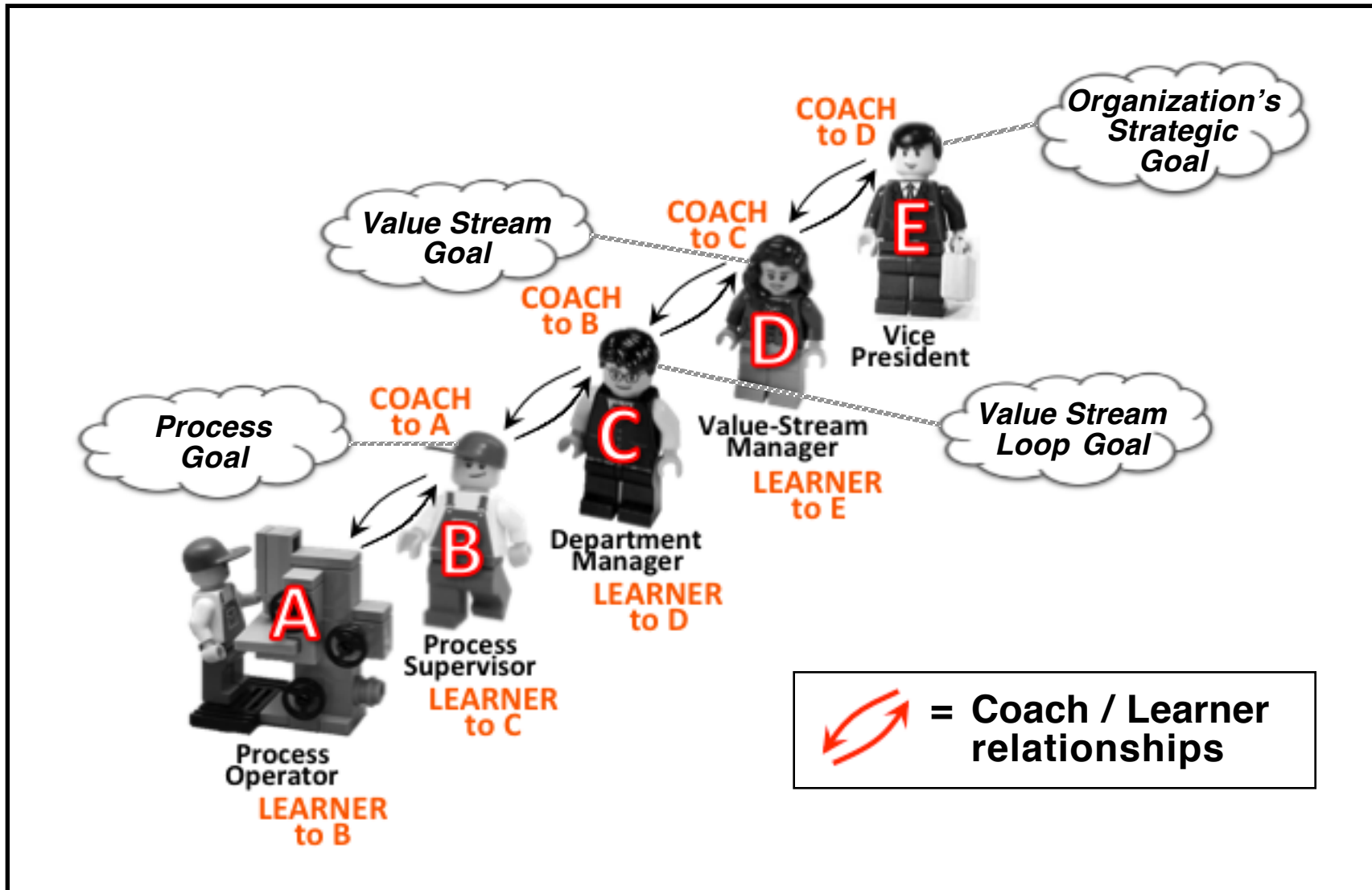
Coaching cycles are used to guide the Learner through the steps of applying the Improvement Kata pattern to a real work process. They are a way to guide and give feedback to Learners in their Improvement Kata practice.

COACHING CYCLES ARE A FORUM FOR:

- Assessing the current status of:
 - (a) The Learner's thinking
 - (b) The focus process.
- Finding the current Knowledge Threshold.
- Giving procedural guidance:
 - (a) To help the Learner be successful in designing and achieving a real, measureable, challenging, dated target condition through application of the Improvement Kata pattern.
 - (b) To help the Learner internalize the Improvement Kata pattern in a learn-by-doing manner.
- Practicing and improving your coaching skill.



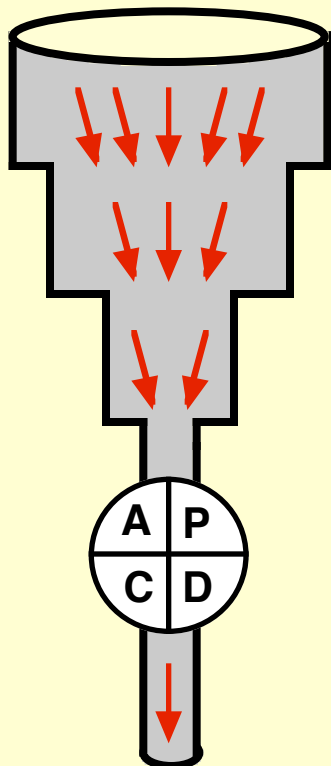
COACHING CYCLES ARE CONDUCTED UP-AND-DOWN AN ORGANIZATION





COACHING CYCLES ARE BUILT AROUND *THE FIVE COACHING KATA QUESTIONS*

These Five Questions = One Coaching Cycle



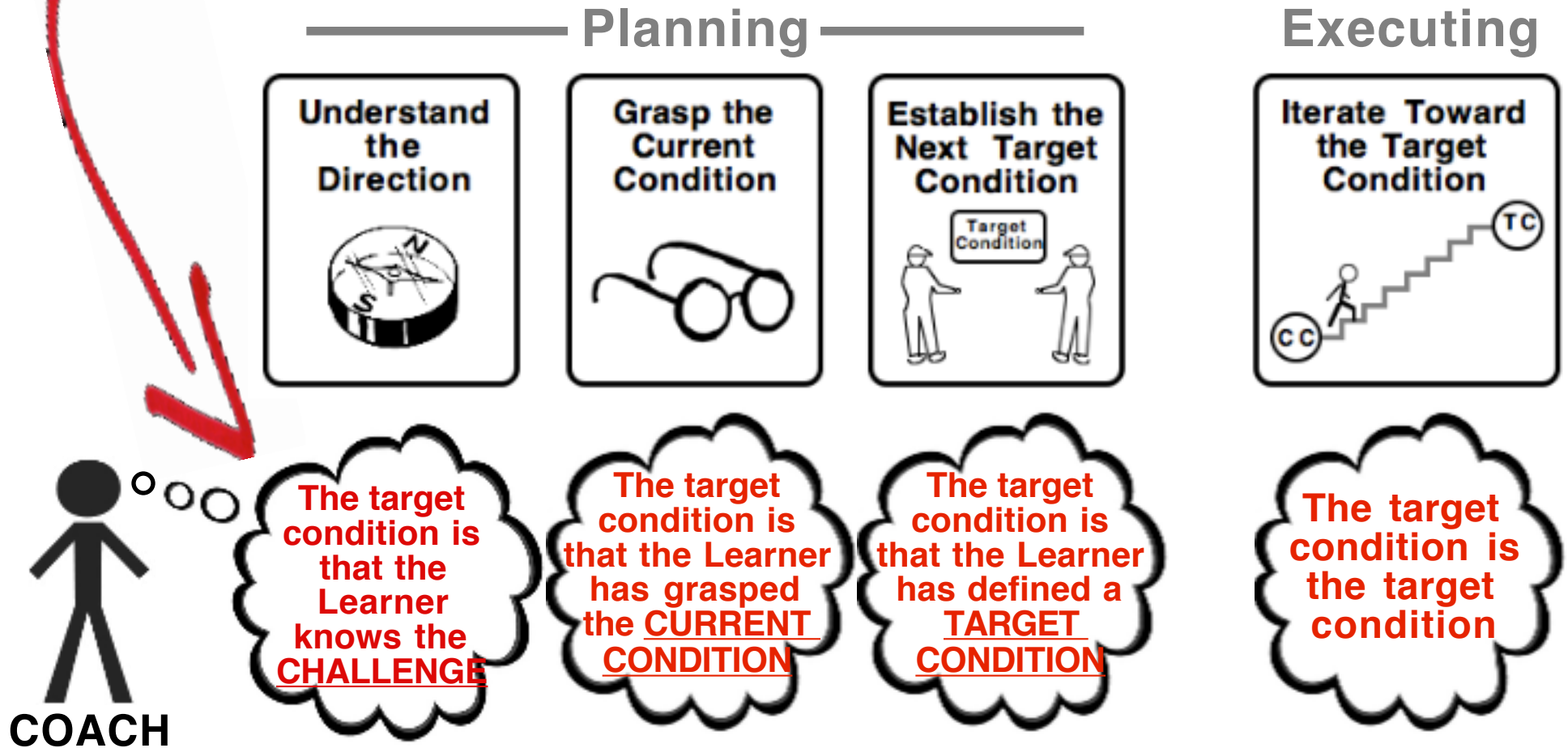
- 1) What is the target condition?
- 2) What is the actual condition now?
-- (Then reflect on the last step) --
- 3) What obstacles do you think are preventing you from reaching the target condition?
Which **one** are you addressing now?
- 4) What is your next step? (next experiment) What do you expect?
- 5) When can we go and see what we have learned from taking that step?

The power of these Five Questions is great, when you know how to ask them and how to respond to the answers you get.



THE COACHING KATA MINDSET

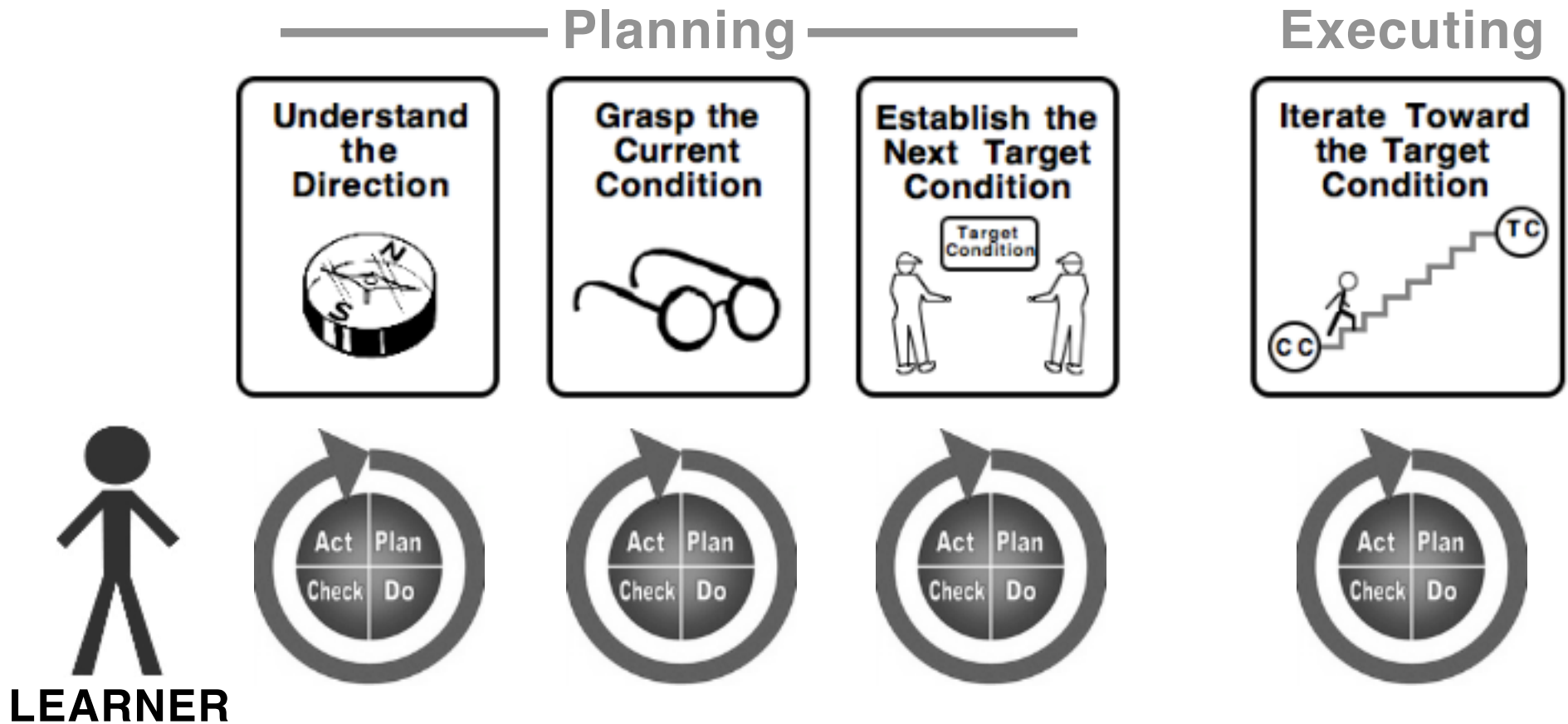
The Five Coaching Kata Questions stay the same, but the **Target Condition** changes as the Learner goes through the four steps of the Improvement Kata.





THE COACHING KATA MINDSET

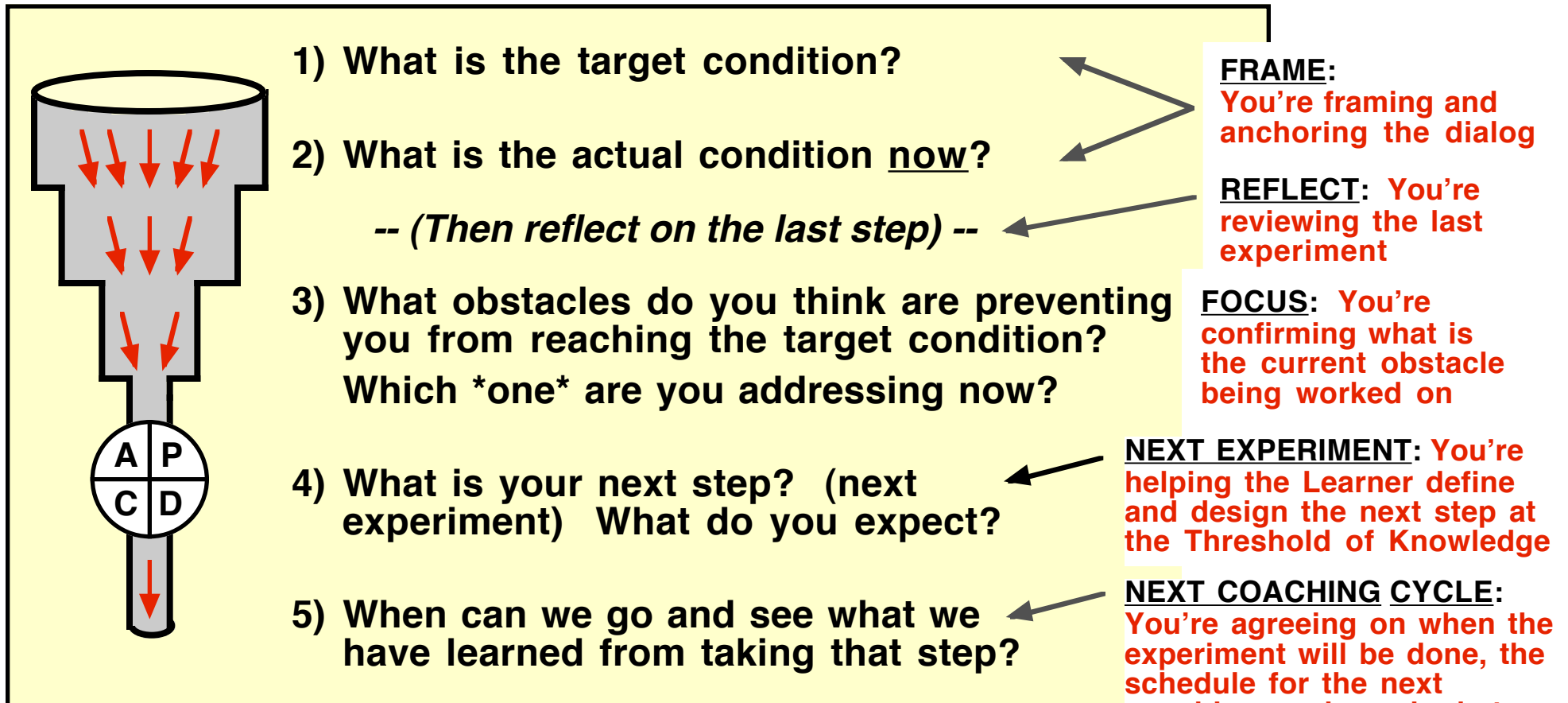
In each step of the Improvement Kata, the Coach conducts Coaching Cycles to guide the Learner through the practice routines prescribed for that step. The Learner uses those routines in iterating toward the target condition of that step.





EACH COACHING CYCLE SHOULD LEAD TO AN EXPERIMENT* (A NEXT STEP)

Identify the Threshold of Knowledge & conduct the next experiment there, to see beyond that point with facts and data



*(Remember, an *experiment* is a learning-experience that doesn't necessarily involve making a change. For instance, further analysis or go-and-see qualify as experiments.)

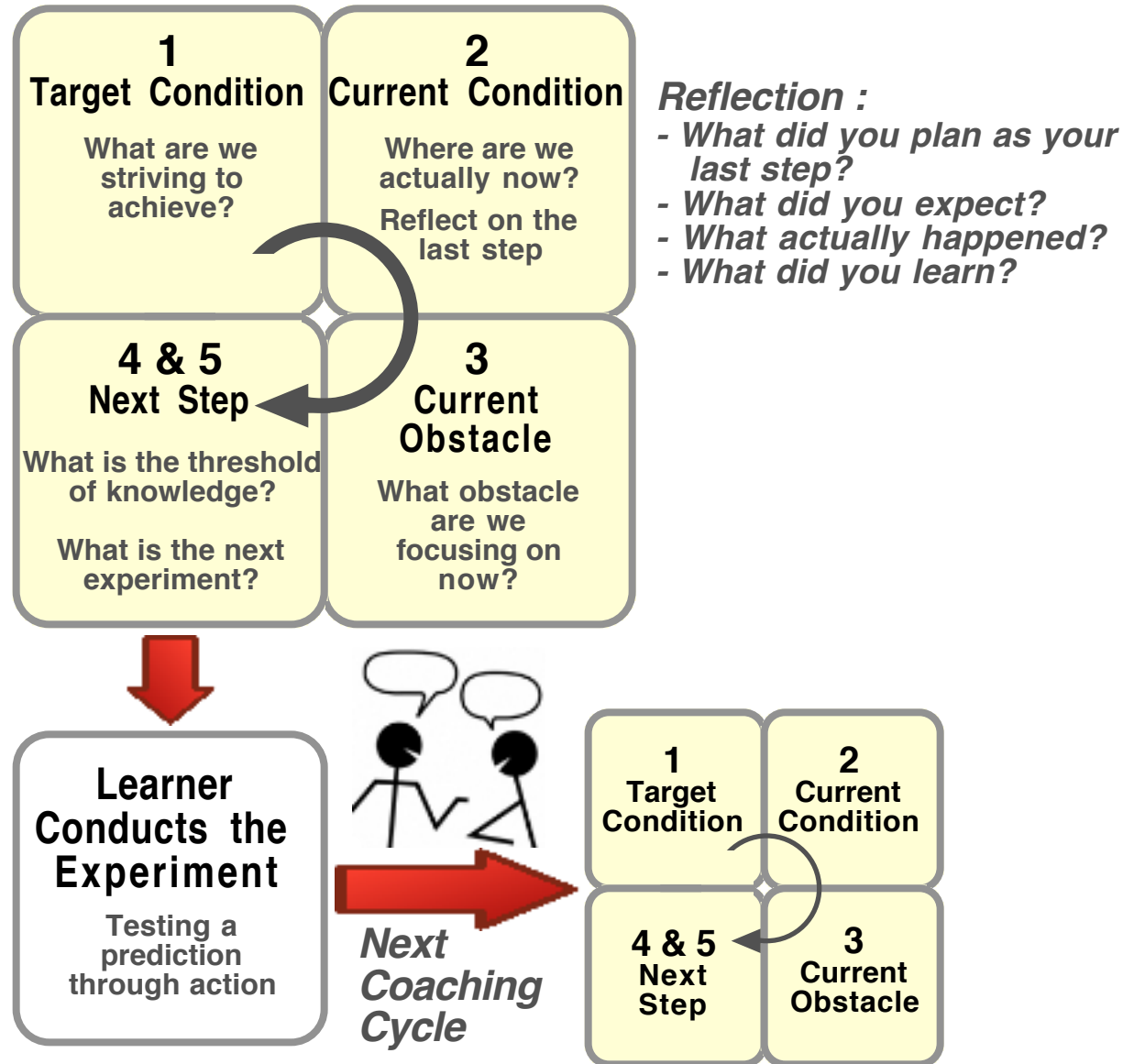


THE COACHING-CYCLE PATTERN

Follows the Five Coaching Kata Questions



The Five Coaching Kata Questions follow a scientific pattern of thinking and acting, and provide a structured practice routine for both the Coach and the Learner.



Based on a diagram by Don Clark



MASTERING THE 5 COACHING KATA QUESTIONS HELPS YOU ACHIEVE SEVERAL THINGS

- Helps you determine if the Learner's thinking is inside or outside the 'corridor' specified by the Improvement Kata pattern.
- You put the focus on facts and data; on what we know and not just opinions.
- You guide a process of experimenting, whereby the Learner compares predicted and actual outcomes, and adjusts the course accordingly.
- You teach a systematic process for learning.
- You impart importance and urgency.

The Five Coaching Kata Questions...

--> Should be used at all levels of an organization to help create scientific thinking. They hold everyone to the same standard of requiring data from experiments for decision-making.

--> Don't demand that you know all the answers when you start. You proceed through experiments, each based on what you learned in the previous step.

--> Their structure is easy to learn, although it takes practice to master them.



THE FIVE-QUESTION CARD

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 experiment) What do you expect?
- 5) When can we go and see what we **Have Learned** from taking that step?

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

Back of card - Reflection Section

Reflect on the Last Step Taken

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

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

----->
Return

The card is turned over to reflect on the Learner's last step





KEEP YOUR FIVE-QUESTION CARD IN HAND DURING A COACHING CYCLE

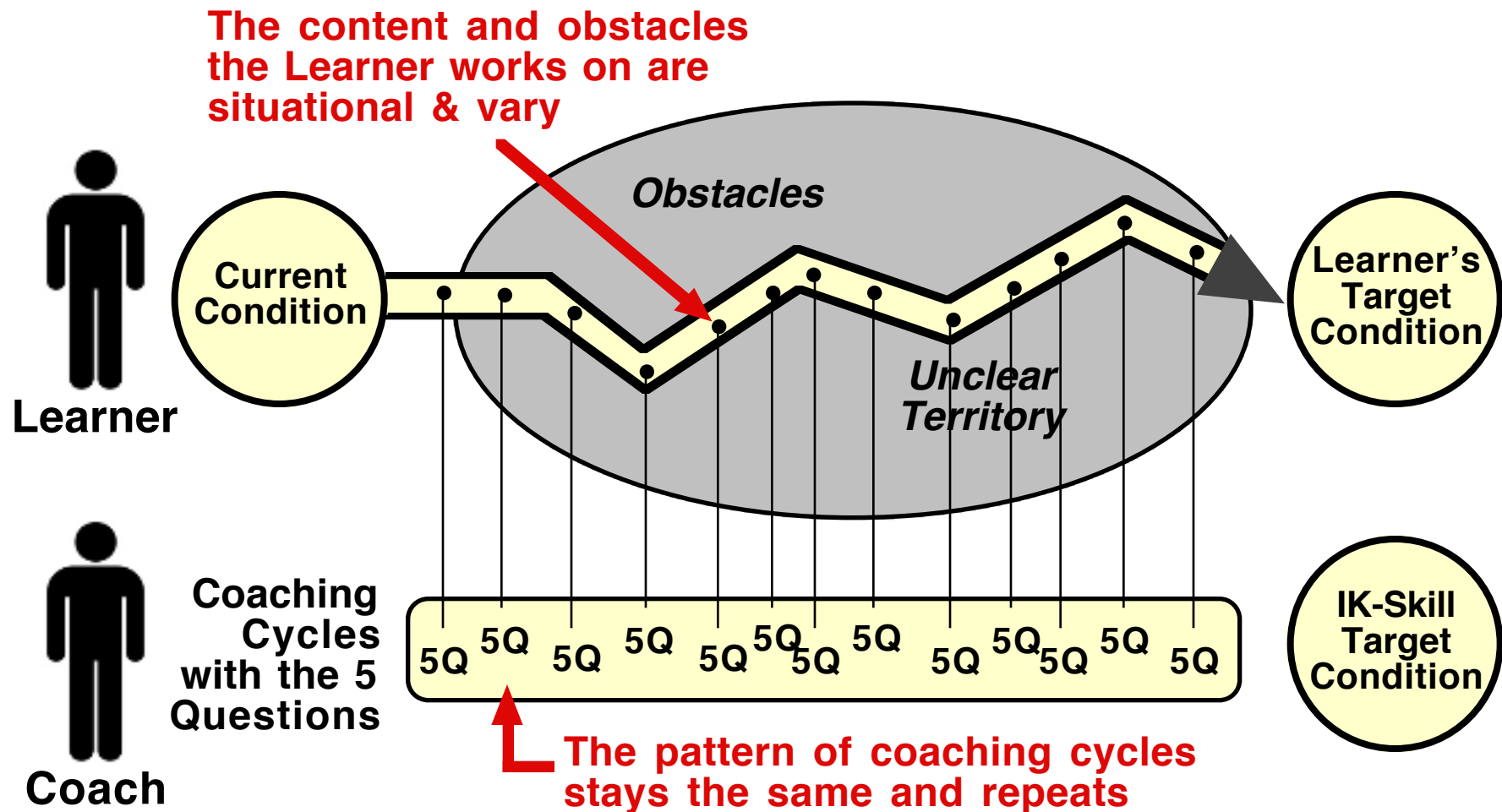


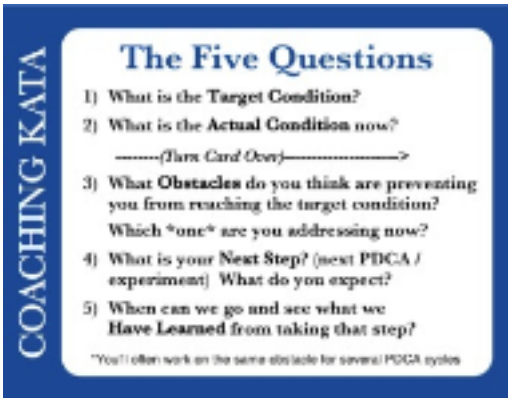
The 5Q Card is available
as a free download on the
Toyota Kata Website

- The card is your script for conducting coaching cycles.
- The card helps you acquire the habit of the coaching pattern, especially in Phase 1 of your coaching practice.
- In each coaching cycle you'll ask all questions on the front and back of the card, one at a time.
- **You're teaching the Learner a systematic, scientific way of thinking by using the same pattern of enquiry in every coaching cycle.**
- Be sure the Learner has a Five-Question Card too. Coaching cycles are not a 'gotcha' exercise.

COACHING CYCLES TEACH A SYSTEMATIC SCIENTIFIC WAY OF THINKING

By using the same pattern of questioning in every coaching cycle





STICK TO THE 5Q SCRIPT UNTIL YOU INTERNALIZE ITS PATTERN

Ask the questions exactly as they are written on the card when you conduct a coaching cycle. No improvising until you've at least reached Stage 2 of practicing your coaching skills. This way every Learner gets a consistent version of the coaching dialog.

It can feel awkward at first to follow a structured dialog when you're not used to it. Many people think a coaching dialog is like a conversation, but with the skill-development focus of the IK/CK it is not. It's a structured dialog with the goal of effective information exchange and development of scientific skills and mindset.

A common mistake that beginner coaches make is to deviate from the script of the Five Coaching Kata Questions. This diminishes the strength of the pattern you're trying to develop, both in your mind & behavior and in the Learner's. If the Learner sees you varying from the basic pattern they will tend to vary from it as well; way too soon when they are still in Phase 1 of their kata practice. This can lead to simply sticking with current thinking; not developing new skill and mindset.

A guideline is to stick to the script for six months to a year with each new Learner. Let the pattern sink in and become a well-established habit for both of you. Once you and your Learner have a consistent and well-developed routine and understand the “why” behind the 5 Questions, you can consider modifying the routine if necessary.



YOU CAN OF COURSE ALSO ASK “CLARIFYING QUESTIONS”

Beyond the questions written on the card, you can also ask **clarifying questions** -- to probe the Learner’s thought process, gain more information and find the current Threshold of Knowledge -- at any point in the coaching cycle. Clarifying questions help you understand what's going on in the Learner's thinking, and help you develop a scientific mindset in the Learner.

Clarifying questions are not intended to lead or persuade the Learner. Their purpose is to help the Coach see and understand the Learner’s current way of thinking, so the Coach can cultivate systematic, fact- and data-based thinking.

An example clarifying question is, *"Can you please show me?"* Going to the focus process and observing what the Learner is talking about gives you facts that go beyond data on the storyboard. Checking the reality of the situation helps you to discern how your Learner is thinking, which guides your next coaching inputs for the Learner.

Several suggested clarifying questions for the Executing phase of the IK are provided in the next chapter.



BUT 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 a team brainstorming technique, not a coaching technique.

If you ask the Learner “*why*” it can easily feel confrontational rather than constructive, especially if you ask “*why*” repeatedly.

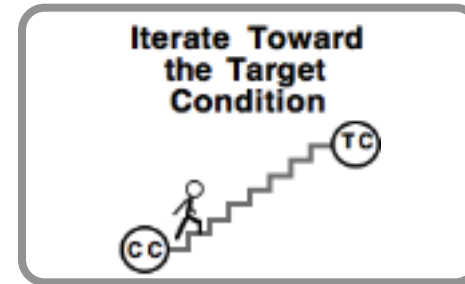
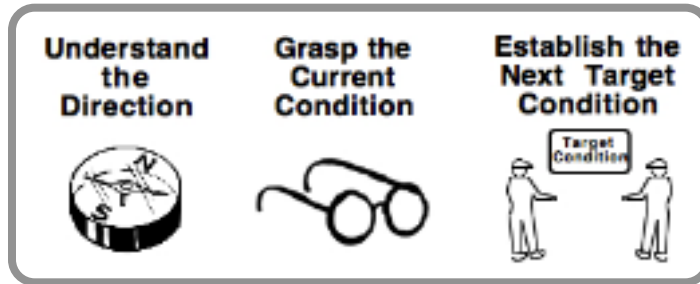
As a Coach, you’re asking questions to help you SEE the Learner’s current thinking pattern, and for that purpose it may be better to say, “*Tell me more about...*” or “*Can you show me?*”.



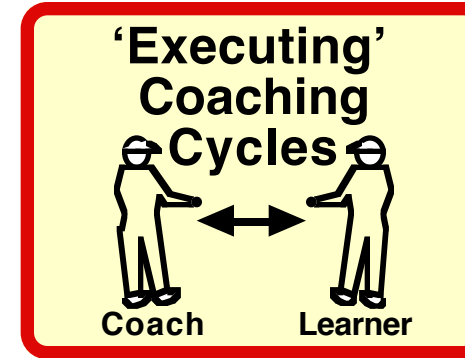
COACHING CYCLES - TWO PHASES



Learner



Coach's Activity:

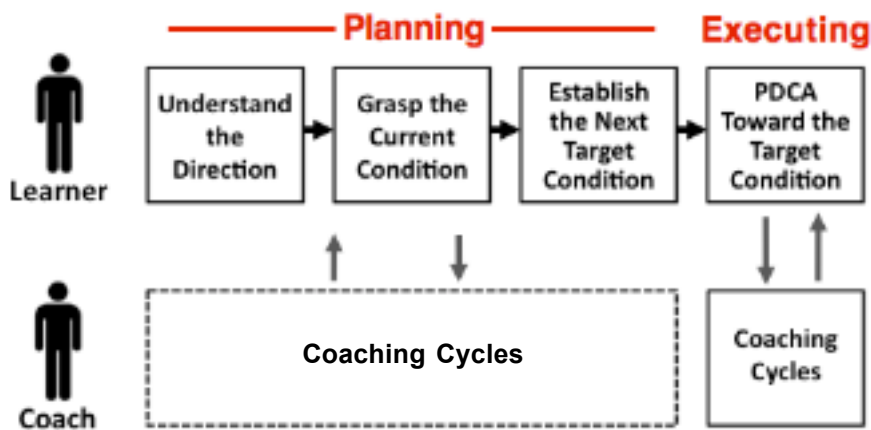


In the **PLANNING PHASE** of the IK, before the Target Condition has been Set:

These are daily, person-to-person coaching cycles done as the Learner carries out the first three steps of the Improvement Kata. The Coach escorts the Learner through the IK routines for understanding the direction, grasping the current condition and establishing the next target condition while using the Five Coaching Kata Questions.

In the **EXECUTING PHASE** of the IK, after the Target Condition has been Set:

These are daily, person-to-person coaching cycles done as the Learner performs the fourth step of the Improvement Kata. The Coach escorts the Learner through the routine for iterating toward the established target condition while overtly asking the Five Coaching Kata Questions.



COACHING CYCLES IN THE **PLANNING** PHASE OF THE IMPROVEMENT KATA

An important gauge of a Learner's progress is how well s/he can carry out the "Understand the Direction," "Grasp the Current Condition" and "Establish the Next Target Condition" steps in the PLANNING phase of the Improvement Kata. Taking time and iterating to gain the perspective and understanding that these 3 steps provide is a vitally-important foundation for the EXECUTING phase. One of the most common mistakes is trying to get into the Executing phase too soon, before we've had a chance to analyze and learn more about the situation.

Interestingly, a Learner may in sum get more repetitions of the IK routines of the executing phase than of the routines for up-front analysis and planning, and can therefore develop a bias toward the executing phase. Good coaching in the planning phase is important to prevent the Learner from developing a habit of too hastily rushing through that phase and moving ahead based on their preconceptions.

Whether or not the Learner adequately does the up-front work of the planning phase is an indicator of their experience as an Improvement Kata practitioner and your skill as a Coach. **Note that good coaching in the planning phase can be more difficult than in the executing phase, because there are a variety of routines to learn there.**

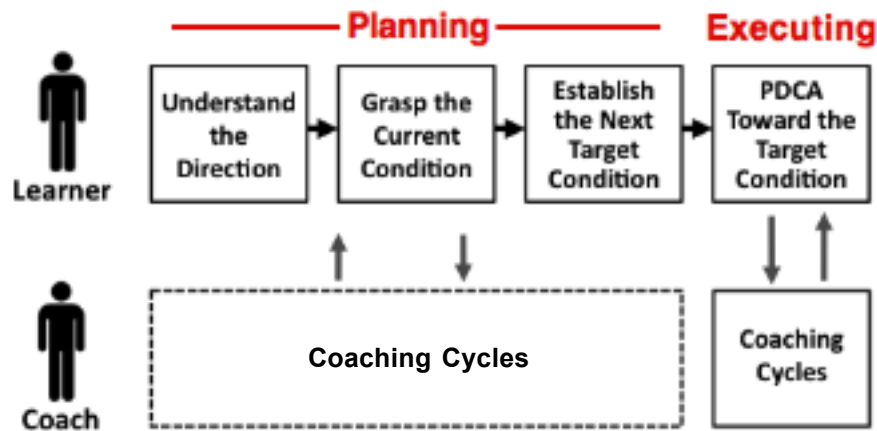


THE 5 QUESTIONS IN THE PLANNING PHASE

In planning-phase coaching cycles the Coach has to decide how overtly to ask the Five Questions. Once the Learner is somewhat experienced you can ask the Five Questions in any phase of the Improvement Kata and it will make sense. With a beginner Learner in the planning phase you might use the Five Coaching Kata Questions a little more like an internal guide for yourself. For example:

STEP 1 OF THE IK: Target condition = the Learner understands the challenge

THE 5 QUESTIONS	What the COACH says	What the LEARNER might say
Q1) What is the target condition?	"What step of the Improvement Kata are we in? What is the current target condition?"	"Understand the Direction."
Q2) What is the actual condition now?	"What's the actual condition now? What do we know so far?"	"I know we have a goal of a 10% cost savings."
Q3) What obstacles do you think are preventing you from reaching the target condition? Which one are you addressing now?	"Well, that's just a metric, not a challenge. Where should the challenge come from?"	"I'm not sure. Our leaders?" <i>(Note: This is the Knowledge Threshold in this coaching cycle)</i>
Q4) What is your next step? What do you expect?	"The challenge comes from the level above you, and is often derived from a future-state value stream map. Who has responsibility for your value stream's future-state map?"	"Tom Smith. I can meet with him to learn more about the design for our value stream and what it means for my process."
Q5) How soon can we find out what we have learned from taking that step?	"Great, how soon can we find out what we have learned from taking that step?"	"I should have the information tomorrow at this time."



COACHING CYCLES IN THE **EXECUTING** PHASE OF THE IMPROVEMENT KATA

The Executing phase of the Improvement Kata has the most consistently-structured routines for the Learner. Here the Coach should ask the Five Coaching Kata Questions in every coaching cycle exactly as they are written on the card.

This phase is where the pattern of scientific thinking and acting tends to fall into place for the Learner, through daily practice of a simple, repeating, scientific cycle. Understanding the value of the Improvement Kata pattern, and developing an inclination to apply it to any goal, generally happens here.



The next chapter provides step-by-step instructions for conducting a coaching cycle in the executing phase

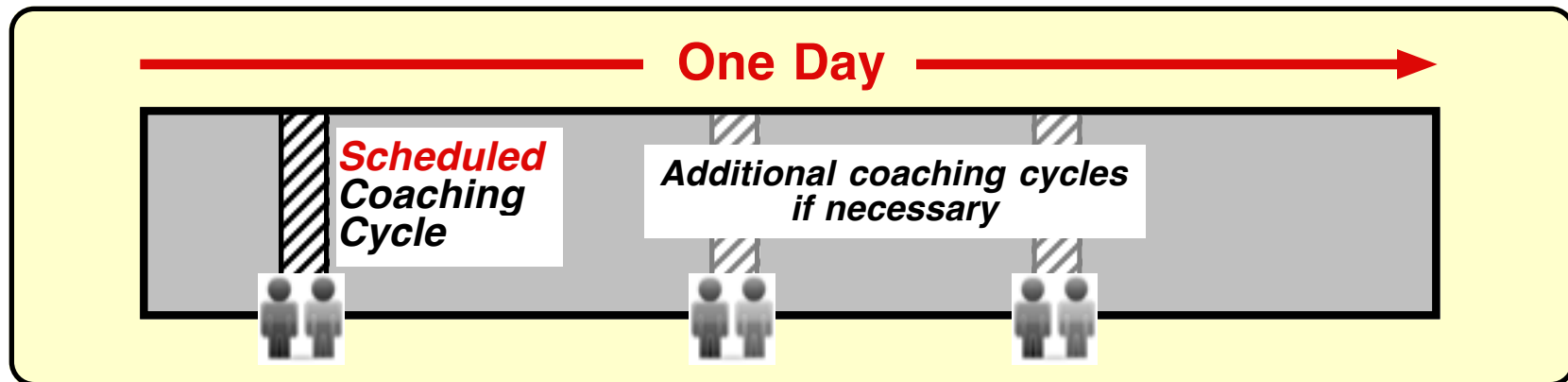
SCHEDULE COACHING CYCLES FOR EVERY DAY



Coaching cycles typically take 10-20 minutes. If they consistently take longer than that it may indicate a flaw in the coaching.

For each of your Learners, schedule a regular coaching cycle at a set time near the start of the workday. The first coaching cycle should be early in the day so the Learner can take the next step that day if possible.

Companies that use coaching cycles often have a “Kata Time Zone” (for example between 9:00 and 11:00 AM) during which managers don’t do email, meetings or phone calling.

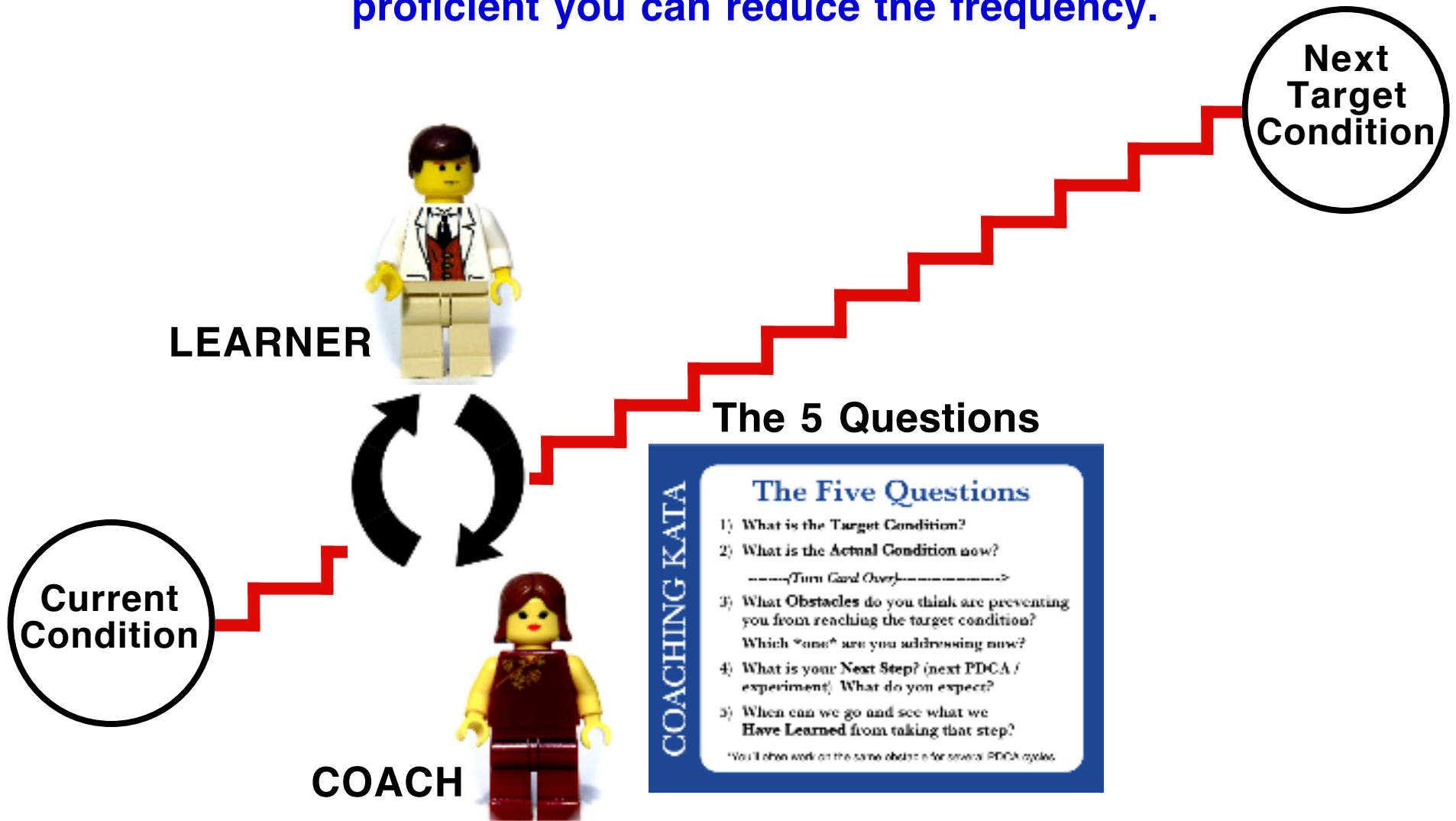


After the morning coaching cycle, the Coach & Learner may do more coaching cycles that day as needed, since the Learner’s steps and the follow up should be as rapid as possible.

Beyond the coaching cycle, you may also decide to accompany the Learner in taking the next step, to observe the Learner in action and provide additional coaching.

WITH BEGINNERS, TRY TO DO A COACHING CYCLE EACH TIME THE LEARNER TAKES A STEP

A coaching cycle and any corrective input should happen as quickly as possible after the Learner takes a step. As the Learner becomes proficient you can reduce the frequency.





A COACHING CYCLE SHOULD NORMALLY TAKE 10 TO 20 MINUTES



With practice, you should be able to conduct most coaching cycles with the Five Questions in 10-20 minutes.

It only takes 10-20 minutes because the coaching cycle is about reviewing the process of experimenting, not a forum for doing the experimenting itself. Questions at the Threshold of Knowledge aren't answered through deliberation and dialog in a coaching cycle, but through experiments between coaching cycles.

The Learner develops answers at the Threshold of Knowledge by conducting experiments *between* coaching cycles. The coaching cycle itself is about reviewing the last experiment and planning the next experiment.

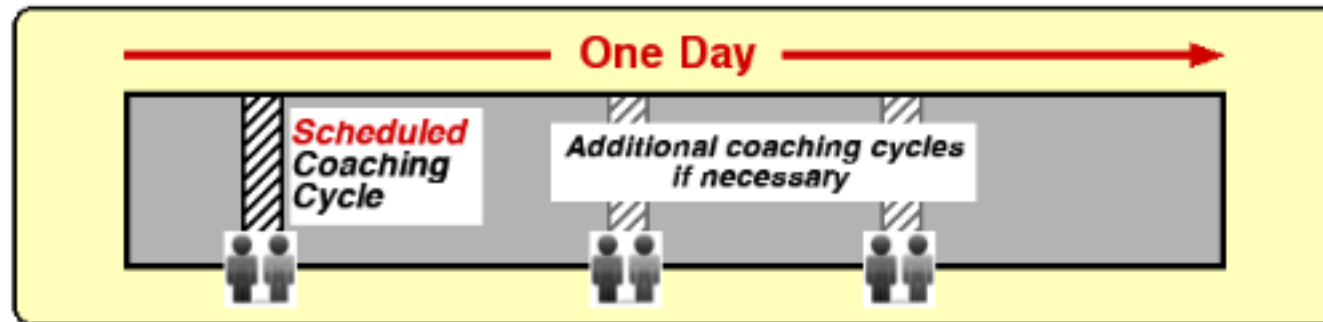
WHY SCHEDULE COACHING CYCLES EVERY DAY?

FOR THE COACH:

--> A beginner coach needs frequent practice. You are practicing to develop and keep improving your coaching skill.

--> The scheduled coaching cycle is the *trigger* for the Coach to exercise coaching-cycle behavior.

--> To be consistent in providing feedback to the Learner.



FOR THE LEARNER:

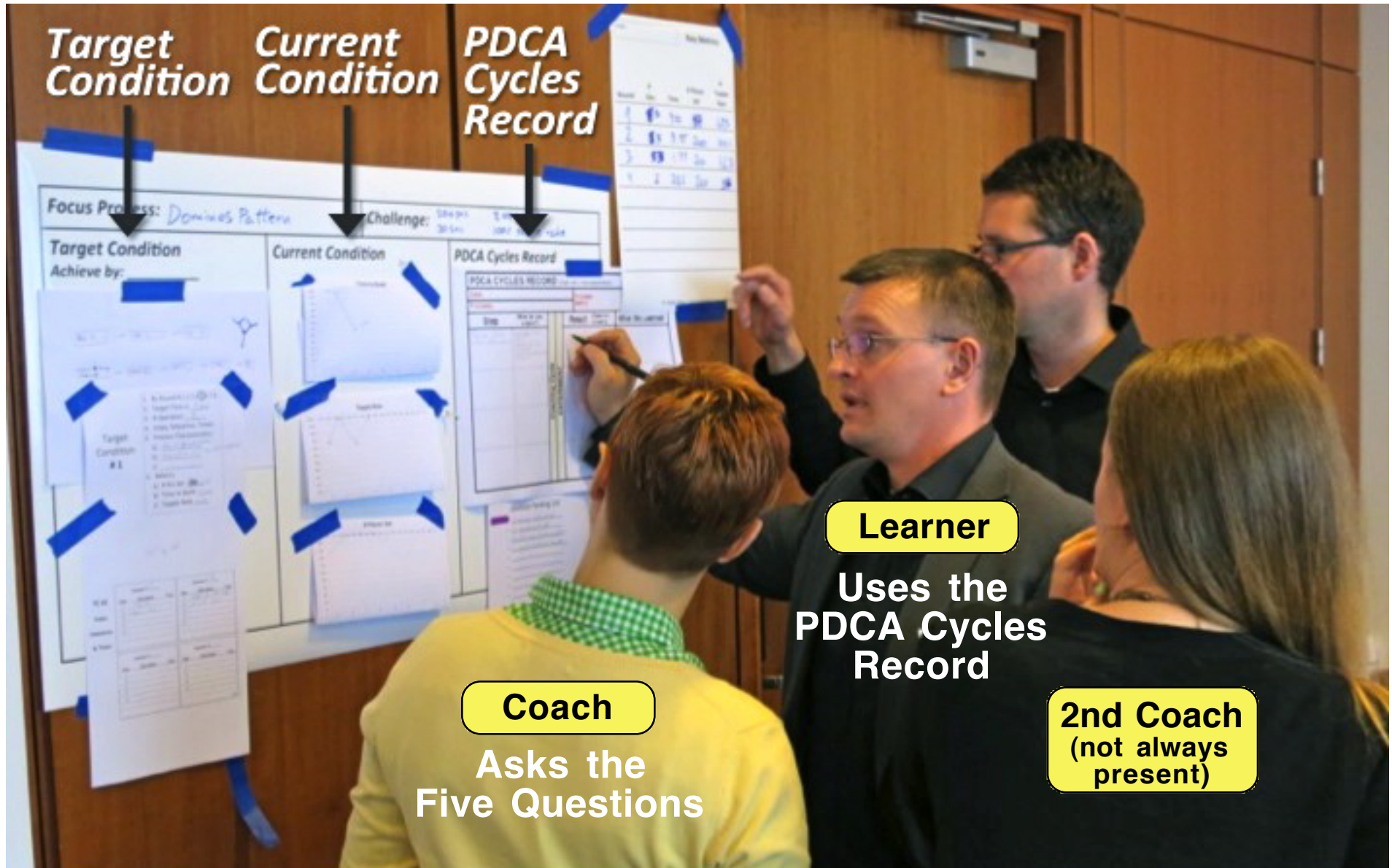
--> Training only once every few days would mean the Learner has too much time between training sessions to develop Improvement Kata skill and mindset. Short, frequent practice is better for the Learner in developing new and effective habits.

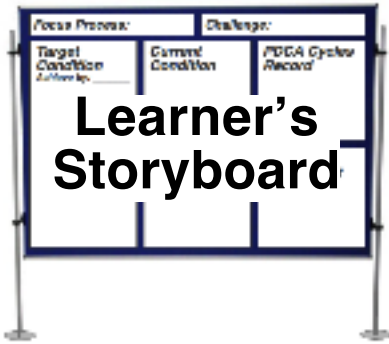
--> You're teaching the Learner to conduct simple, rapid and frequent experiments toward the target condition. If coaching cycles are infrequent then the Learner's steps will tend to get too big.



DO COACHING CYCLES AT THE LEARNER'S STORYBOARD

And as close to the focus process as possible





USING THE LEARNER'S STORYBOARD

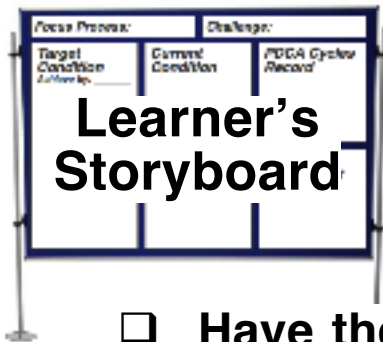
The Learner's storyboard is a tool to support practicing the Improvement Kata and Coaching Kata routines. Once you've done some coaching cycles, the layout and information on the storyboard should flow naturally with the sequence of the Five Coaching Kata Questions.

The Learner owns the storyboard and he or she should be the one updating it, not the Coach. Before the next coaching cycle begins, the Learner should have updated the storyboard based on the last experiment.

The Learner knows the Five Questions that are going to be asked (many users post the 5 Questions on the storyboard). So a coaching cycle is not a "gotcha" exercise, nor a freewheeling conversation, but a structured dialog designed as an information exchange that allows the Coach to discern what coaching the Learner should receive next.

Encourage the Learner to keep the storyboard neat, capturing all key detail but in a simple and organized format that follows the Five Coaching Kata Questions. Updating the storyboard is important for cultivating the Learner's sense of ownership of the target condition and the process of experimenting toward it.

Details often need to be modified or added while the Five Question dialog is happening and insights are gained. In these cases the Learner should update the Storyboard directly; during the coaching cycle. (Keep a pencil and eraser at the storyboard.)



USING THE LEARNER'S STORYBOARD

- Have the Learner point. Pointing connects the question you're asking with a clear answer from the Learner, and encourages the Learner to capture necessary information in written form on the storyboard *before* the coaching cycle.
- When answering the Coaching Kata questions, ask the Learner to read only what he or she has written on the storyboard and then be silent. For instance, the Learner should simply read what he or she has written on the PDCA Cycles Record, and then just wait. This does two things:
 - 1) It allows the Coach to digest the information and then add clarifying questions as needed.
 - 2) It teaches the Learner to prepare for the coaching cycle, with the necessary information recorded on the storyboard forms beforehand. This helps prevent the Learner from verbally making up answers during the coaching cycle dialog.

This tactic may seem too mechanical at first. As you get used to it though, you'll find that it avoids long winded explanations and gets the coaching cycle to the heart of the matter. It helps keep each coaching cycle short and focused on the relevant facts and data.



In each coaching cycle watch for the Learner's ***THRESHOLD OF KNOWLEDGE***

Finding the current knowledge threshold and setting up the next step there is a core element of a coaching cycle

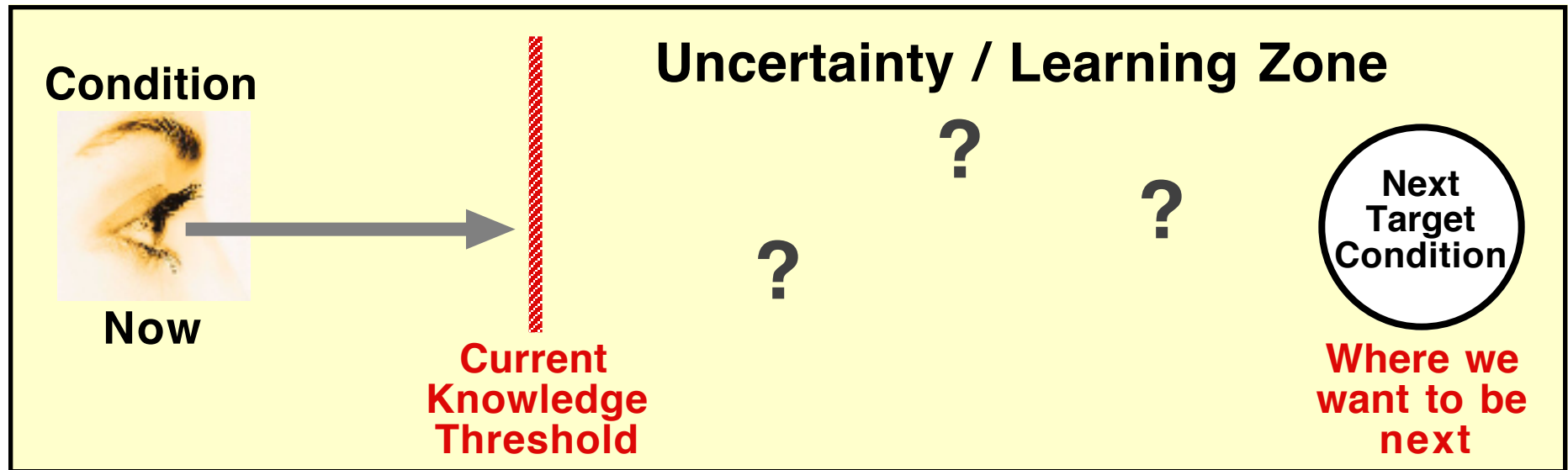




THE CURRENT KNOWLEDGE THRESHOLD IS THE POINT AT WHICH THE LEARNER HAS NO FACTS OR DATA AND STARTS GUESSING

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's a knowledge threshold in every coaching cycle.

When you hit a knowledge threshold, plan the next experiment there!



RECOGNIZING A KNOWLEDGE THRESHOLD

They can be difficult for beginner coaches to spot because the learner is hesitant to say *“I don’t know”*



At any point in asking the Five Questions you may notice that a knowledge threshold has been reached. Develop an ear for it. When the learner starts using imprecise words such as...

*“I think” - “probably” - “maybe” - “could” - “most likely”
“well...” - “on average” - “let’s reduce/increase it by 50%”*

...it’s a sign of a knowledge threshold. The Learner has moved from facts and data to guessing.

Overconfidence can also be a sign of a knowledge threshold.



HOW TO HANDLE A KNOWLEDGE THRESHOLD

This is critical Coaching Kata thinking & behavior



A knowledge threshold is the learning edge, where the next experiment (next PDCA cycle) often lies.

Two key points to remember as a Coach are that (a) there is always a knowledge threshold, and (b) a knowledge threshold is not a problem. On the contrary, it's what we're looking for as we strive for the target condition. It tells us what we need to investigate and work on next.

This is an important moment for teaching the Learner what it means to think and act scientifically.

WHAT TO DO

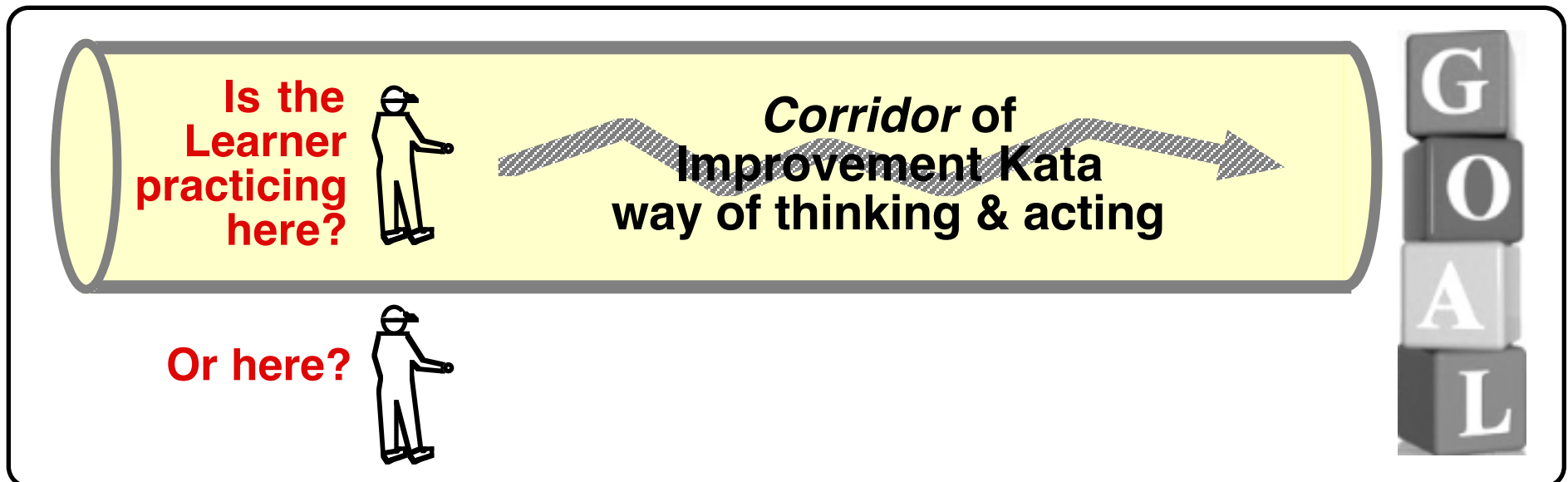
- Congratulations, you found it! Focus your coaching cycle and your coaching input here. Use hearing the imprecise words from the Learner as a cue to ask clarifying questions and to go-and-see.
- The Learner shouldn't try to move beyond a knowledge threshold via conjecture. Teach the learner to see further by experimenting. Don't deliberate about what's beyond the knowledge threshold. Deliberate about the next experiment. Ask:
“What do we need to learn now?” “How will we test it?”
“How will we measure it?”
- Within the pattern of the 5 Questions, have the Learner set up and conduct the next experiment, then do another coaching cycle. The Learner should use the PDCA Cycles Record.



GIVING FEEDBACK TO THE LEARNER

The effectiveness of the Coach's coaching, and the Learner's learning, depends on the Coach doing something with the Learner's responses (when those responses don't match the thinking and patterns specified by the Improvement Kata) in a way that leaves the Learner with a richer, more elaborated understanding than s/he previously had.

The Coach does this by determining whether or not the Learner is practicing within the "corridor" of thinking and acting specified by the Improvement Kata pattern, and introducing focused practice corrections as necessary. The job of the Coach is to ensure that the Learner is following good procedure as s/he works toward the next target condition.





REMINDER!

The purpose of coaching is this...

Teaching the Learner how to use the Improvement Kata pattern



Not this...

Audit & compliance





HOW CAN THE COACH TELL HOW THE LEARNER IS THINKING?

By observing, asking questions and listening!

The Coach asks questions not to direct the Learner to a particular solution (though it can sometimes feel that way to the Learner), but (1) to discern *how* the Learner is thinking & working and (2) to find the current Threshold of Knowledge.

The Coach should usually not be directive about *what* the Learner is working on. That comes out of the iterative process of experimentation, and neither Coach nor Learner know in advance what solutions will lead to the target condition. However, the Coach can be directive about *how* the Learner should proceed.

Specifically, after you've observed the Learner and listened to the Learner's response(s) to questions you may be directive about the next procedural step. This is done to teach the desired pattern and to get the Learner into the Improvement Kata corridor.

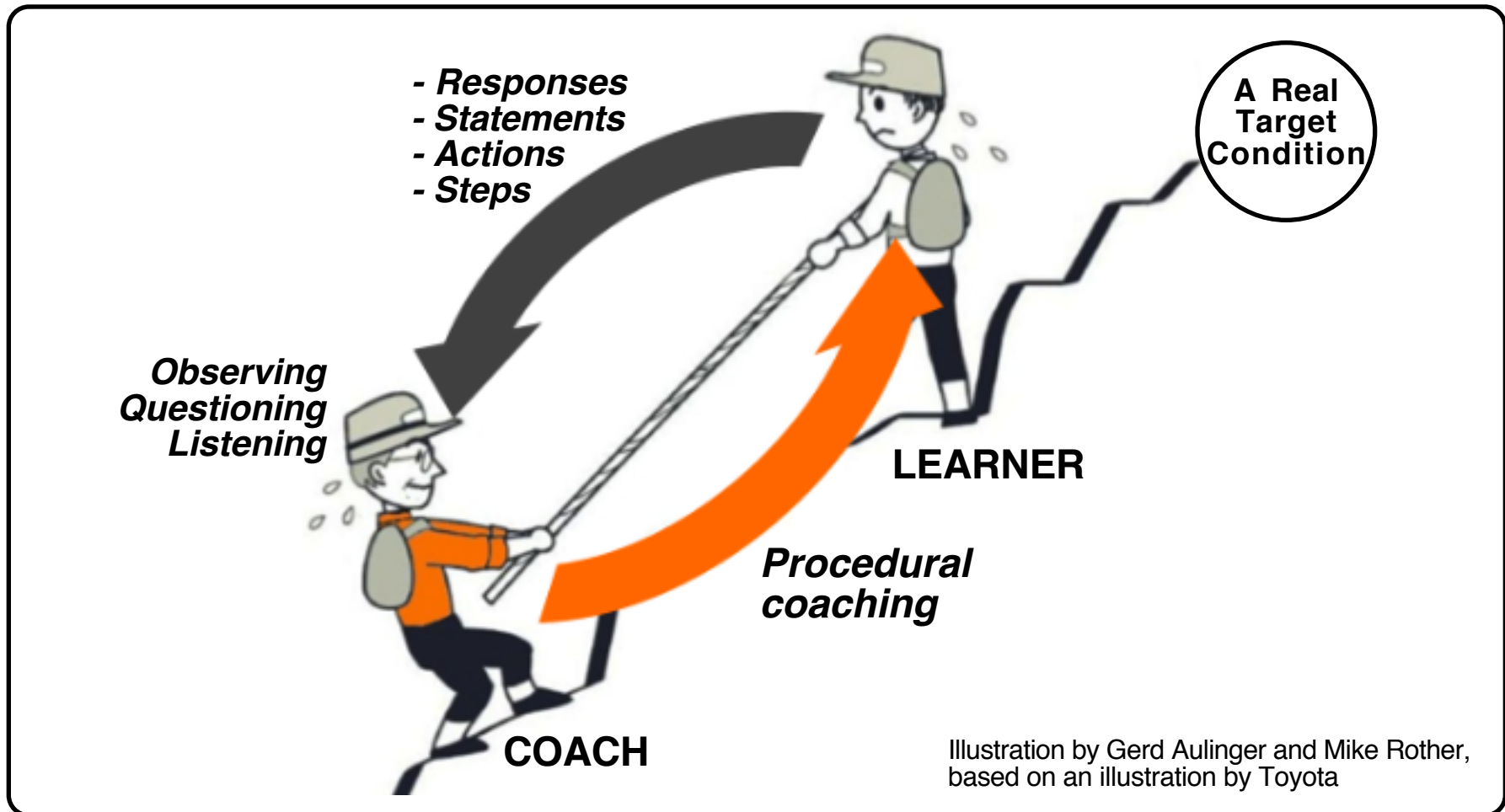
Skill-coaching involves more than just asking questions. The Coach is concerned about the Learner practicing correct Improvement Kata procedure and will often give targeted procedural inputs. Being able to judge the Learner's process and provide appropriate feedback is why the Coach must have prior personal experience with applying the Improvement Kata pattern.



HOW IT WORKS

Co-dependency between Coach and Learner

The Learner does the **WHAT** by taking steps and conducting experiments



The Coach teaches the **HOW** of the Improvement Kata procedure



IT'S A “SEE-COMPARE-INSTRUCT” PATTERN OF COACHING

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



The **SEE-COMPARE-INSTRUCT** pattern can be repeated several times within one coaching cycle



ASK YOURSELF



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



GIVING FEEDBACK TO THE LEARNER IN STAGE 1 OF THEIR IK PRACTICE

In Stage 1 the Learner is trying to execute the kata exactly, and you're instructing the Learner in the steps and techniques of that Kata

- ❑ To give constructive feedback you should have a genuine interest in the Learner being successful in applying the Improvement Kata toward their target condition.**
- ❑ Observe and question the Learner → Compare what you see and hear to the desired way of working (specified by the Improvement Kata) → Give feedback and a specific next practice goal → Repeat in the next coaching cycle.**

Your task is to spot, and have the Learner work on, a current area of weakness in practicing the Improvement Kata.

- ❑ You should 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.**



GIVING FEEDBACK TO THE LEARNER IN STAGE 1 OF THEIR IK PRACTICE

- ❑ Your feedback should contain specific comments:
 - (A) What specific aspects of the Learner's Improvement Kata procedure fit the desired pattern. (Positive feedback.)
 - (B) What one or two aspects the Learner should work on next, including what exactly the Learner should do in order to practice and improve in those particular areas. (The Learner may also have suggestions for how to improve.)

Specific feedback is more useful for skill development than general statements such as “*nice work*” or “*needs improvement*”.

- ❑ Since you’re doing coaching cycles with the Learner frequently there’s no need to try to correct many errors in one coaching cycle.
- ❑ Errors should often be corrected immediately. In Stage 1 of practicing the IK pattern it’s often best to give feedback right away, rather than waiting until the end of the coaching cycle, to avoid cementing a bad habit. If the Learner makes a misstep, stop and deal with it, because it’s a teachable moment. (Note: this interrupting can be overdone).

When you interrupt a coaching cycle to correct an error it’s often a good idea to ask the Learner to restart the coaching cycle from the beginning or to repeat that section of the coaching cycle. This drives home the pattern and is a standard technique in music practice.



GIVING FEEDBACK TO THE LEARNER IN STAGE 1 OF THEIR IK PRACTICE

❑ Another strategy is not to correct the Learner immediately and instead allow the Learner to make a mistake and let the experience be the teacher. You should provide enough leeway for the Learner to make (and learn from) harmless mistakes. This works best when the Learner's next step is cheap, small and short; i.e., feedback and the next coaching cycle will happen soon. You have to decide on case-by-case basis when to use this strategy, which is part of your skill as a Coach.

❑ Since beginner Learners often feel stress about being in the uncertainty zone, the Coach should transmit confidence that the target condition can be achieved by applying the pattern of the Improvement Kata.

It's important for the Learner to derive motivation from periodically feeling that they're successfully moving closer to the target condition and getting better at the Improvement Kata pattern. If the Learner is not getting this feeling periodically then something in your coaching needs to be adjusted.

THE LEARNER NEEDS YOUR SUPPORT

Novice Learners need the Coach's experience and supporting feedback in order to get comfortable operating in the uncertain 'learning zone'

The norm in many organizations



You're trying to develop exploratory mindset by coaching the Learner in practicing the Improvement Kata pattern



Improvement Kata coaching is not about criticism and control. Being allowed to have many failed experiments is essential for scientific working and learning. The Coach must understand this in order to be accepted by the Learner as a teacher.



THE NATURE OF YOUR FEEDBACK CHANGES AS THE LEARNER'S IK SKILL INCREASES

Stage of Learner's IK Practice & Skill	Nature of Your Feedback	Closeness of Your Coaching*
<p>STAGE 1: PRACTICE THE IK EXACTLY</p> <p>At first the Learner repeats the structured practice routines with discipline, trying to execute them without variation.</p>	<p>Emphasis on <i>Instructing</i></p> <p>When the Learner first starts practicing the Improvement Kata pattern the Coach's role is to teach the Learner the steps and techniques of the Improvement Kata.</p>	<p>Close coaching (daily) on focused, simple applications of the IK pattern.</p>
<p>STAGE 2: PERSONALIZE YOUR IK PRACTICE</p> <p>Once the basic forms have been absorbed and can be executed successfully the Learner can make modifications to his/her practice.</p>	<p>Emphasis on <i>Coaching</i></p> <p>As the Learner develops and demonstrates technical understanding of the Improvement Kata pattern, the Coach and Learner discuss and agree on appropriate training requirements.</p>	<p>Close coaching (daily) on a wider and more complicated range of applications of the IK pattern.</p>
<p>STAGE 3: INTUITIVE OPERATING</p> <p>At this stage the Learner has absorbed the Improvement Kata to such an advanced level that s/he can be creative and unhindered while still working within the principles.</p>	<p>Emphasis on <i>Counseling</i></p> <p>As the Learner matures s/he will determine his or her own training requirements. The coach's role becomes one of a colleague providing advice and support as and when required.</p>	<p>Coaching can be less frequent.</p>

*How closely the Coach coaches the Learner depends on the Learner's current skill level. The Coach naturally has to spend more time with beginner learners than with proficient learners.



THE COACH'S NOTEBOOK

Maintain a notebook record of your coaching cycles, to keep track of key-point reminders for your next coaching cycle with a Learner. It's useful to have a single book for recording items such as the following:



EXAMPLE NOTEBOOK PAGE FORMAT

Learner:

Coaching cycle date:

Start and end time:

Focus Process:

Learner's next step:

What are your impressions of the Learner's current approach to applying the Improvement Kata?

What aspect of their IK procedure should the Learner work on improving between now and the next coaching cycle? (Feedback given to Learner)

Other notes:





GAINING PROFICIENCY A STEP AT A TIME

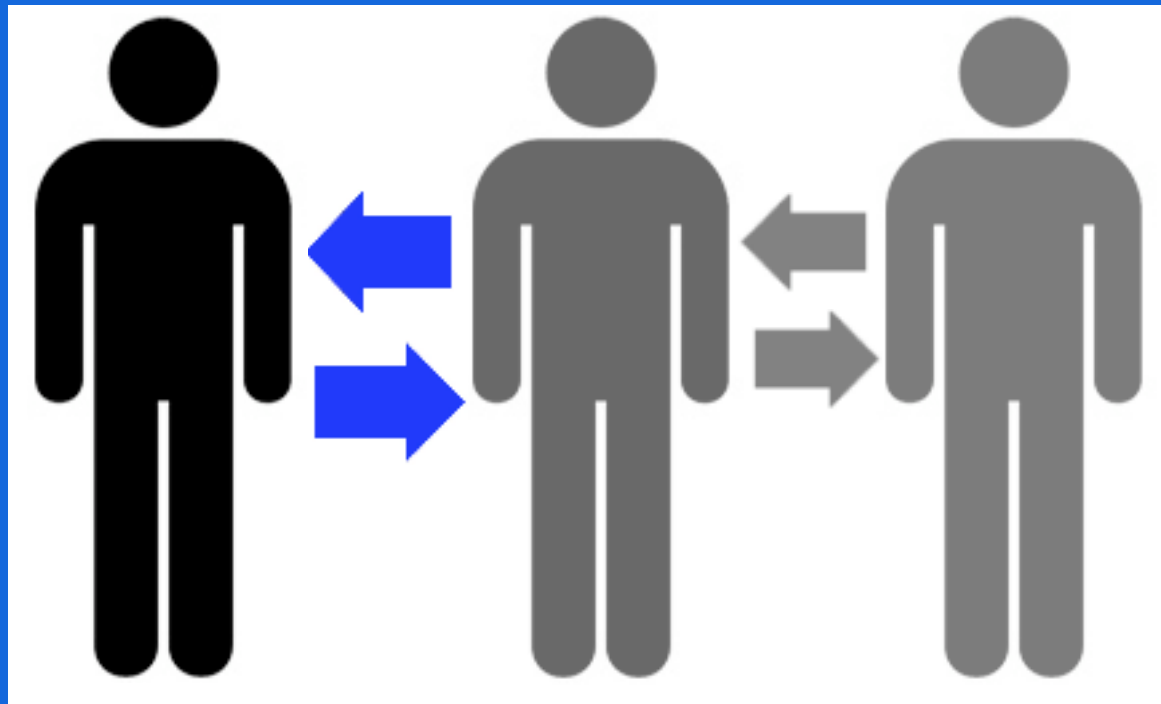


Your Learner can only take a step at a time toward the target condition. Likewise, you shouldn't overload the Learner with advice about what to practice. Remember, the next coaching cycle, i.e., the next feedback opportunity, is coming right up.

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?

Guidelines for the 2nd Coach *Coaching the Coach*



THE IMPORTANT ROLE OF THE SECOND COACH

The role of the 2nd Coach is to manage the Coach's coaching practice

The apparent simplicity of the Five Coaching Kata 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 their own PDCA cycle whereby the Coach checks and reflects on the process and result of his/her last coaching. If the Learner isn't learning the Improvement Kata or a team is not achieving its target conditions then the problem usually lies in the coaching.

In other words, the Coach is deliberately *practicing* the Coaching Kata, and for this s/he needs someone with coaching experience to periodically observe him or her in conducting coaching cycles and to provide feedback, to *coach the coach* in other words.

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

IF THE LEARNER ISN'T LEARNING, EXAMINE THE COACHING

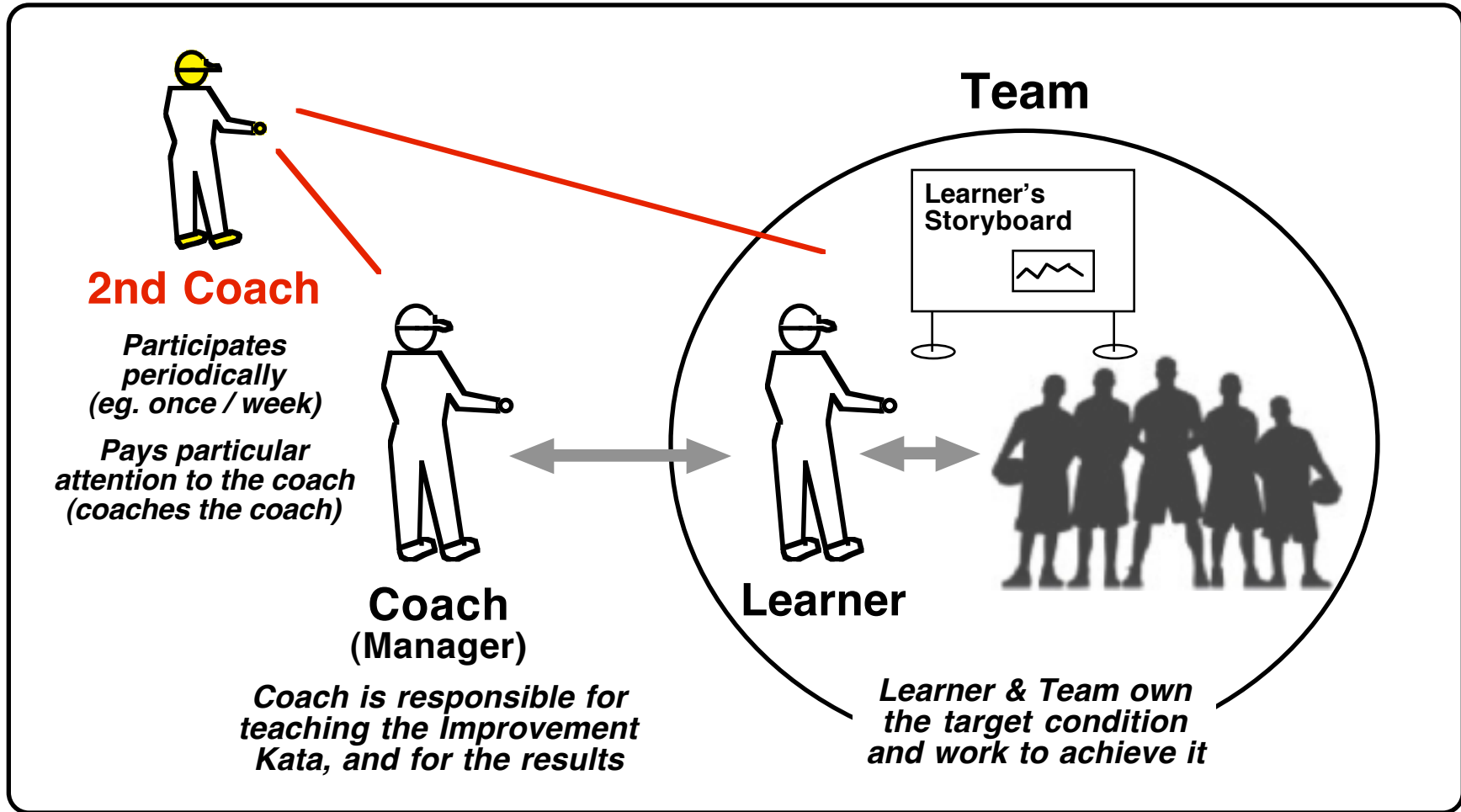
The role of the 2nd Coach

If the Learner is not learning the Improvement Kata pattern or too often failing to achieve target conditions, then the cause usually lies with the coaching.

How well the Learner is doing should inform the Coach and 2nd Coach about how well the Coach's current method of teaching is working.



THE 2nd COACH



The 2nd Coach ensures that a Coach is teaching/coaching the Improvement Kata correctly, by observing the Coach's coaching cycles and giving feedback to the Coach

2nd Coach Task

OBSERVING COACHING CYCLES

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

This is done is by periodically observing coaching cycles in action and providing immediate feedback to the Coach.

Once a Coach has passed Stage 1 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 OBSERVATIONS		Process:
Coach:		Date:
Learner:		Start/End:
Question	COACH	LEARNER
Review Challenge		
Q1: Target condition?		
Q2: Actual condition now?		
Reflect: PDCA Cycles Record		
Q3: Obstacles? Which one?		
Q4: Next step? PDCA Record		
Q5: When see what learned?		
What is the knowledge threshold?		Impressions:
Key point(s) for this Coach to practice next:		Next coaching cycle:

The 2nd Coach can use the *Coaching Cycle Observations Form* for this purpose (see Appendix). This form is kept simple since note taking during a coaching cycle has to be fast.

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 and the next chapter.

WATCH FOR COMMON COACHING ERRORS

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

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



GIVING FEEDBACK TO THE COACH

Feedback guidelines, 2nd Coach --> Coach

2nd
Coach

Give feedback to the Coach *after* the coaching cycle. Ask if they prefer feedback with the Learner present or in private.

1) Ask the Coach for their impressions of the coaching cycle:

- How do you think the coaching cycle went?
- Is the Learner working at their Threshold of Knowledge? How can you tell?
- What did you want to pay particular attention to in this coaching cycle?

2) Give your feedback on the coaching cycle, but do not make value judgements. Focus on concrete observations you made.

- I observe that...

3) What is the Coach concentrating on for the next coaching cycle?

- What do you want to pay particular attention to in the next coaching cycle with this Learner? (Just one point please!)
- How do you hope this will influence the Learner?

Questions by Bernd Mittelhuber

Agree on the date & time for next coaching cycle to be observed

THE 2nd COACH'S NOTEBOOK



The 2nd Coach should maintain a notebook of his/her observed coaching cycles, to keep track of observations and feedback given to the Coach.

Do this by keeping your completed “Coaching Cycles Observations” forms plus any other notes in a binder.

Include the three feedback guidelines on the previous page in your notebook for reference.

COACHING CYCLE OBSERVATIONS		Process:
Coach:		Date:
Learner:		Start/End:
Question	COACH	LEARNER
<i>Review Challenge</i>		
Q1: Target condition?		
Q2: Actual condition now?		
Reflect: PDCA Cycles Record		
Q3: Obstacles? Which one?		
Q4: Next step? PDCA Record		
Q5: When see what learned?		
What is the knowledge threshold?	Impressions:	
Key point(s) for this Coach to practice next:	Next coaching cycle:	



--- Guidelines for IK Coaches - Summary ---

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 AND USING YOUR COACHING AND TEACHING SKILLS!



Everyone in a managerial or supervisory role is essentially a teacher developing the next generation. By you practicing the pattern of the Coaching Kata you're developing management habits and management mindset to power the future of your organization.

As you move through your organization or to another organization, take the Improvement Kata and Coaching Kata with you. Once you've learned their patterns and acquired the habit they can be applied to any goal at any level.

**NEXT, LET'S GO THROUGH AN
EXECUTION-PHASE
COACHING CYCLE STEP-BY-STEP**

Chapter 9

The Coaching Kata - 2

PRACTICE ROUTINE: HOW TO DO A COACHING CYCLE WITH THE 5 QUESTIONS
In the Executing Phase of the IK

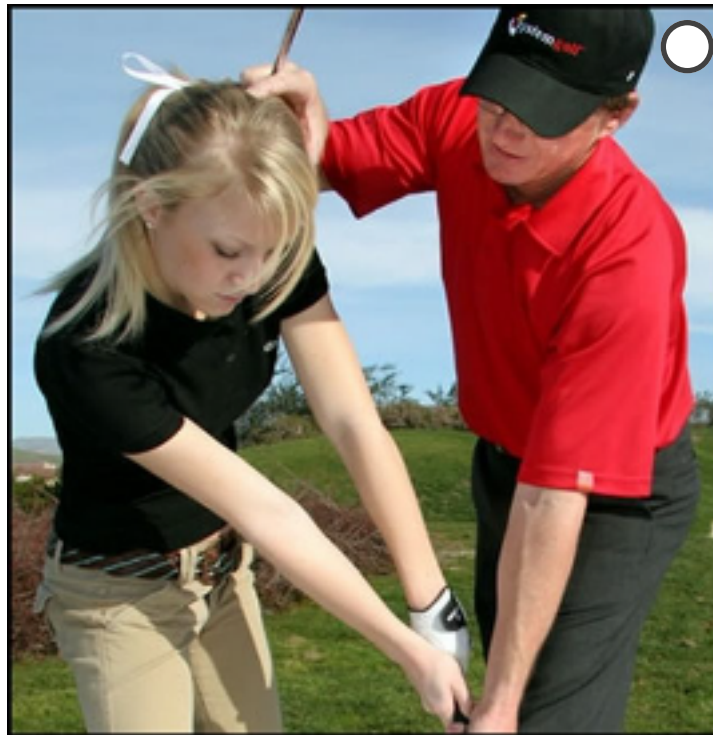
Practice
this
Routine

SEE
COMPARE
INSTRUCT

1

2

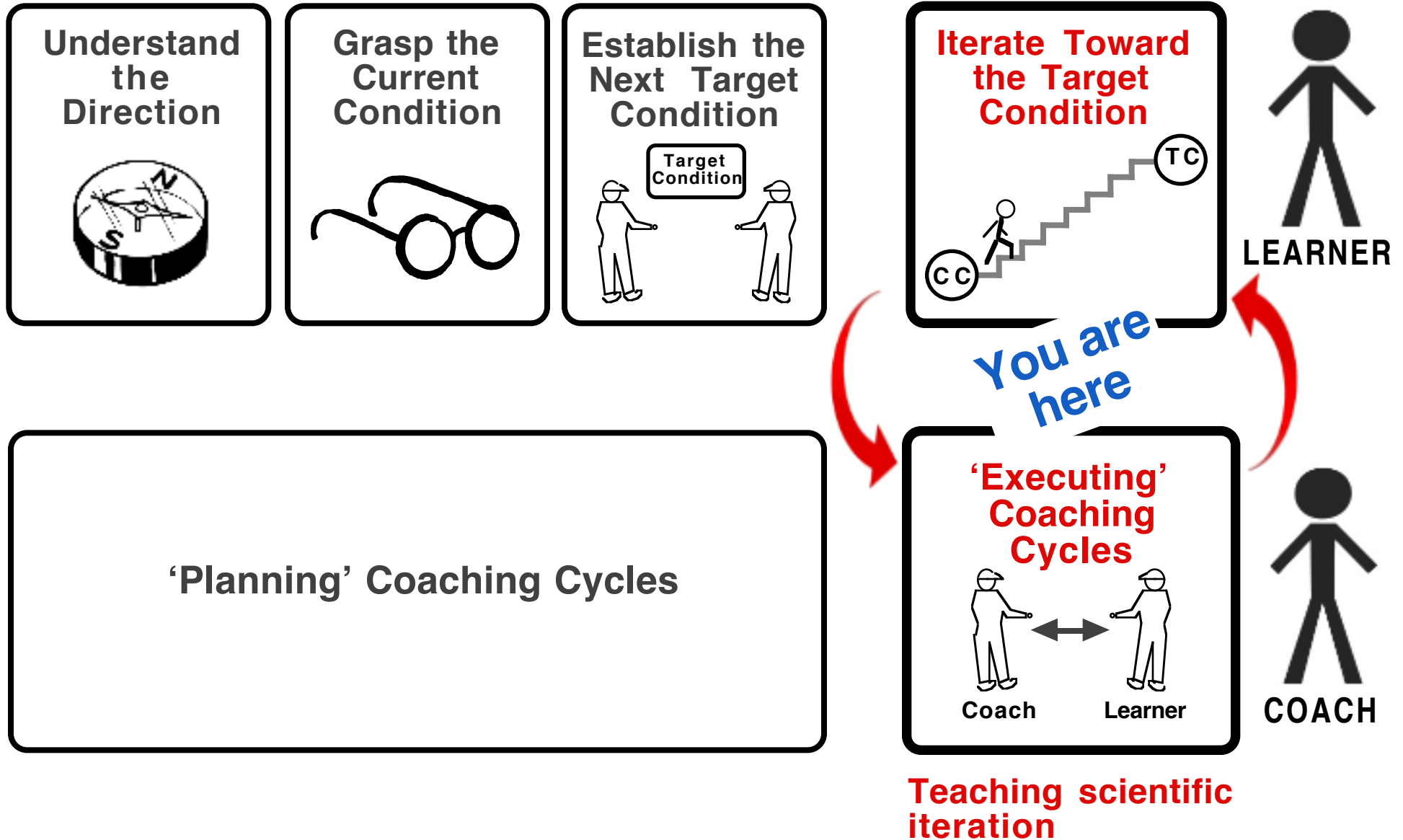
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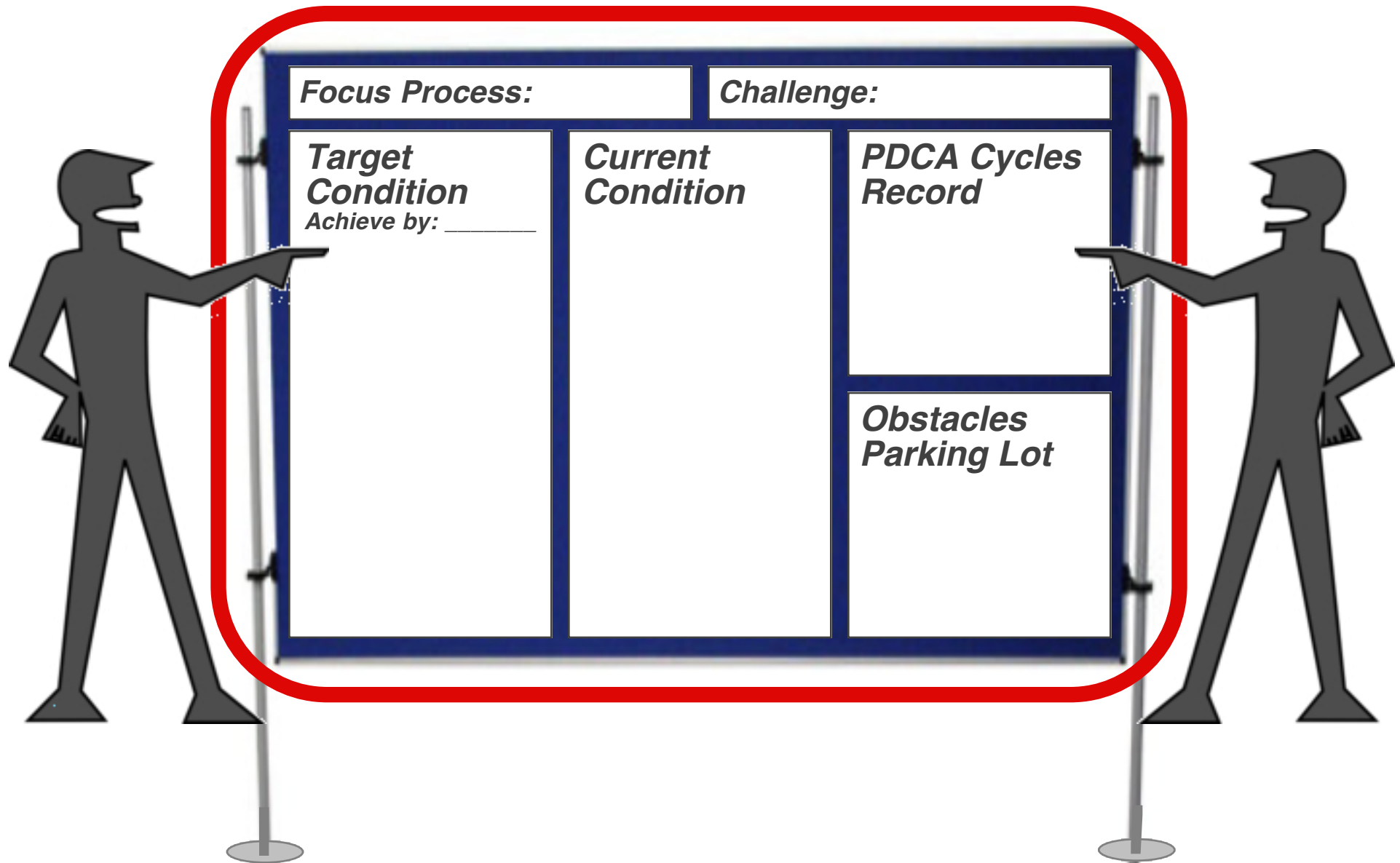
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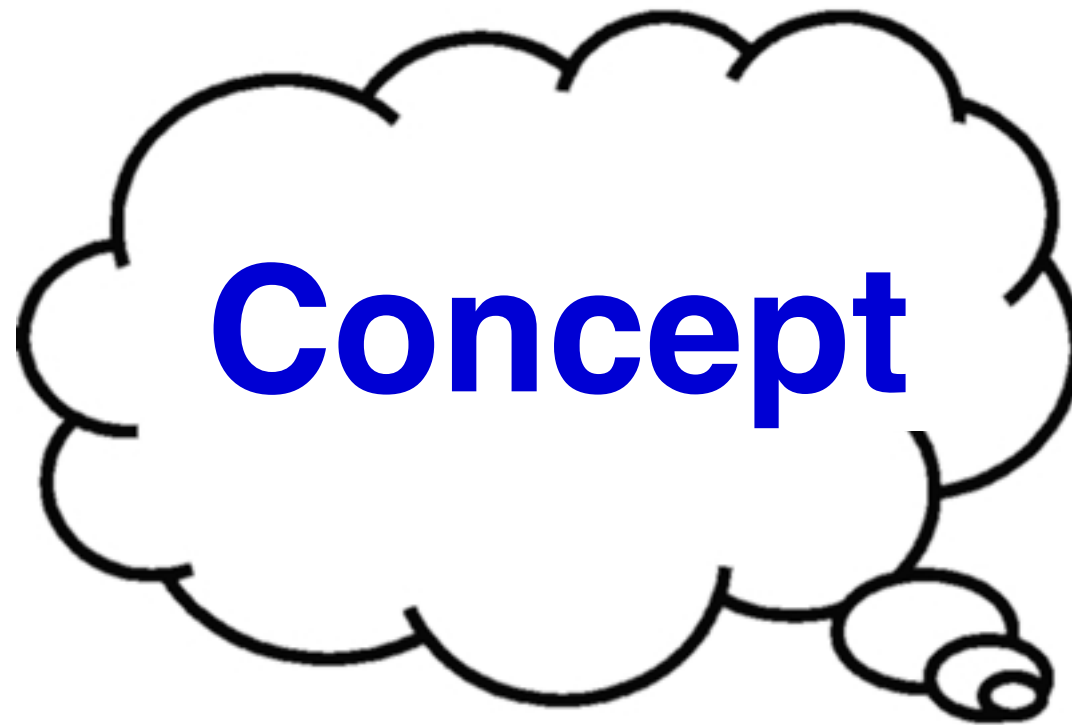
ORIENTATION



LEARNER'S STORYBOARD

In the Executing phase the Learner and Coach use the entire storyboard



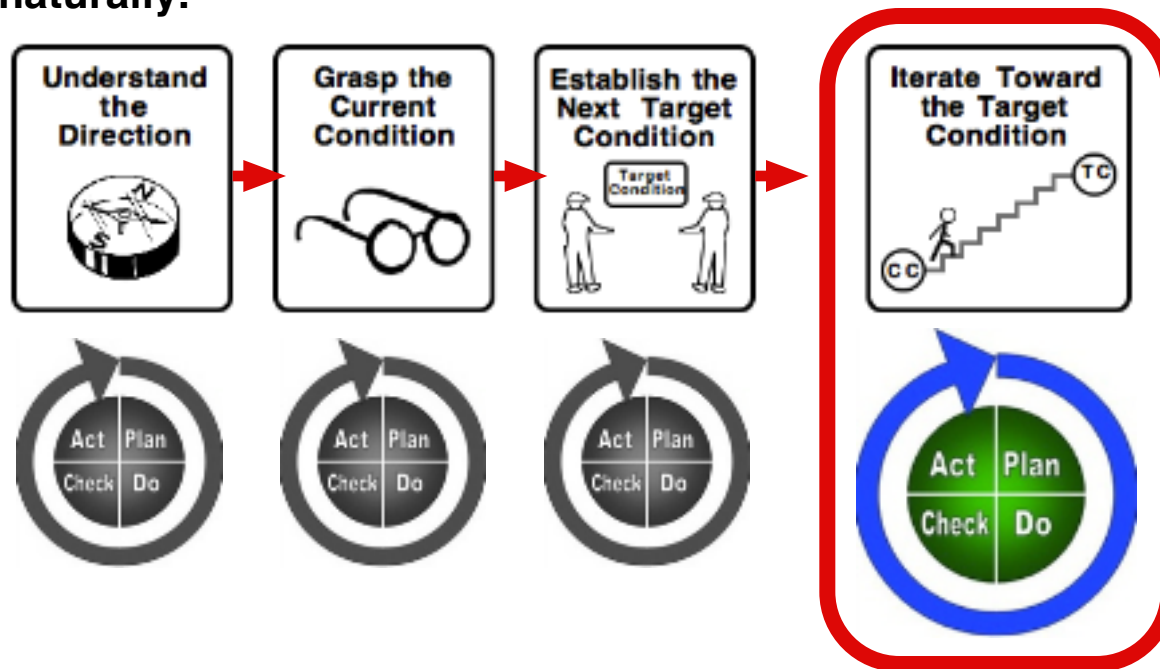


THE PENNY DROPS IN THIS STEP

Practicing Step 4 of the Improvement Kata is where the entire pattern of the Improvement Kata comes together for the Learner

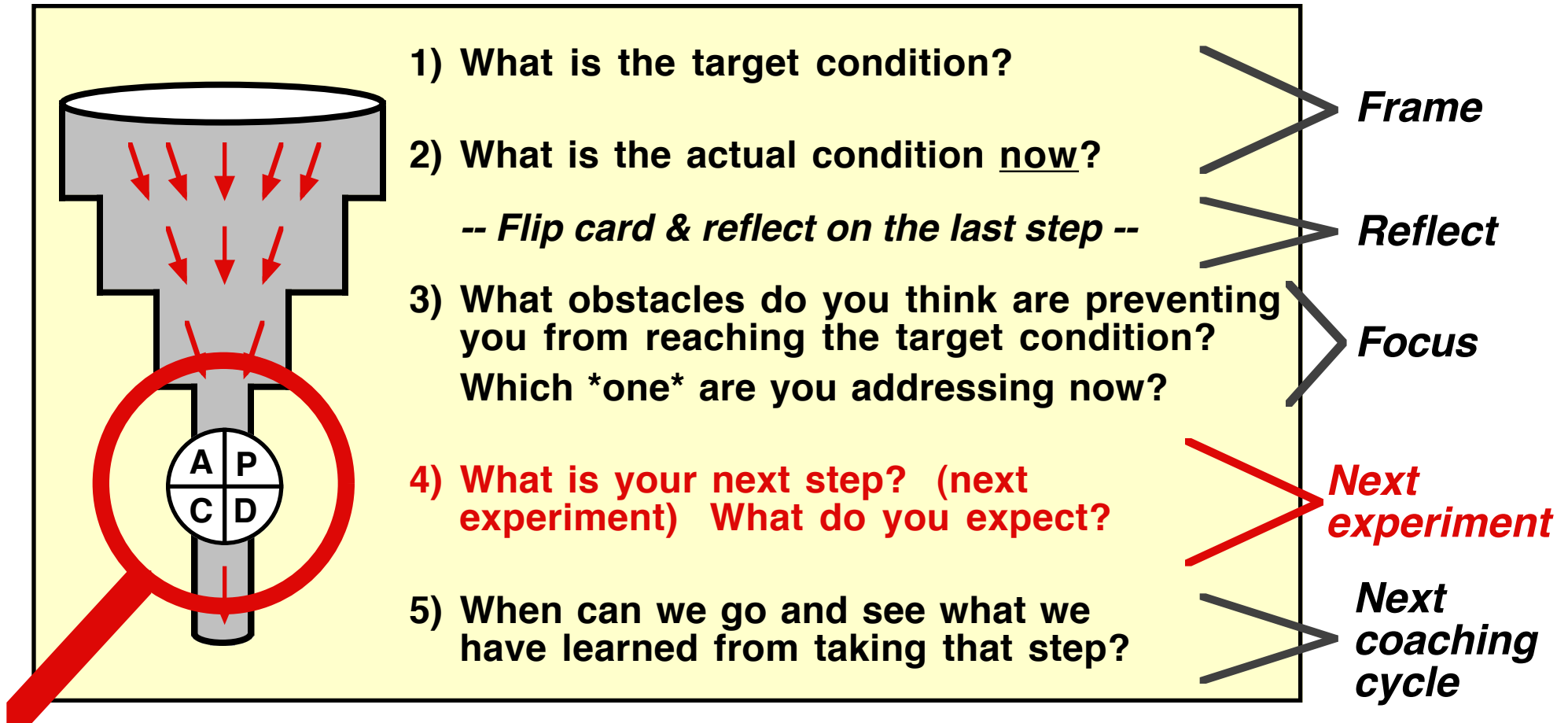
A rule of thumb is that a Learner will need to conduct at least 25 PDCA cycles (each cycle paired with a coaching cycle) in Step 4 of the Improvement Kata before the pattern of the Improvement Kata *begins* to become a mental habit. Similarly, a Coach will need to conduct at least 25 coaching cycles in Step 4 of the Improvement Kata for the coaching pattern to *begin* to take hold.

A hurdle to learning the Improvement Kata pattern is that while scientific iteration and the Five Coaching Kata Questions apply in each step of the IK, you only really learn these aspects when you get into Step 4. This means a Learner will need to have worked toward more than one target condition before s/he can start to apply the Improvement Kata pattern fluidly and naturally.

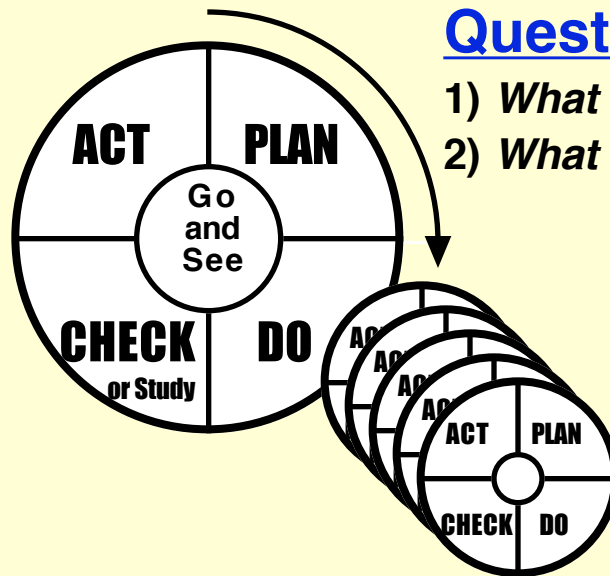


The patterns you practice and learn here will help you in all four steps of the Improvement Kata

EACH COACHING CYCLE NOW LEADS TO SOME KIND OF EXPERIMENT TOWARD THE ESTABLISHED TARGET CONDITION



THERE ARE BOTH LARGE AND SMALL PDCA CYCLES IN THIS PATTERN



Questions 1 & 2 = Large Cycle

- 1) *What is the target condition?*
- 2) *What is the current condition now?*

Questions 4 & 5 = Small

- 4) *What is your next step?
What do you expect?*
- 5) *When can we go and see
what we have learned from
taking that step?*

Illustration from *Toyota Kata*, page 144

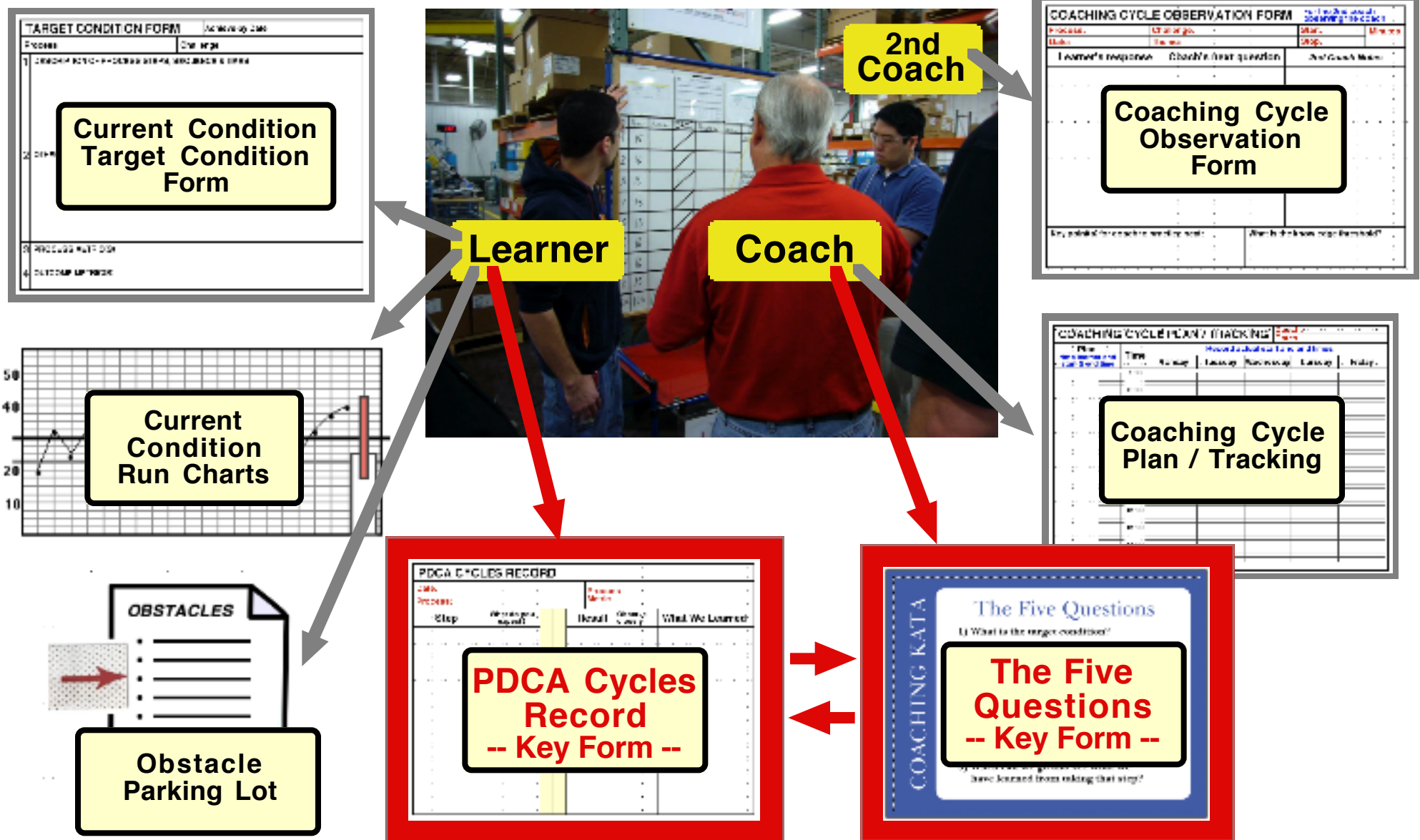


As a Coach you should be aware that learning, improvement, adaptation and innovation come from an accumulation of the **small** PDCA cycles.

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

MAIN FORMS FOR AN EXECUTING COACHING CYCLE

See the Appendix for blank copies



Explained in the Chapter about
STEP 4 of the Improvement Kata

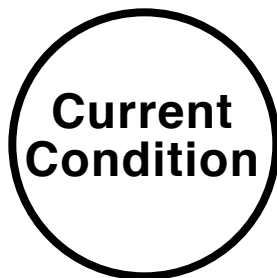
THE TWO KEY FORMS IN THE EXECUTING PHASE

PDCA Cycles Record

PDCA CYCLES RECORD (Back to the Obstacle)			
Obstacle:		Process:	
		Learner:	Coach:
Date, step & metric:	What do you expect?	What happened:	What we learned:



Used by the Learner



The 5 Questions

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.



Used by the Coach

Reminder: HOW THE LEARNER SHOULD BE USING THE PDCA CYCLES RECORD

The PDCA form is read left-to-right. Each row = one experiment. The pattern of the form repeats after each experiment.

① PREDICTION SIDE:
Before the first coaching cycle the Learner proposes the 1st step, what will be measured, and what s/he expects in the first two boxes of the form

PDCA CYCLES RECORD <small>(Each row = one experiment)</small>			
Obstacle:		Process:	
		Learner:	Coach:
Date, step & metric	What do you expect?	What happened	What we learned
X	X	X	X
X	X		







Do a Coaching Cycle
Conduct the Experiment

② EVIDENCE SIDE:
Once the step (experiment) is done, the Learner fills in data on What Happened, reflects by comparing that with the expectation, and records What We Learned

③ *Based on what was learned in the last experiment, the Learner proposes the next step, what will be measured and what s/he expects*

The information on the PDCA Cycles Record should be recorded by the Learner before the coaching cycle. During the coaching cycle you will either validate the Learner's proposed next step (next experiment), or help the Learner fine tune his/her plan for the next step.

WHY YOU HAVE THE LEARNER USE THE PDCA CYCLES RECORD

-  It teaches the Learner the scientific pattern of thinking and acting.
-  It forces the Learner to write down what they expect to happen.
-  It forces the Learner to think things through before the next coaching cycle.
-  It teaches the Learner to document facts and data in writing, rather than relying on verbal communication and assumptions.
-  It has the Learner prepared for the next 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 experimenting instead of just on getting through the Five Questions.

COACHING CYCLE DO'S AND DON'TS



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



Ask the 5 questions while standing.....Conduct coaching cycles in the office at the process.

Have the Learner point to items on.....Just talk the storyboard while s/he is talking.

Have the Learner retime and graph the..... Use old current-condition data process metric before the coaching cycle.

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

**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**

PRACTICE THE 5 QUESTIONS SO YOU CAN *LISTEN*

“Most people do not listen with the intent to understand; they listen with the intent to reply” ~ Stephen R. Covey

Coaching supports both the development of Improvement Kata skills in the Learner and the attainment of target conditions. Coaching cycles are your method for daily teaching, and the Five Questions make up the flow of the dialog between you and the Learner in the *Executing* phase.

However, beginner coaches are usually mechanical as they are getting accustomed to going through the Five Questions. In your beginner-coach stage you'll probably be too focused on the Five Question card and not enough on seeing what the Learner is saying and whether that conforms to the intent of the Improvement Kata pattern. Until asking the Five Questions becomes habitual for you it will naturally be a struggle to ask the 5Q *and* be assessing what the Learner is doing.

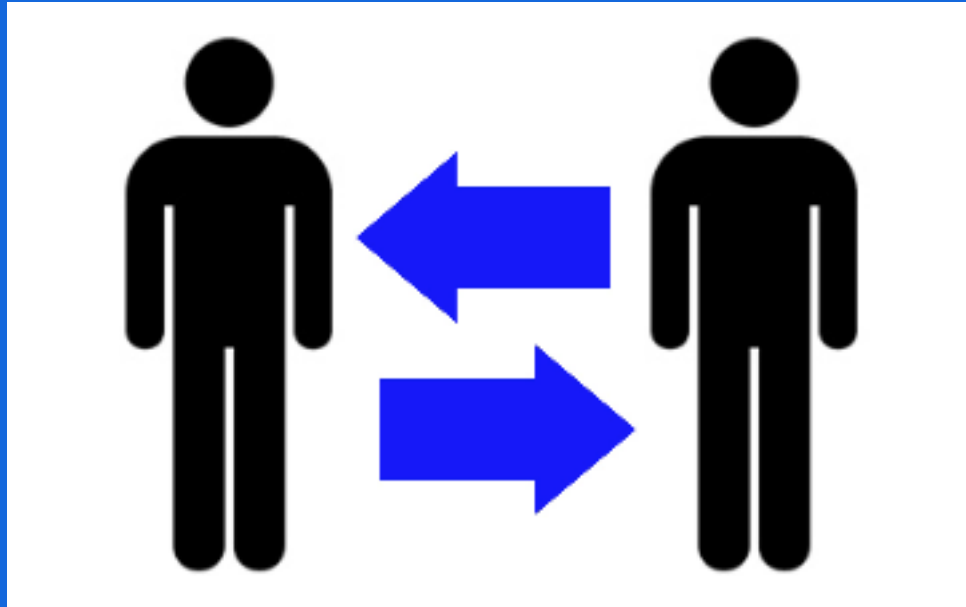
Here are 3 practice routines to help you get proficient with the 5Q and allow you to shift more of your attention to what the Learner is doing:

- > Pay close attention to the content of the Learner's PDCA Cycles Record. This helps you focus on PDCA instead of just on the Five Questions.
- > Get frequent practice with the Five Questions by also using them at other times daily -- for instance in meetings -- not just during coaching cycles.
- > In Stage 1 of your practice state the Five Questions exactly as they are written on the card, so they will grow into a habit.



How to Practice

A Coaching Cycle Step-by-Step



The Coach's routine in an Executing-phase coaching cycle looks like this

Includes



INSTRUCTIONS



WHAT THE LEARNER SHOULD DO

If possible have the Learner *show you what they are talking about*

0	What is the challenge?	Learner explains what s/he understands the overarching challenge to be, which comes from the level above the Learner.
1	What is the target condition?	Learner reads through the description of the target condition that's on the storyboard, pointing to the items as s/he reads.
2	What is the actual condition now?	Learner reads through the facts, data and diagrams on the storyboard of the current condition as it is now (not the initial current condition), pointing as s/he reads.
REFLECTION	What was your last step?	Learner reads the first box on the PDCA Cycles Record.
	What did you expect?	Learner reads the second box on the PDCA Cycles Record.
	What actually happened?	Learner reads the third box on the PDCA Cycles Record.
	What did you learn?	Learner reads the fourth box on the PDCA Cycles Record.
3	What obstacles do you think are preventing you from reaching the target condition? Which *one* are you addressing now?	Learner reads through the items on the Obstacles Parking Lot and then points to the obstacle they are currently working on. The Learner should stick an arrow next to this obstacle. The Learner may work on one obstacle for several PDCA cycles.
4	What is your next step? (next PDCA experiment) What do you expect?	Learner proposes the next step, reading the first and second boxes in the next row of the PDCA cycles record. Ensure the Learner is designing a good next experiment before you approve it.
5	When can we go and see what we have learned from taking that step?	Learner proposes date & time for the next coaching cycle. Ensure that the Learner is doing the experiment as soon, quickly & cheaply as possible. Agree on facts & data to bring to next coaching cycle.

BEGIN THE 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 facing the Learner's storyboard, rather than always facing the Learner 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.

HELP THE LEARNER FEEL OK BEING A BEGINNER



It can be uncomfortable to be a beginner, because you feel unsure of yourself and lose a sense of identity. A beginner becomes vulnerable.

One key to putting the Learner at ease may be to help them realize it's normal to be a beginner, just like an athlete, with the Improvement Kata routines. Your Learner will naturally try to be skillful right from the start, especially if you are his or her boss. So it can help to create a mindset that it's OK to make mistakes and of enjoying the discovery and learning process.

Feel free to explain to the Learner that what s/he's doing is practicing a skill pattern to make it a habit. Many of us practice with more interest and motivation when we know what we're doing and why.

ASK THE LEARNER *WHAT IS THE CHALLENGE?*

Following the flow of the Storyboard, have the Learner name the focus process and state the overarching Challenge, i.e., the direction in which s/he is striving

Focus Process: **Challenge:**

Target Condition
Achieve by: _____

Current Condition

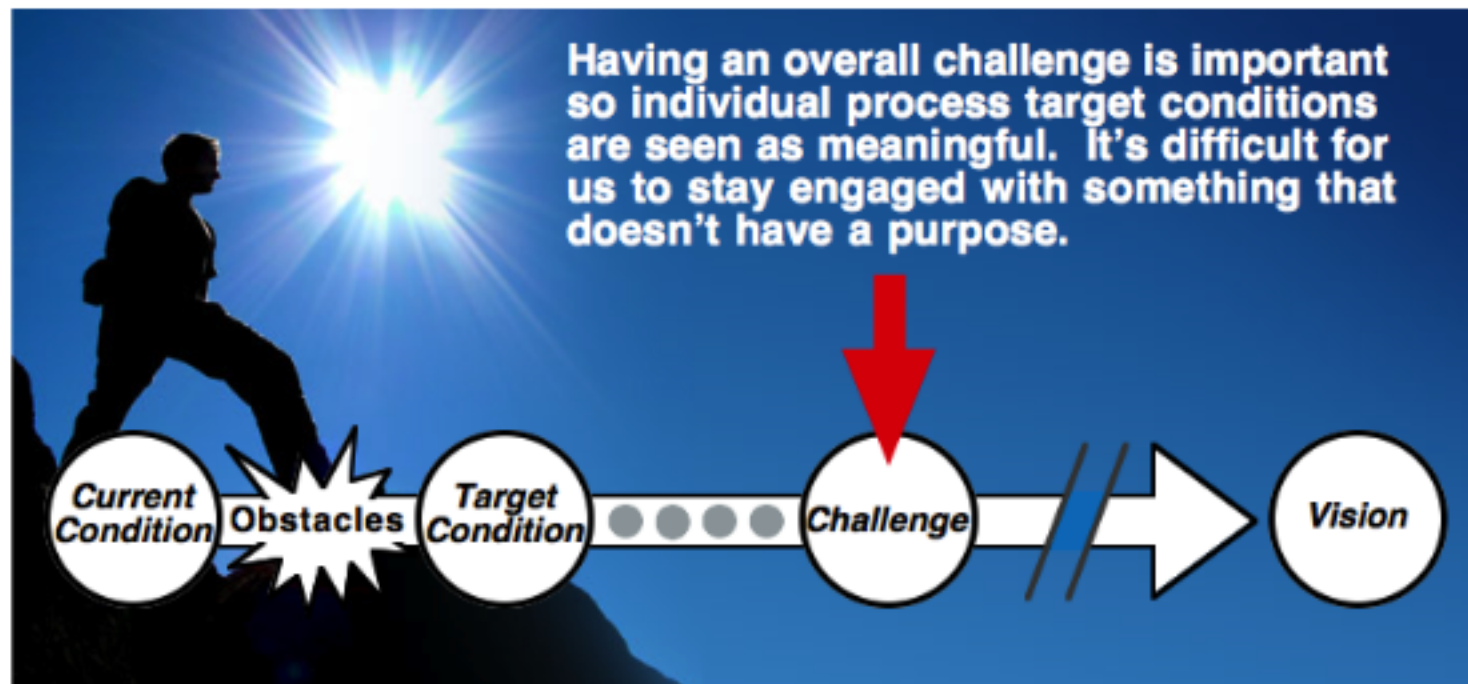
PDCA Cycles Record

Obstacles Parking Lot

THE CHALLENGE FRAMES THE COACHING CYCLE

Before you begin the Five Question coaching dialogue, have the Learner reiterate the overarching Challenge they're working toward.

This connects the Learner's Target Condition to the larger business objective from the level(s) above them and helps the Learner recognize how his or her efforts fit in and connect with the bigger picture. The rest of the Coaching Cycle dialog is anchored by the Challenge.



Now you can get into asking the Five Coaching Kata Questions 



Questions

1 & 2

MORE FRAMING & ANCHORING Orienting Yourself

1) What is the target condition?

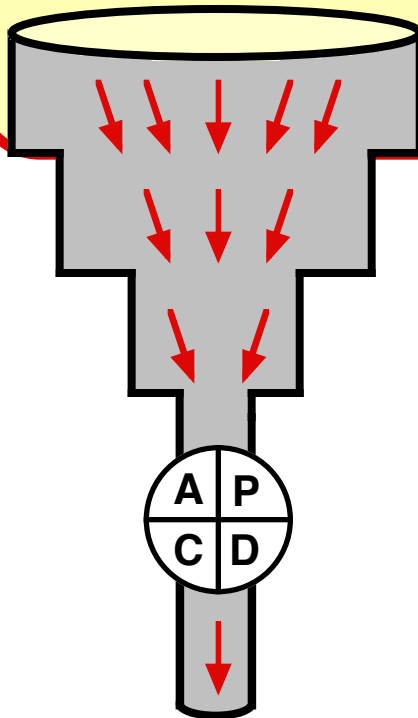
2) What is the actual condition now?

-- 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?





CLARIFYING QUESTIONS FOR QUESTION 1 *(Target Condition)*



--> The target condition should be measurable, have an achieve-by date and tie in to the overall challenge.

- *“Please read through the target condition.”*
- *“What do you want to be happening?”*
- *“What is the pattern you’re trying to achieve?”*
- *“What are the intended process steps and sequence?”*
- *What is the achieve-by date?*

- *“Tell me about how this target condition relates to the overall challenge.”*

- *“Can you describe the target condition with numbers?”*
- *“How are you measuring it?”*
- *“What is the process metric? What value do you want it to have?”*
- *“What is the outcome metric? What value do you want it to have?”*



CLARIFYING QUESTIONS FOR QUESTION 2 *(Current Condition)*



--> Question 2 refers to the current condition now, not the initial current condition.

- *“What are the latest facts and data for the current condition now?”*
- *“How do you know?”*
- *“Do you have data?”*
- *“Can you show me?”*

--> From this point forward a useful question is:

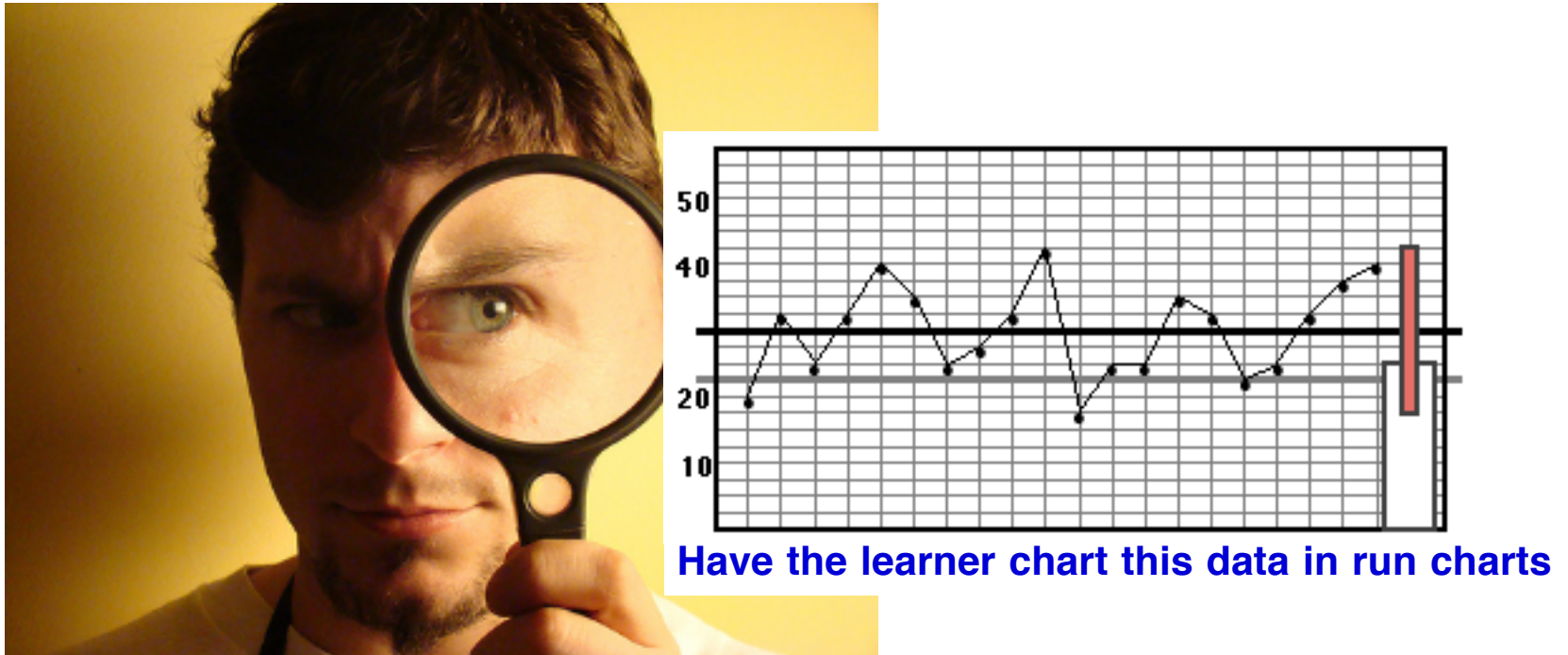
- *“What do you think?”*

Remember, you're asking this question to see if the Learner is thinking scientifically according to the pattern of the Improvement Kata. An answer such as, *“I think we're not sure yet”* is scientific, but answers such as, *“I think what's going on is...”* are more conjecture.

--> To ensure the Learner's comments are based on facts and data, not assumptions, at any time you can say, *“Tell me more about how you know that.”*

AT QUESTION 2:

Review the current values for the process metric and outcome metric. These are the minimum metrics that the Learner should have graphed.



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

KEY POINTS FOR QUESTIONS 1 & 2

- ❑ **Consensus on both the target condition (Question 1) and current actual condition (Question 2) is essential to avoiding endless discussion. What is the Learner trying to achieve and where are they 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 frame the dialog and teach the thinking pattern inherent in the 5 questions.**
- ❑ **Many new coaches ask, “*Do I really need to ask Question 1 every coaching cycle?*” The answer is ‘yes’ for two reasons:**
 - **It's “Anchoring.” The rest of the coaching cycle then relates back to the first question.**
 - **Asking Q1 in each coaching cycle helps you ensure that the Learner remains aligned to to the overall Challenge.**
- ❑ **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 point in the coaching cycle.**

KEY POINTS FOR QUESTIONS 1 & 2

- ❑ During the coaching cycle ask the Learner to physically point at relevant supporting documents and data. For example, at Question 1 the Learner should point to the Target Condition Form and read the target condition



- ❑ 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 relative to the target condition.

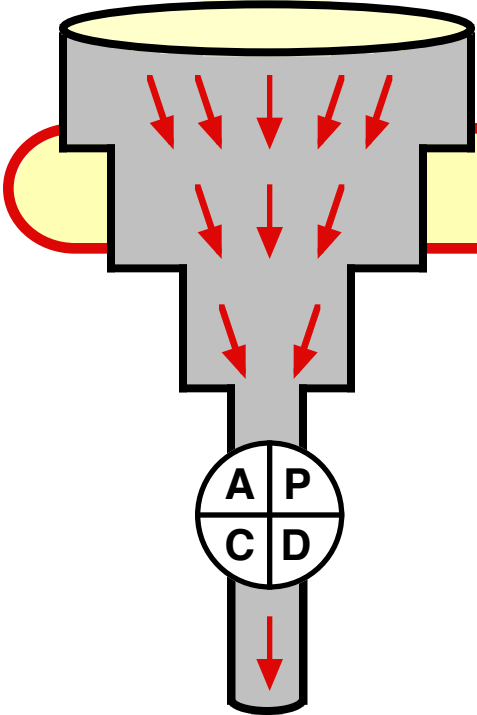
- ❑ For Question 2 the Learner should point to facts and data on his/her storyboard.



- ❑ A coaching-cycle dialog should use current facts and data as much as possible. At the end of each coaching cycle you and the Learner will agree on what data the Learner should collect and graph *before* the next coaching cycle.

- ❑ For Question 2 the learner should not refer back to the initial current condition. The learner should describe the condition now, based on recent direct observation.

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?

ALWAYS CHECK THE RESULTS OF THE LAST STEP

This is the *Evidence* and *Evaluate* portion of the learning cycle

Until the Learner checks, no one knows with certainty what the result of a step will be. Up to that point what the Learner expects to happen is only a hypothesis.

This is an important point in the coaching cycle. What the Learner learns from the last step helps him/her see the next threshold of knowledge and determine the next step (the next experiment).

To reflect, the Coach asks these four questions:

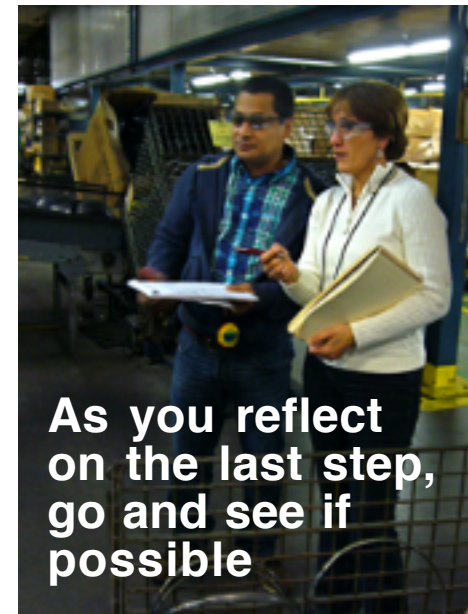


Q1) *What was your last step?*

Q2) *What did you expect?*

Q3) *What actually happened?*

Q4) *What did you learn?*



TO REFLECT ON THE LAST STEP, LOOK AT THE LAST FILLED-IN ROW OF THE PDCA CYCLES RECORD

The Learner should have recorded the results and what was learned from the last step on the **right side** of the PDCA Cycles Record before the coaching cycle. The Learner should point to boxes 1-4 when responding to the 4 reflection questions.

(Q1 & Q2) The Learner should read through the prediction and expectation s/he recorded on the **left (prediction) side** before the experiment.



(Q3) Next the Learner should read the data on what actually happened, which is summarized in the *"What Happened"* box on the **right (evidence) side**.

(Q4) Then the Learner should compare the evidence with the prediction and describe what s/he learned about the focus process, or the process of improving it, which is summarized in the *"What We Learned"* box.

PDCA CYCLES RECORD			
Date: 2-20-12 2 ND SHIFT		Process Metric: PALLET ON FLOOR	
Process: PACK			
Step	What do you expect?	Result	Observe
INTERNAL HAND: COMPLETE STRAP FINISH SUB-TASK IN RT PICKER REMOVE FINISH BODS + PACK PALLET ON FLOOR.		PICKER COMPLETED TASK AT OR UNDER POT WITH LESS VARIATION & PALLET'S UNDER.	PICKER STILL HAD TO MAKE LABELS TO MAKE CABLES PICKER IS GO TO GUY IN AREA.

PDCA CYCLES RECORD			
Process:		Obstacle:	
Learner(s):		Coach:	
Date, Step & Metric	What do you expect?	What Happened	What We Learned
	Q1	Q2	Q3

Have the Learner immediately adjust or correct what was written if necessary

ACTION

PDCA CYCLES RECORD			
Process:		Obstacle:	
Learner:	Coach:		
Data, Step & Metric:	What do you expect?	What Happened	What We Learned
PREDICTION	EVIDENCE	EVALUATE	
A Coaching Cycle about the Experiment			



CLARIFYING QUESTIONS FOR THE REFLECTION



Q1: What was your last step?

- *“Let’s look at the ‘prediction’ side of the PDCA Cycles Record.”*
- *“What was the threshold of knowledge?”*
- *“What did you plan to do?”*

Q2: What did you expect?

- *“What did you think would happen?”*

Q3: What actually happened?

- *“Now let’s look at the ‘evidence’ side of the PDCA Cycles Record.”*
- *“Did you collect any data?”*
- *“What does the data say?”*
- *“What specifically did you observe?”*

Q4: What did you learn?

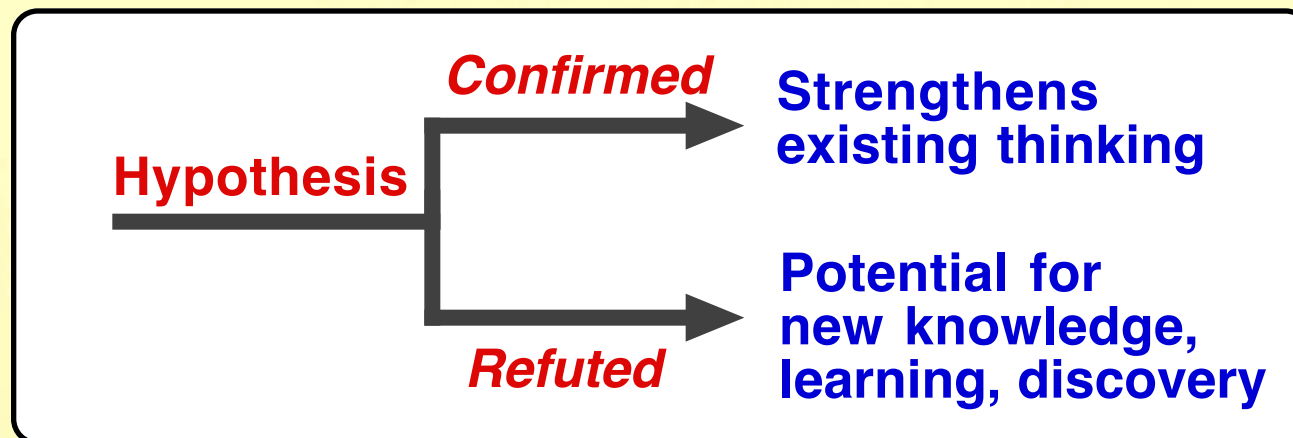
- *“If a hypothesis was being tested: Confirmed Refuted Can’t Tell*
- *“What do the data & your observations lead you to believe?”*
- *“What are the implications for your next step?”*
- *“Why is this important?”*
- *“How will this help you?”*

KEY POINTS FOR THE REFLECTION

- ❑ 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.

The Learner must experience small mistakes - prediction error - in order to learn.



KEY POINTS FOR THE REFLECTION

The coach should depersonalize the experiments

- ❑ **Acknowledging and learning from prediction error can be difficult because it runs counter to our instincts.**

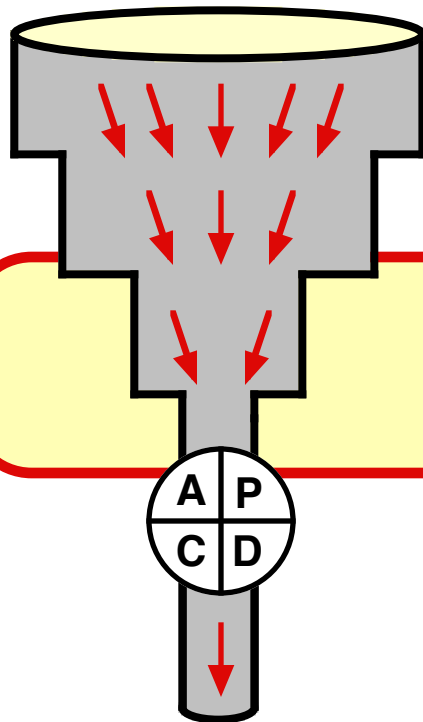
If the Learner feels threatened by problems s/he may too quickly jump to more countermeasures, rather than analyzing and learning from the situation.

- ❑ **The idea is to not stigmatize prediction errors, but to use them to learn. To function in this way the reflection should have a positive, challenging, no-blame feeling. It's the coach's responsibility to create this depersonalized atmosphere.**

The Coach should think of an abnormality or problem not as good or bad, but as simply an occurrence that may teach us something about our work system.

Of course, the Learner should continue rapidly experimenting and *learning forward* to achieve the target condition by its set achieve-by date.

STAY FOCUSED - ONE OBSTACLE AT A TIME



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?**

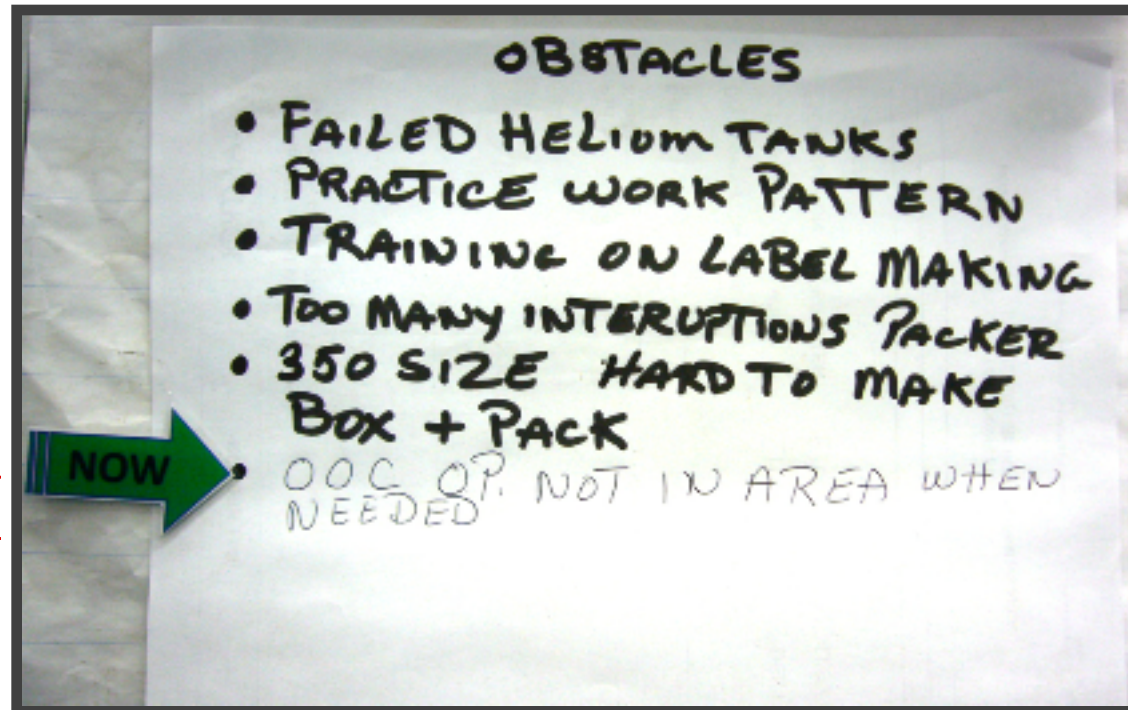
4) What is your next step? (next PDCA experiment) What do you expect?

5) When can we go and see what we have learned from taking that step?

HAVE THE LEARNER READ THROUGH THE OBSTACLE PARKING LOT



An arrow should indicate the obstacle currently being addressed



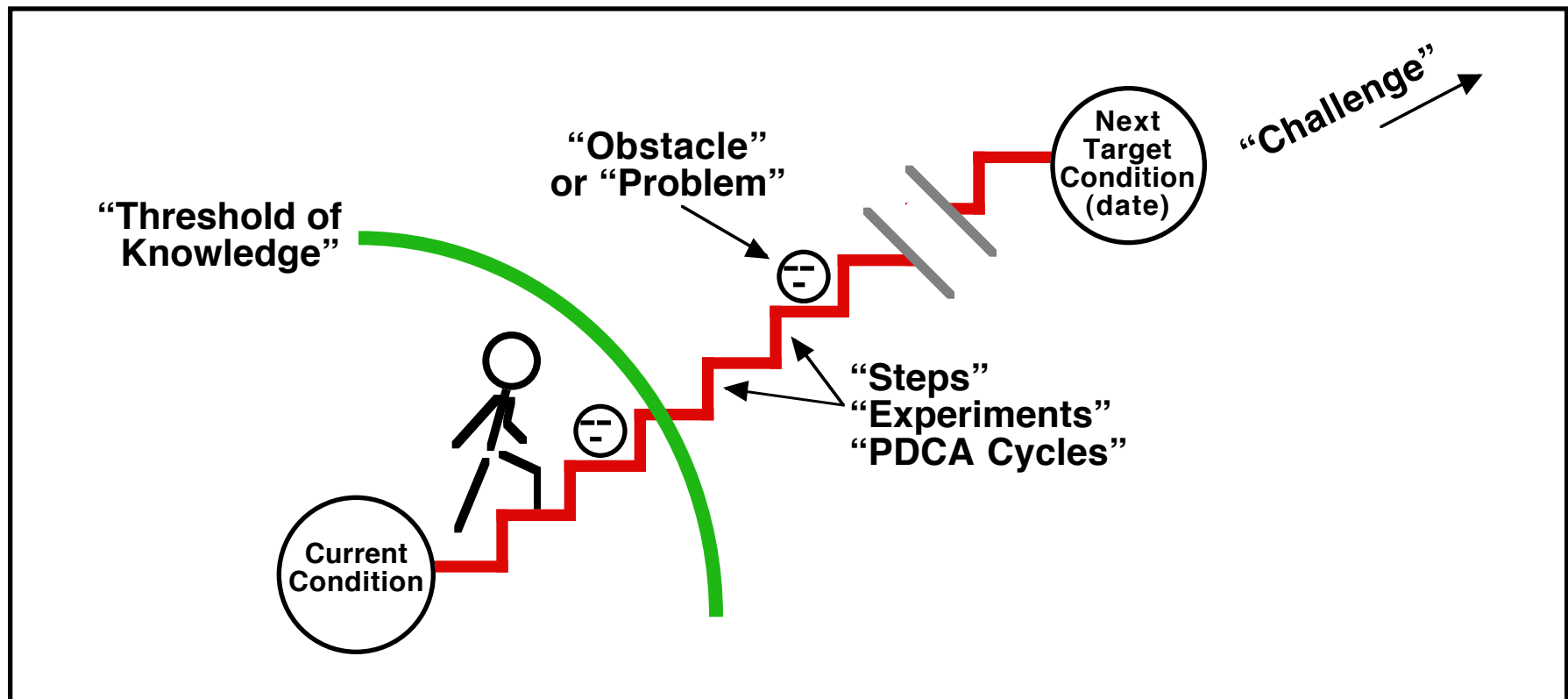
The Learner should have updated the Obstacles Parking Lot if new obstacles were discovered or some obstacles are no longer an issue.

Have the Learner read through the current list of obstacles. An arrow should indicate the obstacle that's currently being worked on. The current obstacle should also be written on the PDCA Cycles Record.

Remember, the Learner uses this Obstacles Parking Lot simply to record perceived obstacles or obstacles encountered on the way to the target condition. It's not an action-item list and the Learner will probably not end up working on all the listed obstacles.

PRACTICE USING THE RIGHT TERMINOLOGY

What the Learner does 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 the Learner overcomes an obstacle it means they've developed a **solution** to a problem.





CLARIFYING QUESTIONS FOR QUESTION 3 *(Obstacles)*



--> This question is about what problem you are currently trying to solve.

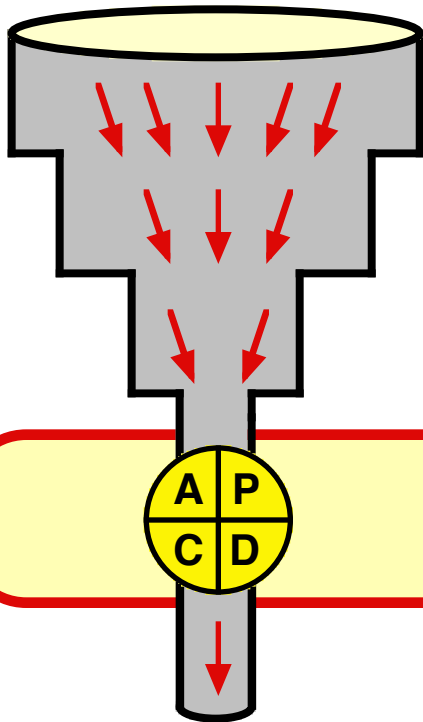
- ***“Are there any new obstacles you have identified?”***
(Have the Learner add these to the parking lot)
- ***“Have you overcome any of the previously listed obstacles?”***
(Have the Learner cross these off on the parking lot)

KEY POINTS FOR QUESTION 3

- ❑ Work on one obstacle at a time.
- ❑ It almost always takes more than one step to break through an obstacle, and often many more. The Learner may work on one obstacle for some time, going through a series of PDCA cycles related to that obstacle. This is normal.
- ❑ 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 these steps that ingenuity, adaptiveness and innovation happen.
- ❑ Don't worry about selecting the biggest or most important obstacle. Just have the Learner get started. The path will unfold as the Learner experiments. The biggest obstacles will wait for you.
- ❑ With novice learners, don't start with the most difficult obstacle. Have the Learner get some experience 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.

PLANNING THE NEXT PDCA EXPERIMENT

Ensure that the Learner plans a good 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?

HAVE THE LEARNER DESCRIBE THEIR NEXT EXPERIMENT AND HOW THEY WILL CARRY IT OUT

Based on evaluating the findings from the last experiment, the Learner should have described his/her proposed next step and expectation on the **left (prediction) side** of the PDCA Cycles Record before the coaching cycle.

The Learner should point to boxes 1 and 2 when responding to Coaching Kata Question 4.



This is a place to go into some depth in your dialog with the Learner. Use the checklist on the next page to either validate the Learner's proposed next step or help the Learner fine-tune the proposed step.

PDCA CYCLES RECORD			
Date: 2-20-12 2 ND SHIFT		Process: PALLET ON FLOOR	
Process: PACK		Metric:	
Step	What do you expect?	Result	What We Learned
MATERIAL HANDLING: COMPLETE START FINISH SUB TASK IN RT Pallet Area		Pallet completed task after UNDER PAT WITH LESS VARIATION & PALLETS UNDER	Pallet still had to make labels Pallets go to Guy's area
FRONT ENDING & OFFICE Pallet 12055			
LIST OOC ACTIVITIES			

PDCA CYCLES RECORD			
Process:		Obstacle:	
Learner's:		Coach:	
Date, Step & Metric	What do you expect?	What Happened	What We Learned

Have the Learner immediately adjust or correct what was written if necessary



COACH'S CHECKLIST FOR PLANNING THE NEXT EXPERIMENT

Take time to help the Learner design a good experiment

- You must identify the current Threshold of Knowledge. Ask the Learner what is the current knowledge threshold. What do you (Coach) think is the current knowledge threshold?
- Is the experiment being done at the current threshold of knowledge?
- Is the experiment a single-factor experiment? (This is not always possible.)
- Does the Learner have a plan to test their prediction soon, quickly and inexpensively?
- If the prediction fails will no one be harmed?
- Is the step measureable? Will the Learner be able to use facts and data to tell if the prediction was correct or not.
- The Learner has stated what s/he expects to happen, but does not actually know what will happen.
- Is the next step/experiment part of a chain, i.e., it springs from what was learned in the previous experiment?

“WHAT DO YOU EXPECT?”

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

Asking the Learner what they expect also helps you see if the learner is thinking systematically and scientifically, or only stabbing at the obstacle.

You can actually ask two slightly different questions here:

“What do you expect to happen?” and “What do you expect to learn?”

Also asking what the Learner expects to learn from the step helps cement in his or her mind that any step is an experiment. Treating ideas as hypotheses to be tested helps everyone move past ego.

These questions are one place you do want the Learner to go beyond the threshold of knowledge and predict. Here it’s OK to for the learner to say things like, *“I think...”*

THE EXPECTATION DEPENDS ON THE TYPE OF EXPERIMENT

Type of experiment	What the Learner can expect
<p>Go and See</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>Exploratory Experiment</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>Testing a Hypothesis</p> <p>Introducing a change, ideally in only a single factor, with a prediction of what will happen.</p>	<p>The Learner must predict the outcome of the change. This is the hypothesis to be tested.</p>



CLARIFYING QUESTIONS FOR QUESTION 4

(The Next Experiment)



--> (1) Help the Learner design a good next experiment, based on what was learned in the last experiment:

Key
Points

- ***“What do we need to learn next?”***
- ***“How will you test it?”***
- ***“How will you measure it?”***
- ***“What is the threshold of knowledge now?”***
- ***“How exactly will the experiment be done?”***
- ***“Exactly what data will you collect?”***
- ***“Who / how will you collect it?”***
- ***“Can you show me?”***

**Instead of, “Why?”
say, “Tell me more
about...”**

--> (2) Clarify what the Learner predicts:

- ***“What do you expect to happen?”***
- ***“What do you expect to learn?”***

Don't say, "Let's try it and see if it works," since this makes an experiment a matter of success versus failure. Say, "Let's try it and see what we learn."

KEY POINTS FOR QUESTION 4



Important

- Coach and Learner must have identified the **current knowledge threshold** before the next step is determined. The current knowledge threshold often defines what will be the next experiment. Often this will send you back to investigating something you thought you already knew.
The Learner may not recognize when s/he goes from knowledge to assumption. Here the Coach should 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.
- The Learner should set up experiments so that mistakes & unexpected results will not harm the customer process.
- 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

- ❑ 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. You're not looking for big leaps. You're looking for a good experiment.

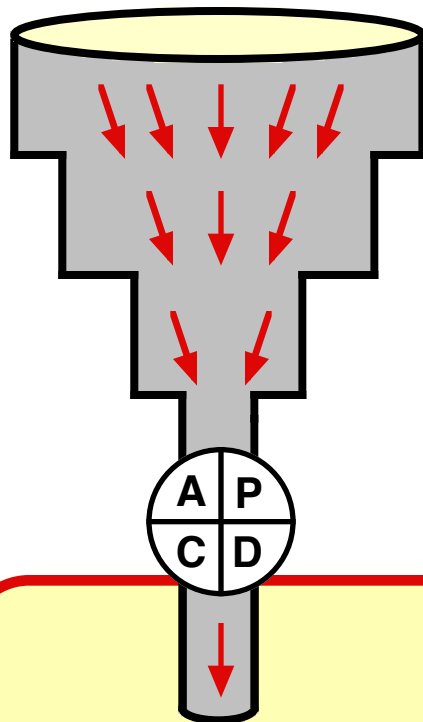
Caution: if your coaching cycles are not daily, the learner's steps will tend to get too big. The Learner will naturally introduce lots of changes before you return.

- ❑ 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 improvement toward the target condition. This is where the going gets tougher and improvement gets real.

- ❑ **As soon as the next step (not a list of steps) is clear, the coaching cycle is reaching its end.** There's no need for looking further ahead or long discussion beyond this point. Now it's time to take the next step as quickly as possible.

PREPARING 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?**



CLARIFYING QUESTIONS FOR QUESTION 5

(Next Coaching Cycle)



--> Set a specific date and time. When will the experiment be done and when is the next coaching cycle?

--> Use clarifying questions to teach the Learner to conduct rapid tests whenever possible

- ***“Can we do this experiment sooner?”***
- ***“Can we do it today?”***
- ***“How about right now?”***

--> What information do you want the Learner to have recorded on the Storyboard at the next coaching cycle?

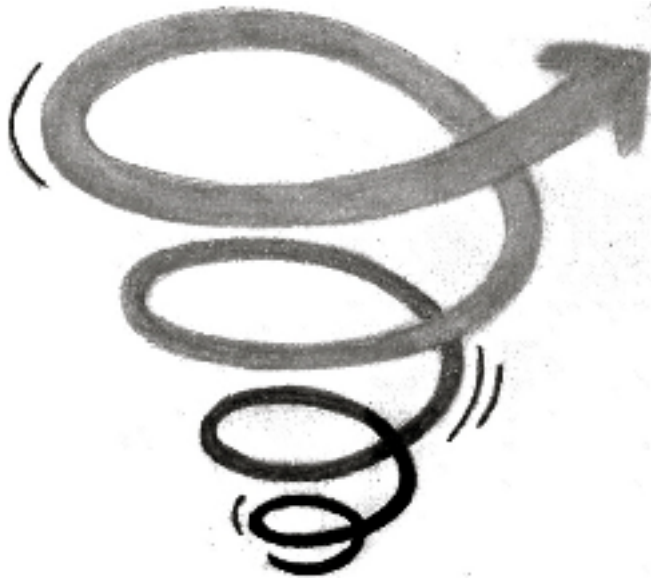
KEY POINTS FOR QUESTION 5

- ❑ 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?”*

- ❑ You and the Learner should agree on what data and information the Learner should obtain, prepare and bring to the next coaching cycle.
- ❑ Experiments should be done as cheaply and as quickly as possible. The coach should ask, *“Can we take this step right now?”*
- ❑ Let the Learner fail at certain points, then teach. A learner has to stumble in order to learn new skills.
- ❑ Since you don't know what the actual result of the next step will be, both you and the Learner will need to go and see (check) in the next coaching cycle.





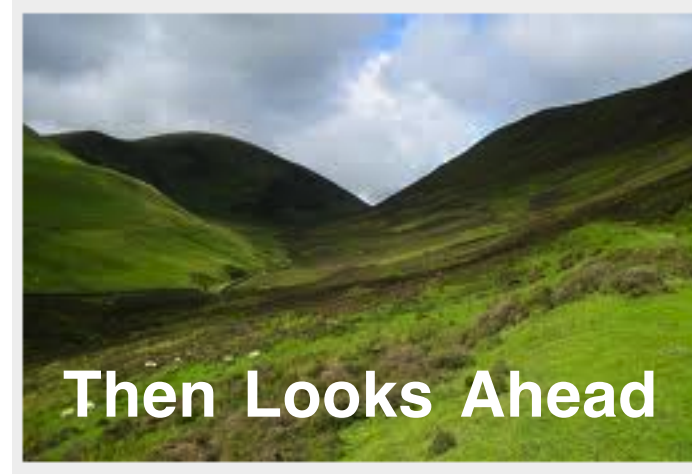
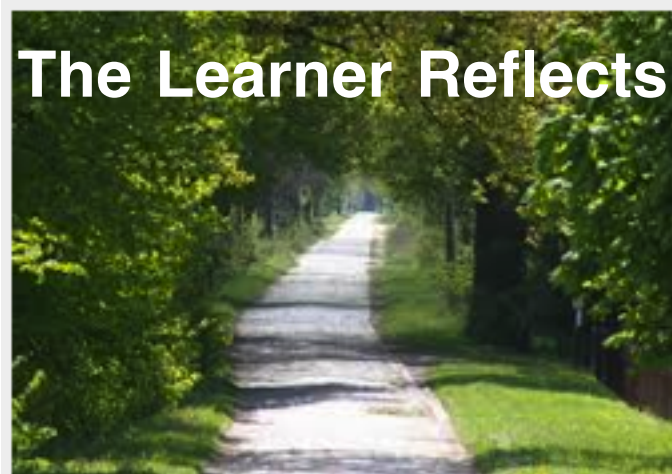
ON THE ACHIEVE-BY DATE THE OVERALL IMPROVEMENT KATA PATTERN REPEATS

At some point the Learner will reach the target condition achieve-by date and often, but not always, have achieved his/her target condition. At this time you should coach the Learner through the overall Improvement Kata pattern again. Specifically, have the Learner:

- Do a summary reflection, i.e. a major reflection over the entire process. This can lead to lots of learning that may be applied in the next cycle through the Improvement Kata pattern.

Then:

- Revisit the overall direction or challenge
- Grasp the current condition as it stands now
- Establish the next target condition



Remember, it will most likely take several successive target conditions in order to achieve the challenge.

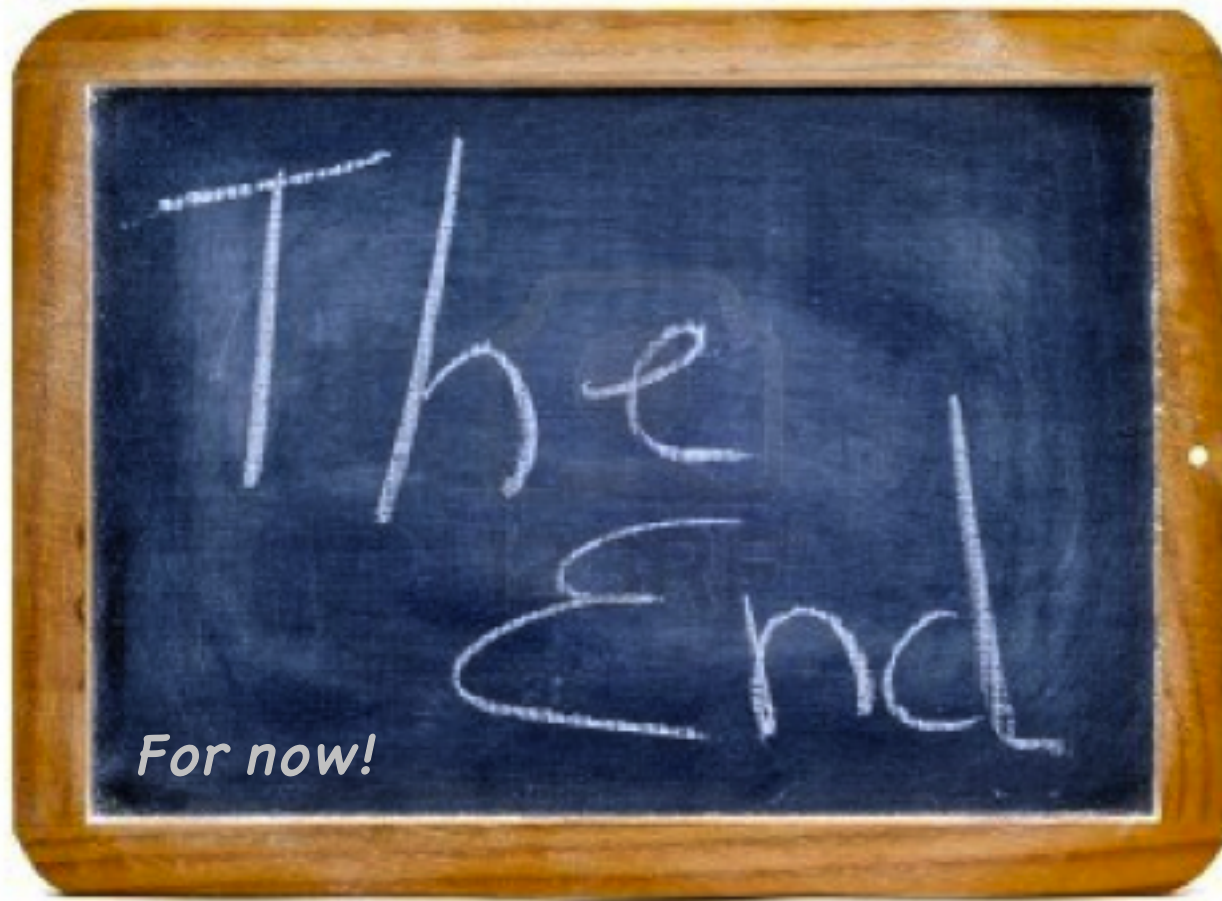


QUESTIONS FOR THE ACHIEVE-BY DATE SUMMARY REFLECTION



--> Have the Learner to reflect on and evaluate how s/he worked:

- *“Why are we using the Improvement Kata pattern?”*
- *“What did we gain by doing that?”*
- *“What went well?”*
- *“What could be better?”*
- *“What aspects of the Improvement Kata should we work on next time?”*



APPENDIX - KEY FORMS

- 1) **Improvement Kata Poster - The Five Kata to Practice**
- 2) **The Roles**
- 3) **Learner's Storyboard**
- 4) **Process Analysis Steps Table**
- 5) **Worksheet for Timing Cycles**
- 6) **Information in a Target Condition**
- 7) **Improvement Kata Proficiency Table (to gage skill level)**
- 8) **Coaching Kata Proficiency Table (to gage skill level)**

Coaching Cycle Forms:

- Who Uses What Forms**
- Where the Forms Go on the Learner's Storyboard**
- Current/Target Condition Form (for production)**
- Current/Target Condition Form (for office/service)**
- Current/Target Condition Form (for other processes)**
- Description of Work Steps & Sequence**
- Obstacle Parking Lot**
- PDCA Cycles Record**
- 5 Question Card (front)**
- 5 Question Card (back)**
- Coaching Cycle Plan / Tracking (coach)**
- Coaching Cycle Observation Form (2nd coach)**

IMPROVEMENT KATA *Where's the Threshold of Knowledge?*

PLANNING

Where do you want to go?

GRASP THE CURRENT CONDITION

*What are the facts
and data about
where you are now?*

2

Tool:
IK Process Analysis

UNDERSTAND THE DIRECTION

*What challenge are
you striving for?
(6 mo - 3 years out)*

1

Tool:
Future-State Mapping

ESTABLISH THE NEXT TARGET CONDITION

(with an achieve-by date)

*Describe where you
want to be next on the
way to the challenge.*

(1 week - 3 months out)

3

Tool: Current Condition
Target Condition Form

EXECUTING Then iterate to get there

ITERATE TOWARD THE TARGET CONDITION

*Conduct rapid, frequent
experiments to move
from current condition
to the target condition.*

4

Tool:
PDCA Cycles Record

COACHING CYCLES WITH THE 5 QUESTIONS

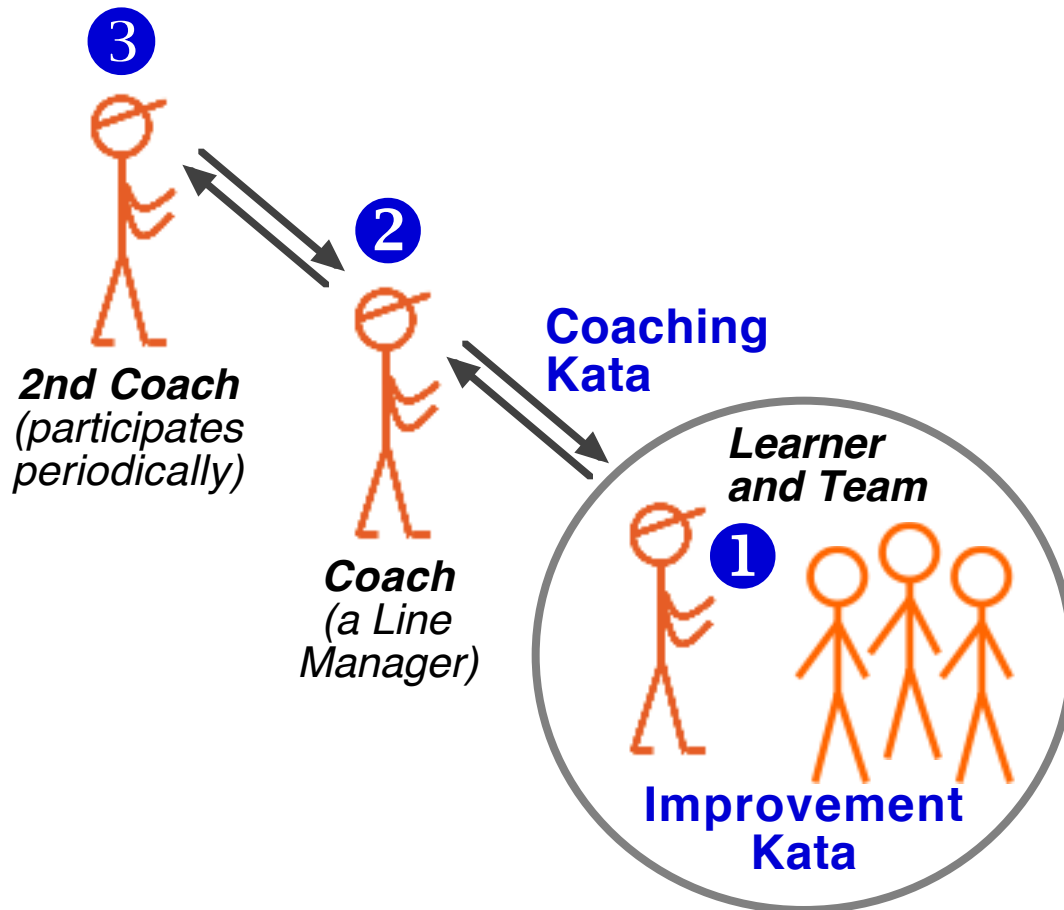
*Coach escorts the
Learner and gives
procedural guidance.*

5

Tool:
5-Question Card

Daily

THE ROLES



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 daily dialog with the coach and the process operators.

Coach / Manager (The Teacher):
Conducts coaching cycles daily using the 5 questions. Ensures the learner is working toward the target condition scientifically 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 between the coach and the learner. Helps the coach/manager develop his or her coaching skills. Ensures that the team's target condition ties in to a larger challenge, such as a future-state value stream design.

LEARNER'S STORYBOARD

Focus Process:		Challenge:
Target Condition Achieve by: _____	Current Condition Now	PDCA Cycles Record
		Obstacles Parking Lot

THE 5 STEPS OF THE PROCESS-ANALYSIS KATA

<p>Step ①</p>	<p>Customer Demand & Planned Cycle Time</p> <p>What is a task unit and how much time do we have to complete it?</p>	<ul style="list-style-type: none"> • Customer takt • Planned cycle time • Number of shifts currently running
<p>Step ②</p>	<p>Characteristics of the Current Process</p> <ul style="list-style-type: none"> • Sketch the current work pattern. • Measure & graph fluctuation. • Record bullet-point observations. 	<ol style="list-style-type: none"> 1) Get to know the process by sketching a block diagram of it. What are batch sizes? Where does WIP accumulate? 2) How much does the process fluctuate? Time and graph 20-30 exit cycles of each operator's work. Are each operator's work steps the same from cycle to cycle? 3) Note other details about current operating pattern
<p>Step ③</p>	<p>Equipment Capacity</p> <p>Do we have any machine constraints? What are they? (Data)</p>	<ul style="list-style-type: none"> • Can the automatic equipment support the planned cycle time? • How close are we to current machine capacity limit? • What is the fastest Pc/t the equipment can currently support?
<p>Step ④</p>	<p>Necessary Number of Operators</p> <p>How many people are necessary if the process were stable? (Calc)</p>	<ul style="list-style-type: none"> • Calculate number of operators
<p>Step ⑤</p>	<p>Outcome Metrics</p> <p>How is the process performing over time? (Outcome metric data)</p>	<ul style="list-style-type: none"> • Graph (a) output per shift, (b) overtime and any other desired outcome metrics

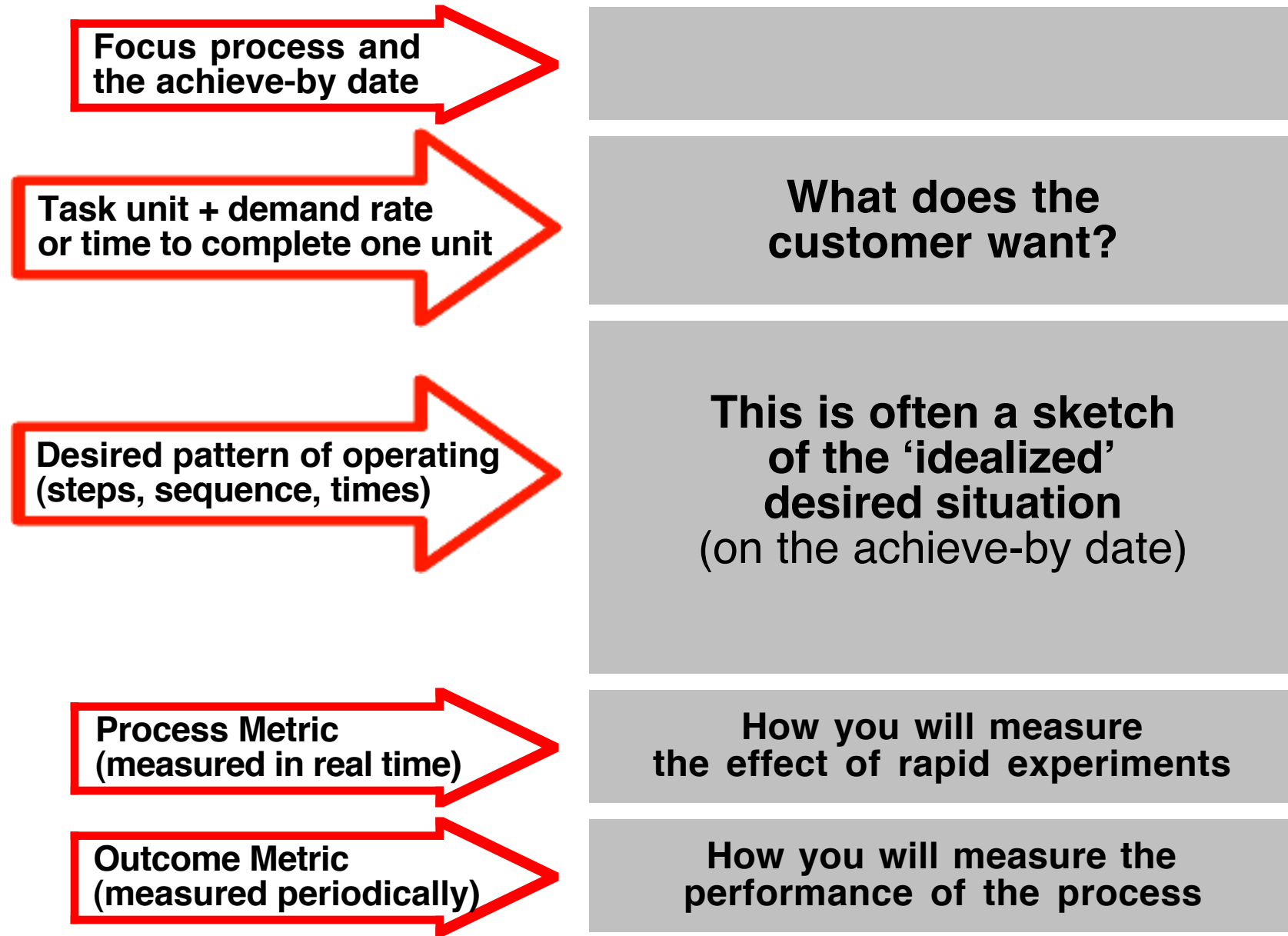
WORKSHEET FOR TIMING CYCLES

Process Metric	
----------------	--

	Observed Times (Data)	Observations about the current operating pattern (Facts)
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		

Note if there is consistent wait time

INFORMATION IN A TARGET CONDITION



IMPROVEMENT KATA PROFICIENCY ASSESSMENT

Note that this scale measures Improvement Kata skill level or degree of habit formation, not the person

Stage	Level	Description	Standard of Work	Autonomy
3	Expert Not everyone reaches this level	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
	Proficient	Has unconscious understanding and applies the IK routine more on "auto pilot." Deviates from the strict kata to fit the situation. Sees what's most important in a situation. High degree of self-efficacy with the IK pattern.	Fully acceptable standard achieved routinely	Able to take full responsibility for own work, and coach others
Competent		Has standardized and routinized procedures Sees actions partially in terms of LT goals Can prioritize	Fit for purpose, though may lack refinement	Able to achieve most tasks using own judgement
1	Advanced Beginner	Actions are based on the kata 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 coaching needed for overall task
	Novice	Strict adherence to the Kata. Little situational perception & discretionary judgement. Has to purposely concentrate on the IK routine. Low self-efficacy in applying the IK routine.	Unlikely to be satisfactory unless closely coached	Needs close coaching and instruction

Able to Coach

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

COACHING KATA PROFICIENCY ASSESSMENT

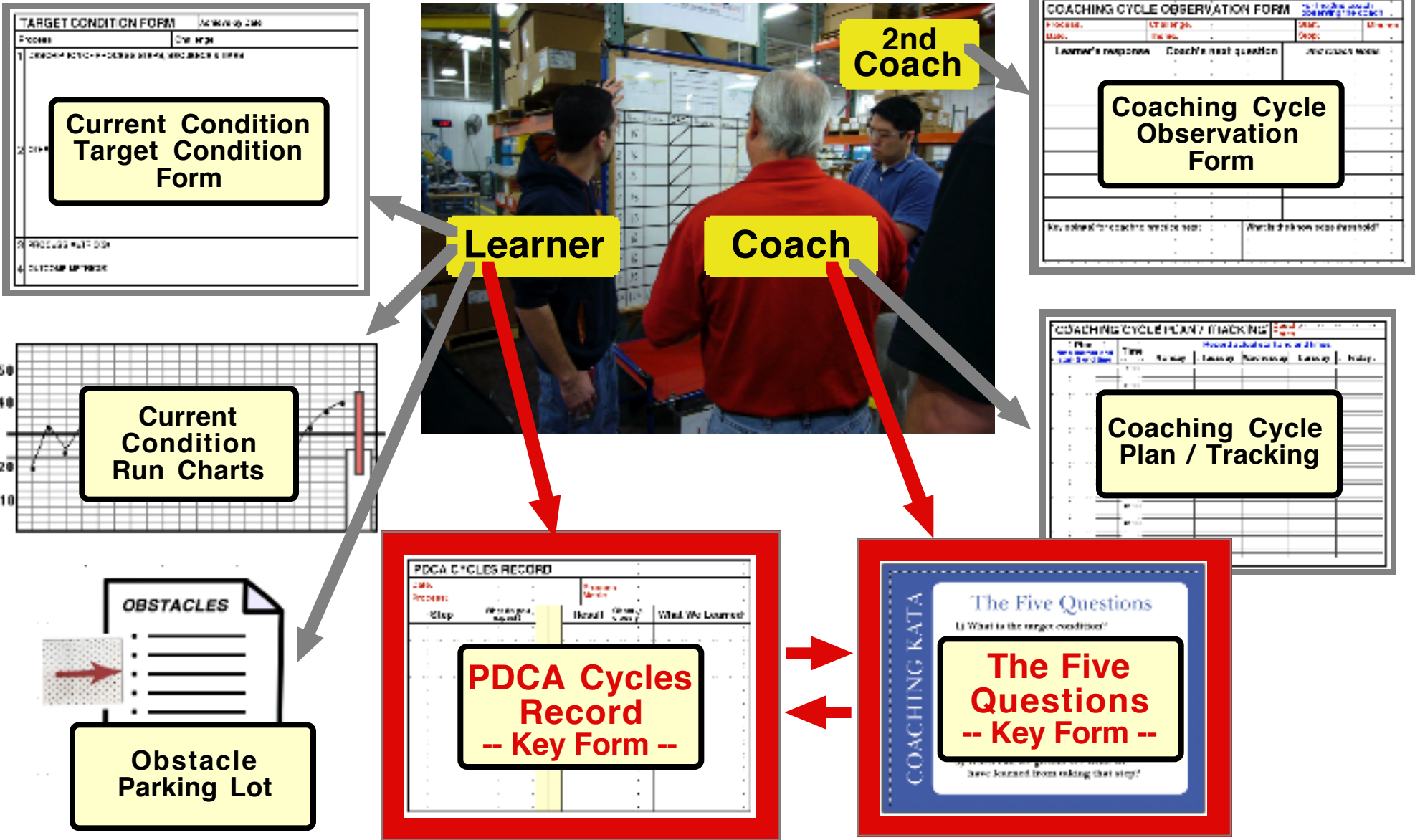
By Yvonne Muir, Jennifer Ayers & Julie Simmons

Stage	Level	Characteristics	Autonomy
3	Expert	<ul style="list-style-type: none"> • Intuitive grasp of coaching based on deep, practiced understanding • Direct, yet supportive • Coaching conversations are natural; learner doesn't notice being coached • Sought after for coaching advice 	2nd Coach needed occasionally
	Proficient	<ul style="list-style-type: none"> • Clear perception of learner's gaps or weaknesses • Uses coaching to guide: adapts to the situation, asks meaningful questions • Ability to assess learners preferred learning style (auditory, visual, kinesthetic) • 2nd Coach capability 	2nd Coach needed periodically
2	Competent	<ul style="list-style-type: none"> • Capable of sensing learners uncertainty level and knowledge threshold • Consistently coaches learner with a repeatable pattern • Coaching embedded in normal daily work 	
1	Advanced Beginner	<ul style="list-style-type: none"> • Narrow "development perception"; recognizes need for 2nd coach • Becoming comfortable providing feedback to learner • Beginning to observe and listen more (vs. talk and advise) • Asks some probing questions to gain insight 	Must have a proficient 2nd Coach at each coaching cycle
	Novice	<ul style="list-style-type: none"> • Rigidity in asking questions / uses closed ended questions • Lack of discipline to follow a pattern and recognize its importance • Focuses on results (command and control) • Not able to hear and identify when learner has hit a Threshold of Knowledge 	

Coaching Cycle Forms



WHO USES WHAT FORMS



CURRENT CONDITION / TARGET CONDITION



Overarching Breakthrough Challenge

Learner: _____ Coach: _____ Process: _____

Categories		Current Condition Date	Target Condition Achieve-By Date
1 Task unit & time to complete	Takt time		
	Pc/t		
	# of Shifts		
2 Current operating pattern	Process steps and sequence	<i>show block diagram</i>	<i>show block diagram</i>
	Batch size		
	Where WIP accumulates		
	Number of operators		
	% exit cycle (at end fluctuation of line)	<i>+ show all run charts</i>	
	Process metric		
3 Equipm. capacity	Machine capacity chart	<i>show chart</i>	<i>show chart</i>
4 People required	Calculated number of operators		
5 Outcome metrics	Actual output / shift	<i>show run chart</i>	
	Overtime?		

CURRENT CONDITION / TARGET CONDITION



Challenge:

Learner:

Coach:

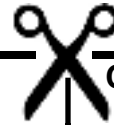
Process:

Outcome Metric

Process Metric

	Categories	Current Condition Date	Target Condition Achieve-By Date
1	Task unit and time to complete		
2	Current operating pattern		
3	Equipment capacity		
4	Number of people required		
5	Outcome metrics (performance data)		

CURRENT CONDITION / TARGET CONDITION



Challenge:

Learner:

Coach:

Process:

Outcome Metric

Process Metric

Categories

Current Condition

Date

Target Condition

Achieve-By Date

Obstacle Parking Lot

Obstacle

**How can you
measure that?**

●	_____	_____
●	_____	_____
●	_____	_____
●	_____	_____
●	_____	_____
●	_____	_____
●	_____	_____
●	_____	_____
●	_____	_____
●	_____	_____
●	_____	_____
●	_____	_____
●	_____	_____

PDCA CYCLES RECORD *(Each row = one experiment)*

Obstacle:		Process:			
		Learner:	Coach:		
Date, step & metric	What do you expect?	Do a Coaching Cycle	Conduct the Experiment	What happened	What we learned

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 OBSERVATIONS		Process:
		Date:
Coach:		Learner:
		Start/End:
Question	COACH	LEARNER
<i>Review Challenge</i>		
Q1: Target condition?		
Q2: Actual condition now?		
Reflect: PDCA Cycles Record		
Q3: Obstacles? Which one?		
Q4: Next step? PDCA Record		
Q5: When see what learned?		
What is the knowledge threshold?	Impressions:	
Key point(s) for this Coach to practice next:	Next coaching cycle:	