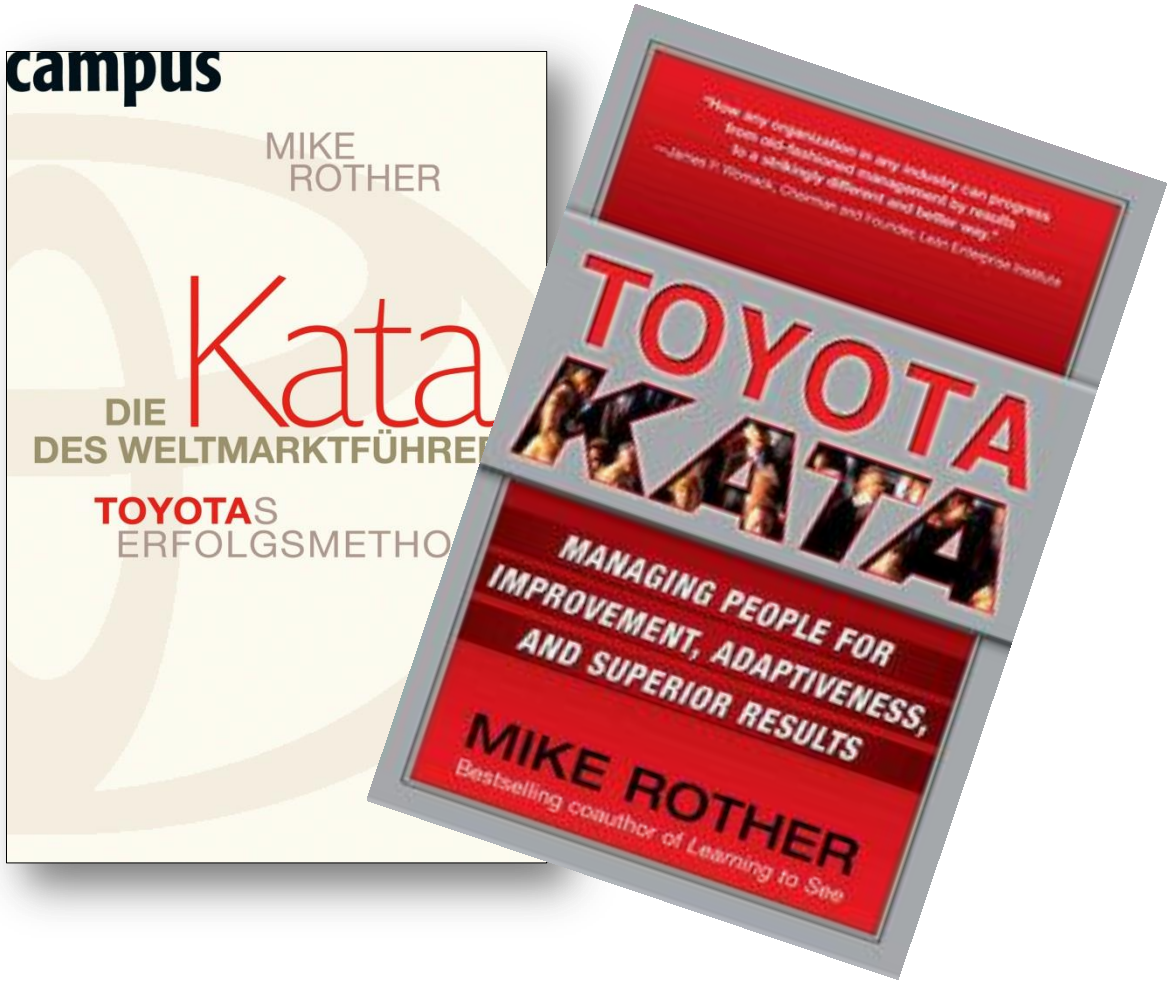
Leading, Learning, Innovation

How to unfold extraordinary human capabilities using the Improvement Kata

Gerd Aulinger, 2014

Since Toyota Kata´s publishing in 2009 companies worldwide have been experimenting with this new management method

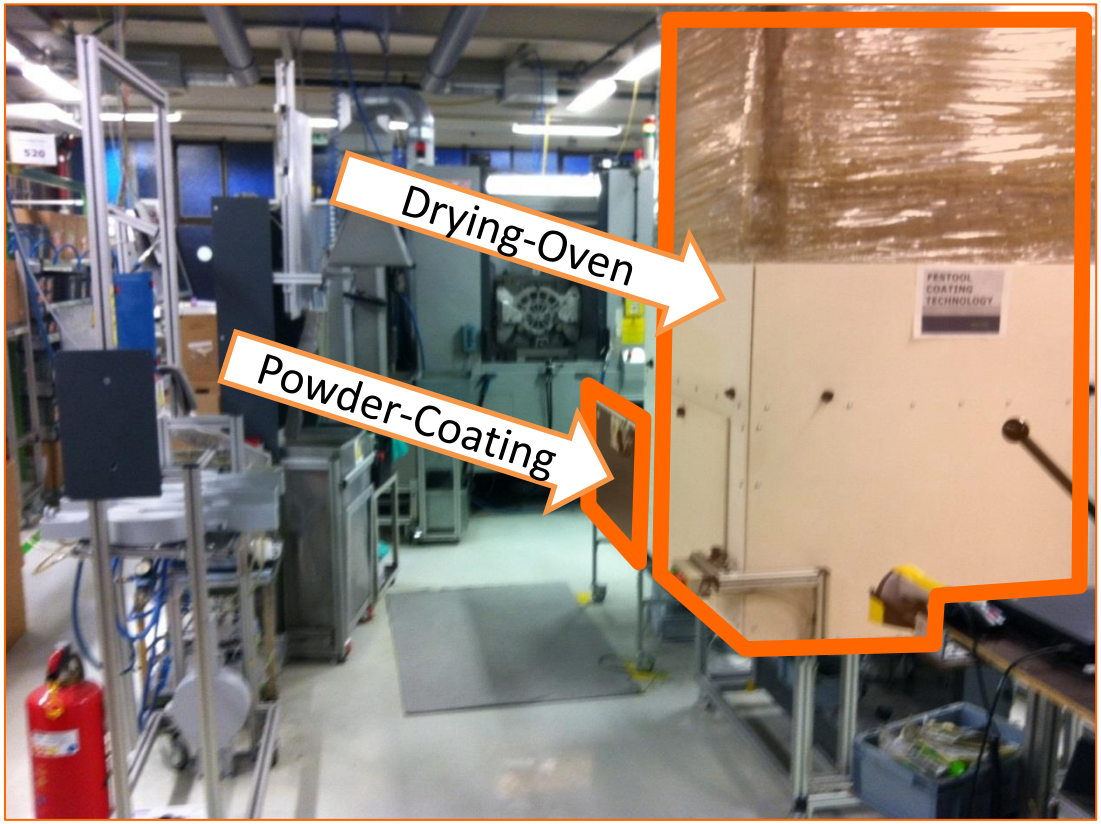


BMW decided to invest large amounts of money and time in the production of electric cars

Tesla Model S sets unprecedented standards for a „no compromise“ electric car

www.teslamotors.com

What you see here shouldn’t work at all, but it does!



The inline powder-coating equipment in this cell takes up just 11 m² and cost only € 60,000. External logistics were eliminated and coating costs halved, while quality was improved.

All this was done although coating experts said it couldn‘t be done!

What turns ordinary people into real, creative innovators?

Powder-coating equipment built entirely by ordinary Festool staff with no powder-coating experience.

Their advantage? They didn't know much, they had no preconceptions and, above all, they didn't know that it couldn't be done, but they did have a Kata!

Why do we need an Improvement Kata?

What might be the role of managers in this?

„Blackberry producer RIM admits defeat in battle against Apple.“

Spiegel-Online / 30.03.12

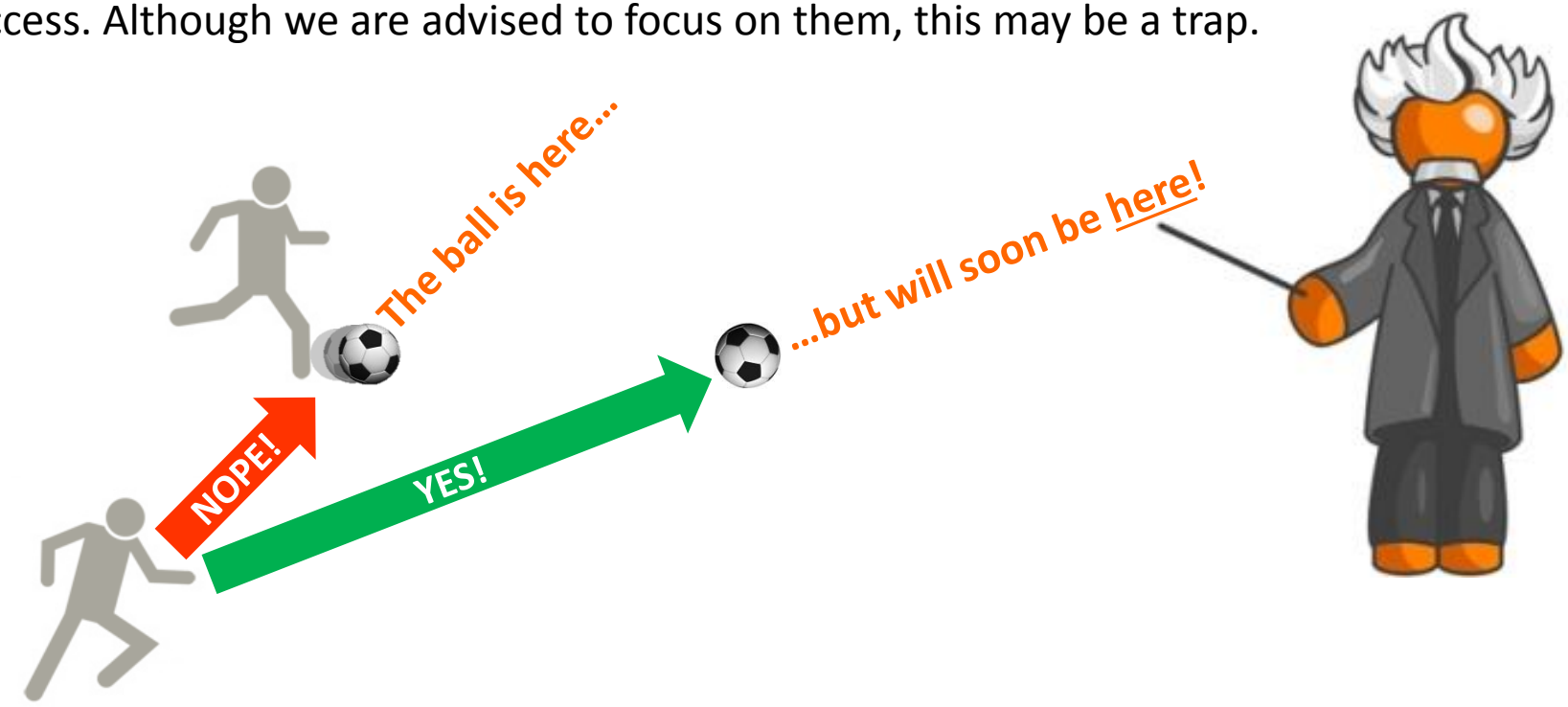
„The Blackberry producer RIM largely draws back from the private customer business – and is completely focusing on the corporate business from now on. They […] hope for a turnaround after a bad first quarter.

Spiegel-Online / 30.03.12

Source: finanzen.net, Date 29.05.12

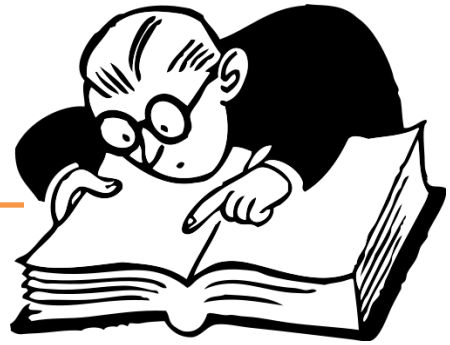
You don´t run to where the ball is,
but to where it´s going to be!

Just fine-tuning our **core competencies** doesn't guarantee our future success. Although we are advised to focus on them, this may be a trap.



We should also focus on our ***core in-competencies***...

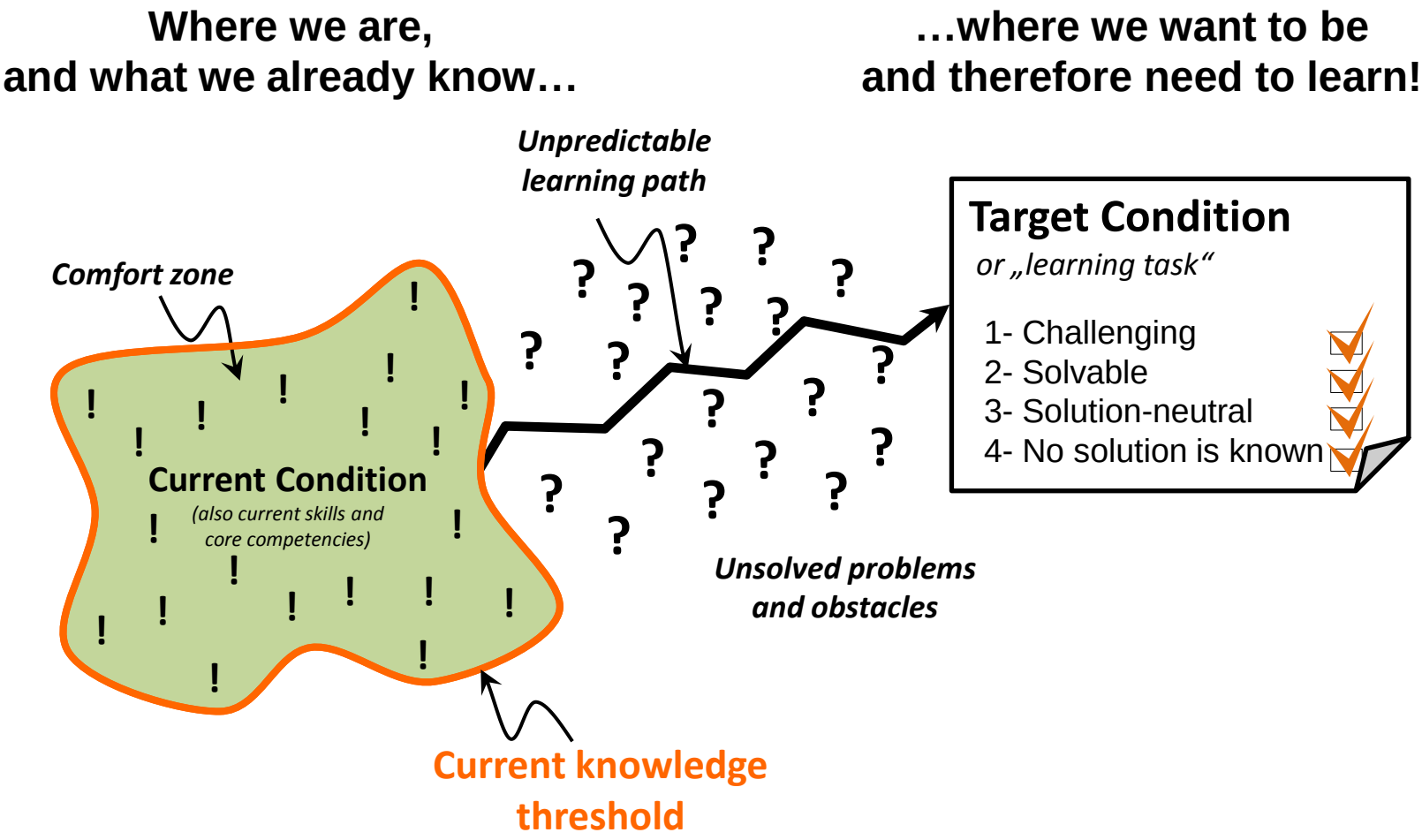
Do you know your organisation´s core *IN*-competencies?



A definition:

Core *in*-competencies: currently non-existent competencies that can become **future core competencies**, and indispensable for your organization's long-term competitiveness and survival.

The Improvement Kata is a scientific learning routine for generating new knowledge and developing new skills.



Kata are routines practiced deliberately…

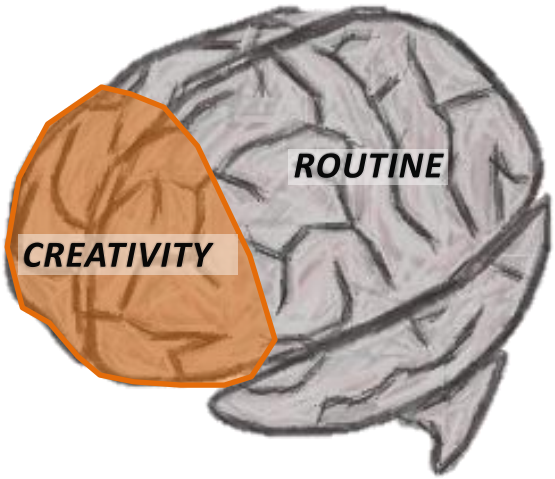
…to master new ways of acting and thinking, making them unconscious habits

The word “Kata” is derived from learning routines used to internalize combat techniques in the Japanese martial arts.

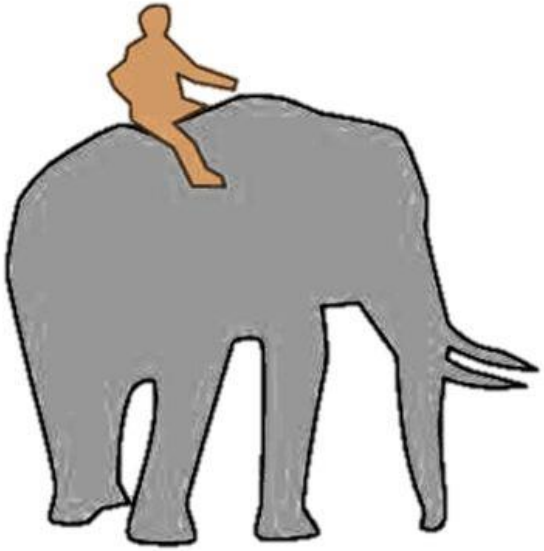
They are practiced in order to make this techniques second nature and thereby fast, reflex reactions, necessary, for example in unpredictable combat situations.

Simply put, our brain can be explained as if we had two brains, a creative, conscious, slow brain and a routined, unconscious brain

To some extent our brain behaves like..

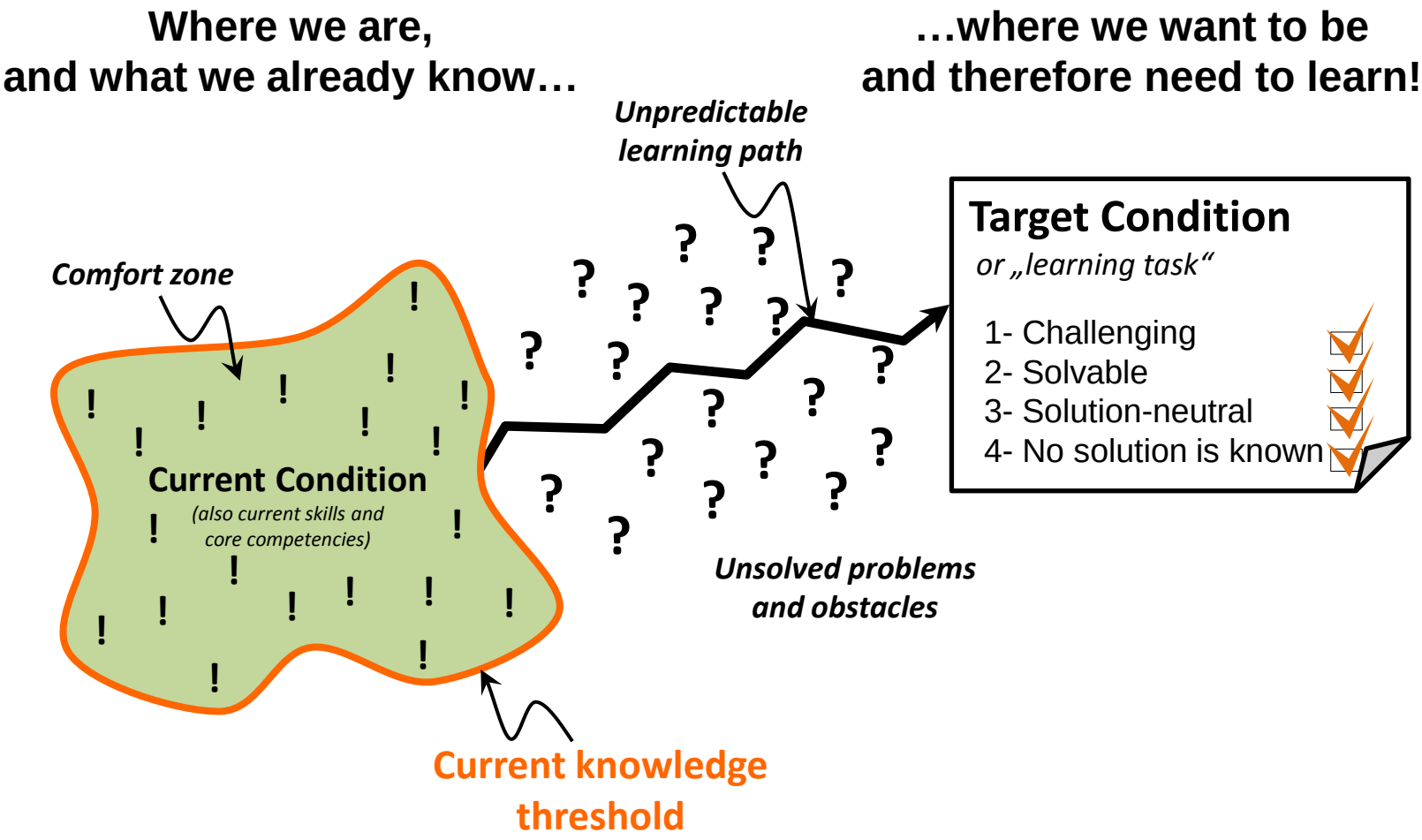


…a rider on his elephant



The **„rational, conscious brain“** has almost no chance to prevail against the unconscious and considerably more efficient **„automatic brain“**. For this reason the **„rider“** can just change the „**elephant**“, who loves to stick to its old habits, by repeatedly practicing learning routines or Kata aimed at displacing and replacing old, undesired habits with new, desired habits.

We use the Improvement Kata to gradually expand our knowledge threshold in a scientific, experimental way



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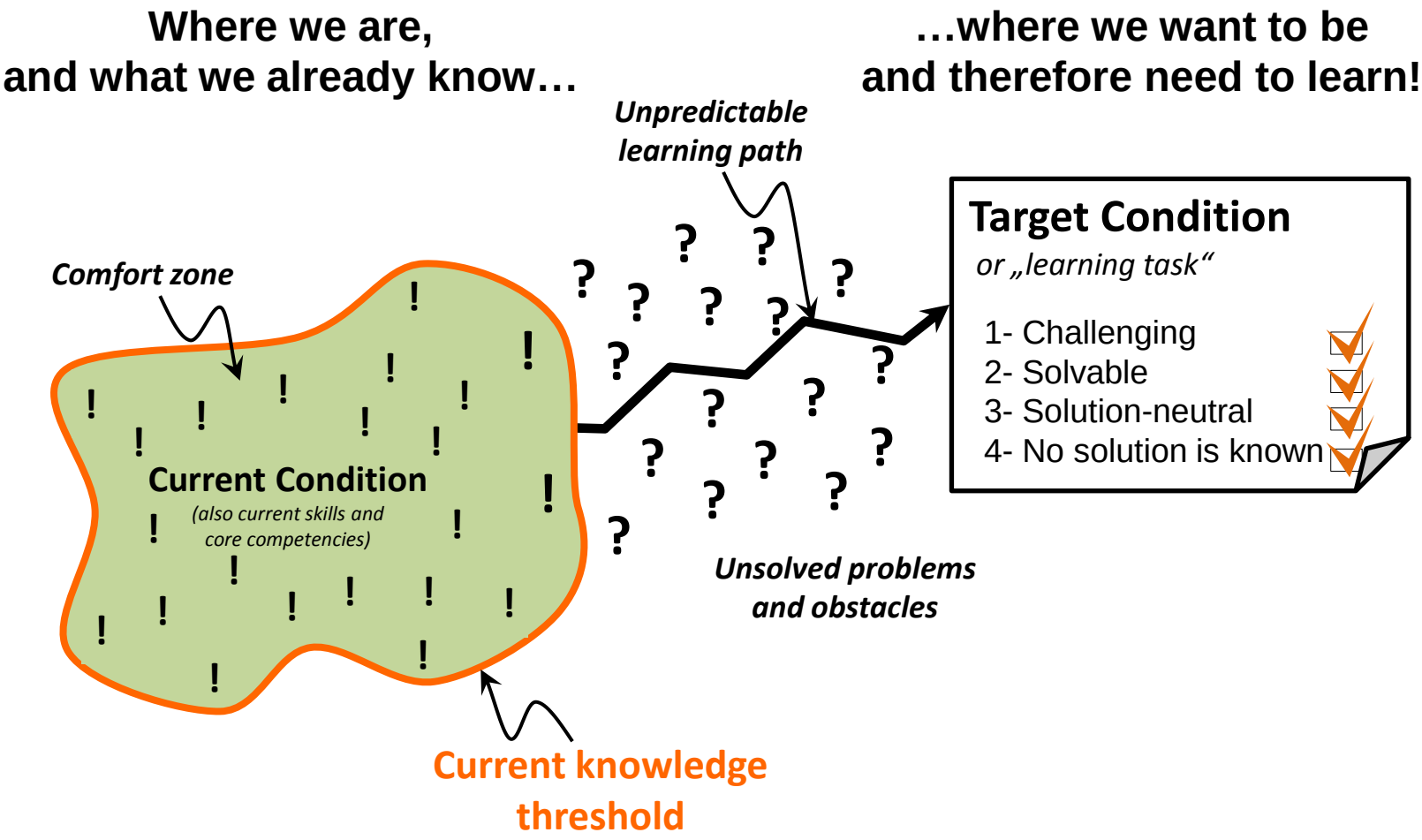

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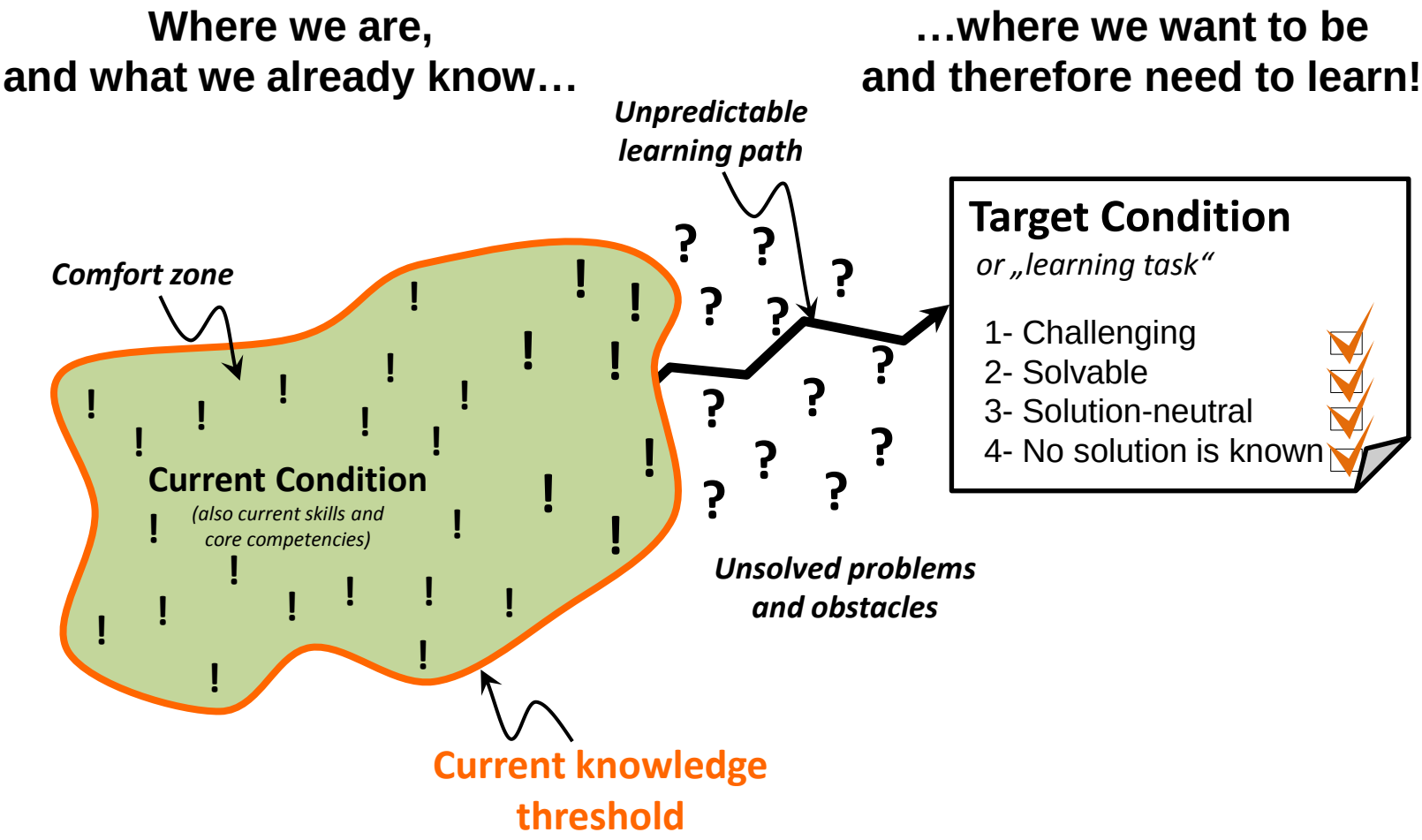

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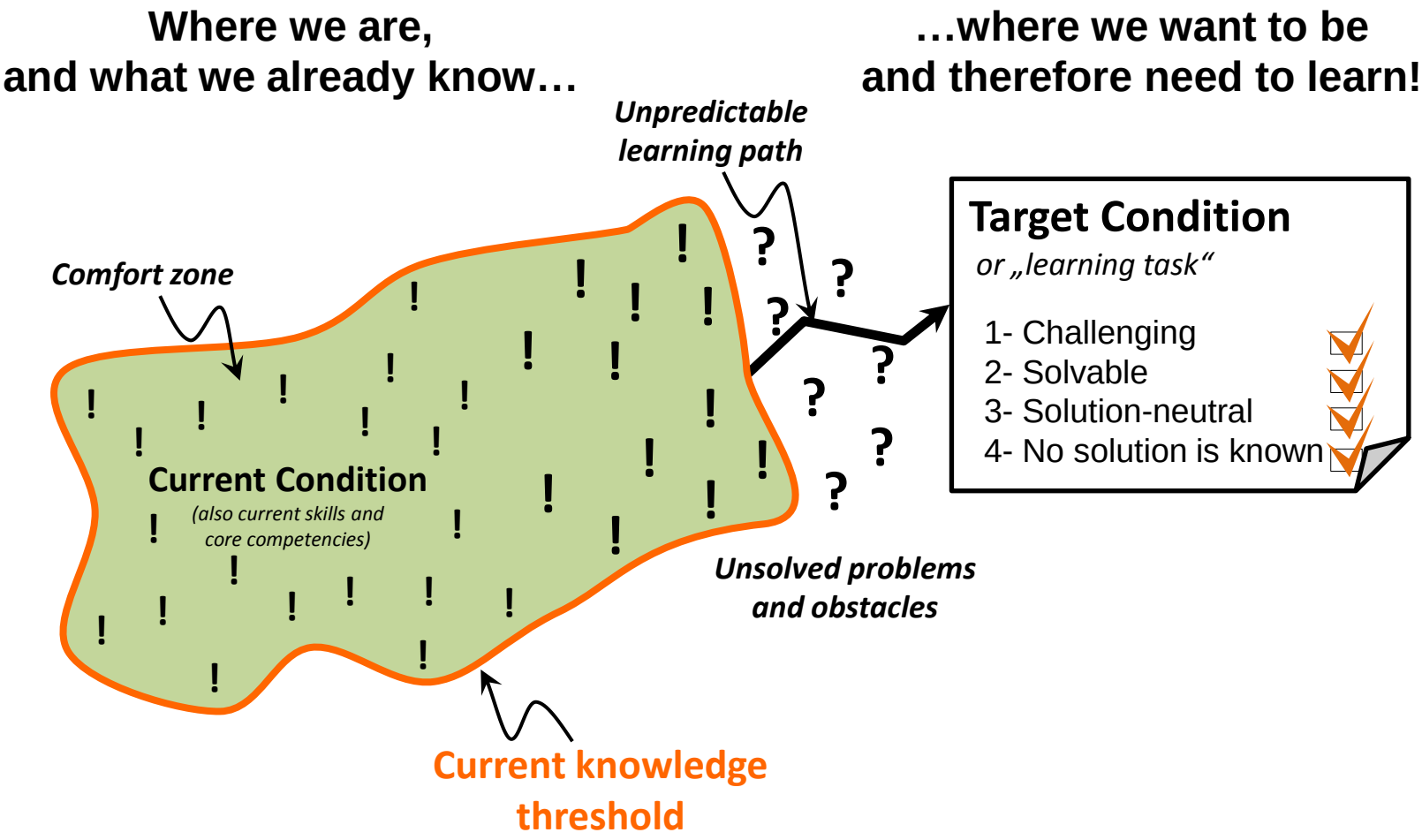
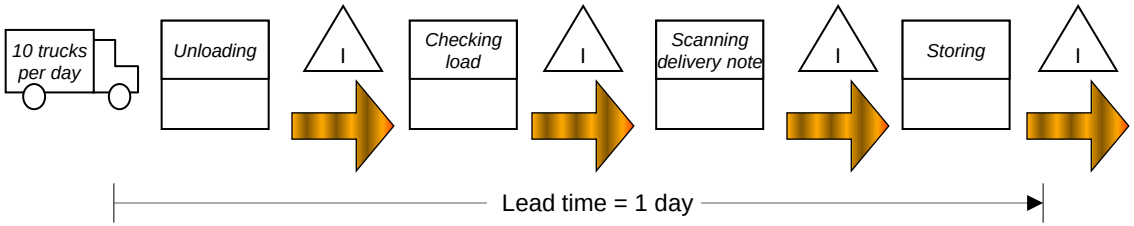


Application example

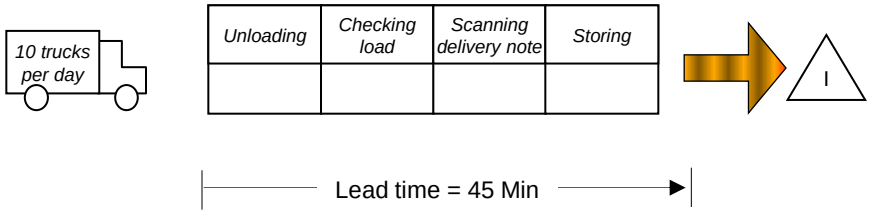
The *Improvement Kata* in a logistics company

After VSM target condition of unloading 1 truck every 45 min and directly storing containers in lot size 1 was agreed upon.

Current condition: „Batch and Queue“ unloading and storing



Target condition: „One by one“ unloading and storing



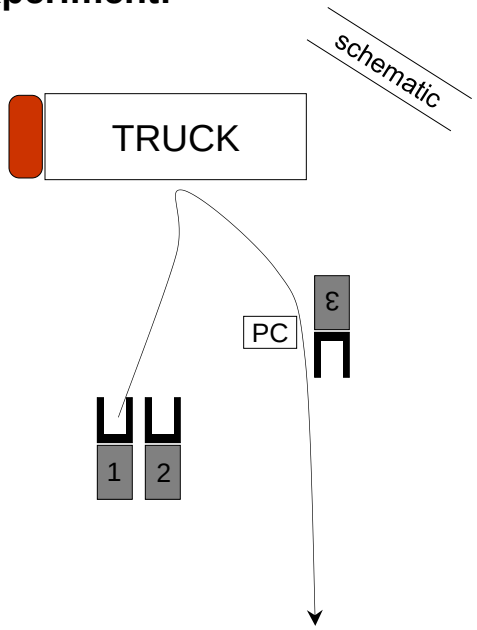
VSM:= „value stream mapping“, Target calculation: 45 min = (8 hs x 60 min – 30 min) / 10 trucks

A simple standard or hypothesis is defined in order to run first trial of new “1x1 unloading and storing“ process

1st Hypothesis:

"If sufficient forklift operators focus on just one truck and directly store every single container, unloading and storing the whole truckload should be possible in 45 minutes“

Layout of 1st experiment:

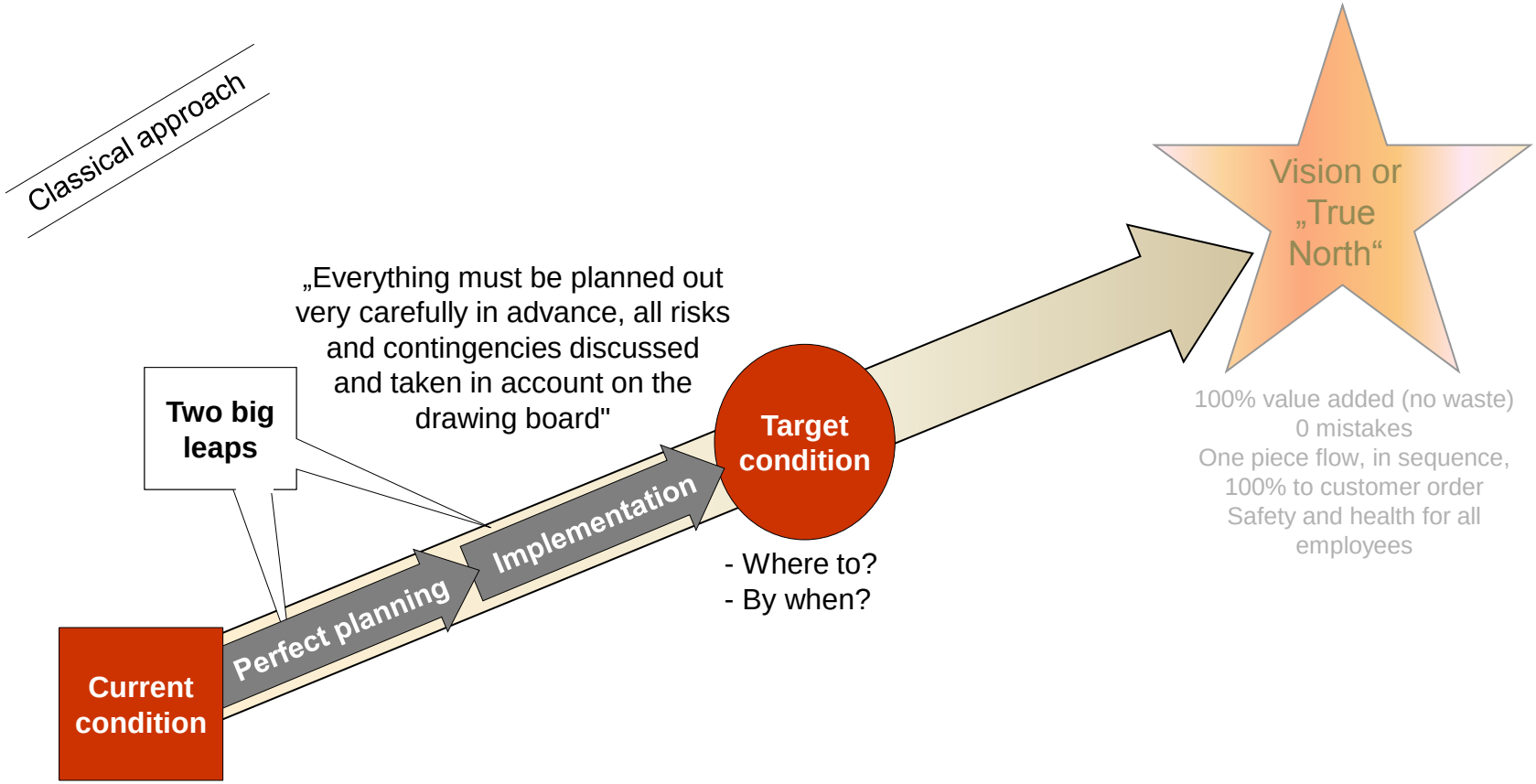


1st Experiment

Logistics workshop – 1st experiment – Observation sheet

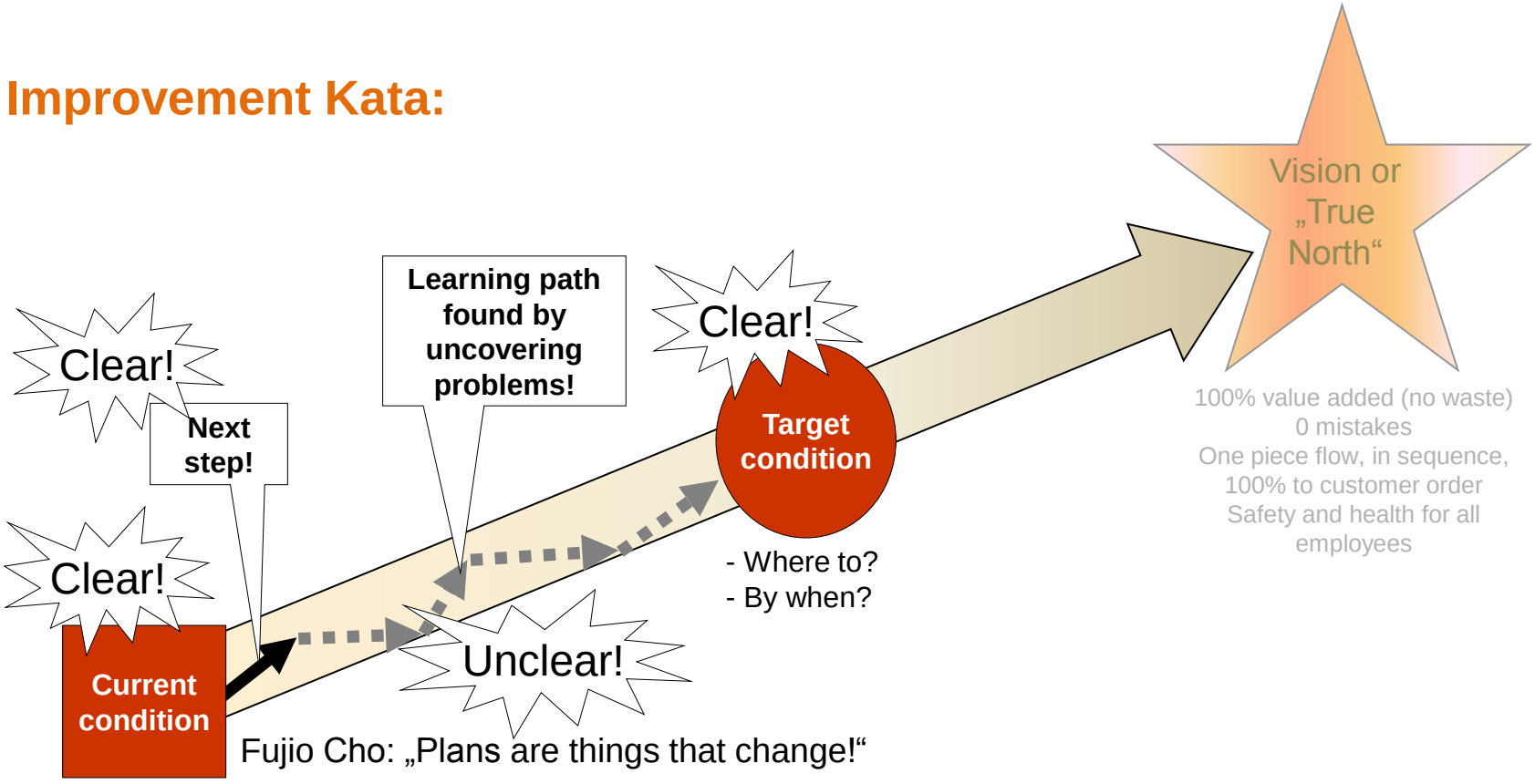
Note problems and deviations from the standard:

With our current management system, we are often expected to reach our goals in just two major leaps...



…Toyota's approach to scientific work and learning with the Improvement-Kata requires a paradigm shift!

The Improvement Kata:

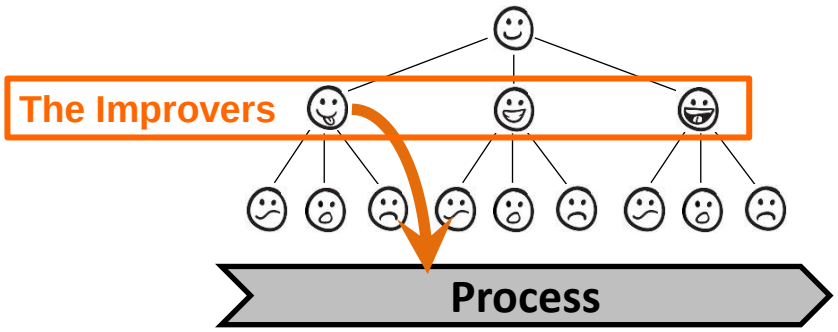


Why do we need an Improvement Kata?

What might be the role of managers in this?

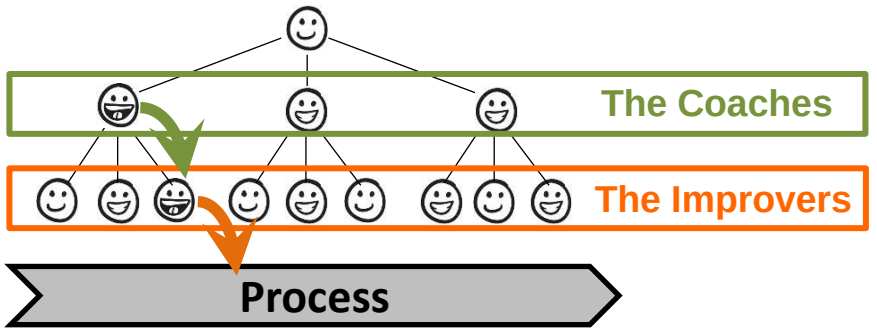
“Most automotive manufacturers build good cars. We build good people who build good cars” - Toyota

Optimisation by ‘experts’ in periodic workshops



Improvement capacity and innovation remain unharnessed and are kept small.

Optimisation by everybody everyday!

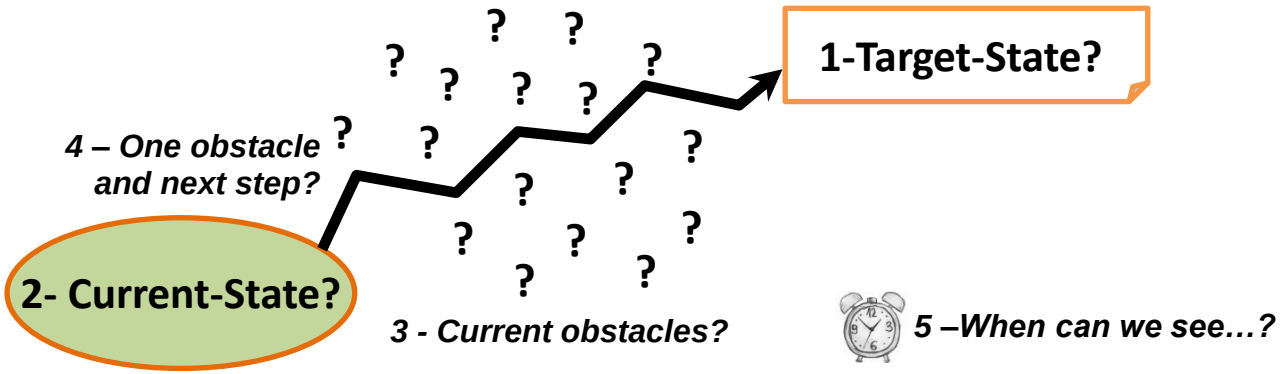


Improvement capacity and innovation are fully harnessed and get expanded continually.

This implies a dramatical change in the role of managers!

Each Mentee requires a good Kata Coach to learn to apply the Kata in a natural way

From the improvement kata...



... result the Coaching Kata's 5 questions:

1- What is the *target condition* for this process?

2- What is the *current condition* of this process?

3- What *obstacles* are currently preventing you from achieving the target condition?

4- Which *one obstacle* will you tackle next and what is therefore your *next step*?

5- When will we be able to see what you have *learned* from the next step?

The typical coaching situation we want to role play

Example

① Employee in process

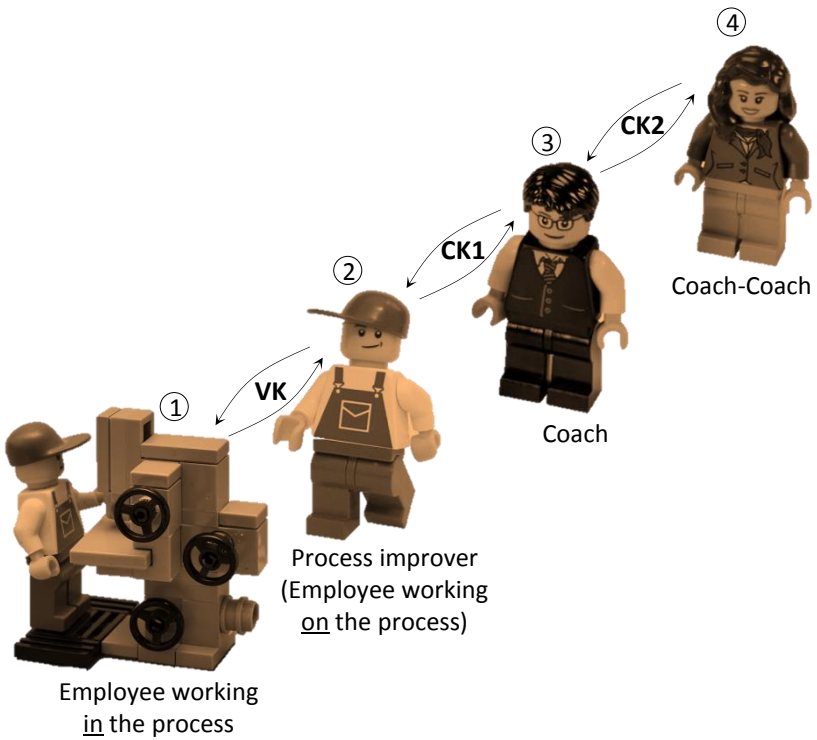
Table with form 4-6

② Mentee

③ Coach

④ Coach-Coach

Coaching cascade consists of 4 roles with clearly defined targets, tasks and responsibilities



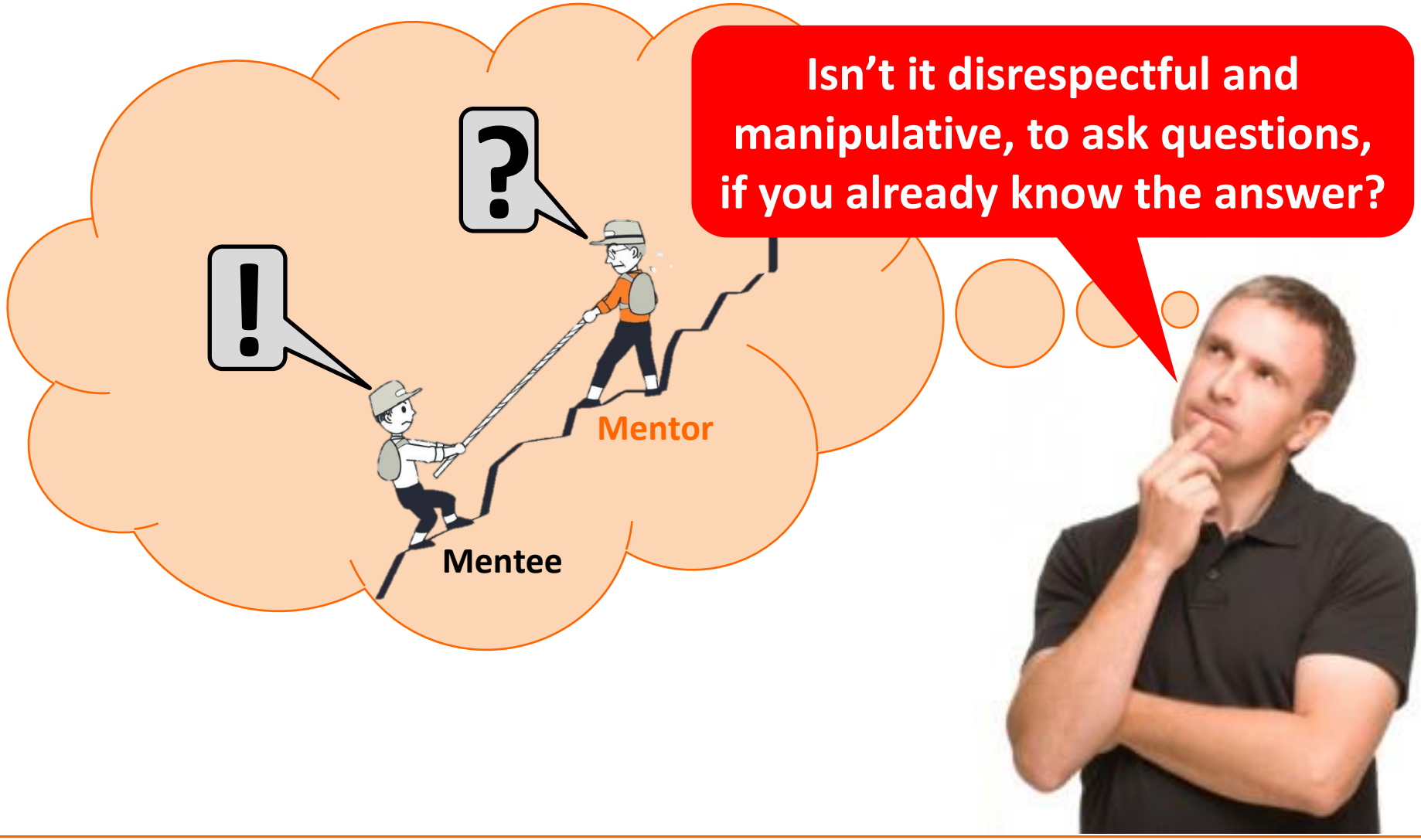
① **Employee in the process:** ***Am I able to work according to standard?***
Works cyclically, according to standard. His task is it to try to achieve the required performance in a given time and quality. As he is working productively, he has no time left for improvement. Nevertheless he is responsible for signaling problems immediately, and relay them to the process-improver as detailed as possible.

② **Process-Improver:** ***Is the (production-)process running according to plan?***
(often „Hancho", „Mentee" or „process owner ") Observes the process and is looking for deviations from the standard. Reacts to disturbances and fault reports coming out of the process. Develops process and standard according to the Improvement- Kata and performs experiments according to PDCA. Finds and produces solutions in dialogue with the employee and the coach

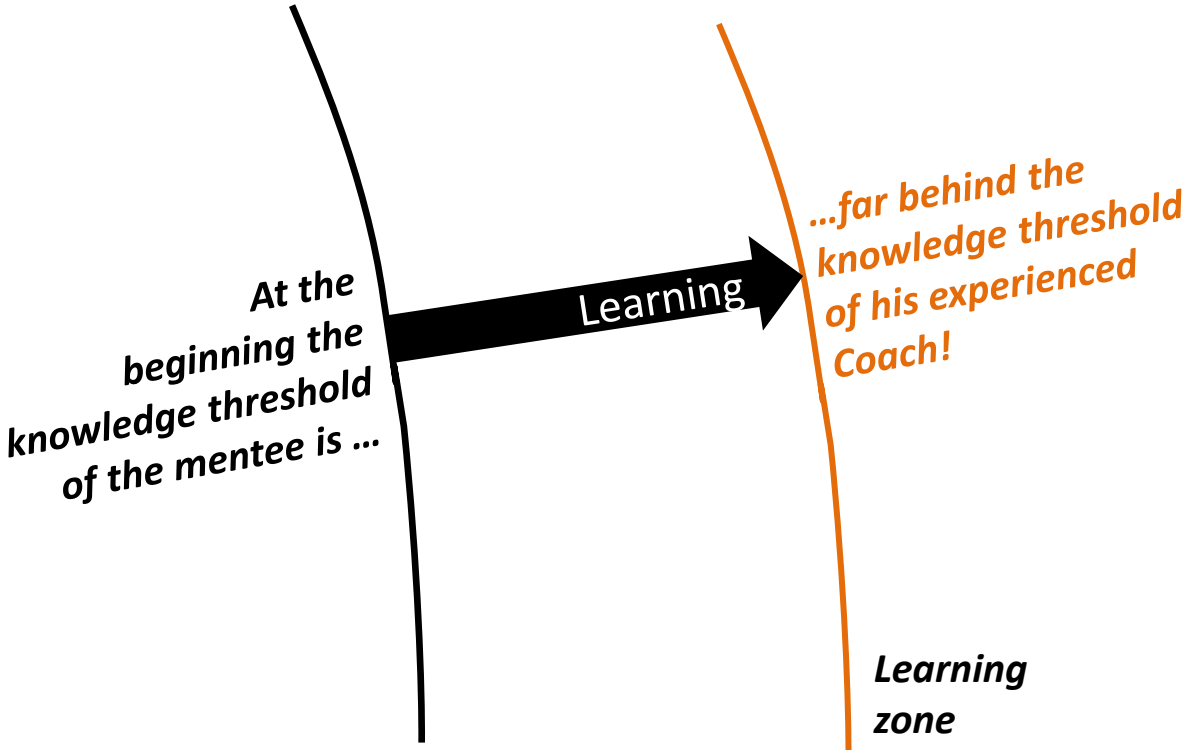
③ **Coach:** ***Is the improvement process running according to plan?***
(often „Master" or „Mentor ")
Ensures that the Mentee is working scientifically and experientially according to the Improvement-Kata, maintaining and practicing the routine. The development of the Mentee, and not the development of the process is his main focus. He regularly asks the 5 questions of the Coaching-Kata. He does not deliver nor suggest any solutions. He is responsible for setting targets and ensuring that they can be reached.

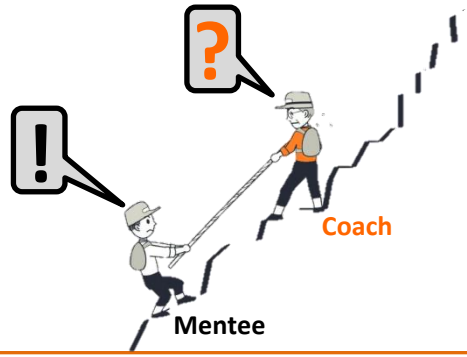
④ **Coach-Coach:** ***Is the coaching process running according to plan?***
Ensures that the Coachings are taking place regularly, structured and target oriented – according to Coaching – Kata. Makes sure that conditions – time, organization structure, etc.- enables that.

Why would the coach ask questions if he knew more than his mentee? Are these just rhetorical questions?

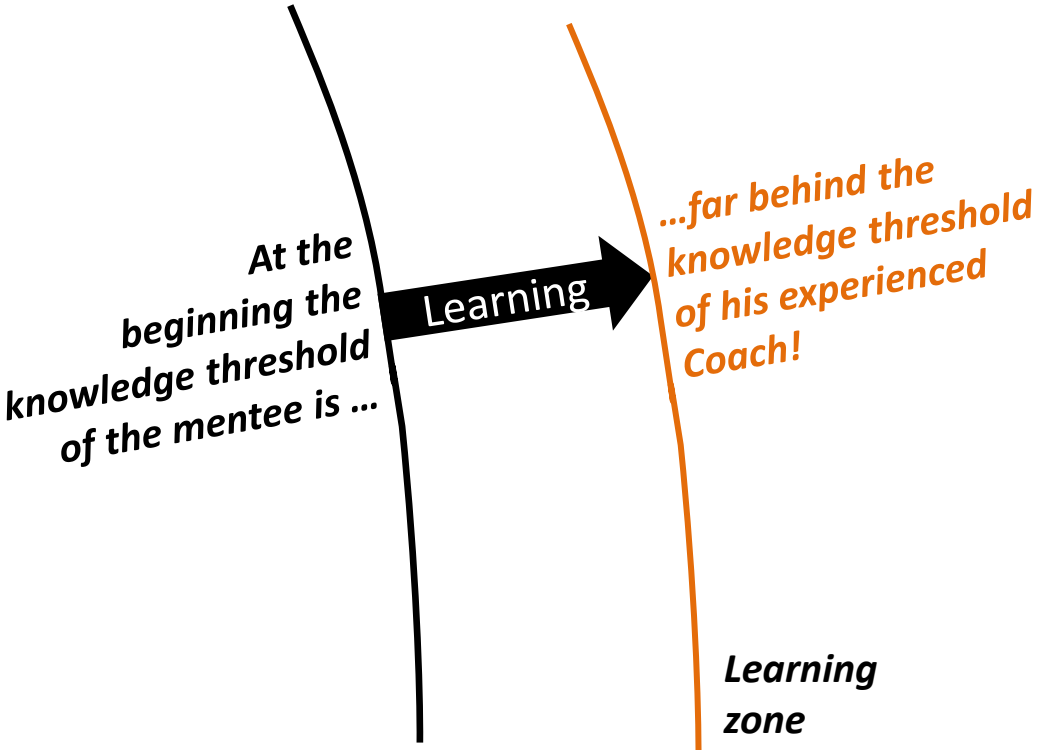


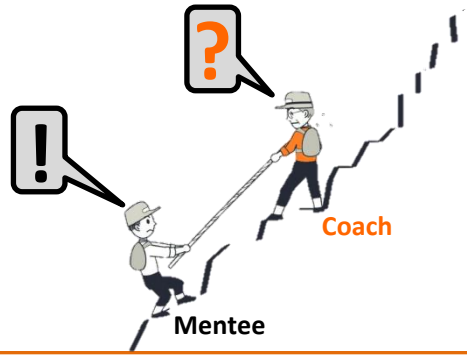
At the beginning, the mentee must catch up with his coach by learning the improvement kata from him...





…which requires some time because he must learn content and the Kata at the same time!





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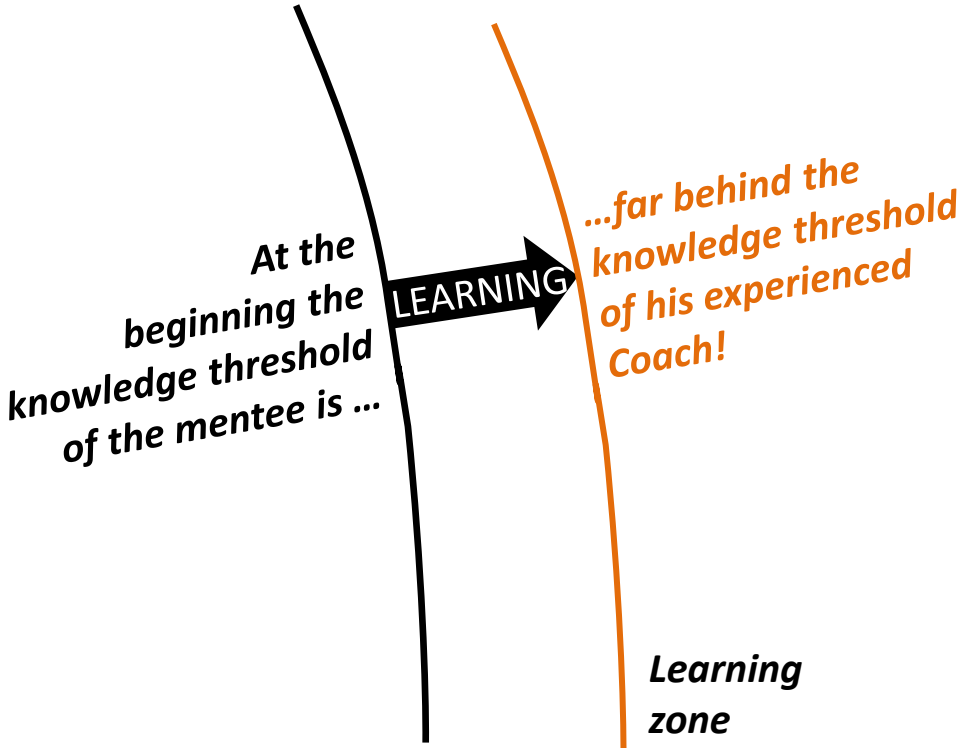
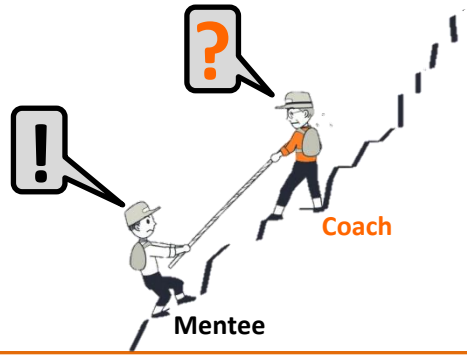
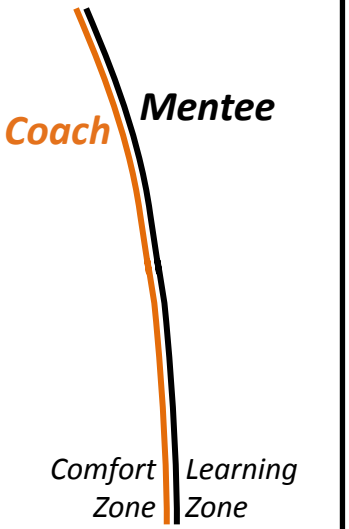




It´s only when the mentee´s knowledge surpasses his coach´s knowledge, that coaching starts to make sense!

It's through coaching that both knowledge thresholds are aligned, since the mentee should always cross them first

1- Both knowledge thresholds largely aligned



2- The one obstacle is identified, the next learning step is defined

3- The mentee conducts experiment and learns without his coach

4- After conducting experiment, the mentee is one learning step ahead of his coach

5- The coach catches up by asking questions, both knowledge thresholds are aligned again

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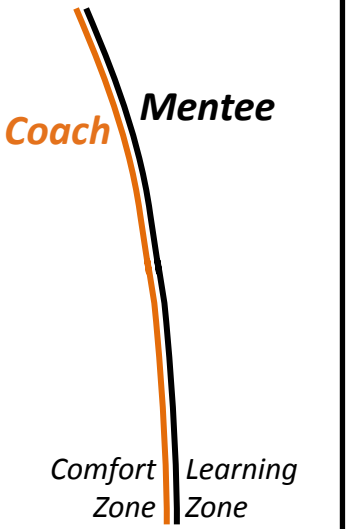

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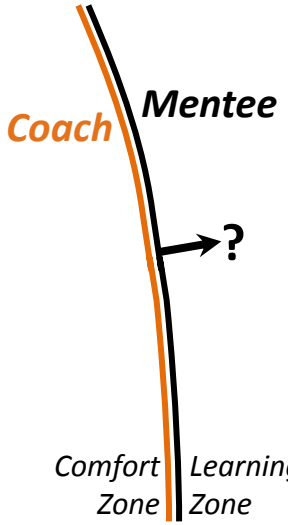

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Once mentee and coach have formulated their hypothesis together, it is important that the mentee performs his experiment alone!

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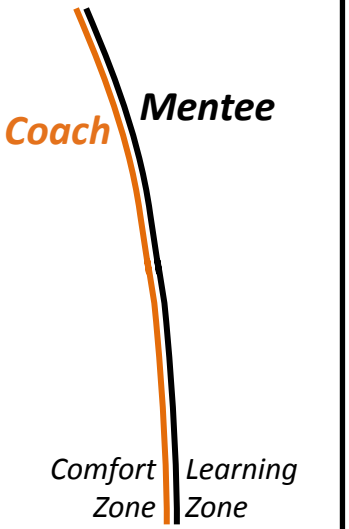

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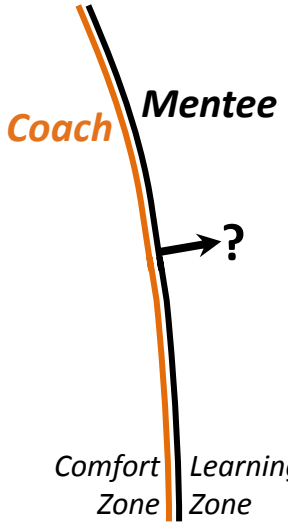

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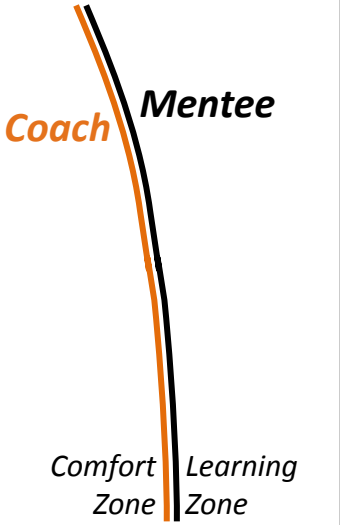

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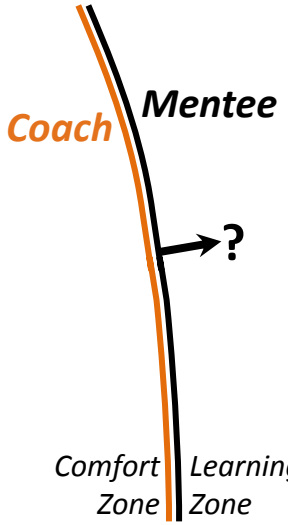

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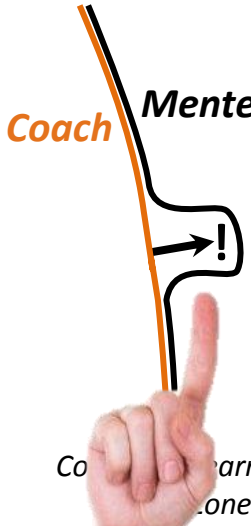

And now the coach really is curious to learn what his mentee just found out!

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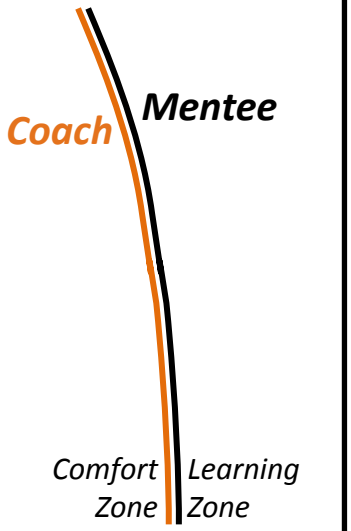

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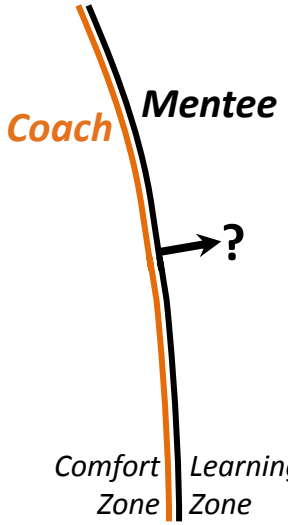

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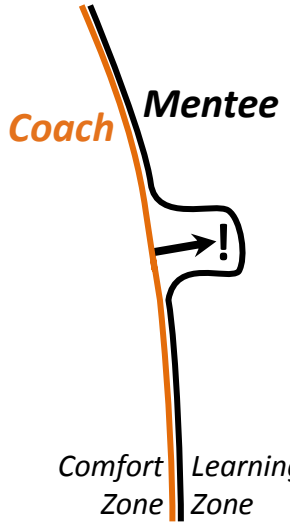

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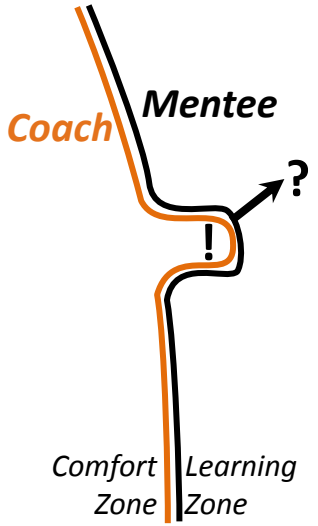

Coaching examples

Applying the *Coaching Kata* in different companies

Example 1.1: JIT-production of textile composite roll

Coach: What is the target condition of your process?

Mentee: Zero stock of finished goods in our finished goods warehouse. In order to be able to load the rolls onto the trailer right after production, we need zero barred rolls after the laminating machine.

Coach : What is the current condition of your process?

Mentee : About 12 barred rolls per week, mostly due to discrepancies of the rolls' diameters from spec.

Coach : What was your last step and what did you learn out of it?

Mentee : We had different people measure the diameter of the same rolls at the laminating machine and later before the packaging of the rolls, and came to the conclusion, that the diameters vary $\pm$ 2 cm over time. This causes us to be out of spec sometimes.

Coach : What keeps you currently from reaching your target condition?

Mentee : At the laminating machine, we cannot exactly say if we can continuously keep in the range of the specified tolerances.

Coach : What exactly is the problem?

Mentee : We don't really know if the rolls are deformed by horizontal storage , which in turn makes an accurate measurement impossible.

Coach : Which obstacle would you like to tackle next and what would therefore be your next step?

Mentee : We would like to better understand the deformation via horizontal storage, therefore we will measure the diameter at multiple roll positions, so that we can determine the deformation over time.

Coach : When can we go and see what you have learned out of this step?

Mentee : In about 5 hours.

Coach : Good. I'll be back at 3p.m. Thank you!

Example 2.1: Optimizing assembly cell machines

Coach: What is the target condition of your process?
Mentee: Our target condition is to assemble an appliance every 10.8 seconds with one operator.

Coach : What is the current condition of your process?
Mentee : Currently an appliance is finished every 16.6 seconds.

Coach : What obstacles do currently keep you from reaching your target condition?
Mentee : The biggest obstacle is the material change-over, which can lead to a cycle time of up to 24 seconds.

Coach : What should rightly happen?
Mentee : Material change-over shouldn‘t cause fluctuations in cycle time above 10.8 seconds. For this to happen, the material handler shouldn't have to get in the way of the operator. I thought about refilling material from behind.

Coach : What would therefore be your next step?
Mentee : I would like to modify and arrange the containers in a fashion that allows for refilling from the rear side.

Coach : How exactly would you like to modify the container?
Mentee : I‘d like to cut out the rear of the container so that one can reach in from behind.

Coach : When can we go and see what you have learned out of this step?
Mentee : In 1 hour.

Coach : Good, I‘ll be back in an hour. Thank you very much!

Example 2.2: Optimizing assembly cell machines

Coach: What is the target condition of your process?
Mentee: Our target condition is to assemble an appliance every 10.8 seconds, material handling shouldn't cause any disruptions.

Coach : What is the current condition of your process?
Mentee : Currently an appliance is assembled every 16.6 seconds.

Coach : What was your last step and what did you learn out of it?
Mentee : I have cut out the rear of the container, so that logistics can refill them from behind.
In testing the refill process, I have noticed that the lids are falling off the other side.

Coach : What exactly is the problem?
Mentee : The material should be poured in from behind, but it has no hold.

Coach : What would therefore be your next step?
Mentee : I'd like to modify the container by adding a transparent cover so that the lids won't fall off, but will still be easily extractable from below.

Coach : How exactly would you like to modify the container?
Mentee : Here is a container which I have modified provisionally. I'd like to test if this cover helps to solve the problem.

Coach : When can go and see what you have learned out of the next step?
Mentee : In 1 hour.

Coach : Good, I'll be back in an hour. Thank you very much!

Example 2.3: Optimizing assembly cell machines

Coach: What is the target condition of your process?
Mentee: The target state is to assemble an appliance every 10.8 seconds, material handling shouldn't cause any disruptions.

Coach : What is the current condition of your process?
Mentee : Currently an appliance is finished every 16.8 seconds. Logistics is disrupting assembly.

Coach : What was your last step and what did you learn out of it?
Mentee : I have added a transparent cover to the container, so that the lids won't fall out of the rear. In having done so I have noticed, that during refilling the second container has to be lifted too high. This is an unreasonable strain on the material handler.

Coach : How high should we allow the container to be lift at most?
Mentee : In order for the material handler to be able to do this all day long, the rear edge shouldn't be higher than 1.3 meters high. The front height should fit the assembly worker's workplace.

Coach : What would be the right height for the assembly worker to pick the lids?
Mentee : For that I'd like to better understand the process.

Coach : What would therefore be your next step?
Mentee: I would like to make an experiment to determine the right height.

Coach : How exactly would you like to perform the experiment for determining the right height?
Mentee: I'd like to create a prototype of a fixture out of cardboard and test it.

Coach : When can we go and see what you have learned from the next step?
Mentee : In 1 hour.

Coach : Good, I'll be back again in an hour. Thank you very much!